This file is a manuscript of a paper which went on to appear as:

Ajay Shah and Susan Thomas. Policy issues in Indian securities markets. In Anne Krueger and Sajjid Z. Chinoy, editors, *Reforming India's External, Financial and Fiscal Policies*, Stanford Studies in International Economics and Development, chapter 4, pages 129–147. Stanford University Press, 2003

Policy issues in the Indian securities market

Ajay Shah* Susan Thomas

13 July 2001

*Email ajayshah@igidr.ac.in, URL http://www.igidr.ac.in/~ajayshah
on the web. We are grateful to Anne Krueger, Raghuram Rajan, Jim Hanson, John Echeverri-Gent, Tom Glaessner, Raghavan Putran, Ashok Jogani, Rajesh Gajra, Ruben Lee, Ashish Chauhan and D. Balasundaram for ideas and assistance.

Contents

1 Introduction

Market-oriented economic reforms in India began in 1991. With the removal of administrative controls on bank credit and the primary market for securities, the capital markets came to occupy a larger role in shaping resource allocation in the country. This led to a heightened interest amongst policy makers in the institutional development of securities markets. The efforts towards empowering the securities market regulator (SEBI), and the first efforts towards attracting foreign portfolio investment began early in the reforms process. Almost immediately after the reforms began, there was a prominent scandal on the fixed income and equity markets, which was exposed in April 1992.

This set the stage for an unusual policy intervention: the establishment of a securities exchange, the National Stock Exchange (NSE), by the government (Section 2). Contrary to most expectations, NSE succeeded, becoming the largest equity market in 1995. NSE pioneered many important innovations in market design in India. The most important of these included nationwide electronic trading (1994), the clearing corporation as a central counter-party (1996) and paper-less settlement at the depository (1996). NSE was a pioneer amongst securities exchanges in the world in using a "demutualised" structure, where brokerage firms did not own the exchange.

Nationwide trading energised financial market participation from all over the country, as opposed to be being concentrated in Bombay. *Electronic trading* gave a high degree of transparency, and side-stepped the difficulties associated with supervision of market makers. The *central counter-party* made anonymous electronic trading across the country possible, by eliminating counter-party credit risk. Electronic settlement at the *depository* sharply reduced costs at settlement, and eliminated the flourishing criminal activities in theft and counterfeiting of share certificates. The *demutualised* structure helped in keeping NSE focused on the needs of investors as opposed to the profit maximisation of brokerage firms, and was critical in obtaining sharp improvements in enforcement as compared with other securities exchanges in the country.

The creation of the new exchange, clearing corporation and depository were important accomplishments of institution building. The pressure of competing with NSE, and access to the services of the depository, helped existing exchanges also transform their functioning. Roughly speaking, these changes gave a ten–fold improvement in market liquidity – the one–way transactions cost faced by retail trades is estimated to have dropped from 5% to 0.5%.

Yet, some important structural defects in market design persisted (Section 3). Through this period, India's equity market was unique, by world standards, in featuring leveraged futures–style trading on the *spot* market. There was a mismatch between the extent of leverage, and the risk management and governance capacity found at securities exchanges and SEBI. These difficulties helped generate a steady stream of crises on the equity market. The typical crisis involved price manipulation on the secondary market, and payments problems, at one or more exchanges. The more prominent of these crises were highly visible disruptions of the smooth functioning of the equity market.

As a consequence, from 1996 onwards, debates about policy issues on the equity market were dominated by questions about the role for leveraged trading. On one hand was a conservative position, which supported the status quo. On the other hand was the proposal to have a a spot market based on "rolling settlement" (where leverage is limited to intra–day positions only). In this vision, access to leveraged trading would be obtained through trading in financial derivatives. From 1996 to 2001, SEBI broadly supported the conservative position, and the functioning of the equity market was unchanged.

In 2001, a major crisis broke on the equity market. It involved numerous elements: large leveraged positions which went wrong, accusations of market manipulation, a payments crisis at the Calcutta exchange, fraud in the banking system, accusations of collusion between institutional investors and collusive cartels, ethics violations at the Bombay Stock Exchange, revelation of large-scale incidence of fraudulent contract notes with *badla*.

This crisis was valuable in breaking this five–year deadlock (Section 4), and moving on with reforms. In June 2001, trading in index options commenced. In

July 2001, all major stocks moved to rolling settlement and options trading commenced on the most liquid stocks. These were large changes from the viewpoint of investors and securities firms; market liquidity first fell sharply when the new regime first came about. However, within a matter of weeks, liquidity had improved sharply.

One of the most important questions before policy makers concerns the interfaces between the banking system and securities markets. Policy makers traditionally favoured a highly restricted set of interactions between banking and securities. However, there are important gains in efficiency and risk management, for both securities markets and the banking sector, if the interplay between the two is enlarged through appropriate mechanisms.

The first aspect of the interface between banks and securities markets concerns the payments system (Section 5.1). Over the 1990s, the equity market became a nationwide platform with real–time capability for trading and settling stock transactions. However, comparable improvements in the infrastructure for funds transfer in the country have not taken place. Weaknesses of the payments infrastructure are now a critical bottleneck hindering further institutional development of the securities markets.

The central bank (RBI) has had proposals for building an improved payments system for many years, but little progress has been made in its implementation. This motivates a search for partial solutions which allow securities markets to make progress. One such solution could be to harness the subset of new banks which are well equipped with modern information technology to provide real-time funds transfer for post-trade activities on securities markets.

The second aspect of the interface between banks and securities markets concerns loans given out by banks, backed by securities as collateral (Section 5.2). Securities are ideal collateral owing to (a) publicly observed prices which can be used for marking to market of collateral value, and (b) publicly accessible markets through which collateral can be readily liquidated. These attributes enable the creation of sound risk management systems at banks. This is contrast with opaque collateral, such as real estate or plant & machinery, where marking to market is not possible

and liquidation involves large risks and transactions costs. It is important to note that the key issue in the successful operation of these risk management systems is the *transparency* of collateral, and not its *volatility*. The imperfect understanding of these issues in India has led to many flaws in policy formulation.

Beyond technical questions of market design, the most important concerns about the securities markets today are questions of governance and policy formulation (Section 5.3). Securities markets have made significant progress in terms of exploiting modern trading technology and modern financial instruments. However, the regulatory capacity on the part of both exchange institutions and SEBI is highly limited.

In the case of NSE, there is a need for a well-developed set of incentives and governance mechanisms which ensure that it continues to foster innovation, cost-efficiency, and avoid the ills which have afflicted numerous other public-sector organisations in India. In the case of the market regulator, SEBI, the recent years have revealed important gaps in human capital, operational efficiencies and political independence. Policy makers should put a prime focus on addressing these difficulties.

2 Changes in the Indian equity market in the 1990s

[Table 1 about here.]

In this section, we summarise the important changes which took place in the design of the equity market in the decade of the 1990s. Table 1 shows the dates for some of the prominent events. Our treatment is organised around securities exchanges (Section 2.1), risk management of counter-party credit risk (Section 2.2) and improvements in settlement (Section 2.3).

2.1 The securities exchanges

Equity trading in India was dominated by floor–based trading on India's oldest exchange, the Bombay Stock Exchange (BSE), upto late 1994. This process had several problems. The floor was non–transparent and illiquid. The non–transparency of the floor lead to rampant abuse such as investors being charged higher prices for purchases as compared with the prices actually traded on the floor. It was not possible for investors to cross-check these prices.

The BSE did not sell new memberships, and barred corporate entities or foreign brokerage firms from obtaining memberships. Investors were forced to pay high brokerage fees to under-capitalised individual brokers, who had primitive order processing systems.

The BSE was located in Bombay. The primitive state of telecommunications in India, coupled with the use of floor–based trading, greatly limited market access to investors outside Bombay. It also generated inferior liquidity for the market as a whole, by failing to harness the order flow from outside Bombay.

This situation was transformed by the arrival of the new National Stock Exchange (NSE) in 1994. NSE was owned by a consortium of government–owned financial institutions.

NSE built an electronic order–matching system, where computers matched orders without human intervention. It used satellite communications to make this trading system accessible from locations all over the country. NSE used a new organisational structure, where the exchange is a limited liability firm with brokerage firms as franchisees. Hence there was no incentive to restrict membership, and NSE freely admitted new brokerage firms, including corporate and foreign brokerage firms.

Trading in equities commenced at NSE in November 1994. From October 1995 onwards (11 months after commencement), NSE has been India's largest exchange. There are few other parallels to this episode internationally, where a second exchange displaced the entrenched liquidity on an existing market within under a year (Shah & Thomas 2000).

The competition between NSE and BSE is a unique one by international standards, where both exchanges are in the same city and have the same trading hours. All major stocks trade on both exchanges, so the exchanges compete for *order flow*, and not just listings. The rise of NSE has proved to be a powerful spur to reforms at the BSE. Months after NSE started operations, the BSE also launched electronic trading, and improved rules governing admission of corporate and foreign brokerage firms. Today, the BSE also uses an open electronic limit order book market, using satellite communications to reach locations outside Bombay.

2.2 Risk management of counter-party credit risk

Electronic trading plays a role in reducing the search cost associated with finding a counter-party. Once a trade is agreed upon, and until a trade is settled, there are significant risks of malfunction. When two economic agents L and S agree on a transaction on an exchange, each could be exposed to the risk that the other will default. The extent to which a securities market is vulnerable to this "counter-party credit risk" is important for two reasons:

1. When economic agents are exposed to the risk that transactions might fail because the counter-party defaults, it raises the cost of transacting. One response which commonly comes about is for economic agents to retreat to only transacting within small clubs. This is harmful insofar as it impedes market liquidity and broad-based market access.

2. If the failure of L affects the failure of S, it offers a mechanism through which the failure of one economic agent imposes an externality upon counter-parties. These externalities are a mechanism for "contagion", and it is possible to have a failure by some important entities leading to a systemic crisis. Hence, a key goal for designers of securities settlement systems is to ensure that when individual economic agents fail, there are no externalities imposed upon counter-parties.

The extent of counterparts credit risk is determined by two factors: (a) the extent to which positions are leveraged and (b) the time-horizon over which price volatility

impacts upon the position. Leveraged positions are more vulnerable to failure, and price fluctuations over longer time periods can generate larger losses.

Both these aspects are strongly influenced by the method through which securities trading is organised. There are two methods through which securities trading can be organised, "rolling settlement" or "account period settlement":

Account period settlement Under account period settlement, trading take place for the "account period" (which could be a week or a fortnight). Trades are netted through the account period, and the net outstanding position at the end of the settlement period goes to settlement a few days later.

Account period settlement is exactly like a futures market, where positions are netted until expiration date, and only open positions as of expiration date go on to settlement. For this reason, account period settlement is also called "futures–style settlement". Many ideas and principles that normally apply for futures markets are quite applicable to a *spot* market which uses futures–style settlement.[1] With account period settlement, as with futures markets, positions are *leveraged*, insofar as the capital required in order to adopt a given position is a small fraction of the position size.

Rolling settlement Rolling settlement is the same as account period settlement, where the netting period is shrunk to one day. With rolling settlement, trades are netted through the day, and all open positions at the end of the day are settled n days later. This is called $T + n$ rolling settlement, to denote settlement n days after T, the day of the trade.

Rolling settlement is attractive because on the settlement date, all open positions are settled. This is in contrast with futures–style settlement, where large leveraged positions can be present, and do not normally unwind. Systemic risk is reduced when the delay between trade date and settlement date is small, and rolling settlement with a small n is the vehicle through which this delay can be brought down to values like 5 working days and less.

The minimum international recommendations of the 'Group of 30' and IOSCO have argued in favour of T+3 rolling settlement, and many countries are now in the process of moving to T+1.

India adopted account period settlement as part of the inheritance of equity market

design from England.[2] The extent of leverage associated with spot market trading on the Bombay Stock Exchange (BSE) was exacerbated by a peculiar mechanism, called *badla*. Badla allows deferment of settlement obligations into the next settlement period.[3] With *badla*, the market was like a futures market without a stated expiration date. Since settlement could be deferred indefinitely, the counter-party risk was commensurately larger (as described above). Therefore, with *badla*, it became even more important to have strong risk containment practices in place. Unfortunately the exchanges were largely deficient in these practices. The difficulties with *badla* were further exacerbated by a lack of enforcement capacity at SEBI.

These considerations led the securities regulator, SEBI, to ban *badla* in 1993. However, the political economy forced a re-introduction of *badla* in weak form in 1995 and a further weakening of prudential regulation in 1997.

On traditional exchanges, brokerage firms were bound by family and ethnic ties. These ties were exploited in reacting to systemic crises. When NSE admitted new brokerage firms into equity trading, in the absence of bonds based on ethnicity or kinship, the problem of counter-party risk was present with a greater intensity. This motivated NSE to create a new credit enhancement institution, which performed the function of a futures clearing corporation, called the *National Securities Clearing Corporation* (NSCC). As with all futures clearing-houses, NSCC performs "novation"; NSCC is the legal counter-party to the net settlement obligations of all brokerage firms. This blocks the externalities associated with defaults: the failure of one leg of a transaction does not affect the other leg. NSCC protects itself using a risk containment system, which is a combination of comprising of online real–time risk monitoring, an initial margin and the daily mark–to–market margin.

NSCC has been successfully performing novation since June 1996, through periods containing some of the highest market volatility in Indian history. NSCC is justly criticised for being overly conservative in margin calculations, but it has produced an unprecedented reliability in the operation of market processes.

Apart from NSE, none of the other securities exchanges in India made progress

in the establishment of a central counter-party. This failure of institution building on the part of the exchanges is also, in part, a failure of SEBI, which supported exchanges in using inferior risk management mechanisms called “trade guarantee funds”. The limitations of these inferior mechanisms were exposed in the payments problems which were experienced at the Bombay and Calcutta exchanges at several points in recent years, most notably in 2001.

2.3 Electronic settlement

In the early 1990s, the use of physical share certificates in India was the cause of elevated back–office costs, a high incidence of failed trades, and vulnerabilities associated with large–scale theft and counterfeiting of shares.

This situation changed with the commencement of the National Securities Depository (NSDL), a depository based on dematerialisation. NSDL was created by two major domestic financial institutions and NSE. NSDL commenced functioning in 1996, and within five years, roughly 99% of equity settlement in India was done through NSDL. With the depository, back–office costs, the incidence of failed trades, and issues like theft or counterfeiting all dropped to near–zero levels. This was an important success of institution building in the financial sector.

3 Vulnerability to crises

Despite all the changes in the equity market, there have been some spectacular cases of fraud and market manipulation on the securities markets in the 1990s. In the decade of the 1990s, the equity market suffered from a series of crises, major and minor. The most important of these were the four crises of 1995, 1997, 1998 and 2001:

- In 1995, the Bombay Stock Exchange closed for three days in the context of payments problems on M. S. Shoes.[4]

- In 1997, there was a scandal where CRB Mutual Fund defrauded its investors, which cast doubts upon the supervisory and enforcement capacity of SEBI and RBI.[5]

- In Summer 1998, there was an episode of market manipulation involving three stocks (BPL, Sterlite, Videocon). In this case, a variety of questionable methods were employed at the BSE to avoid a failure of settlements. The actions partly led to the dismissal of the BSE President by SEBI.

- Finally, the most–recent crisis, in March 2001, led to the second dismissal of a BSE president, the dismissal of of all elected directors on the Bombay Stock Exchange and the Calcutta Stock Exchange, and payments failures on the Calcutta Stock Exchange (Thomas 2001).

Each of these crises hit the front pages of newspapers, and distorted stock prices and liquidity. The crises had significant negative ramifications for economic agents directly involved in them. This steady stream of crises may have helped preserve the traditional image of securities markets as dangerous investment avenues for uninformed investors, and thus helped elevate risk premia demanded by households.

By 2001, the most important concern amongst policy makers was that of addressing this vulnerability to crises. In order to accurately address this concern, we need a clear diagnosis identifying the elements of market design which generate this vulnerability to crisis. Unfortunately, a parsimonious explanation that captures the essence of *all* the crises on the securities markets in the decade of the 1990s does not exist. The crises range over a diverse set of issues, ranging from regulations of the primary market to supervision of mutual funds.

However, it appears that leveraged market manipulation may have played an important role in numerous crises. In particular, it appears to have played a significant role in the most important four crises listed above. In each of these crises, investigations have revealed manipulative cartels which appear to have built up large leveraged positions on the secondary market. A detailed examination of these crises reveals many situations where the administrators of the securities exchanges failed to enforce stated rules, or explicitly violated rules. These lapses

played a crucial role in generating these crises. Thus, it appears that the limited institutional capacity at the exchanges was unable to obtain a sound functioning under conditions where the spot market featured highly leveraged positions.

After each of these crises, the question of moving away from futures–style settlement and *badla* towards rolling settlement was debated in India. However, the political economy of this question was dominated by the interests of incumbent financial intermediaries, and SEBI chose to leave the basic structure of the market intact. Indeed the constituency opposed to reforms was so effective that from 1995 to 1997, the reforms were rolled back even as important new crises unfolded on the market: after the M. S. Shoes crisis in 1995, SEBI reversed the ban on *badla*, and after the CRB scandal of 1997, SEBI substantially weakened the prudential regulation of *badla*.

Derivatives trading was widely seen in India as an alternative vehicle for obtaining leveraged positions, and hence seen as a threat to the traditional technology of leveraged positions adopted on the spot market with *badla*. In response to these concerns, SEBI took five years to get from the first proposals for exchange-traded index futures trading to the onset of index futures trading, which took place in June 2000.

4 Policy responses in 2001

The crisis of 2001 proved to be extremely prominent in the public eye. The revelation of a wide variety of malpractices by securities exchanges, listed firms and institutional investors in this episode helped to undermine the effectiveness of conservative voices. An extremely important set of reforms came about in June 2001:

A spot market without leveraged positions Trading in all major stocks moved to rolling settlement in July 2001. It was also decided that trading in all stocks would move to rolling settlement in January 2002. All variants of *badla* ceased to exist in July 2001.

Derivatives trading Trading in stock index futures had commenced in June 2000. In June 2001, the universe of derivatives where trading was permitted was expanded to include index options. Options on individuals stocks started trading for 31 companies in July 2001.

The transition into these new regimes was smooth, in the sense that these new market mechanisms had reached high levels of liquidity within a few weeks after they were put into place. Empirical evidence about market efficiency, and vulnerability to crises, under this new regime, is not yet available.

5 Policy issues

In this section, we focus on the key policy issues that now confront the securities markets. We deal with the payments system (Section 5.1), the prudential regulation of banks in connection with loans backed by securities as collateral (Section 5.2), and questions of governance and policy formulation (Section 5.3).

5.1 The payments system

The securities industry is an intensive and performance-sensitive user of the payments system. This takes place at two levels : movement of funds between securities firms and the clearing corporation (which utilise the wholesale payments system) and movement of funds between individuals and securities firms (which utilise the retail payments system).

In India, both these systems suffer from severe deficiencies, which inhibit settlement procedures that seek to achieve short time intervals between the trade date and the settlement date. In particular, the lack of real–time inter–bank funds transfer, and the lack of access for the clearing corporation to the central payments systems, have had a crippling effect upon equity settlement procedures.

The minimum international standard for the equity market as of 1989 was considered to be T+3 rolling settlement. In 2001, India was at T+5 settlement. This

gap is exclusively caused by the inferior payments infrastructure in the country. Roughly speaking, this may imply that the payments infrastructure in India is atleast 12 years behind international standards.

The RBI has thus far been the systems operator with regard to the payments system. While RBI has tried to obtain improvements in the payments system for many years, the existing prognosis for improvements in this regard is not promising.

In recent years, a small set of roughly 10 banks have pioneered high quality technology which makes it possible for them to move funds at high speed across locations in India. The defining feature that characterises these banks is: internal technology infrastructure which connects up all branches and ATMs in a computer network, with a single *national* database of client accounts.[6] This implies that these banks exhibit an interface to the user where there is one single bank account, regardless of geographical location. For these banks, clear funds in a bank account are instantly usable at any location in the country. Hence, these banks have come to play a prominent role in settlement related functions on the equity market.

It may be possible to obtain significant progress on the payments infrastructure associated with the securities markets by exploiting these banks. We can think of dividing all banks in India into two groups: "Class A banks" which have the above infrastructure, and "Class B banks" which do not. A small electronic payments system could be rapidly established between all the Class A banks.[7] This would not be a comprehensive nationwide electronic funds transfer system, however it would be a major advance compared with the existing situation. The RBI would have to extend limited support to such an effort in order to ensure that inter–bank clearing takes place in central bank funds, thus eliminating the risk of possible failure of any of these banks.

In such a scheme, every securities firm in the country would have to use one of the Class A banks for the purpose of clearing and settlement functions. This is not a constraint, since every securities firm is already doing so.

5.2 Loans against securities

The second major aspect where there is an interplay between banking and securities lies in bank loans which are backed by securities as collateral. There are two ways in which this can be motivated: from the perspective of access to limited leverage on the spot market (Section 5.2.1) and from the perspective of credit risk management by the bank (Section 5.2.2). We evaluate RBI's policy position (Section 5.2.3) from these two perspectives.

5.2.1 The role for "margin" trading on the spot market

With rolling settlement, leveraged positions are limited to intra–day positions as far as the core securities market infrastructure is concerned. Outside India, economic agents obtain multi-day leveraged positions in a world with rolling settlement, using a mechanism called "margin trading". Margin trading may be summarised as follows:

1. The buyer puts up 40% of the funds.
2. The money-lender brings in 60%.
3. Shares are purchased, and immediately pledged to the lender of the funds, through the depository.
4. "Marking to market" is done frequently, to collect all losses made on the position, and to ensure that the funds put up by the buyer do not drop below 40%.

Margin trading is a relationship between a financier (e.g. a bank) and the customer. A key feature of margin trading is that the cash market remains a cash market – all open positions turn into delivery and payment from the viewpoint of the clearing corporation.[8] Through margin trading, leveraged positions become available without generating credit risk for the lender, though they involve a lot less leverage than is presently observed with futures–style settlement, with or without *badla*.

5.2.2 Risk management for loans against securities

The major concern faced by policy makers in the area of banking is the poor success of Indian banks in dealing with credit risk. The "non performing assets" of Indian banks are large in absolute terms, and particularly when compared with the equity capital available for financing them.

Most bank loans in India utilise physical assets, such as commodities, land or machinery, as collateral. These assets are termed "opaque collateral" owing to the difficulties faced in observing prices (required for marking to market of collateral value) and in selling off the assets given the lack of a transparent, liquid secondary market. The difficulties with credit risk management that Indian banks have faced suggest that their risk management systems are unable to ensure collateral adequacy, and are unable to liquidate collateral when the borrower is delinquent.

In this context, loans using securities as collateral are an important avenue through which banks can extend loans in greater safety. The key difference here lies in the fact that securities are "transparent collateral" – the secondary market provides prices which can be used for marking to market of collateral value, and the secondary market supports swift liquidation of collateral. There are three issues here:

1. **Continuous valuation** The securities market provides a continuous valuation of these shares, which can be used for daily marking to market of collateral. Once systems for re-valuing collateral daily are in place, the focus of risk management becomes the one–day drop in collateral value.

   This is unlike real estate, plant and machinery, etc. where a lack of transparent prices prevents marking to market.

2. **Calculation of collateral requirements** Securities prices and liquidity have been well understood by the research community, to a point where a fair degree of knowledge is available for computing Value at Risk (Jorion 2000, Thomas & Shah 1999) on a one–day horizon, integrating price risk and liquidity risk. This is unlike collateral in the form of real estate, plant and machinery, etc. where the models for measuring price risk and liquidity risk are lacking.

3. **Liquidation of collateral** When the collateral is deemed inadequate to back a given

loan, a bank would send out a request for additional capital. If the borrower does not comply, the bank can harness the liquidity of the stock market, and liquidate collateral within minutes. This harnesses the liquidity of the exchange. This is unlike collateral in the form of real estate, plant and machinery, etc, where liquidation takes weeks or months, which (in turn) generates liquidity risk and price risk.

A modern bank would have processes for these steps (valuation, risk assessment, and collateral liquidation) functioning through an IT system, which would produce reliable and highly automated operations.[9] This is in sharp contrast with the human frailties which afflict the typical bank loan.

In summary, the traditional wisdom in India about the need to constrain loans against securities is inconsistent with the realities of risk management.

This discussion has been phrased in terms of the role for *securities* in banking. These arguments are essentially unaffected by the identity of these securities. The essential feature is trading in public marketplaces, with liquidity and transparency. Once this is present, the publicly visible price makes marking to market possible and reliable liquidation procedures can be put into place. Neither of these can be done with opaque assets.

Once liquidity and transparency are found, the distinction between debt and equity instruments, or spot and derivative instruments, does impact upon the technical implementation of Value at Risk systems at banks. However it does not affect the character of prudential regulation. Hence, banking policy needs to have only one consistent policy framework which deals with all securities.

5.2.3 A critique of RBI's policy position

The reasoning presented above is quite unlike the traditional stance of policy makers in India. Traditionally, loans against shares were viewed as "unproductive" as compared with loans that went into the real economy. In recent years, the fears of policy makers have been focused upon risk management, in the light of the volatility of share prices.

We analyse and critique the policy position as of May 2001, as one concrete example of one policy statement by the concerned regulators.[10] The details of policy positions do change from time to time; however the basic policy stance of banking regulators has shared many elements of this position across more than a decade.

1. Policy statement: *The "exposure of a bank to the equity market" is defined as the sum of direct investments, loans against shares, loans to stock broking firms, and bank guarantees to stock broking firms. However, loans against shares where the borrower utilises the loan for purposes unrelated to the stock market are excluded from this definition. The revised guidelines require that the exposure of a bank to the equity market is capped at 5% of the bank's total advances.*

   By our arguments, loans against equities should be backed by a sound risk management system. The goal of prudential regulation should be to ensure that this risk management system has the required technical attributes. If the risk management system is sound, then a cap of 5% is irrelevant, and the extent to which a bank engages in loans against shares could easily be much larger. If the risk management system is weak, then even a level of 5% is insufficient protection.

   There *is* a role for prudential regulation in requiring minimum *capabilities* of the risk management system. Once this is done, the extent to which banks choose to lend against shares is a legitimate *market outcome*; it should not be specified by regulators.

   By this same reasoning, the end–use of funds does not affect the credit risk faced by the bank. The policy position "loans against shares *for purposes unrelated to the stock market* are exempt from the 5% limit" is illogical. Since money is fungible, this position gives incentives to agents to disguise their utilisation of loans.

2. The policy position: *Loans against shares should over-collateralised by 40%.*

   Our arguments above suggest that the collateral required for a loan should reflect the frequency of marking to market, the delays in asset liquidation of the bank's risk management system, the Value at Risk of the portfolio, and the mean and variance of asset liquidity. A flat rule requiring 40% ignores these nuances.

3. The policy position: *Banks are forbidden from engaging in arbitrage or lending to firms which do arbitrage.*

Arbitrage consists of trading strategies which involve near–zero risk. For instance, a bank may choose to buy the index on the spot market and sell it off on the futures market, when the cost of carry embedded in the index futures market is sufficiently attractive. On both sides, the bank would face the clearing corporation as a legal counter-party (through novation) and hence face near–zero credit risk.

The above policy position forces banks to avoid deploying resources into this risk-less activity, and thus adopt higher risks through other forms of lending which involve higher credit risk.

4. The policy position: *Banks are required to do marking to market of collateral every week, but daily marking to market is recommended.*

   Given contemporary IT systems, it is a trivial matter for any bank to engage in daily marking to market of collateral. Every bank can, and should, have risk management systems which do daily marking to market, issue margin calls, and automatically liquidate collateral when the collateral is inadequate. One–day risk is much smaller than one–week risk, and the marginal cost of moving from weekly to daily marking to market is zero, so daily marking to market only yields improved risk management at zero cost. RBI's requirement that marking to market be done weekly under-exploits the possibilities from modern IT systems.

5.3 Governance and policy formulation

At a *technical* level, India's equity market fared very well in the decade of the 1990s. Starting from extremely primitive conditions, policy makers at SEBI, the Finance Ministry and NSE were able to create complex, technology-intensive market infrastructure which transformed the mechanics of trading securities. This is a non-trivial achievement, and the outcomes could easily have been less encouraging. For example, the government bond market presents a striking contrast where a different set of policy choices, made at the RBI, yielded very little change in market mechanisms and liquidity over the same decade where the securities exchanges experienced revolutionary changes.

At the same time, the experiences of recent years throw up important concerns about governance and policy formulation. Given the successes that have been

experienced in the technical questions of market design, the agenda for policy formulation in the future should involve a greater focus upon questions of enforcement, incentive-compatible institutional mechanisms, and political economy.

The basic character of political economy of policy formulation with securities markets is the same as that seen in most parts of economic policy making. Policy reforms yield diffused gains to economic agents in the economy at large. However, these same reforms yield focused losses to some groups of economic agents, who then have strong incentives to actively lobby against reforms.

From the viewpoint of market efficiency and costs of financial intermediation, financial markets function best when markets are transparent and competitive, and financial products are commoditised. These are often the conditions under which the profit rates of financial intermediaries are lowest. Hence, the interests of financial intermediaries are often contrary to those of efficient financial systems. This reasoning helps explain numerous aspects of the competing political forces affecting financial sector reforms in India.

This perspective predicts that brokerage firms and mutual funds, who have much to gain or lose from alternative policies and market designs, will intensively expend efforts in lobbying with SEBI. Similarly, on the government bond market, this perspective predicts that banks and primary dealers will expend efforts in lobbying with RBI, in favour of non-transparent market mechanisms, entry barriers in financial intermediation, etc. Both these predictions prove to be broadly accurate.

5.3.1 SEBI

In its early years, SEBI was remarkably distant from stock brokers and formulated policies based on an independent vision about where India's capital markets should be headed. A reforms program which focuses on markets and not intermediaries is inevitably unkind to intermediaries. The early success of reforms in the stock market (in 1993 and 1994) led to a halving of the price of a BSE card, a Rs.20 million reduction of the net worth of each BSE broker. Applied to the set of 600 member firms, this was a substantial loss of wealth of Rs.12 billion to the

universe of BSE members.

From a political economy perspective, these early years of SEBI were not an equilibrium, since the reform program was under attack from a constituency (market intermediaries) that had clear self–interest to engage in political actions. This is a sharp incentive for intermediaries to mobilise politically.

Hence, from this political economy perspective, it is not surprising to see that in recent years, SEBI has been substantially co-opted into the interests of the brokerage community. The debates about *badla* are an interesting litmus test which highlight the extent to which SEBI shared the world-view of brokerage firms. SEBI was concerned about the consequences of *badla* from 1992 onwards, and explicitly banned *badla* in 1993. However, from 1995 onwards, SEBI worked towards the resuscitation of *badla*, and the easing of margin requirements and other restrictions upon it.

This suggests that while SEBI may have started out as a reformist organisation that took a detached view of securities markets, it seems to have been co-opted into sharing the world view of intermediaries to a greater extent in recent years.

From a policy perspective, this suggests that special efforts should be undertaken, so that the viewpoint of economic agents in the economy at large bear upon the decision making of SEBI. This is difficult insofar as the specialised knowledge of the securities industry is normally only found amongst market practitioners. However, there *are* many avenues through which individuals and organisations, who have knowledge about securities markets but not these conflicts of interest, can be brought into SEBI's decision making to a greater extent.

5.3.2 NSE

The decision at NSE to use a "demutualised" structure was an important innovation. If NSE had been owned by brokerage firms, it would have had greater incentives to maximise the profit rates of brokerage firms. Instead, the fact that large institutional investors owned NSE, helped ensure that the prime goal that NSE worked towards was the reduction of transactions costs, even if it involved

reduced profit rates for brokerage firms.

While NSE has been an extremely successful organisation, there are two important areas of concern when we visualise its functioning in the future:

Capture The governance of NSE suffers from important vulnerabilities that flow from its being a public sector organisation. Now that NSE is the most important securities exchange in the country, there is likely to be significant interest on the part of political actors to capture NSE and derive rents from it. The constituency which benefits from a well functioning securities exchange (households engaging in saving across the country) has too little at stake to engage in political actions which favour a soundly run NSE.

Cost minimisation and innovation It increasingly appears that NSE faces little competitive pressure from other securities exchanges in India. Given the public-sector ownership of NSE, there is a real possibility that NSE may be weak on cost-minimisation and innovation in the years to come.

Policy makers should be conscious of these two vulnerabilities about NSE in the future. As with SEBI, it is important to undertake special efforts to bring the diffused beneficiaries of sound securities markets to have a greater impact upon decision making at NSE.

In addition, *globalisation* of India's financial sector is a powerful device which should be used to put competitive pressures upon NSE. This can work in two directions:

1. *Indian products traded offshore.* As of today, Indian firms do list offshore, and index futures on the NSE-50 index do trade at Singapore. These offshore trading venues constitute some competition for NSE. For example, the transactions charges in NSE-50 futures trading at Singapore have been an important source of pressure for NSE to lower charges for NSE-50 futures trading nin India.

2. *Offshore products traded in India.* Conversely, international products traded at NSE would also serve as competitive situations which could help constrain governance and cost minimisation at NSE.

The extent to which the international financial system imposes competitive pressures upon NSE today is quite limited. However it can be substantially expanded in the future. This can play a valuable role in giving NSE incentives in favour of innovation and cost-minimisation.

References

International Securities Consulting (2000), Moving from account period settlement to rolling settlement, Technical report, World Bank.

Jorion, P. (2000), *Value at Risk : The Benchmark for Controlling Market Risk*, 2nd edn, McGraw Hill.

Kyriacou, K. & Mase, B. (2000), 'Rolling settlement and market liquidity', *Applied Financial Economics* **32**, 1029–1036.

Shah, A. & Thomas, S. (2000), 'David and Goliath: Displacing a primary market', *Journal of Global Financial Markets* **1**(1), 14–21.

Solnik, B. (1990), 'The distribution of daily stock returns and settlement procedures: The Paris bourse', *Journal of Finance* **XLV**(5), 1601–1609.

Thomas, S. (2001), The anatomy of a stock market crisis: India's equity market in march 2001, Technical report, IGIDR.

Thomas, S. & Shah, A. (1999), Risk and the Indian economy, *in* K. S. Parikh, ed., 'India Development Report 1999-2000', Oxford University Press, chapter 16, pp. 231–242.

Williams, J. & Barone, E. (1991), Lending of money and shares through the *riporti* market of the Milan stock exchange, Technical report, Stanford University and IMI.

Notes

1. For example, Solnik (1990) documents the impact of the settlement date on the distribution of stock returns in Paris, where futures–style settlement is used on the equity spot market. This is reminiscent of the expiration–date effects which have been studied on futures markets.

2. Kyriacou & Mase (2000) and International Securities Consulting (2000) describe the impact of the move to rolling settlement in UK in 1994.

3. The concept of *badla*, which was used to avoid settlement even at the end of a settlement period, was part of the transfer of securities exchange market design from England to India. It often went along with account–period settlement in Europe. For example, Williams & Barone (1991) describes the 'riporti' mechanism in Milan which is essentially like *badla*.

4. This crisis came about as a combination of weaknesses in regulations on the primary market, and leveraged market manipulation on the secondary market.

5. This crisis was primarily about a failure of supervision of CRB Mutual Fund. However, it did have facets which involved leveraged market manipulation on the secondary market.

6. This is in contrast with traditional banks where information about clients is held at the level of the bank branch, and a person who holds an account at one bank branch cannot transact with any other branch of the bank.

7. Such an effort appears discriminatory in adversely affecting the revenues of Class B banks. However, any Class B bank could choose to improve its technological capabilities, and graduate to the status of the Class A bank. Hence, this proposal introduces no insurmountable entry barriers.

8. Margin trading is profoundly different from *badla* in many respects. With margin trading, we have an absence of netting *at the clearinghouse* between long and short positions. All longs who are unable to take delivery borrow funds (from money-lenders), and all shorts who lack securities borrow securities (from stock-

lenders). Distinct borrowing transactions take place at both legs, and both legs face positive interest rates. These features are all absent with *badla*.

9. These procedures require a high degree of market liquidity as a precondition. Hence, prudential regulation should exploit market impact cost in defining haircuts for a given portfolio of collateral.

10. This is the revised guidelines governing "Bank financing of Equities and Investments in Shares" released by the joint committee of the RBI and SEBI on 11 May 2001.

Date	Event
1876	Birth of Bombay Stock Exchange (BSE).
27 Jun 1969	Notification issued by government under SC(R)A prohibiting forward or futures trading.
Jan 1983	Regulatory permissions obtained for *badla* trading, a mechanism to carry forward positions.
2 Jan 1986	Computation of BSE 'sensitive' index commenced.
12 Apr 1988	SEBI created.
1992	Fixed income and equity markets scandal.
30 Jun 1994	Start of electronic debt trading at National Stock Exchange (NSE).
3 Nov 1994	Start of electronic equity trading at NSE.
13 Dec 1994	Ban on *badla*.
25 Jan 1995	SC(R)A amended to lift the ban on options trading.
14 Mar 1995	Start of electronic trading on a few stocks at BSE.
3 Jul 1995	Electronic trading of all stocks on BSE.
5 Oct 1995	Ban on *badla* reversed.
Apr 1996	National Securities Clearing Corporation (NSCC) commenced operations.
8 Nov 1996	National Securities Depository Ltd (NSDL) commenced operations.
1999	Securities law modified to enable derivatives trading.
12 Jun 2000	Start of equity index futures trading.
4 Jun 2001	Start of equity index options trading.
2 Jul 2001	Major stocks moved to rolling settlement; start of stock options market.

Table 1: Chronology of events on India's equity market