SUMMARY AND CONCLUSIONS

The waves of financial liberalisation and globalisation since the middle of the 1980s and the subsequent deregulation of financial markets in most of the developing economies had facilitated massive international capital flows. Total foreign direct investment (FDI) inflows, which is the main component of foreign investment, to the world economy were of the tune of $1600 billion in the year 1999-2000 that rose to $2100 billion in 2007-08 (UNCTAD, 2010). To quote World Investment Report 2014, “It further rose by 9 per cent in 2013 to $1.45 trillion, up from $1.33 trillion in 2012, despite some volatility in international investments caused by the shift in market expectations due to lack of confidence in investors after 2008 U.S financial meltdown”. FDI inflows have increased in all the economies including developed, developing, and there in transition. In the words of Anderson and Moreno (2005) “In response to the removal of capital controls, financial innovation and technological progress, financial integration has substantially spread to emerging market countries”. “Although, the share of developed economies in total global FDI flows remained low, but it is expected to rise over the next three years to 52 per cent” (UNCTAD, 2014).

Frequent and progressive integration of financial systems of individual countries with the global financial system has been moving quite rapidly particularly since the last quarter of the previous century. “Financial markets all over the world have witnessed growing integration within as well as across the boundaries, spurred by deregulation, globalisation and advances in information technology” (Report on Currency and Finance, 2005-06). Last decade has witnessed a shift in the liberalisation policies of the financial world of almost all the countries, due to which cross country capital inflows have increased with much higher pace. It is indicative of financial openness among the countries in the world economy which induces the researchers and policy makers to explore the tendencies of integration among nations’ financial markets. However, with the greater degree of international financial integration, the vulnerability of the international financial system has also increased which has been demonstrated by recent global financial crisis which has had its origin in the United States.
NEED OF THE STUDY

It has been argued by many researchers and economists that increased integration with global financial markets has been a key factor to be considered by the policymakers, because it helps in improving the quality of macroeconomic management. There are several reasons why policymakers and financial economists give attention to international financial integration. The most important one is that the macroeconomic policy decisions depend essentially on the openness of the country’s financial system. The more mobile capital leads to more portfolio shifts. Consequently, it becomes difficult for a country to set its interest rates in money as well as capital market independently of the interest rate policies in the rest of the world.

The degree of financial openness or financial integration is an empirical question which needs to be answered for the policymakers who are to know the structure of their economies and implement various policies that will be helpful in achieving their goals. A lot of empirical work has been seen in the literature on market linkages or inter-relationships, markets integration, and spillovers from one market to another. Most of this field has focused on OECD and European countries. What literature lacks are the studies on global financial integration with focus on the Indian market vis-à-vis world markets. Having reviewed existing literature on global financial integration, it has been found that there is no comprehensive study available which has investigated the degree and extent of integration of Indian financial system with the rest of the world. Available studies have concentrated on particular financial markets, either stock or bond or money market and the like. So, need was felt to measure financial integration of Indian economy with world financial system and to study the impact of this integration on economic growth of the country. This academic exercise serves to fill research gap and to contribute to this area by examining returns transmission, interest rate co-movement and volatility spillovers between the Indian financial markets and the major markets of the world. Moreover, it is worth examining as with which country (ies), India is financially more integrated.

The speeds at which negative market sentiments move across the borders have strengthen the financial contagion and the policy makers of various countries
need to address this contagion. Therefore, the study is intended to understand financial linkages across markets during crisis of 2008.

OBJECTIVES OF THE STUDY

In the above mentioned context, the specific objectives of the study are:

- To examine how far the Indian economy is financially integrated with international markets.
- To work out with which country India is financially more integrated in the global market.
- To explore the level of integration of both capital and money market separately with world market.
- To examine the contagion impact of financial crises on India and on global integration of its financial system.
- To investigate the impact of global financial integration of India on the economic growth of the country and to know whether structural reforms in during 1991 has strengthened the relationship (if exists) of two or not.

DATABASE AND METHODOLOGY

The nature of study is such that it required secondary data regarding a number of variables representing financial and macroeconomic indicators of the Indian economy as well as international economies. For fulfilling the objectives of the study, various data sources have been approached such as Yahoofinance.com for stock prices of Indian and other national stock markets; Dataset constructed by Lane and Milesi-Ferretti (2012) for formulating index proxy for international financial integration; “World Development Indicators” by World Bank; “Handbook of Statistics on Indian Economy” by “Reserve Bank of India”; and “International Financial Statistics” by International Monetary Fund (IMF). Apart from these various other publications of Reserve Bank of India like Annual Reports, Report on Currency and Finance, RBI Bulletins; World Bank publication like Global Development Finance; Handbook of Statistics on Indian Securities Market and Annual Reports published by Security and Exchange Board of India (SEBI); and World Investment Reports by “United Nations Council of Trade And Development” (UNCTAD) etc have been used.
The time series data for the required indicators have been used to construct a number of variables used in the study such as Stock Returns, 3-Months Treasury Bill Rate, International Financial Integration Index, Gross Domestic Product (Growth Rate), Financial Development Index (IFD).

Analysis has been performed by applying various econometrics models of time series such as Univariate E-GARCH model given by Nelson (1991) and Bivariate E-GARCH model to measure return and volatility spillover, Engle Granger (1987) single Equation Approach, Multivariate Johansen (1990) Approach, Vector Error Correction Model (VECM), VAR based Impulse Response Function and Variance Decomposition Analysis and Obsborne Procedure to check seasonality. The statistical tools and methods such as Mean, Standard Deviation, Correlation analysis, Skewness, Kurtosis and Principal Component Analysis have also been used.

Apart from above econometric and statistical techniques, the diagnostic tests such as Durbin Watson d-statistics, LM test, and Ljung and Box (Q_{LB}) test for autocorrelation and serial correlation; Jarque-Bera (J-B) test for examining normality; white test to detect Heteroskedasticity; and LM test for checking ARCH effect have been applied.

**PLAN OF THE STUDY**

To accomplish the objectives, the study has been divided into nine chapters. First two chapters, besides introducing the issue provide background information along with motivation for the study and raise possible research questions. Chapter 3 presents a detailed review of literature followed by discussion of various measurement methods and techniques in Chapter 4. Fifth chapter describes the database and research methodology used in the present study. Chapter 6 studies the global integration of Indian capital market (equity market) with G20 countries with the help of return and volatility spillover effect. Using Bivariate GARCH models integration of Indian market with rest of the markets has been checked one by one.

Integration of Indian money market with the global market has been estimated with the help of cointegration analysis and Error correction model in Chapter 7. Chapter 8 deals with the estimation of impact of global integration of Indian financial system on macroeconomic growth of the country and the influence
of structural reforms in early nineties in the relation of two has been checked. Both
direct as well as indirect (through financial development) effects of global financial
integration on economic growth of India have been investigated with the help of
cointegration and vector error correction model. The last chapter presents summary
and brings out implications of the study.

MAIN FINDINGS OF THE STUDY

Advocating the efficient functioning of financial markets and institutions is
the major goal of many of the developing countries. A strand of literature in
financial economics stresses upon the need of development of financial system for
growth enhancement. One way to achieve higher level of development in the
financial system is to enhance efficiency of financial markets and institutions
domestically and another one is development of domestic financial system through
its interlinkages with other national markets i.e. global integration of the domestic
financial system. In the words of park (1999), the process of financial development
has two dimensions: (i) domestic financial deepening and (ii) international financial
integration. “There is wide spread view that increased international financial
integration (whether in the form of capital account liberalization or with increase in
capital inflows and outflows) has improved quality of domestic financial institutions
and has helped increased economic growth and reduced volatility”(Anderson and
Moreno, 2005).

As vast literature exists on the measurement of international financial
integration, the question arises why this measurement is crucial for the economies?
The answer is: countries opening their capital accounts to the world financial
markets would always be keen to know the optimum level of openness in the world
financial market so as to achieve a balance between benefits and costs of
International financial integration. Therefore, measurement of it becomes imperative
to know the optimum level of openness so as to reap the full advantages of
international financial integration keeping in mind the caveats of danger of
inefficiency and contagion impact. In other words, welfare implications of financial
openness of a country to the world capital market have become an empirical
question and answering this question is virtually the measurement of financial
integration.
A voluminous amount of work has been done to empirically check the linkages of international financial markets. “Much of the international finance literature has employed a capital asset pricing model (CAPM) in testing for financial market integration” (Fratzscher, 2001). The basic intuition of the CAPM is that “expected local returns in a fully integrated market depend only on non-diversifiable international factors”. With increasing cross-border relationships and global financial integration, changes in one market lead to spillovers in others, both in terms of returns as well as their volatility. Therefore, while considering the returns of Indian and that of various other stock markets, an attempt has been made (in Chapter 6) to find spillover effects in both returns and volatility from global markets to India and vice versa, with the help of EGARCH model developed by Nelson (1991).

To represent the global market, group of G-20 countries has been selected. The stock markets investigated under study are those of India and 16 other G20 countries. The data covers the weekly closing (Friday to Friday) stock prices from July 1, 1997 to June 2, 2014. Wide ranges of descriptive statistics for weekly returns of stock prices of domestic as well as foreign markets have been analysed. The average weekly returns range from -0.0005 (lowest) to 0.0025 (highest) which is approximately equal to zero that goes well with the theory that market returns in the presence of large number of rational profit maximizers should be equally distributed among buyers and sellers (see Tsay (2005), pp.14-17). However, except for Argentina, Italy, Japan and U.K, mean returns are positive for all other series, and Mexico has the highest mean return of 0.0025 over the whole sample. But, highest (0.0891) volatility is observed for Argentina followed by Russia (0.06), while Australia has been found with minimum volatility.

Further, the presence of skewness provides the evidence of the nature of departure from normality. Negatively skewed sample moments for all return series depicts that abnormally low return days occurred more frequently than abnormally high return days. But it is quite likely that the skewness is biased by the presence of kurtosis in the sample period. If the kurtosis exceeds 3, the distribution is said to be leptokurtic relative to the normal (in considered sample, it is greater than 3 for all

---

1 Three (Soudi Arabia, South Africa and Turkey) out of 20 countries are not included in the sample due to non availability of data.
series). All the return series have distributions with positive excess kurtosis and are having heavy tails. This implies that the distribution of stock returns in these countries tend to contain extreme values. High values of kurtosis indicate that more observations are outside the conventional standard deviation range from mean (Rui, 1997). Therefore, estimates of standard deviation are of little value, as the distributions of all return series have high kurtosis.

Jarque-Bera is a test statistic for testing whether the series is normally distributed. According to test results, normality is rejected for all the return series showing the tendency towards non-normal distribution. Besides basic descriptive statistics, the values of Q-statistics for Ljung and Box (1979) test for all return series are given. The Q-statistic at lag $m$ is a test statistic for the null hypothesis that there is no autocorrelation up to order $m$. For lags of order (4), (8) and (12) the values of Q-statistics are reported along with respective p-values. Except few, in almost all the series, uptill lag order (12), null hypothesis of zero correlation is rejected. That means, all the return series are suffering from the problem of autocorrelation.

After knowing the presence of non-normality and autocorrelation in the considered return series, it becomes imperative to know the conditional volatility in the series. ARCH (Autoregressive Conditional Heteroskedasticity) effect in the series has been checked with the help of Q-statistic for squared returns. The ARCH test (checked uptill order 12) reveals that all the returns exhibit conditional heteroskedasticity. Thus, the presence of linear as well as substantial nonlinear dependencies is confirmed. The non-linear dependencies in data may be due to volatility clustering. Therefore, the univariate GARCH (Generalised Autoregressive conditional heteroskedasticity) model has been developed which adequately address this. GARCH models are capable of dealing with data preserving all the above features (Li and Glies (2007)). Moreover, both Augmented Dickey Fuller and Philip-Perron tests have been utilized to discern whether stock-return series of all countries are stationary, or unit root is present in the series.

Volatility is associated with unpredictability, uncertainty and has implications for risks taken by investors. Generally, volatility is seen as a symptom of market disturbances whereby prices of the securities move in an unfair manner and the capital market does not function well as it should. The traditional measure of volatility as represented by variance or standard deviation is unconditional and does not capture patterns in volatility of returns, e.g., time varying and clustering
properties. Estimation of volatility in returns and its co-movements in India with that of other G20 countries has been made using (i) univariate GARCH model and (ii) bivariate GARCH model with asymmetric extensions. The basic univariate E-GARCH model is augmented with the dummy variable, capturing the impact of 2008 U.S subprime mortgage crisis, which takes value 0 till October 6, 2008 and 1 thereafter. Given by estimates of mean equation, it is clear that, except India, Russia, U.K and U.S, returns of the previous periods are not making significant impact on the present period. It may imply that returns of all those markets are more influenced by other markets’ returns. Dummy variable is insignificant for the return series of all the countries except U.K and U.S. It suggests that mean returns of only these countries were affected by subprime crisis which had roots in U.S only. However, significant coefficients for dummy in variance equation in case of India, Argentina, Brazil, Canada, China, Indonesia, Mexico, Russia, South Korea, and U.K signify that volatility in the stock markets of these economies was affected by the crisis in 2008. But, in U.S itself this break has shown insignificant effect. It may be because of the reason that markets of U.S were already experiencing high volatility due to early observation of investors about financial crunch in the economy. But, after the mid September 2008, worldwide markets could have borne the brunt of these crises including India. Moreover, the estimates of variance equation shows that coefficients of ARCH, GARCH and Leverage for all the countries are significant. It suggests that there is (i) significant effect of news about volatility from the previous period on current period volatility; (ii) presence of property of volatility clustering, and (iii) bad news which has a bigger impact on volatility than the good news of the same magnitude (depicted by negative significant coefficient in case of all the series). All these results clearly indicate the presence of conditional volatility in the concerned return series. Therefore, series of weekly conditional volatility for all the return series have been computed from univariate models which further have been used in Bivariate models of volatility spillover.

In bivariate analysis, where simple correlation analysis ascertains that India has highest correlated returns with European Union followed by Germany, Canada, Italy, France and Mexico, the bivaritare E-GARCH model presents a different picture. The results reveal that mean returns of India are affected by mean returns in all the foreign markets (except Argentina and South Korea). Thus, the results suggest that there is mean spillover effect from foreign markets to Indian capital
market. Moreover, variance in returns of all the markets (except Indonesia, Italy and U.K) is making significant impact on mean returns of domestic market. Thus, volatility persistent\(^2\) in other markets has had impact on the Indian stock market returns. This transmission process clearly depicts that India is financially integrated with foreign markets.

As far as variance in the domestic market returns (in variance equation) is concerned, the impact of return volatility on it is significant from all countries except Brazil and European countries (E.U., France, Germany, Italy and U.K). The magnitude of volatility spillover varies from 142.09 (for Australia) to 3.4757 (for Argentina). This implies that Australian capital market is highly integrated with Indian market. The coefficient for cross volatility persistence is 78.2965 for Japan, followed by 76.1899 in case of U.S, and 42.5040 in case of Canada, thereby suggesting that Indian financial sector is integrated with global financial system where Australia, Japan, U.S and Canada are the most influential markets. Thus, it argues well with the theory that dominant markets are likely to exert greater influence on the relatively smaller markets. The negative and significant (except for Argentina and South Korea) coefficients of dummy variable signifies that crisis in 2008 had contagion impact on the relationship of India with all the countries included in the sample.

How much and up to what extent Indian market has had influence upon other national markets has also been analysed with different models. It has been found that returns in all foreign markets (except Argentine, China, Indonesia and South Korea) respond to return in Indian market. As far as volatility transmission is concerned, foreign markets’ returns are not getting affected by volatility in Indian market that conveys the unidirectional relation in this case. The only significant case is that of Argentina which too have negative (-6.8802) coefficient. That means, volatile Indian returns affect stock returns in Argentina negatively.

But, the estimates of volatility spillover model have shown different trends. The coefficient of volatility spillover from India to other national markets has been found significant in case of all except U.S., Brazil, France, China and Italy. It clearly

---

\(^2\) Volatility persistent means presence of all properties of volatility given by significant coefficients in univariate analysis.
depicts that countries like France, Brazil, Italy has no such relation in any way. Moreover, this coefficient is highest in case of Indonesia (82.9787), followed by Canada (77.8702), Japan (75.9510), and then Australia (73.57). The least value assumed by this parameter is for E.U, i.e. 20.6938. However, Value of this parameter in all the cases is non-negative.

The whole discussion can be concluded with the observation that Australia, Canada, U.S, Japan and Indonesia are more integrated with India if volatility spillover is taken as a mechanism to measure financial integration. All these are having bi-directional relation with Indian capital market except U.S (unidirectional in this case). That is, the return volatility in Indian market has no influence on U.S stock market but, U.S market is influencing India through both mean returns and volatility. Other markets having bidirectional relation with India are Mexico, Russia and South Korea. Dummy variable for 2008 U.S financial meltdown in bivariate models has been found significant for the countries like Australia, Argentina, Brazil, China, Indonesia, Russia, South Korea and U.K which suggests the contagion impact on the relationship with these countries.

The other dynamics of this relationship have been found with the help of variance decomposition analysis and impulse response function. It has been found that major proportion of variations (93.91%) in domestic market, in the first week is explained by innovations in domestic market only. Brazilian market is explaining Indian market maximum in first week i.e. 2.39%. However, Brazil has no relation in long run with Indian stock returns, as has been found by the bivariate volatility spillover model. The other market explaining Indian market is Australia which accounts for 13.12% on second week, 12.11% and 12.04% on fifth and tenth week respectively. Argentina, Canada, E.U and German, Japan, U.K, China and Argentina are the markets explained by innovations in Indian market. The impulse response function has been used to find responses of different markets to the shock given in the Indian market and vice versa. The normalized impulse responses of Indian market to the shocks given to all other markets are found to persist till 5-6 weeks. After that, these are almost negligible. The responses of all the foreign markets die out after fifth week, to the shock given to Indian stock returns. The overall empirical results of both variance decomposition analysis and impulse

---

3 France, Brazil and Italy are the countries for which this coefficient is insignificant in previous volatility spillover model.
response function exhibit that capital market in India is neither independent one nor it is exogenous in the international financial system in the short period too.

Seventh Chapter investigates the integration of Indian money market with global money market. “In international macroeconomics, many studies have used interest rate parity conditions to test for financial integration of money markets” (Fratzscher, 2001). Jain and Bhanumurthy (2005) suggested that “Typically, interest rate parity conditions are used to measure convergence of rates of return over a set of international traded assets of similar maturity”. According to Makin (1994), “in particular, if interest rates and exchange rates are non-stationary processes (having unit root) then it would be interesting to see whether domestic and foreign interest rates have long-run co-movements. This would prove that both variables are co-integrated”. Bhatt and Virmai (2005) are also of the view that “one of the key implications of international financial integration is the degree of movement/co-movement of interest rates in countries over time and their comparison in terms of convergence or having a common trend”. Therefore, while considering short term interest rates from the Indian market (money market), an attempt in this chapter has been made to find long run co-integrating relationship (if exists) between domestic and foreign interest rates with the help of co-integration analysis and error correction model. For the purpose, three global markets have been considered representing the whole world i.e. United States, Europe and Asia as foreign markets. The United States, Europe and Asia are three major financial centers around the globe (Dimpfl and Jung 2011). Three- Months Treasury bill rates have been used to represent money markets of these countries.

Graphical representation shows more or less relation of Indian Treasury bill rates with foreign markets’ rates, but does not clearly depict it. Therefore, first, with the help of Johansen co-integration analysis, an attempt has been made to find any long run relation between domestic and foreign markets. But there is evidence of no such relation among all these markets representing lack of co-movement of domestic and foreign market. Then, in a subsequent attempt, relation between Indian money market with individual foreign market has been studied one by one, with the help of Engle-Granger two variable approach and error correction model. In all the three co-integrating regressions, significant relation between domestic and foreign markets has been found with highest coefficient for Japanese market. That means, India is
financially integrated with global markets. Dummy variable taken for break in the data has been found positive significant, thereby suggesting positive impact of break on long run relation. Further, from residuals of co-integrating regressions, error correction terms have been generated and all are found negative and significant, thus suggesting presence of adjustment in the system in all cases to achieve long run equilibrium. As far as short run relationship is concerned, there is absence of such relation of Indian money market with European and the U.S money markets. The Japanese money market however, is found related with India, which shows the prominence of regional financial integration. Overall speaking, the study presents evidence in favour of increasing degree of financial integration over time in the form of existence of a common stochastic trend between the domestic and individual foreign market rates.

In the last empirical chapter (Chapter 8), the impact of global integration of Indian financial system on the growth of the economy has been investigated. In this chapter, the relationship of international financial integration with economic growth in the light of domestic financial development in India has been analysed. That is, whether the international financial integration by improving domestic financial markets helps in boosting growth of the economy! Apart from direct impact of international financial integration, indirect impact (via financial development) on the economic growth of India has also been studied empirically. Moreover, the influence of structural reforms in India in early nineties, on the above said relationship (if exists) has been examined with the help of dummy variable.

Following Lane and Milesi-Ferretti (2003), in order to measure international financial integration, de facto (volume based) indicators have been chosen over de jure. The following index as proxy for international financial integration has been constructed using data set constructed by Lane and Milesi-Ferretti (2012).

\[
\text{IFI}_t = \frac{(\text{PA}_t + \text{FDIA}_t + \text{PL}_t + \text{FDIL}_t)}{\text{GDP}_t}
\]

Where \(\text{IFI}_t\) is an index, a proxy for international financial integration at time \(t\) and \(\text{PA}_t\) and \(\text{PL}_t\) are portfolio assets and liabilities of the country respectively at time \(t\). Similarly \(\text{FDIA}_t\) and \(\text{FDIL}_t\) are FDI (foreign direct investment) assets and liabilities respectively. For the purpose of measuring extent of financial development in the economy, financial development index (IFD) has been formulated. Six proxy
variables representing both money and capital markets have been considered, and a composite index has been created. These variables are:

i) Total banking business (ratio of (total credit + total deposits) to GDP),

ii) Credit-deposit ratio,

iii) Rate of monetization (M3/GDP),

iv) Value traded ratio (value of stocks traded/GDP),

v) Turnover ratio (value of stocks traded/stock market capitalization),

vi) Ratio of credit to private sector to GDP.

The technique of Principal Component Analysis (PCA) has been used to develop composite index (IFD). Growth rates of Real GDP, i.e. GDP at constant prices (2004-05), have been used as a measure of growth of the Indian economy.

After fulfilling the preliminary condition for co-integration analysis, a model including above three variables (GDP, IFI and IFD) has been estimated with Johansen (1991) multivariate co-integration test with D1(dummy variable) as exogenous variable for incorporating the impact of 1991 structural changes in Indian economy. Both the Trace statistic as well as Max-Eigen value statistic gives one co-integrating relation, thus confirming that there exists long run relation between IFI, financial development and economic growth in India. Then to find out dynamics about short run relationship among these variable, Vector Error Correction mechanism (VECM) has been utilized. There exists relationship between IFI and GDP and between IFI and financial development index, thereby suggesting presence of short run tendencies of IFI towards GDP as well as financial development.

Subsequently, direct as well as indirect relationships of IFI and economic growth of India with the help of three different models have been estimated. As far as direct relationship is concerned, it has been found positive in long run (supported by Ray (2012) in case of India) as well as in the short period. Following Gregorio (1999), Masten et. al. (2011) and klein and Olevei (2008), in the next step relationship between international financial integration and financial development is analyzed. Observing long run significant co-integrating relation and insignificant
short run, it can be concluded that financial development due to international linkages takes time to be realized in Indian economy. However, after exploring relationship among financial development and economic growth, it has been observed that studies by Calderón and Liu (2003) and Mahajan and Verma (2014) are in line of the results of present study. There is significant positive long run and insignificant short run relation between these two. But adjustment in the system exists that corrects these short run disequilibrium, and lead to long run relation.

The dummy variable taken for the structural break has come out to be insignificant in all the models, hence showing that reforms in 1991 could not impact the existing relationship of international financial integration with economic growth in India. That shows even before 1991 reforms, integration of financial system with that of global world was helpful in fostering economic growth in India and the liberalisation and globalisation policies in the country during the period could not make statistically significant impact on the relationship of two. However, this result cannot be inferred for the period before 1981\(^4\). Further, with the interaction of two estimated models, it has been concluded that change in economic growth due to international financial integration through financial development is approximately 8.63% (indirect impact).

In last section of the chapter, following Ang (2009), robustness of concluded relationship has been checked with the introduction of interaction term. And results suggested that number of cointegrating relationships between IFI and GDP are two when interaction variable is introduced in the system (instead of one in absence of such variable). Thus, it is concluded that international financial integration could have a stimulating effect on economic growth of India, both directly through access to foreign capital and increased macroeconomic stability, and through stimulus given to the development of domestic financial markets.

The above discussion can be concluded by saying that whereas some studies (Edward (2001), Masten et. al. (2008), Lee and Chang (2009), Alfardo et. al. (2010), Osada and saito (2010) etc) support the view that strong fundamentals of the economy (including a well developed and efficient financial system) are a prerequisite for availing the benefits from international financial integration, the results reported in the different sections of this chapter reveal that international

---

\(^4\) Because the data used in the study is from 1981.
financial integration by improving domestic financial system is helpful for fostering growth.

POLICY IMPLICATIONS

Financial asset prices and their association with international prices always have a key role to play in various micro and macro level decisions and future expectations in the economy. Global financial integration has important implications not only for policy makers who need to understand the factors that influence movements in financial markets but also for domestic and foreign investors. “Investors can improve their hedging and portfolio diversification strategies by exploiting the knowledge regarding integration of national markets” (In, 2007). The results of the present study are of particular interest for policy makers in India. It is important to know that financial markets are highly integrated globally and shocks to foreign markets possibly create spillovers to domestic markets. This is crucial for the stability of the domestic financial system, which in turn ensures smooth functioning of the real economy.

“Liberalization of the capital account has been impeded in most of the countries due to concerns that increased capital inflows appreciate the real exchange rate and thereby reduce international competitiveness” (Dornbusch and Park, 1994). India, therefore, has to follow a comprehensive approach towards integration of its financial markets with world markets so as to derive maximum benefits while minimising the risks in terms of vulnerability to foreign shocks. The major implications and recommendations drawn from the study are as follow:

- Since it is argued that integration of international financial markets determines the price of the goods or the assets in an efficient and equitable manner, therefore, with greater degree of integration, a country becomes able to achieve efficiency gains from financial globalisation process. The degree of financial integration measured in the present study thus depicts that Indian financial system is receiving the gains from the financial openness. Thus, it is suggested that motivation should be given to strengthen the integration process in future too.
- The Study suggests that Indian capital market is integrated with global market where Australia, Japan, U.S and Canada and Indonesia are the most
influential markets. All these countries are from different regions. This implies that as far as integration of capital market of India is concerned, it is not specific to any region. But, money market of India is showing tendencies of regional financial integration, because relationship of it is more prominent with that of Japanese money market.

• It is derived from the study that foreign interest rates and asset prices are important in the determination of domestic rates and prices, i.e. foreign influence on the local market is significant.

• It is further inferred that although the efforts are being intensified for deepening and expanding the financial system and a vibrant environment is being developed in India for integrating it with the world market, but a policy response to this transition should rely on multiple interventions. In the words of Obstfeld (2008), until there is a better and precise approach towards financial opening, the process of integration should be gradual and cautious.

• It has been found that financial integration with global market has induced changes in the financial and economic development of India. According to Dornbusch and Park (1994), “these types of changes can often make it confusing and difficult to determine the behaviour of an economy in transition”. Therefore, a constant surveillance mechanism is needed to find out expected market responses to exogenous transitory forces in order to ensure financial stability in the country while reaping the positive benefits of free capital inflows.

• In the present scenario, domestic financial market imperfection and institutional weakness is the main problem (Obstfeld, 2008). The study has found that international financial integration helps in improving domestic financial system in the form of efficient capital market, banking system and monetary system. It supports the view point that the entries of various foreign banks and other financial entities or any other form of capital inflows are helpful in attaining higher level of efficiency, hence development of the financial system. Thus, capital flows should be welcomed in the economy, provided strong vigilance and prudential supervision is maintained by the apex institutions.

• The relationship of financial development with economic growth has been found significant in long run. But, in the short run, the relationship among
the variables is not significant. This has the implication that in the short run financial development which is outcome of the international financial integration is not beneficial for the India but its fruits can be availed by the economy only in long run. Thus, it is inferred that accruing the benefits of financial development and that of global financial integration is a gradual and long run process. Hence, to maintain rapid economic growth, government has to deepen foreign capital inflow as well as capital outflow and undertake essential measures to strengthen the long run relationship between financial integration, financial development and economic growth in India.

• Although international financial integration is associated with long run economic growth in India but it is also vulnerable to exogenous changes (in form of shocks) such as the financial crises. Therefore, no independent monetary policy will be fruitful until the responses of uncertain shocks from foreign markets are incorporated.

• According to Kim (1994), international portfolio diversification increases the efficiency of global capital resource allocation. And, it is argued that with greater degree of market integration, the potential for portfolio diversification gets reduced. That means, benefits derived from international financial integration go down as the level of integration increases. Thus, for achieving the higher level of efficiency and hence economic growth, it is suggested that more prominent financial relations should be established with the countries which are found less or not integrated with India.

To conclude, it is suggested that one needs to take a more cautious view of the way policies tend to work, instead of finding a mere relationship between the variables. Implementation of various measures that contribute towards more transparent financial system such as enhancing prudent risk management and formulation of appropriate financial institutions for prudential supervision and regulation is recommended. In other words, to exploit the potential benefits, in terms of macroeconomic growth and stability which can be derived from greater integration of international financial markets, appropriate and precise measures need to undertake.
SCOPE FOR FUTURE RESEARCH

The present study has attempted measurement of the degree of integration of the Indian economy with the world financial system and its impact on economic growth of the domestic economy. However, various factors that account for this integration need to be explored. It is worth noting that the assessment of the causes of increase in financial market linkages at international level is important for strengthening the same. Thus, present work has lead for future research for finding main determinants of international financial integration of India.

It is also worthwhile to study the mechanism and channels through which shocks and negative sentiments are transmitted from one market to other national market due to integrated financial markets. Also, the evaluation of the impact of international financial integration on macroeconomic and financial stability of the country can form another element of the agenda for future research.