CHAPTER-I

INTRODUCTION

I.1. Finance

The word finance is originally a French word, which means the management of money. Today finance is not merely a word else has emerged into an academic discipline of greater significance. It is now organised as a branch of Economics. It is concerned with allocation as well as resource management, acquisition and investment and is defined as the commercial activities through which banks, financial institutions generate and distribute fund for capital building of industries. It is conceptualized, structured and regulated by a complex system of power relations with political economies across state and global markets. It is a bridge between the present and the future and whether it is the mobilisation of savings or their efficient, effective and equitable allocation for investment, it is the success with which the financial system performs its functions that sets the pace for the achievement of broader national objectives.

1.2. Financial System

Finance is bulk amounts lend and borrowed by creditors and debtors respectively, for a particular period of time at a stipulated interest rate (Gurley and Shaw 1960). In other words, finance refers to the funds of monetary recourses needed by individuals, business houses and the Government. Hence all those activities dealing with finance are organised in a system known as the “Financial System or Financial Sector”. A financial system comprises financial institutions markets and instruments which together form the essential framework for mobilisation and
allocation of savings. The primary role of any financial system is to act as conduit for the transfer of financial resources from net savers to borrowers. Financial markets can matter either by affecting the volume of savings available to finance investment (Bencivenga and Smith, 1991); or by increasing the productivity of that investment (Greenwood and Jovanovic, 1990; King and Levine, 1993). Thus financial market efficiency can act as a lubricant to the engine of economic growth. The financial system is possibly the most important institutional and functional vehicle for economic transformation. It includes different markets, institutions, instruments, services and mechanisms which influence the generation of savings, investment, capital formation and growth. The Indian financial system is broadly classified into two broad groups: i) Organised sector and (ii) Unorganised sector.

The organised financial system comprises of a good network of banks, other financial and investment institutions and a range of financial instruments, which together function in fairly developed capital and money markets. Short-term funds are mainly provided by the commercial and co-operative banking structure. The organised financial system comprises the different sub-systems such as Banking system, Cooperative system, Development Banking system, Money markets and financial companies or institutions.

The unorganised financial system comprises of relatively less controlled moneylenders, indigenous bankers, lending pawn brokers, landlords, traders etc. This part of the financial system is not directly amenable to control by the Reserve Bank of India (RBI). There are a host of financial companies, investment companies and chit funds etc. which are also not regulated by the RBI or the Government in a systematic manner.
I.3. Financial Development

Financial development is usually defined as a process that marks improvement in quantity, quality and efficiency of financial intermediary services. It refers to the development of well functioning financial markets and intermediaries. Financial Development Report published by World Economic Forum defined financial development as the factors, Policies and institutions that lead to effective financial intermediation and markets, as well as deep and broad access to capital and financial services. Financial development occurs when financial instruments, markets and intermediaries ameliorate though does not necessarily eliminate –the effects of information, enforcement and transactions cost and therefore do a correspondingly better job at providing the five financial functions. Financial development involves improvement in the production of ex-ante information about possible investments, monitoring of investment and implementation of corporate governance, trading diversification and management of risk, mobilization & pooling of savings and exchange of goods and services. According to Dorrucci and Drutti (2007), financial development means the capability of a country to channel its savings into investments effectively and efficiently within its own borders owing to the quality of its institutional and regulatory framework, the size of its financial markets, the diversity of its financial instruments and private agent’s ease of access to them and the financial market’s performance in terms of efficiency, liquidity. Hartmann and Heider (2007) defined financial development as the process of financial innovation as well as institutional and organisational improvements in a financial system, which reduce asymmetric information, increase the completeness of markets, add possibilities for agents to engage in financial transactions through contracts, reduce transaction costs and increase competition. The scope of financial development therefore includes
improvements or innovations in products, institutions and organisations in the banking sector, non banking financial structures and capital markets.

1.4. Economic Growth

The simplest definition of economic growth is an increase in real Gross Domestic Product (GDP). It is the expansion of the national income that the total production of goods and services of a country over a given period. The growth rate of real GDP is the percentage change in real GDP from one year to the next year. It is usually measured by the pace of change of GDP after adjustment for inflation is known as real GDP. Nominal GDP, on the other hand, refers to the market value of goods and services produced by a country and it can increase due to a rise in production of goods and services or a jump in their prices or both. The real GDP growth rate is equal to the nominal GDP growth rate minus the inflation rate. Gross domestic product, Gross national product, industrial production Index etc are as proxy for economic growth.

1.5. Role of Financial Development in Economic Growth

Economists hold different perspectives on the theoretical link between financial development and economic growth. Schumpeter (1911) mentioned that the services provided by financial intermediaries are essential drivers for innovation and growth. According to Aziz and Duenwald (2002) financial development can affect growth through three main channels. Firstly it can increase the marginal productivity of capital by collecting information to evaluate alternative investment projects and risk sharing; secondly it can raise the proportion of savings channelled to investment via financial development by reducing the resources absorbed by financial
intermediaries and thirdly it can raise the private saving rate. Anzari (2002) noted that financial development contribute economic growth in the following six ways that is financial markets enable small savers to pool funds, savers have a wider range of instruments stimulating savings, efficient allocation of capital is achieved as the proportion of financial saving in total wealth rises, more wealth is created as financial intermediaries redirect savings from the individuals and the slow growing sectors to the fast growing sectors, financial intermediaries partially overcome the problem of adverse selection in the credit market and financial markets encourages specialisation in production development of entrepreneurship and adoption of technologies.

However systematic analysis of the relationship between financial development and economic development was first popularised by Goldsmith (1955). He found sound positive correlation between financial development and the level of real per capita GDP. The McKinnon-Shaw school examines the impact of Government intervention on the development of the financial system. Their main proposition is that Government restrictions on the banking system such as interest rate ceilings and direct credit programmes have negative effects on the development of the financial sector and, consequently, reduce economic growth. Several other studies, on the other hand, have documented a negative relationship between financial development and economic growth [see, for example, Robinson (1952), Schwartz and Friedman (1963)].

Recent studies indicate that financial development is one of the main factors behind growth. The literature on Economics and Finance has identified a number of channels through which the financial sector supports economic growth. Creane et al(2004) argued that a modern financial system promotes investment by identifying and funding good business opportunities; mobilising savings; monitoring the
performance of managers; enabling the trading, hedging and diversification of risk; and facilitating the exchange of goods and services. These functions result in a more efficient allocation of resources, a more rapid accumulation of physical and human capital, and faster technological progress which in turn feed economic growth. Based on theoretical literature the views on financial development in economic growth can be classified into two major categories. The first view was put forward by Schumpeter (1911), who was the earliest economist and who highlighted the importance of finance in the process of economic development. He emphasised the importance of financial services in promoting economic growth and highlighted the circumstances in which financial institutions can actively encourage innovation and promote future growth by determining and funding productive investments. He argued that financial systems are important in promoting innovations, i.e. economies with more efficient financial systems grow faster. The second view was contributed by Robinson (1952) who considered finance as a relatively unimportant factor in growth process. He argued that as output increases, the demand for financial service increases as well, which in turn has a positive effect on financial development. According to Robinson (1952) all other things being constant, financial development follows economic growth and not the other way around.

Based on the Robinson’s (1952) and Schumpeterian’s (1911) view, Patrick (1966) contributed to financial development and economic growth literature by identifying two patterns in the causal relationship between financial development and economic growth. The first one is called “Demand Following” which is the creation of modern financial institutions and the supply of their financial assets, liabilities and related financial services in response to the demand for these services by investors and savers in the real economy. The second one is called “Supply Leading” which is
the creation of financial institutions and the supply of their financial assets, liabilities and related financial services in advance of demand for them, especially the demand of entrepreneurs in the modern growth inducing sectors. Supply leading has two functions: to transfer resources from traditional (non-growth) sectors to modern sectors and to promote and stimulate an entrepreneurial response in the modern sectors. Patrick (1966) also argued that the causal relationship between financial development and economic growth varies according to the stages of the development process. He suggests that the supply-leading pattern dominates during the early stages of economic development. As financial and economic development proceeds, the supply-leading characteristics of financial development diminish gradually and are eventually dominated by demand following characteristics of financial development. The financial and real sectors may expand simultaneously contributing to the development of each other, which points to bidirectional causality between the two. Two way relationships between financial development and economic growth has been shown by, for example, Berthelemy and Varoudakis(1997), Greenwood and Bruce(1997) and Luintel and Khan(1999).

Most of the earlier research pertaining to the causal relationship between financial development and economic growth were concentrated on developed countries particularly on capitalist countries. Their relevance to the developing countries like India is limited due to the existence of vast differences in socio economic and political characteristics between developed and developing countries.
1.6. Objectives of the Study

1. To Construct Financial Development Index for India

2. To examine whether there exist long and short run relationship between financial development and economic growth in India

3. To check whether there exist any difference in relationship between financial development and economic growth in India during pre and post liberalization period.

4. To identify the direction of causality between financial development and economic growth in India.

1.7. Null Hypothesis of the Study

Ho1: There is no significant long run and short run relationship between financial development and economic growth in India.

Ho2: There is no significant difference in the relationship between Financial Development and Economic Growth during Pre and Post liberalization period.

Ho3: No information is passed from financial development to Economic Growth during the study periods.

Ho4: There is no change in the direction of causal relationship between pre and post liberalization period.

1.8. Significance of the Study

It is identified from the review of literature that most of the studies related to financial development and economic growth used different proxies like market
turnover, market capitalisation, bank credit, financial innovation ratio, broad money, domestic credit to private sector, new issue ratio etc. Generally proxy is taken based on the dominance of the financial market or banking system in that country. In India both the financial market and banking sector has a predominant role. Therefore, exclusion of one variable may give a misleading result. In most cases these variables are highly correlated and there is no uniform argument that which proxies are most appropriate for measuring financial development.

There is need to construct an index as a single measure that represents the overall development in the financial sector by taking the relevant financial proxies into account. World Economic Forum has been constructing financial development index for 55 countries from 2008 onwards and India is one among the list. In case of India, from 1991, financial sector has made tremendous changes in the field of stock market and banking sector and therefore any study or measurement of the relationship between financial development and economic growth in India during the pre and post liberalization period will be of great help to understand them in the right perspective. During 1991 the Government of India initiated a comprehensive financial reform to reduce the market segmentation, encourage competition toward a market based and more efficient monitory and credit mechanism. The main objective of the liberalisation policy was to make the financial sector more competitive through privatizing the nationalised commercial banks, liberalising interest rates and credit ceilings.

The present research under the title “Financial Development and Economic Growth in India” is an attempt to construct a financial development index for India. Due to many economic reforms, India has become one of the fastest growing economies in the world. The change in India’s policy towards liberalisation in 1991
has provided a good environment for sustainable economic growth. All these reforms have changed the banking sector as well as the financial market. Therefore it is important to study the finance - growth relation during pre and post liberalisation period.

I.9. Scope of the Study

The scope means the boundary of the operations or the area for the study. This study includes financial development proxies from the financial markets and financial intermediaries. Market Capitalization of BSE is used to represent stock market. Broad Money (M3) and total Bank Credit of Commercial Bank is used to represent the financial intermediaries. New developments in the markets such as ATM, Debit Cards, Credit Cards etc are represented by Financial Innovation Ratio (Broad money/Narrow money). A period of 41 years (1971-2011) is taken in to consideration for the purpose of this study.

1.10. Data Description

The study aims to find out the finance- growth relationship in India. It has used yearly data for a period of 41 years (1971-2011). The variables used to construct financial development index are Market capitalization of BSE as percentage of GDP, Broad money (M3) as percentage of GDP, Bank credit as percentage of GDP and the Financial Innovation Ratio (Broad Money/Narrow Money). GDP at factor cost (constant price) is considered to represent economic growth. Data are collected from the official website of RBI, SEBI reports and Bombay stock exchange office. Data are taken for a period of 41 years that is from 1970-71 to 2010-11. The study is done for three different periods. First one is the whole time span under consideration, i.e. 1971-
2011, the second is pre-liberalization period (1971-1991) and third is post liberalization period (1992-2011). The study period is divided, based on the structural break in the data set. It is determined with the help of Chow test and by considering the general economic condition of India.

1.11. Model Specification

The empirical literature generally finds a positive relationship between development and economic growth; there is no commonly used indicator for financial development. So the researcher has developed an appropriate index for financial development by considering the major proxies, which are already used in the previous studies.

Based on the theoretical literature the relationship between economic growth and financial development can be specified as follows

\[ \log GDP = \beta_0 + \beta_1 \log FDI + \epsilon_t \]  

(1)

Where GDP is real GDP, FDI is a measure of Financial Development and \( \epsilon_t \) is an error term. Real GDP and FDI variable are expressed in natural logarithm. The Researcher has modified the model which is used by Bhattacharya and Sivasubramanian (2003) in their study. From the literature, the coefficients of financial depth (FDI) are expected to be positive.

1.12. Tools Used in the Study

1.12.1. Principal Component Analysis (PCA)

According to Srirachoen and Buchenrieder (2005), “PCA is an indicator reduction procedure to analyze observed variables that would result in a relatively small number of interpretable components (group of variables), which account for
most of the variance in a set of observed variables”. The Eigenvalues are calculated for each component. Generally the size of an Eigenvalue indicates the amount of variance in the principal component explained by each component. The first principal component reflects the largest proportion of the total variability in the set of indicators used. The second component accounts for the next largest amount of variability not accounted by the first component, and so on.

1.12.2 Chow Test

It is a statistical and econometric test of whether the co-efficient estimated over one group of the data are equal to the co-efficient estimated over another. In econometrics chow test is commonly used in time series analysis to test for the presence of a structural break, Bhattacharya and Sivasubramanian (2003).

1.12.3. Line Graph & Summary Statistics

Summary statistics of the variables are needed to understand the behavior of raw data series included in the study. Mean shows the average value of the data set, median shows the mid value of the series and standard deviation shows the dispersion of the variables. Skewness will give the information whether the data set is positively or negatively skewed. Jarque- Bera test indicates whether the series is normal or not normal. Generally, line graphs are used to understand the movements of each variable.

1.12.4. Stationarity (Unit root test)

Stationarity test or unit root test can be used to determine if trending data should be first differenced or regressed on deterministic functions of time to render the data stationarity. Stationarity is the important properties of time series data which shows the ability of the data series to explain the long term and short term information. A stationary time series is the one, statistical properties of which mean, variance and auto correlation are all constant overtime. Moreover, economic and
finance theory often suggests the existence of long run equilibrium relationships among nonstationary time series variables. As a preliminary test, it is necessary to test the stationarity of the time series variables used in the study.

1.12.5. Auto Regressive Distributed Lag Model (ARDL)

“The study also attempts to examine the long run relationships using co-integration techniques. The purpose is to find out whether financial development has any short run and long run effect on GDP, besides identifying the factors determining economic growth in India.

There are two preliminary approaches used to examine the existence of long run relationship among variables. The first approach is a two step residential based test for the null of non-co-integration by Engle & Granger(1987) and the Fully Modified Ordinary Least Squares procedures of Philips and Hansen(1990) and the second approach is the system based reduced rank regression by Johansen (1988), Johansen & Juselius(1990) full information Maximum Likely Hood technique. Both approaches concentrate on cases in which the underlying variables are integrated of order one( I(1) and sample size should be large enough.

The co-integration methodology of this work is adopted on the basis of the following considerations. Mah(2000) discussed that the co-integration methods of Engle and Granger(1987),Johansen(1988), and Johansen & Juselius(1990) are not reliable for studies that have small samples. Kermers et al.(1992) provides empirical evidence that, in the case of small sample, no co-integration can be established amongst the variables that they are integrated of order one, I(1). Hakkiko and Rush(1991) proves that increasing the number of observations by using monthly or quarterly data will not improve the robustness of the results in co-integration analysis,
unless the length of the period under consideration is extended to an appropriate level. Therefore, the bounds testing approach to co-integration developed by Pesaran et al. (2001), is considered to be the most appropriate procedure for this study.

The interest in ARDL model is for the following reasons.

1. It provides a convenient way to deal with long run relationships by focusing on the dynamics of one single equation, where the long run relationship and short run dynamics are estimated jointly.

2. The present study is dealing with small sample size consist of 41 observations. Hence ARDL model is more appropriate to overcome the difficulties of small sample size. Several studies have applied the ARDL model relatively for small sample sizes. For example Gounder (1999 and 2002), and Pattichis(1999) applied it in their study where the number of observations were 20, Tang(2001) for 25 observations, Tang (2006) for 26 observations, Tank & Nair (2002) for 29 observations.

3. The Vector Error Correction Model(VECM) is likely to have better statistical properties than the two step Engle–Granger method, because it does not push the short run dynamics in to the residual terms(Pattichis 1999; and Banerjee et al.1998)

4. All variables are assumed to be endogenous. (Johansen’s co-integration technique concerned with the decisions regarding the number of endogenous and exogenous variables to be included, the treatment of deterministic elements, the order of VAR model and the optimum number of lags to be specified). But generally, the empirical results are very sensitive to the method and various alternative choices are available in the estimation procedure. ARDL avoids concerning the choices mentioned above.
5. In ARDL method different variables have different optimal number of lags.

The ARDL procedure involves two stages. The first stage is to establish the existence of a long run relationship. Once a long run relationship has been established, a two step procedure is used in estimating the long run relationship. The ARDL approach for initial investigation of the existence of long run relationship can be predicted by estimating the short run and long run parameters using the following model.

For instance testing for co-integration among GDP and FDI involves the following steps.

In the first stage, researcher estimated an unrestricted error correction model. An ARDL representation of equation (2) can be specified as follows

\[
\Delta LGDP = a_0 + \sum_{i=1}^{q_1} \beta_1 LGDP_{t-i} + \sum_{i=0}^{q_2} \beta_2 LFDI_{t-i} + \theta_1 LGDP_{t-1} + \theta_2 LFDI_{t-1} + \epsilon_t
\]

Where \(q_1\) and \(q_2\) are the lag length and \(\epsilon_t\) is assumed to be the error term. \(\Delta\) is the difference operator, Log GDP is real GDP and LFDI is financial development Index. The approach involves the following steps. In the first stage, the null hypothesis of no co integration relationship which is defined as \(H_0 = \delta = \delta = 0\) is tested against the alternative hypothesis \(H_1 = \delta \neq \delta \neq 0\) of the existence of co integrating relationship. The co-integration test is based on the F-statistics or Wald statistics. The F-test has a non standard distribution. Thus, Pesaran and Pesaran (1997) and Pesaran et al (2001) have provided two sets of critical values for the co integration test. The lower critical bound assumes that all the variables are I (0), where as the upper critical bound assumes that all the variables are I (1). If the computed F-statistic is greater
than the upper critical bound, then the null hypothesis will be rejected suggesting that there exists a co-integrating relationship among the variables. If the F-statistic falls below the lower critical bounds value, it implies that there is no co-integrating relationship. However, when the F-statistic lies within the lower and upper bounds, then the test is inconclusive.

In this context, the unit root tests should be conducted to ascertain the order of integration of the variables. If all the variables are found to be I (1), then the decision is taken on the basis of the upper critical value. On the other hand, if all the variables are I (0), then the decision is based on the lower critical bound value.

If the variables have long run relationship, as a second step researcher can estimate the long run coefficients and corresponding error correction model. This involves estimating an auto regressive distributed lag model.

\[
LGD = a_0 + a_1 t + \sum_{i=1}^{m} \alpha_i LGDP_{t-i} + \sum_{i=0}^{p} \theta_i LFDI_{t-i} + u_t \quad (3)
\]

The ARDL method estimates \((P + 1)^k\) number of regressions in order to obtain the optimal lags for each variable, where ‘P’ is the maximum number of lags to be used and ‘k’ is the number of variables in the equation (Shrestha and Chowdhury, 2005). The model is selected based on the Schwartz-Bayesian Criterion (SBC) or Akaike Information Criterion (AIC). The SBC uses the smallest possible lag length and is therefore described as the parsimonious model. The AIC chooses the maximum relevant lag length (see Shrestha and Chowdhury, 2005; and Jalil et al, 2008). Once co-integrating relationship is ascertained, the long run and error correction estimates of the ARDL model are obtained. The diagnostic test statistics of the selected ARDL
model can be examined from the short run estimates at this stage of the estimation procedure.

In addition, to evaluating the parameter stability in the models the study graphically plotted cumulative sum of recursive residuals and cumulative sum of squares of recursive residuals test. Bahmani-Oskooee and Brooks (1999) opined that the estimated parameters derived from the error correction model may not be stable. Hence unstable parameters can result in model misspecification, which has the potential to bias the result. Therefore, stability test like the CUMSUM and CUMSUM square test proposed by Brown et al (1975) are important to find the stability of parameter. These statistics are updated recursively and plotted against the break points of the model. If the plot of the statistics fall inside the critical bounds of 5% significance, then the co-efficient of a given regression are considered as stable. These tests incorporate the short run dynamics to the long run through residuals.

Microfit 4.0 is an interactive user friendly econometric software that is mostly used by economists to analyse micro and macro variables which is developed by Pesaran and pesaran(1997)”

1.12.6. VAR Granger Causality Block Exoginity test

In order to identify the direction of causal relationship Vector Auto Regressive(VAR) Granger Causality block exoginity test is applied. The VAR framework for Granger Causality test is appropriate which is given below.

$$\Delta LGDP_t = a + \sum_{i=1}^{p} \alpha_i \Delta LGDP_{t-i} + \sum_{j=1}^{q} \beta_j \Delta LFDI_{t-j} + \mu_t$$  \hspace{1cm} (4)
\[
\Delta \text{LFDI}_t = a + \sum_{i=1}^{r} \gamma_i \Delta \text{LFDI}_{t-i} + \sum_{j=1}^{s} \delta j \Delta \text{LGDP}_{t-j} + \nu_t
\] 

In the above equation, \( \mu_t \) and \( \nu_t \) are serially uncorrelated white noise residuals; and \( p, q, r \) and \( s \) are lag length of each variable in each equation, \( \Delta \) is the difference operator, \( \text{LogGDP} \) is real GDP and \( \text{LFDI} \) is Financial Development Index. A statistically significant F statistics of each model would be enough to have causation from GDP to FDI in equation (4) and from FDI to GDP in equation (5) (Hassapis et al., 1999)

1.12.7. Variance Decomposition Analysis

Granger causality test indicates only in sample causality test. To gain insight in to causal relationships out of sample, researchers can use variance decomposition analysis. In variance decomposition analysis we partition the variance of the forecast error of a particular variable in to proportions attributable to innovations (shocks) in each variable in the system including its own.

1.13. Limitations of the Study

For this study researcher is used secondary data. The errors happened during compilation of data is not in the control of researcher. Here researcher has taken 41 yearly data and constructed the Financial Development Index. The time span of the data is less, it may affect the result. There may be factors other than those considered in this study that determine financial development, because of unavailability of data it is not taken in to consideration. No control variables used in this study.

The study is divided into 6 chapters in which **First chapter** deals with introduction of study, objectives of study, methodology of study and limitations of the study.

**Second chapter** covers the review of literature in the different area of the study such as financial development and economic growth in India and other countries, Stock market and economic growth, banking sector and economic growth. Based on review it is being found the research gap for the present research and made the empirical study.

**Third chapter** is associated with the construction of Financial Development Index by using principal component analysis.

**Fourth Chapter** explains the co-integration between financial development and economic growth and also examines the structural stability of the long run relationship during the study period.

**Fifth chapter** deals with the structural break in the data with the help of chow test and re-examines the co-integration between financial development and economic growth during pre and post liberalisation period.

**Sixth Chapter** explains the causality between financial development index and economic growth for the three study periods based on the structural break, proportion and transmission of shock from one variable to another variable also analysed in this chapter.

**Seventh chapter** provides the findings, conclusion, suggestions and scope for further research.