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Capital Market Efficiency and Economic Growth: The Scenario of India

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Abstract
This study uses time series data on market capitalization, total market turnover, and the stock price index for the period spanning from the first quarter of 1991 to the first quarter of 2010 to assess the effect of capital market efficiency on economic growth in India. The use of the multiple regression model demonstrates that India's capital market has the ability to support the nation's economic expansion. High market capitalisation and comparatively high market liquidity are to blame for this. Hence, market organisations and laws should be designed in such a way that a big number of local and international investors enter the market with massive listings, investments, and trading, ensuring the exact goal of efficient allocation of economic resources for the country's long-term progress.

Keywords: India, Capital Market, Market Efficiency, Economic Growth JEL Classification.

1. Introduction

Since the previous several decades, researchers, academics, and policymakers have acknowledged the importance of the capital market as an efficient route of financial intermediation as a fundamental predictor of a country's economic growth, both developed and developing. Cross-country research supports the concept that effective financial intermediation is critical to economic development and positively promotes growth (e.g., King and Levine 1993a and 1993b; Beck, Levine and Loayza 2000 [7]; Levine, Loayza and Beck 2000) [7]. Walter Bagehot contended in his classic, Lombard Street, published in 1873, that England's efficient capital markets enabled the industrial revolution.

In a modern economy, economic growth is dependent on an effective financial sector that pools domestic savings and mobilises foreign capital for productive investments. Underdeveloped or poorly performing capital markets are often illiquid and costly, discouraging overseas investment. Additionally, illiquidity and high transaction costs impede bigger domestic firms' capital-raising attempts and may force them to seek finance in international markets.

According to Pagano (1993) [36], the modern theoretical literature on financial development and growth outlines three main mechanisms via which capital markets and economic growth may be linked: First, capital market development raises the share of savings directed towards investments; second, capital market development may alter the savings rate, so influencing investments; and third, capital market development improves the efficiency of capital allocation. In accordance with these channels, establishing an efficient capital market to connect net savers (households) and net investors (entrepreneurs) results in a reduction of transaction costs associated with funnelling savings, making household savings highly liquid, enabling the selection of efficient investments by efficiently gathering information on investment returns, and providing markets for risk diversification by households and corporations.

If capital markets are inefficient, public offerings are virtually eliminated due to excessive transaction costs or the uncertainty of obtaining a fair price on the stock market. Consequently, inefficient capital markets may limit the motivation to start new businesses, lowering the economy's total long-term productivity. On the other hand, an efficient capital market lowers the transaction costs of exchanging physical asset ownership, paving the path for the establishment of an optimum ownership structure.

Consequently, efficient and liquid capital markets facilitate the effective mobilisation of money for long-term investment

goals by shifting them from surplus spending to deficit spending economic units (Ekineh, 1996) [14]. In summary, an efficient capital market is required for long-term capital creation growth (Osaze, 2000) [35]. According to Ekundayo (2002) [15], a country requires a large amount of both domestic and international investment to achieve long-term economic growth and development. The capital market provides a mechanism for this to happen. Moreover, capital markets enable investors to buy and sell existing assets, encouraging the population to invest in securities and stimulating economic growth (Ewah, *et al* 2009) [17].

As a result, a well-functioning capital market influences liquidity, company information acquisition, risk diversification, savings mobilisation, and corporate control (Anyanwu 1998) [4]. As a result, the operation of stock markets can affect the rate of economic growth by changing the quality of these services (Equakun 2005) [16].

With this context in mind, the purpose of this article is to investigate the influence of capital market efficiency on economic growth in India. The remainder of the study is organised as follows: Section II provides an overview of the Indian capital market; Section III reviews related literature; Section IV explains the data and methods; Section V analyses the data; and Section VI ends the discussion.

2. Indian Capital Market: An Overview

The capital market in India began to grow in the eighteenth century, when East India Company securities were exchanged in the nation. In the 1850s, trade was confined to a dozen brokers, who met under a banyan tree in front of Bombay's Town Hall. The location of trading moved frequently as the number of brokers rose. The company finally relocated to Dalal Street in 1874 and became a formal organisation known as "The Native Share & Stock Dealers Association" in 1875. This organisation was founded in 1895 and opened its doors in 1899 on Dalal Street. As a result, the Bombay Stock Exchange was consolidated thus the orderly expansion of India's stock market began. The Bombay Stock Exchange was established in May 1927 as a result of the Bombay Securities Contracts Control Act of 1925. On January 26, 1950, India's constitution was ratified. The stock exchanges and forward markets are under the sole jurisdiction of the Government of India, according to the constitution.

The BSE was the first stock exchange approved by the Indian government under the Securities Contracts (Regulation) Act in 1956. The primary goal of recognising the Indian capital market is to mobilise savings from various economic units for economic growth and development, to provide adequate liquidity to investors, to broaden the ownership base of assets, to create a thriving private sector, and to provide an alternative source of funds for the government. Encourage more efficient allocation of new investments through the price mechanism; encourage more efficient allocation of a given amount of tangible wealth through changes in wealth composition and ownership; create built-in efficiency in financial system operations and allocation to ensure optimal resource utilisation; and promote rapid capital formation.

The Indian securities market saw phenomenal expansion in the 1980s, with millions of investors unexpectedly discovering rich opportunities. For the first time, many investors entered the stock market. Its expansion was fueled by the government's liberalisation effort, which began in the mid-1980s. The Bombay Stock Exchange created the BSE Sensex in 1986, offering the BSE a way to gauge the exchange's overall performance.

The 1990s will be remembered as the most crucial decade in the history of India's capital market. The 1947 Capital Issues (Control) Act was abolished in May 1992. A new industrial policy, the emergence of SEBI as a capital market regulator, the arrival of foreign institutional investors, euro issues, free pricing, new trading practises, new stock exchanges, the entry of new players such as private sector mutual funds and private sector banks, and primary market boom and bust characterised the decade. The 1991-92 securities fraud exposed the financial system's shortcomings and inefficiencies. The swindle was the catalyst for equity market reform. In terms of technology and market values, the Indian stock market has undergone a sea shift. The trading mechanism has undergone drastic modifications as a result of technological advancements. The Bombay Stock Exchange (BSE) faced state-wide competition from two new stock exchanges: the National Stock Exchange (NSE), established in 1994, and the Over the Counter Exchange of India (OTCEI), established in 1992. In order to improve clearing and settlement and dematerialized trade, the National Securities Clearing Corporation (NSCC) and National Securities Depository Limited (NSDL) were established in April 1995 and November 1996, respectively. In 1995-96, the Securities Contracts (Regulation) Act was changed to allow for the introduction of options trading. Furthermore, in January 1998, the rolling settlement was implemented for all enterprises' dematerialized segments. Stock market involvement has expanded as a result of automation and geographic diffusion. The National Stock Exchange of India created the S & P CNX Nifty and CNX Junior Indexes in 1996, which comprise the 100 most liquid stocks in India. The CNX Nifty is a diverse index comprised of 50 equities representing 25 different economic sectors. India Index Services and Products Limited (IISL), which has a consulting and licencing relationship with Standard & Poor's, owns and manages the Indices. The National Stock Exchange of India opened its website in 1998, and it was the first exchange in India to begin trading shares over the Internet in 2000. The NSE has also demonstrated its leadership in the Indian financial industry by receiving several honours, including the Computer Society of India's 'Best IT Use Award' (in 1996 and 1997) and the CHIP Web Award from CHIP magazine (1999).

The BSE opened its derivatives market in 2000, trading Sensex futures contracts, using the sensitive index, i.e., Sensex. In 2001 and 2002, the BSE's trading platform was expanded with the introduction of Sensex options and equity derivatives. In 2003, the implementation of a rolling settlement mechanism for all scrips and electronic fund transfers lowered the settlement period to T+2. Thus, the Indian capital market in 2007-08 has a developed regulatory environment, modern market infrastructure, steadily increasing market capitalization and liquidity, improved resource allocation and mobilisation, a rapidly developing derivatives market, a robust mutual fund industry, and increased issuer transparency. Nevertheless, from the fourth quarter of 2008 to the first quarter of 2009, the capital market saw a period of downsizing as a result of the direct impact of the global financial crisis, which started in the subprime mortgage market in the United States. With the global financial crisis, the Indian stock market has seen its worst period. The most popular stock index, the Sensex, has fallen to levels last seen in December 2005. A similar decrease has been observed for the S & P CNX Nifty index.

Notwithstanding a drop in major capital market indexes in the first quarter of 2009, Indian stock markets presently show considerable resilience to global financial contagion. This implies that the Indian capital market has significant investor trust and risk diversification.

The Indian capital market plays three roles in the development of the economy: first, it provides opportunities for companies to borrow funds needed for long-term investment purposes; second, it provides an avenue for the marketing of shares and other securities in order to raise fresh funds for expanding operations and increasing output; and third, it provides a means of allocating the nation's real and financial resources among various industries and companies. The capital market guarantees an efficient and effective distribution of limited resources for the benefit of the economy through the capital production and allocation mechanism. Fourth, it lowers the business sector's over-reliance on short-term financing for long-term initiatives while simultaneously allowing the government to finance projects targeted at providing basic amenities for socioeconomic growth. Finally, it can help the government with its privatisation drive by selling shares in public firms on the stock exchange to members of the public. Last but not least, it facilitates international capital inflows when foreign companies or investors invest in domestic securities, offers required seed money for creative capital growth, and serves as a trustworthy vehicle for extending the ownership base of family-owned and dominated firms.

3. Literature Review

There is substantial literature on the function of the capital market in a country's economic growth process. Joseph Schumpeter made the most significant and systematic early contribution to financial and economic growth. Schumpeter (1912) [39]. Maintained that financial development promotes economic development and that financial markets stimulate economic expansion by backing entrepreneurs, particularly those with high-return ventures. Goldsmith's empirical investigation, on the other hand, took a methodical approach to the topic (1969) [20]. He found a link between financial development (as measured by the value of financial intermediary assets in relation to GDP) and economic growth. Nevertheless, the foundational work of McKinnon (1973) [31]. and Shaw (1973) [40]. emphasised the significance of financial development in driving economic growth. Their theory was that financial liberalisation and deepening in nations suffering from shallow finance' or 'financial repression' is vital to these countries' economic success. Since this trailblazing contribution, academics and policymakers have debated the link between economic growth and financial development (De Gregorio and Guidotti, 1995) [11]. A growing corpus of theoretical and empirical work exists on how financial intermediation mobilises savings, distributes resources, diversifies risks, and helps to economic growth (Jbili, Enders, and Treichel, 1997; Greenwood and Jovanovic, 1990) [22].

While perceptive, these early works lack rigid analytical systems. Beginning in the early 1990s, a growing body of work has developed a set of analytical frameworks that demonstrate how financial intermediaries and markets appear endogenously to contribute to long-run economic growth. Levine (1996) [29], Jacque (2001) [23], Tufano (2003) [41], Chou (2007) [10], Agarwal (2000) [1], Mohtadi and Agarwal (1998) [32], Sarkar (2006) [38], Capasso (2006) [8], Kamat, Kamat and Murthy (2007) [25], Agrawalla and Tuteja (2007) [3], Deb and Mukherjee (2008) [12], and Chakraborty (2008) [9] have all made significant contributions to the literature.

With the introduction of the Efficient Market Hypothesis (EMH) by Fama, this theoretical and empirical explanation of the relationship between the capital market and a country's economic growth has taken on a new hue (1965). The capital market, it has been said, must run properly in order to contribute to a country's economic growth and development. If the market functions properly, public trust will be established, and so investors will be prepared to part with hard-earned assets and invest them in securities in the hope of recouping their investment in the future. Investors will be deterred to invest their cash if the market is too unnecessarily speculative. The conclusion is that the entrepreneurs will be unable to raise further funding for growth. Every country's economic growth would suffer as a result of such a predicament. Consequently, it is sufficient to state that capital market efficiency is an essential prerequisite for a country's growth and development.

In an exposition, Gabriel (2002) [21], as articulated by Han (2003), focuses on the Romanian capital market and finds that the system is inefficient, and so has not contributed to Romania's economic progress.

In more recent research, Ewah *et al*. (2009) [17] use time series data from 1961 to 2004 to assess the influence of capital market efficiency on Nigerian economic development. The study discovered that the Nigerian capital market has the ability to stimulate growth, but it has not contributed significantly to the country's economic progress due to low market capitalization, poor absorptive capitalisation, illiquidity, and misuse of money, among other factors.

As previously stated, the empirical financial economics literature is rather limited to the question of capital market efficiency having an influence on a country's economic growth. Yet there are basically no studies in the literature on an emerging market economy like India. As a result, this study is maybe the first attempt in this way.

4. Data and Methodology

The purpose of this research is to look at the influence of capital market efficiency on India's economic growth. Multiple regression analysis using Ordinary Least Square (OLS) estimation techniques was employed in this study's computational methodology. The OLS approach was chosen because it produces the best linear unbiased estimators (Wannocott and Wonnocott, 1972; Koutsoyiannis, 1985; and Nyong, 1993) [33]. The research period runs from 1991:Q1 through 2010:Q1. The capital market efficiency is determined by a number of factors, including how financial assets are priced, such as interest rates and market price for risk, transactions in buying and selling securities (liquidity), an efficient information system, the size of the stock market (market capitalization), the number of listed equities, and the level of money supply in the economy. The interdependence of these elements maintains the capital market's effectiveness in mobilising and allocating resources for economic growth. The Stock Exchange of Bombay (BSE) is regarded as the representation of the Indian capital market in this study because to its undeniable popularity among academicians, market analysts, investors, and researchers.

GDP is for real gross domestic product (a proxy for economic growth), MC stands for stock market capitalization, MT stands for total market turnover, and S stands for the Sensex stock price index. All-time series are analysed using their natural logarithms. The RBI database on the Indian economy was used to acquire all of the quarterly data for the sample period.

5. Results and Discussion

Table 1 displays the regression equation and findings for capital market efficiency and economic growth. The coefficient of the constant term is 7.52, which is both positive and significant. The logarithm of stock market capitalization (LMC) coefficient is 0.238, which is noteworthy. This suggests that the country's huge capital market size has the ability to boost economic growth. The log of total market turnover (LMT) coefficient is 0.151, which is similarly noteworthy. It implies that the ease and efficiency with which securities may be bought and sold has the potential to boost India's economic growth. Additionally, the log coefficient of the BSE Sensitive index, while positive, is not statistically significant. As a result, the stock market index has limited ability to describe the nation's economic growth.

Table 1: Results of Regression Estimation

Variables	Coefficient	Std. Error	t-Statistic	Prob.
Constant	7.524280	0.395029	19.04743	0.0000
LMC	0.238528	0.062814	3.797377	0.0003
LMT	0.151648	0.042445	3.572828	0.0006
LS	0.065762	0.107374	0.612454	0.5421
R-squared	0.809660	Mean dependent variance		12.83657
Adjusted R-squared	0.801838	S.D. dependent variance		0.568116
S.E. of regression	0.252899	Akaike info criterion		0.138898
Sum squared residual	4.668932	Schwarz criterion		0.260654
Log likelihood	-1.347576	Durbin-Watson stat		0.390110

Table 2: ANOVA Dependent Variable: LGDP

	Sum of Squares	D.F	Mean Square	F-value	p-value
Regression Residual	19.861 4.669	3 73	6.620 0.064	103.508	0.000
Total	24.529	76			

- Except for LS, the corrected R2 value is 0.801, indicating that the independent factors collectively explain about 80% of the variation in the observed behaviour in the dependent variable, GDP (the proxy for economic growth). The remaining 80% is caught by the LS and white noise. As a result, the high R2 suggests that the model is well-fitting. The F-value is 103.508 with a p-value of 0.000, indicating that the model's overall fitness is well justified.
- As a result, this analysis indicates a relationship between capital market efficiency and economic development in India. This connection is made possible by a high rate of market capitalization and overall market turnover. The capacity to mobilize money and disperse risk across the economy is positively connected with the size of the capital market as indicated by increased market capitalization (Agarwal, 2001) [2]. Consequently, the rising trend of market capitalization in India will undoubtedly increase capital market efficiency and so contribute to the country's economic growth. Similarly, the total amount of shares traded is a market efficiency-inducing macroeconomic indicator that might boost India's economic development. The total market turnover, or the value of shares exchanged, is a measure of market fairness, competitiveness, and efficiency. The nature of total market turnover in India demonstrates that it can contribute to the nation's long-term progress.
- Yet, this analysis shows that the Indian economy is informationally inefficient, as seen by stock price index-based market returns (see Note-1). The security prices do not completely represent all of the important information about the underlying worth of the securities that is accessible. The consequence is that a significant portion of stock prices in the capital market are either undervalued or inflated. Hence, informational inefficiency is an indicator of sub-optimal portfolio allocation into the capital market, and to that degree, it can result in the misallocation of economic resources and impede the country's economic progress. Yet, inefficiency might be a benefit in disguise. It creates the possibility of producing an extra profit and can drive financial innovation. As financial innovations enter the market, they will increase risk allocation efficiency by breaking the linkages between origination and ownership and by establishing new instruments that can more precisely allocate risks to different investor classes. The surge in financial sector innovation and growth will surely result in improved capital allocation, reduce capital costs, and contribute to economic growth.
  As a result, the policy conclusion may be that market regulators, credit rating agencies, and policymakers should assure the development and implementation of prudential regulations in order for capital market efficiency to contribute to India's long-term economic growth.

6. Summary and Conclusion

The influence of capital market efficiency on economic development in India is examined in this study using time series data on market capitalization, total market turnover, and stock price index from the first quarter of 1991 to the first quarter of 2010. The use of the multiple regression model demonstrates that India's capital market has the capacity to contribute to the country's economic progress. This is due to the market's enormous capitalization and relatively strong liquidity. Hence, market organizations and laws should be designed in such a way that many local and international investors enter the market with large listings, investments, and trade, ensuring the goal of optimal allocation of economic resources for the country's sustainable growth. Development of a sound regulatory framework; reform of inefficient financial institutions, whether through privatization or by allowing competition-including from foreign firms-to restructure the financial system; removal of discriminatory taxes and other elements of financial repression; and strong corporate governance and the adoption of sound accounting practices would all go a long way in this direction.

Note 1: Informational Efficiency Test

Fama (1970) [19] defines an efficient capital market as a market in which prices always reflect the recently available information. And this informational market efficiency is very significant in its weak form (security prices reflect all the information contained in the history of past prices and returns). Thus, in this study, the non-parametric test as suggested by Phillips and Perron (1988) [37] is performed to examine the informational efficiency of the Indian capital market. The Phillips and Perron (PP) method estimate the following equation

Variable	PP(Level Form) Test statistic with No Trend & Intercept	PP(Level Form) Test statistic with Trend & intercept	PP(1st Difference) test statistic with No trend & intercept	PP(1stDifference) test statistic with Trend & intercept
S_t	-14.5889 (2)	-14.5710 (1)	-78.9796 (43)	-80.8155(44)

i) At 1%, 5%, and 10% levels of significance, the PP (Level Form) critical values with an intercept and no trend are-3.4600,-2.8744, and-2.5737.
ii) iAt 1%, 5%, and 10% levels of significance, the PP (Level Form) critical values with an intercept and trend are-4.0003,-3.4303, and-3.1387.
iii) At 1%, 5%, and 10% levels of significance, the PP (1st Difference) critical values with an intercept and no trend are-3.4601,-2.8745, and-2.5737.
iv) At 1%, 5%, and 10% levels of significance, the PP (1st Difference) critical values with an intercept and no trend are-4.0005,-3.4304, and-3.1388.
v) The values in parenthesis reflect the bandwidth chosen using Newey-West and the Bartlett Kernel.

The value of the test statistic is more negative than the critical value, indicating that the null hypothesis of unit root (non-stationarity) is rejected for the Indian capital market. As a result, stock price returns in the Indian capital market do not display random walk characteristics, and the market is not informationally efficient in the weak form.

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