Reforms and Growth of Indian Capital Markets-An Empirical Assessment

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Abstract-The capital market is the barometer of any country's economy and provides a mechanism for capital formation. Across the globe there was a transformation in the financial system from a credit based financial system to a capital market based system. There was a shift in financial policies from financial repression and credit controls to financial liberalization. The significance of capital markets in the allocation of financial resources was well recognized by the Indian government and therefore, the development of capital market was made an integral part of the restructuring strategy. The reform measures like opening up of the Indian capital markets for the foreign institutional investors, trading mechanism based on advanced technology and strong regulatory framework to protect the interest of the investors through establishment of Securities Exchange board of India created necessary stimulus for the growth of the Indian stock market and the economy. The market has witnessed its worst time with the recent global financial crisis that originated from the US sub-prime mortgage market and spread over to the entire world as a contagion. The performance of the Indian capital market has been sluggish. This study makes an attempt to conduct an empirical analysis to review the performance of Indian capital market with the key market parameters such as market size, market liquidity and market volatility.

Keywords: Capital Formation, Market Size, Market Liquidity, Market Volatility, SEBI, Market Capitalisation Ratio.

I. Introduction

An efficient capital market is an essential prerequisite for the economic development of a country. A capital market is a network of financial institutions that brings together the suppliers and users of funds. It provides a platform for the corporate houses to mobilize the funds and thereby plays a dominant role in the capital formation. A vibrant capital market, where the financial assets are efficiently priced based on risk and return attributes provide correct signals to the economy for investment decisions in the real sector.

At the time of independence in 1947, India inherited one of the world's poorest economies where the manufacturing sector accounted for only one tenth of the national product. India emphasized a socialist pattern featured by culture of licensing, protectionism, nationalization of banks and all kinds of state control. The government had a complete dominance on the

functioning of the financial markets. The pricing and quantity of new public offerings controlled by the Controller of Capital Issues, interest rates administered by the Reserve Bank of India (RBI), entry barriers throughout the financial sector and parking of insurance funds and pension funds to Government bonds and bank deposits were some of the noticeable features of the financial sector. Thus, serious flaws existed in the structure of capital market in India.

Prior to 1991 reforms, the largest Indian stock exchange was the then members owned Bombay Stock Exchange, which traded only for two hours with an open outcry system. The settlement process was physical delivery based posing significant risk to the participants in the stock market. In 1991 the only institutional investor with significant participation in the market was the government-owned Unit Trust of India (UTI) with total assets of Rs.357,370 million (nearly US\$ 14.5 billion) representing over 90 percent of

total mutual fund assets in India. Harshad Mehta scam, the first of the several stock market scandals stimulated the urgency of a strong regulator and the significant market reforms.

International and Indian capital market has witnessed a plethora of significant changes since 1991. India, facing a crisis in the foreign currency reserves, started the process of liberalization of the economy. The Indian economy was opened up for foreign capital flows, realizing that the public sector resources were inadequate to meet India's developmental needs. The last two decades, have witnessed substantial regulatory, structural, institutional and operational changes in the securities market of India. These changes have been brought forth with the objective of improving market efficiency, enhancing transparency and bringing the Indian market up to the international standards. The following section tries to explain some of the important reform measures taken by the Indian government.

Objectives of the study

The basic objective of the study is to find out the impact of the stock market reforms on the performance of Indian Capital Market since 1991. The particular objectives of the study are-

- 1. To study the different financial sector reforms relating to the securities market.
- To examine empirically, the impact of reform measures on the trends in the growth of the Indian stock market in terms of selected indicators.
- To analyse the impact of stock market reforms on the size, liquidity and volatility in the stock market over the different sub periods 1991-97, 1997-2007 and 2007-12.

Data Collection and Methodology

The study is primarily based on the secondary data collected from the different publications of RBI and SEBI, internet websites of National Stock Exchange, Bombay Stock Exchange and SEBI and various books and articles. The data has been analysed using the correlation and other statistical tools with the help of SPSS software package.

The sample period of the study spans from 1991 to 2012 which has been divided into three sub periods on the basis of first set of reforms (1991-97), second set of reforms (1997-2007) and the post global financial crisis period (2007-12).

This study has been organized in three parts. Section I reviews the significant reforms relating to the stock market. Section II focuses on the growth of the Indian stock market reflected by the different market indicators. In Section III, the impact of the capital market reforms on the growth of the economy is tested statistically. The concluding observations are made in the last section of the study.

I. Indian Stock Market - Main Reforms

Prior to 1992, if Indian firms had to raise capital. they were required to obtain approval from the office of Controller of Capital Issues (CCI). New companies were allowed to issue shares only at a price was based on historical earnings, a practice which often resulted in under-pricing of public offerings of equity shares. The Capital Issues (Control) Act was revoked in May 1992. As a result firms could now price their issues without any intervention from authorities. It led to a sharp increase in capital mobilized through equity related instruments in the post 1992 phase. In the interest of investors, SEBI issued the Disclosure and Investor Protection (DIP) guidelines under which the issuers were required to give full disclosure of relevant information about the management and nature of the securities to be issued so that investors could take informed decision. The companies have to fulfil minimum eligibility norms in terms of their track record of distributable profits and net worth, before they enter into the capital market.

A key element of the reform strategy was building a strong independent market regulator. Securities Exchange Board of India (SEBI), an autonomous body came into existence on January 30, 1992 with the main objectives and responsibilities of (a) protecting the interest of investors in securities, (b) promoting the development of the securities market, and (c) regulating the securities market. SEBI was empowered to control entry to the market; monitor market participants; issue regulations and guidelines to establish market standards; prohibit fraudulent and unfair trade practices and to regulate substantial acquisitions of shares and takeovers. Another market scandal in 2001 in which the prices of several securities had been manipulated prompted a strong regulatory and market response and therefore, the SEBI Act was amended. These amendments gave the authority for search and seizure and the ability to impose meaningful penalties.

Technological innovation was largely propelled by the National Stock Exchange (NSE), a demutualized electronic exchange incorporated in November 1992 by major public sector financial institutions. The NSE began trading in June 1994, effectively utilizing the most advanced market technology at that time. It introduced a modern market infrastructure with fully-automated, screen-based trading systems and settlement systems equal to anyone in the world. The NSE became the first stock exchange in the world to use satellite communications to enable trading across the country and was a big step ahead in the reform process. The new system improved the market's depth and liquidity, enhanced the transparency level of the transactions and minimized the inefficiencies resulting from the vagaries of the open-outcry system. The improved liquidity due to compulsory dematerialization of shares allowed the reduction in transaction cost for the market participants. Computerization allowed easy accessibility of record of each transaction and a better surveillance by the authorities.

Another important step on reforms front was The Depositories Act, 1996 which ensured free transferability of securities with greater speed and higher degree of accuracy. In order to promote dematerialization, the SEBI has been promoting settlement in demat form in phased manner in an ever increasing number of

securities. This act established the rights and obligations of depositories, participants, issuers, and beneficial owners. The act allowed the market to move from a slow, risky, paper-based settlement to electronic dematerialized securities that eliminated many of the pre-existing impediments to swift and safe settlement. There are two depositories in India viz. NSDL and CDSL. They have been set to provide instantaneous electronic transfer of securities. A depository, in effect, functions as an electronic bank with accounts that hold an investor's securities. Once the securities are registered with the depository, investors no longer need physical certificates. Registration process is 'dematerialized' implying that transfer of ownership is registered through entries into the investors' electronic accounts and no manual transfer of share certificates is needed.

By the end of June 2001, dematerialized settlement accounted for more than 99 per cent of turnover settled by delivery. India's rapid conversion to dematerialized trading through a depository is a remarkable success by international standards.

In 1996, the NSE established the National Securities Clearing Corporation Limited (NSCC) as a wholly owned subsidiary in an effort to manage the counter-party risk at the time of settlement. The NSCC introduced clearing and risk management principles that were being widely used outside India. It eliminated counterparty risk by becoming the legal counter-party to the obligations taken on by each party of a transaction. The NSCC made payments to the seller and then took payments from the buyer. Shares were delivered to buyers and delivery from the seller was taken by NSCC. It then managed this risk by building up a substantial Settlement Guarantee Fund from the contributions of brokers as well as by imposing a rigorous system of margins enforced by an innovative system of on-line position monitoring and automatic disablement.

Another reform executed was gradually moving India from its account period settlement to rolling settlement. Rolling settlements fix the net position of all traders after the daily trading session and require them to settle each daily position after a fixed period. Under a T+5 rolling settlement, a net position at the end of any day (T) must be settled on the fifth working day after T. Reducing the period for netting to a day greatly limits the scope for intra-settlement speculation. It is believed that by distinguishing the market for delivery from speculation, rolling settlement promotes greater transparency and improves price discovery. On 15 January 1998 SEBI initiated a T+5 rolling settlement on an optional basis for eight stocks with dematerialized trading. On 15 September, 1999, SEBI released a list of 45 stocks to be moved to rolling settlement. By August 2000, SEBI had placed 153 additional scripts under rolling settlement. All remaining stocks were switched to rolling settlement on 31 December, 2001. On 1 April, 2002, the Indian markets moved from rolling settlement on a T+5 basis to a T+3 basis. The settlement cycle was accelerated to T+2 on 1 April, 2003. The capital markets are very rapidly moving towards one day settlement of transactions which is popularly known as T+1.

Another milestone in the history of Indian Capital Markets was the introduction of derivatives trading which has propelled the market to new levels of sophistication and maturity. Derivatives assist market participants to manage risk effectively through hedging, speculation and arbitrage, Securities Contract (Regulation) Act was amended in 1995 to lift ban on trading in options. Trading was introduced in four steps: In June 2000, Stock-index futures contracts begin trading on the BSE's BSE-30 (Sensex) and the NSE's S&P CNX Nifty Index. In June 2001, Stock index options on these indices were introduced on the BSE and the NSE and on July 2001, Single-stock options on the 31 most actively traded stocks regardless of where listed began trading on both the BSE and the NSE. Finally in September 2001, Single-stock futures trading on the same 31 most actively traded stocks was approved by SEBI, and trading in them began shortly thereafter. Until 2007, the NSE became the largest exchange in single stock futures in the world, and by June 2007, it ranked fourth globally in trading index futures. This is a clear sign of an evolving and maturing market.

Other important reform measures include permission for book building process which assists the corporates in pricing and availability of funds, minimum disclosure requirements for floating the private placement, electronic clearing service (ECS) facility for public issue refunds, proportionate allotment to Qualified Institutional Buyers (QIBs), the introduction of green shoe option and guidelines for delisting of securities were the big reliefs for the listed companies. The secondary market also witnessed many reforms such as margin trading, regulations regarding corporate governance and listing requirements under clause 49. The central Government has established a fund called Investor Education and Protection Fund (IEPF) in October 2001 for the promotion of awareness amongst investors and protection of interest of investors.

II. Growth of Indian Stock Market

The liberalization process got deepened and widened in 1991 as development of capital market was made an integral part of the financial restructuring strategy of the country. The impact of reform measures and liberalization on the growth of capital market through different selected indicators is being studied.

Listed Companies: The initiatives taken by the government has a direct impact on the growth of the market in terms of number of listed firms. It is worth mentioning that India ranks first in the world in terms of listed companies. USA with 5,295 companies occupies the second place. However it ranks at 17th and 16th place in terms of market capitalization and trading value respectively.

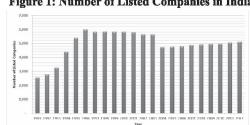


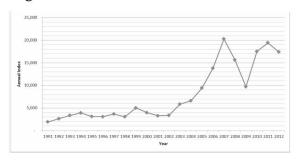
Figure 1: Number of Listed Companies in India

Source: Indian Securities Market- A Review (NSE), various issues compiled.

Abolition of Capital Issues Control Act, 1947 and the free pricing of the issues attracted a large number of firms to the capital market for their funds requirement. The number of listed firms increased from 2556 in year 1991 to 5843 in the year 1997 However, during the second sub period 1997-2007 the number of listed firms declined due to scams and the other irregularities in the market. The number of listed firms again started increasing post global financial crisis. The number of listed companies at BSE has risen steadily since 2005 from 4765 to 5133 till March 2012.

Sensex Movement: The financial liberalisation and active government support for the development of the stock market in the early 1990s led to a vibrant stock market in India backed by the foreign institutional investments.

Figure 2: BSE Sensex



Source: www.bseindia.com

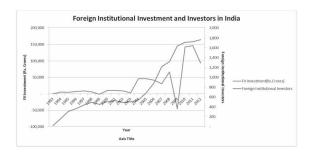
As a result, BSE Sensex rose from 1909 in 1991 to 3659 in the year 1997. During the second sub period 1997-2007, the index rose from 3659 to 20289. However thereafter, the index fell steeply due to global concerns arising due to subprime crisis. But stabilizing global financial environment led to the upward movement of index to 17404 as on March, 2012.

The trend of the Indian stock market is up as reflected in this figure. Apart from financial crisis in advanced economies and surge in the international crude oil prices, the benchmark indices in India crossed several landmarks during the last decade.

FIIs' Impact: FII investments have been an

important force driving markets to their unprecedented highs. Emerging markets in general and India in particular, have attracted huge portfolio flows in recent years showing their confidence in India's growth story. The interest of the FII's in India can be judged in terms of increase in the number of Foreign Institutional Investors and the amount of funds committed.

Figure 3: Foreign Institutional Investors and Investment in India



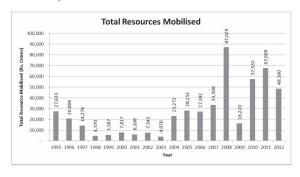
Source: Handbook of Statistics on Indian Economy, SEBI and Reserve Bank of India, compilation from various issues.

The number of Foreign Institutional investors soared from 18 in 1993 to 439 in the year 1997 and the amount of investment increased from 13 crores to 8575 crores during the same period. The number of investors further increased to 1219 and the investments to 30,845 crores by the year 2007. The number further improved to 1765 and the funds invested in the year 2012 reached to the level of 93,725 crores. It is worth mentioning that 2008-09 saw the highest FII outflow of Rs.45, 811 crore in any financial year since inception. This could be attributed to the global financial meltdown and the home bias of FIIs in the crisis.

Resource mobilization: A number of companies have started floating their shares in the global market and getting finances through the Global Depositories (GDR) route as well as getting their scripts listed on NASDAQ. Data reveals that the Indian stock market experienced a significant growth in activity since 1990s. Indian primary markets picked up in the early 1990s backed by the financial reforms and mobilized huge funds from banks, private placements, non-

government public limited companies and PSU bonds.

Figure 4: Total Resources Mobilised from Primary Market



Source: Handbook of Statistics on Indian Economy, SEBI, compilation from various issues.

Resources mobilised from primary markets were quite substantial till 1994-95. However, the period of 1997-2003 was not at all encouraging due to poor market sentiments. The trend reversed after that and during the year 2011-12, 71 companies accessed the primary market and raised 48,468 crore through 55 public and 16 rights issues.

Dematerialization of shares: Two depositories in India, viz., National Securities Depository Limited (NSDL) and Central Depository Services Limited (CDSL) have set up nationwide network with proper infrastructure that handles the securities held and settled in dematerialized mode in the Indian stock markets.

Table 1: Quantity and Value of Shares in NSDL and CDSL

At the end of Year	NSDL (Crores)		CDSL (Crores)		
	Mkt. cap (Rs.)	Demat shares (quantity)	Mkt. cap (Rs.)	Demat shares (quantity)	
1996-97	90818	2			
2007-08	5219700	23690	5162637	4982	
2011-12	6265157	57980	6310530	13357	

Source: NSDL and CDSL

III. Statistical Analysis

This section of the paper embarks upon the empirical study of the development of Indian capital market taking into account the indicators-size, liquidity and volatility. The size is calculated on the basis of Market Capitalisation Ratio MCR), liquidity is calculated on the basis of Value Traded Ratio (VTR) and Turnover Ratio (TR) and the volatility is calculated through Volatility Ratio (VR).

Table 2: Development Indicators of Indian Stock Market for the different sub periods (%)²

Sub-Periods	MCR	VTR	TR	VR*
Sub Period I (1991-1997)	34.84	8.43	29.29	2.39
Sub Period II (1997-2007)	46.88	23.01	53.58	2.22
Sub Period III (2007-12)	83.5	20.22	23.76	2.41

Source: Handbook of Statistics, SEBI, compilation from various issues.

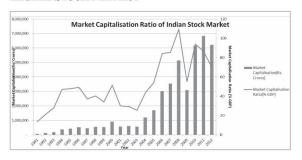
*Volatility is calculated as the standard deviation of the natural log of returns in indices for the respective period.

Market Size

The size of the stock market expands as more and more firms issue the securities in the primary market. As the size of the market increases, it is easier for the corporates to raise funds and reduce risk. Therefore, market capitalization as a proxy for market size is positively correlated to the ability to mobilise capital and diversify risk. Therefore, a two way causal relationship exists between stock market size and primary market activities.

Market Capitalization Ratio (MCR) as a proxy of the stock market size is defined as the market capitalization divided by GDP. To get the value of market capitalization, the stock market price per share is multiplied by the number of equity shares that are outstanding.

Figure 5: Market Capitalisation Ratio of Indian Stock Market



Source: Handbook of Statistics on Indian Economy, RBI, compilation of various issues.

As a result of market reforms initiated in the 1990s, the ratio has risen from 13.59% to 37.18% in the year 1997. The ratio further improved to 94.28% in the year 2007. In the subsequent period, though the ratio has slightly declined, it still remains quite high at around 70% in the year 2012. The growth in size of Indian Stock Market resembles that of other leading developing economies and is indeed very impressive. The growth in MCR during the three sub periods has been tested using paired sample t-test.

Table 3: Paired Sample t-test of Market Capitalisation Ratio for different Sub-Periods

Sub- Periods	(Difference) Mean	Standard Deviation	t value	Sig. (2-tailed)
I-II	61143	17.4244	093	.929
п-ш	-46.39167	16.16477	-7.030	.001

There is no significant difference in the MCR between sub period I and sub period II. However, there is a significant difference in the mean of the MCR of the sub period II and sub period III and the ratio has significantly changed post global financial crisis. Year 2007 onwards, the size of the market has substantially increased due to improvement in the market prices of the securities led by increased foreign institutional fund flows.

Market Liquidity

A liquid market always provide an ease of exit for the initial investors enabling them to divert their funds to the more profitable projects, thereby improving the allocation of capital and enhancing prospects for long term growth. A liquid stock market facilitates better resource mobilization and more stock market development.

The Value Traded Ratio is total value of traded share in the stock market divided by GDP. This ratio measures the value of equity transactions relative to the size of the economy and reflects liquidity on an economy-wide basis. The value traded ratio complements the market capitalisation. Although a market may be large in size, there may be little trading. Thus MCR and VTR taken together provide more information about a stock market than if one uses only a single indicator.

Figure 6: Value Traded Ratio of Indian Stock Market

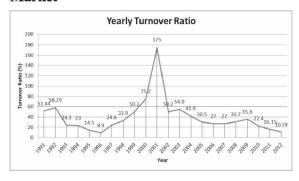


Source: Handbook of Statistics, SEBI, compilation from various issues.

Value Traded Ratio increased from 6.99% in 1990-91 to 9.96% in 1997. The ratio further improved 25.47% in the year 2007 after touching a high of 52.57% in the year 2000-01. But the ratio has considerably declined to 7.51% in the year 2011-12. The reason behind this decline may be the uncertainty in the global financial environment and the shift in FIIs' focus from delivery based trading to derivatives trading which provides more hedging opportunities.

Turnover ratio (TR) is defined as the ratio of the value of total shares traded and market capitalization. It measures the activity of the stock market relative to its size. High turnover ratio implies low transaction cost and consequently high level of efficiency.

Figure 7: Turnover Ratio of Indian Stock Market



Source: Handbook of Statistics on Indian Economy, RBI, compilation from various issues.

The turnover ratio declined from 51.44% in 1991 to 26.79% in the year 1997. The ratio further declined to 26.97% in the year 2007 after touching a high of 175% in the year 2000-01. The ratio has substantially fallen to 10.74% in the year 2012. There are multiple reasons behind this decline such as uncertain economic environment, pathetic attitude of the government towards economic reforms, diversion of focus to the derivatives market.

Table 4: Paired Sample t-test of VTR and TR for different Sub-Periods

Sub-Periods	Value Traded Ratio		Turnover Ratio	
	(Difference) Mean	Sig. (2-tailed)	(Difference) Mean	Sig. (2-tailed)
I-II	-16.48714	.022	-40.31000	.099
II-III	8.91600	.401	55.76400	.107

The results of the VTR show that there was a significant improvement in the liquidity in sub period II over the sub period I. However, the liquidity position has not changed much post the global financial crisis. The results of TR show that there is no significant difference in the mean values of turnover ratio of the different sub periods.

Market Volatility

Volatility as a barometer of the vulnerability of financial markets can be defined as changeability or randomness of asset prices. The widely accepted concept of rates of return is the logarithmic difference of prices of two successive periods. This concept is also followed in the present study. Symbolically, the rate of return (r) may be stated as follows:

$$r_i = l_n(p_i/p_{i,i}), t=1, 2,, n$$

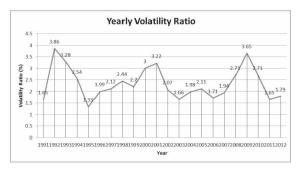
where rt is the rate of return for the period t, and pt-t and pt are the prices for two successive periods (t-1) and t. Volatility has been measured by the standard deviation of rates of return (r), which is a simple but widely used method.

The standard deviation of return (r) from a sample of n observations is the square root of the average squared deviation of returns from the average in the sample. Thus,

$$\sigma = \left[\frac{1}{n}\sum_{t=1}^{n} (r_t - \bar{r})^2\right]^{\frac{1}{2}}; \text{ Where } r_t = l_n(p_t/p_{t-1})$$

The logarithmic standard deviation is expressed in percentage terms after multiplying it by 100. In this section, the volatility of the Indian stock market during 1991-2012 has been analysed. The monthly closing prices of the BSE100 are sourced primarily from a firm level micro database PROWESS, administered by the Centre for Monitoring the Indian Economy (CMIE) to arrive at the yearly data.

Figure 8: Turnover Ratio of Indian Stock Market



An increase in the number of traders mainly FIIs in the market may reduce the variation in the stock price. Opening of Indian Stock market may also simultaneously trigger an increase in the stock return volatility. This volatility is being

tested using the paired sample t-test for the different sub periods

Table 5: Paired Sample t-test of Volatility Ratio for different Sub-Periods

Sub-Periods	(Difference) Mean	Standard Deviation	t value	Sig. (2-tailed)
I-II	.02857	.87473	.086	.934
п-ш	.08400	1,09173	.172	.872

There has been no significant change in the volatility of the market over the different sub periods even in the period of post global financial crisis.

Correlation: The Correlation coefficient among the different indicators of stock market development of India are calculated to see whether there is similarity in movement for all the selected ratios over the period under study. The following Table 6 shows the coefficient of correlation among the stock market development indicators.

Table 6: Correlation Coefficient among the Indian Stock Market Development Indicators

	01	MCR	VTR	TR	VR
MCR	earson Correlation	1	,266	389	140
	g. (2-tailed)		.232	.074	.533
	N	22	22	22	22
VTR	earson Correlation	.266	1	.738	.357
	ig. (2-tailed)	.232	i	.000	.103
	N	22	22	22	22
TR	earson Correlation	389	.738	1	.397
	ig. (2-tailed)	.074	.000		.068
	N	22	22	22	22
VR.	earson Correlation	140	357	.397	1
	ig. (2-tailed)	.533	.103	.068	
	N	22	22	22	22

There is a very poor correlation between Market capitalization ratio and Value Traded ratio. This shows that Size and liquidity of the market are positively related but degree of relationship is very poor. The coefficient of correlation between Turnover ratio and Value Traded Ratio is showing very high degree of positive relationship and is significant also. Liquidity and volatility are showing some positive relationship and the size of the market and its volatility are negatively correlated to some extent but the results are not statistically significant.

IV. Conclusion

Some of the Reform initiatives taken by the government since 1991 brought the structural changes in the Indian capital markets. Abolition of Capital Issues Control Act, Establishment of SEBI, 'open outcry' system replaced by screen-based electronic order-book systems, introduction of rolling settlement were a few reforms which brought India up to par with the global standards.

The primary capital market has grown significantly since the beginning of capital market reforms as is reflected in the increased number of listed companies, funds mobilized from the primary market and the growth of depositories over the last two decades. The secondary capital market is also found have grown in terms of its size and liquidity which is the signal for strong potential of the market to mobilise capital for the economic development of the country. The size of the market and its volatility are negatively correlated to some extent but the results are not statistically significant. It can be concluded that the reforms in the stock market do not have any direct implications for the volatility in the returns of the market. In the post global financial crisis period, the size of the market has further expanded due to higher stock prices backed by strong foreign fund flows. However, during the same period, the liquidity and volatility have not significantly changed.

End Notes

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- 2. The values are the means of the different ratios of the corresponding years of the sub periods.

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