

# FINANCIAL DEEPENING, ECONOMIC DEVELOPMENT AND CAPITAL MARKET: EVIDENCE FROM INDIA

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## ABSTRACT

*This empirical study examined the effect of financial deepening on Indian economy and stock market from 1991 to 2013. The fundamental focus is that a high level of financial deepening is a necessary condition for accelerating growth in an economy. This is because of the vital role of the financial system in mobilizing savings and allocating same for the development process of the economy. The study specified three explanatory variables to explain financial deepening (Money Supply to GDP) in the Indian economy and they are domestic borrowing to GDP, deposits to GDP and value of Cheques Cleared to GDP. Further, to study the impact of financial deepening on capital market volatility (BSE Sensex) and the impact of capital market deepening on economic growth. The results of the study are significant which shows that financial deepening has significant contribution to economic development. Secondly, financial deepening creates volatility in the capital market and thirdly, capital market deepening has great contribution in the economic growth of the country.*

**Key Words:** Economic Growth, Financial Structure, Financial System, Financial Reforms, Financial liberalization, Financial Market, Gross Domestic Product, Financial Deepening

## INTRODUCTION

Since the financial liberalization of the emerging countries' financial markets in the 1980s and early 1990s stock market volatility has been the subject of controversy. Financial liberalization has led to financial deepening and higher growth in several countries. Financial liberalization (FL) refers to the deregulation of domestic financial markets and the liberalization of the capital account. The reforms in the financial system in India which heightened with the 1990 deregulation, affected the level of financial deepening of the country and the level relevance of the financial system to economic development. The twin forces of globalization and the deregulation have breathed a new life to private business and the long-protected industries in India, which are now faced with both the challenge of foreign competition as well as the opportunities of world markets. The growth rate since then continued the higher trajectory started in 1980 and the GDP has nearly doubled in constant prices (Allen et al, 2007). However, the rapid globalization of the financial markets since then and the increased level of integration of the Indian financial system to the global system have generated interest on the level of financial deepening that has occurred.

The existence of a well organized financial system promotes the well being and standard of living of the people of a country. Financial System of any country consists of financial markets, financial intermediation and financial instruments. The financial system serves as a catalyst to economic development through various institutional structures. It plays a crucial role in the mobilization and allocation of savings for productive use; which further provide structures for monetary management and the basis for managing liquidity in the system. It also assists in the reduction of risks faced by firms and businesses in their productive processes, improvement of portfolio diversification and the insulation of the economy from the unexpected international economic changes (Nzotta, 2004).

A financial system helps in creation of a financial structure that lowers the cost of transactions which influences the rate of return to savers. It also reduces the cost of borrowing. Thus, the system generated an impulse among the people to save more. The role of the financial system in capital accumulation in particular and the economy in general is best gauged by certain financial deepening ratios. Each sector of an economy borrows from other sectors by issuing claims on it, or it lends to other sectors by accepting their claims. Volumes of these financial flows form the basis of several indicators of financial deepening of an economy, and this includes the relationship between financial development and overall economic growth (Rangarajan, 1998).

There is a general thinking among the economists that financial development stimulates economic growth. Theoretically, financial development creates enabling conditions for growth through either a (Debreu, 1959) supply-leading (financial development encourage growth) or a demand-following (growth generates demand for financial products) channel (Patrick, 1966). A large number of research studies supported the view that development of the financial system contributes to economic growth (Rajan and Zingales, 2003). In evaluating the relationship, a large number of recent empirical studies (De Serres et al 2006; and Levine 2005) have relied

on measures of size or structure to provide evidence of a link between financial system development and economic growth. Studies used macro or sector level data such as the size of financial intermediation or of external finance relative to GDP and found that financial development has a significant positive impact on economic growth. At the cross-country level, evidence indicates that various measures of financial development like assets of the financial intermediaries, liquid liabilities of financial institutions, domestic credit to private sector, stock and bond market capitalisation are positively and strongly related to economic growth (King and Levine, 1993; Levine and Zervos, 1998). Similar results are also available at industry level.

Economic growth can be defined as a positive change in the national income or the level of production of goods and services by a country over a certain period of time. This is often measured in terms of the level of production within the economy. According to Schumpeter other potential measures to evaluate economic growth includes total factor productivity, factors of production such as technological change, human capital etc., other measures of growth ranges from real per capita GDP; the rate of physical capital accumulation etc. (Odedokun 1998; King & Levine 1993). Empirically it was always emphasised that there is relationship between financial liberalisation and economic growth, though the issue of direction of causality is more difficult to determine.

A well-functioning financial system helps in promoting the process of financial deepening and broadening. Financial deepening implies the ability of financial institutions to effectively mobilize savings for investment purposes (Nzotta and Okereke, 2009). The growth of domestic savings provides the real structure for the creation of diversified financial claims. Financial deepening refers to an increase of financial assets as a percentage of the GDP. In other words it is measured by relating monetary and financial aggregates to the Gross Domestic Product (GDP). Financial depth is an important measure of financial system development as it measures the size of the financial intermediary sector. Depth equals the liquid liabilities of the financial system (currency plus demand and interest –bearing liabilities of the banks and non-banks financial intermediaries divided by the GDP). Financial deepening generally, entails an increased ratio of money supply to Gross Domestic Product Popiel (1990), Nnanna and Dogo (1999). The finance ratio, defined as the ratio of total financial issues in a year to national income, is therefore a clear indicator of how financial deepening has been taking place over the years.

Financial deepening and stock market are also closely related. Because the growth of stock market of a country and economic growth of that particular country is inter-related i.e. there is two-way relationship between both of them. The stock market is the best place through which mobilization and allocation of savings takes place. According to Keynesian view, the financial deepening associated with financial liberalization should decrease overall volatility of the stock market by increasing the numbers of both investors and tradable shares, and by encouraging the increased production and dissemination of reliable information via the increased profit opportunities which attend financial deepening (Grabel, 1995). Furthermore, even if financial liberalization leads to an increase in volatility, the CAPM (Merton, 1980) suggests that increases in volatility would impair macroeconomic performance provided that stock returns incorporated appropriate risk premia (Chou et al, 1992). Furthermore, increasing volatility might also have adverse effects on the macro economy via increasing financial fragility. This could dampen the overall economic activity of a country and could lead to forced asset sales and thus generating stock market volatility (McKinnon, 1973 and Shaw, 1973).

Despite the fact, that there is a general consensus on what comprise the stock market volatility and, to a lesser extent, on the causes of changes in stock market volatility. Some economists view that the causes of volatility are due to the arrival of new, unanticipated information that alters expected returns on a stock. Thus, changes in market volatility would merely reflect changes in the local or global economic environment. Others claim that volatility is caused mainly by changes in trading volume, practices or patterns, which in turn are driven by factors such as modifications in macroeconomic policies, shifts in investor tolerance of risk and increased uncertainty (Mala and Reddy, 2007). However, Demetriades et al (1999) argued that there are still issues such as the relationship of financial liberalization and equity market volatility that need further investigation. Thus in this paper we attempt to address this gap in the literature and empirically investigate the impact of financial deepening on stock market volatility. This research therefore investigates the predictive power of financial deepening on stock market volatility so as to add to the existing literature on the macroeconomic variables that lead to stock market volatility. The rest of the paper is divided into four sections, review of literature, the methodology, the estimation and interpretation of the model, and the summary and conclusion.

## **REVIEW OF LITERATURE**

The issue of financial liberalization and economic growth has naturally attracted the attention of many researchers. The paper provided an integrated theory that can help explain the mixed results found in the cross-country studies on the effects of liberalization on stock market. In one of the earlier studies Schumpeter (1911) stated that a well functioning financial system encourages technological innovations by increasing funding to entrepreneurs which ultimately leads to economic growth. On the contrary, researchers like Robinson (1952) and

Friedman and Schwartz (1963) suggested that it goes other way round that means economic growth leads to development of financial system. In work of McKinnon (1973) and Shaw (1973) they had suggested that the financial system is important to savings and investment and thus the role of financial intermediaries is important. Ram (1999) asserted that there is no relationship between financial development and economic growth.

Numerous studies have investigated the abnormal behavior of stock prices around financial liberalization dates and provided mixed results. Where, Grabel (1995), Miles (2002) and Nilsson (2002) stated that market liberalization creates excess stock market volatility. On the other hand the opposite was exhibited by Bekaert and Harvey (1997), Li (2002) and Kassimatis (2002) and they stated that stock market volatility declined after the sample countries liberalised their stock market to foreign investors. In the study done by Edwards et al (2003) they asserted that volatility after financial liberalization has increased in Asian countries but not in Latin American countries. De Santis and Imrohorglu (1997) and Spyrou and Kassimatis (1999), on the other hand, indicated that volatility is more likely to be unaffected or reduced following liberalization. The effect of capital market liberalization was further studied by Bekaert and Harvey (2000) and they found that the cost of capital decreases between 5 and 75 basis points after a capital market is liberalized; the results were further confirmed by Edison and Warnock (2003). According to Jayasuriya (2005) volatility may decline, rise or stay the same following stock market liberalization may be due to different market characteristics, such as market transparency and investor protection or institutions such as rule of law and corruption.

Ross (1989) and Lamoureux and Lastrapes (1990) stated that volatility is related to the rate of information flow arriving in the market. Thus, increased volatility could reflect increased information flow. This is also consistent with the neo-classical theory which suggests that financial deepening should encourage increased production and dissemination of information because of the profit opportunities which will follow financial liberalization. Aggarwal et al (1999) discovered that most events around the time period when shifts in volatility occur are local but that liberalization processes seem not to have induced the changes in variance. Also, they stated that both increases and decreases in volatility depending on the country and on the sequence of events. The announcement effects of emerging market liberalizations was also analyzed by Henry (2000) and he stated that a country's equity price index shows an abnormal return of 3 percent per month during an eight-month period, implying a total price increase of about 25 percent.

Levine and Zeros (1998) linked higher volatility with stronger market integration. In the study based on 32 countries, Errunza and Miller (2000) reported a reduction in the cost of capital following ADR introductions and thus evidenced that market liberalizations lead to lower expected returns in emerging markets after a possible abnormal return around liberalization. Kaminsky and Schmukler (2002) suggested that as the liberalization process matures, it may have a stabilizing influence on asset markets. Thus, there is still not a clear cut response to whether financial liberalization leads to significant changes in the behavior of volatility around liberalization dates because there is temporary instability in the market or even in the returns, therefore it may generate the appearance of increases in volatility that do not correspond to permanent or structural changes in its dynamic behavior of stock market Henry (2000).

In few of the previous researches the researchers tried to find out the effect of financial deepening on stock market volatility. Where, Reinhart and Tokatlidis (2001) said that liberalization appears to deliver financial deepening, as measured by the credit and monetary aggregates--but, again, low income countries do not appear to show clear signs of such a benefit as regards saving. In some regions, saving increased following financial sector reforms; but in the majority of cases saving declined following the reforms. Aybar (1998) investigated the implications of financial liberalization and financial deepening on the inter-temporal behavior of stock returns in the Turkish equity markets and indicated that return behavior does not change as the financial markets deepen in Turkey. Return characteristics qualitatively remain unchanged and return predictability continues. Odhiambo (2005) confirmed that positive real interest rates, which result from financial liberalization, unambiguously lead to financial deepening. The finding of this study lends more support for the positive role of financial liberalization on economic growth in the study countries. Still there was another group of economists who believed that financial deepening is almost totally irrelevant for economic growth. From the analysis Nzotta and Okereke (2009) concluded that the level of financial deepening in Nigerian has remained relatively low in spite of the various reforms and institutional changes put in place by the monetary authorities.

Darrat (1999) supported the view that financial deepening is a necessary causal factor of economic growth. The causal relationships are also predominately long-term in nature. Therefore, government policies aimed at promoting financial deepening in the countries must be persistent and sustainable in order to foster economic development. In studies of Meier and Seers (1984) and Stern (1989) they had completely ignored the role of financial development in the economic growth process. In this context Lucas (1988) argued that economists have generally exaggerated the importance of financial markets in economic development and that these markets at best play only a very minor role in the economic growth process.

Therefore, the previous empirical studies on this subject suffer from three major limitations. Firstly, the majority of the previous studies in this regard have tried to examine the direct relationship between financial liberalization and economic growth. However, it is now becoming clear that the relationship between financial liberalization and economic growth is direct but it provides a mixed result based on cross-sectional studies. Financial liberalization impacts on economic growth inter alia through its influence on financial deepening and savings. Secondly, the majority of previous studies have concentrated mainly on the use of a bivariate causality test to examine the causal relationship between financial development and economic growth lesser on the effect of financial deepening on the volatility of the stock market. Thirdly, some of the previous studies have relied on the cross-sectional data to examine the relationship between financial liberalization and economic growth. Yet, it is now clear that the cross-sectional studies where the data on countries that are at different stages of financial and economic development may not satisfactorily address the country-specific effects (Odhiambo, 2005). Thus these contradictory results encouraged researchers to investigate the relationship on the country specific basis.

## PROBLEM STATEMENT AND OBJECTIVE OF THE STUDY

Due to complex nature of the problem, financial deepening has been a subject of considerable study. Existing literature on financial deepening and its effect on economic development and stock market provide an insight into the importance of topic and its implications. Generally it was observed that the depth of the financial sector has been found to promote economic growth. As Financial Deepening, which refers to the development of financial system, plays an imperative role for the economic development of a country. It has also been observed that well functioning capital markets increases economic efficiency, investment and growth in the economy. This study therefore aims at responding the question on whether financial deepening facilitates economic growth. Secondly, to examine whether financial deepening creates stock market volatility. Lastly, examine the impact of capital market deepening on the economic development of the country.

## DATA AND METHODOLOGY

The study was descriptive in nature and based on secondary data. It takes into account the financial deepening factors for a period starting from 1991-1992 to 2012-2013. The study specified three explanatory variables on theoretical review to explain financial deepening i.e. money supply to GDP (MS/GDP), domestic borrowing to GDP (DB/GDP), deposits to GDP (D/GDP) and value of Cheques Cleared to GDP (C/GDP). For the analysis of cross sectional data the multiple linear regression analysis was used. Due to non availability of the market capitalization and turnover data on the official site of BSE the data was taken only for the period of 2001- 2013. The data have been collected from BSE and RBI official website.

## MODEL SPECIFICATION

The study uses three models to fulfill its objectives:

$$MS/GDP = \alpha + \alpha_1(DB/GDP) + \alpha_2(D/GDP) + \alpha_3(C/GDP) + \varepsilon_t$$

$$Mkt Vol = \alpha + \alpha_1(DB/GDP) + \alpha_2(D/GDP) + \alpha_3(C/GDP) + \varepsilon_t$$

$$\log(GDP) = \alpha + \alpha_1 \log(MCAP) + \alpha_2 \log(TUR) + \varepsilon_t$$

## RESULTS AND DISCUSSION

### A. REGRESSION RESULT OF FINANCIAL DEEPENING AND ECONOMIC DEVELOPMENT

The summary of the financial deepening regression result from the Least Squares Analysis is as shown in the model summary in Table I. The table presents the results of the empirical regression estimates for the specified equation.

**Table I: Model summary**

R	0.939
R <sup>2</sup>	0.883
Adj. R <sup>2</sup>	0.863
S.E of the estimate	5.360
Durbin Watson	1.229
F- Statistic Value	45.089
Sig	.000

The coefficient of correlation R and Coefficient of determination R<sup>2</sup> measure the explanatory power of the multiple regression model. The results depict that there is a good coefficient of correlation (.939). The implication is that the variables in the equation are useful for explaining the level of financial deepening that has occurred from 1991-92 to 2012-13. There was also good coefficient of determination (88.3 percent). The standard error of

the estimates also known as residual standard deviation has a value of 5.360. The F -statistic value was found to be 45.089. The F value (.000) was significant at the 5 percent level. The overall fit of the regression model measured by the F -statistic, was statistically significant at this level. The Durbin Watson (DW) statistic of 1.229 which was less than 2 indicates that there is no problem of serial correlation in the regression model. This is a case of positive serial correlation. Also, multicollinearity problem seems to be non-existent in the model because all the VIF values are less than 3.

In Table II the estimation results using the three explanatory variables were presented. The results showed that, Domestic Borrowings to GDP, Deposits to GDP and cheques value to GDP are very useful explanatory variables and all of them were significant at 5% level of significance.

**Table II: Estimation results**

Variables	Mean	Std. Deviation	t	Sig.	VIF
DB_GDP	4.03	1.740	4.778	.000*	1.547
D_GDP	7.52	1.454	4.745	.000*	1.409
C_GDP	3.51	1.375	-2.291	.034*	2.038

\*5%Level of Significance

**B. REGRESSION RESULT OF FINANCIAL DEEPENING AND STOCK MARKET VOLATILITY**

The summary of the financial deepening regression result from the Least Squares Analysis is as shown in the model summary in Table III. The table presents the results of the empirical regression estimates for the specified equation.

**Table III: Model summary**

R	0.839
R <sup>2</sup>	0.704
Adj. R <sup>2</sup>	0.654
S.E of the estimate	1136.678
Durbin Watson	1.873
F- Statistic Value	14.250
Sig	.000

The coefficient of correlation R and Coefficient of determination R<sup>2</sup> measure the explanatory power of the multiple regression model. The results depict that there is a good coefficient of correlation (.839). The implication is that the variables in the equation are useful for explaining the impact of financial deepening on the volatility of stock market that has occurred from 1991-92 to 2012-13. There was also good coefficient of determination (70.4 percent). The standard error of the estimates also known as residual standard deviation has a value of 1136.678. The F -statistic value was found to be 14.250. The F value (.000) was significant at the 5 percent level. The overall fit of the regression model measured by the F -statistic, was statistically significant at this level. The Durbin Watson (DW) statistic of 1.873 which was less than 2 indicates that there is no problem of serial correlation in the regression model. This is a case of positive serial correlation. Also, multicollinearity problem seems to be non-existent in the model because all the VIF values are less than 3.

In Table IV the estimation results using the three explanatory variables were presented. The results showed that, Domestic Borrowings to GDP, Deposits to GDP and cheques value to GDP creates volatility in the capital market. Although, deposits to GDP was only one factor that was significant at 5% level of significance and rest were insignificant.

**Table IV: Estimation results**

Variables	Mean	Std. Deviation	t	Sig.	VIF
DB_GDP	4.03	1.740	-.417	.681	1.547
D_GDP	7.52	1.454	5.594	.000*	1.409
C_GDP	3.51	1.375	.006	.995	2.038

\*5%Level of Significance

**C. REGRESSION RESULT OF CAPITAL MARKET DEEPENING AND ECONOMIC DEVELOPMENT**

The summary of the financial deepening regression result from the Least Squares Analysis is as shown in the model summary in Table V. The table presents the results of the empirical regression estimates for the specified equation.

**Table V: Model summary**

R	0.942
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R <sup>2</sup>	0.887
Adj. R <sup>2</sup>	0.862
S.E of the estimate	.07985
Durbin Watson	1.161
F-Statistic Value	35.453
Sig	.000

The coefficient of correlation R and Coefficient of determination R<sup>2</sup> measure the explanatory power of the multiple regression model. The results depict that there is a good coefficient of correlation (.942). The implication is that the variables in the equation are useful for explaining the impact of capital market deepening on the economic growth that has occurred from 2001-02 to 2012-13. There was also good coefficient of determination (88.7 percent). The standard error of the estimates also known as residual standard deviation has a value of 0.07985. The F -statistic value was found to be 35.453. The F value (.000) was significant at the 5 percent level. The overall fit of the regression model measured by the F -statistic, was statistically significant at this level. The Durbin Watson (DW) statistic of 1.161 which was less than 2 indicates that there is positive serial correlation. Also, multicollinearity problem seems to be non-existent in the model because all the VIF values are less than 3.

In Table VI the estimation results using the two explanatory variables were presented. The results showed that, Market Capitalization and Turnover are very useful explanatory variables. Both were significant at 5% level of significance which shows that market capitalization and market turnover significantly affect the economic growth of the country. It means that capital market deepening helps in accelerating the growth of economy.

**Table VI: Estimation results**

Variables	Mean	Std. Deviation	t	Sig.	VIF
MCAP	6.3648	.39130	7.566	.000*	1.688
TUR	5.6947	.18643	-1.983	.079**	1.688

\*5% Level of Significance, \*\*10% Level of Significance

## CONCLUSION

This study has presented the role of financial intermediaries and the capital market in the process of economic development of a country. The results of the study revealed that the level of financial deepening in India has remained relatively good since 1991 in spite of the various ups and downs in the economy. The RBI has taken sincere efforts to make reforms and institutional changes whenever required, may it be the case of Asian financial crisis (1997), US financial crisis (2008) or rupee devaluation (2013). Thus it shows a good sign of Indian economy. The results further revealed that financial deepening creates volatility in the capital market but it is non persistent. Investors' are not under great threat. Government is continuously trying to deepen the financial development in the country by increasing the range of financial assets. This will result in increased investment and improvement in the volume and structure of savings of investors. Strong growth will give the assurance to invest in the system and it will help in developing the capital market further. The benefits of a developed capital market are immense and these have been well researched and proved. The results of the study clearly demonstrated that GDP grows faster with more liquid capital market since 2001. The results of the study can be justified with the growing trend of Indian capital market as well as the GDP. The reason behind this relationship is - liquid markets make investments less risky and more attractive hence allows savers to acquire and sell assets quickly and cheaply, and by making investments less risky and more profitable, it further leads to more investments and so higher growth of the economy.

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