

**Financial Sector Reform:
Institutional and Technological Imperatives**

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Abstract

This paper takes the view that financial sector reform is not only a matter of jettisoning old regulations nor even merely a matter of prudential regulation accompanying structural deregulation; it is intimately bound up with institutional and technological issues. On the basis of a detailed analysis of the stock market, debt market and the banking system the paper demonstrates the need for major institutional and technological changes in the Indian financial sector in order to face the challenges posed by liberalization and rapid growth. In our view, the government and regulatory authorities have an important role in facilitating this modernization. Not only should regulatory hindrances be removed, but there should be a positive bias in favour of change. We do believe that changes would take place even without regulatory support, but we also believe that regulatory intervention could hasten the process and make it less painful. This is because the technology is characterized by large externalities and often requires action at the industry level.

Financial Sector Reform: Institutional and Technological Imperatives

Introduction

Financial sector reform is an important component of the ongoing process of liberalization of the Indian economy. The securities scam has only served to lend heightened urgency to this task. This paper takes the view that financial sector reform is not only a matter of jettisoning old regulations nor even merely a matter of prudential regulation accompanying structural deregulation. We argue that regulatory measures are only a precondition for the essential part of financial sector reform which is a radical overhaul of the institutional structure and technological infrastructure of the financial services industry. A great deal of the institutional and technological change will doubtless take place at the level of the individual firm and will be propelled by the competitive market forces unleashed by the process of liberalization. Nevertheless, several of these changes are characterized by large externalities and may require action at the industry level. Regulatory authorities may therefore have an important role to play in facilitating if not encouraging these changes. This paper examines these issues in the context of three important segments of the financial sector: the stock market, the debt market and the banking system. We do not claim that these are the only three components of the financial system; but these are the segments that we have been studying in depth in the last few months.

Stock Markets

Need for a major strategic shift

It is now recognized world over, including in communist China, that well functioning capital markets are absolutely essential for sustained economic growth. The 1975 Securities Amendments Act of USA states: *"The Congress finds that the securities markets are an important asset which must be preserved and strengthened"*. In India, the task of development and regulation of the stock markets has been entrusted to the Securities and Exchange Board of India (SEBI). In a comprehensive study of the regulatory impact of SEBI, Barua (1993) concluded that SEBI has got bogged down with detailed operational level problems instead of initiating major strategic shifts in the operation and management of the markets. While the study identified several major shortcomings in SEBI's functioning and reforms the two aspects that are important for the purposes of this paper are as follows:

- * The attempted reforms of SEBI are based on the implicit assumption that the current systems and procedures would continue in the future. Therefore, the reforms initiated have only

tinkered with the existing methods, to make the markets more efficient and fair. No attempt has been made to think of radically different methods of operating the markets.

- * The reforms initiated appear disjointed. They lack a clear direction. There is also a lack of appreciation of the fact that a change in one sub-system often needs accompanying changes in the other sub-systems for it to be implementable and sustainable. A holistic view thus must precede any intervention. This kind of global perspective is completely lacking in SEBI's initiatives.

Barua went on to argue that unless these issues were addressed, there is a danger that the securities market, instead of being an engine of growth of the economy, may become a drag on the economy. The most important function of capital markets is efficient allocation of capital, which means that capital should be made available to the most profitable investment opportunities in the economy. The allocative efficiency of capital markets is determined by two other efficiencies, namely informational efficiency and operational efficiency of the markets. A market is informationally efficient if the prices of securities fully reflect all the information relevant for their valuation. A market is operationally efficient if it is possible to carry out transactions in the market with ease and at no cost.

Operational Efficiency

The operational efficiency of a market is determined by the cost and the time taken to carry out transactions in the market. The lower the cost of transactions and lower the time taken to complete them, the higher would be the operational efficiency of the market. Since only brokers are allowed to transact in the market, investors have to route all their buying and selling of securities through brokers. The three distinct phases of completing a transaction are:

- * Placing an order with a broker.
- * Receiving a contract note from the broker if the order has been carried out.
- * Making payment to the broker and receiving certificates in exchange if securities have been bought or delivering certificates to the broker and receiving payment if securities have been sold.

While the process appears simple, in reality investors have to contend with a variety of problems. The cost of transactions for individual investors, particularly if they happen to be small is very high as brokers give them the worst possible prices. In addition, delays in receiving payment from brokers

after certificates have been delivered and in receiving certificates after payment has been made is quite common. Though investors do have the facility of complaining to the stock exchange authorities, the process is cumbersome and time consuming. Besides, investors are reluctant to pick a quarrel with their brokers. As a result, investors in India have accepted these hazards as part of the risk one has to take to invest in securities. The woes of buyers do not end with acquisition of securities from the brokers, since the securities have to be sent to the company for transfer to their names. Even this is a long drawn and stressful process since it is not uncommon for companies to return the certificates untransferred on some pretext or the other. Indian capital markets are operationally extremely inefficient and radical changes are needed to facilitate buying and selling of securities. These are discussed below.

Use of Information Technology (IT)

Traditionally securities transactions have been carried out by traders gathering on the floor of a stock exchange to quote buy and sell prices and strike a deal when the quotes matched. With the advent of computers, the exchanges came to provide a range of post-trade services such as clearance and settlement of transactions to their members. The last decade has however seen Information Technology (IT) bring about major changes not only in the clearance and settlement systems but also in the trading of securities. The use of modern data processing and communication technologies significantly improves the efficiency and effectiveness of market operations. The benefits are so immense in relation to the costs of using these technologies that even emerging markets such as those of Malaysia, Mexico and Korea opted for computerized securities transactions and settlement systems. Some of the East European countries too such as Poland and Hungary, which do not even have a well functioning financial system, are setting up computerized stock markets from the beginning, leap frogging over the traditional stages of market development. In India we continue to use the manual method of trading in securities, with very basic level of computerisation of the back office activities. It is time to bring in IT in a major way in the Indian markets, because only then can capital markets in India achieve international standards of efficiency, fairness and stability.

Promoting use of IT should be the topmost priority of SEBI, because this measure alone can take care of perhaps 90% of the problems in the market operations today. As mentioned earlier, the benefits are so immense that emerging economies and even economies with fledgling financial systems are opting for computerized trading and settlement systems. India has well established and fairly professionalised financial system and stock markets. Therefore, transition to a computerized system is possible quickly. The initiative in the matter has to be taken by SEBI. Some of the principles on which such automated trading system would be based are as follows:

- * The system should meet the prevailing legal requirements. It may be necessary to change the legal provisions before a fully automated system, based on "book entry" can be implemented. For example, the current requirement of transfer deed being signed by both the parties may have to be done away with, as no signatures would be required in the book entry system.
- * The system must operate in an equitable manner, providing equal access to all participants. It should also be equitable in terms of providing information to all market participants. No participant should have advantage either through early receipt of information or through receiving some information on an exclusive basis.
- * The system has to be tested at the time of implementation and periodically afterwards to assess the risk of unauthorized access and system failure due to human error. It may also be desirable to plan for contingencies arising from natural catastrophes such as fire or flooding affecting the system.
- * SEBI as the regulatory authority may provide some more safeguards over and above those that are built into the system, particularly in respect of interactions between the securities markets and other organizations in the financial system.

The first computerized system was implemented by the Toronto Stock Exchange, Canada¹. The system is known as CATS (Computer Assisted Trading System). This system has been bought by Tokyo, Sao Paulo, Paris, Lyon, Brussels and Madrid. The systems operating in Korea, Malaysia and Taiwan developed their local systems patterned after CATS. It would be worthwhile to briefly list the main features of CATS:

- * *Price Quotation and Trading:* CATS is an order driven system. The screen displays the size of order, the price and the identity of the intermediary who has entered the order.
- * *Order Execution:* The buy and sell orders are matched and executed if possible. The confirmations are immediately sent to the concerned parties.
- * *Clearing and Settlement:* The centralized custodial and clearing facility is provided by the Canadian Depository and Securities Limited (CDS). CATS provides an Order Management System (OMS) which links CATS, brokers' back offices and CDS on an automated real time network.

- * *Market Surveillance:* The CATS market surveillance system contains pre-set surveillance parameters for price and volume for every security. Any trading activity exceeding these limits is signalled to the market supervisor.

- * *Market Information:* The CATS software creates a database based on the data generated by trading. These can be accessed by those connected on the network.

Today several similar systems are available. Most of these systems would have features similar to those listed above. To cut down the time of implementation, SEBI should evaluate the various systems available and acquire one, rather than attempt to develop an indigenous system. Over time, the system acquired may be modified to incorporate special requirements.

Restructuring of Markets

There are 22 stock exchanges in the country today. Many securities are listed and traded in several stock exchanges. The fragmentation of markets, particularly when the floating stock is not large, leads to a situation where the same security may be quoted at widely different prices at the same time because of differences in the local demand and supply conditions. The differences in the settlement systems from market to market also has considerable impact on prices. While Bombay has "carry forward" system of trading in addition to "cash" system, Madras has only cash trading system. While in Bombay settlement takes place about once every two weeks, in Madras settlement takes place every three trading days. Though Ahmedabad, Delhi and Calcutta follow the same system of trading as Bombay, the settlement periods in various stock exchanges are not synchronised. The lack of synchronisation often leads to distortions in prices. An example of this is to be found in the closing prices of the well traded Reliance shares on July 30, 1993 in the two well connected markets at Bombay and Ahmedabad: *Price at Bombay: Rs. 236, Price at Ahmedabad: Rs. 225*, a difference of almost 5%.ⁱⁱ It is not uncommon to observe far wider differences between prices prevailing in any two markets, particularly in cases of less active securities. All these have created a situation for investors where they can never be quite certain whether they are getting the best possible prices. These problems can be overcome only by linking all the markets, which would enhance efficiency by generating greater competition and wider dissemination of information to brokers and investors.

In the recent past, several developments have taken place to modernize Indian capital markets. The Stock Holding Corporation of India Limited (SHCIL) is planning to establish a National Clearing and Depository System. The IDBI has initiated a move to set up National Stock Exchange (NSE), which

will provide fully computerized facility for trading (initially) in fixed return securities at Bombay. It would be possible to transact from all over the country, through terminals linked to the NSE. A move should be initiated by SEBI to fit all these separate efforts, with its own initiative of integrating all the stock markets, so that a comprehensive automated system of trading and settlement in all types of securities may evolve in India.

Custodial Services

Technology is only one component of an automated trading and settlement system. The most important challenge here is institutional in nature (Varma, 1993): it is necessary to have a network of custodians and depository institutions who will hold shares on behalf of the investors and will allow shares to be traded by mere book entries. The principal obstacle is that there are no credible institutions which can play this role. Stock brokers are a natural choice but they would not satisfy the capital adequacy requirements that SEBI would, quite rightly, like to impose on a custodian. At the same time there is a network of bank branches which covers the whole country and has built up the required degree of credibility. Nobody has the slightest hesitation today in keeping jewellery on safe deposit with the bank. If the banks were to accept this responsibility, not only would they have a profitable line of business, but they would also be promoting the development of the capital market by facilitating the move towards scripless trading. In fact, we can switch completely to scripless trading within months. Considering a market capitalization of Rs. 200,000 crore and taking the custodial charge very conservatively at 0.25% to 0.50%, the potential revenue to the banking system is about Rs. 500 to Rs. 1,000 crore. The incremental investment required for this purpose is quite minimal since the branch network is already in place. Banks however seem to have a narrow view of what business they are in.

Informational Efficiency

Increasing the informational efficiency of the stock market has two major aspects: (a) improving corporate disclosure requirements and (b) development of the security analysts profession.

Improving Corporate Disclosures

The quality and frequency of accounting information provided to investors in India is abominable. Till recently, even this poor quality information about the financial performance of a company was available only once a year. Now the frequency has doubled, as the companies are required to announce half yearly performance. However, to avoid announcing poor results in the middle of the accounting year, companies have resorted to announcing "unaudited" results which could be altered at the end of the year without being on the wrong side of the law. In this age of Information Technology, the frequency with which companies should be required to provide information ought to be much higher. There is also an urgent need to overhaul our accounting standards to ensure that the accounting numbers present a fair and complete picture about the financial performance of companies.

Development of Security Analysts

A major lacuna in the Indian markets is the absence of financial analysts who would forecast corporate performance based on flow of information to the market. Because of this, an investor is left to his own resources to analyse the annual statements of companies and interpret changes in the government policies. Since the ultimate protection for an investor is efficient processing of information, it is necessary to develop the profession of financial analysts.

The debate on the *badla* system

The debate on the *badla* system brings out very clearly the importance of technological and institutional aspects in stock market reform. The proposal by the SEBI to abolish *badla* provoked a widespread debate on the role of the *badla* system as a form of forward market which provides opportunities for hedging and speculation. Barua and Varma (1994) pointed out that the *badla* system however performs another major function, that of ensuring smooth functioning of the cash (spot) market despite several market imperfections. This second function is important because if market imperfections are not taken care of, they could disrupt the functioning of the options and futures markets as well as the cash markets.

A major imperfection (operational inefficiency) in the Indian capital market is the enormous time taken by companies to transfer ownership of shares to buyers as discussed above. Though the law requires that the transfer be completed within a period of two months, it is not uncommon for the

transfer to take much longer. The situation is particularly bad when the books of a company are closed for deciding the list of persons who are to receive some benefits on rights basis. During this period, the badla system ensures that the significant reduction in the floating stock does not cause a major disruption in the pricing process. This is done through the facility of carry forward of transactions and also by allowing a longer badla period at the time of book closure. Without this facility, the reduction of floating stock would have a serious disruptive impact not only on the cash market, but also on the options and futures markets. This is because of the intimate relationship that exists between the spot (cash) market and the options and futures markets.

Options and futures contracts are ultimately settled through operation in the spot (cash) market. For example, the writer of a call option may have to buy the requisite number of shares from the spot (cash) market if the buyer of the call option exercises the option. Similarly, a person who has sold shares through a futures contract would be required buy them in the spot (cash) market to be able to deliver the shares sold at the time of maturity of the contract. If these contracts mature during the book closure period there could be a spurt in the prices of shares in the cash market which is totally unrelated to the financial fundamentals of the company. This problem is aggravated by the fact that almost all options and futures contract mature on a few standard maturity dates. Since it is not uncommon for a company to close its books several times a year (for determining rights), the problem created by reduction in the floating stock would be a recurrent one. And every time the books are closed and the floating stocks are reduced, the maturing options and futures contracts would create havoc in the cash market.

It is clear therefore that if badla is to be replaced by options and futures markets the delays in transfer of shares have to be eliminated. The answer as already argued above lies in immobilizing share certificates and introducing scripless trading.

In the absence of the badla system, the delay in transfer of shares (to the buyers) would lead to another serious difficulty for investors in the cash market itself. Since the carry forward facility would not be available, they would be unable to resell the shares which they have bought for several months after the shares have been sent for transfer. The badla system helps overcome this difficulty by allowing an investor to sell and carry forward the sale till he is able to deliver the shares after they are transferred to his name. If the badla system is discontinued and the transfer period continues to be as long as it is today, the cash market would be seriously disrupted.

Another major imperfection in the Indian market arises from the settlement system which does not allow investors to net out their purchases against sales. Most of the developed stock markets in the

world use a rolling settlement system, with transactions done on day T being settled on day "T+n" with n varying from 2 to 5 days. Since most of them also have scripless trading, it is possible to effect transfer of money as well as scrips almost simultaneously immediately after the transactions are settled. In India, the major markets use fixed settlement cycles; the BSE follows a two week settlement period for forward shares and a three week settlement period for cash shares. Since the settlement cycles for the cash and forward shares do not coincide, even when an investor has sold in the cash market, he may not be in a position to use the cash due to him to meet the cash required for purchases he may have made of shares listed in the forward category. The same problem can arise even for the shares in the forward category since the "pay in day" precedes the "pay out day" by two to three days. That is, the payment for purchases has to be made before payment for sales are received. While a broker is permitted to net out his purchases against sales, an investor may not enjoy the same facility. The problem is exacerbated by the unwillingness of banks to lend against shares.

The badla system helps in tiding over these rigidities. Of course, an investor may have to incur a charge for using the facility, but that is better than having no facility at all. If badla is banned, the entire settlement and transfer procedure would have to be speeded up. Both scripless trading and computerization of settlement of transactions would become imperative. Improvement in communications facilities will also be needed to ensure that investors located away from cities with active stock markets do not suffer unduly.

To sum up, the badla system in addition to providing facility for risk hedging and speculations performs an immensely important function of ensuring that the cash market functions smoothly despite imperfections and rigidities in the Indian market. While options and futures can replace badla in terms of providing facilities for risk hedging and speculation, they can not help in overcoming the impact of imperfections on the operation of the cash market. In fact the imperfections in the market are such that they would create immense difficulties in smooth operation of the options and futures markets. Abolition of badla must therefore be the culmination of a comprehensive package of reforms aimed at a thorough modernization of our capital markets. The important point is that changes in the regulatory superstructure are only a small part of this modernization process.

Debt Market

The analysis in this section draws heavily on Barua et al (1993) which carried out a comprehensive survey of the Indian debt market.

Market Making and Distribution

Throughout the world, trading in debt instruments relies on market makers and is conducted in an over-the-counter market rather than in the stock exchange itself. The major obstacle in doing so in India has been the absence of market makers with the requisite financial resources. Market making is capital intensive; the Discount and Finance House of India with its large credit line from the Reserve Bank of India often finds that it is reduced to the status of just another player because it has too little money. Only the banks and the big financial institutions have the financial resources to play the market making role in India.

Over the last few months, we have seen an increasing integration of the government bond market with the free market. Consequently, the potential now exists for tapping the household sector directly for subscribing to government debt. The banking system can be a powerful channel for retailing government bonds. It is interesting in this context to observe that the Bank of England recently opened the government securities market to small investors at the auction stage itself through the ingenious mechanism of non competitive bids in its auction of 7.25% Treasury Stock 1998 on April 28, 1993ⁱⁱⁱ. Under this scheme, large investors have to bid for the stock on a competitive basis while small investors (bidding for amounts up to £ 500,000) have to make non competitive bids. The small investor would then get the stock at the average of the prices at which competitive bids have been accepted.

Financing and Hedging Options

Market makers need finance and hedging facilities. In developed markets, market makers have large capital resources of their own and are also able to borrow on the security of their inventory of securities in the repurchase (repo) market. In India, market makers have been severely undercapitalized; even the Discount and Finance House of India which is owned by the Reserve Bank of India has too little capital to play an effective role in the huge government securities market.

As far as the repo market is concerned, traders in government securities did in the past resort to the ready-forward market which is similar to a repo market, but in the aftermath of the securities scam this market has been restricted to treasury bills and a couple of short-term dated securities. The repo transaction is one in which the dealer sells securities to a lender and agrees to repurchase them at the end of a specified period (the duration of the loan) at a specified price (which equals the selling price plus the interest for the duration of the loan). Though formally a sale and repurchase transaction, the

repo is for all practical purposes a short term secured loan to the dealer and is regarded as a safe form of lending. In well developed debt markets, therefore, the market makers are able to borrow on repo basis at low rates of interest. In India, during the securities scam, a total breakdown of control systems led to the repo transaction becoming unsecured and the funds being diverted to stock market speculators. Unfortunately, in the aftermath of the scam, the repo market itself has been discredited and it will take some time for its credibility to be reestablished. Changes are also required in government (Reserve Bank) regulations which restrict access to the repos market and also restrict the repo to a narrow range of instruments. In our view, repos must be permitted in all debt securities - government, public sector and corporate. Access to the repo market must also be widened to include any player who satisfies basic capital adequacy requirements.

Market makers also need hedging opportunities to ensure that prices do not move against them while they are holding a position. For example, in the US market, a dealer who takes a position in say Medium Term Notes (MTNs) would often take an offsetting position in the interest rate futures or swaps market to hedge the interest rate risk on his position. Similar facilities do not exist in India in the absence of any forward, futures and options markets. Creation of these markets is an important institutional imperative as discussed below.

Interest Rate Derivatives

In an era of administered interest rates, most market participants tended to ignore the risk of interest rate fluctuations. As interest rates in different segments of the financial system are being freed, interest rate risk is rapidly becoming a very major factor in the debt market. Mechanisms for hedging this risk need to be created quite quickly. The immediate need is for a futures market in government securities: a T-Bill future and a government bond future.

The increasing popularity of floating rate instruments would eventually lead to the development of a large interest rate swap market. This market may initially be an inter-bank market and the government need play only a facilitating role.

Bond Market Information Services

The financial services industry needs to upgrade the services relating to the debt market. Credit rating is already available but more competition is desirable in this field especially from the private sector. Studies of CRISIL's credit ratings by Raghunathan and Varma (1992 and 1993) have shown that these ratings are not only too liberal by international standards, but are also internally inconsistent. There is also a need for multiple ratings of the same instruments, unsolicited ratings, more active monitoring of existing ratings and greater transparency and objectivity in the rating process.

Information dissemination needs to be improved significantly. For example, there is virtually no organized information available on historical default rates in any segment of the debt market. It is also desirable to develop a comprehensive bond index which apart from being an important analytical tool for management of bond portfolios, would also enable the creation of a bond index future in due course.

Bond Market Trading Practices and Systems

Computerized custodial and clearing services are as important in the debt market as in the stock market and in many ways, it may be easier to develop these services first in the debt market. The proposal of the National Stock Exchange (NSE) to focus on the debt market in the initial stage could be a good opportunity to promote these services, but one is not sure that the NSE has devoted adequate thought to settlement issues.

Another major problem in the debt market relates to the lack of standardization of trading practices. Even the most basic issues are not adequately resolved and standardized: the trading lot, the basis of computation of accrued interest (360-day-year versus 365-day-year and 30-day-month versus actual days), and the deduction of the so-called "voucher" for tax deduction at source. Procedures for trade netting and settlement are if anything even more primitive than in the stock market. As the government debt market expands to include a larger spectrum of participants, these institutional issues of market structure would require speedy resolution.

Housing Finance and Securitization

The housing stock in India in 1989-90 was valued at about Rs. 300,000 crore^{iv} making it one of the largest components of the country's capital stock. Though real estate is an excellent collateral for debt, the mortgage finance market in India is very poorly developed for a variety of reasons. First of all, the formal sector (banks, insurance companies, housing finance institutions and other financial institutions) have concentrated on lending for new housing construction. But even in financing new housing, the role of the formal sector is very small. A study group of the planning commission found that only 16% of the financing need was met by the formal sector and the remaining 84% came from the households themselves or their employers^v.

The National Housing Policy has recognized the need to integrate housing finance into the rest of the capital markets. This requires several major changes in the way that housing finance is organized currently^{vi}:

- * Subsidized interest rates on housing finance would have to be gradually eliminated.
- * Housing finance institutions should have access to funds on a competitive basis with other financial institutions.
- * A secondary mortgage market must be created to attract funds from a wide range of investors.

The key step in the creation of a secondary mortgage market is the securitization of mortgage debt. Since mortgages are very safe and secure assets, they are the ideal candidate for securitization. The advantages of securitization of mortgages are:

- * By tapping a wider investor base, it will reduce the funds constraint in housing finance.
- * By making mortgages more easily tradeable, it will improve the tradability of encumbered real estate. Thus the real estate market will be better integrated with the rest of the financial system.
- * It will enable, the vast banking network to provide housing finance without committing its own resources on a large scale. This will complement the intended objective of NHB to refinance housing loans.
- * It will provide investors with a new fixed income security as a channel for investment.

There is a great deal of international experience available on how mortgage backed securities can be successfully created and traded. The major problems in doing that in India are of a legal nature dealing with land ceiling laws, stamp duties and foreclosures. There is a general agreement that changes need to be made in this area, but progress on the actual legislation has been rather slow. Meanwhile, it may be possible to circumvent some of the legal constraints by resorting to the existing laws on trusts and cooperatives.

Institutional Initiatives Needed

In the US securitization of mortgages has taken several forms of which the most important are Pass-through Certificates, Mortgage Backed Bonds and Collateralized Mortgage Obligations. We think that in the Indian context, mortgage backed bonds and collateralized mortgage backed obligations are more sophisticated instruments which can evolve later in response to investor needs. Mortgage securitization in India should begin with pass-throughs.

Mortgage pass-throughs are created by an "originator" who has to perform the following important functions:

- * The originator pools together several housing mortgages of similar maturity and issues pass-through certificates which represent an undivided interest in this pool.
- * The mortgages which are being pooled would have arisen from housing loans given by the banks, housing finance institutions or other lenders. The originator would buy these loans from the lenders who would continue to service the loans: they would collect the instalments from the house-owners and pass them on to the originator for a fee.
- * The originator performs credit enhancement by guaranteeing the timely repayment of interest and principal. The originator would charge a fee for this. A separate agency (for example, an insurance company) could perform this credit enhancement.
- * The originator would pass on the interest and principal repayment to the investors who have bought the pass-through certificates.

For example, the National Housing Bank (through a separate subsidiary if necessary) could take up the function of the originator of pass-through certificates. Since the mandate of the NHB is to refinance housing loans, securitization can be regarded as an obvious extension of this role. The NHB also has adequate capital resources to perform the functions of an originator. The credit enhancement provided by the NHB may need the backing of a government guarantee in the initial stages^{vii}.

Banking System

Asset Reconstruction Fund (ARF)

It is more than two years since the Narasimham Committee recommended the creation of an Asset Reconstruction Fund (ARF) to take over the problem assets of the banks at a discount as part of the process of starting Indian banking on a clean slate untainted by the follies of the past. During these last two years of debate about the proposal, the basic arguments in favour of the ARF have not been disputed: (a) it ensures that the energies of the bank management are not diverted from the important task of building for the future; (b) once the problem assets have been taken off their balance sheet, the banks can be held accountable for their future performance (they can no longer attribute their problems to the legacies of the past); and (c) a specialized agency like the ARF would be able to recover the assets more quickly.

Narasimham Committee's Proposal

The Narasimham Committee's proposal was that the ARF would buy the asset at a discount to be determined by independent auditors. Presumably, the auditors would value each non performing asset at its current recoverable value^{viii}. For example, if the recoverable value is 75% of its nominal value, the ARF would presumably buy the loan at a discount of 25%. This purchase price would, under the committee's plan, be paid in the form of five year bonds guaranteed by the Central government (and, therefore, qualifying for SLR purposes). Effectively, the Committee was asking the government to finance the ARF completely. This appears to be a major reason why the government has now rejected the idea of a generalized nation-wide ARF. Schemes which do not require government funding have therefore become imperative. The discussion paper brought out by the government for the Finance Minister's discussions with the chiefs of public sector banks says that "... banks may wish to explore other financial and organizational devices to segregate the bad portfolios so as to clear the balance sheet of the main bank... A number of financial engineering innovations have been pioneered by banks in other countries that should be examined with the appropriate professional help."

A self-financing ARF

Varma (1993) proposed a self-financing ARF:

1. The ARF would buy the asset not at the recoverable value but at a discount of say 10% from the recoverable value. The ARF would pay this price partly in cash and partly in bonds:
 - a) Half of the purchase price would be paid in cash which will be raised from market borrowings as described in item 2 below.
 - b) The ARF would pay the remaining half of the purchase price in bonds (as described in item 3 below). The bonds would *not* be guaranteed by the government.
2. The ARF would finance the cash payment by raising money in the market through an issue of senior bonds collateralized by the assets of the ARF on a *sans recourse* basis. The bonds are senior in the sense that they rank above the subordinated bonds described above. They are *sans recourse* in the sense that if the collateral proves to be inadequate to pay the bonds, the ARF would have no liability for the deficit. (There is no government guarantee either.) This would be acceptable to the investor because the bonds would be heavily over-collateralized. Senior bonds would be issued only to the extent of 50% of the purchase price which in turn is equal only to 90% of the recoverable value of the asset. This means that the fair value of the collateral is about 220% of the face value of the bond. (In terms of the book value of the loans, the collateralization would be even higher say 300%.) With such heavy over-collateralization, bonds can be sold on *sans recourse* basis as has been demonstrated in debt securitization programs in other parts of the world. In the US, for example, mortgage collateralized bonds (without any defeasance clause) are issued on *sans recourse* basis with an over-collateralization of about 150-170% for fixed rate loans and 160-190% for adjustable rate loans^{ix}.
3. The ARF would issue subordinated participating *sans recourse* bonds to the banks of a face value equal to 50% of the purchase price of assets bought from them. The bonds are subordinated in the sense that they rank below any other bonds that may be issued by the ARF. They are participating in the sense that they participate in the profits that the ARF makes by recovering more than the purchase price of the asset. For example, 95% of the profits could be distributed to the participating bond holders; the remaining 5% would be the profits of the ARF itself and may be used to pay dividends on its share capital. The bonds are

sans recourse to ensure that the ARF cannot technically become insolvent under any conditions. (Again there is no government guarantee.) Though technically described as bonds, the subordinated participating *sans recourse* bonds have many of the characteristics of equity. As argued below, these equity-like characteristics of the bonds are desirable elements of a workable ARF.

Under this plan, the ARF can be regarded as a debt securitization arrangement. Since the securitization is done on a *sans recourse* basis, the ARF does not need a large capital base. The ARF cannot technically become insolvent under any conditions at all. A capital of Rs. 100 crore would therefore be more than adequate even if the ARF has to handle problem assets of over Rs. 10,000 crore. The government may, if it so desires, provide this share capital, or it may ask the banks to collectively contribute this share capital also. Since none of the liabilities of the ARF are guaranteed by the government, the burden on the public finance is practically nil.

Hybrid instruments sharing some of the characteristics of debt and equity have proved useful in developed capital markets and a new term *dequity* has also been coined to describe them. In the context of the ARF, the subordinated participating *sans recourse* bonds are a form of *dequity*. The principal reason why such an instrument is needed is that valuation of thousands of loans is a difficult exercise where exactness is impossible to achieve. This is compounded by the problem of asymmetric information: the bank which is trying to sell a loan to the ARF would know far more about the quality of the loan than the ARF can ever find out in the limited time at its disposal. Without a strong element of *dequity* in the purchase price, the ARF scheme would be subject to severe problems of adverse selection which would make the whole idea unworkable. The *dequity* component makes the valuation of the loan a less serious issue. The bank does not lose much from undervaluation of the loan as a part of the money would come back to the bank through the participation in profits. Similarly, if the loan is overvalued, the *sans recourse* clause puts a limit to the loss that the ARF can make.

The reason for setting the participation percentage at 95% rather than 100% is to provide an incentive to the ARF to recover the loans efficiently. The 5% retained by the ARF constitute its profits, and these profits are directly linked to its recovery performance. It also provides the ARF an incentive to value the loans conservatively. This is essential for the valuations to be accepted by the investors to whom the ARF has to sell the senior bonds.

Vulture Funds: An Alternative to the ARF

Barua and Varma (1994) proposed another solution to the problem-loan overhang of the past: what are known in western countries as "vulture funds". As the very name suggests, the vulture fund thrives on the remains of sick and dying companies. It eagerly buys up the debt of these companies at heavy discounts and then tries to recover the debt from the assets of the sick companies. The vulture fund earns a good return on its funds if it is able to recover a sufficiently large fraction of the debt sufficiently fast.

Wherever vulture funds have made an entry they have been the most aggressive parties in the bankruptcy proceedings trying both to speed up the winding up process and to realize the best possible value. Unlike the other participants, the vulture funds are not burdened with the guilts and mistakes of the past. They also have the clearest perception of the importance of time value of money. A vulture fund which pays Rs. 3 crore for a debt of the face value of Rs. 10 crore earns an annual return of 20% if it realizes Rs. 3.6 crore after one year. Its annual return is only 15% if it realizes Rs. 4 crore after two years. This kind of analysis introduces a highly dynamic and positive thinking which is very crucial for a successful winding up. In the natural world, the vulture helps return valuable organic material to the biosphere very rapidly; in a similar fashion, the vulture fund helps return valuable assets to productive use rapidly in the economic world.

Strict provisioning and capital adequacy norms have made vulture funds very attractive to banks worldwide. Under these norms, when a loan becomes non performing, the bank has to make a provision for possible losses. Increasingly larger provisions are required as the loan remains non performing. In India, for example, the RBI norms now require the banks to create a 100% provision if the loan remains non performing for more than two years. When that happens, the bank is effectively carrying the loan in its books at zero value and it stands to gain in an accounting sense if it is able to sell the loan at even 10% of face value to a vulture fund. The bank can show a higher profit, a larger net worth and a better capital adequacy ratio. The bank might also gain a tax advantage as the sale to the vulture fund will allow the loss to be claimed for tax purpose while the provisions created by the banks may not be so admissible.

We propose that the government should encourage the creation of vulture funds in India to allow the banks to rid themselves of the non performing assets at market determined prices. This clearly means that there must be a sufficiently large number of such funds to create a competitive secondary market for sub standard debt. We visualize several different agencies who could float such funds.

Some of the banks themselves could float and fund such funds if they are confident that they have superior ability in loan recovery, rehabilitation and reconstruction. The disadvantage of this approach is that the banking system as a whole does not receive any infusion of funds. Effectively, the banks would only end up trading loans against themselves and the past experience with participation certificates and similar schemes does not make one optimistic about the idea.

The venture fund could be organized on the lines of a mutual fund with the money being raised from the general public. The UTI and the public sector banks which have sponsored most of the mutual funds in India have considerable experience both in running mutual funds and in managing loan portfolios and can therefore run a vulture fund without too much difficulty. Several amendments would however be required in the mutual funds guidelines to allow vulture funds to be set up as mutual funds.

Vulture funds can also be set up by the non banking financial companies which do after all have a good record of lending to and recovering loans from less creditworthy borrowers. If necessary, the financial company could segregate the vulture fund from its other businesses by organizing the fund as a separate entity which can attract investment by high net worth individuals.

It is also possible for the government itself to set up such funds with financial assistance from the international lending agencies somewhat on the same lines as the National Renewal Fund.

Finally, when it comes to the small loan portfolio of the banks (loans below Rs. 25,000 not covered by the provisioning norms at present), perhaps even the much despised moneylender may have a useful role to play. He may be able to make a profit collecting loans which the organized sector cannot collect at all.

One precondition for vulture funds to succeed is a drastic overhaul of our laws relating to rehabilitation and bankruptcy. The Goswami committee has made an excellent set of recommendations in this regard. The newly enacted Recovery of Debts Due from Banks and Financial Institutions Act (1993) providing for the setting up of special tribunals for the recovery of debts is a welcome step. We propose that the vulture funds be notified as financial institutions for the purposes of this Act.

Information Technology and Business Process Re-engineering

Many of the arguments that we outlined above regarding the use of information technology in the stock markets apply with even greater force to the banking system as well. The efficiency and reliability of the payment system is the foundation of the rest of the financial sector. It need hardly be said that today the payment system is bursting at the seams and is simply unable to cope with the load of cheque clearing. The Governor of the Reserve Bank of India is on record as saying that with the volume of cheque clearing growing at 12% annually he wonders what would have happened without the computerized cheque clearing technology (Rangarajan 1993). For the small depositor, we have tried to short circuit the problem by offering immediate credit for cheques below a specified limit. But this is certainly not a long term solution. We believe that we would have to move fairly quickly to an Electronic Fund Transfer System (EFTS). Such a paperless system would provide efficiency, speed and reliability that the current system simply cannot achieve.

However, the issue is not just one of technology alone. It is as much if not more a matter of business process re-engineering. Several banks have diversified into a wide range of financial services, but their current business processes do not enable them to tap the potential economies of scope. For example, why does a bank sponsored mutual fund have to use cheques and dividend warrants while dealing with an account-holder in the same bank? Why cannot the whole thing be run on book entries at much lower cost by letting the account-holder's branch act as the custodian of the units? Why cannot the same thing be done even for other mutual funds by tying up with a bank? The point is that (a) a lot can be achieved by simple business process redesign without too much of technology, and (b) the promised benefits of high-technology would not materialize if the technology adoption is not accompanied by a radical process redesign. The issue in short is as much institutional as it is technological.

Conclusion

Our analysis of the stock market, debt market and the banking system clearly demonstrates the need for major institutional and technological changes in the Indian financial sector in order to face the challenges posed by liberalization and rapid growth. In our view, the government and regulatory authorities have an important role in facilitating these changes. Not only should regulatory hindrances be removed, but there should be a positive bias in favour of change. We would like to reiterate that while many of the changes will have to take place at the level of individual economic agents, it is necessary to provide these agents with the correct economic incentives. The difficulty is

that an agent who clings to antiquated methods of organization and operation imposes heavy transaction costs not only on himself but on the rest of the financial system as well. Conversely, a firm which invests in modern technology does not reap the full benefits until other firms follow suit. A computer network is very much like a telephone system: what use is a phone to me if nobody else has a phone? Given these externalities, one alternative is to push through the changes by regulatory fiat; a more market-oriented approach would be to evolve innovative pricing and market access schemes which reflect the true system wide costs of different institutional and technological alternatives. For example, differential stock exchange listing fees could be used to encourage companies to issue securities in immobilized form; or differential access to trading facilities and differential commissions could be used to encourage individual investors to turn over their physical certificates to a depository for immobilization. In our view, it is necessary to abandon the built-in regulatory bias towards the status quo and create a regulatory regime biased towards the modernization of the institutional-technological base of our financial system. We do believe that changes would take place even without regulatory support, but we also believe that regulatory intervention could hasten the process and make it less painful.

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Notes

- i. The details about CATS is taken entirely from Robert Pardy (1992).
- ii. Prices as quoted in *The Economic Times*, July 31, 1993.
- iii. Bank of England, *Issue of £3,000,000,000 7.25% Treasury Stock 1998 for Auction on 28 April 1993, Prospectus for Applications for up to £500,000 Nominal of Stock*.
- iv. According to the *National Account Statistics*, 1992, the capital stock in dwellings and related activities in 1989-90 is Rs. 94,112 crores at 1980-81 prices (statement 20 item 8.2) and the price index for construction in 1989-90 (base 1980-81) is 298.6 (statement 3, item 4.1). This implies that the capital stock was about Rs. 300,000 at 1989-90 prices.
- v. *Eighth Five Year Plan, 1992-97*, Government of India, Planning Commission, New Delhi, 1992, para 14.2.6.
- vi. *Eighth Five Year Plan, 1992-97*, Government of India, Planning Commission, New Delhi, 1992, para 14.4.7.
- vii. We believe that this may not be really necessary as most investors would be confident that the government would not allow a subsidiary of the Reserve Bank of India to default. The only concern that may be present is regarding the huge contingent liability that may arise out of NHB's settlement with the State Bank of India in respect of transactions in government securities during the securities scam.
- viii. This would represent the discounted present value of the ultimate recoverable value of the loan.
- ix. Barbara Pauley and Richard Brennan (1992).