Strengthening the Capital Market in India : A Key to Growth

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Abstract

In order to ensure consistent and inclusive growth of an economy, capital markets play a critical role in mobilizing the savings in productive and long-term assets. Capital markets provide a medium of transforming the economy into a more efficient, competitive market place, provide a medium to diversify the risk, improve the information quality and lead to the adoption of stronger corporate governance norms. The study focused upon the importance of capital markets for sustainable growth in emerging markets like India. The relationship between economy and growth of the capital market in the amount of capital generated through primary issuances, exchange trading turnovers, market indices, market capitalization, and so forth was analyzed.

Keywords: **market turnover, foreign investments, GDP growth, capital markets**

JEL Classification: E22, E44, G21, O16

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The stock market in India dates back to the 18th century when the securities of East India Company were traded in Mumbai and Kolkata and stock broking was not much popular. Real trading in securities came into being in 1850 after the introduction of the Companies Act, and the boom was given by cotton trading in 1860s. At the time of independence, India inherited a poor economy with four stock exchanges, 1119 listed companies with the market value of ₹ 971 crores. The Companies Act, 1956 and other corporate laws like Capital Issues (Control) Act, 1947, Securities Contract (Regulation) Act, 1956, and Foreign Exchange Regulation Act, 1975 were introduced, but the industry did not depend upon the mobilization of resources through equity and debt due to administered interest rate structure and low rates of interest. The demand for long term funds was not significant due to the weak industrial base (O' Brien, 2010).

The period from 1980 to 1992 can be termed as a period of change, signifying the widening and deepening of the capital market in India. Since the mid-1980s, debentures emerged as a powerful instrument of resource mobilization in the primary market. Since the last few decades, the growing importance of stock markets in developing countries in promoting the economic development process has continued to attract attention in both academia and among policy makers. With these developments, stock markets have been playing an important role in mobilizing domestic savings by providing suitable incentives for savers to diversify their portfolios (Vazakidis & Adamopoulos, 2009).

The stock markets also offer capital investment at competitive costs to entrepreneurs that boosts economic development. The introduction of public sector bonds since 1985-86 imparted an additional fillip to the stock market. The mutual fund industry was widened by permitting banks to set up mutual funds as subsidiaries. All these resulted in the growth of the stock market in terms of the number of exchanges, listed companies, their paid-up capital, and market capitalization. There was also an emergence of several institutes like SEBI, CRISIL,

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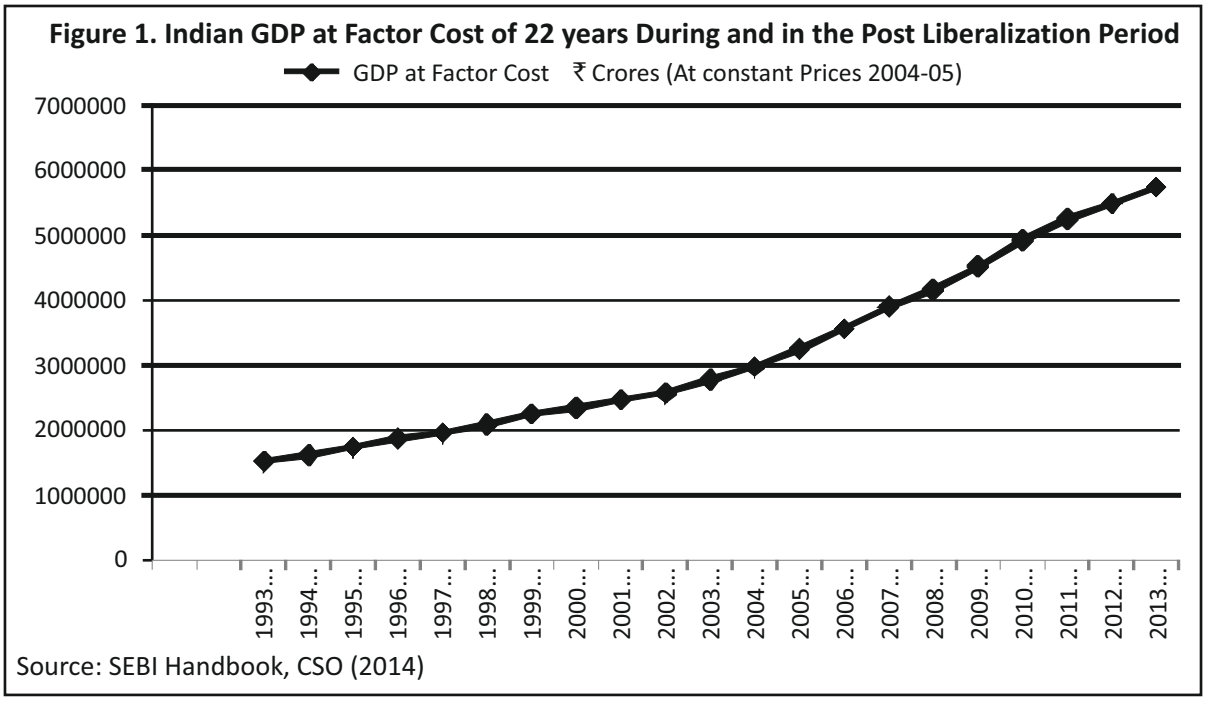


Table 1. Gross Domestic Savings Rate and its Components as Percentage of GDP at Current Market Prices from 1990 to 2012-13

Item ↓ Year →	1990s	2000s	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	Historic High
Gross Domestic Savings	23	30.6	36.8	32	33.7	33.7	31.3	30.1	(2007-08)
Household Sector	17.7	23.1	22.4	23.6	25.2	23.1	22.8	21.9	(2009-10)
Financial	9.6	10.8	11.6	10.1	12	9.9	7	7.1	(2009-10)
Physical	8	12.3	10.8	13.5	13.2	13.2	15.8	14.8	(2011-12)
Private Corporate Sector	3.6	6.3	9.4	7.4	8.4	8	7.3	7.1	(2007-08)
Public Sector	1.6	1.2	5	1	0.2	2.6	1.2	1.2	5.6 (1976-77)

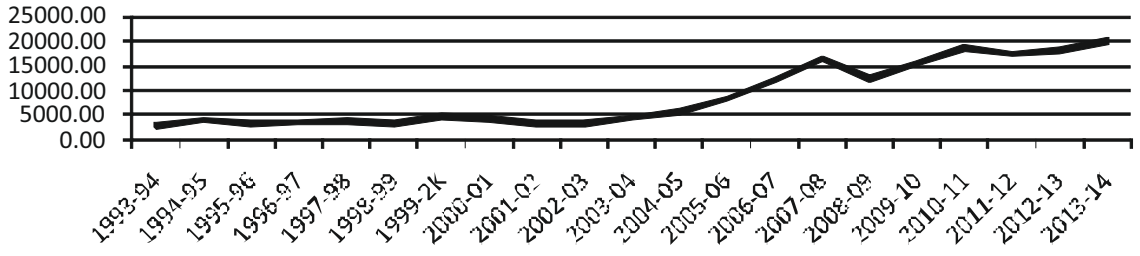
Source: Economic Survey, Various Issues

CARE, ICRA, OTCEI, and SCHIL (custodial service).

BSE has monopolized the Indian stock market. From the late 1992 onwards, the Indian state embarked on a radical reform programme, which completely transformed the stock market. The Figure 1 depicts the trends in Indian GDP from 1990-91 to 2013-14, and it can be inferred that GDP rose manifold during the post liberalization period. The rate of growth was more than 6% during the 2 years after liberalization, but it later declined and again grew at an average of 8% percent for nearly 7 years upto 2012. The current rate of growth has been below 5%. Another important macro economic development indicator has been the savings rate. The Table 1 depicts the growth in gross domestic savings in India from 1990s to the current year. The Table depicts the historic high in the savings from household, financial, physical, and private and public sectors of the economy. The Table 1 shows that the savings rate from all the sectors have been the highest during 2008 to 2010, and thereafter, there was a slight fall in the growth rate from nearly all sectors. However, the growth was more during the open economy regime of India.

In 1911, Joseph Schumpeter argued that financial intermediaries play a pivotal role in economic development and can alter the path of economic development by affecting the allocation of savings (Beck, Levine, & Loayza,

Figure 2. Behaviour of SENSEX During the Last 20 years of Post Liberalization Period i.e. from 1993-94 to 2013-14



Source: BSE, India

2000 ; Schumpeter, 1934). Any relation between stock market and economic development was not recognized until the 1980s. With a change in the economic paradigm, now it has been recognized that stock markets can also play an important role in the development of an economy through creation of liquidity, mobilizing savings, risk diversification, and allocation of savings to developmental projects (Levine, 1991). The Indian stock market has also undergone rapid development in the post liberalization period. The Figure 2 depicts the growth in the Index of BSE Sensex (barometer of the Indian economy) value during the last 20 years of the post liberalization period.

The Figure 2 depicts the growth of the SENSEX value during the last 20 years. It can be retrieved that the growth in its value increased manifold after 2004 and again from 2011. Rising value of index revealed growing investment and mobilization of funds through the stock market. Since 1992, India has experienced two stock market booms - one in 1992-93 and the other in 1999-2000. The first boom reflected the price deregulation and was driven by the liberalization wave. The second generation reform measures included the introduction of Rolling Settlement in 2001, banning of all deferral products such as carry forward, commencement of trading in futures and options, setting up of clearing corporation for government securities, and dematerialization of debt instruments. In order to provide efficiency, liquidity, and transparency in securities trading, the fully automated screen based trading system was introduced in most of the stock exchanges. The NSE pioneered this system of trading by launching the automated trading system NEAT in 1993. Following NSE, BSE introduced BOLT in 1995, and many other exchanges followed suit. As part of a move towards global integration, foreign institutional investors (FIIs) were allowed to invest in the Indian securities market from September 1992. The process of integration received a major impetus when the Indian corporates were allowed to go global with the issue of GDR/ADR/FCCB from November 1993.

For modernizing the trade settlement system, the Depositories Act was passed in 1996, which provided for the establishment of depositories in securities. The objective of this Act is to reduce settlement risk arising out of bad delivery, the time taken for settlement, and due to the physical movement of paper. Accordingly, two depositories were set up in the country, that is, the National Securities Depository Limited (NSDL) and the Central Depository Services Limited (CDSL) to provide instantaneous electronic transfer of securities.

The suggestion to introduce derivative trading in Indian securities market was first made by the L.C. Gupta Committee (1998). Accordingly, the Securities Contracts (Regulation) Act was amended in 2001 to introduce derivative trading in NSE and BSE. To reduce the dominance of trading members in the management of stock exchanges, the government proposed to corporatize the stock exchanges by which ownership, management, and trading membership would be segregated from one another.

To eliminate the counter-party risk that arises from electronic trading, the NSE set up a clearing corporation, the National Securities Clearing Corporation (NSCCL) in 1996. The NSCCL assured the counter-party risk of each member and guaranteed financial settlement. The Central government established a fund called Investor Education and Protection Fund in October 2001 for the promotion of awareness amongst investors and protection

of the interest of the investors. Department of Economic Affairs (DEA), Department of Company Affairs (DCA), the SEBI, and the stock exchanges have set up investor grievance cells for redressal of investor grievances. Rolling Settlement was introduced by SEBI for the first time in 1998 by making it optional for demat scrips. Currently, T+2 day rolling settlement with one day trading cycle is being followed, that is, trades taking place over a day are settled together after two working days.

The growing importance of capital markets around the world has reinforced the belief that finance is an important ingredient for economic growth. The securities segment of the capital markets complement traditional lending institutions by providing risk capital (equity) and loan capital (debt). By means of these instruments, the market is able to mobilize long-term savings and provide capital to investors to finance long-term investments, thereby broadening the ownership of productive assets. Financial structure accelerates economic growth and improves the performance so as to facilitate the migration of funds to the best possible user (Goldsmith, 1969).

Schumpeter (1934) and Patrick (1966) emphasized on the importance of the role played by the financial intermediaries in improving innovation. There has been a direct link between financial markets and real activity. This link was established by Gurley and Shaw (1955) who also stressed that financial markets can extend borrower's financial capacity and improve the efficiency of inter temporal trade, and they can also pool investors' funds and provide external finance to producers. Physical capital accumulation can be enhanced, and thus, financial markets have been required as an impetus to economic development. Costs relating to clearing and settlement also went down thanks to the dematerialization of shares and adoption of the rolling settlement system. Levine et al. (2000) depicted that a strong, positive relation between the level of financial intermediary development and long-run economic growth was not due to simultaneity bias, and it assessed the relation between financial intermediary development and private savings rates, capital accumulation, and total factor productivity growth.

There has also been evidence where it was found that the stock market made a negative contribution to investment in the U.K. and the U.S. (Mayer, 1988). The recent revival in the link between financial development and stock market has been due to the endogenous growth models. The major reason for the lack of empirical literature on the role of the stock market has been because of the absence of a standard set of indicators to measure the extent of development due to the stock market. Stock market development may predict the future economic growth and thus may be considered as a leading indicator rather than a causal one. The researchers have not been completely able to resolve the issue of causality.

Stock market development has been a multidimensional concept. India has an organized stock market. After the introduction of LPG in 1991, the Indian stock market witnessed a tremendous growth in terms of market capitalization, trading volume, liquidity, turnover ratio, and resources generated. The financial market, particularly the stock market, plays a crucial role in the process of economic growth, and the current study focuses on analyzing this relationship.

Economic Growth and Stock Market Development : Theoretical Relationship

The theoretical relationship between economic growth and stock market development can be traced back to the twentieth century to the study of Schumpeter (1934), who found that well-developed financial systems promote investment, finance lucrative businesses, mobilize savings, allocate resources efficiently, diversify the risks, and facilitate the exchange of goods and services. Gurley and Shaw (1955) were the first to study the relationship between real and financial activity of an economy. In the study, it was contended that the process of financial development has been parallel to economic development and emphasized on the reciprocal relationship between the two.

In 1970s, there was evidence which proved a significant correlation between financial development and economic growth (Goldsmith, 1969 ; Shaw, 1973). The stock market played a key role in allocating capital to the

corporate sector (Greenwood & Smith, 1997). Through monitoring and information production functions, stock markets helped entrepreneurs in understanding the market environment by enhancing the knowledge about efficient firm operations, evaluated competitor's current and future plans as well as managerial performance. It revealed the general belief about the economy as a whole (Bencivenga, Smith, & Starr, 1991 ; Perotti & Van Oijen, 1999).

The Keynesian believers talked about the development of financial intermediation for the economic growth. This financial liberalization theory developed by McKinnon (1973) (as cited in Ady, 1973) and Shaw (1973) presented an argument that interest rate liberalization increased savings & investment and resulted in faster economic growth that could, in turn, increase the real interest rates which allowed only the productive projects to succeed, thus increasing the efficiency of investments. The whole process aimed at development of capital markets of developing nations to achieve the neo-classical assumption about interest rates, financial markets functioning, and of the economy in general. It was also assumed that the cost of financial services would come down, and reversal of capital flight may happen due to development of capital markets. However, this financial liberalization theory was not supported by post-Keynesian economists , who presented an argument that the economy of any country has been demand-led. The neo-classical theory provided has a main drawback that the rise in interest rates may not exactly lead to increase in the savings in an economy as it can rise only if the income rises. Real returns on capital have been higher in the developed nations, so this theory has not been successful in the developing nations. Fritz (1984) analyzed the performance of Philippines's economic development and financial deepening (increase in activity of financial intermediaries and commercial banks), and it found that financial deepening had an important role to play in economic development. Through increased savings and investments, the economies of developed nations improved. Supply-leading hypothesis was proved, and demand-pull hypothesis was rejected.

Levine (1991) found a positive relation between financial stock market and economic growth by issuing new financial resources to the firms. Spears (1991) reported that in the early stages of development, financial intermediation induced economic growth. The financial stock market facilitates higher investments and the allocation of capital and indirectly the economic growth. Sometimes, investors avoid investing directly into the companies because they cannot easily withdraw their money whenever they want. However, through the financial stock market, they can buy and sell stocks quickly with more independence. Levine and Zervos (1998) measured stock markets' development along with different magnitude and suggested a strong & statistically significant relationship between initial stock market development and subsequent economic growth. An efficient stock market contributes to attracting more investment by financing productive projects that lead to economic growth, mobilize domestic savings, allocate capital proficiency, reduce risk by diversifying, and facilitate the exchange of goods and services. Financial development has substantial supportive evidence on the rate of economic growth by reducing the cost of external financing to financially dependent firms. A country's investment opportunity set may change, thereby enhancing long-run growth in terms of development of new firms and increasing innovation (Rajan & Zingales, 1998).

Kamat and Kamat (2007) investigated the nexus between developments in financial intermediation and economic growth for India for the period from 1971 to 2004 and supported the argument that financial sector growth stimulated the economic growth of the country. The study tried to find out the answers to the questions like if stock market development has an effect on the economic growth of the economy, then what were the determinants affecting stock market development in India. It depicted the supply leading hypothesis, but the study by Paramati and Gupta (2011) reported the evidence in favour of demand following hypothesis that economic growth played an important role in stock market movements. The study reported a causal nexus between economic and stock market growth. Bhattacharya and Sivasubramanian (2003) also supported the supply leading hypothesis which indicated that financial sector stimulated economic development.

Although there has been large evidence for the integration between the capital market and the economy,

Table 2. Evidence from the Past on Relation Between Stock Market and Economic Development of Various Economies of the World

Author	Market	Findings
Atje and Jovanoic (1993)	Forty economies	Stock market has a positive impact on economic development.
Levine and Zeros (1998)	Forty one countries	Stock market remained positively correlated with economic growth in the longer duration.
Capasso, S. (2006)	Twenty four OECD countries	Strong positive correlation between stock market and economic growth ; although with a high level of capital formation, the economy reached a reasonable size.
Padhan (2007), Singh (2008)	India	Biodirectional causality between financial development and economic growth.
Azarmi et al.(2005)	Indian	No causal link between stock market development and economic growth.
Boubakari (2010)	Euronext Countries	High causal relation in economic and stock market growth with the countries having highly liquid and active market.

however, Bekaert (1995) raised serious concerns due to this. It was identified that this increase in integration would lead to lower diversification benefits and would thus reduce the appetite of international investors in the emerging economies' stocks. The strategies for investment might change, and investors would start practicing global-asset-allocation strategies.

The Table 2 depicts the major findings of the studies conducted on various markets, revealing the relationship of stock market developments and economic growth. The relationships have reported that financial markets are important engines to boost the overall growth of economies.

Objectives of the Study

The current study intends to achieve the following objectives :

(i) Examine the role of the stock market in the development of the Indian economy during the last 20 years of the post liberalization period.

(ii) To identify pertinent determinants of stock market development in India for economic growth.

Research Methodology

To analyze the growth of the Indian stock market, three macro variables have been chosen, the data for which was retrieved from the websites of BSE, NSE, SEBI, RBI, and Ministry of Statistics and Programme Implementation. The sample period of this study is 20 years in the post liberalization period, that is, from 1994-95 to 2013-14. Annual figures have been considered for various decision variables and empirical data has been of time series.

To measure the growth of the Indian stock market, the present study has considered the oldest stock exchange of India, that is, the Bombay Stock Exchange (BSE, India). The current study is based on descriptive design and uses secondary data. A developed stock market may play a significant role in the development process of an economy by enhancing liquidity, mobilizing more capital, increasing the savings, providing risk pooling, and exerting corporate control. Accurate measure of these functions may not be constructed, but to explain the current research problem of relationship between stock market and economic development, the following four stock market measures have been used by the academicians and practitioners (Demirguc-Kunt & Levine, 1996; Levine & Zervos, 1998).

(1) Market Capitalization Ratio: The study has considered market capitalization as a proxy to measure the size of

the stock market as market size is related with ability to mobilize capital and diversify risk on an economy-wide basis. It is also an indicator of the measure of availability of finance. An empirical study by Demirguc-Kunt and Levine (1996) found that large stock markets have been less volatile, more internationally integrated, stronger with regard to information and international accounting standards, and have unrestricted capital flows. In the context of the current study, market capitalization ratio has been considered, which is total value of listed shares divided by GDP. It has been argued that the ratio of market capitalization to GDP was a useful tool in characterizing the time-series analysis of stock markets (Bekaert & Harvey, 1997).

(2) Sensex Returns: Growth of the market has been analyzed with returns of Sensex in the post liberalization period as it has been regarded as a barometer for the Indian stock market, so the growth here has been directly reflected by the returns earned by the Sensex (BSE Index).

(3) Traded Value Ratio : Measured by the total value of shares traded on the stock market divided by GDP, the ratio has been used to analyze the organized trading of equity as a share of national output. Although the market may be large, but there could be lower trading, which ultimately represented the greater liquidity in the market on an economy wide basis.

(4) Turnover Ratio: Also the measure of liquidity, it is calculated by dividing turnover with market capitalization and analyzes the size of equity transaction relative to the size of the market. High turnover indicates lower transaction costs, greater liquidity, and market efficiency.

It is worth noting here that the turnover ratio complements the earlier cited measure of liquidity, although markets may be small compared to the size of the economy (as measured by the value traded as a percentage of GDP), they may be liquid. Thus, while an absolute measure of liquidity (such as the value traded as a percentage of GDP) may be indicative of liquidity in the economy as a whole, it may be misleading as a measure of market liquidity if the size of the economy was very large. A classic example has been Brazil, where there was not much equity trading relative to the size of the economy (large), however, it had a higher turnover ratio, reflecting a small but an active stock market (Demirguc-Kunt & Levine, 1996). Consequently, incorporating market size measures by market capitalization, total value traded as a percentage of GDP, and the turnover ratio provided a more comprehensive picture of stock market development than any other single indicator.

The following statistical techniques have been used to analyze this relationship.

↳ **Descriptive Statistics :** To analyze the relationship between market and economic growth, the following descriptive statistics have been used :

(i) Mean value is the arithmetic average of the series obtained by dividing the sum of the series by the number of observations in the series. Average performance has been obtained to analyze various stocks styles during the study period.

(ii) Standard Deviation measures the variability of the underlying data. Lower standard deviation indicates the data points to be closer to mean and higher values depict data points spread out over large range of values. In finance, it is identified with historical volatility and is obtained as follows :

$$S = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(x-\bar{x})^2}$$

Table 3. Relation Between IIP and Stock Market Development

R	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	Durbin-Watson
.636[a]	.405	.246	3.49931	1.925

a. Predictors: (Constant), MCR, TVR, SenR, TR
b. Dependent Variable: IIP

Table 4. Relation Between Growth of GDP and Stock Market Development

R	*R* Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.797[a]	.636	.538	1.27915	2.090

a. Predictors: (Constant), MCR, TVR, SenR, TR
b. Dependent Variable: AGR of GDP

where,

n = number of observations in the data series,
$\overline{x}$ = is the arithmetic mean of the series.

(iii) Variance is the square of variance to combine positive and negative observations and is described as :

$$\text{Sigma} = \sigma^2$$

(iv) Skewness : The measure of asymmetry of the distribution of the series around its mean has been used.

$$S = \frac{1}{N}\sum_{t-1}^{n}\left(\frac{y-\overline{y}}{\hat{\delta}}\right)^3$$

where,

σ = the estimator of standard deviation,

$\overline{Y}$ = is the mean,

N = No. of observations.

The skewness of a symmetric distribution (normal distribution) is zero. Positive skewness means that the distribution has a long right tail, and negative skewness applies that the distribution has a long long left tail.

(v) Kurtosis is the measure of whether the data is peaked or flat relative to the normal distribution. It can be calculated as under :

$$S = \frac{1}{N}\sum_{t-1}^{n}\left(\frac{y-\overline{y}}{\hat{\delta}}\right)^4$$

where,

σ = the standard deviation,

$\overline{x}$ = is the mean,

N = No. of observations.

The Kurtosis for a standard normal distribution is three. Distributions with negative or positive excess kurtosis are called platykurtic distributions or leptokurtic distributions, respectively.

↳ **Empirical Model :** The present study has applied regression analysis to test the hypothesis that whether the stock market affects economic growth of India. In order to assess the relationships between stock market development and economic development indicators, multiple regression has been run with plausible influencing variables. The performance variables of economic development were regressed with their possible influencing independent variables, that is, turnover ratio, traded value ratio, market capitalization ratio, and Sensex returns to arrive at a statistical equation.

Analysis and Results

The following sections show the results of the relationship between economic growth and stock market development.

(1) Regression Results of Stock Market Development Variables on IIP as a Proxy for Economic Development : From the Table 3, it can be predicted that 24.6% variation in IIP as a proxy for growth of the Indian economy can be explained by variation in stock market development indicators, that is, market capitalization ratio, traded value ratio, Sensex returns, and turnover ratio. The null hypothesis that there is no significant relation between IIP and stock development is rejected and that there is no problem of multicollinearity and autocorrelation. Beta values reflect that the turnover ratio and traded value ratio are relatively more significant in determination of growth of IIP, but ANOVA as per Annexure 1 reports that the model is not good fit.

IIP = 7.084 + 0.047 (Sensex Returns) + 0.358 (Traded Value Ratio) - 0.124 (Turnover Ratio) – 0.046 (Market Capitalization Ratio) (1)

The above regression equation shows a positive relation between IIP and sensex returns & traded value ratio, but IIP is negatively related with turnover and market capitalization ratio.

From the Table 4, it can be predicted that 53.8% variation in the growth rate of GDP as a proxy for growth of the Indian economic development can be explained by variation in stock market development indicators, that is, market capitalization ratio, traded value ratio, sensex returns, and turnover ratio. The results reject the presence of any problem of multicollinearity and autocorrelation. ANOVA results as per Annexure 2 report that the model is the best fit and rejects the null hypothesis that there is no significant relationship between growth of GDP and stock market development. Turnover and traded value ratios are found as the most significant variables in explaining the variation in growth rate of GDP.

GR of GDP = 6.214 + 0.011 (Sensex Returns) + 0.230 (Traded Value Ratio) - 0.081 (Turnover Ratio) – 0.011 (Market Capitalization Ratio) (2)

The above regression equation depicts that there is a positive relation between growth rate of GDP and sensex

Table 5. Relation Between Growth of Net Domestic Savings in Indian Economy in the Post Liberalization Period and Stock Market Development

R	*R* Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.850[a]	.723	.644	7.70279	2.404

a. Predictors: (Constant), MCR, TVR, SenR, TR
b. Dependent Variable: Savings GR

returns & traded value ratio, but growth rate of GDP is negatively related with turnover and market capitalization ratio.

The Table 5 reports the explanation of 64.4% variation in the dependent variable; growth in net domestic savings can be explained by the four independent variables measuring the Indian stock market's growth rate considered in the current study taken together. The statistics have depicted the issue of multicollinearity and autocorrelation, and rejected the null hypothesis of no significant relationship between growth of net domestic savings and stock market development. ANOVA table in Annexure 3 reports that the above model is a good fit and Sensex returns has been the only significant variable in explaining the variation in growth rate of net domestic savings.

GR of NDS = 24.152 + 0.431 (Sensex Returns) - 0.022 (Traded Value Ratio) - 0.117 (Turnover Ratio) – 0.112 (Market Capitalization Ratio) (3)

The above regression equation depicts that there is a positive relation only between growth rate of net domestic savings in the economy and sensex returns, but for all other independent variables - traded value, turnover, and market capitalization ratio, a negative relation has been reported.

The Table 6 reports the results for descriptive analysis of stock market growth indicators and economic development variables. The data reveals that turnover and market capitalization ratios have witnessed larger variation during the study period. Positively skewed turnover and traded value ratio have also depicted kurtosis >3, reflecting high peakedness in the growth of these two ratios. Market capitalization and Sensex returns have revealed lower peakedness in the data and the growth has been platykurtic in nature. Amongst dependent variables, variation has been higher in savings growth.

Discussion

The current study has made an attempt to analyze the relationship between stock market and economic development in the Indian economy during 20 years of the post liberalization period. The study primarily revolves around two arguments that whether there exists a relationship between stock market development and economic development indicators, and what are the most significant factors in analyzing this relationship. The results have

Table 6. Descriptive Statistics for Indicators of Indian Economy and Stock Market Development During the 20 Years Study Period During Post Liberalization (April 1994- March 2014)

Variable	Sensex Returns	Traded Value ratio: Turnover/ GDP	Turnover Ratio: Turnover/ Market Cap	MCR (MC to GDP)	AGR of GDP at Factor Cost	IIP Annual Growth Rate	Savings Growth
Mean	12.65	18.58	37.10	69.35	6.89	6.57	17.27
Standard Error	5.34	2.58	8.29	10.22	0.42	0.90	2.96
Median	10.22	15.60	28.75	50.22	6.90	6.40	19.24
Standard Deviation	23.87	11.53	37.06	45.72	1.88	4.03	12.91
Sample Variance	569.79	132.95	1373.11	2090.28	3.54	16.24	166.78
Kurtosis	-1.37	3.11	10.52	-1.66	-1.19	0.12	-0.40
Skewness	-0.04	1.60	2.94	0.41	-0.21	0.54	-0.51
Range	73.67	47.89	169.67	116.79	5.70	15.60	44.57
Minimum	-25.37	4.66	5.30	22.26	3.90	-0.10	-8.45
Maximum	48.30	52.55	174.97	139.05	9.60	15.50	36.12

reported that out of three independent variables as a proxy for Indian economic development, that is, IIP growth rate, annual growth rate of GDP, and growth rate of net domestic savings, growth rate of GDP and net domestic savings have been better predictors of economic development in India. The variation in GDP is better explained by Sensex returns and traded value ratio ; whereas, variation in growth rate of net domestic savings is better explained by Sensex returns. Turnover and market capitalization ratio did not have a significant impact in boosting the economic growth. The regression results have depicted that for the development of an economy, strengthening of the capital market is an important factor.

The descriptive analysis has reported higher volatility in traded value and turnover ratio. It has been observed that the growth in dependent variables has been platykurtic except IIP, which reported leptokurtic growth during the study period. It has been revealed that stock market development augments the growth of the economy. However, the choice of determinants will affect the analysis of growth. Growth of net domestic savings has been a better predictor of Indian growth by the independent variables of stock market development followed by growth in IIP, and the association revealed by these two models is also significant. Amongst the predictors of stock market growth, traded value ratio and Sensex returns need to be chosen for the proxy of Indian stock market growth. It has also been reported that to increase the growth in net domestic savings, growth in Sensex values has a positive relation.

Research Implications

The theoretical arguments have supported the view of a positive relationship between stock market growth and economic development. It is suggested that the capital market regulators must frame effective policies which could enhance the growth of the stock market and strengthen it by increasing its size, amount traded, and liquidity so as to augment the economic growth in India. The prioritization of this development can be spurred by relaxing laws, listing requirements for companies, and creating a safer environment for trading. In the modern timing of a volatile environment, safer investments and increased competition will significantly influence the growth of the Indian stock markets so as to support the economic development.

Conclusion

The study was undertaken with an intention to examine the role of stock market development in the growth of Indian economy during the post liberalization period and examining the macro determinants as a proxy for growth. It has supported the supply leading hypothesis, which indicates that financial sector development (stock market development) leads to the development of the economy in the Indian context (Bhattacharya & Sivasubramanian, 2003 ; Kamat & Kamat, 2007). The increased integration between financial markets and economic growth will ultimately direct the money in priority sectors of the economy so as to support the growth. The linkage between stock markets and economic growth may also help investors to predict future movements of stock markers and plan investment strategies for asset allocation.

Limitations of the Study and Scope for Future Research

The current study was confined to identify the role of the Indian capital market in boosting the economic growth of a country, and it has identified that the markets play a pertinent role. The study analyzed the relationship between markets and economy only in the post liberalization period. The variables measuring economic development and stock market development were confined to the pertinent variables selected on the basis of previous studies.

The study has generated evidence of the relationship between stock market and economic development in the long run only. Studies in the future may also explore the relationship during the short run upto one year also. The

challenge for future research will be to explore the causal relationship between financial markets and other economic growth indicators and suggest to the policy makers to fame strategies that may improve the performance of stock markets to augment the economic development.

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Annexure: 1

Results for the Relation between IIP and Stock Market Development Indicators

ANOVA[b]

Model	Sum of Squares	*df*	Mean Square	*F*	Sig.
Regression	124.804	4	31.201	2.548	.083a
Residual	183.678	15	12.245		
Total	308.482	19			

a. Predictors: (Constant), MCR, TVR, SenR, TR
b. Dependent Variable: IIP

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	7.084	2.098		3.377	.004		
SenR	.047	.045	.278	1.047	.312	.562	1.780
TVR	.358	.212	1.025	1.690	.112	.108	9.263
TR	-.124	.072	-1.137	-1.723	.105	.091	10.961
MCR	-.046	.026	-.520	-1.767	.098	.459	2.180

a. Dependent Variable: IIP

Collinearity Diagnostics[a]

Model	Dimension	Eigen value	Condition Index	Variance Proportions				
				(Constant)	Sen R	TVR	TR	MCR
	1	3.552	1.000	.01	.01	.00	.00	.01
	2	.867	2.024	.00	.26	.00	.02	.02
	3	.468	2.754	.03	.32	.00	.01	.11
	4	.096	6.086	.92	.03	.03	.00	.35
	5	.017	14.608	.03	.38	.97	.97	.51

a. Dependent Variable: IIP

Annexure: 2

Results for Relation between Growth Rate of GDP of India and Stock Market Development Indicators

ANOVA[b]

Model	Sum of Squares	*df*	Mean Square	*F*	Sig.
Regression	42.802	4	10.701	6.540	.003a
Residual	24.543	15	1.636		
Total	67.346	19			

a. Predictors: (Constant), MCR, TVR, SenR, TR

b. Dependent Variable: GR of GDP

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	6.214	.767		8.104	.000		
SenR	.011	.016	.140	.674	.510	.562	1.780
TVR	.230	.077	1.409	2.970	.010	.108	9.263
TR	-.081	.026	-1.592	-3.085	.008	.091	10.961
MCR	-.011	.009	-.260	-1.131	.276	.459	2.180

a. Dependent Variable: GR of GDP

Collinearity Diagnostics[a]

Dimension	Eigenvalue	Condition Index	Variance Proportions				
			(Constant)	Sen R	TVR	TR	MCR
1	3.552	1.000	.01	.01	.00	.00	.01
2	.867	2.024	.00	.26	.00	.02	.02
3	.468	2.754	.03	.32	.00	.01	.11
4	.096	6.086	.92	.03	.03	.00	.35
5	.017	14.608	.03	.38	.97	.97	.51

a. Dependent Variable: GR of GDP

Annexure: 3

Results for Relation between Growth Rate in Net Domestic Savings of Indian Economy and Stock Market Development Indicators

ANOVA[b]

Model	Sum of Squares	*df*	Mean Square	*F*	Sig.
Regression	2170.972	4	542.743	9.147	.001a
Residual	830.662	14	59.333		
Total	3001.634	18			

a. Predictors: (Constant), MCR, TVR, SenR, TR

b. Dependent Variable: Savings AGR

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	24.152	4.623		5.224	.000		
SenR	.431	.101	.818	4.288	.001	.543	1.843
TVR	-.022	.519	-.020	-.043	.966	.093	10.706
TR	-.117	.172	-.338	-.683	.506	.080	12.431
MCR	-.112	.065	-.387	-1.720	.107	.390	2.566

a. Dependent Variable: Savings AGR

Collinearity Diagnostics[a]

Dimension	Eigen value	Condition Index	Variance Proportions				
			(Constant)	SenR	TVR	TR	MCR
1	3.578	1.000	.01	.01	.00	.00	.01
2	.862	2.037	.00	.27	.00	.01	.01
3	.444	2.840	.03	.30	.00	.01	.11
4	.102	5.916	.92	.02	.02	.00	.28
5	.014	16.213	.03	.39	.97	.97	.60

a. Dependent Variable: Savings AGR