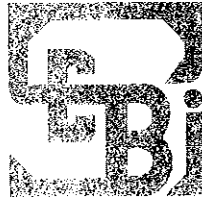


Securities and Exchange Board of India



Dematerialisation: A Silent Revolution in the Indian Capital Market

M.T. Raju and Prabhakar R. Patil

March 2001

Working Paper Series No. 4

**Dematerialisation:
A Silent Revolution in the Indian Capital Market**

M.T. Raju and Prabhakar R. Patil

March 2001

Working Paper Series No. 4

Contents

Foreword	i
Acknowledgement.....	iii
SEBI	iv
Abstract	v
1.0 Central Securities Depositories	1
2.0 Need for Depository in India.....	3
2.1 Volumes and Trades	4
2.2 Globalisation of Indian Capital Market	4
2.3 Fake Certificates, Theft of shares lead to bad paper	5
2.4 Benefits of Dematerialisation	5
2.5 Objectives of the Study	6
3.0 Functions and Structure of Depository.....	6
4.0 Depositories in India	7
4.1 The National Securities Depository Limited (NSDL)	7
4.2 Central Depository Services Limited (CDSL) ...	8
4.3 The Salient features of Indian depository system (regulatory features)	9
5.0 Global Perspective - International Comparison	10
6.0 Dematerialisation Progress in India	17
7.0 Summary	20
8.0 Recommendations	21
Annexure 1 : Milestones in the History of Indian Dematerialisation	A-I
Annexure 2 : Phased Introduction of Compulsory Dematerialisation in India	A-II

Foreword

Paper based trading and settlement in securities has been in practice in India since the beginning of the stock market operations. Over the years, volumes traded and settled had experienced phenomenal growth. Growth in paper movements attracted attendant problems such as delays in transfer, settlement and sometimes resulting in bad deliveries and fake and forged share certificates. Large volumes, also occasionally, forced stock exchange management either to merge two or more settlements together and / or stop trading / curtail trading hours on certain days. There was a strong and urgent need to find solution to the problem. After considerable debate and discussions, we decided to move forward with dematerialisation of equity shares for trading and settlement purposes.

Dematerialisation was introduced in the Indian capital market in a phased manner. This gave considerable "learning curve time" to all market participants and the transition has been very smooth and successful. Currently more than 99 per cent of trades are settled in the demat form. Dematerialisation has facilitated faster and smoother settlements. Further transparency has increased and transaction costs have come down to the second lowest level in the world. Trading volumes and investor confidence have gone up. Although it is not a precondition but dematerialisation definitely has facilitated introduction of rolling settlement.

Research Department SEBI, prepared this working paper "**Dematerialisation: A Silent Revolution in the Indian Capital Market**" that provides a brief account of historical developments on International Central Securities Depositories and progress of dematerialisation in India and abroad. I congratulate Dr. M. T. Raju and Dr. Prabhakar R. Patil for preparing this working paper.

D. R. MEHTA
Chairman
Securities and Exchange Board of India

March 30, 2001
Mumbai

Acknowledgement

Large number of individuals and institutions have helped us, directly and indirectly, to prepare this working paper. A few of them include Toby Davies, CRESTCo Limited; Alan Lee, HK Clearing; Peter Chia, Singapore Stock Exchange; Jill Considine, Gary Lacara and Jeffrey Smith, DTCC; Toshiharu Kumakura, JSDC; Mr C. B. Bhave, NSDL; CDSL and others. We sincerely appreciate and acknowledge their timely responses to our queries. Several patient proof readings by Ms Shika Taneja and efficient secretarial support of Ms Michelle D'Souza and Ms Shyni Sunil contributed for the timely completion of the paper.

Shri Pratip Kar, ED, SMRDP, SEBI has been a great source of inspiration and motivation for the officers of Research Department in their endeavor to prepare research papers and other publications. We duly appreciate his unstinted support to us in preparing this working paper. Prof. J. R. Varma, Member, SEBI Board has meticulously gone through the various drafts of the paper. His sharp and sincere examination of the paper helped us to improve the paper further. We owe our regards for him.

We sincerely thank Shri D. R. Mehta, Chairman, SEBI for his unlimited support and encouragement in conducting research work. But for him, it would not have been possible to bring out this paper timely.

SECURITIES AND EXCHANGE BOARD OF INDIA

The Securities and Exchange Board of India (SEBI) was initially constituted on April 12, 1988 as a non-statutory body through an Administrative Resolution of the Government for dealing with all matters relating to development and regulation of securities market and investor protection and to advise the Government on all these matters. SEBI was given statutory status and powers through an Ordinance promulgated on January 30, 1992. SEBI was established as a statutory body on February 21, 1992. The Ordinance was replaced by an Act of Parliament on April 4, 1992. The preamble of the SEBI Act, 1992 enshrines the objectives of SEBI – to protect the interest of investors in securities market and to promote the development of and to regulate the securities market. The statutory powers and functions of SEBI were strengthened through the promulgation of the Securities Laws (Amendment) Ordinance on January 25, 1995, which was subsequently replaced by an Act of Parliament.

Dematerialisation: A Silent Revolution in the Indian Capital Market

M.T. Raju, Advisor

Prabhakar R. Patil, Asst Director

ABSTRACT

The study provides historical background on various developments and progresses made by Central Securities Depositories across the globe. Setting up of depositories and providing encouragement to trade and settle in demat form equity shares considerably has led to improvement in volumes traded on the Indian stock exchanges. Competition between National Securities Depositories Limited (NSDL) and Central Depositories Services Limited (CDSL) has brought down custodial charges and continue to improve service standards. In a short time span India made quicker progress in terms of the extent of dematerialisation and percentage of volumes settled in the demat form of securities across the World Equity Markets. Only a couple of countries can boast themselves to have made faster progress than India.

1.0 Central Securities Depositories:

Stock exchanges, clearing corporations, brokers and investors are some of the major players in the securities market. For investor, the stock / share certificate represents ownership of a company. Over the past decade more and more companies accessed (through public issue, rights issue, private placement, etc) Indian capital market and issued more number of securities and hence supply of share certificates grew manifold. Turnover in the secondary market, both delivery and non-delivery, also got multiplied. Increased activity in the primary as well as in the secondary markets caused occasional disturbances in the smooth functioning of clearing and settlement and sometimes, even, working of stock exchanges because of unwield movement of paper. Ergo, there was an urgent need to overcome the problem. It was thought to have a place where all securities are, to start with, immobilised and only book entries - debit and credit - take place in the account book of investors indicating current status of ownership of securities. As technology advanced, more powerful and cheaper computers became available making possible further improvement to the immobilisation i.e. dematerialisation (demat). Under dematerialisation, there are no physical certificates and only electronic book-entry and transfer. In this environment, a central securities depository holds beneficial ownership of investors' interest in the form of dematerialisation of securities

Physical paper caused enormous problems in the Indian securities market. Higher trading volumes and burgeoning paper hampered settlement cycles forcing the markets to combine few settlements together. This increased market risk. There were instances when even some stock exchanges closed trading for a day or two in order to complete pending settlement work. Unscrupulous elements in the market place used to take undue advantage of paper movement by forging certificates, creating fake certificates and adopting to postal interceptions. Investor confidence in the market often used to get shattered due to bad paper and bad deliveries. Share transfers used to take months; three to six months was not uncommon. Investor who bought the shares anticipating to sell them when share prices rise had to watch prices go up and sometimes subsequently fall. Thus investors quite often lost opportunities in the market.

1.1 History and International Developments of Securities Depositories (SDs)

National securities depositories existed in Europe before World War II with the earliest being in Germany during Bismarck's time. In USA, the securities industry was enjoying the prosperity of an economic resurgence during 1960s. The average trade volume on the New York Stock Exchange (NYSE) grew from 3 million shares per day in 1960 to 12

The views expressed in the study are of authors' personal and will not reflect the views of the SEBI.

million in 1970. On April 1, 1968 trading on the NYSE broke the previous record of October 29, 1929. Before the year ended, the record was broken in an additional 24 times and the expression 'paperwork crisis' had entered the nation's agenda. To cope with the situation, a number of temporary measures were taken - closing the market on Wednesdays, shortened trading days, and extending settlement from four to five days.

In mid-1961, the NYSE together with Bankers Trust Company, The Chase Manhattan Bank and First National City Bank of New York initiated the 'Pilot Operation for Central Handling of Securities' with modest 15 securities and 31 firms. The deliveries were made between members via book-entry and without the physical movement of certificates.

Movement towards immobilizing of shares in a vault begins with the millions of certificates held in 'street name' by NYSE member firms. Transfer of ownership among members could then be accomplished with accounting entries – book entry- eliminating physical certificate movement and the mushrooming paperwork needed to transfer them, that is Central Certificate Service (CCS). This was activated on a limited basis in June 1968 and by the end of 1969, there were 464 million shares deposited with CCS.

In search of a long-term solution to the problem, an organisation named Banking and Securities Industry Committee(BASIC) was constituted to design a model to take care of future developments in the industry. After deliberations, a two-stage evolution of the CCS into an expanded depository system was conceived. In the first stage, CCS was to move from a division of the Stock Clearing Corporation and become a wholly owned subsidiary of the Exchange (CCS Inc.) with representatives of the American Stock Exchange (Amex), National Association of Securities Dealers (NASD), and NYSE members on its board. The newly formed subsidiary would then seek a trust company charter under New York State Banking Law and Federal Reserve membership. In the second step, its users would share ownership of the depository. In this direction, CCS began the preliminary steps in March 1972, starting a yearlong process, which CCS Inc. would complete with the submission of a formal charter application on December 28, 1972. Later, the transfer of operations from CCS Inc. to Depository Trust Company was completed on May 11, 1973. The Depository Trust Company (DTC) superseded CCS in 1973. DTC was independent from the exchange and therefore, facilitated the participation of banks and institutions in DTC activities along with securities firms. DTC and National Securities Clearing Corporation (NSCC) have been merged to form Depository Trust and Clearing Corporation (DTCC) in 2000.

The Japan Securities Depository centre was founded in 1984 to immobilise securities transfer in Japan. On May 5, 1989, Hong Kong Securities Clearing Company Ltd. was established and many other countries in the Asian Pacific Rim and other countries

slowly started setting up Central Securities Depositories (CDS) either to immobilise or to dematerialise securities.

In 1993, Deutscher Kassenverein (DKV), the German Depository, became DTC's first international participant. Recognising the need to provide a single American focus for international clearance and settlement, DTC and NSCC formed, in 1996, the International Depository & Clearing LLC (IDC), a jointly owned subsidiary to concentrate on cross-border settlement issues from a research, marketing and development standpoint.

In UK, the Bank of England, at the request of the London Stock Exchange, established and shared a Task Force on securities settlement under the chairmanship of Mr. Pen Kent, a Director of the Bank of England in March 1993. The Task Force recommended the introduction of rolling settlement and a new settlement service to be called CREST. The CRESTCo Limited was inaugurated on July 15, 1996.

2.0 Need for Depository in India

Clearing and settlement in equity shares in India, till recently, used to be only on "accounting period basis". Accounting period clearance and settlement increases both market and credit risk and also affects, smooth functioning of stock exchanges. Therefore, there was an urgent need to shift to rolling settlement. Nevertheless, Indian markets had paper based clearance system. Dematerialisation was needed if the industry had to move from the present accounting period settlement cycle to trade-date-plus-5 (T+5) or even to trade-date-plus-3 (T+3) or to a trade-date-plus-zero (T+0) cycle. If our financial markets are to continue expanding and globalising, we must keep identifying and eliminating those components of the clearance and settlement processes that are paper-intensive, error-prone and time-consuming. Refining and streamlining these sub-processes will help make our financial markets more efficient.

Historically retail and small investors were the dominant players in the Indian capital market till early part of 1990s. Financial institutions and insurance companies were not very active in the secondary market although they used to take a large chunk of equity in the primary market by participating through project finance and other routes. Unit Trust of India (UTI) was the lone big institutional player in the equity market, primary as well as secondary, till late 1980s. With the advent of public sector banks and institutions sponsored mutual funds and offshore funds, the presence and influence of the institutions has grown in the market place. In the early nineties, Indian capital market further opened up to allow the entry of private sector mutual funds and foreign institutional investors (FIIs).

2.1 Volumes and Trades

In 1990s, Indian stock exchanges had unprecedented growth in volumes traded and number of trades executed per day. Three annual statistics; number of trades, traded quantity and turnover on BSE and NSE separately and together are presented in Table 1. Of the three, for our purpose here, quantity traded is more important. A cursory glance at this number provides vital information on the tremendous growth registered for the last six years. (1998-99 to 2000-2001 figures contain demat trades also). Had we not transformed, and remained in the physical mode, it is anybody's guess that the problems Indian markets might have had. Thanks to dematerialisation and improvements in other systems and procedures, our markets remained opened uninterruptedly, since 1995. Volumes are surging further but there will be no recurrence, hopefully of problems of the nature we experienced in early 1990's. Increased volume and trades put tremendous pressure on clearing and settlement due to the movement of physical paper. Huge bundles of paper had to pass from one broker to another broker via clearing-house/ clearing-corporation (sometimes directly). Settlements used to get postponed as the brokers were not in a position to complete back office work and at times the exchanges were closed for a day or two to complete settlement work. There was an urgent need to develop a system that would reduce woes of paper based settlement system. If reforms were not carried out then there would have been possibility of market shift, affecting the capital market growth.

Table 1. Trades, Quantity and Turnover on BSE and NSE

Year/Month	BSE			NSE			Grand Total		
	No. of Trades	Traded Quantity	Turnover	No. of Trades	Traded Quantity	Turnover	No. of Trades	Traded Quantity	Turnover
	(in '000s)	(in million)	(Rs. billion)	(in '000s)	(in million)	(Rs. billion)	(in '000s)	(in million)	(Rs. billion)
1995-96	34268.81	7718.5	427.46	6628.91	3991.2	672.87	40897.72	11709.7	1100.33
1996-97	26400.11 (-22.9)	8060.9 (4.4)	1242.84 (190.8)	26355.12 (297.6)	13556.1 (239.6)	2954.03 (339.01)	52755.23 (28.99)	21617.0 (84.6)	4196.87 (281.42)
1997-98	19566.86 (-25.9)	8571.6 (6.3)	2076.46 (67.1)	38143.04 (44.7)	13568.5 (0.09)	3701.93 (25.31)	57709.9 (9.39)	22140.1 (2.41)	5778.39 (37.68)
1998-99	35435.46 (81.1)	12927.3 (50.8)	5519.99 (165.8)	54569.08 (43.1)	16532.7 (21.84)	4144.74 (11.96)	90004.54 (55.96)	29460 (30.06)	9664.73 (67.25)
1999-2000	74045.37 (108.9)	20811.3 (60.9)	6850.28 (24.1)	98429.06 (80.4)	24270.4 (46.8)	8390.5 (102.43)	172474.43 (91.62)	45081.7 (53.02)	15240.78 (57.69)
2000-01	142814.69 (92.87)	25777.0 (23.86)	10000.32 (45.98)	158043.46 (60.57)	28724.1 (18.35)	12202.65 (45.43)	300858.15 (74.44)	54501.1 (20.89)	22202.97 (45.68)

Source: The Stock Exchange, Mumbai (BSE) and the National Stock Exchange of India Ltd. (NSE).

2.2 Globalisation of Indian Capital Market

In 1980s offshore funds started investing in India and they insisted on developing custodial services to stop the movement of paper. A few custodians started operating

and provided the custodial services of securities. Notwithstanding these developments, the real issues concerning paper-based settlement did not get eliminated. In 1992, SEBI started licensing foreign institutional investors (FIIs) to invest directly on the Indian stock exchanges. Large number of FIIs started investing. Their foreign principal investors and regulations required them to get ownership of shares transferred quickly and safely. To encourage and further attract foreign investments, the regulatory authorities in India were thinking of finding out the right solution for the problem. Deliberations with authorities and market participants finally led to setting up of depositories in 1996.

2.3 Fake certificates, Theft of shares lead to bad paper

Many a times, it was brought to the notice of regulatory authorities, that shares were stolen subsequently they were sold in the market leading to bad deliveries and other related problems. Dematerialisation, eliminates the scope of stealing of securities. Unscrupulous persons in the market place easily introduced forged and fake certificates. In order to discourage such activities, SEBI had come out with good and bad delivery guidelines, which have been implemented by all the stock exchanges and clearing houses/corporations. However, investors were scared of trading due to time taken to get it rectified when they were ended up with a bad delivery of shares. All these and other related issues encouraged setting up of depositories.

2.4 Benefits of Dematerialisation

Exhibit 1: Benefits of Dematerialisation

- Elimination of bad deliveries and all risks associated with physical certificates, such as loss, theft, mutilation, etc.
- Reduction in handling of huge volumes of paper for investor, broker and Exchange.
- No stamp duty for transfer of equity instruments, debt instruments & units of mutual funds in the depository (In case of physical shares, stamp duty of 0.5% is payable on transfer of shares)
- Immediate transfer and registration of securities, increasing liquidity of stocks with the investor
- Faster disbursement of corporate benefits like rights, bonus, etc
- Reduction in brokerage by many brokers for trading in dematerialised securities.
- The system facilitates electronic account holders to apply for public issues, which will eliminate issues like non-receipt of share certificates in time etc.
- Securities lending and borrowing becomes easier in demat form due to fungability.

2.5 Objectives of the Study

The motivation for the study is derived from many sources. SEBI has been rigorously pursuing dematerialisation in the country. We intend to assess the progress in absolute terms and in relative terms over the period. The study makes an attempt to document chronological developments also. An international comparison and evaluation of the progress of immobilisation and dematerialisation has been made that would help understand progress across countries.

3.0 Functions and Structure of Depository

Depository can be compared with a bank. Depository holds securities of investors in immobilisation/electronic form. Besides holding securities, a depository also provides services related to transactions in securities. Depository interfaces with its investors through its agents called depository participants (DPs). If an investor wants to utilise the services offered by a depository, the investor has to open an account with a DP. This is similar to opening an account with any branch of a bank in order to utilise the services of a bank. Generally, worldwide, depositories hold securities in two forms:

- Immobilisation – wherein securities are held in the physical form but transfer is done electronically through book entries;
- Dematerialisation – wherein certificates are destroyed once they are admitted to the depository and corresponding credit is given in the account which is maintained electronically.

Chart 1: Activity Chart of a Depository

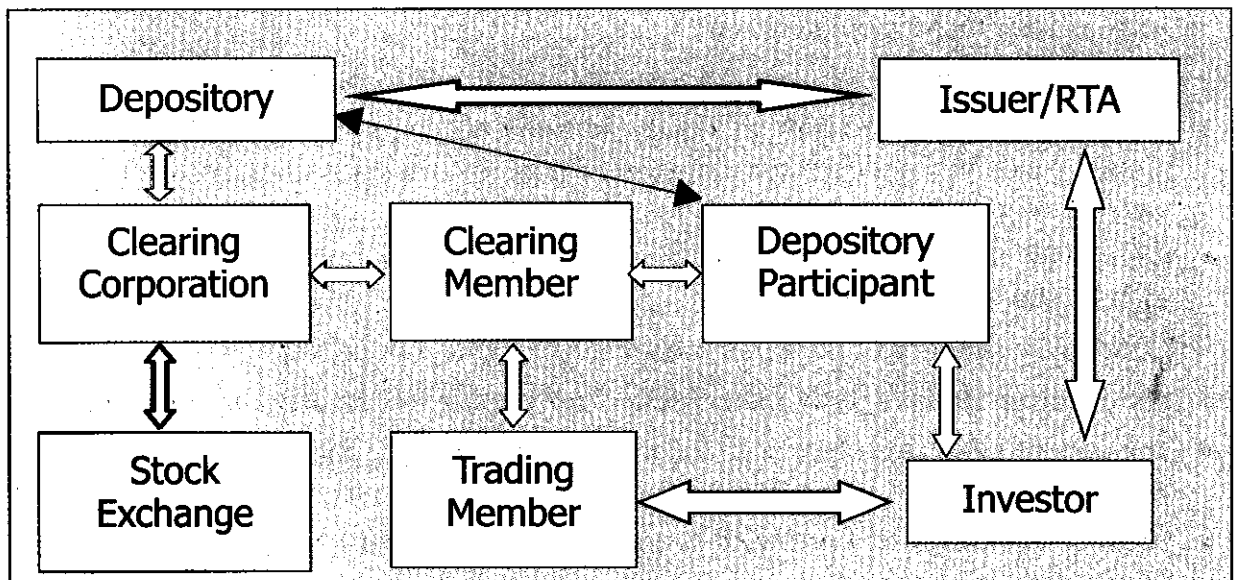


Exhibit 2: Who can become a Depository Participant

- Public Financial Institutions
- Scheduled Banks
- RBI approved Foreign Banks operating in India
- State Financial Corporations
- Institutions engaged in providing financial services, promoted by any of the institutions mentioned above, either jointly or severally
- Custodians of securities who are registered with SEBI
- Clearing Corporations or Clearing Houses of Stock Exchanges
- Stock Brokers registered with SEBI
- Non-banking Financial Companies

4.0 Depositories in India

SEBI took several initiatives to frame rules and regulations for an efficient paperless settlement system known as dematerialisation. After considerable deliberations, SEBI framed the draft regulations for depositories and participants in October 1995. Extensive discussions and consultations were held with the stock exchanges, market participants and some investor groups. In addition to the views expressed at these meetings, SEBI also had the benefit of written comments on the Consultative Paper submitted by various chambers of commerce and industry, market participants and investors. SEBI (Depositories and Participants) Regulations, 1996 were notified in May 1996.

The Depositories Act was legislated in August 1996. The Depositories Act, 1996 recommended multiple depository system to accelerate the scripless clearance and settlement. Multiple depositories will usher in competition, which is expected to bring in, economic benefits such as low service fees and better quality service to investors. Competition, forces to innovate, adopt new technologies and respond to changes quickly in the market place.

India has, yet, another unique distinction of choosing dematerialisation of securities with an option to investor to subsequently rematerialise (at a fixed cost everytime) his/her securities. Many leading Asian markets and U.S.A follow mix/ gradation of immobilisation/dematerialisation of securities.

4.1 The National Securities Depository Limited (NSDL)

Consequent to the enactment of the Depositories Act, 1996, the first depository in the country, namely, National Securities Depository Ltd. was set up and commenced operations. The main promoter of the NSDL is National Stock Exchange of India Ltd (NSE).

A Depository enables fast and efficient way of settlement as well as eliminates physical handling of securities and reduces the problems related to transfer of shares, bad deliveries, loss of share certificates etc. NSDL began the process of dematerialisation of securities with three participants and five securities eligible for dematerialisation in November 1996.

4.2 Central Depository Services Limited (CDSL)

The second depository, the Central Depository Services Ltd. (CDSL) commenced business on February 8, 1999. The main promoter of CDSL is The Stock Exchange, Mumbai. With this, now India has two depositories operating in the country.

As anticipated, the competition between the depositories brought down costs and improved service standards. NSDL, as a lone player, started imposing 5 basis points (bps) of settlement charges and 7 bps of custody charges. A little later, it reduced custody charges by 50 per cent to 3.5 bps. With the setting up of CDSL and announcement of its competitive rates, for the first time NSDL cut its settlement charges by more than 60 per cent to 2 bps. Further, CDSL for the first time brought down settlement charges to 0.5 bps following the announcement of NSDL cutting the charges to 1 bps. This is a clear-cut evidence of competition benefiting consumer/client. Additionally, both the depositories strive to improve services and provide additional services.

Table 2: Changes in Settlement and Custodial Charges

Date	Settlement Charge - NSDL	Custody Charges - NSDL
Original	0.05% of the value of securities received from Clearing Corporation(CC) into receipt-in account of each Clearing Member (CM) maintained with the participant shall be charged. However, no transaction fee will be payable for securities delivered from the delivery account of each CM to the CC.	Each participant shall pay Custody Fee (CF) @ 0.07 % per annum on the average value of securities held by the participant in dematerialised form. This fees will be collected on the basis of average holding during the quarter.
25-Jul-97	No change	Each participant shall, w.e.f. August 1, 1997, pay C.F. @ 0.035 % per annum
2-Sep-98	No change	Each participant shall, w.e.f. October 1, 1998 pay CF @ 0.02% per annum.
1-Apr-1999	No Change	Each participant shall, w.e.f. April 1, 1999 pay CF @ 0.01% per annum.
1-Aug-99	0.02% on the value of net delivery given by a clearing member(CM) from the CM pool account to the CC and 0.02% on the value of net delivery received from the CC to the CM pool account.	No change
1-Sep-2000	2 basis points for only debits to the client account with no charge for the corresponding credit of any account	No change
Settlement Charge - CDSL		
Original	0.02%	Nil
1-Apr-2000	0.02%	Nil
1-Aug-2000	0.005%	Nil

Note : Custodial charges are not charged by CDSL.

Source : Various circulars of CDSL and NSDL.

4.3 The salient features of Indian depository system (regulatory features)

- registration with SEBI of a depository, which is required to be a company under the Companies Act, 1956, and of depository participants, who are agents of the depository
- the dematerialisation of securities in a depository with the records of beneficial ownership being recorded by the depository, and the transfer of beneficial ownership that takes place through electronic book entry.
- indemnification, in the first instance by the depository, of beneficial owners for the negligence of the participant
- interfaces between the depository, participants, issuers and beneficial owners, several of which are required to be in the bye-laws which a depository has to make with the approval of SEBI
- option to investors to hold securities in physical or dematerialised form, or to rematerialise securities previously held in dematerialised form
- enquiries, inspection and penalties in case of default
- the Act also amends other statutes to facilitate the setting up and functioning of depositories and introduces the free transferability of securities
- opted for dematerialisation route which is fungible
- registration of depositories and participants under the SEBI Act
- grant of certificate of commencement of business upon satisfaction that adequate safeguards and systems to prevent manipulation of records and transactions have been put in place, as required by the Depositories Act
- the eligibility criteria for admission of securities to a depository
- as per the regulations, equity shares, debentures, warrants, bonds, units of mutual funds, etc., are eligible to be admitted to the depository for dematerialisation.
- the specific rights and obligations of depositories, participants and issuers in addition to those specified in the Depositories Act
- periodic reports to be submitted to SEBI
- enquiries and inspections periodically carried out by SEBI
- the minimum capital of the company that is to be registered as depository, has been set at Rs. 100 crore

- the eligibility criteria for the sponsors of a depository has been restricted to financial institutions, custodians, non-banking finance companies and others.
- provisions for the indemnification of beneficial owners including insurance cover for the depository and participants
- the adequacy of safeguards and procedures that are to be put in place before commencement of business is allowed to the depository
- the internal and external controls and audit mechanisms that are to be instituted by the depository in order to ensure the integrity of data processing systems and the adequacy of systems and procedures to prevent systemic failure, manipulation or loss of records
- in January 1997, the Depositories Related Laws (Amendment) Ordinance, 1997 was promulgated, which amended certain other statutes to further facilitate the dematerialisation and book entry transfer of securities in the depository, especially securities of large financial institutions and public sector banks. The State Bank of India Act, 1955, the State Bank of India (Subsidiary Banks) Act, 1959, the Industrial Development Bank of India, 1964 and the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1980 were amended through this Ordinance to facilitate the dematerialisation and transfer by electronic book entry of the shares of the SBI, its subsidiaries and the IDBI. The Ordinance also amends the Indian Stamp Act, 1899 to exempt transfer of units of mutual funds through electronic book entry in a depository.
- in February 1997, the SEBI (Depositories and Participants) Regulations, 1997 were amended to restrict foreign ownership of a depository, whether as sponsorer or participant to 20 per cent of its equity. The regulations were also amended to permit non-banking finance companies with a minimum net worth of Rs. 50 crore in addition to the net worth specified by any other authority to act as participants in a depository on behalf of other beneficial owners.

5.0 Global Perspective

International Comparison

This section reviews, analyses and compares progress of CSDs in some of the other countries across world markets. The first depository to be set up was DTC in U.S.A. in 1973. South Korea established its CSD in 1974 followed by Japan (1984), Taiwan (1990), Malaysia (1990), Thailand (1992), India (1996) and the U.K. (1996). Many early entrants including U.S.A, Japan, Korea and Hong Kong, choose to immobilise securities and

some of the later entrants preferred to dematerialise securities. Both the systems have their own pluses and minuses.

Progress across markets differs substantially. The U.S., Japan, Taiwan, South Korea appear to have made slow progress despite some of them being there for over two decades. Whereas Hong Kong, Singapore, the U.K., and India appear to have achieved very quick progress. Percentage of immobilisation / dematerialisation level varies between 34 per cent to 100 per cent of the common stock market capitalisation. However, many countries currently (U.S.A., Hong Kong, U.K., India) settle more than 90 per cent (India-99%) trades electronically. (See Tables 3 and 3A for details)

U.S.A.

Depository Trust Company was set up on May 11, 1973 to immobilise and settle securities in the US. In 1999-2000, DTC and NSCC are merged to form DTCC. Though immobilization has been in vogue for more than 27 years in the U.S., the extent of market capitalisation immobilised is only 80 per cent till 1999. The progress has been slow and to some extent stagnant for the last five years.

U.K.

In the U.K., CRESTCo Ltd. was established in 1995 and inaugurated on July 15, 1996 to undertake the activities of Central Securities Depository. CRESTCo started working in 1996. Eighty-two point one per cent of the total market capitalisation has been dematerialised till 2000.

Japan

The Japan Securities Depository Centre (JASDEC) is Japan's sole Central Security Depository for equity in Japan and it is under the direct supervision of the Ministry of Finance and the Ministry of Justice. JASDEC was founded as a non-profit organisation in 1984 under the law concerning Central Securities Depository and Book Entry Transfer. Eligible securities are, at present, only Japanese equities. Securities deposited with JASDEC are registered in JASDEC's name and kept in fungible form in JASDEC own vaults. JASDEC started operating in 1991 and for the last one-decade, only 34 per cent of the shares are dematerialised. This is a very slow progress compared to many other countries of our sample. The operations of JASDEC are given in Tables 3 and 3A.

Hong Kong

Hong Kong Securities Clearing Company Ltd. (Hong Kong Clearing) is a non-profit distributing company limited by guarantee. It was incorporated under the Companies

Ordinance on May 5, 1989. Hong Kong Clearing owns and operates Central Clearing and Settlement System (CCASS) and provides clearing and settlement services for all eligible securities listed on the stock exchange of Hong Kong.

As of June 30, 1999, 888 securities were admitted for clearing and settlement in CCASS. Through the CCASS Depository, Hong Kong Clearing provides custody services directly to CCASS participants. Securities held in the CCASS Depository are immobilised. During the financial year ended June 30, 1999, CCASS processed a daily average of 68750 stock exchange trades involving 3.6 billion shares valued at 6.4 billion Hong Kong Dollars. CCASS participants enjoyed 100 per cent availability of CCASS computer services through out the year.

South Korea

The Korea Securities Depository (KSD) is responsible for a wide range of securities related business as the central securities depository in South Korea. The KSD is a statutory entity established under the Securities and Exchange Act in 1974. The KSD in terms of age is next only to DTC of USA. However, the progress of dematerialisation is slower in South Korea compared to USA. Till 1999, only 70.53 per cent of shares have been dematerialised. In 2000, total dematerialised market capitalisation is 80 per cent. The operational details of KSD are put in Table 3.

Taiwan

Following the relaxation of certain regulations in 1987, Taiwan's securities market grew rapidly. The Government initiated the development of an efficient central depository and book-entry settlement system. As a result, the Taiwan Securities Central Depository Company Limited (TSCD) was established in 1990. In January 1990, the TSCD commenced its operation. The cumulative percentage of shares deposited till 1999 is 68.76 per cent only.

Malaysia

The Central Depository System (CDS) was established as part of the vision of the Kuala Lumpur Stock Exchange (KLSE) to develop the Malaysian securities industry in the early 1990s. The Malaysian Central Depository was incorporated on April 14, 1990 to provide electronic clearing and settlement of all listed equity and non-equity securities on the KLSE. Operational growth of MCD is listed in Table 3.

Thailand

Thailand's central depository system, the Securities Depository Centre (SDC) was established by the Securities and Exchange Act, 1992. The SDC is not a separate legal entity, but a division of the Stock Exchange of Thailand (SET). Over 92 per cent of the stocks traded on the SET are settled through the SDC.

The Philippines

The Central Markets Development Council, which has the responsibility for capital market reform in the Philippines, served as project proponents for the establishment of the Philippine Central Depository Incorporation (PCD) on March 31, 1995. Operational statistics are provided in the table.

India

India has a unique model of Central Securities Depository System. It has two depositories working NSDL and CDSL that started functioning in 1996 and 1999, respectively. Of all the countries analysed in this study, India is one of the very few countries that achieved fastest dematerialisation process. In less than three years time India achieved almost 51 per cent of market capitalisation in demat form and 94 per cent settlements in demat form. These two indicators as on December 31, 2000 stand at 60 per cent and 99.5 per cent respectively.

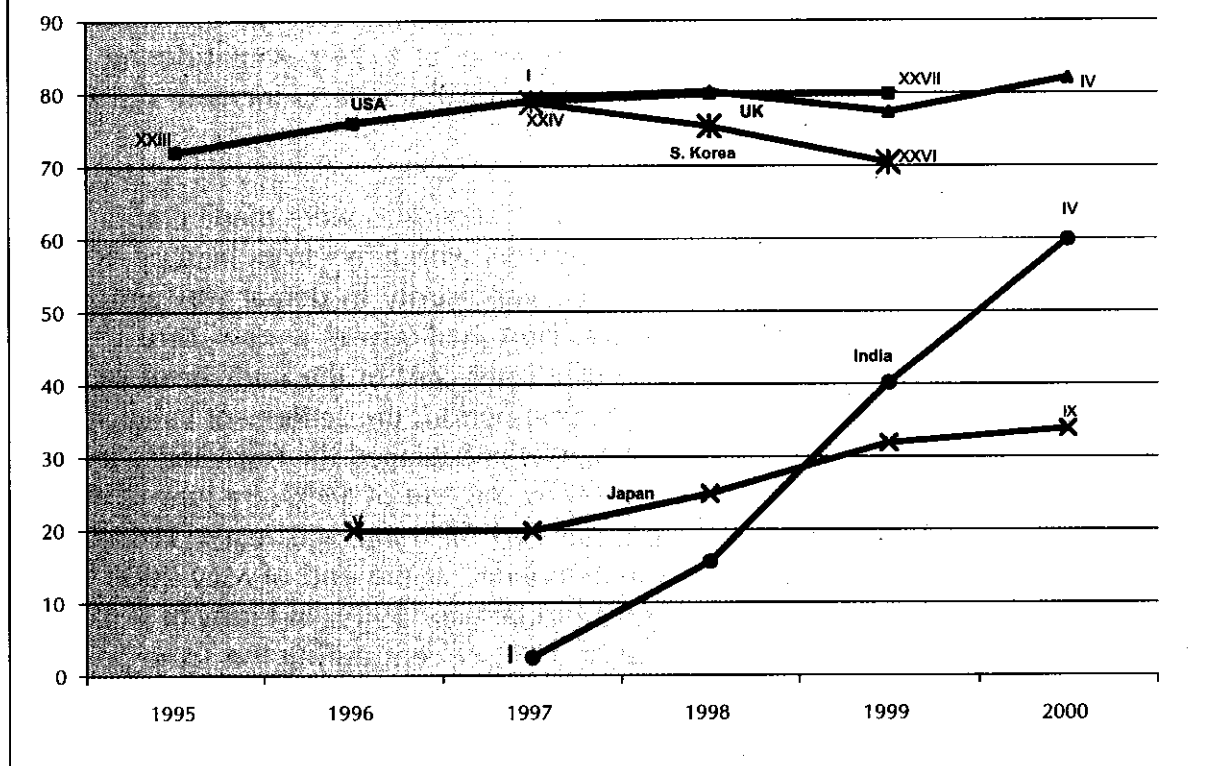
Chart 2 vividly depicts the progress of dematerialisation in select few countries. A closer look at the chart reveals that India made steepest growth in the shortest time-span. Among the emerging markets studied, India made quickest progress in terms of dematerialisation. In comparison with developed markets, excepting for a few like UK and Hong Kong, India's progress is unparalleled. Countries like USA and South Korea have taken nearly 27 years to achieve the level of growth of India.

Table 3: Progress of Immobilisation and/or Dematerialisation – International Comparison (Contd.)

Country	Establish	Opera-tion	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number of shares deposited (mn shares)										7,099	7,826	10,608	-
Deposit ratio (in % age)										78.80	75.50	70.53	
Market capitalisation of equity dematerialised (in % age)										-	-	-	80
Taiwan	1990												
Total number of securities in custody (mn shares) (approx)			20	30	35	42	60	75	95	103	161	203	-
Percentage of shares in depository to total shares (approx)			25	30	32	41	48	51	56	60.09	65.31	68.76	-
Malaysia	1990	1992											
Number of Shares deposited (mn)										91,900	122,400	157,600	-
Thailand	1992												
Number of securities deposited									24	23	26	31	-
Percentage of securities deposited									42	39	40	44	-
The Philippines	1995	1997											
Value of shares held in the depository (USD bn)										4.9	6.4	-	-
Percentage of Market capitalisation in the PCD										15.9	18.11	21	-
No. of trades cleared (volumes) through PCD (Million)										-	-	2.08	-
Value of trades cleared through PCD (Billion)										-	-	Php 476	-
No. of shares cleared thru PCD(Billion)										-	-	799	-
Percentage of trades cleared through immobilization /dematerialisation										-	-	100	-
India													
Market capitalisation of companies listed at The Stock Exchange, Mumbai (Rs bn) as on March										4639.15	5898.16	5453.61	9128.42
Mkt. Cap. of Cos joined NSDL, CDSL (Rs. Bn.)										908	2883	3966	7659
Demat market capitalisation as percentage of total market capitalisation										0.11	3.85	20.96	50.55
Demat Value (Rs. Bn.)										5	227	1143	4614
Demat turnover as percentage of total turnover										0.00	0.72	23.01	93.82

Source: Securities Operations: A guide to operations and information systems in the securities industry, Michael J. Reddy, New York Institute of Finance (Different editions); standard chartered custody and clearing services, India; CDSL and NSDL.

Chart 2: Demat Equity Market Capitalisation as %age of Total Equity Market Capitalisation



Note : Roman numbers indicate the age of depository.

6.0 Dematerialisation Progress in India

The dematerialisation received positive response from companies but the trading volumes were low due to poor response from the investors. In order to expedite the process of dematerialisation of securities and settlement of transactions in the depository, SEBI decided that settlement of trades in the depository would be compulsory from Jan 15, 1998 for domestic FIs, Banks, Mutual Funds and FIIs having a minimum portfolio of securities of Rs. 10 crore. As a first step in this direction, SEBI announced a list of eight securities which were to be settled in compulsory delivery in demat form by the above classes of investors, from Jan 15, 1998 onwards. This has paved way for active trading in paperless form. However, the demat segment-lacked depth due to inadequate initial response from all classes of investors.

Based on working group's recommendations on the status of dematerialised trading, SEBI had stated that securities in dematerialised form should be treated as "good

delivery" in the physical segment. Therefore, allowing delivery of dematerialised securities as good delivery in the physical segment was applicable with effect from April 6, 1998. During the year 1998, a total of 235 scrips were added to this list at different points of time. This has resulted in a steep increase in the number of dematerialised accounts with NSDL, a whopping jump of 1424 per cent during March 1998 to December 1998. The trading value also showed a steep increase during this period by 871 per cent.

To further encourage dematerialisation, a list of 12 securities were made compulsorily tradable in demat segment for all groups of investors with effect from January 4, 1999. Simultaneously, a list of 23 securities trading compulsorily in demat was announced for over 5000 share transactions. This decision had given a new thrust to the dematerialisation with astonishing increase of 45 per cent in the number of accounts opened during January, 1999 alone. For the same period, the settlement value rose by 51 per cent. This positive response from the market encouraged the regulator to increase the list of securities under this category to 160 by the end of 1999. By June 2000, the list of compulsory trading for all investors reached 583 and will reach 3145 by the end of March 2001. The number of accounts opened at the end of May 2000 stands at 2,657,499, an increase of 1451 per cent from January 1999. In terms of settlement value of dematerialised shares, an increase of 515 per cent during the same period is registered. Number of companies signed for dematerialisation reached 1135 by the end of May 2000, a jump of 277 per cent over December 1998. Number of registered depository participants also increased to 134 from 76 during the same period.

The facilities of dematerialisation are available at 1437 locations across the country at the end of May 2000 comparing with 610 locations at the beginning of January 1999, an increase of 135.6 per cent. In March 1998 the settlement quantity was only 16 million shares, which grew to 407 million shares by March 1999, registering a galloping growth of 2519 per cent. Over the next one year, by March 2000 the quantity settled in demat form further increased to 720 million shares recording 77 per cent growth over the previous year. The amount settled in demat form is only Rs 21 million at the end of March 1997. Within a period of one year, this amount jumped to Rs 2287 million, recording 10841 per cent growth over the previous period. One of the reasons for this fast rise is that SEBI made compulsory trading and settlement for certain categories of investors in select number of companies. The amount settled in demat form further sharply increased to Rs 74774 million by March 1999 and to Rs 309531 million by March 2000. All these have been possible due to the steps initiated by SEBI. The market capitalisation of the companies listed stood at Rs 9128.42 billion and value of shares dematerialised was at Rs 4614 billion, i.e. 51 per cent of the total market capitalisation. Charts 2 and 3 provide pictorial presentations of demat turnover. This is indeed a significant achievement in less than three years time.

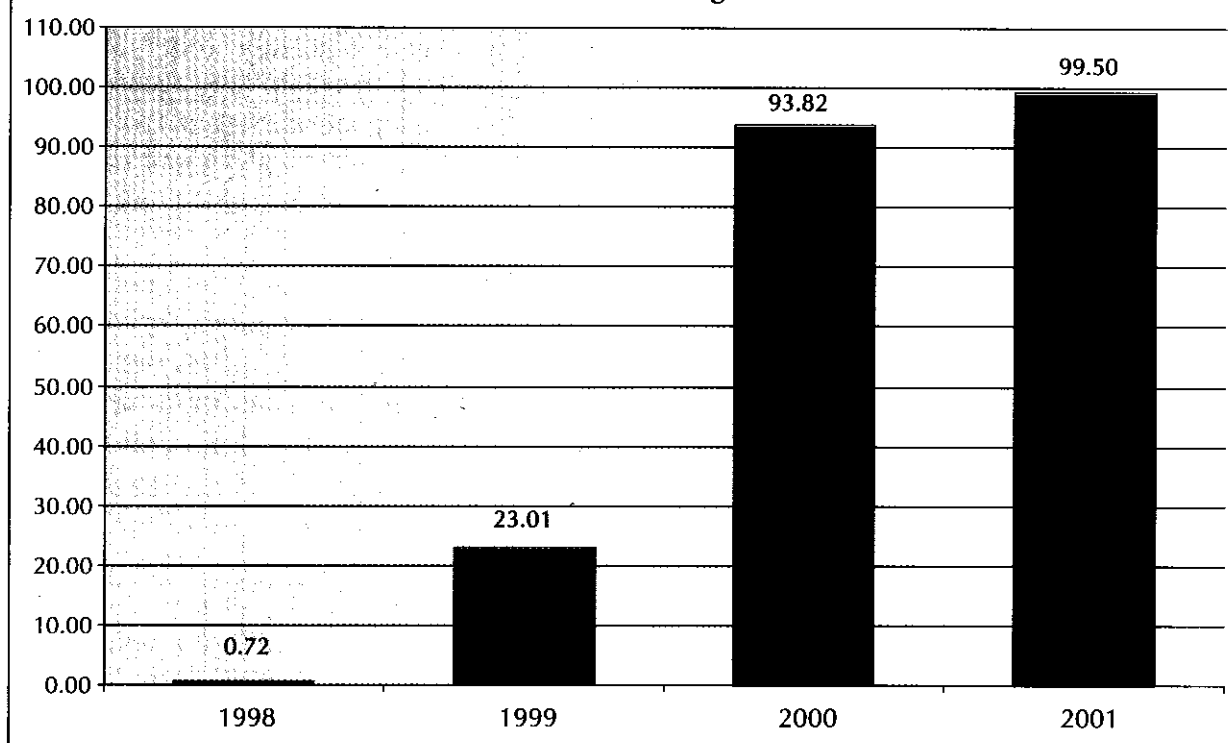
Table 4: Dematerialisation Growth in India

Panel A: NSDL															
COS. – Agreement signed	12	160	1233	301	88	638	112	40	191	378	375	96	918	145	
COS. – Available for Demat	4	128	3100	291	127	608	109	23	171	643	365	113	821	125	
COS. – Available for Trading	3	115	3733	279	143	549	97	18	160	789	340	113	621	83	
DPs – live	10	40	300	76	90	112	47	24	49	104	84	71	124	48	
DP locations	10	103	930	610	492	1400	130	24	200	733	750	275	1425	90	
DP cities/towns				158		285	80				165		285	73	
Demat Qty (Mn.)	8	1030	12605	5057	391	12744	132	22	1763	7803	7109	303	15501	118	
Demat Value (Rs. Bn.)	2	119	5229	702	491	3238	361	5	227	4419	1143	404	4614	304	
Settlement Quantity (Mn.)	0	0		155	43578	947	513	0	16	21244	407	2519	720	77	
Settlement Value (Rs. Mn.)	0	19		22206	115421	224267	910	21	2287	10841	74774	3169	309531	314	
Client accounts		7375		171317	2223	1666730	873		11238		435960	3779	2414306	454	
Mkt Cap of Cos joined NSDL (Rs. Bn.)	734	2318	216	3351	45	6076	81	908	2883	217	3966	38	7659	93	
Mkt Cap of Cos listed at The Stock Exchange, Mumbai (Rs. Bn.)	4033.7	4671.1	15.8	4470.1	-4.3	8033.5	79.7	4639.2	5603.3	20.8	5453.6	-2.7	9128.4	67.4	

Panel B: CDSL															
COS. – Agreement signed											27		786	2811	
COS. – Available for Trading											Nil		596	-	
DPs – live											6		61	916.7	
DP locations											3		72	453.8	
DP cities/towns											1		16	1500	
Demat Qty													522,901,119	2,26,44,23	
Settlement Quantity													58,403,1000	-	
Settlement Value (Rs. billion)											Nil		112.05	-	
Client accounts											46		26762	58078	

Source: NSDL and CDSL.

Chart 3: Demat Turnover as %age of Total Turnover



7.0 Summary

- * Over the past two and a half decades securities depositories have been undergoing changes in their structures qualitatively and quantitatively to meet new challenges and opportunities created by developments in technology and competition.
- * Securities “paper crisis” in India and abroad gave rise to set up securities depositories. Bad deliveries and occasional closure of stock exchanges have been totally eliminated in most of the markets.
- * Studies in many countries and observations of regulators and exchange officials reveal that depositories, further, facilitated to help boost volumes traded and settled.
- * Introduction of rolling settlement, among world’s stock markets and shortening of settlement length has been possible by virtue of efficient functioning of central securities depositories.
- * USA was the first country to introduce immobilization of securities in 1973. Over 27 years, the progress of immobilization as well as settlement in electronic form has been slow and only 80 per cent of total market capitalisation has been immobilised till 1999.
- * The securities industry in the United Kingdom started work on dematerialisation very late and achieved a quick progress.

- * Some countries such as Hong Kong achieved very quick and high rate of demat/ immobilisation settlement, while other countries like Japan, Korea and Taiwan started off very early, but their progress has been slow. Though some of these depositories are in existence for more than two and a half decade, they did not achieve even 40 per cent of market capitalisation in dematerialisation, for instance Japan.
- * A close look at the progress of immobilisation and dematerialisation across countries discloses non-uniformity; while some countries, such as the UK, Hong Kong, Singapore and India have made very quick strides, others including, the US, Japan, South Korea have been taking considerably long time to achieve high rate/full-scale immobilisation/ dematerialisation.
- * The continuous efforts of SEBI fructified in smooth transition of paper based settlement to electronic form of settlement.
- * In less than three years time, India achieved a very high level of dematerialisation and currently greater than 99 per cent of trades settle in demat form. Competition and regulatory developments facilitated reduction in custodial charges and improvements in qualities of service standards.
 - One imminent and apparently immediate benefit of competition between the two depositories is fall in settlement and others charges. Competition has been driving improvement in service standards.
 - Depository facility has effected changes to stock market microstructure.
 - Breadth and depth of investment culture has further got extended to interior areas of the country faster.
 - Explicit transaction cost has been falling due to dematerialisation.
 - Dematerialisation substantially contributed for the increased growth in turnover.
 - Almost India is the only country, which has uniqueness of having two depositories.
- * Dematerialisation growth in India is the quickest among all emerging markets and also among developed markets excepting for the UK and Hong Kong.

8.0 Recommendations

Impact of Internet

Technology clearly transformed securities business in India. The emergence of the Internet has changed the paradigm of many industries, including securities business, in ways that we have yet to fully understand and appreciate. Today, an investor, armed with a personal computer, has immediate access to market information, high

quality research and the ability to execute trades by paying a nominal brokerage of a few paise per share. The Internet and on-line trading will bring new classes of investors and new techniques of trading, clearance and settlement to the market. Therefore, depositories develop necessary expertise at the early to successfully face coming challenges.

Convergence and Consolidation

Globalisation of capital markets is here to stay and impact instruments, markets and securities. Financial markets are truly becoming a global village. Consolidation of businesses and convergence of technologies has changed the phase of financial services industry and more are yet to come. Companies, exchanges and depositories are organising to achieve the breadth and scale to compete in this new environment. Depositories in India should equip themselves technically with soft and hard technologies earlier than late. Markets will flow to where risk is best managed, price is more competitive and efficiency is greatest – that includes the most efficient processing as well as the most efficient use of collateral and liquidity.

Global clearance and Settlement

Trading will be going on for 24 hours a day on the major worldwide markets. Depositories will be routinely clearing trades for brokers done in markets domestically and around the world in a shrinking processing window. Need will arise to have centralised clearance, settlement and custodial services in one single world wide depository or a limited number of three or four – depositories in a similar time zones or we might have one common network, interfacing all depositories of the world.

Consolidation of Cross Border Depositories

In the continuously changing environment, it is important to build flexible and extendable links that are able to adjust quickly and smoothly to new globalisation needs. The use of flexible architecture systems and the implementation of standards are factors that allow cross-border links to be upgraded and enhanced at ease. Cross border linkages can be categorized at different levels, which range from the most basic to the most complex.

- A Data Transmission link occurs when a depository establishes an electronic connection with another depository to allow the pass-through of information files.
- A Pledge Collateral link enables a depository to receive collateral on behalf of its participants from participants of another depository.

- Custody Book-Entry Links allow a depository to hold securities on behalf of its participants with another depository, facilitating cross-border free book-entry deliveries and receives.
- Clearing and settlement links are the most challenging type of link between depositories, since it requires full cross-border DVP capabilities.

Convergence of Instruments, Markets and Securities

Convergence of markets will bring economic benefits in the form of liquidity across the globe comparing with the existing plethora of liquidity blocks. This would mean that there is a single liquidity pool across the globe. Moves in this direction are in advanced stage across the globe with the setting up of Global Equity Market(GEM) by the leading exchanges of the World. This model will lead to consolidation of the global clearance and settlement infrastructure. The ultimate goal of this type of system is to provide risk reduction and efficiency however, identifying a balanced combination is tough challenge.

Annexure 1: Milestones in the History of Indian Dematerialisation

Govt of India enacted the Depositories Act	August 1996
NSDL was granted certificate of commencement of business	October 31, 1996
Trading in dematerialised securities on the NSE commenced	December 26, 1996
Trading in dematerialised securities on The Stock Exchange, Mumbai commenced	December 29, 1997
Registered client accounts with depository were only 7375	December 31, 1997
Compulsory trading in dematerialised securities for Institutions	January 15, 1998
Option to deliver dematerialised securities in the dematerialised or physical segment	April 6, 1998
Registered client accounts with depository crossed 171,317	December 31, 1998
Era of compulsory trading in selected dematerialised securities for all investors begins	January 4, 1999
Registered client accounts with depository crossed 248,565	January 31, 1999
CDSX was granted a certificate of commencement of business	February 8, 1999
An agreement on inter-connectivity between the depositories is signed which will facilitate settlement and movement of assets and custody from one depository to another	April 23, 1999
Registered client accounts with depository crossed 1,666,730	December 31, 1999
Registered client accounts with depository crossed 2,657,499	May 31, 2000

Source: SEBI.

Annexure 2: Phased introduction of compulsory dematerialisation in India

	For institutions	For >5000	For all	Cumulative	Rolling Settlement
January 15, 1998	8	–	–	–	–
June 1, 1998	22	–	–	–	–
August 10, 1998	20	–	–	–	–
October 15, 1998	53	–	–	–	–
December 15, 1998	132	–	–	–	–
January 4, 1999	–	23	12	12	–
February 15, 1999	62	–	19	31	–
April 5, 1999	22	–	33	64	–
May 31, 1999	41	–	40	104	–
November 29, 1999	27	–	56	160	–
January 10, 2000	–	–	–	160	–
January 17, 2000	31	–	39	199	–
March 21, 2000	44	–	61	260	34
May 8, 2000	119	–	181	441	123
May 15, 2000	146	–	–	441	–
June 26, 2000	195	–	142	583	–
July 24, 2000	–	–	300	883	–
August 28, 2000	–	–	332	1215	–
September 25, 2000	–	–	275	1490	–
October 30, 2000	–	–	275	1765	–
November 27, 2000	–	–	275	2040	–
December 26, 2000	–	–	275	2315	–
January 29, 2001	–	–	275	2590	–
February 26, 2001	–	–	275	2865	–
March 26, 2001	–	–	280	3145	–
Total	922	23	3145	167	

Source: SEBI.

SEBI Working Paper Series

- | | | |
|-----|--|--|
| I | Transaction Cost for Equity Shares in India (August 1999) | M.T. Raju
Varsha Marathe |
| II | Stock Market Volatility - A Comparative Study of Selected Markets (January 2000) | Pratip Kar
M.T. Raju
Prabhakar R. Patil
Kiran Karande |
| III | Transaction Cost for Equity Shares in India (Revised) (November 2000) | M.T. Raju |

Request for individual copies may be sent to Research Department,
Securities and Exchange Board of India.

Securities and Exchange Board of India

Earnest House, 14th Floor,
194, Nariman Point, Mumbai - 400 021.

Phone : 91-22-285 0441-50

Fax : 91-22-287 0746/2856002

Website : <http://www.sebi.gov.in>