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# **The evolution of the securities markets in India in the 1990s**

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## **FOREWORD**

This paper by Ajay Shah & Susan Thomas provides a comprehensive review of the evolution of the securities markets in India in the 1990s. The paper was presented on September 3, 2001 at the first of series of ICRIER Seminars on “Ten Years of Economic Reforms”. The session was chaired by Dr Y Venugopal Reddy, the then Deputy Governor, Reserve Bank of India. Dr. Jayant Varma, Indian Institute of Management (Ahmedabad) was the discussant.

Given the contemporary importance of the issues and policies addressed in this study, this paper would be of interest to academicians, policymakers and investment advisors and analysts. ICRIER is bringing it out as a Working Paper to promote dissemination and wide policy debate.

**Arvind Virmani**

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# The evolution of the securities markets in India in the 1990s

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## Abstract

In this paper, we review the changes which took place on India's equity and government bond markets in the decade of the 1990s. In understanding these experiences, we focus on four interesting questions: (a) Why did NSE succeed? (b) Why did the equity market lurch from crisis to crisis? (c) Why did reforms on the GOI bond market falter? (d) How important are crises as a mechanism for obtaining reforms?

Looking forward, we argue that the transformation of the market design of the equity market is largely complete, and that the major question that now faces the equity market is that of improvements to investigation and enforcement at SEBI. In contrast, some major questions about market design on the GOI bond market have yet to be addressed. We offer proposals for principles that should be used at RBI in moving forward on the GOI bond market. Finally, we try to address questions of human capital and organisational design at SEBI and RBI.

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# 1 Introduction

Reforms to financial markets were high on the priorities of policy makers when India embarked on market-oriented reforms in the early 1990s. These efforts had several motivations: the broad idea of markets playing a dominant role in resource allocation, an awareness of the opportunity cost that India was suffering by not being open to global capital flows, and an immediate reaction to the fixed income and equity market scandal of 1992.

Over the decade of the 1990s, *the equity market* enjoyed a complete transformation of the market design. All stock exchanges in India switched to order matching by computers, which worked extremely well as compared with market designs based on human market makers which were utilised previously. A new risk management institution, the clearing corporation, was successful in largely eliminating settlement risk. A new institution, the depository, eliminated the operational vulnerabilities associated with physical share certificates. Derivatives trading came about, and within roughly a year after commencement, the stock index futures market was more liquid than the underlying stock market. Finally, the spot market moved into rolling settlement, which yielded important gains in market integrity.

These changes added up to a complete transformation of the market design on the equity market. It was accompanied by a corresponding transformation of the human capital in the equity market. It is hard to find many sectors of the Indian economy which experienced as radical a transformation in the decade of the 1990s.

At the same time, the decade of the 1990s was marred by a steady procession of episodes of market misconduct which regularly hit the front pages of newspapers. These episodes of market misconduct have been extremely disruptive of the core functions of the equity market, i.e. (a) pricing efficiency, and (b) intermediation between households investing in shares and firms financing projects by issuing shares.

Turning to the secondary market for *government bonds*, policy makers embarked on modest initiatives which closed loopholes which had been exploited in the scandal of 1992. Through the decade of the 1990s, the market design of the GOI bond market did not experience major changes.

Through this entire period, the GOI bond market was based on bilateral negotiations between a small club of bond dealers in south Bombay. The non-transparency of these negotiations, and the entry barriers into this club, sustained rents for these intermediaries. While GOI bond turnover rose sharply through the 1990s, and bid/offer spreads fell, these changes could (in significant part) be attributed to the enormous growth of the stock of GOI bonds, which was fueled by the large fiscal deficits through the decade.

In this paper, we focus on four important questions about these experiences:

1. Why did NSE succeed?
2. Why did the equity market lurch from crisis to crisis?

3. Why did reforms on the GOI bond market falter?
4. How important are crises as a mechanism for obtaining reforms?

In Section 4.1, we discuss the factors that underlay the success of the National Stock Exchange. Under normal circumstances, we would attach a low probability for the success of a new public sector entity going up against an entrenched private sector monopoly, in an industry which has many features of a natural monopoly. Yet, once equities trading commenced at NSE, it became India's largest stock exchange within less than a year. Why did NSE succeed? This is an important question, from the viewpoint of understanding securities markets, and perhaps in helping us obtain better functioning from the public sector in unrelated contexts.

We argue that the factors at work in the success of the NSE were (a) an opportunity to bring in a paradigm shift in technology, (b) legal engineering to keep a distance from government, (c) private sector HR policies, (d) incentive compatibility for owners, (e) strong competition with daily evaluation, (f) the pressures that flow from a revenue model based on user charges, (g) cost-minimisation in a newly competitive brokerage industry, (h) distance from SEBI and (i) stable leadership.

In Section 4.2, we diagnose the repeated crises on the equity market in the 1990s. We argue that the most important common thread across these crises was leveraged market manipulation on the secondary market. This was facilitated by the market design, which made leveraged long positions easy, and posed significant threats to short sellers. In this important area, SEBI's decisions in favour of the status quo set the reforms back by several years, and generated enormous costs for India's capital markets by helping engender economically significant crises.

In Section 4.3, we turn to the puzzle of the GOI bond market. In an environment where India's financial community found unexpected resources of innovation and institution building, on the equity market in the 1990s, why did the debt market stagnate? This is a puzzle in absolute terms, and in the extent to which the role model of the equity market did not generate an impetus for change on the debt market.

We argue that the factors driving this failure of reforms were (a) the perception of a low opportunity cost of an illiquid bond in the minds of policy makers, (b) the close relationships between rentiers and policy makers, (c) the focus of the media and political establishment on the stock market in the aftermath of 1992, (d) the lack of a constituency in favour of a new market design, (e) turf conflicts between RBI and SEBI, and (f) failures of policy analysis and project management at RBI.

In Section 4.4, we evaluate the importance of crises as a mechanism for obtaining reforms. At the simplest, the experience of the equity and bond markets suggests that crises are not prime factors in explaining outcomes: the GOI bond market was prominent in the scam of 1992, but the old market design favouring rentiers was left intact. In contrast, the crisis of 2001 is widely seen as having been essential for obtaining progress on the equity market in terms of moving forward with rolling settlement and derivatives.

We argue that crises have played a limited role in explaining the outcomes of the 1990s. The changes of the decade reflect a combination of building institutions, human capital, and a constituency in favour of change. Once these elements are in place, crises may be useful in explaining the final tactical details. But in an area like the GOI bond market, where these core problems were not addressed, crisis alone did not produce reforms.

In Section 5, we look at the major policy questions as of 2001. We argue that the grand questions of market design on the equity market are now largely in place. While many smaller difficulties in market design have yet to be addressed, they are substantially less important when compared with the changes achieved from 1994 to 2001.

The major questions for the equity market now lie in governance and enforcement. SEBI has yet to develop the institutional capacity for honest and efficient treatment of the difficult problems of detection, investigation and enforcement against fraudulent secondary market practices. The next few years are likely to enjoy a substantially improved equity market, as far as vulnerability to crisis is concerned, through the improvements in market design which took place in 2001. If, in addition, a fresh effort in building SEBI into a strong and competent regulatory organisation takes place, this would further help the functioning of the equity market by changing the ex-ante payoffs perceived by economic agents who evaluate unethical or illegal activities.

On the GOI bond market, we propose six principles which should guide policy formulation at the RBI:

1. Favour transparency,
2. Favour disintermediation,
3. Avoid the role of a systems operator,
4. Harness existing institutions,
5. Utilise the opportunity that is available in the fixed income derivatives market, and
6. Build human capital.

In Section 5.3, we turn to the difficulties with human capital and organisation design at RBI and SEBI. We offer some ideas in terms of governance structure, wages, and policies about staff on deputation at both RBI and SEBI. Finally, Section 6 concludes.

## **2 Motivations for the reforms of the 1990s**

At the outset, it is useful for us to try to identify the motives behind reforms on the securities markets in the 1990s.

**Broad goals of liberalisation** The first aspect was the broad goal of giving markets, rather than government, a greater role in shaping resource allocation. This meant a shift away from administrative control of credit, and government controls on prices of securities such as shares or government bonds.

**Opportunity costs associated with traditional market design** Political scientists have emphasised the role of opportunity costs in shaping the behaviour of the ruling elite (Friedan & Rogowski 1996).

In the traditional regime, it is argued that the elite favoured autarky and conservative economic policies, motivated by both Samuelson-Stolper arguments (where trade barriers favoured suppliers of capital), and through the rents associated with controls on trade flows and capital flows (Krueger 1974). In the decade of the 1980s, an enormous growth of global capital flows and trade flows took place. It is argued that this growth increased the opportunity cost to the elite of conservative economic policies, and helped create a constituency in favour of globalisation.

In this vein, when India desired a greater participation in global capital flows, a clear case could be made in favour of modern, efficient securities markets as an operational mechanism for attracting foreign capital inflows.

**Reactions to the crisis of 1992** Over the decade of the 1980s, millions of households became investors in the equity market. These households were adversely affected by the crisis of 1992 and worked as a new political constituency in favour of a market design which served the interests of investors rather than financial intermediaries. More generally, the fixed income and equity market crisis of 1992 was useful in briefly diminishing the political strength of the status quo.

One of the important questions, in deciphering the reforms of the 1990s, is that of disentangling the relative importance of these competing explanations. The crisis explanation has gained wide credence in India. Many observers feel that the two major pieces of reform on the equity market – the creation of NSE in 1993 and the migration to rolling settlement and derivatives in 2001 – would not have taken place without the pressure of a recent crisis.

This is an important question in the practical matter of the policy making process in the years to come. If crises are indeed the crucial driver for obtaining reforms, then it suggests that policy-makers should not devote attention to an area until a crisis erupts and the status quo is destabilised. In this paper, we argue that crises *are* important situations where rentiers are destabilised. However, the extent to which reforms are obtained depends greatly upon the preparatory effort that has gone into policy analysis, institution building, and building a constituency in favour of reforms. If such a vision is accurate, it suggests that policy-makers should work on the slow process of institution-building and the creation of a constituency in favour of reforms in peacetime, while opportunistically exploiting crises (when they appear) to break through difficult roadblocks of entrenched interests.



## 3 Changes in the securities markets in the 1990s

### 3.1 The equity market in the 1990s

The equity market was prominent in the public imagination in the early 1990s owing to the famous “stock market scam” of 1992. This was a somewhat unfair characterisation, insofar as the malpractices on the GOI bond market were atleast as important as those on the stock market. However, this helped generate interest on the part of policy makers in new designs of the equity market.

The problems of the BSE as of 1992 have been extensively documented elsewhere (Shah 1999, Shah & Sivakumar 2000). Over the decade of the 1990s, a series of profound changes to the market design took place:

- *Electronic trading* (1994). All exchanges in India switched from floor trading to anonymous electronic trading.
- *Risk containment at the clearing corporation* (1996). The largest exchange, NSE, adopted risk management through “novation” at the clearing corporation. Other exchanges also substantially improved their risk containment mechanisms.
- *Dematerialisation* (1996). Almost all equity settlement today takes place at the depository.
- *Derivatives trading* (2000, 2001). In 2000 and 2001, equity derivatives trading commenced, with index derivatives and derivatives on some individual stocks.
- *Elimination of leveraged trading on the spot market* (2001). “Futures style settlement” and deferral mechanisms, which implied that the spot market featured leverage and futures–market principles, were banned in favour of rolling settlement.

These changes add up to a complete transformation of the market design of the equity market. A less noticed aspect of these changes is the remarkable extent of new human capital which was created to operate this new securities market infrastructure. Very few observers in 1991 could have predicted that traditional investors and stock brokers would be trading on computers, giving instructions for transfer on the depository over the Internet, and trading in index futures and options. The transition from physical share certificates to depository settlement involved a loss of thousands of jobs. That this process took place without friction is testimony to the labour market flexibility in the securities industry. Over the decade of the 1990s, atleast a hundred significant brokerage firms have gone bankrupt. That this exit has taken place without friction is testimony to the lack of rigidities in the securities industry.

There were many difficult political battles and practical hurdles in these years, and it is possible to make the case that these changes could have been completed several years before 2001. However, now that these changes are behind us, the process of transforming the market design on the equity market is largely complete.

At the same time, the decade of the 1990s was marred by a steady procession of stock market crises. These crises made the front pages of newspapers, and have played an important role in conveying an image of disarray and fraud when uninformed households in India think about the stock market. A central feature of these crises was the incidence of market manipulation on the secondary market. In understanding policy issues connected with securities markets, it is important to better understand these episodes, and learn from them.

1. *1992: Harshad Mehta.* The first “stock market scam” was one which involved both the GOI bond and equity markets in India. The manipulation was based on the inefficiencies in the settlement systems in GOI bond market transactions. A pricing bubble came about in the equity markets, where the market index went up by 143% between September 1991 and April 1992. The amount involved in this crisis was approximately Rs.54 billion.
2. *1994: M. S. Shoes.* Here the dominant shareholder of the firm, Pawan Sachdeva, took large leveraged positions through brokers at both the Delhi and Bombay stock exchanges, to manipulate share prices prior to a rights issue. When the share prices crashed, the broker defaulted and BSE shut down for three days as a consequence. The amount involved in the default was Rs. 170 million.
3. *1995: Sesa Goa.* Another episode of market crisis for the BSE, was the case of price manipulation of the shares of *Sesa Goa*. This was caused by two brokers, who later failed on their margin payments on leveraged positions in the shares. The exposure was around Rs. 45 million.
4. *1995: Rupangi Impex and Magan Industries Ltd.* The prices of *Rupangi Impex Ltd.* (RIL) was manipulated in October 1995 and *Magan Industries Ltd.* (MIL) in January 1996. In both cases, the dominant shareholders implemented a short–squeeze. In both cases, the dominant shareholders were found to be guilty of price manipulation. The amounts involved were Rs.5.8 million in the case of MIL at the BSE, and Rs.11 million the case of RIL at the NSE.
5. *1995: Bad deliveries of physical certificates.* When anonymous trading and nation-wide settlement became the norm by the end of 1995, there was an increasing incidence of fraudulent shares being delivered into the market. It has been estimated that the *expected* cost of encountering fake certificates in equity settlement in India at the time was as high as 1% (Shah & Thomas 1997).
6. *1997: CRB.* C. R. Bhansali created a group of companies, called the CRB group, which was a conglomerate of finance and non-finance companies. Market manipulation was an important focus of the activities of the group. The non–finance companies routed funds to the finance companies to manipulate prices. The finance companies would source funds from external sources, using manipulated performance numbers. The CRB episode was particularly important in the way it exposed extreme failures of supervision on the part of RBI and SEBI. The amount involved in the CRB episode was Rs.7 billion.
7. *1998: BPL, Videocon and Sterlite.* This is an episode of market manipulation involving the broker that engineered the stock market bubble of 1992, Harshad Mehta. He seems to have worked on manipulating the share prices of these three companies, in collusion with the management of the companies. The episode came to an end when the market crashed due to a major fall in the index, and Mehta did not find the liquidity to maintain his leveraged positions. In this episode, the top management of the BSE resorted to tampering with records in the trading system in trying to avert

a payments crisis. The President, Executive Director, and Vice President of the BSE had to resign due to this episode. This episode also highlighted the failure of supervision on the part of SEBI. The amount involved in this episode was Rs.0.77 billion.

8. 2001: *Ketan Parekh*. Our knowledge of the modus operandi of this episode is the weakest, since investigations are still under way. This was triggered off by a fall in the prices of IT stocks globally. Ketan Parekh was seen to be the leader of this episode, with leveraged positions on a set of stocks called the “K10 stocks”. There are allegations of fraud in this crisis with respect to an illegal *badla* market at the Calcutta Stock Exchange and banking fraud.

This procession of crises has cast a shadow over the credibility of SEBI, and its capacity to produce a safe and sound equity market. To the extent that the appropriate response lay in eliminating leveraged trading and moving to rolling settlement, these crises highlight the costs to the economy of SEBI's efforts from 1995 onwards in adopting a conservative position, i.e. that of perpetuating weekly settlement and *badla*.

These episodes of market misconduct have been extremely disruptive of the core functions of the equity market, i.e. (a) pricing efficiency, and (b) intermediation between households investing in shares and firms financing projects by issuing shares.

### **3.2 The GOI bond market in the 1990s**

In 1992, the GOI bond market did not use trading on an exchange. It featured bilateral negotiation between dealers. A major consequence of bilateral negotiation is that the market lacks price–time priority. Further, the lack of anonymity implies that a variety of malpractices can flourish, such as shading prices for favoured counterparties, forming and enforcing cartels, etc.

Bilateral transactions impose counterparty credit risk on participants. This tends to narrow down the market into a “club” which has homogeneous credit risk, and thus throws up entry barriers in the market.

The negotiations between dealers took place on telephone, and were effectively restricted to individuals in one square kilometer of south Bombay. The rest of India could not participate in the market. This was similar to the BSE floor, which produced a south-Bombay domination in the equity market.

Bilateral transactions are extremely non–transparent in terms of both pre–trade and post–trade transparency. Before the trade takes place, trading intentions are not publicly visible. After the trade takes place, information about the trade is not made publicly available in realtime.

The settlement of GOI bond trades is done through the database called “SGL” maintained by RBI. SGL suffered from serious operational problems as of 1991. Partly as a response to these problems, participants took to trading in IOUs called “bankers receipts” (BRs). The practice of

bilateral netting flourished, in a dangerous environment of weak back office software and internal controls.<sup>1</sup>

These problems were present from the middle 1980s onwards. However, the increase in transaction volume in the early 1990s, and the euphoria on the stock market following the liberalisation of 1991, were the triggers which converted these systemic problems into a crisis. Most systemic crises in the financial sector are rooted in uncontrolled leverage; the Scam of 1992 can be attributed to a two-stage leverage – one stage at the inter-bank GOI bond market (using IOUs) and another on the stock market (using *badla*).

Turning to the reforms, three major reforms took place in the early 1990s:

**Improvements to SGL** The RBI moved to computerise the SGL and implement a form of a ‘delivery versus payment’ system.

**Enforcement of a “trade for trade” regime** The RBI setup a strong regulatory system which required that every trade must settle with funds and bonds; IOUs and all forms of netting were prohibited.

**Trade reporting at NSE** A limited degree of transparency came about through the Wholesale Debt Market (WDM) at NSE, where roughly half the trading volume of India’s GOI bond market is reported. WDM is not a market in the sense that it does not possess liquidity which can be used to match orders. Yet, it marks a step forward insofar as it reveals useful data about prices and traded quantities.<sup>2</sup>

These reforms served to close the windows through which the pervasive failures of clearing and settlement generated the Scam of 1992. Today, SGL works much more effectively as compared with 1992. IOUs and uncontrolled leverage are completely absent. In this sense, one objective, of preventing the recurrence of the Scam of 1992, has clearly been met.

However, these reforms did not address the core problems of the debt market, the reliance on distributed dealers interacting by telephone in Bombay. This problem, and the “trade for trade” regime, which forbids all forms of netting, are the hurdles now faced in obtaining market liquidity.

In summary, when we compare the GOI bond market in 2001 as compared with that seen a decade ago, there are two major changes:

1. The chaotic world of bilateral netting was replaced by a trade-for-trade regime with settlement at a fairly efficient depository.

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<sup>1</sup>Basu & Dalal (2001) and Barua & Varma (1993) offer good treatments of the bond market in the early 1990s.

<sup>2</sup>Fairly modest notions of transparency can sometimes have significant consequences for market liquidity. Shah (2000) documents a sharp improvement in liquidity which took place on the call money market when dissemination of a reference rate (MIBID/MIBOR) commenced. This appears to be an extremely modest injection of transparency: the reporting of a reference rate on the dealer market. Yet, it seems to have generated large reductions in the bid/offer spread of ten to twenty basis points.

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**Table 1** Market size of the equity and GOI bond markets

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In terms of sheer market size, the equity market saw a drop from 42% of GDP in 1993–94 to 28.6% of GDP in 2000–01. Over the same period, the GOI bond market saw an increase in market size, fueled by large fiscal deficits, from 28% of GDP in 1993–94 to 36.7% of GDP in 2000–01. Other things being equal, this should have generated an improvement in liquidity of the GOI bond market and a reduction in liquidity in the equity market. Instead, changes in market design on the equity market over this period gave the opposite outcome, where the improvement in liquidity on the equity market was superior to that observed on the GOI bond market.

Year	Rs. billion		Percent of GDP	
	Equity	GOI Bond	Equity	GOI Bond
1993-94	3681	2457	42.0	28.0
1994-95	4334	2665	41.8	25.7
1995-96	5265	3079	43.2	25.3
1996-97	4639	3445	32.9	24.4
1997-98	5603	3890	33.8	25.7
1998-99	5429	4597	30.9	26.0
1999-00	9128	7143	46.6	36.5
2000-01	6255	8045	28.6	36.7

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2. The large fiscal deficits of the intervening years (Table 1) have improved the size of the market, with downstream consequences for increased liquidity.

Apart from these changes, the basic character of the bond market has been largely unchanged. The weaknesses that accrue from having bilateral negotiation and dealing, which afflicted the bond market in 1991, are present in 2001. As in 1991, the bond market remains dominated by traders located in one square kilometre of south Bombay.<sup>3</sup>

## 4 What can we learn from these experiences?

In this section, we try to obtain some lessons from this experience of a decade of public policy formulation on the securities markets. Specifically, we address four interesting questions:

1. Why did NSE succeed?
2. Why did the equity market lurch from crisis to crisis?

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<sup>3</sup>From 2000 onwards, RBI has been attempting to build a system called the “Negotiated Dealing System” (NDS). It will feature bilateral contracting through conversations conducted over a computer screen, instead of telephone calls. The NDS features expensive and complex communications infrastructure, however it has profound design limitations. There will be no order book, or anonymity in the NDS. Access to the NDS will also be severely restricted. Hence, even if the NDS is successfully executed, it will not significantly impact on the transparency and degree of competition on the GOI bond market.

3. Why did reforms on the GOI bond market falter?
4. How important are crises as a mechanism for obtaining reforms?

## 4.1 Why did NSE succeed?

When the idea of NSE was first contemplated seriously in 1993, there were many arguments which were made against it, with much merit. First, the government of India has a dubious record for starting new organisations. Specifically, the OTCEI was a recent state-sponsored exchange which had not fared well. Second, the NSE would be going up in competition against the entrenched liquidity of the BSE. As of 1993, there had been no precedent of a second exchange taking liquidity away from an established trading venue.

Yet, within one year of the onset of equity trading at NSE, it became India's most liquid stock market. This was a remarkable outcome. Further, NSE seems to have generated a dynamic process of change in the securities industry. It directly spawned new institutions (the clearing corporation and depository) and played a vital role in injecting new ideas into the securities markets (such as derivatives trading). Through competitive pressure, and by being a role model, it indirectly helped accelerate the process of change in other exchanges in the country. Thus NSE's overall importance in the reforms process on the equity market has been quite considerable.

Why did NSE succeed? A finance-oriented treatment of this question can be found in Shah & Thomas (2000). In our treatment here, we focus on the public policy, and governance, aspects of the NSE experience. Some of these were unique to the setting where NSE came in. Others are design features which can sometimes be consciously adopted in other attempts at the creation of institutions in the public sector.

- *Opportunity to bring in a paradigm shift in technology.* NSE was able to exploit the situation where BSE had done extremely little in terms of using computer technology. NSE harnessed new technology to produce a paradigm shift in market design. If BSE had built the most minimal market infrastructure – e.g. using a design like RBI's NDS – it is unlikely that NSE would have made the progress that it made.
- *Legal engineering to keep a distance from government.* The ownership structure of NSE was carefully constructed so that it did not suffer from the operational rigidities of public sector firms which are directly owned by the government.
- *Private sector HR policies.* NSE adopted private sector wages and HR policies. This helped produce greater accountability and growth of human capital.
- *Incentive compatibility for owners.* Shareholders of NSE such as IDBI, UTI, etc. were users of securities markets, and stood to gain from a more liquid stock market, even if that hurt the interests of stock brokers.

- *Strong competition with daily evaluation.* NSE faced a highly competitive market for order flow. NSE's success or failure was observable daily in terms of the market share in turnover. This helped produce continuous pressure in favour of performance of the organisation.
- *Pressures that flow from a revenue model based on user charges.* NSE used a transaction-based revenue model, where users charges were imposed on transactions. This produced the useful discipline of binding the financial survival of the organisation to its ability to attract transactions. As examples in contrast, we may consider OTCEI, where deposits were large enough to sustain the organisation at near-zero transaction revenues, or RBI's securities infrastructure, where user charges are not applied.
- *Cost minimisation in the newly competitive brokerage industry.* NSE opened up the entry barriers into the brokerage industry, and brought the brokerage industry closer to zero economic profits. At the same time, this produced useful pressure on NSE from its brokerage firms in favour of cost minimisation.
- *Distance from SEBI.* The political frictions between NSE and SEBI were useful insofar as NSE staff had to assume that their designs and operations would be subjected to stringent, if not hostile, scrutiny by SEBI. This was a useful contrast when compared with the cosy relationships with regulators which public sector entities sometimes face.
- *Stable leadership.* NSE has had a stable management team from inception till today. This is in contrast with most public sector organisations which suffer from short stints of the managing director, political interference in senior appointments, etc.

## 4.2 Why did the equity market lurch from crisis to crisis?

When we examine the episodes of market misconduct, #1 through #8 in Section 3.1, they partly reflect the immaturity of regulations in the early days of SEBI. These weaknesses were exposed by these episodes, and these loopholes have since been fixed. However, the primary difficulty that is the common thread across all these episodes is market manipulation on the secondary market.

In the Indian setting, a vulnerability to manipulation on the secondary market seems to come about from a combination of (a) difficulties with disclosure, (b) collusion between top management of the firm and securities firms, (c) leveraged positions on the secondary market, (d) limitations to the supervisory capacity at exchanges and SEBI.

Through this period, the only mechanism for short selling was through *badla*. This was fraught with danger for the short, since access to borrowed shares through *badla* was often unreliable and involved a high uncertainty in the interest rate. In this environment, the leveraged long could access borrowed funds (which are fungible) from a wide variety of sources, but the leveraged short did not have easy access to borrowed shares. Hence, when an informed speculator could see that a share price was substantially above a "fair value", the hazards of short selling often deterred this speculator from curbing the gains to the manipulator.

There are many combinations of improvements to the equity market which could greatly reduce the vulnerability to secondary market manipulation. For example, if we had a transformation of rules and enforcement about continuous disclosure, and a great improvement in the supervisory capacity at exchanges and at SEBI, then it would be possible to have a substantial enlargement of the role for leveraged trading on individual shares. However, the easiest path to a safe and sound spot market appeared to be the elimination of leveraged positions on the spot market.<sup>4</sup> This question was intensively debated from December 1993 (when *badla* was first banned) to July 2001 (when *badla* and account-period settlement were finally banned).

It is possible to make a case that SEBI's decision processes moved too slowly in going from the first proposals for derivatives trading (in late 1996) to the actual transition into rolling settlement (in July 2001). We can conjecture about a world where the equity market was in rolling settlement in 1997, in which case the subsequent market crises may have been greatly attenuated. Hence, while this historical debate is not important in itself (since the elimination of leveraged trading on the spot market is behind us), it is an interesting question insofar as it highlights the governance problems of SEBI.

### 4.3 Why did reforms on the GOI bond market falter?

There is a striking contrast between the relatively minor changes which took place on the GOI bond market after 1992, and the revolution which took place on the equity market from 1993 to 2001. We should ask two important questions about this experience:

- Why did the GOI bond market not experience a transformation of market design?
- Why did the success stories for institution building in the equity market not serve as “regional role models” and impact on the design of the GOI bond market?

#### 4.3.1 Opportunity cost as seen by policy-makers

We can argue that the opportunity cost of the traditional market design was most keenly felt on the equity market, where policy makers saw a major role for the equity market in raising resources for private firms from both domestic and foreign investors. Policy makers were keen to weave India into the burgeoning global private capital flows, and the shortcomings of the equity market were seen as a major impediment to portfolio inflows. For instance, the *Economic Survey* of 1992-93 writes: “Major modernisation of the stock exchanges, to bring them in line with

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<sup>4</sup>There are two key differences between the world with T+5 rolling settlement, after 2 July 2001, as compared with the previous regime. First, the netting period (within which leveraged positions are available) shrank from a week to a day. While it can be argued that there is no profound difference between a week and a day, an equity spot market where leveraged positions are not carried overnight is an important milestone. Second, carryforward was eliminated, which implied that every end-of-day position led to settlement without any leverage.



world standards in terms of transparency and reliability, is also necessary, if foreign capital is to be attracted on any significant scale.”

In contrast, the commitment on the part of policy makers to having a liquid and efficient *market* which determined interest rates has been lukewarm at best.

- Foreign capital inflows into the GOI bond market are relatively unwelcome to policy-makers, particularly when they involve short-dated GOI bonds. This is in contrast with capital inflows into the equity market, where policy-makers seek to have the largest possible capital inflows. Hence, infirmities in the market design on the GOI bond market do not generate an important opportunity cost as far as harnessing foreign capital inflows are concerned.
- In the presence of “development finance institutions” and banks, firms in India are seen as having access to debt financing, albeit through non-transparent loans instead of securities. These loans are characterised by rents, allocative inefficiencies and large overheads of intermediation. However access to debt finance was not seen as a major bottleneck hindering investment. Hence, the lack of a liquid bond market was not keenly seen as a constraint in investment and growth.

There are some situations, such as the financing of infrastructure projects, where a liquid bond market was seen as a crucial ingredient. However, infrastructure projects in the 1990s faced many other constraints and the lack of a liquid bond market was not a primary constraint.

- Finally, traditional ideas in macro-economic management ascribe a major role for the State in setting interest rates, so a liquid market may actually be seen as an impediment in accomplishing policy objectives. This is in contrast with the equity market, where the market process has complete legitimacy; the finance ministry does not seek to have a say in the determination of stock prices. In comparison, the commitment to market-determined interest rates at RBI and the Finance Ministry is perhaps more limited.

We can argue that this lack of commitment on the part of policy makers led to a perpetuation of the status quo, where the rents of incumbents were left largely undisturbed.

#### **4.3.2 The relationship between rentiers and policy-makers**

The second important difference between the GOI bond market and the equity market lay in the relationship between the incumbents, who derived rents from the traditional market structure, and the policy makers.

In the case of the GOI bond market, the rents from a non-transparent market with entry barriers accrue primarily to banks and PDs.<sup>5</sup> The PDs are largely the creation of RBI, and public sector banks have extremely close ties with RBI. For example, there is a steady flow of individuals working at RBI who work on deputation at public sector banks or PDs. With both banks and PDs, RBI and the government have major direct and indirect shareholding. This conflict of

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<sup>5</sup>It is with foreign banks, private banks and brokerage firms that the rents from the non-transparent bond market accrue to entities unconnected with RBI.

interest has helped RBI take a more benign view of the rents from non-transparency, and have a weaker effort to move towards a new market design which will eliminate these rents.

In contrast, the SEBI that undertook drastic reforms in 1993 and 1994 was completely detached with respect to the rentiers. SEBI or the government was not a shareholder in a single BSE brokerage firm, nor was it involved in the creation or running of any of these firms. SEBI staff did not work on deputation at the BSE or at BSE member firms. This helped SEBI to support new ideas in market design which eliminated the rents earned by BSE members.

### **4.3.3 The lessons of the 1992 crisis**

The fixed income and stock market scandal of 1992 was rooted in market malpractice on the GOI bond market. However, the stock market captured the public imagination, and for many citizens and policy makers, the State was evaluated in terms of its response to the 1992 crisis on the equity market and not on the bond market. To most citizens of the country even today, the 1992 crisis is remembered only as a “stock market crisis”.

The focus on the stock market crowded out attention of policy makers on the bond market, and may have adversely impacted on the extent to which lessons were learned from the 1992 crisis. The failures of bond market *settlement* were addressed by banning netting and improving SGL, but the vulnerability to malpractice that is innate in OTC contracting was left intact. The equity and bond markets in 1991 were both “club markets” in south Bombay. Today, ten years later, the equity market is a truly national market while the bond market continues to be a club market in south Bombay.

### **4.3.4 The lack of a constituency in favour of a new market design**

In the case of the equity market, over the decade of the 1980s, millions of households in India had embarked upon equity investment. They served as a constituency in favour of a market design on the equity market which favoured investors rather than market intermediaries.

In contrast, as of 1992, households did not directly own government bonds. Hence, the only constituency that played a role in the political conflicts over bond market design was that of existing bond market intermediaries, who derived rents from non-transparency and entry barriers.

### **4.3.5 Turf**

The most important device for reforms on the bond market was the use of anonymous trading on an exchange. However, exchanges were governed by SEBI. This may have generated incentives for RBI to choose a conservative path in terms of staying with non-transparent contracting mechanisms.

#### 4.3.6 Policy analysis and project management at RBI

As of 1990, RBI's focus was upon banks, the external sector, and monetary economics. The secondary market for bonds requires a whole new expertise, in the design and supervision of securities markets. This made demands upon the human capital of RBI which the organisation seems to have been ill-equipped at addressing.<sup>6</sup> Further, through the decade of the 1990s, the failures of policy-making on the secondary market for bonds did not send back signals to RBI that this area required a specialised expertise and focus, distinct from the expertise used in the mainstream operations of RBI, or in the primary issuance of government bonds.

At an implementation level, RBI chose to become a systems operator itself instead of having these functions performed by external agencies.<sup>7</sup> It appears that the core securities market infrastructure requires a mission-critical orientation, and operational flexibility, which is not easily found in government. Finally, RBI's record in building critical infrastructure projects - such as the payments system - has proved to be fairly poor.

The comparison between the functionality of the depository for the bond market (at RBI in 1993) and the depository for the equity market (at NSDL in 1996, just three years later), shown in Table 2, is quite striking. RBI's SGL *was* an important step forward in terms of eliminating the opportunities for explicit fraud in securities settlement which had flourished from 1986 to 1992. However, at the same time, we should not understate the opportunity cost that the GOI bond market suffered owing to the limited vision that drove SGL.

A similar comparison can be made between the trading system designed by NSE in 1993, as compared with RBI's "Negotiated Dealing System" (NDS), which was designed in 2000. The design of the NDS reflects significant weaknesses of knowledge about the securities industry, and about exploiting modern information technology. In the case of NDS, it appears that critical design functions were handed to a software company, which has been asked to study the existing process design used on the bond market and encode it in a software system. This approach is unsatisfactory; a software company is unlikely to possess a capacity for designing securities markets. It is likely to opt for a conservative strategy of encoding existing market practice into a software system, and avoid challenging existing assumptions of market design.<sup>8</sup>

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<sup>6</sup>As with RBI, SEBI started out in 1988 with a near-zero stock of human capital connected with the securities markets. However, by 1993-94, SEBI was able to articulate a radical vision for the future of the equity market. While the implementation of this vision got greatly delayed (to July 2001), it is useful to contrast this rapid build-up of human capital and a strategy for market reform at SEBI (which took place in a five-year period from 1988 to 1993) with that of RBI. This comparison also suggests that RBI's difficulties are not innate to the functioning of government agencies.

<sup>7</sup>The attempt at running the depository (SGL) and the securities exchange (NDS) inside RBI is analogous to NSDL and NSE being departments inside SEBI.

<sup>8</sup>As an analogy, consider the consequences of this conservative approach, of software systems which encode existing market practice, if it had been adopted by NSE at its outset. If NSE had commissioned a software company to study the functioning of the equity market in India in 1993 and implemented it in a software system, we would have perpetuated the essential market design of the BSE as of 1993. Similarly, if NSE had looked at "international best practices" at NYSE, NASDAQ or LSE in 1993 and imitated their market structure, this would have suggested a market with anachronistic features such as a trading floor, market makers, etc.

**Table 2** The two depositories, SGL and NSDL

Feature	SGL	NSDL
<b>Financial economics</b>		
<i>User community</i>	Restricted to institutional investors and to entities eligible to open constituent SGL accounts	Unrestricted access.
<i>Information access</i>	PDO does not have direct view of the underlying beneficial owners with constituent SGL accounts	All information is tracked at the level of the ultimate beneficial owner.
<i>Services for beneficial owners</i>	Beneficial owners cannot effect transfers between themselves; they have to route the transfer through CSGL	Two beneficial owners can effect transfers of securities between themselves.
<i>Use of securities on same day</i>	Not possible	Possible.
<i>Human capital investments</i>	Training inputs for 400 institutional investors. No formal certification program.	Training inputs for 4.1 million account holders, and general public. 2500 individuals have passed a certification examination, the “Depository Operations Module” of the NCFM.
<i>Place of service</i>	At <i>x</i> PDO offices	At 2651 offices (in 426 cities) of 203 depository participants across the country.
<i>Revenue model</i>	Free infrastructure for users	Self-sustaining infrastructure, paid for by user charges.
<b>Information technology</b>		
<i>Computer access</i>	None - users deal with paper forms, cannot query account balances, etc.	Users deal with computer screens.
<i>Outreach</i>	At PDO locations	Anywhere in India, using satellite or leased line communications.
<i>Hours of operation</i>	4 hours a day	14 hours a day.
<i>Mode of operation</i>	Batch processing at end of day	Realtime processing.
<i>Transaction processing capacity</i>	Around 1000 transactions per day	Around 0.5 million transactions per day.
<i>Internet access</i>	Absent	Realtime queries by depository participants and instructions by beneficial owners over the Internet.
<i>Computer security</i>	Not applicable; is not a computerised system as far as users are concerned	Extensive use of cryptographic protocols, though not using public key / private key methods at the investor level.

#### 4.4 How important are crises as a mechanism for obtaining reforms?

The experience of the 1990s gives us valuable insights into the role of crises in obtaining reforms.

At the simplest, the contrast between conservative policies on the bond market and radical change on the equity market is quite striking. The securities markets crisis of 1991 was primarily a failure of supervision and enforcement with OTC trading on the bond market. If crises are the dominant impetus for reforms, then the main focus of reforms in the post-1991 period should have been the bond market. The observed outcomes contradict this prediction.

Turning to the equity market, it is useful to contrast the banning of *badla* in 1993 as compared with the transition into rolling settlement and the banning of *badla* in 2001. Why did the reforms fail in 1993 but succeed in 2001? We can highlight several differences between the two episodes:

- In 1993, *badla* was banned, but a fully articulated alternative was not available. In 2001, all the components for a market design without *badla* were at hand, other than a securities lending mechanism. Thus the institution building from 1993 to 2001 was crucial in making the decision of 2001 possible.
- In 1993, the human capital of the financial sector was highly unprepared for the ban on *badla*. By 2001, a great deal of knowledge building had taken place. Market intermediaries and investors had experience with rolling settlement, derivatives trading, etc. This reduced the political opposition to the reforms in 2001.
- In 1993, BSE operated the exchange while SEBI tried to obtain a new market design. This gave an agency conflict, where BSE was unlikely to do a good job of making the market work well without *badla*. In 2001, NSE was available, and NSE is expected to have better incentives to make the new market design work well.
- In 1993, the brokerage industry was dominated by BSE brokers who had a strong interest in *badla*. In 2001, there was a strong community of new brokerage firms who were less committed to the previous market design, and could even function as a constituency in favour of reforms.
- Policy makers were perhaps unprepared for the opposition faced in 1993, given the fact that the ban on *badla* was one of the first interventions by the Indian State in market design. By 2001, policy makers had a better understanding of the constituencies and the political economy through which they operated.

Thus we would argue that the crisis of 2001 was unquestionably essential for obtaining the remarkable successes of reforms. However, it would be incorrect to exclusively attribute change to crisis. Instead, the changes of 2001 seem to reflect a combination of institution building, human capital building, creation of new constituencies, and a final opportunity to exploit the crisis.

## 5 Looking forward

### 5.1 Equity market

The reforms of the 1990s attempted a transformation of market design on the equity market. This transformation appears to be largely in place: with electronic trading, novation at the clearing corporation, dematerialisation, rolling settlement, and derivatives.

The only major element of market design which has yet to be implemented is a formal securities lending mechanism. This would be a screen-based trading mechanism where borrowers and lenders of shares would trade on the rental rate for borrowing shares. When a trade is matched, the borrower would place collateral with the clearing corporation, and take delivery of the share, with a commitment to reverse the transaction at a future date. This may appear similar to *badla* or ALBM. However, the key attributes of a true securities lending mechanism are (a) its operation would be completely delinked from the settlement processes of the equity spot market, and (b) shares would actually go out from the clearing corporation into the stock borrower's depository account.

Other smaller elements of market design that have yet to fall into place are as follows:

**Settlement in central bank funds** Currently, investors are exposed to the credit risk of clearing banks when engaging in settlement activities on the equity market. Settlement in central bank funds would eliminate this source of credit risk and make the settlement process more credible.

**Full-fledged portfolio margining** Margin regulations in India are fairly inefficient in utilisation of capital. This is partly derived from their historical sequence in which individual requirements were put into place. It is also a consequence of separate margin requirements for separate market segments. There is a need to improve the efficiency of utilisation of capital by having full-fledged portfolio margining of positions across equity spot, stock lending and equity derivatives.

**Restrictions on bank loans against shares** 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.

**Improvements in settlement** A major topic of discussion in the equity market, internationally, is the move to T+1. Once RBI obtains some progress on the payments system, we will need to sequence the movement from T+5 down to T+3 and then to T+1. In parallel, an effort towards 'straight through processing', where *all* post-trade activities take place without human intervention, should commence.

The most challenges on the equity market are no longer on these questions of market design, but on the more difficult questions of governance and enforcement.

The recent crisis on the equity market has highlighted the deficiencies of governance with broker-run exchanges. While there is a broad agreement that the governance structures of broker-run exchanges need to be transformed, the details of this process have yet to be worked out. The phrase 'demutualisation' is widely used. Yet, demutualisation is not the essence of the problem. Narrowly interpreted, demutualisation consists of moving from the BSE as an association of persons (AOP) to a limited liability company. If this were the only change that were made, nothing would change about the conflicts of interest in exchange administration. What we seek is more profound: it is the creation of an ownership structure and management team for each exchange whereby brokerage firms are only franchisees, who do not influence the operations or policy formulation of the exchange.

Finally, the most important challenge before SEBI today lies in dealing with market misconduct. The crises from 1992 onwards have been matched by poor responses in terms of investigation and enforcement. SEBI has yet to develop the institutional capacity for honest and efficient treatment of the difficult problems of detection, investigation and enforcement against fraudulent secondary market practices. These questions will lead on to the problem of transforming the nature of continuous disclosure by listed firms, and the mechanisms for blocking the involvement of listed firms in market manipulation.

The next few years are likely to enjoy a substantially improved equity market, as far as vulnerability to crisis is concerned, through the improvements in market design which took place in 2001. If, in addition, a fresh effort in building SEBI into a strong and competent regulatory organisation takes place, this would further help the functioning of the equity market by changing the ex-ante payoffs perceived by economic agents who evaluate unethical or illegal activities.

## 5.2 GOI Bond market

Looking forward, we can propose six principles which RBI should use in thinking about the GOI bond market:

**Favour transparency** There is a need for a paradigm shift, away from the vision of non-transparent, privately negotiated contracts which RBI is familiar with on the interest-rate and currency markets, towards transparent, anonymous transactions.

At the simplest, trading on an exchange is substantially more efficient, as compared with manually search and negotiation amongst numerous potential counterparties for the best price. There are many economic agents in India today, with skills in telephoning a dozen banks in Nariman Point, seeking a good price, and pressing each counterparty for a better quote. These skills are obsolete in a world with order matching by a computer, where the best price in the whole country (not just a few banks) is always instantly visible on screen.

However, there are also two deeper benefits from this paradigm shift:

1. *Competition.* Suppose  $L$  is about to buy from  $S$  at a price  $p$ . Suppose there is an economic agent  $X$  in the economy who is willing to sell to  $L$  at a superior price  $p'$ . If the discussion between  $L$  and  $S$  is a private conversation, then  $X$  cannot participate in the transaction. If trading takes place on an exchange with price–time priority, then an order placed by  $X$  would be on the screen, and pose competition against the price offered by  $S$ . In this fashion, a paradigm shift away from OTC contracting to exchange–based trading improves competition on the market.
2. *Supervision and enforcement.* Recent episodes of market misconduct have reiterated the gaps in regulatory capacity in India. When  $L$  and  $S$  engage in a private conversation, the demands for supervisory capacity are greatly enhanced. This is particularly important in the environment where low wages, poor mechanisms for overcoming agency conflicts, and public ownership generate poor incentives for employees of numerous financial sector entities to maximise profits for their employers.<sup>9</sup>

There *are* countries where a substantial transaction flow based on OTC contracting appears to work fairly well. However, this is generally accompanied by an absence of public sector finance companies, good mechanisms for binding the objectives of employees to those of the organisation, and high quality supervision and enforcement.<sup>10</sup>

**Favour disintermediation** The rise of modern information technology has profoundly changed the landscape of finance, by offering opportunities to cut intermediation costs by eliminating layers of intermediaries.

Many traditional institutional mechanisms in finance were based on a world before computer technology. They need to be thought afresh in the modern world.

The institution of primary dealers is one such example. There was a time when PDs were physically close to the PDO, participated in (manual) auctions, and later sold off bonds to regional banks across the country. However, today it is easy to have a screen-based auction where every ultimate investor in the country directly buys bonds from the PDO. This alternative design reduces the overheads of intermediation by eliminating one layer of intermediation.

There was a time when “market makers” were thought to be producers of liquidity. However, in recent decades, we have obtained substantial evidence that the order flow from ultimate investors and speculators dominates price discovery. This has led to the rise of electronic trading systems, which lower costs and improve efficiency by eliminating market makers.

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<sup>9</sup>This tradeoff, between improving supervision and transforming market design, appears repeatedly in public policy issues on the securities markets (Nayak 1999). It has numerous precedents. SEBI eliminated the need to regulate floor trading by banning floor trading. SEBI has substantially diminished the problems of enforcement against market manipulation by banning leveraged trading on the spot market. SEBI has dealt with the supervisory problems of OTC contracting by banning OTC contracting; every institutional investor is now required to expose both buy and sell orders to the limit order book on the exchange screen. SEBI has dealt with the governance problems of broker–run exchanges by mandating a demutualised structure. RBI and SEBI have both eliminated the supervisory problems associated with counterfeiting and theft of securities printed on physical paper by banning settlement of paper certificates.

<sup>10</sup>Even in these settings, we see many warnings about the difficulties of OTC contracting, such as the arguments presented in GAO (1994), Steinherr (1998), and Mayer (2001). These concerns came to prominence in 1998, when the LTCM crisis was explicitly one which could not have taken place with if the positions had been disciplined by the collateral requirements of the futures clearing corporation (Dunbar 2000, Lowenstein 2000).



**Avoid the role of a systems operator** The operation of infrastructural facilities in the modern securities industry requires inputs of market design, information technology, and a capacity for running mission-critical operations. These skills are substantially different from the skills required for formulating public policy, and supervising markets. Hence, SEBI's strategy - of never undertaking the role of a systems operator - is a superior one when compared with RBI's approach, of running a depository (SGL), and now starting a securities exchange (in the form of NDS).

In this light, RBI's decision to not have an ownership or management involvement in the creation of a new clearing corporation for the GOI bond and foreign exchange markets (the "Clearing Corporation of India") is a step in the right direction.

**Harness existing institutions** There is a substantial stock of human capital and technological infrastructure that has been created in India, in recent years, on the equity market. It is easy to obtain a quantum leap in the functioning of the debt market, by having bonds trade alongside shares on the stock market.

**Utilise the opportunity that is available in the fixed income derivatives market** The mistakes of market design on the spot market for GOI bonds should be avoided in the nascent, but extremely important, area of fixed income derivatives. If price discovery for interest rates coalesces around a transparent fixed income derivatives market, where computers do order-matching and entry barriers are absent, then the economic significance of many of the infirmities of the spot market for GOI bonds could be ameliorated.

**Build human capital** The failures of the 1990s on the debt market can partly be traced to the incentives and goals of policy makers, as discussed in Section 4.3. However, they also reflect gaps in knowledge about securities markets on the part of RBI. Looking forward, even if the skillset of the systems operator is not required at RBI, significant enhancements in human capital are required, both in terms of policy formulation and in terms of regulation and supervision of the GOI bond market.

### 5.3 Human capital and organisation design

In the case of both SEBI and RBI, weaknesses in human capital have played a major role in the events of the 1990s.<sup>11</sup> We can offer four proposals which can help in addressing these weaknesses.

**Governance structure** SEBI operates using a board of directors who make policy decisions, and a set of executive directors who are involved in running the organisation and implementing policies. This is a useful demarcation, which is not apparent in the case of RBI.

The SEBI board is made up of three ex-officio members, two independent, and the chairman. A good case can be made for the elimination of ex-officio members. This will improve the flexibility

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<sup>11</sup>One interesting litmus test which highlights the difficulties of human capital with RBI and SEBI lies with certification examinations. There are two major certification alternatives today in the financial sector, NCFM (from NSE) and FRM (from GARP). The incidence of certified individuals at RBI or SEBI is near zero. This is in contrast with regulated entities, where thousands of individuals have obtained certifications.

of SEBI to independently maximise the goals of the organisation, with a diminished sensitivity to inter-agency political battles. In March 2000, we have seen an experiment where Jayanth Varma was inducted as one “full-time board member” at SEBI. This experiment has been quite successful in terms of bringing new knowledge into discussions at the board, as compared with the previous state of affairs where Jayanth Varma only visited SEBI to attend board meetings. A good case can now be made for having all SEBI board members be resident inside SEBI as “full-time board members”.

Combining these two ideas, we can envisage a SEBI board composed of five board members, all of whom are “full-time board members”, and one of whom is the chairman.

In the case of RBI, there is a need to bring about this two-tier separation, between board members and executive directors. The existing “quota system” which drives the choice of deputy governors should be replaced by a meritocratic hiring strategy.

RBI has a major weakness in its human resource policies in the form of hiring only at the entry level. It is important for RBI to have a continuous process of entry and exit at all levels in the organisation. It can be argued that RBI’s weaknesses in human capital on the securities markets in the 1990s could have been substantially diminished, if the internal accumulation of human capital by existing staff had been augmented by hiring at senior levels.

**Wages** There is a severe gap between wages of regulators and the regulated in the financial sector. Given the specialised knowledge that is required in finance, an elimination in this gap in wages is well justified. Better wages at RBI and SEBI will impact on the ability of these organisations to attract skilled individuals at all levels, and on the incentives of staff to engage in rent-seeking activities.

Many financial regulators elsewhere in the world have followed the strategy of securing a funding stream that is independent of the exchequer, and then moving over to wages which are broadly comparable with those found in the private sector. This path should be adopted with both SEBI and RBI.

**Policies about staff on deputation** The difficulties of SEBI’s strategy of having key staff on short-term deputations has been frequently highlighted in the public discourse. SEBI should move over to a policy where senior staff should be required to have a greater commitment to the goals of the organisation as compared with the approach of individuals on deputation. In addition, SEBI should seek to find greater knowledge about the securities industry in the labour market as compared with the skills that individuals on deputation, such as those from the income tax department, possess.

In the case of RBI, there is a tradition of RBI staff engaging in short stints, working in regulated entities such as banks or PDs, on deputation. This is a corrosive practice which reduces the ability of RBI to have a detached approach towards regulated entities. Sound policies in the financial sector often lead to reduced profits and bankruptcy on the part of financial intermediaries, and it is important to avoid human resource policies which bind the goals of financial intermediaries with the goals of regulatory staff.<sup>12</sup>

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<sup>12</sup>Both SEBI and RBI have utilised the device of controlling a seat on the board of a regulated entity (whether a stock exchange or a bank), as one device for the regulator to have access to information and have an impact upon decisions of the regulated entity. Today, there is a greater clarity about the role of the board of directors - to represent the profit-maximising interests of shareholders - and hence avoid such participation by regulators.

Finally, in the case of RBI, there is a need to create a distinct team with a focus on problems of the securities markets. The policy issues of market design, and the regulation and supervision of markets, are distinct and specialised functions, requiring specialised knowledge, as compared with the mandate of the “Internal Debt Management Cell” which today performs all these functions.

## 6 Conclusion

**Market design on the equity market.** The reforms of the 1990s attempted a transformation of market design on the equity market. This transformation appears to be largely in place: with electronic trading, novation at the clearing corporation, dematerialisation, rolling settlement, and derivatives. The only major element of market design which has yet to be implemented is a formal securities lending mechanism. Minor elements of market design that have yet to fall into place are settlement in central bank funds, and full-fledged portfolio margining of positions across equity spot, stock lending and equity derivatives. There is a gap in terms of regulatory hurdles against margin trading, but that is a flaw in *banking* policy.

**Enforcement problems on the equity market.** The challenges on the equity market are now on the more difficult questions of governance and enforcement. There is a broad agreement that the governance structures of broker-run exchanges need to be transformed, however the details of this process have yet to be worked out. The most important challenge today lies in dealing with market misconduct. SEBI has to develop the institutional capacity for honest and efficient treatment of the difficult problems of detection, investigation and enforcement against fraudulent secondary market practices. These questions will inevitably lead to the problem of transforming the nature of continuous disclosure by listed firms, and the involvement of listed firms in market manipulation.

**Market design on the GOI bond market.** The government bond market is several years behind the equity market in the sense of only having begun establishing a new market design when compared with the situation as of 1991. A depository exists, but the service levels that it offers need to be transformed, ideally as part of a full-fledged payments system effort. A clearing corporation is under construction. As of yet, there is no proposal on the table in three areas: (a) a replacement of OTC contracting by a transparent, anonymous trading mechanism, (b) a securities lending mechanism and (c) a replacement of the bilaterally negotiated IRS and FRA markets by exchange-traded interest-rate derivatives.

**Human capital and governance at SEBI and RBI.** The decade of the 1990s has been marred by important failures of governance at SEBI and RBI. In the case of RBI, it is possible to focus the limited regulatory capacity on a smaller set of issues by emulating SEBI: by putting the functions of operating the technology-intensive securities market infrastructure outside RBI. In the case of both RBI and SEBI, there is a need for major improvements in the human capital, governance structure and regulatory capacity of the organisations.

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