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Policy Discussion to Accomplish Financial Integration: Changing Role of Macro-Economic Channels

2.1 An Overview of Financial Reforms in India: Banking Industry, Securities and Exchange Market

The theoretical concept of financial liberalisation grew out of the critique of financial repression in developing countries during the 1950s and 1960s and the East Asian crisis in the 1990s lent impetus to it. The recent crisis in the US economy and its worldwide effect has fuelled the debate on the role of the financial system in the betterment of the macro economy. Financial integration, though an unavoidable consequence of financial liberalisation, is now being discussed mostly on the ground of ensuring financial stability of the domestic economy. Financial liberalisation has been followed by most of the developed countries since the 1980s and by developing countries since the 1990s.

Before the early 1990s, the Indian financial system was mostly characterised as fragmented and underdeveloped, with pricing controls, entry barriers, transaction restrictions, high transaction costs and low liquidity. A series of reforms since the early 1990s has aimed to develop the various segments of the financial market by phasing out the administered pricing system, removing barrier restrictions, introducing new instruments, establishing an institutional framework, upgrading the technological infrastructure, and evolving efficient, safe and more transparent market practices. Financial policy reform after the 1990s has focused on the growing needs of the economy and the capital market has become a high-profile source of meeting the long-term resource needs of the economy. In recent years, the Indian financial system has been gradually maturing with the co-existence of intermediary and market-based systems, thus drawing the benefits of both. Nevertheless, the main impulse for developing securities markets, including the equity and debt segments, depends on the country-specific history and the context of the financial system. Though the Indian capital market is one of the oldest in Asia, like many other emerging countries, Indian banks have conventionally
been at the forefront of financial intermediaries. The country’s financial reforms, especially banking sector reforms, are well discussed in the financial literature and also documented in different reports and publications of the RBI. Instead of re-documenting the same, we intend to discuss only a few of the major reforms relevant to our study.

2.1.1 Reforms in Indian banking industry: In the context of the world economy

Subsequent to the Great Depression of the 1930s, a wave of bank failures in the US led to the surviving banks moving to the safest investment (typically government bonds). The separation of commercial banking from the capital market led to shrinking the available supply of liquidity, exacerbating the economic downturn. Following the Great Depression, the major challenge faced by banking regulations was ensuring and enhancing the flow of credit. The first aim was to reduce the risks inherent in banking by controlling the cost of deposits and the second was to protect depositors from bank failures. By providing assurances of safety to depositors, the regulator could ensure that the supply of savings or the liquidity in the banking industry remained unaffected. This model of regulation tried to prevent a system failure as the implicit notion was that the failure of a bank could cause a run, which could spread to other banks and create a general credit shortage that could have severe adverse economic consequences (Diamond and Rajan, 2001).

Though India did not introduce the Glass Steagall Act of 1933, there was a very strict separation between banks and non-banks. Banks were allowed to offer checking and savings account facilities to the general public besides providing working capital. They were also bound to maintain very high liquidity ratios. More leeway was given to a few non-bank entities in their lending operations, while they were allowed to borrow only from wholesale sources and capital markets. The non-bank entities included DFIs such as the Industrial Development Bank of India (IDBI), the Industrial Finance Corporation of India (IFCI), the Industrial Credit and Investment Corporation of India (ICICI) and a

32Holmstrom and Tirole (1997) suggest that aggregate liquidity shortages provided the rationale for deposit insurance. In the US, this took the form of a formal deposit insurance scheme initiated by the Federal Deposit Insurance Corporation (FDIC) in 1934. The deposit insurance scheme was in a sense guaranteed by the regulated borrowing and lending rates.
large group of non-banking finance companies (NBFCs). They could offer term deposits to retail individuals (not checking or savings accounts), but were not allowed to participate in the interbank market or clearing. They were therefore largely insulated from commercial banking. It was after financial sector reforms that their entry was permitted to project and other long-term financing.

However, this partial deregulation created a high level of distortion in the interest rate market because, very importantly, the rates of interest on savings and current accounts were regulated across the banking system, and only commercial banks (not NBFCs and DFIs) were allowed to access these low-cost funds. These accounts together accounted for approximately 30% of the liabilities of the banking system for the period 1990-1993 (RBI, Annual Report) and they became the anchors of the entire interest rate structure.

The process of deregulation of deposit interest rates began in the 1980s. In April 1985, banks were allowed to set interest rates for maturities between 15 days and up to one year, subject to a ceiling of 8%. The process of deregulation of interest rates, which resumed in 1992, was largely completed by October 1997 when deposit rates were fully deregulated by removing the linkage to the bank rate. The few categories of interest rates that continued to be regulated on the lending side were small loans up to Rs. 2 lakh and rupee export credit, and on the deposit side, the savings bank deposit interest rate. The rates on small loans up to Rs. 2 lakh and rupee export credit were deregulated in July 2010, when the RBI replaced the benchmark prime lending rate (BPLR) system with the base rate system. With this, all rupee lending rates were deregulated. On the deposit side, the only interest rate that continued to be regulated until October 2011 was the savings

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33 Current accounts were permitted only to businesses and had to offer a zero rate of interest. Savings accounts were permitted only to individuals and had to offer a 3.5% rate of interest. (Figure 1.6 shows the savings account rate over the past decade.) A lower rate was effectively given to active account holders because of the methods used in computing the principal amount to which this rate could be applied.

34 It was expected that with reasonable rates of interest on maturities, banks would be able to achieve a better distribution of term deposits rather than highly skewed distribution around longer maturities at relatively higher costs. However, when a few banks started offering the ceiling rate of 8% even for maturities of 15 days, other banks followed suit without regard to profitability and set a single rate of 8% for maturities starting from 15 days and up to one year. The consequence was a shift of deposits from current accounts and, to a lesser extent, from savings accounts to 15-day deposits. As a result of the price war among banks, the freedom to set interest rates subject to a ceiling was withdrawn in May 1985.
deposit interest rate. However, it would be wrong to see this policy as a measure for increasing the savings rate and attracting more funds for lending. Even a small increase in the savings rate by large banks would not only increase the cost of funds to an extreme, but also lead to a price war in the system. The negative effect of deregulating the savings rate may also be noted. If it is fully market determined, it may collapse to an extreme low in a phase of abundant liquidity. In effect, the common people with small savings deposits would be the worst sufferers.

One of the major policy changes has been the introduction of additional instruments in the money market. The introduction of certificates of deposit, commercial papers, and collateralized borrowing and lending obligations (CBLOs) were the first step towards enhancement of commercial banks’ advances to marketable instruments so as to diversify corporate borrowers’ short-term borrowings and enable them to raise a part of their requirement at a competitive price from the market. The CBLO provides avenues for non-bank institutes to deal with their short-term liquidity mismatches. For more effective open market operation and greater liquidity to retail investors, the ad-hoc treasury bill was abolished in 1997 and regular auction was introduced. The LAF was introduced in 2000 for smooth functioning of the market repo, a key equilibrating factor between the money and securities markets. It helps the RBI to set the repo and reserve repo rate to reduce volatility and manage liquidity more efficiently.

To improve participation and liquidity in all the segments of financial markets, banks were allowed increased access to the call/notice money market, in domestic and

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35 Certificates of deposit (CDs, 1989) are negotiable term deposit certificates, their maturity ranging from 15 days to one year. Commercial papers (CPs, 1990) are a short-term money market instrument issued by highly rated corporate entities and not backed up by any collateral. This is an unsecured promissory note.

36 The CBLO was introduced by the Clearing Corporation of India in 2003 for the benefit of entities who have either been phased out from the inter-bank call money market or whose participation has been restricted in terms of a ceiling on call borrowing and lending transactions and who do not have access to the call money market.

37 TBs are short-term risk-free debt instruments issued by the Central government for its cash management.

38 Call/notice money is the money borrowed or lent on demand for a short period of time (if overnight, it is known as call money; the money borrowed in a day and repaid on the next working day, or borrowed or lent for more than a day and up to 14 days is known as notice money). No collateral securities are required to cover this transaction. The call money market was developed primarily to increase overall integrity in the
overseas money market instruments and/or debt instruments, subject to limits approved by their board of directors. It helped to enhance the integration between domestic and overseas money and capital markets (2003). The largest public sector bank, State Bank of India (SBI), entered the capital market with an equity-cum-bond issue in 1993-94.

The major and most important policy to encourage the participation of foreign investors was opening up the stock market to FIIs. In 1992, they were allowed to invest in government dated securities if they were registered with the Security Exchange Board of India (SEBI), and in 1998, they were allowed to invest in TBs. Authorised dealers (ADs) were also permitted to borrow and/or invest up to US$10 million (this amount was later relaxed gradually) from/in their overseas offices and correspondences without any conditions on end use and repayment of such borrowings. ADs were advised not to arbitrage between the money and foreign exchange markets and provide forward exchange cover to FIIs for their investment in debt instruments (1997) and the overseas money market. In the next section, we explore in greater detail some of the major policy reforms that helped the development of the security market in India.

### 2.1.2 Security market reforms

A satisfactory pace of economic growth is contingent on the availability of adequate capital. A well-developed securities market not only acts as a provider of funding for economic activity at the macro level, but also plays specific roles in the economy. It diffuses stress on the banking sector by diversifying credit risk across the economy, supplies funds for the long-term investment needs of the corporate sector, provides market-based sources of funds for meeting the government’s financing requirements, provides products with the flexibility to meet the specific needs of investors and borrowers, and allocates capital more efficiently. It also relates to creating more complete financial markets, preventing banks from taking on excessive credit, risk diversification in the financial system, financing government debt, conducting monetary policy,
sterilising capital inflows, and providing a range of long-term assets. Historically, India had a bank-dominated financial system, which was supplemented by DFIs to provide long-term project finance. However, the financial system has undergone a marked change in recent years. With the conversion of DFIs into banks, a gap has been created for long-term finance. Commercial banks, given the short-term nature of their liabilities, may not be able to fill the gap in long-term finance. In view of this, India’s corporate sector requires long-term finance to supplement its resources. In this context, development of the corporate bond market will play a strategic role in the near future.

The major reforms in the Indian capital market since the 1990s are presented below.

In 1992, the Capital Issues (Control) Act (1947) was phased out, enabling the corporate sector to raise capital from markets without the permission of regulators, subject to sufficient disclosures in the offer documents. A book-building mechanism for the pricing of new capital issues was introduced in 1995, whereby the offer price of an initial public offering is based on the demand for the issue. The book-building mechanism has proved to be both cost and time-effective. Buyback of shares helps in improving liquidity in shares of companies and helps the corporate sector enhance investors’ wealth. The SEBI issued buy back of securities regulations in 1998, under which a company is permitted to buy back its shares from shareholders. On the other side, FIIs have been allowed to invest in Indian equities since 1992. Though FIIs have now emerged as the biggest institutional investors in the Indian capital market, mutual funds, especially private-sector mutual funds, have also emerged as active institutional investors. These deregulations helped bring about more participation in the Indian equity market, and thereby generated huge liquidity in the market.

From the perspective of developing countries, a liquid corporate bond market can play a critical role in supporting economic development by complementing banking finance to meet the requirements of the corporate sector for long-term capital investment and asset

39 To control excess volatility in the markets, circuit breakers have been introduced on the stock exchanges. Effective since June 2, 2001, index-based market-wide circuit breakers applicable on the BSE Sensex and the S&P CNX Nifty (the two major indexes of stock prices) are operational at 10%, 15% and 20% movement on either side of any of the indices.
creation. It may also provide a stable source of financing when the equity market is volatile. Further, with the decline in the role of DFIs, there is an increasing demand for a well-developed corporate debt market as an alternative source of finance. Though the corporate debt market in India has existed since independence, it is still underdeveloped and fails to serve the need for long-term project financing. Since 1985-86, public limited companies have been raising capital by issuing debt securities. However, in the absence of a well-functioning secondary market, such debt instruments remained illiquid.

To activate the corporate debt market in India, a number of policy initiatives were taken during the 1990s. The interest rate ceiling on corporate debentures was abolished in 1991, paving the way for market-based pricing of corporate debt issues. To improve the quality of debt issues, rating was made mandatory for all publicly issued debt instruments, irrespective of their maturity. On the other hand, all privately placed debt issues are required to be listed on the stock exchanges and follow disclosure requirements. However, despite policy initiatives, corporate debt still constitutes a small segment of the debt market in India. Whereas the primary market for debt securities is dominated by the private placement market, the secondary market for corporate debt is characterised by poor liquidity. Jadhav (2004) shows that corporations continue to prefer private placement of debt issues rather than floating public issues. During 1995-96 to 2004-05, there was a 534.96% (Rs. 13,361 crore in 1995-96 to Rs. 85,102 crore in 2004-05) increase in the resource mobilisation through private placement. The dominance of private placement has been attributed to several factors, such as ease of issuance, cost efficiency, primarily institutional demand, and so forth. About 90% of outstanding corporate debt has been privately placed. In the private placement market, 57% of issuances are by financial institutions and banks, in both the public and private sectors. Public sector companies account for 58% of privately placed issues. About 26% represents issues by public sector undertakings and central and state government guaranteed bonds.

Secondary market activity in the debt segment, in general, remains subdued at both the BSE and the wholesale debt market (WDM) segment of the NSE, partly because of a lack
of sufficient number of securities and partly because of a lack of interest by retail investors. To improve secondary market activity in this segment, the Union Budget for 1999-2000 abolished the stamp duty on the transfer of dematerialised debt instruments. This enabled a pick-up in the turnover in corporate debt at the NSE by 201.46% (from Rs. 5,816 crore in 2002-03 to Rs. 17,521 crore in 2004-05). The share of turnover in corporate debt securities in total turnover in the WDM segment of the NSE, however, remains small at about 2%.

Jadhav (2004) argued that the management of various risks, such as counterparty risks and credit risks, is important in promoting the safety and efficiency of the capital market. Major stock exchanges have set up settlement guarantee funds (SGFs) to provide the necessary funds, which are like self-insurance schemes with the members contributing to the funds. SGFs also ensure timely completion of settlement in cases of member brokers’ failure to fulfil their settlement obligations, especially during periods of market turbulence. Further, the clearing houses set up by each of the stock exchanges have substantially reduced counterparty risk in the settlement system. Various risk management mechanisms, such as capital adequacy requirements, trading and exposure limits, and daily margins composed of mark-to-market margins and value at risk margins, are now in place.

Until recently, the majority of scrips on Indian securities markets were traded in physical form. Trading securities in physical form slows down transactions, adversely affecting the liquidity of the markets, increasing trading costs, and also contributing to problems relating to bad deliveries, theft and forgery. Improvement in technology has made Indian stock markets move away from the open outcry system to an online electronic trading system, in line with best international practices. This system has improved efficiency in the price discovery mechanism, lowered transaction costs, promoted transparency in transactions, and helped improve integration across stock exchanges throughout the country.

A system of delivery versus payment (DvP) was introduced in the transaction of government securities from July 1995. To introduce more transparency, depth and
liquidity to the money and capital markets, more power has been given to the SEBI for expanding the process of dematerialisation of securities along with adopting an electronic fund transfer and settlement system (1998). Besides faster movement of funds across the country, electronic funds transfer, combined with dematerialisation of securities, has created an environment conducive to the reduction of settlement cycles on the stock markets. The reduction in the settlement risk in securities transactions has strengthened the government securities market as well as provided guidelines and procedures for the enlistment of primary dealers. It also helps in increasing transactions in the secondary market. Compulsory dematerialisation has resulted in the overwhelming majority of securities being traded in electronic form.

Shorter settlement cycles reduce the risk involved in transactions and speculative activity, and infuse more liquidity into the markets. Indian stock markets, which previously followed a Monday-to-Friday settlement cycle, gradually switched to a rolling settlement cycle. The rolling settlement cycle was reduced to T+3 effective from April 2002 and further to T+2 effective from April 2003 in line with the best international practices. In addition to their effect on trading, technological developments have made their mark on the clearing and settlement process, paving the way for efficient and sophisticated systems.

On the instrument side, derivative instruments, such as index futures, stock futures, index options and stock options, have become important instruments of price discovery, portfolio diversification, and risk hedging. Various risk-containment measures, including margins, positions and exposure limits, are in place to ensure smooth functioning of the derivatives market. Indian companies can now raise funds freely in the international capital markets through the use of various instruments, such as American depository receipts (ADRs) and global depository receipts (GDRs), foreign currency convertible bonds and ECBs. ADRs and GDRs have two-way fungibility, meaning that investors (foreign institutional or domestic) in any company that has issued ADRs and GDRs can freely convert them into underlying domestic shares, and vice versa. This is expected to
improve liquidity in the markets and eliminate arbitrage between domestic and international markets (Jadhav, 2004)

Other than the above mentioned policy initiatives, there are some more policies, which we are not discussing in detail. The introduction of a market-determined interest rate on government securities in 1991 helped in making open market operations more efficient. Banks are allowed to buy and sell government securities freely at the market rate after 1997. The other important changes were in the foreign exchange market—the shift from a pegged exchange rate regime to a market-determined exchange rate in 1993, current account convertibility in 1994 and phased convertibility of the capital account.

From the above discussion, it may be concluded that financial reforms in India have progressively been moving towards a more liberalised era, which has not only facilitated the integration of India’s domestic financial sectors, but also led to increased inter-linkage with the world economy. Policies of money, capital and foreign exchange market liberalisation have promoted more inter-linkage with the international financial system, along with better channelisation of resources in the domestic market.

2.2 Reviewing Macroeconomic Channels: The Monetary Transmission Mechanism

There are several macroeconomic and financial channels that play a major role in reaping the benefits of financial liberalisation. An analysis of these channels helps in formulating the regulatory policy framework necessary for the efficient functioning of the economy and preventing the possibility of systemic risk. Though we discuss the major channels of transmission one by one, it may be noted that they are very much interlinked.

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40 Before the reforms, the foreign exchange market was mainly regulated by the Foreign Exchange Regulations Act (FERA), 1973 and characterised by strict regulation, less liquidity, barriers to entry and high transaction costs. The most important feature of the liberalisation of the external sector is related to the compositional shift in capital flows from debt to non-debt creating sources and the regulation of ECBs. In priority industries, foreign direct investment (FDI) has got automatic approval up to 51% of equity. In Indian stock exchanges, FIIs are allowed to invest without any restriction on volume of investments as well as on the lock-in period, while domestic exporters can keep their earnings abroad for 180 days.

41 A process which describes the effect of changes in monetary policy instruments to output and inflation. The transmission may happen through changes in financial prices (e.g., interest rates, exchange rates, yields, asset prices, equity prices) and financial quantities (money supply, credit aggregates, supply of government bonds, foreign denominated assets).
2.2.1 Credit based channel

The credit based channel operates efficiently through strong and organised financial institutions. According to Schumpeter (1912), financial intermediaries stimulate growth by mobilising savings, evaluating projects and managing risks while state-owned banks play an important role in overcoming market failure and help in strategic allocation of savings. There is evidence that countries having a strong financial sector (banking sector and the security market) grow disproportionately faster than countries which have a weak one.\(^{42}\) However, Edwards and Mishkin (1995) argued that compared to the market finance, banks now play a less important role in credit markets than in the 1950s, 1960s or 1970s (though not true for developing and developed countries having weak financial systems). It may be noted that the dominance of market finance has been growing as it makes more investment funds available at a lower cost. Following financial liberalisation, the credit channel works not only through the banking service but also through market finance, within and across nations. According to McKinnon (1973) and Shaw (1973), financial liberalisation helps a country to avail itself of sufficient funds, provides the opportunity to allocate savings more efficiently, and improves sharing of risk.

The credit based channel mainly operates through the bank lending and balance sheet channel. The bank lending channel used to be the main source through which investors could access their operational credit. But recent development of the capital market and the accessibility of working capital from the international market at a cheaper rate (though exchange rate risk and the convertibility constraint are there) have significantly changed the operational importance of the conventional credit based channel. Though bank and market credit is available to both large and small investors, large investors always enjoy the privilege of raising funds from both these sources as market reputation and creditworthiness are two important criteria. However, most small investors are constrained by this. This scenario is more common in developing countries, which hardly offer efficient and effective service to all. Hence, the possibility of inequality increases.

\(^{42}\) Adam Smith (1776) perceived that the banking sector plays an important role in augmenting the productivity of capital stock and thereby promoting growth, though he was sceptical about banks’ ability to create capital.
However, in these countries, the transformation of savings (financial capital) into investment (physical capital) is no more constrained by banks’ capacity to lend depending on depositors’ money. Not only the government and large corporates, but also the banking industry may borrow from the bond market or raise funds from the stock market. Moreover, openness of the domestic financial sector provides the opportunity to foreign banks to introduce a variety of financial instruments and techniques that improve the services of domestic banks.

On the flip side, the integration between the bank credit channel and the capital market may have an adverse effect on the overall economy. For example, as an immediate effect of the recent US crisis, Indian banks began refusing to lend, irrespective of the availability of funds. Many countries experienced high interest rates and high cost of funds, persistent in the long run, and it affected even firms not exposed to the capital market or the financial crisis directly. The reduction of productive lending by banks and a very high interest rate impedes production of the real sector economy, thereby reducing output, employment and so on.

Bernanke et al. (1995) emphasised the operative importance of the balance-sheet channel or business channel or asset price channel. He argued that the lower net worth of business firms implies a lower equity stake, which makes firms engage in riskier investment. So the probability that lenders will be paid back is less, which implies less creditworthiness of those firms. As a result, there might be less lending and, therefore, less investment in the economy. This channel has become very important in recent days because of the securitization of debt through newer, riskier and complicated financial instruments.

2.2.2 Interest rate channel

The interest rate has been one of the most important instruments to control the saving-investment activities of an economy. On the one side, it has an important role in controlling liquidity of a country. On the other, it is considered the cost of funds for both the corporate sector and the banking industry. It is an important tool to a central bank to control the liquidity in the market. In recent times it is strongly argued that the interest rate may play a less regulatory role in an open competitive financial economy than it used
to in a restrictive financial economy. There are three major factors for this. First, the
capital market plays an important role as an alternative source of working capital and
firms may issue stock or raise funds by bonds in the domestic economy; second, the
international market is open to borrow funds; and third, there are many alternative
financial assets to invest in and earn non-interest income. So, a reduction in the interest
rate (in fixed assets, like savings) does not necessarily encourage people to consume
more.

Following the financial liberalisation of the 1980s, there has been a huge increase in the
international flow of finance capital across borders, mostly driven by short-term capital
and speculative gain, purely a non-interest income. Theoretically, the potential advantage
of financial trading is well established (Obstfeld and Rogoff, 1995). Sometimes, in the
presence of alternative possibilities of investment (other than banking instruments), low
interest may lead to an investment boom as people borrow from the banking industry at a
low cost and gain a high return from capital market investment. McKinnon and Pill
(1997) argued that in the presence of moral hazard in the capital market, unrestricted
international capital flow provide incentives for firms to overborrow and overinvest. This
in turn reduces savings and raises the current account deficit of the economy, while an
investment boom in financial assets may lead to a financial crisis if the expectation of
high returns is not fulfilled (Borio and Lowe, 2002; Eichengreen and Mitchener, 2003).

But conflict arises when we consider the interest rate as the price of financial assets in the
capital market. A lower interest rate then impedes the level and productivity of
investment (World Bank, 1989). One of the strong arguments in favour of financial
liberalisation is that it provides less capital-endowed developing countries an opportunity
to borrow finance for meeting their investment needs at an affordable cost and to promote
economic growth without a sharp rise in savings. The co-existence of high savings and
scarcity of working capital in many developing countries is mostly due to the lack of an

Financial liberalisation provides people the chance not only to invest in risk-free instruments, but also in
high-risk financial assets that give more return in a short period of time. A reduction in US savings and an
increase in the foreign demand for US assets is a consequence of financial liberalisation and financial
integration. However, the recent US crisis shows the endogenous instability of structured assets of the
banking industry.
efficient system to convert finance capital into production capital. Accordingly, finance may move from developed to developing nations experiencing high saving. Moreover, in a liberalised economy, the movement of interest rate in the domestic market is often driven by the expected movement in the international market. If a country expects the interest rate to increase in the international market, it might be forced to increase the domestic interest rate to stop the flight of capital out of the country in search of high interest income.

Overall, the boom in the trading of financial assets has added to the debate regarding the connectivity between the real sector and the financial sector. By investing in the real economy, investors are at least producing something of real value along with creating jobs, which is not the same as in the paper-based financial economy where profit can be gained by selling and reselling purely financial assets (like stocks, bonds or currencies) at a higher price than what was paid to buy them or getting some guaranteed interest and dividend payments (All CAW News Letter, 1995). Hence, financial liberalisation and the integration of the world capital market have created a new phenomenon for the world economy where huge liquidity is invested to earn a non-interest income, especially in the secondary market, and reducing the role of the interest rate as a channel of monetary transmission.

2.2.3 Exchange rate channel

It is evident from the above discussion that the interest rate is the most important channel and that it has effects on other channels as well. According to Meier and Muller (2005), “In particular, it is largely unclear whether or not there is a significant channel of transmission above and beyond the classical interest rate channel.” While Keynes emphasised only the interest rate, Taylor (1995) stressed both the interest rate and the exchange rate channel, explaining the inter-linkage between domestic real interest rate and domestic currency. A high real interest rate makes domestic financial assets more attractive instruments to foreign investors. Foreign inflow of capital creates upward pressure on the domestic currency. The appreciation of domestic currency makes import

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44 For example, starting a company, opening a factory, buying machines, hiring workers, and producing and selling an actual commodity.
costs lower and domestic goods becomes more expensive in the world market. On the other hand, appreciation of the domestic currency makes convertibility of foreign capital into the domestic one more expensive. Mundell (1962) showed that capital mobility, due to an interest rate differential between any two countries, is equal to the expected rate of change in the exchange rate between these two countries. If this interest rate parity does not hold, capital flows to the higher return country until the expected returns are equalised in both countries. A positive relationship exists between the exchange rate and the interest differentials between the two countries. Hence, capital account openness has a very important influence on two macroeconomic variables—exchange rate and inflation, though many developed countries have come out with an amazing range of instruments for hedging both exchange and interest rate risk.\textsuperscript{45} However, in a liberalised financial era, most countries have been exposed to the floating exchange rate. It makes the future purchasing power of domestic money more uncertain. Moreover, the foreign exchange rate assumes a relatively favourable role in trading as foreign assets are more easily substituted for domestic financial assets (money or bonds). Conversely, this substitution is difficult for physical assets such as real estate or stocks of commodities. In this context, it is found that daily potential capital flows through foreign exchanges are much higher in terms of value than the value of the commodity traded (McKinnon, 1988).\textsuperscript{46}

Besides, the East Asian and Latin American crises were events in which the exchange rate played a role as the most determinant channel. Both these crises showed that overflow of capital may lead to overvaluation of the exchange rate, which in turn undermines the confidence of investors in the national currency. This is what led to the reverse flow of capital, and the consequent depreciation of the domestic exchange rate led firms to pay more for dollar denominated debts. Sometimes to overcome the effect of the

\textsuperscript{45} “Innovation has improved the efficiency of international financial markets, mainly by offering a broader and more flexible range of instruments both for borrowing and for hedging interest rate and exchange rate exposures. These changes have clearly aided banks and their customers to cope with stresses associated with the greater volatility of exchange and interest rates in recent years” (BIS, 1986).

\textsuperscript{46} Firms investing in a physical plant or human capital find they have substantial exchange risk which cannot be hedged as producers can sell forward only some of their output and many goods are simply held in inventory until customers come in to buy spots. Usually producers cannot protect themselves with outside insurance policies against their inability to deliver, nor against unexpected change in costs (Arrow, 1973; Greenwald and Stiglitz, 1986).
crisis, the government has to inject liquidity into the system, which may further lead to short-term inflation. It should be noted that financial crises may not always have direct effects on other countries, but they may have adverse effects on other countries’ real sector economy through the trade channel. This happens mostly by reducing the export demand and thereby output of many interlinked sectors and in turn, employment and growth of the economy. These phenomena add to the unsettled nexus between the financial economy and the real sector economy.

2.2.4 Asset price channel

Apart from the three channels discussed, there is another channel known as the asset price channel, which is emphasised by monetary economists. It has become important in the phase of capital account and stock market liberalisation. It is explained in Tobin’s q theory (1969) of investment and wealth effects on consumption.

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\text{Tobin's } q = \frac{\text{market value of firms}}{\text{replacement cost of capital}}
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For example, a low q (between 0 and 1) means that the cost of replacing a firm’s assets is greater than the value of its stock. This implies that the stock is undervalued. Conversely, a high q (greater than 1) implies that a firm’s stock is more expensive than the replacement cost of its assets, which implies that the stock is overvalued. In the second

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47 Capital account liberalisation or convertibility is basically the freedom to convert local financial assets into foreign financial assets and vice versa at market determined rates of exchange. It is related with changes in possession of domestic/foreign financial assets and liabilities and embodies the creation and liquidation of claims by the rest of the world. Equity market liberalisation is the provision for foreigners to hold domestic equity. Liberalisation of the equity market and capital account basically means the provision of free movement of capital in and out of a country. It is well known that funds are essential for building up productive capacity and infrastructure, which helps countries to enhance the competitiveness of their domestic product. So any inflow of financial capital augments the domestic resources of countries with fewer resources. Neoclassical theory (Solow, 1956) says that in the absence of domestic distortion, capital account liberalisation enhances the allocative efficiency as it allows capital to flow from a capital-abundant developed country where the expected return on capital is low to a capital-scarce developing country where the expected return on capital is high. This in turn reduces the cost of capital in the developing country and boosts temporarily investment, productivity, output, employment and growth, which permanently increases the standard of living of the people. Hence we can say that capital account openness has an important role in the development of the countries with less saving, enabling them to face the constraints of investment in physical capital. But many countries face net foreign asset deficiency as they do not have the required infrastructure to use foreign capital productively.

48 It is usually possible to get an accurate estimate for the market value of a firm’s assets by adding up the values of the securities that a firm has issued, such as stocks and bonds. It is much more difficult to obtain
case, the firm is earning a rate of return higher than that justified by the cost of its assets. Such a return could not persist in the absence of long-run entry barriers. However, with high market value, firms might prefer to build up new plants and working capital. This measure of stock valuation is the driving factor behind investment decisions in Tobin’s model. If issuing equity allows firms to get a high price from the market, it increases the investment capacity of firms as they can raise more investment funds by issuing small equity. Although monetarist economics says that if there is any reduction of money supply, the public spends less on the stock market, which decreases demand for equities and consequently reduces prices in the stock market. Keynes explained the trade-off between bond and equity investment. He argued that any increase in the interest rate makes bonds more attractive relative to equity, which causes the prices of equity to fall. Modigliani (1971) explained the asset channel effect from the perspective of wealth effect. According to him, as consumer spending depends on the lifetime resources of consumers (human capital, real capital and financial wealth—a major component of financial wealth is the common stock), any fall in stock prices reduces the value of resources, which results in a fall in consumption.

Hence, we may conclude that the substantial benefits of opening capital markets to foreign investors help in a reduction in cost of capital and lead to high investment booms (Henry, 2000a, 2000b). It also helps in improving firm-level investment by upholding efficient resource allocation (Mitton, 2006). However, short-term dollar denominated debt flows may sometimes lead to instability in the financial sector and also in the rest of the economy. Given the fact that most of the players in the stock market are after earning capital gain in a short period of time, it incentivises more and more speculative activities. Sometimes, over inflow of foreign currency through FIIs (the major players in the capital market) has an adverse effect on exports of the economy as it puts upward pressure on the domestic currency. Conversely, outward flows can relieve incipient appreciation of the domestic currency.

an estimate of the replacement costs of its assets, unless markets for used equipment exist. Moreover, expenditures on advertising and research and development create intangible assets that may be hard to value. Typically, researchers who construct Tobin’s q ignore the replacement costs of these intangible assets in their calculations. For that reason, q typically exceeds 1. Accordingly, it can be misleading to use q as a measure of market power without further adjustment.
national currency but it may lead to fragility in an underdeveloped domestic financial sector. This fragility and associated crisis could be attenuated if the economy is more open to trade (Calvo et al., 2004; Frankel et al., 2004). Sometimes any sudden stops or reverse movement culminates in financial crises, particularly in financially vulnerable countries, by worsening income distribution. These sparked off discussion on preventing financial crises through some controls on international capital flow (Stiglitz, 1999; Arestis and Glickman, 2002). This kind of control may be essential as a country is more likely to be exposed to external shocks through two interlinked markets—the stock market and foreign exchange market. As a result, examining the inter-linkage between the exchange rate channel and the asset price channel may be interesting. Empirically, there is evidence that financial liberalisation leads to instability and even financial crisis, especially in emerging market economies where stock markets are highly volatile. Some strategies have been suggested by Prasad and Rajan (2005) to deal with the adverse effects of inflow through controlled liberalised outflow, where countries can strengthen their domestic financial system and simultaneously mitigate the pressure of appreciation of domestic currency. Research in the spectrum of monetary policy transmission through the asset price channel concludes that sometimes the adjustment of prices takes a long time, at times more than years. There is not only a different lag of transmissions across prices, but also the process through which real output changes varies across countries. For example, the Euro area and Japan experience changes in output due to changes in investment, while in the US, consumption plays the leading role. The credit channel is likely to be more operative in countries where the banking industry is comparatively stronger in the lending market. For countries like Japan and Germany it is found that the credit channel is significantly operative as borrowers have been incapable of substituting bank borrowing with alternative sources for business investment (Morsink and Bayoumi, 2001). So the capital market as an alternative source of finance is not functional to the same extent it is in other developed countries.

However, in the US, the scenario is different as investors largely depend on the market for acquiring finance for investment and a huge liquidity is also used for speculative investment. Sometimes the prevalence of a low interest rate in the banking industry is
much more effective in generating more borrowing, not for more productive investment, but for more consumption expenditure or for investing in market instruments. This provides a feasible explanation of why monetary policy is unable to affect the aggregate output.

In India, though the capital market has been developing, the credit channel is much more effective for the transmission of monetary policy. The two major reasons are, one, a majority of investors, other than a few large corporates, depend only on bank borrowing. Though the capital market, especially the equity segment and the government bond market, is well developed, there is a lack of depth and it does not include the larger base of the population. As a result, market finance remains non-accessible to the majority of corporates. Two, medium, small and even a few large investors, though they need huge working capital to satisfy the huge domestic demand for durable goods, are still unaware of ways to utilise alternative sources effectively and efficiently.

Nonetheless, the asset price channel has distinctive roles in different countries depending on the nature of the assets and the concentration of the wealth in different sectors. For example, Pichette (2004) showed that in Canada consumer spending is not much responsive to changes in equity price while it is much more sensitive to changes in housing price. In a country like India, the concentration of wealth in the hands of a small proportion of people makes them more responsive to changes in both equity and housing prices. At the same time, there is a large segment of the population that is more interested in housing market investment as it is less risky. Also, in a highly populated country, the growing demand for housing is a more likely investment. Although the majority of Indians do not have access to, or interest in, the highly volatile stock market, this does not stop the equity index from growing or carrying the “asset price bubble” virus. However, in an internationally integrated and liberalised country, sometimes it is foreign investors, mainly FIIs, who play a very significant role in influencing the asset price. It is important to note that any crash in the market and the sudden flight of foreign capital negatively affect the domestic economy and the people, who most of the time remain out of the benefit of market finance, get hit badly. Interestingly, the capital account channel is highly influential on exchange rate fluctuation not only during the flight of foreign capital
in the event of a crash in the stock market, but also in the inflow of foreign capital when an economy is booming.

2.2.5 Summing up

So, the scope of the work is still large, especially in the context of the Indian economy. We empirically examine if these macroeconomic channels play any role in domestic and international integration. With increasing openness, India has become more susceptible to exogenous shocks, particularly when we think of the series of financial crises in Asia, Brazil, Russia and Mexico. Moreover, maintaining financial stability with sustainable high growth has become a crucial challenge for a country like India when financial crises have proved that global capital flow is fickle and might cause financial disruption and economic volatility. In recent times, the integrated financial market has begun sending the message that no country can insulate itself from the unpredicted spread of financial problems because of higher inter-dependency among countries. Especially, more dependence on the US and the European Union (EU) are more likely to make a country exposed to the spillover effect.

Against this backdrop, our study empirically measures India’s financial integration across these channels both on the domestic and international fronts, which has become very important in terms of the worldwide integration of financial markets. We briefly discuss a few important channels such as the credit channel, interest rate, exchange rate and asset price channel. We attempt to explore the changing role and operative importance of these channels in the context of the complexity of the system where many alternative products are available. Though interest rate differentials are one of the important driving forces of cross-border capital flow, these differentials do not persist only due to internal factors in countries. Sometimes a country is forced to keep the interest rate high to prevent a sudden capital outflow even at the cost of disequilibrium and associated macroeconomic disruption in the domestic system.