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SUCHETA DALAL
AND
DEBASHIS BASU

Inside story of the
National Stock Exchange's amazing success, leading to hubris,
regulatory capture and algo scam

ABSOLUTE POWER

- Inside story of the National Stock Exchange's amazing success, leading to hubris, regulatory capture and algo scam.

Sucheta Dalal & Debashis Basu

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In memory of

GV Ramakrishna (1930-2021)

Who would have known exactly how to set things right

Contents

Authors’ Note

NSE Milestones

Key Characters

Glossary

Abbreviations

Prologue

PART I: FROM A GAMBLERS’ DEN TO A TRANSPARENT TECH PLATFORM : 1990–1999

1. A Brokers’ Club
2. An Exchange Is Born
3. The Take-off
4. The Growth Years
5. First Signs: The ALBM Fiasco
6. A New Regime
7. The Cult of Secrecy

PART II : ABOVE THE LAW WITH ABSOLUTE POWER : 2008–2015

8. A Weak & Compromised SEBI
9. Client Code Scam: Tax Evasion through NSE
10. Flash Crash but No Scratch
11. Regulatory Capture – I: Start of NSE Co-location
12. Regulatory Capture – II: Block BSE & MCX-SX
13. Regulatory Capture - III: Block Financial Technologies
14. Regulatory Capture – IV: Grab CAMS & Omnesys
15. Regulatory Capture – V: Illegal Appointments
16. Murky Practices

PART III : THE GREAT HFT SCAMS : 2010–2014

17. A Scam Unfolds

18. Rising Stink & a New Scam

19. Lies, Obstructions, Denials

20. Damned by Deloitte

21. A Strange Appointment & Ignominious Exits

22. SEBI Acts, Hesitantly

23. A Desktop Investigation & Weak Orders

24. Epilogue

Acknowledgements

The whistle-blower's letters and other important algo scam documents can be accessed at https://www.moneylife.in/NSEAlgoscam/Keydocuments.html

Authors' Note

It seems we were destined to a write a book on NSE, though not this book. Sucheta has been reporting on the stock market and BSE since the mid-1980s and then on the revolutionary changes that came about in the 1990s, following her exposé of the Harshad Mehta scam. As journalists, we were both personally very supportive of SEBI chairman, the late GV Ramakrishna's effort to reform the capital market and, later, NSE's work to set up a clean and professionally run exchange. For example, when she was the financial editor of *The Times of India*, NSE had become the number one exchange, but the paper continued to print only the BSE's quotations. Sucheta persuaded the paper's management to carry NSE's quotations too. When Debashis wrote *Face Value*, it was SEBI chairman GN Bajpai who launched it, while Ravi Narain, as managing director of NSE, participated in the panel discussion.

We have both been keen on documenting how the Indian stock market, which was most inefficient and risky, got radically transformed into one of the best and the safest, within just two years of NSE's launch. This has no parallel anywhere in the world. For various reasons, a book on those exciting decades never got written. Meanwhile, NSE changed beyond recognition.

In January 2015 a whistle-blower calling himself Ken Fong complained to SEBI about scams at NSE's co-location facility and sent a copy of his letter only to Sucheta in the media. We published the whistle-blower's letter online in June, followed by an article, which attracted a Rs100- crore (Rs1 billion) defamation suit by NSE against us. An unparalleled preliminary order by the Bombay High Court, imposing costs on NSE, finally, goaded the market regulator into action. Separately, Prof Ashok Jhunjhunwala, chairman of SEBI's technical advisory committee, called for an investigation. The rest is history. As a SEBI senior officer told us, "I have been with SEBI for 20 years and have sometimes seen things snowball. For the algo scam to snowball, the trigger was you."

Had NSE not tried to bludgeon us with a defamation case or

had it won a favourable order to silence us, no algo scam would probably have come to light. This is why we start the NSE story with the defamation case; the preliminary order itself is a landmark judgement for freedom of the media as a whole. It also marked the end of an era at NSE, which went from being a path-breaking, innovative and a clean institution to one which wielded brute power without accountability. This is not the story of NSE we would have written two decades ago, but events willed it this way.

NSE Milestones

1992: Incorporated in November.

1993: Recognised as a stock exchange in April.

1994: Wholesale debt market segment goes live in June; equities segment goes live in November.

1995: NSE Clearing Ltd (earlier known as National Securities Clearing Corporation Ltd), India's first clearing corporation launched in August; NSE becomes the largest stock exchange in the country.

1996: Settlement guarantee fund of NCL set up in June; NSDL set up in November as India's first depository.

1999: Automated lending and borrowing mechanism (ALBM) started in February.

2000: Internet trading starts in February; Index futures launched.

2001: Index options launched in June; individual stock options launched in July; futures trading on individual securities started.

2002: Exchange traded funds (ETFs) launched in January.

2003: Interest rate futures launched in June.

2005: Nifty Bank Index derivatives launched.

2008: Currency futures launched; securities lending and borrowing scheme (SLBS) started; NOW platform for web-based trading launched.

2010: NSE starts tick-by-tick (TBT) high-frequency trading (HFT) or algo trading and Colo services in January; currency options launched.

2011: BSE complains about NSE's anti-competitive practices to SEBI.

2012: SEBI issues 'broad guidelines' on algo trading on 30th March.

2012: Emkay fat-finger crash halts trading in October.

2013: Chitra Ramkrishna becomes MD & CEO; Ravi Narain becomes non-executive vice-chairman.

2015: *Moneylife* publishes whistle-blower's letter in June, NSE files defamation against *Moneylife* in July; SEBI refers whistle-blower's letter to Technical Advisory Committee in November.

2016: In April, SEBI-TAC submits report confirming whistle-blower's allegations. SEBI revamps NSE board of directors; Subramanian Anand, group operating officer, leaves abruptly in October; Deloitte Touche Tohmatsu India LLP submits its forensic report; Chitra Ramkrishna resigns in December.

2017: NSE commissions Ernst & Young for forensic audit into equity and currency segment; SEBI issues show-cause notice to 14 NSE officials and others in May; Ravi Narain resigns in June; Vikram Limaye appointed MD & CEO in July; NSE withdraws its Rs100 crore (Rs1 billion) defamation suit against *Moneylife* in September.

2018: CBI registers an FIR on NSE Colo scam in May; SEBI issues show- cause notice to NSE on dark fibre issue in July.

2019: SEBI passes orders in Colo scam against NSE's top officials, orders disgorgement.

2020: Largest number of broker defaults in a year; SEBI issues new show- cause notices in Colo scam and NSE's earlier investments, in February

2021: SEBI issues two adjudication orders against NSE, Ravi Narain, Chitra Ramkrishna and OPG Securities imposing fines on all.

Key Characters

Ajay Shah and Susan Thomas: Academics specialising in financial markets and consultants to NSE group. They had access to NSE data not available to others.

Ashok Chawla: IAS officer, former finance secretary, former NSE chairman.

Ashok Jhunjhunwala: Professor at IIT Madras and chairman of SEBI's technical advisory committee who directed the algo scam investigation.

CB Bhave: IAS officer, former SEBI chairman, former managing director of the NSDL.

Chitra Ramkrishna: Former managing director and CEO of NSE, part of its founding team.

Late RH Patil: Low-profile founder-managing director of NSE and the key man behind its phenomenal success.

OP Gupta: Founder of the controversial OPG Securities.

Ravi Narain: Former managing director and vice-chairman of NSE, part of its founding team.

Subramanian Anand (Subbu): Controversial appointee of Chitra, who was quickly made the second in command. He was asked to quit after a new board took over in 2016.

Sunita Thomas: Sister of Susan Thomas whose firm created algo trading software and got access to NSE data through Ajay Shah.

Suprabhat Lala: Key management person at NSE in various roles including head of trading. Married to Sunita Thomas.

UK Sinha: IAS officer and former SEBI chairman.

Umesh Jain: Former chief technology officer of NSE who started the clean-up and refused to toe the official line.

Whistle-blower (Ken Fong): Anonymous whistle-blower whose letter to SEBI, copied to Sucheta Dalal, set the ball rolling when *Moneylife* published it in 2015.

Glossary

ALBM: Automated lending and borrowing mechanism was NSE's alternative to badla **.**

Algo/Algorithmic Trading: A set of rules based on time, price and volume that can spot opportunities and execute large volumes of pre- programmed, computerised trades. Algos can also slice and dice large orders, spread them over time and arbitrage between exchanges or cash and futures markets.

Backup Server: A backup or secondary server is one that comes into play if the primary server has a problem. It is an emergency backup to be used only until the primary servers are up and running. NSE allowed select traders to log in to the secondary server, knowing they had a lighter load and would give better speeds and, hence, profits.

Badla **:** India's traditional system of carrying forward transactions from one fortnightly settlement cycle to the next, which was discontinued in the 1990s. The *badla* charge or *vyaj badla* was the cost of carry forward arrived at in a special trading session based on the demand-supply situation.

Co-location Facility (Colo): Allows stockbrokers to take on rent specific racks to locate their servers and systems within the exchange's premises, in order to have a faster (low latency) connection to the exchange for HFT and smart order routing.

Colo Rack: Rack space offered by the exchange to brokers and large investors to house servers and allied infrastructure for an annual fee.

Circuit-breaker: A regulatory measure to temporarily halt trading in an individual stock or the entire market, when the increase/decrease in the stock price/market index touches a pre-determined level. It is an emergency brake forced by the regulator to calm volatile markets.

Dark Fibre: Also called unlit fibre, refers to unused/optical fibre that is already laid, but does not have data flowing through it.

High-frequency Trading (HFT): Algo trading, conducted at exceptionally high volumes and speed measured in micro to nanoseconds.

Latency: The time taken for order matching and confirmation of trade after a client keys it in.

Limit Orders: Orders that can only be bought/sold at a specified price.

Load Balancers: Automatically ensure fair and even distribution of network traffic/data across multiple servers so that no single server has a heavier load.

***Malus* :** The term is broadly used as an opposite to bonus and provides for downward adjustment of incentive awards for top management.

Multicast TBT system: A multicast system ensured that data packets are distributed simultaneously through the Colo grid, ensuring a fair system.

MUX & MMR: MUX, short for 'multiplexer', is like a junction box used to connect multiple users to the telecom network. MUX installed in a stockbroker's Colo rack connects multiple servers to a common network line. MMR, or 'meet-me-room', is where telecom companies physically terminate their own infrastructure in the MUX.

Network Effect: This is defined as the exponential increase in the value of a good or service as more and more interconnected users use it.

P2P Connectivity: Connectivity between a stockbroker's Colo racks at NSE and BSE to receive live market data at high speed.

Randomisers: A program that randomly picks a connection to start data dissemination, instead of starting with the first connection each time, giving a fair chance to all.

Trading Member: NSE uses the term trading member for stockbrokers. We have used it interchangeably in the book.

TCP/IP TBT: In a TCP/IP tick-by-tick (TBT) system, data

packets are received on a first-come-first-served basis giving an advantage to traders who are on servers with a lighter load, or who could log in early and be first in the queue to receive trade data.

TAC: Technical advisory committee of SEBI advises it on all issues related to technology.

Abbreviations

API – Application Program Interface

BOLT – BSE Online trading

BSE – Bombay Stock Exchange

CBI – Central Bureau of Investigation

CCI – Competition Commission of India

CCM – Client Code Modification

CDSL – Central Depository Services (India) Ltd

Colo – Co-location facilities offered by exchanges

CSE – Calcutta Stock Exchange

CTCL – Computer-To-Computer-Link

CTO – Chief Technology Officer

CTT – Commodity Transaction Tax

CVC – Central Vigilance Commission

DFI – Development Finance Institutions

DP – Depository Participants

DoT – Department of Telecommunications

FIR – First Information Report

FMC – Forward Markets Commission

FSLRC – Financial Sector Legislative Reforms Commission

F&O – Futures & Options

HFT – High-Frequency Trading

IGIDR – Indira Gandhi Institute of Development Research

ISB – Indian School of Business

ISP – Internet Service Provider

JPC – Joint Parliamentary Committee

MCFS – Modified Carry Forward System

MCX – Multi Commodity Exchange

MCX-SX – Now renamed Metropolitan Stock Exchange

MSEI – Metropolitan Stock Exchange of India

MIMPS – Manner of Increasing & Maintaining Public Shareholding in recognised exchanges

NCDEX – National Commodities and Derivatives Exchange

NIPFP – National Institute of Public Finance and Policy

NCL – NSE Clearing Ltd

NSDL – National Securities Depository Ltd

NSE – National Stock Exchange

NSEL – National Spot Exchange Ltd

NYSE – New York Stock Exchange

OTCEI – Over-the-Counter Exchange of India

PID – Public Interest Director

PIL – Public Interest Litigation

RBI – Reserve Bank of India

SAT – Securities Appellate Tribunal

SC – Supreme Court of India

SCRA – Securities Contracts Regulation Act

SEBI – Securities and Exchange Board of India

SHCIL – Stock Holding Corporation of India Ltd

TAC – Technology Advisory Committee of SEBI

TBT – Tick-by-Tick

TCP/IP – Transmission Control Protocol/Internet Protocol

UPA – United Progressive Alliance

UTI – Unit Trust of India

VSAT – Very Small Aperture Terminals

WTM – Whole-time Member (SEBI)

Rs1 lakh = Rs100,000, **Rs10 lakh** = Rs1 million; **Rs1 crore** = Rs10 million; **Rs100 crore** = Rs1 billion; (we have included conversions in parentheses or as footnotes.)

Prologue

"NSE is Not as Clean as Driven Snow"

Sometime in late-July 2015, a journalist called Debashis and asked, "How do you plan to respond to the NSE?"

Debashis was surprised. We had almost nothing to do with NSE by then and, whenever we wrote about the Exchange, it routinely refused to respond to our questions. We had a few run-ins with the public relations head of the Exchange. But again we were not an exception. There were plenty of reports about how India's biggest exchange bullied journalists, especially those who asked tough questions. Soon enough, Debashis got to know what it was all about.

We had been slapped with a defamation suit. In response to two articles in *Moneylife* suggesting that there should be an independent probe into a whistle-blower's allegations about malpractices at NSE's Colo facilities, the Exchange decided to go nuclear. We soon realised that NSE had issued a press release and published its action on its website, even before the legal papers were served on us! This exemplified what NSE had turned into, over the years – vindictive and determined to crush any criticism.

NSE, conceived as an alternative to the well-entrenched, dominant and unruly Bombay Stock Exchange (BSE) was born in 1992 in the womb of IDBI, [1] a government-owned development finance institution. Following its immediate and runaway success, NSE thrived without any hindrance or competition and, by its second decade, had turned into a bullying monopoly, willing to deploy an arsenal of dirty tricks, legal firepower and money to combat any criticism. An extremely high-handed and rude former television journalist, who controlled access to the top brass and information sharing, handled its media relationship. She was supported by a media relations firm, adept at exerting deep influence over business journalists, while also controlling media houses through advertising/sponsorship budgets. From an underdog in 1994, NSE was now an

overlord and behaved like one. This was partly because it was wrongly perceived as a government exchange, unlike the BSE, which, even at its peak, was seen as a brokers' club.

NSE's objective in suing us was not merely to stop us from writing and probing further, but also to signal to the rest of the media that locking horns with the powerful exchange would be dangerous. This was clear from its determined effort to ruin our reputation, built over three decades of hard work, and to crush us financially. NSE's notice of motion came up for hearing in the Bombay High Court on Friday 24 th July for an injunction against our writing. We had just a day to prepare and were already committed to conducting a financial literacy seminar the next day. As we knuckled down to organise our defence against the behemoth, which could buy the best legal expertise and whose annual profit exceeded Rs1,000 crore (Rs10 billion), the pressure on us was extraordinarily high.

Our first reaction was a sense of shock that an exchange, whose senior management had known us extremely well, would drag us to court, after having refused to respond to emails and text messages asking for its views on the whistle-blower's letter. Ravi Narain (Ravi) was more of a friend when NSE faced enormous heat from aggressive BSE brokers, who had a close equation with the then chairman of Securities and Exchange Board of India (SEBI). Since we believed that an institution like the NSE, as a counter to the speculator-dominated and scam-ridden BSE, was necessary, we were both very supportive and a useful sounding board. The friendship tapered off around 2006, when Ravi became increasingly prickly about inconvenient questions on its secretive ways, especially since NSE had a near-monopoly by then and was also very profitable. Nobody likes independent journalism when the tough questions are directed at them. Our first fallout with NSE was over the refusal to share its annual report. But wait, we are getting ahead of the story.

NSE's legal notice of 9 July 2015, sent two weeks before it moved court, called our articles false, misleading,

disrespectful, offensive, injurious, malicious, etc, and wanted them removed from our website. Legal notices alleging defamation had become extremely common those days, especially when the articles were against large companies or well- known industrialists. Most publications, even the bigger ones, find threats of litigation intimidating because corporate houses can marshal expensive legal firepower. Between 2012 and 2015, innumerable corporates were raining defamation notices seeking damages of Rs100 crore (Rs1 billion) and more from publications across the country.

We ourselves had received several such notices. The now bankrupt Pramod Mittal served us a notice in 2013, for writing about his daughter's extraordinarily lavish wedding in Spain. Reliance Industries sent us two legal notices in 2014 for a book review. Listed companies often send legal notices only to make their official denials look more credible. But, typically, they don't follow up on them, especially if the publication stands its ground and has its facts right. It is only rarely that a defamation case aims to inflict reputational and financial damage on a publication. When we replied to NSE's legal notice on 11th July, we thought that would be the end of it. But, on 21st July, we were served with a fat plaint demanding an apology, removal of the articles and damages of Rs100 crore for sullying the pristine image of NSE. As an aside, NSE's original notice sought only Rs10 crore in damages, which had soared to Rs100 crore, [2] when it went to court.

Many friends rallied to help. The first was Bapoo Malcolm, a lawyer and *Moneylife* columnist, who loves a good fight. Another close friend introduced us to Vishwajit Sawant, senior advocate and the son of the late Justice PB Sawant, former Supreme Court judge and former chairman of the Press Council of India. Advocate Sawant agreed to help and requested his friend Sunip Sen to appear for us, *pro bono*.

NSE, as expected, had a strong legal team comprising senior advocates, brothers Dr Veerendra Tulzapurkar and

Virag Tulzapurkar (sons of the late Justice VD Tulzapurkar, Supreme Court judge). On 24 July 2015, the matter came up before Justice Gautam Patel, who, we discovered, was bold, unusual and erudite. A staunch supporter of public causes as a lawyer, he also used to write a blog and was a highly regarded columnist for two Mumbai newspapers until he was elevated to the bench.

NSE pushed for an immediate injunction to stop us writing on the Colo issue and to unpublish the article before the notice of motion was heard in detail. Our big worry was that no judge would read or understand the highly technical and detailed letter of the whistle-blower. And so, the NSE, as first-line regulator, would have a huge advantage. As newbies, we also struggled to follow the fast-paced action in court.

Our first big surprise was to hear Justice Gautam Patel say that he had read the letter several times. "You were given an opportunity to respond, why did you not?" he asked and refused to accept the argument that NSE, as an institution, was not obliged to. Typically trenchant, Justice Patel said, "Just because you are the NSE, you cannot claim to be pure as driven snow." He also said, "How is it defamation when Ms Dalal sent you questions before publishing the article and you (NSE) chose not to respond to the query? You cannot use a defamation suit to gag the media."

NSE's counsel still persisted and asked that we should not republish the article. Unfortunately, we were not quick on the uptake on this one and didn't argue it out. Since it was already online and would remain so, we agreed "not to republish" it. Justice Patel refused to issue an injunction, which was widely reported, since NSE had publicised the hearing. While this was a big boost to us, the actual case was yet to be heard. We couldn't continue to impose on Vishwajit Sawant's kindness. So, we began to work on our response with help from our friend Bapoo Malcolm. A former national cycling champion, Bapoo had become a lawyer at 63 and was generous with his time and help.

We began to document our effort to verify the whistle-blower's claims. For instance, the net profit of OPG Securities, a brokerage firm, had soared 717% between FY12-13 and FY13-14, which seemed to prove whistle-blower Ken Fong's charge that it had favoured access to NSE's servers and high-frequency trading (HFT) systems. Sucheta had also shared the letter and some of our findings with key people in government agencies and knew that they were tracking the issue. But none of this could be disclosed in court.

When the chips are down, you know your enemies, but you also discover friends and well-wishers. A direct result of one such intervention was a call from Dr Subramanian Swamy, one of the sharpest economic and legal minds in the country, who was previously the chief guest at Moneylife Foundation's third anniversary event. He asked Sucheta what was happening in our case and, on realising that we were floundering and had no senior lawyer, he floored us with an incredible offer. "If you would like me to, I can appear for you as a pleader," he said. Swamy probably had the richest experience of defamation law, having emerged unscathed in cases filed against him by some of the most powerful people in India.

Although he was not an advocate, Swamy could represent someone as their 'pleader' under Section 32 of the Advocates Act, with the court's permission. He met us for a detailed understanding of our case and quickly reeled off a list of major judgements that would help. Swamy and his wife Roxanne, a mathematician-turned-lawyer, are a formidable force who work with a network of sharp and committed lawyers on a variety of interesting cases. Swamy requested advocate Ravi Raghunath to help draft a response to the NSE and instructed us to obtain the court's permission for him to appear as our pleader.

To our dismay, Justice Patel flatly and unequivocally refused. He said the Bombay High Court had its own rules and he would not permit Swamy to be a pleader in his court. When Bapoo pointed out that we had no lawyers, Justice Patel quipped, "They can appear themselves."

Crushed in a matter of minutes, we were back to where we started. A friend suggested we should pay heed to what the judge said and argue our own case. We had no choice anyway. Apart from Swamy's generous guidance, we were fortunate to have sound advice and valuable tips from Shyam Divan, a highly regarded senior counsel in the Supreme Court. Thanks to Swamy's guidance, we were able to cite national and international case law.

Our point was that NSE, as a public body and first-line regulator, is answerable to investors and stakeholders and that the whistle-blower's allegations warranted an investigation.

Justice Patel heard both sides and issued an order [3] that was remarkable in its breadth and clarity. It said, that the whistle-blower's letter did not 'make wild allegations', but was a "lengthy dissertation, not only on the evolution of online trading at the NSE but the many pitfalls encountered in the past five years." Also, that it was "a most technical eight-page letter and it appears to detail at very considerable length what it describes as the illegality or impropriety in 'high-frequency trades' (HFT) or algorithmic trades (algo trades) facilitated by NSE allowing co-location of its servers."

Justice Patel said, NSE was duty-bound to respond to a 'politely worded' query, sent not once but thrice by someone who had a track record of investigative work and was not making frivolous allegations. Interestingly, NSE had amended its notice to add a specific paragraph to claim that it was "impossible for a trading member to ensure a particular position in a queue in the port" since this is automatically allocated. And, hence, there was no question of the slightest element of truth in what the whistle-blower had alleged and, consequently, what *Moneylife* had written. Justice Patel dismissed such lofty claims, saying, *"In the plaint itself, a very curious picture is attempted to be portrayed of the NSE as an organization that is, by its own telling of it, incapable of any mistake or any wrongdoing and since trading is regulated by circulars and a technical advisory committee's recommendations, no question can be*

raised against the NSE."

As Justice Patel put it, *"(this) seems strangely like a claim to the kind of infallibility best left to divinities not mortal institutions; and, as our mythology tells us, even our divinities have their foibles and failings. The NSE expects respect. That is to be earned. It is not to be torn out of the throats of public the NSE is meant to serve. The NSE is after all a public institution and it is in some sense or the other a custodian if not of public funds then at least of an undeniable public trust. This demands, I think, the most complete transparency, accountability and openness in its actions, dealing and operations.*

I include in this its duty to respond in a measured fashion to a question that has been placed in a measured fashion. It has no duty to respond to a wild or reckless allegation. But when a person, having made some enquiries, and herself having something of an established track record, makes a politely worded and pointed enquiry, not to respond to it seems to me either to be an example of the most egregious hubris and arrogance or, alternatively, an admission that there is an element of truth in what was being said. There is no third alternative."

In frozen silence, we heard Justice Patel say that the NSE had made no *prima facie* case and that he refused to grant an injunction. What he said next was absolutely stunning. *"Looking to the material that has been published, and the manner in which this action has been brought, I have very little doubt in my mind that this is a matter that cries out for the award of costs. There will be an order of costs in the amount of Rs.1.5 lakhs each in favour of Ms. Dalal and Mr. Basu separately. In addition, the Plaintiff will pay an amount of Rs.47 lakhs in punitive and exemplary costs payable not to the Defendants but to public causes, viz., in equal parts to the Tata Memorial Hospital and the Masina Hospital, it being made clear that these amounts are to be used only for the free treatment of the indigent."*

There was a buzz of surprise in the Court; but the enormity of the order didn't sink in until we shared the news with several top lawyers. We realised that NSE was bound to appeal the order. In fact, we had expected that the matter would eventually go to the Supreme Court; but, at this stage, the pressure was off us. Swamy, who is deeply interested in all developments relating to defamation, was delighted at the judgement. When we called him with our news, he had already received this message from his own sources, which he shared with us: " *I believe the Bombay HC order in the NSE/Sucheta Dalal matter today is going to change the landscape of Civil Defamation in India. I seriously hope Sucheta Dalal & other defendants immediately file a 'Caveat Petition' before the Bombay HC to ensure no stay is granted w/o hearing them when the matter is taken up by NSE, before the DB [4]).* "

At this stage, a friend and well-wisher had some blunt advice for us: "This is as good as it will get. Everything that will happen henceforth will be downhill and you must prepare for it. You have to get a senior counsel to represent you." It is he who was kind enough to ensure that we had the pro bono legal help we needed by leaning on some personal friendships, when we said we simply couldn't afford it. This was a Godsend. The brilliant senior counsel, Janak Dwarkadas (Sr) kindly agreed to represent us, supported by advocates Sharan Jagtiani and Nirman Sharma – all backed by a super team at Veritas Legal, led by Rahul Dwarkadas, as our solicitors. Not only did they appear pro bono for us, they gave our case the same time and attention they would have given to a client with deep pockets.

At the division bench, NSE brought in the heavy artillery. Iqbal Chagla, one of India's best-known legal minds with a formidable 50 years of legal practice, was to lead the arguments. For us, there was a sense of *déjà vu* to see Chagla on the opposite side because he had also represented the brokerage firm, DS Purbhoodas in a defamation case filed in the 1992 securities scam against Debashis and *Business Today*. In that case, the judge had

dismissed the motion for interim injunction and recorded a *prima facie* view that journalists should be encouraged to bring out the truth.

Apart from Iqbal Chagla, NSE had Aspi Chinoy and Virag Tulzapurkar, two highly reputed senior counsels present in Court that day, along with its legal team and solicitors. A friend from a top legal family, who had come along to lend us moral support, did a quick mental calculation and said, “This hearing alone would have cost the NSE around Rs50 lakhs.” We were soon to realise what our friend meant about being steamrolled by legal firepower. In spite of a crushing order against the NSE, the tall and distinguished Chagla made his case with dramatic flourish; he all but ridiculed Justice Patel’s order and painted a picture of Sucheta being an irresponsible reporter who had rushed off to publish a scurrilous letter from an anonymous whistle-blower, without any justification and damaged the reputation of a venerable institution. He held the Court’s full attention, while he spoke at length and conveyed the apprehension that regulators would be influenced by Justice Patel’s observations and, hence, a stay order was imperative.

Dwarkadas Sr, who had been quietly perusing the petition with Sharan Jagtiani, now rose to counter Chagla, and we immediately realised why a big name counts. A self-confessed introvert, Dwarkadas Sr is among India’s best-known senior advocates and legal minds and is considered a whiz in corporate and securities laws. After hearing him for a few minutes, the judges decided to adjourn the matter for a detailed hearing. But not before Chagla had persuaded the bench to stay the payment of damages ordered by Justice Patel. The order noted that SEBI had begun inquiries into the whistle-blower’s allegations, which it was at liberty to make in accordance with the law, but that Justice Patel’s observations were *prima facie* in nature and the regulator should not be influenced by them. [5]

Just as NSE hadn’t bargained for the turn of events in

Court, it hadn't contended with SEBI's TAC doggedly pursuing the whistle-blower's letter. Events began to unravel after Justice Patel's crushing order of 9 September 2015. After years of being in awe of the Exchange, SEBI started asking questions at last. As the division bench hearings were being advanced, the investigation progressed rapidly. Then, the NSE management changed. A new board took over. Chitra Ramkrishna resigned in 2016, followed by Ravi's exit in 2017. Could NSE still argue defamation, we wondered.

A Goliath Bites the Dust

Courier packages coming from NSE's solicitor Manilal Kher Ambalal (MKA) since July 2015 had always been fat legal documents packed with allegations. But, at around 4.30pm on 11 September 2017, three slim envelopes from MKA landed up in our office. The letters said: "The above Appeal will be listed tomorrow, i.e., 12th September 2017 before the Division Bench of Hon'ble Justice Naresh H Patil and Justice ZA Haq for withdrawal when you may remain present if you so desire." The matter-of-fact tone indicated a tame procedural affair. After more than two years, NSE, the Goliath, was giving up its fight against *Moneylife*, the David. The new board at the NSE, led by Vikram Limaye, managing director & chief executive officer (MD & CEO), was disinclined to carry the rotten baggage of the previous regime, led by Chitra and Ravi, given the overwhelming evidence that was already in public domain by then. Some board members were also keen to end this disgraceful episode. But, even then, NSE's lawyers weren't about to give up gracefully. Eventually, Limaye and the board prevailed, but not without some drama.

Areez Gazdar, a bright young lawyer from our solicitors, Veritas Legal, received the MKA letter about the same time as we did. He was quick to point out that the letter only mentioned a withdrawal of the appeal against Justice Gautam Patel's order of 9 September 2015. MKA was not talking of the original defamation suit. But he still thought it would be just a procedural formality. We couldn't be

complacent; so Sucheta headed for the Bombay High Court the next morning.

Court No 54, the Chief Justice's court, is on the second floor, just past an imposing statue of the legendary Justice MC Chagla with the inscription: "A great judge, a great citizen, and, above all, a great human being." Even as a litigant, the presence of the great jurist remains with you long after you enter the Court. One imagines that most lawyers and even judges feel the same. So, when the legendary judge's son, Iqbal Chagla, stands up to argue for a litigant, the impact, even on the judges and the huddle of lawyers, petitioners and defendants, is profound.

As soon as Sucheta and Areez entered the courtroom, they noticed Chagla was already sitting in the front row. Areez immediately sensed that this wasn't going to be a tame affair or a counsel of Iqbal Chagla's stature would not be in Court that day. He quickly messaged Dwarkadas Sr. Sharan Jagtiani, who also helped us *pro bon o* , was already in Court. He had anticipated that NSE would drive a hard bargain and may push us to waive the costs ordered by Justice Gautam Patel's order, in return for withdrawing the appeal to the division bench, as well as the defamation case. But NSE's team had something else in mind, which required Chagla's powerful presence.

Dwarkadas Sr rushed into the Court, just as our matter was about to be heard. He seemed to have a shrewd idea of what was in store and asked Sucheta just one quick question before Chagla rose to speak,"You want Justice Gautam Patel's order to stay, right?" "Yes, that is all we want," she said hurriedly. Addressing the bench, Chagla began by saying that it was never NSE's intention to "curb the freedom of the press" and that he was applying to withdraw the appeal as well as Suit No 627 of 2015. His submission now was in sharp contrast to his scathing dismissal of Sucheta's writing at the earlier hearing.

Chagla said NSE was not only willing to comply with Justice Patel's order but had brought along four separate demand drafts aggregating Rs50 lakh. He held up the drafts

for the Court to see: Rs23.5 lakh each for Tata Memorial Hospital and Masina Hospital and two of Rs1.5 lakh each in favour of "respondents No.2 and 3" – that was us. [6]

The learned judges seemed extremely intrigued at what was going on. Why would senior counsels Chagla and Dwarkadas Sr be present, if NSE was capitulating completely? They conferred among themselves, looked through the bulky files before them and asked some details about the plaintiff and the defendant. Then Chagla smoothly went on to drop a bombshell. As though seeking a tiny clarification, he told the Court that all NSE wanted was for the order to specifically mention that Justice Gautam Patel's decision should not serve as a precedent in any other proceeding by or against the NSE because his observations were '*prima facie*' in nature.

We discovered later, that the legal firm had even prepared a draft to be submitted to the Court. It said: "Learned Counsel applies that in view of the unconditional withdrawal of the Suit and the above Appeal, the findings in the order and judgement dated 9th September 2015 should not serve as a precedent in other proceedings whether pending by or against NSE. The judgement under appeal is an interlocutory order and the observations made are prima facie in nature and needless to say, therefore the question of the same being cited as a precedent in any other proceedings cannot arise."

Consider the enormity. Adding just one sentence to the order on withdrawal of NSE's suit, the Exchange was trying to obliterate Justice Gautam Patel's order and prevent it from being used in any other trial against it. Chagla offered a lengthy explanation on why this was important. At one stage, he even seemed to indicate that NSE could change its mind about withdrawing the appeal if its condition was not accepted. This was completely unacceptable to us, especially when two official reports had already indicted the Exchange on the HFT and Colo issue. The charge of defamation itself had vanished and NSE's action was pure harassment. Its gambit of trying to snatch victory out of a defeat was astounding. Justice Patel's order

was not only precious to us; it was a historic judgement on the larger issue of press freedom as well. We were unwilling to barter it under any condition and were prepared to fight on.

Dwarkadas Sr, arguing for us, firmly stood his ground. He asked the Court how NSE could say that it was withdrawing the suit and the appeal unconditionally, and then go on to impose conditions. He also pointed out that there was an ongoing investigation into the matter and that we would continue to write about it. If the NSE chose to sue us again, how could we possibly be stopped from citing the suit and its outcome in our defence? It was now up to the judges to decide and we waited nervously for their decision.

The judges took their time. They continued to confer with one another for a while and refer to the documents before them; but, finally, the Court made it clear that there would be no conditional withdrawal. NSE quickly capitulated. Our demand drafts were handed over to Dwarkadas Sr who gave them to Sucheta in the Court itself. The other two, were deposited with the Court registry for collection. When it was done and we began to file out of the courtroom, Chagla, with an amused smile said, "This is probably the most hotly contested withdrawal of a suit." With good reason, one would say. We were also learning how courts work and how the best plans of powerful corporates sometimes come unstuck. The withdrawal ended our two-year ordeal as far as the defamation case was concerned.

NSE the Goliath, bit the dust. We firmly believe that this case and its outcome were crucial in triggering the investigation by SEBI. First, through the independent line of questioning by Prof Jhunjhunwala as the TAC chief and second, because NSE had created a media splash with its defamation notice and ended up forcing the market regulator's hand. The media had also questioned Veerappa Moily, chairman of the parliamentary standing committee on finance. SEBI chairman, UK Sinha, stepped up action

on the scam towards the fag end of his extended tenure, when the Supreme Court, finally, threw out the many public interest litigations (PILs) against his appointment. The most telling evidence of Sinha's reluctant investigation is the fact that his memoirs [7] have absolutely nothing to say on the algo scam, while dwelling at length on the harassment he faced and other investigations that were not core to SEBI's role.

As for us, apart from the defamation case, there was a vicious slander campaign unleashed against us through paid agencies that specialise in these. There was also an attempt to pressure those who advertised in *Moneylife* or supported our financial literacy efforts through Moneylife Foundation, by filing complaints with the regulator. The regulator showed far greater alacrity over having these investigated than it did over the whistle-blower's letters. As the algo scam unfolded, a book on NSE, an institution we have seen at birth, seemed an obvious thing to do.

PART I

FROM A GAMBLERS' DEN
TO A TRANSPARENT TECH PLATFORM

1990–1999

1.

A Brokers' Club

Soaring 28 storeys above Mumbai's skyline in 1983, the Jeejeebhoy Towers on Dalal Street housed India's biggest and most powerful stock exchange – the Bombay Stock Exchange (BSE). It dominated over India's 20-odd stock exchanges, which took their daily price cues from BSE. Named after its legendary and longest-serving chairman, Phiroze Jamshetjee Jeejeebhoy, who ruled BSE with an iron hand from 1966 until his death in 1980, the building towered over the crowded and once rundown heritage precinct of south Bombay, including the Reserve Bank of India's (RBI's) headquarters on Mint Street, the only other tower in the neighbourhood.

But both, BSE and RBI, were modern only in appearance. RBI's failure to put in place appropriate trading and reporting systems for the booming market in government securities led to the massive securities scam of 1992 – also known as the Harshad Mehta scam. BSE failed to understand the enervating fallout of the scam in the changing regulatory environment, economic liberalisation, creation of an independent watchdog, or the relentless march of technology.

In 1983, when Sucheta first began to cover the stock market, all notices and circulars of BSE, although located in Mumbai, were in Gujarati. The investment community was so small that even politicians outside Maharashtra and Gujarat had little knowledge of, or interest in, the goings on at Dalal Street. Things changed rapidly and dramatically over the next 10 years. The seeds of change were sown but even those in the thick of the investment world did not anticipate the speed with which their world would transform.

Marwari and Gujarati brokers dominated stock and commodity trading across exchanges in India; their rivalry and fairly distinct trading styles were part of market folklore. Marwari brokers controlled speculative trading and operated in

a tight cabal connected to other such groups across the country (they were referred to as upcountry brokers/ clients), especially in Kolkata and Ahmedabad. The Gujaratis mostly aspired to be brokers to industry houses, institutions and individuals. Both sides were strongly represented on the BSE board, but the fact that the Exchange published all its notices in Gujarati gives you an indication of who dominated the administration.

Trading took place for an intense and raucous two hours between noon and 2pm when the roar from the trading ring would reverberate in the lanes around the Exchange. Most brokers operated out of cramped little cabins at Jeejeebhoy Towers and some from dingy offices on Dalal Street and neighbouring lanes. Offices were considered a luxury, compared to the table space that the Exchange rented out to brokers on a couple of floors just above the trading ring.

Telecom was a government monopoly and there were long waiting lists for telephone connections, so owning a couple of lines was a prized asset. Phone conversations had to be quick and brief, since they had to be kept open for bulk-bracket or institutional clients until after trading hours had ended. Manu Manek, a low-profile broker who attracted fear and awe those days, was known to have half a dozen phones which would be connected to his counterparties in other trading centres like Ahmedabad and Kolkata before trading started and would be disconnected only after the closing bell at 2pm. Outstation calls were called 'trunk' calls and needed to be connected by an operator and often took a long time to come through. The long-distance (STD or subscriber trunk dialling) revolution happened only at the end of the 1980s. Speculators and large brokers supplemented connectivity with telex machines, which were the lifeline of newspaper offices too. Fax machines also began to make an appearance only at the end of the 1980s.

The mood of the market was writ large on the faces of those who entered the trading ring or hung around Dalal Street hoping to latch on to the next big stock tip. When the market was on a bull run, trading would be so intense and excitable that jobbers would walk out of the trading ring in sweat-stained, or even torn shirts or kurtas, ripped during another

jobber's desperate attempt to have a trade confirmed. On such days, the 'kerb' began to buzz with illegal trades long before the official opening bell; these would be regularised during the official trading hours.

Trades were to be settled every fortnight when payments had to be made and physical securities with a transfer form attached were exchanged. The entire capital market comprised 1,400 active brokers, primarily from a few trading families. Membership of the Exchange was granted to close relatives or employees of existing members and many qualified professionals were kept out through restrictive conditions and the high price of membership cards. Many top traders without the right clout to buy a membership card remained jobbers for many long years. The highly prized BSE membership used to cost as much as Rs1 crore (Rs10 million) in the late-1980s.

BSE's administration, as well as trade settlement, was a big mess in the 1980s, although the late MR Mayya, a very mild, affable and knowledgeable executive director, headed it. He had no control over the powerful BSE board dominated by brokers. Those days, people spoke with great nostalgia about the time when Phiroze Jeejeebhoy headed the Exchange and no broker dared to defy him.

"Normal functioning has recently become only a brief interlude to crises and stoppages of work. Malpractices like insider trading, rigging up of prices, creating false markets through spreading rumours, getting misleading information published in newspapers, option and kerb trading, manipulation of closing quotations of prices, etc. are rampant and have, unfortunately, become a chronic feature of the working of the stock exchanges. Even in case of some of the smaller exchanges, apart from increasing evidence of malpractices, there are infightings, among rival groups, for controlling and dominating the governing boards of the Exchanges, paralysing their working, in the process." This is a description of the stock market in the high-powered committee report of 1987, which was headed by the late GS Patel, one of the most honest and respected chairmen of Unit Trust of India.

The market had been through several prolonged bull and

bear phases over the previous five decades. The first phase was when prime minister (PM) Indira Gandhi brought in the draconian Foreign Exchange Regulation Act (FERA) in 1974 and forced multinational companies to dilute their foreign shareholding to below 40% or leave India. The FERA dilution public issues led to such a boom that 15 new exchanges sprang up across the country in the decade and half since then. Many savvy investors, who had the sagacity to invest in those public offerings, built serious, long-term wealth for several generations.

Reliance Industries was listed in 1977. Within years, its founder Dhirubhai Ambani gained rock star status as Reliance's shares soared. The company repeatedly raised public money to finance the group's rapid growth, since it also 'managed' its share price. Credited with creating an equity cult in India when there were no insider trading or disclosure rules, it was no secret that the Ambani family was always a formidable player in the market and guessing its moves used to be a major occupation for speculators.

Reliance is also the only company ever, in India's stock exchange history, to have held an annual general meeting at a public ground in south Mumbai to accommodate the vast throng of starry-eyed investors who wanted to hear what Dhirubhai had to say. A whole cohort of brokers across exchanges 'operated' the stock, which was volatile, controversial and always in the news – whether it was for its alphabet series of convertible debentures that came to an abrupt halt at the letter 'G', the vicious wars with the *Indian Express* newspaper and industrialist Nusli Wadia, or the turmoil after Dhirubhai's stroke, probably a fallout of multiple investigations launched by prime minster VP Singh's government in 1989.

The BSE dominated trading until the early-1990s and accounted for half of all listed companies and three-quarters of the market- capitalisation. Every other exchange took its trading cues from BSE's prices; many smaller exchanges even started their trading hours well after BSE had opened. Trading then was a messy, paper-based system, made worse by reckless brokers who encouraged clients to speculate way

beyond their means. BSE's administrative head, MR Mayya, was highly ethical and forward-thinking in his approach and desperately tried to get brokers to see merit in automation, reform and better systems. But brokers dominated decision-making and Mayya was far too mild to control the situation.

Consequently, in the second half of the 1980s, one brokerage firm after another went bust every other month inflicting debilitating losses on counterparty brokers and their hapless clients. Fortnightly settlements were postponed or clubbed so often that speculative trades remained open for months. A cabal of brokers, led by the legendary Manu Manek, or Manubhai, dominated trading. Whenever there was a problem in putting together funds or shares for the settlement, they engineered a 'strike' or a disruption. BSE's unionised staff, called *gumastas*, often went on strike for better remuneration. The strike would be miraculously called off at Manubhai's persuasion or promise to address their problems.

Those of us who covered the market on a daily basis would hear from the grapevine about how 'upcountry' (usually Ahmedabad or Kolkata) deliveries or payments would arrive and the strike would end on a particular date. If Harshad was the Big Bull, Manu Manek should have been called King Bear; but he was better known as Black Cobra. Manubhai was fond of saying, "*Market mein koi investor nahin hota. Sab bhav ke khiladi hain*" (there are no investors in the market, only speculators).

His group of brokers made it their business to know everyone's trading position and financial strength, the only variable was the investment or intervention by public sector institutions, including insurers and the giant Unit Trust of India (UTI). But even they could be managed and a massive scandal over Life Insurance Corporation of India's (LIC) collusive trading in 1956 – the Haridas Mundhra scandal – hadn't changed anything significantly.

One of Sucheta's earliest sources described Manubhai as an 'exchange within the exchange'. Apparently over 100 large and small brokers across the country, known as his 'satellites',

were part of his trading network. They would buy or sell based on his instructions and would also funnel trades to his Mumbai office, through telex or long-distance phone lines that remained open all through the two-hour trading session.

With a vice-like grip on trading, funding and market positions, Manu Manek went for the jugular, especially when an upstart broker tried to ramp up stock prices. His bet was that every speculator had finite money and could easily be brought down through a bear-squeeze. He was spectacularly wrong twice – the first time when he tried it on Dhirubhai Ambani in the 1980s. The story of that battle, and how he eventually sought forgiveness from the Reliance founder by touching his feet at the wedding reception of an acquaintance, is part of market lore. The second time was when Harshad Mehta's access to endless resources flummoxed the bear lobby and ended up destroying both the bulls and the bears in the securities scam of 1992. [8]

In 1990-91, BSE was almost a gambling den. Brokers controlled the Exchange; there was no sanctity to settlements; defaults were frequent; and investors were hapless victims with no recourse. BSE had announced an ambitious computerisation programme in the 1980s, including the purchase of a Tandem computer system, but the broker cabal that controlled the Exchange scuttled the plan. This episode, which NSE's Ravi Narain narrated to the US academic Tarun Khanna, shows how lawless the place was. "The government had tried forever to persuade BSE to reform. Fiat, coercion – nothing worked. It reached a point where even income tax inspectors had to roll back on their inspections. Once when the I-T department had organised a search, the BSE went on strike, and the search was called off. A day's shutdown was worth Rs2-3 billion ($40-$60 million) of trading, and therefore it was far more important to keep the trading going." [9]

Everybody agreed that this had to change. The groundwork was in place way back in 1987. The GS Patel committee had provided an excellent list of recommendations, including a change in the organisation structure of exchanges, admission of members, listing requirements, trading practices and

investor protection. But nothing came of it, because of the BSE brokers' stubborn defiance. Even as late as in 1991, BSE had the temerity to reject applications for institutional memberships from Canbank Financial Services, SBI Capital Markets and Infrastructure Leasing & Financial Services.

In 1991, the finance ministry set up another 'High-Powered Study Group on Establishment of New Stock Exchanges' under UTI chairman, the late MJ Pherwani. In his tenure, the giant mutual fund had grown exponentially and this was extremely good for the capital market and brokers, so they saw him as a friend. But Pherwani delivered a big jolt to the BSE. The committee recommended the setting up of a National Stock Market System. All hell broke loose when Sucheta scooped this part of the report in *The Economic Times* in 1991. Brokers went into a paroxysm of anger and betrayal and began to lobby against the report, even though the recommendation was rather half-hearted and only suggested an exchange for corporate debt and trading in mid-sized companies. It was not to be a rival to the BSE. Pherwani later confessed to SEBI chairman, the late GV Ramakrishna (popularly known as GVR) that he had a soft corner for BSE and did not want to harm it, but only nudge it to improve. That was not to be. Things changed rapidly when SEBI acquired greater powers after the securities scam.

SEBI was already set up in 1988, but bureaucrats in the finance ministry were in no mood to relinquish power and it remained a toothless entity for several years. Its first chairman was Dr SA Dave, former executive director of IDBI. Ravi Narain, Chitra Ramkrishna, GV Nageswara Rao, Raghavan Putran and Pratip Kar joined SEBI along with Dave from IDBI. After spending a couple of years publishing research booklets and working on a massive draft legislation, the first three decided that it had no future and asked to be repatriated. After Pherwani's term ended, Dave moved on to head UTI, which was considered a bigger career move.

Things changed in 1990, after GVR, a sharp, upright and no-nonsense bureaucrat, was appointed SEBI chairman. GVR was making waves in Brussels where he was posted as India's ambassador, and that apparently didn't go down well with

some powerful bureaucrats in Delhi. So, he was sent to Mumbai, to what was considered a dead-end posting outside of his area of competence. As things turned out, they couldn't have been more wrong. GVR took the power structure at the BSE head- on. He openly met a wide spectrum of people connected with markets and listened to them. His table used to be stacked with copies of the laws and rules governing the capital market – the Securities Contracts Regulation Act, the BSE by-laws, the listing agreement, etc. Pretty soon, he was rattling the BSE administration by asking pointed questions about implementation of their own rules. He forced listed companies to pay attention to SEBI through the simple and effective strategy of 'name and shame'. For instance, SEBI began to publish a list of top-10 companies with the highest number of investor complaints. Companies quickly improved their grievance redress process to get off the list.

In October 1990, speaking at an ASSOCHAM [10] meeting, he gave an indication of things to come, with 'five postulates'. One, the market is too inefficient. Two, there is inadequate disclosure and transparency in several transactions in the capital market. Three, investors' rights and interests are not taken care of adequately either in the primary market or in the secondary market. Four, there is excess liquidity and there is a secular imbalance building up between supply and demand in the capital market. Five, poor organisational framework of stock exchanges and outdated rules and procedures put investors at the receiving end.

His speech also ripped apart the primary market's stock issuance practices, poor disclosures and the complicity of merchant bankers in keeping investors ill-informed. He went on to outline steps needed to fix the problem and to improve investor protection. In the process, GVR took on every segment of the capital market – capital-raising companies, mutual funds, brokers, merchant bankers, underwriters, registrars and stock exchange boards. Consequently, each segment wanted him out.

Instead of sensing the public mood and the changing economic situation, BSE brokers chose to dig in their heels and fight back. A strident BSE Brokers' Forum was put

together under a loud and abrasive MG Damani. He wasn't among the big brokers in terms of business and had little to lose by vociferously opposing every reform proposed by SEBI. He became a powerful voice for the broker community, mainly the speculator cabal led by Manu Manek. Brokers cheered the late Damani's aggressive and often intemperate opposition of broker registration, the registration fees proposed by SEBI, the attempt to improve *badla* (carry-forward or contango transactions) and the move to impose capital adequacy norms.

MR Mayya, until then a sane voice at BSE, made the cardinal mistake of siding with the Broker's Forum rather than the regulator. Change was inevitable. Dr RH Patil of the NSE had described it as "one of the riskiest in the world, an exclusive club of brokers who ran the exchange largely for themselves. Listed companies and investors were largely pawns in their game." Many family-managed companies happily participated in manipulating their share prices, since there was no law against insider trading those days. At the first ever international conference on capital markets organised by SEBI in the early 1990s, Hemendra Kothari, the then BSE president, began his speech by saying that the only kind of trading that happens on Indian bourses is insider trading.

Over time, with brokers remaining belligerent and broker defaults continuing with regularity, SEBI also hardened its stance and the Pherwani committee's suggestion to set up a rival exchange began to gain traction. Before NSE was conceived, GVR and the finance ministry supported the Over-the-Counter Exchange of India (OTCEI), which had more modern processes. But OTCEI made no headway under the late Ravi Mohan, who later joined the rating agency CRISIL. In April 1992, adamant brokers went on strike, even after GVR had addressed them at the BSE to explain SEBI's point of view. GVR then wrote to the finance secretary to grant formal recognition to NSE. As it turned out, the securities scam settled the issue.

The Harshad Mehta Scam

In 1991, India had just come out of a severe economic crisis.

Rajiv Gandhi was assassinated in May 1991 during an election rally and an unlikely PV Narasimha Rao became the prime minister. He chose another unexpected candidate, Dr Manmohan Singh, as the finance minister (FM). The first major step that the duo took was to devalue the rupee by 25% in two steps in July 1991. The government boldly repealed the monopoly law and foreign exchange control law soon thereafter. Investors were thrilled about the quick and substantive reforms. In response, the BSE Sensex (an index of top-30 Indian companies), shot up over 50% in six months, going from 1269.91 in June to 1908.85 in December 1991. But this was only the trailer. In January 1992, the index leapt to 2302.54, a 20% rise in just one month.

The man behind this scorching bull run was stockbroker Harshad Shantilal Mehta. Rumours flew thick and fast about which stocks the late Harshad was buying and where he was getting the money to fund his audacious bets. The following month was Singh's first Budget; expectations ran very high. In his Budget speech, Singh hinted that sweeping economic reforms would rekindle the 'animal spirits' of businessmen to create faster growth.

This poured a gallon of fuel into a stock market that was already on fire. The Sensex jumped 32% in February and an amazing 42% in March, to touch 4285. From June 1991, the Sensex had rocketed an eye-popping 238% in nine months. Harshad Mehta had attained a cult following that has never been seen since. Senior advocate and tax expert, HP Ranina described him as 'Amitabh Bachchan of the stock market' after the reigning mega star of that time. Harshad Mehta had bought Ranina's two companies Mazda Industries and Leasing and Mazda Packaging. The media called Harshad 'Big Bull', ironically enough, a moniker he inherited from Pherwani when he was chairman of the giant public sector mutual fund, UTI.

Such was the Harshad mania that investors desperate for stock tips used to pump his chauffer for information on stocks that the boss may have mentioned during his car rides! The flamboyant, voluble and ever- optimistic Harshad, with his ability to send stock prices soaring and his flashy lifestyle, attracted plenty of jealousy and it soon triggered a vicious

fight to the finish between bulls and bears. Harshad's calculation was that India had no option but to open up its markets to foreign investors and list public sector shares to raise money; this could only mean a big rush of money into the capital market and scarcity of good stocks. The bears, on the other hand, were powerful and secretive and had deep connections with every leading bank and industry house.

Harshad was riding high because he had managed to tap into a vast pool of resources by diverting public sector funds, meant for investment in government securities, into the stock market. The bears eventually laid a trap for him by accessing his own shares that were pledged with a foreign bank and delivering them during fortnightly settlements. Such was the lawlessness in those days that many brokers in the securities market virtually ran the treasury operations of banks – mostly public sector banks and a couple of small private banks – on a profit-sharing basis. In April 1992, the index rallied again, one last leap, before peaking out at 4546.58 in the first week and then moved sideways for a few weeks.

The 23rd day of April was like any other. Except that *The Times of India* front-paged a three-column story innocuously headlined, "Broker asked to square up Rs500 crore". The article by Sucheta Dalal and Ravi Srinivasan referred to the broker as the Big Bull. This turned out to be the beginning of a scam that soon engulfed dozens of Indian and foreign bankers, brokers, traders and tainted a few ministers as well. One of the names that got connected to the scam was that of Pherwani, then chairman of the National Housing Bank (NHB).

When the story broke, the question that vexed everybody was: Where did Harshad get the money to pay State Bank? The answer was quite startling. He virtually picked it up from the RBI's fully-owned subsidiary, NHB. In a supreme irony, the earlier Big Bull, MJ Pherwani, had bailed out the present Big Bull and helped him tide over a financial crisis. Pherwani, of course, consistently denied that he had anything to do with NHB's money flowing into Harshad's account. On 8th May, Pherwani resigned from NHB and, later, from three other institutions he was heading. On 21st May, he suddenly passed

away, triggering speculation about a possible suicide, although media reports attributed his death to a heart attack.

When the Harshad Mehta scam broke, the stock market was a lawless place, open to rampant manipulation and the market regulator did not have powers. But things were even messier at RBI. What eventually emerged as a gigantic stock scandal had its roots in the money market, characterised by over-regulation on paper, but lack of oversight in practice, with creaking infrastructure and manual ledgers for reporting transactions in government securities. It exposed RBI's failure to understand or build for increased trading in the government securities market.

The scam of 1992 straddled both the securities market and the stock market by allowing brokers to siphon off money from the banking system to ramp up stock prices. There was no way to check whether brokers were trading as principals or on behalf of their clients. The investigation triggered by the scam led to far-reaching changes that transformed the capital market. It pushed the PV Narasimha Rao-led government, which had just unleashed sweeping reforms, on the back foot. Opposition parties demanded a Joint Parliamentary Committee (JPC) to investigate the scam, in addition to the RBI-led, multi-disciplinary Janakiraman Committee that produced a series of exhaustive reports. A special legislation was passed to expedite investigation by a special court in Mumbai, where cases continue to drag on even in 2021. Given this background, the government was happy to give GVR the freedom to embark on market regulation and a clean-up that caught BSE completely unawares and NSE was born.

BSE's downfall was caused by an absence of vision and belligerent resistance from the Brokers' Forum. One could argue that stockbrokers had only themselves to blame; but the irony is that they were not the losers. Even as they supported the Brokers' Forum, leading brokers quietly hedged their bets by seeking NSE membership. They were quick to switch loyalty when NSE surged ahead of BSE and offered a better trading environment. A bigger irony is that some of those who

led BSE's speculator cabal are now revered as extraordinary value investors. It is only BSE, as an institution, that paid the price and lost its pre-eminent position.

2.

An Exchange Is Born

NKP Salve was the deputy leader of the Congress in the Rajya Sabha when the securities scam broke in April 1992. Sniping at finance minister Manmohan Singh, he said, “I would have thought it was best to go home.” [11] Until then, Dr Singh had not made any statement in parliament, saying he did not have enough facts about the scam. However, the Central Bureau of Investigation (CBI) had been called in to investigate, in an attempt to control politicians who were baying for blood. GVR, who was in Delhi, quickly realised that it was the right time to strike. So, SEBI finally got statutory powers and set about tightening the screws on market malpractices. But merely empowering SEBI was not enough. BSE, controlled by brokers and vested interests, was determined to resist reform with virulent rhetoric, strikes and lobbying. It needed competition in order to bring it under control.

Sometime in August 1992, there was a meeting at the finance ministry, attended by Dr Montek Singh Ahluwalia, Dr PJ Nayak, GVR, SS Nadkarni and Dr RH Patil. [12] That meeting set in motion the idea of an alternative exchange, called the National Stock Exchange, as recommended by the Pherwani committee. Patil told us in an interview, [13] “I was not told of the agenda; it was only after reaching there that I got to know what was to be discussed… setting up a professional organisation with screen-based trading, settlement system, etc.”

He had revealed more in a public speech in 2005, “In the initial stages, there was not much enthusiasm in favour of setting up of a new stock exchange even among influential official circles. There was scepticism as to whether an exchange set up by institutions could compete with the broker-owned-dominated stock exchanges. Getting SEBI to crack the regulatory whip, make brokers to fall in line, and ensure that

stock exchanges function more efficiently and protect investors' interests seemed the better alternative." Since militant brokers were in no mood to listen, "It soon became abundantly clear that, in the absence of competitive pressure from a well-functioning and professionally managed stock exchange, market standards cannot be significantly improved," reminisced Patil.

An Unlikely Choice

The August 1992 meeting discussed the broad contours of the project. Nadkarni felt NSE needed an innovative, independent and clean officer and suggested that Patil should lead the effort, although he was an unlikely choice. He had nothing to do with stocks. His own money was invested in RBI bonds and in debt mutual funds. "You need a different mindset to take risks. I have created a world to protect others' risks, that too through systems and designs. After all, what are margins – it is to create a wall so that they (speculators) don't jump into sea," he told us.

Born to a family of landowners at Nandgad in Belagavi district of Karnataka, Patil was a bright student who could have easily studied medicine or engineering, which were the preferred choices for good students even at that time. But he was averse to cutting up bodies, working in a factory or on field sites. So he chose to study economics, along with sociology. After graduating, he came to Mumbai to join the Bombay School of Economics. "I have never planned for the long term. I take life as it comes – try to make the right choice and let events take their course." [14]

He got a first class in MA economics, went on to do his PhD in international economics and joined RBI, where he remained in an uneventful job until he was 38. He then joined IDBI as deputy general manager in the economics department. An independent-minded and thoughtful man, Patil wanted to remain on the research side, but mandatory postings in project finance, treasury, personnel and vigilance, before he was promoted as executive director, gave him hands-on experience of evaluating loan requests and how companies behave.

Those days, the research department he headed prepared

most policy notes for the monthly inter-institutional meetings of development finance institutions (DFIs). He gained deep knowledge on individual projects and sectors and how each was handled. A two-year stint in Chennai had him thinking about whether he was using his time productively, especially when he began to receive calls pressuring him to make certain decisions. So, when the NSE opportunity came his way, he grabbed it.

Patil had watched and admired how Nadkarni handled difficult people, which helped him immensely when NSE was set up. [15] The government's simple brief was to set up a clean exchange. "It was not meant to be a shock to BSE. We were asked to create a professional exchange and offer an efficient alternative. In fact, we at NSE didn't have any great hope that it would become such a big entity; we only wanted to offer a better option," recalled Patil. Indeed, there was hardly any example of a second exchange having beaten the dominant exchange anywhere in the world.

Early Hostility

The idea of NSE met with immediate resentment from the powerful broking community. They were apoplectic that NSE planned a big entry into the equity segment with computerised trading on a single- screen, nationwide network. "Our design of NSE was radically different. All that we borrowed from the Pherwani Committee Report was the attractive name of National Stock Exchange. The broker community therefore accused us of going beyond our charter, which, according to them, was limited to setting up an exchange to trade debt instruments," admitted Patil. [16]

Had the Pherwani committee's suggestion been adopted, it would have left the opaque and easy-to-manipulate stock markets untouched. Remember, the committee had recommended setting up a market for corporate debt and one that would create liquidity in thinly traded mid- cap stocks. Anticipating fierce opposition from the brokers' lobby, it had shied away from any confrontation with BSE and was rather timid in its recommendations. It even suggested that the competing exchange be set up in New Bombay.

While brokers were angry at the new structure, they remained confident that computerised trading would not succeed in India due to infrastructure and other constraints. Computers had just begun to be used in India and most unionised workers, including bank employees and even journalists, were running pitched battles against computerisation right until 1990-91. Computer literacy was largely absent and stockbrokers, running their business from tiny offices around Dalal Street, were far removed from modern day systems. Many brokers and their employees had not even touched a computer keyboard. “It was widely believed that computerised trading requires highly complex computer skills and those with such skills are unlikely to be good brokers,” said Patil.

Attracting the broker community to the NSE was a concern. Trading floors were set up at NSE’s office premises with a local area network (LAN) to train members. “Our LAN could accommodate almost 100 dealers at any point of time. After the training started, we were in for a major surprise. Most of the dealers at these training courses took just about two hours to learn all the tricks of the trade and became quite proficient. The main reason for dealers picking up skills so fast was the high-quality trading software that we procured from a foreign software company and the subsequent customisation by Tata Consultancy Services. The trading software was designed to keep all complexities at the host computers in the NSE while the dealer terminals or front-end was kept as simple and user friendly as possible,” said Patil in a public speech. [17] How this was achieved is a story in itself.

Patil began by learning as much as possible from those who knew how well-run, global exchanges functioned. NSE shortlisted PwC (PricewaterhouseCoopers), Arthur Andersen and International Securities Consultancy Ltd (ISC) as consultants. ISC, which had better ideas and quoted modest fees, was selected and it drew up a detailed plan. Ravi, educated at Cambridge and Wharton Business School, was a key member of the founding team. He had worked as a policy consultant in the US before returning to India to join IDBI. He had joined SEBI in 1988, since he was always keen on capital

markets.

When Patil was asked to head NSE, he asked the entire team which had worked at SEBI to join him. Ravi and Chitra were the first two, Ashish Chauhan, [18] a bright youngster at IDBI and alumnus of IIT Mumbai and IIM Kolkata, was the youngest member of the team and did a lot of the grunt work. Raghavan Putran, who had remained with SEBI, also joined NSE, while GV Nageswara Rao preferred to stay back at IDBI. [19]

As he became more deeply involved with conceptualising the new exchange, Patil began to find the whole project very interesting and decided to resign from IDBI to join NSE on a full-time basis. He recalls that Nadkarni, his former chairman, was shocked that he wanted to take his chances with an entity that nobody was sure would succeed. But Patil was determined. "It is only at this age that I can take the risk. Both of us – my wife and I – have been earning and we lead very modest lives. We have good savings. If we continue to live modestly, I can take that risk," he told Nadkarni.

Although many people told Patil that he was making a mistake, he had a clear view on the matter. "Who remembers you, once you retire from IDBI? My grandfather used to say, if you make a whistle out of a carrot, it is nice if it works; if not, you can always eat it. I decided that it does not matter whether or not I succeed in setting up NSE," he told us. He quit IDBI in mid-November 1993.

Setting up a new exchange and weaning away volumes from a 100-year-old incumbent was a Herculean task. NSE would find it tough to differentiate itself if it offered the same trading products. Trading volumes are also notoriously sticky and rarely move from one exchange to another. It is called the 'network effect' – investors wait for the new exchange to build significant volumes, which lead to better liquidity and price discovery. But the more traders wait, the more difficult it is for the new exchange to build liquidity, and people are all the more convinced that they shouldn't move. If an infinite loop of low liquidity and low interest develops, failure is guaranteed and NSE had to break out of this possibility.

Fortunately, NSE had no baggage and an independent-minded chief who was open to taking big risks. So the Exchange went ahead and broke new ground in conceptualising a fully computerised bourse with a truly national character and a different kind of relationship between the exchange and its members.

The core team toured exchanges of Australia, Asia (Bangkok and Hong Kong), Europe (London, Paris), America (NYSE & NASDAQ) and Canada (Vancouver). These visits, as well as extensive discussions with the consultants, convinced NSE that an eclectic approach was needed to incorporate the best features of global markets. Thus, NSE incorporates features such as the big board of NYSE dealing in very large stocks; has a nationwide presence of trading terminals like the NASDAQ; a computerised, order-driven trading system like the Paris or Vancouver bourses and a settlement guarantee system like Chicago's futures exchange. NSE stood apart from BSE in its very design. But three of its features were killers: one, a new ownership and management structure; two, settlement guarantee; and three, nationwide reach. It is important to explain these at some length and describe how NSE fought a tough battle on each front.

1. Management & Ownership Structure

When NSE announced a corporate structure without brokers on the board, there was another round of scepticism. Until then, all exchanges were broker-owned and broker-controlled (technically called mutualised) entities. Brokers sincerely believed that this concept of mutuality was the correct structure, that is, only brokers should own and manage a stock exchange.

This view was supported by the global history of stock exchanges, which are mostly broker-owned and managed. The basic spirit of the Securities Contracts (Regulation) Act (SCRA), 1956, also supported this contention. SCRA defines the stock exchange as "any body of individuals, whether incorporated or not, constituted for the purpose of assisting, regulating or controlling the business of buying, selling or dealing in securities." NSE's structure was perhaps globally

unique at that time, aiming to separate exchange ownership and management from the trading rights of members, right from the very beginning. When countries like Australia demutualised, they converted their exchanges into a corporate entity and gave trading members ownership rights and representation on the board of the new company.

Patil's view was, "A true demutualisation is one in which ownership and management of an exchange are totally separate from members' trading rights in the exchange." The problem with a broker-owned and broker-managed exchange "is like playing a cricket match where the players also take turns to act as umpires. The umpiring will not be impartial because of the conflict of interest," he argued. Office-bearers of a broker-dominated exchange (president, vice-president/s, treasurer, and other board members) are elected by brokers. There is lobbying and politicking and the office-bearers usually seek board positions to enjoy a business advantage. Since they also run their own brokerage business, the temptation to misuse their powers or get access to the market position of other members is very high.

All of this played out at the BSE and the Calcutta Stock Exchange (CSE) for 10 long years even after SEBI got its statutory teeth. Such conflicts and abuse of power led to a second major securities scam, led by Ketan Parekh, a close crony of Harshad Mehta, and a second JPC had to be constituted in 2001 to investigate what happened. [20] This was largely due to the weak and confused leadership of SEBI for seven long years under chairman DR Mehta. So brazen were brokers in those days [21] that several of them even attempted to control small private banks, by dodging RBI rules. BSE's office-bearers even permitted the BSE Online Trading System (BOLT) to be illegally opened at night to insert trades in order to avert a settlement crisis. The crisis was the result of Harshad Mehta's comeback attempt by manipulating the shares of BPL, Videocon and Sterlite. [22] We have more on this in Chapter 4.

BSE saw no reason to discontinue its bad old ways even after NSE's market share began to rise. Instead, brokers

lobbied to be inducted on NSE's board of directors, although they were fully aware that their membership did not grant them any such rights. The Exchange faced tremendous pressure from ministers and bureaucrats to permit broker induction. They made cunning, but fallacious arguments at the behest of brokers. For instance, they said, just as bar councils have lawyers and medical councils have doctors as members, a stock exchange must have stockbrokers on its board. The fundamental difference between the bar, medical councils and exchanges is that the former are like membership clubs with club rules, while stock exchanges are granted recognition as first-line regulators with a duty to protect market integrity and investors' interests. Patil pointed out, "common citizens do not deal with bar councils or medical councils in the same fashion that investors deal with the stock exchanges." It was meaningless to compare them. The NSE stood firm and refused to yield to pressure.

2. Settelment Guarantee

NSE's second major innovation was the concept of a settlement guarantee that it introduced in 1995, following recommendations of the JR Varma [23] committee report of SEBI. SCRA does not dwell much on settlement of trades and it leaves it to exchanges to set up their own clearinghouses. The NSE team, during its study tours, noted that even major stock exchanges like NYSE, NASDAQ and London Stock Exchange did not have their own clearing and settlement entities. Trades are settled on an independent clearing corporation, which also settled trades for other exchanges. India had no independent clearing corporation that could settle all trades backed by a guarantee. Patil realised that having a settlement guarantee system and a clearing corporation could make NSE unique.

NSE decided to set up a wholly-owned subsidiary called NSE Clearing Ltd (NCL). This led to a seamless integration of the two most important functions of the exchange: trading and settlement, backed by a guarantee that fully protected the interests of buyers and sellers. Why didn't NSE set up a division and settle all the trades itself? Patil told us that a "clearing corporation may face the prospects of bankruptcy in

extremely volatile market conditions if various funds and margin money, which form the basis of the settlement guarantee extended to clearing members is inadequate.” The exchange is considered a public entity, which should never face the prospects of bankruptcy. Hence, there was justification in entrusting clearing and settlement to a separate entity.

The whole process of trading and settlement is interlinked; this is best witnessed when the market is volatile. Stock markets go through periods of booms when speculative trading increases exponentially, especially when it is funded by borrowed money; and then periods of busts, when trading contracts and buyers often fail to pay for the shares they had contracted to buy. Clearly, the job of completing a settlement is easier if trading is orderly and speculation is never allowed to go out of hand. Before the advent of NSE, exchanges took half-hearted measures during extreme volatility and could not avoid frequent broker defaults. To minimise counterparty risk and ensure smooth settlement, NCL introduced rigorous risk-mitigation measures. One was an upfront or initial margin. Each member got trading exposure limits (this was a gross exposure across all securities and net exposure per stock) depending on the deposit that they placed with NSE and NCL. The aggregate exposure could be more than 10 times their deposits.

Each member’s aggregate trading was tracked on a near real-time basis. If the exposure rose above the prescribed ratio, the member had to deposit more money; if he failed to do so, all his trading terminals were disconnected. When the market turns volatile, members are asked to increase deposits or cut positions. Even in a volatile market, stocks fancied by speculators tend to be more volatile than others. So, NSE started calculating security-wise margins based on the volatility of each stock – these were called volatility margins. Such continuous improvements consolidated NSE’s position. So much so that, in 2005, speaking at the Indian Merchant’s Chamber, Patil claimed [24] that India had, without exaggeration, ‘the most sophisticated’ and ‘scientific’ margining mechanism and that we were “one of the few

countries that has built strong capabilities to deny trading connectivity to members that exceed their exposure limits on a real-time basis."

This system to control trading exposures was backed by the settlement guarantee fund, which provided for situations where a client's failure to pay or deliver shares, affected the member's payment obligations. Remember, those days people traded on the NSE from nearly 400 locations and banking technology didn't allow for instant transfer of funds leading to temporary shortages, for genuine reasons. In such cases, NCL took responsibility to complete trades and any shortage of funds was met through the settlement guarantee fund. If there was a shortage of shares, NCL bought the shares through an auction and delivered them in the settlement. NCL not only recovered the shares or money as due from the broker, but also levied a fine for the delayed payment. If the trading member was still unable to pay, he was declared a defaulter; but the settlement remained unaffected. This was a well thought out system to bridge temporary gaps and to avoid delayed settlements or broker default. Yet, when it was first introduced, BSE brokers characterised NCL's funding of settlement shortages as a way of encouraging reckless speculation. In reality, since BSE had no settlement guarantee system, it was forced to shut down the whole exchange even when a broker defaulted for a small amount. This happened frequently in the mid- 1990s when speculation was rampant on the Exchange.

While BSE often clubbed settlements to accommodate brokers who could not pay up or deliver shares, NCL could complete settlements on time even when there were large pay-in shortfalls. In each case, NCL recovered the money later, or it was met out of interest income and settlement charges collected from members. And, yet, between November 2019 and March 2021, there were 21 broker defaults/ expulsions on the NSE, making it clear that you may conceive the best system, but faulty implementation can vitiate it. A well-known securities lawyer, Ravichandra Hegde, fighting for victims of a broker default in 2020, told us that the settlement guarantee fund had never been dipped into for years; instead, hapless investors were made to bear the losses.

3. Regional Exchanges *vs.* First National Exchange

Since brokers had powerful political connections, it was to be expected that India's 20-odd exchanges would oppose every new move by NSE to change how things worked. But nothing invited as much scepticism and hostility as the idea of a single-screen, nationwide trading system. They were naturally protecting their own vested interests. When NSE was conceived, all Indian stock exchanges were regional in nature, even though BSE dominated in terms of market share. Almost every state capital had an exchange and there were more.

Apart from bourses in metropolitan centres such as Mumbai, Delhi, Kolkata, Chennai, Hyderabad, Ahmedabad, Kochi and Bengaluru, there were exchanges in Pune, Kanpur, Ludhiana, Bhubaneswar, Jaipur, Vadodara, Indore, Mangalore, Coimbatore and Patna. Many of these exchanges were almost a century old, when they eventually folded up. There was also the failed OTCEI, set up in 1990 and, for a while, seen as the alternative to BSE. Like NSE, it was set up by a clutch of public sector banks, institutions and insurers, modelled on the NASDAQ and was supposed to be a modern, professionally run exchange with screen- based trading. But it failed to make any headway at all. Most brokers sniggered that NSE would also languish like the OTCEI. [25]

In fact, when NSE was planning to set up a nationwide exchange, it was against the existing government policy. For decades, stock exchanges were permitted to operate within a narrow geographical territory, often the municipal limits of a city. For example, BSE's area of operation was confined to the municipal limits of Mumbai. The policy favoured geographical monopolies for each stock exchange. NSE had the full support of powerful people in government like Dr PJ Nayak in the finance ministry, Nadkarni in IDBI and GVR at SEBI. The government had told Patil, "If you want to go national, go ahead and do it," but there were always doubts about its ability to pull it off.

"Most of them felt that this nationwide trading mandate would remain merely on paper," recalled Patil. The success of NSE's order- driven anonymous computerised trading system

threatened the existence of regional exchanges. They woke up to this reality rather late and began to lobby the regulator not to permit NSE centres where regional stock exchanges were located. But NSE held fast to its mandate, to provide real-time and equal access to investors spread across the length and breadth of the country. Meanwhile, investors at every regional centre were thrilled at the opportunity to access a national exchange on a real- time basis and benefit from better liquidity and price discovery. NSE also attracted smart new trading members from these centres.

Angry regional bourses and their boards complained to the finance ministry that since they needed approval to expand outside their licensed areas, NSE should be subjected to the same rules. NSE countered that restrictions on the geographical expansion of regional exchanges should be removed so that there was fair competition. In an environment where the Harshad Mehta scam and the involvement of banks, public sector undertakings and officials had embarrassed the government, opposition to a professionally-run national exchange offering a transparent, computerised system wasn't taken seriously.

3.

The Take-off

In June 1994, NSE started operations as a wholesale debt market, which was technically easier. All the debt-issuing companies were in Mumbai, NSE did not need satellite communications to trade; instead, it asked for leased line connections, which were easy to set up. But this involved a constant battle with the Mahanagar Telephone Nigam Limited (MTNL), a public sector monopoly that operated in Mumbai and Delhi. Leased lines were not easy to get even though they were already laid and MTNL had only to install equipment at both the ends to ensure connectivity. Maintaining the leased lines was not a priority for MTNL. Also, ever so often, when a road was dug up for repairs, the cable would be cut and the line went dead. MTNL responded only after NSE reported the issue.

To get around the problem, NSE acquired its own network monitoring instruments to monitor the lines and ensure proper functioning. It installed equipment at MTNL's office, but the telecom company would neither assign a person to monitor the network nor allow NSE to appoint anyone to do the job. 'How can an outsider come and monitor MTNL lines', it argued. NSE then installed the network monitoring instruments in its own offices. Remember, leased lines were also expensive. In Mumbai an end-to-end 64kbps (kilobits per second) leased line used to cost NSE members almost Rs2 lakh per annum, whereas the more reliable satellite link that it set up later, cost about half that amount. So, in a bold and historic decision, NSE decided to deploy satellites to create a real-time trading network in India.

The first commercial satellite was launched was in 1965. Until the 1980s, we had receive-only satellites. Oil companies, like Schlumberger, were among the first to use satellites to connect oil drilling and exploration units. Thereafter Walmart, Holiday Inn, Chrysler and General Motors too deployed satellites for two-way data or telephony applications. India also used communication satellites as public service tools such

as for beaming programmes to rural communities. Then, in 1990, satellites were spectacularly deployed by CNN for live coverage of the Gulf War. When NSE started mulling over communications technology that could connect the trading terminals of members across the country to the Exchange's computers, satellites were already widely used by the developed world, but not much in India.

The idea of setting up the very small aperture terminal (VSAT) network came from its consultants, ISC. [26] "They had seen this model being used by departmental stores and a chain of pharmacies in the US, where the entire history of patients is stored centrally. If you went to any medical store, they could pull up your medical record from the centralised database through a satellite link," said Patil. "The big departmental stores were all interconnected through a captive satellite network for executing instantaneous cash settlements; they did not use the public telecom system. We borrowed the idea from them."

There were also other reasons for choosing satellite-based communications technology. When NSE was being set up, the terrestrial system of the Department of Telecommunications (DoT) and MTNL would not have provided a fault-tolerant, time-critical, and high bandwidth link between NSE and its members. "It would have been impossible for NSE's trading network to connect far off places like Srinagar, Johrat (Assam), Nagercoil (Tamil Nadu), Nainital (Uttaranchal), and Salasar (Rajasthan)," said Patil.

In retrospect, NSE's decision to set up its own captive VSAT network proved to be a masterstroke. A highly reliable telecom network enabled NSE to establish links with its rapidly expanding member base in minimal time, giving it an unsurpassable lead. Being able to aggregate order flows across the country, NSE was able to grow its trading volumes exponentially.

But not before it faced many hiccups and nail-biting moments. Since NSE was breaking new ground on most things, it had to fight every step of the way. For example, its pioneering idea of using VSATs quickly hit a wall. The

obstinate and powerful DoT turned down its request for the bandwidth it wanted. Patil told us, "When we opted for the VSAT model, the DoT was very powerful and had a highly restrictive policy. HP Wagle was the DoT chairman and we were initially assured full support. But when we asked for the C-Band spectrum, they said: 'no we can't give you C-Band, because there is a lot of demand for it. We can give you extended C-Band', which nobody was using. We agreed; but when we asked for a transponder, we were told that there was limited space on the transponder. It was a very funny attitude. When we were finally given one-fourth of a transponder, it was on a satellite that had already started wobbling." [27]

When NSE started looking for VSAT equipment, nothing was readily available for extended C-band. Shiv Nadar, founder of the HCL group and then head of HCL Comnet, was in touch with Gilat Telecom from Israel, which had expertise in time division multiple access (TDMA) technology. But it did not have equipment for extended C-band. Gilat said, it was not difficult to manufacture such equipment with a bit of experimentation and it would design equipment for that frequency and test it in Israel itself. But NSE was not fully aware of the problems and the risks involved. Such equipment and technology require thorough testing in live conditions. Gilat was not a very large company; so, the main contract of commissioning the satellite communications project was given to an American company – GE Spacenet. When the heavy equipment landed at the Bombay Port Trust, the customs department had gone on an indefinite strike. NSE had already planned to start its operations around Diwali!

Patil recalls, "The then Argentine president, Carlos Menem, had come to India at that time and I was invited to a meeting that he was addressing. I met a senior customs official called Surjit Singh over there – a very nice gentleman. He asked me what I did and I told him about the NSE project. He was immediately very interested. I told him about the strike and how it had affected us. He went back and told his officers that this was a project of national importance and so 'even if there is a strike, we must help.' The equipment was deep inside the dock in a warehouse, at the farthest point from the door. Yet,

he persuaded his staff to get it out and clear it."

The equipment was then installed at Mahindra Towers at Worli (NSE's first office was located there), Mumbai. NSE then waited for DoT approval to go live. On inspection, DoT had another issue, "No, you cannot set up the antenna here. The antenna has to be set up in a place which is like a valley so that it does not interfere with telecom signals in the surrounding area." NSE officials said, "We didn't know this and we had already put it up on the tower."

But didn't DoT tell NSE about this requirement before the installation? Well, it turns out that DoT did not take the NSE project seriously. DoT itself was planning to set up 70-80 VSATs as a commercial proposition on the extended C-band. Their contract was stuck because of some dispute with the equipment supplier. They didn't want the NSE project go live before their own project. Dr Manmohan Singh had told Dr PJ Nayak to use his name if the project was stuck anywhere. He had also given NSE the mandate to go live at Diwali; so, Patil told DoT, "If you don't give me permission, I am going to hold a press conference announcing that we cannot start trading before Diwali because DoT is not giving us the go-ahead." That threat got NSE temporary approval to start, while DoT said it would watch whether its signals interfered with any other telecom systems. If they did, NSE would have to shift its antenna to Pune. But things worked out just fine. "This convinces me that if you are well-intentioned, there is a higher force up there that helps you. This is because you are not doing it selfishly for yourself," said Patil.

Using VSATs as a way to connect trading terminals of stockbrokers across India was just one of the many daring decisions that Patil took. He told us candidly that it never occurred to them that some of their ambitious plans may not succeed. The second big decision was whether or not to opt for the BSE model where jobbers matched trades on behalf of buyers and sellers in a trading ring, by shouting out orders accompanied by hand-signals. This trading method had prevailed for centuries, since the first stock exchange was set up in Amsterdam in 1602.

Patil weighed the pros and cons and, ultimately, decided on an anonymous order matching system, although many exchanges had a quote-driven system. “We were a bit academic,” he laughed, recounting this to us in 2007. “We looked at markets that were the most efficient or competitive and worked at bringing their features to India,” he said. That is how NSE decided not to limit the number of trading members; it would only prescribe fair and equal conditions for all. While entry was open, the exit was also smooth. It introduced the concept of a deposit rather than the sale of a membership card. If anyone felt dissatisfied, he could take back his money and leave. There would be no entry or exit barrier.

This meant that NSE was open to brokers from other exchanges. “We said, traditional brokers are welcome but we will also encourage chartered accountants, bankers and other professionals to become members. When I went around the country talking to people at other exchanges, they asked, ‘why should we come to your exchange at all’? Nobody took us seriously.” NSE had a tough job of selling itself.

Hostility and competition with BSE were the other issues it had to contend with. BSE brokers were powerful, well-connected and did not lose any opportunity to battle the new exchange. Patil narrated an incident, when he was still on the IDBI rolls but deputed to the NSE. Hemendra Kothari of DS Purbhoodas (DSP), an influential BSE president, had attended a meeting called by the IDBI chairman, Nadkarni, to discuss its plans to raise foreign currency loans. Over lunch, he tried to persuade Nadkarni against the idea of starting a rival exchange. Nadkarni jokingly deflected the issue saying, “Hemendra, this is my lunch; you shouldn’t tell me what I can do and what I can’t.” And, yet, DSP was among the first to become a member and trade on the NSE when it began operations. When someone asked Kothari about it, he said, “Well, it is business.”

Not all BSE brokers were so practical. Some leading and respected names had stayed away from NSE in solidarity with the Brokers’ Forum. They were shocked and dismayed to discover that those close to MG Damani had acquired NSE membership, either directly or through family members. But, a

majority of NSE's early members were first-generation stockbrokers and professionals.

NSE began trading in equities on 3 November 1994 with a one hour session on *muhurat* day. [28] This day marks the beginning of a new *Samvat* year, which is part of the Diwali festival, and is celebrated with gusto at the BSE. Brokers, staff and their families throng the Exchange in their glittering best to distribute sweets, greet members and attend the traditional *puja*. No one really paid attention to what was happening at NSE, except to make dire predictions that it would soon fail.

In stark contrast to its older rival, NSE installed the trading infrastructure for its members, complete with VSATs, antennas, uninterrupted power systems, and other internal connections. This nationwide, single-screen system documented the exact time and price of each transaction; allowed investors to see orders and trades in real-time; and removed the haze that engulfed the erstwhile pricing system. Even this made no difference that day because nobody expected it to last.

Things were very slow at first. Trading began with a select few securities, and volumes were just about Rs6-8 crore (Rs60-80 million) in the first few months. Over time, NSE cherry-picked about 100 of the most liquid stocks and added them to the list of permitted securities traded on the Exchange. They were called 'permitted securities', since there was no formal listing on the NSE. This meant that the shares were 'permitted' for trading, but the companies had no reporting obligation to the Exchange under any listing agreement. The faceless automated trading system that it deployed had none of the drama and excitement of an open outcry system.

Doomsday predictions about NSE were a constant: a VSAT-based system will never work; wait until the first settlement, a bunch of *sarkari* development bankers will never be able to conduct a weekly settlement, leave alone one at multiple locations; NSE will not be able to handle large trading volumes; satellite outages will bring trading to a halt when the sun changes direction, etc. But NSE refused to collapse. At *The Times of India*, not a single day passed without calls

from brokers telling Sucheta about some perceived or potential failures of the NSE. A few investment analysts also declared that NSE's transparency and efficiency would be its undoing. Nobody in India wants a clean and transparent market. Stock markets have always provided an avenue for investing ill-gotten money, they argued. Institutional investors, including those who helped promote the Exchange, had as little confidence in its future as the rest of broker community.

As NSE was off to a slow start, it became the butt of jokes, especially from BSE brokers. NSE chairman Nadkarni had asked the team: "Are you ever going to cross into double digits?" BSE's turnover was then a grand Rs100 crore per day (Rs1 billion) and NSE's was under Rs10 crore (Rs100 million). It slowly became clear that NSE was here to stay and that weekly settlement on a nationwide basis was possible. Sometime around February or March 1995, trading started to pick up at NSE.

By May, when confidence in NSE's ability to run the exchange had been established, volumes spurted. After persistent persuasion by NSE's top management, public sector financial institutions and insurers had begun to ask their brokers to route at least some orders through the new exchange. Once they switched, they began to discover the advantages of computerised trading; liquidity began to pick up and, soon enough, no push was required. Foreign institutional investors (FIIs), who were watching from the sidelines, reluctant to trade until there was liquidity and better price discovery, also started shifting their business. The clean and efficient trading and settlement system rapidly turned into a major plus and volumes soared.

On 5 November 1995 – exactly a year and a day after it began operations, NSE's turnover crossed that of the century-old BSE. Sadly, Nadkarni died [29] before he could see NSE reach double-digit turnover and beat the BSE. What were the reasons behind NSE's runaway success?

High Rate of Order Conversion: In the open outcry system, with barely two hours of trading in a physical ring, just about 30% of buy-sell orders were actually converted into trades.

The automated system raised this to a whopping 90%. This was possible due to the basic configuration of the NSE: it was a countrywide, anonymous, order-matching system.

Smooth Weekly Settlement: The Exchange worked hard to eliminate settlement risk, which is at the heart of a well-run exchange; it also ensured that influential brokers could not manipulate the process.

BSE had a fortnightly settlement system that often got extended or clubbed with the subsequent settlement due to mismanagement, while NSE started with a weekly settlement. Unlike BSE, which was a local exchange, NSE was a nationwide exchange and needed to collect shares from trading centres across the country for physical delivery every week. This was an enormous challenge and market observers felt that NSE was bound to trip, especially when trading was volatile and the delivery volumes increased significantly.

BSE had told the then SEBI chairman GVR that weekly settlements were impossible for any exchange to handle. But NSE's clearing corporation proved, for the first time, that not only were weekly settlements possible but could also be conducted with clockwork efficiency out of four clearing centres across the country. When brokers saw that settlements were conducted without a hitch, week after week, they quickly switched sides in search of higher liquidity and more efficient price discovery. The settlement procedure was accompanied by ruthless auctions to ensure that delivery and payment schedules were sacrosanct and could not be influenced by powerful brokers.

Low Expectations: NSE's main advantage was that nobody expected a bunch of professionals to succeed. The broker community had successfully perpetrated the myth, that "technology does not build markets; it is brokers who build markets." They claimed, and genuinely believed, that only brokers understood the complicated mechanics of stock trading and they alone could run bourses. It must also be remembered that NSE started as a wholesale debt market; that segment failed to work and was quickly shut down. BSE's hubris had two positive consequences for the Indian capital

market. It allowed the NSE to set the agenda for positive change and modernisation, while BSE remained caught up in fighting SEBI, protesting broker registration fees and, later, fighting to save the traditional *badla* system of carry-forward trading.

NSE began to start trading earlier than BSE in what was called a pre-market session, which became an indicator of market sentiment. It also started trading longer hours, since it did not have to contend with manual reconciliation of trades, unlike BSE. Somewhere around May 1995, NSE dislodged BSE to become the price-setter, with the result that transactions in BSE's actively traded scrips would begin only after price trends at NSE were clear. Once this happened, the infinite loop of liquidity was broken and NSE was on its way to market leadership.

Clean Delivery and Settlement Guarantee: NSE's commitment to deliver clean share certificates, that minimised brokers' and investors' headaches, was a big factor in its favour. It was still the era of physical share certificates. Dematerialisation or paperless trading happened three years later. So, the process was that a broker representing the seller, procured physical share certificates from his client, along with a duly signed transfer form; these would be delivered to the broker who represented the buyer. The shares, along with the transfer form, would change hands several times, often for months on end. They were finally sent to the company's share transfer department, usually before the annual book closure, to get them registered in the name of the last buyer.

This was riddled with issues like a mismatch of signatures (signature of seller in the form did not match with that in the company's records), and mistakes in transfer forms that were hard to rectify and slowed the delivery and transfer process. Fake certificates were floating around and there was also a massive racket in fake stamps. [30] NSE's high level of automation could not wish away the dangers of fake and forged shares being dumped on the system, particularly since NSE's trade guarantee initially covered these risks as well. So NSE sent its officers to the share departments of companies and their registrar & transfer (R&T) agents to detect wrong

signatures and fake certificates. The Exchange soon realised that it did not have enough experience, so it requested R&T agents to depute their staff to help verify shares before the settlement.

At one stage, almost 40 people were engaged in detecting fake certificates before accepting shares for settlement. After being hit by deliberately introduced fake and forged certificates on several occasions, NSE put in place a strong surveillance system, headed by a former police commissioner. By January 1998, it began 100% pre-verification of securities delivered for settlement to detect fake, forged and stolen shares. All this added to NSE's workload and tested its ingenuity as trading volumes increased exponentially when its centres spread to more cities. Share certificates were being sent for settlement from all over the country and brokers found it expensive to send them individually. NSE's solution was to allow brokers to deliver shares to its offices at Kolkata, New Delhi and Chennai, which it would fly to Mumbai at its own cost. At one time, almost four tonnes of paper (share certificates and transfer forms) came to Mumbai every week, to be sorted and sent back after each settlement.

The fact that NSE's transaction charges were higher than BSE's was helpful for the Exchange to mitigate these additional costs; brokers also did not mind paying higher charges because they received clean delivery of shares, which saved a lot of time and effort at their end. The 'settlement guarantee' was an additional comfort.

Well-capitalised Members: By imposing high net-worth requirements NSE insisted that its members had to be adequately capitalised. It also attracted corporate members to eliminate the influence of powerful, traditional broker families. Next, it introduced a centralised insurance cover for all trading members, in June 1995.

As NSE's turnover continued to grow, BSE launched a blitzkrieg of criticism; cried unfairness at NSE's national operations; claimed it was being supported by the government and institutional investors, while also continuing to predict potential defaults and a collapse. But nobody missed the

writing on the wall. The BSE leadership, finally, realised that it had to either shape up or ship out, because it was fast losing its clout. It hastily began to implement BOLT, its own automation programme and screen-based trading system. It also switched to weekly settlements, which were now conducted without clubbing, delays or glitches. If only BSE had not been forced by short-sighted brokers to abandon an extensive computerisation programme finalised in the late-1980s under its then president, the late Mahendra Kampani and the late Mayya, the course of events would have been different. Sometime in the mid-1980s, BSE had even held a press conference to announce that the Tandem computer system, with a four-time backup, had been finalised; but there was no follow-up.

An intriguing aspect of NSE's growth pangs was that its own shareholders, UTI and LIC, who were also among the biggest institutional investors, had shunned the new exchange for a long time. They remained reluctant to trade right until NSE became the largest exchange, partly because their investment departments had deep links with BSE brokers. When the NSE management tried to persuade them to transfer at least small amounts of business to it, one of them retorted, "We have given you money to start an exchange, now you go and manage yourself. We will trade only in BSE." The slowest to start doing business on the NSE was UTI, although Dave had been a colleague of NSE's founding team at IDBI and SEBI. When asked, he told Patil "I will not pressure my managers."

Ironically, this reality was the exact opposite of BSE's frequent and vociferous allegation that NSE had an unfair advantage because of its institutional parentage. Foreign institutional investors, who never lost an opportunity to disparage our primitive trading systems, also took a really long time to shift their trades. Some claimed that it was because they had only BSE brokers on their approved panels.

NSE's main support base came from new brokers who could not get BSE membership or who could not afford it. It also found support from smaller towns, where smart traders and sub-brokers grabbed the opportunity to trade directly on a

national exchange. The latter group was tired of waiting for nearly three days to get a trade confirmation, usually at the worst price of the day. Another volume booster was the opening up of arbitrage opportunities between NSE and the other exchanges; these alone accounted for a big chunk of trading in the initial years.

Even after NSE had become the largest exchange, no newspaper would publish its quotes. At a time when there was no internet, getting stock prices published in newspapers was crucial to get retail investors to seek out NSE for executing their trades. Patil and Ravi often pointed to the unfairness of this situation. Sucheta, who was then the financial editor at *The Times of India*, mentioned this incongruity to Ashok Jain, chairman Bennet Coleman (publishers of *The Times of India*) in a casual discussion in the executive dining room and said that a change was needed. He was intrigued and agreed that NSE's quotes should be published, but only if BSE quotes could be accommodated as well, with no increase in the number of pages. When she offered to find a solution, he asked her to work on a new design, discuss it with the resident editor and come up with a plan. Editorial space was always a huge constraint at *The Times of India*, and there was no way to accommodate NSE quotes without sacrificing something.

Eventually, it was decided to publish NSE and BSE quotes, for what was called the 'specified category' or 'A Group', which were eligible for carry-forward trading. The significantly large, but more thinly traded, 'B Group', comprising thousands of listed companies, was knocked off. Mutual fund net asset values (NAVs) were given space instead. Since the format opened up saleable space on the page, it met with the approval of the advertising department and the change was formalised. Many readers were furious that they could no longer check the prices of cash or B-Group shares in their daily paper. BSE members also fomented anger against the move, but the paper was able to hold firm by pointing out that trading volumes in this section were too tiny to justify the editorial space. And that other valuable information had been added to the page. In a few months, other newspapers also began to publish NSE quotes.

Soon after overtaking BSE, NSE also turned profitable. Nadkarni had told the team, “You must prove that you don’t need any subsidy from anybody. If you are commercially viable, you will succeed.” The Exchange was earning a lot of interest income on interest-free membership deposits. This was the era of double-digit interest rates and the earnings helped NSE to impress the trading community by reducing transaction charges when its volumes grew. As NSE started growing rapidly, its transformative role in India’s stock markets was just beginning.

4.

The Growth Years

As trading volumes started migrating to NSE, BSE worked hard to get the BOLT system started. But its connectivity was still restricted to Mumbai, a far cry from its competitor's national reach. BSE lobbied aggressively for permission to go national and accused the government and SEBI of step-motherly treatment. But it was already too late. NSE was rapidly pulling ahead. By the end of 1995, NSE had about 600 VSAT-using members in 21 cities and had contracted to provide a total of 1,750 links by the end of the following year. Dr Patil estimated that 40% of the Exchange's business came from outside Mumbai. By 2003, NSE had relegated BSE into second position in the equity, wholesale and retail debt, and derivatives market segments. In equities, its daily trading volume was more than twice that of BSE.

NSE also continued to innovate and its next big move was dematerialisation of shares. A lot of thinking had gone into the issue of dematerialisation (paperless trading) *versus* immobilisation of shares, in India, but there was little progress until NSE felt the need to push this initiative. As trading volumes increased, the cost and effort of scrutinising all the paper before a settlement and transporting it to Mumbai every week kept rising. The mismatch and rejection of signatures on transfer forms and dealing with fake and forged paper in physical settlements was a serious concern.

So, NSE, in its own interest, was keen on a stock depository where ownership records would be maintained in paperless form. The regulator was also supportive of pushing this reform. By then, computerization had spread rapidly across India.

In 1995, National Securities Depository Ltd (NSDL) was formed with former SEBI executive director, CB Bhave, as the first MD & CEO. Bhave, an IAS officer, had been brought to SEBI by GVR (the two had worked in the petroleum ministry in the 1980s) and headed SEBI's secondary market operations division. Bhave didn't get along well with DR Mehta, who

succeeded SS Nadkarni as SEBI chairman. However, Mehta understood the need to end the problems of paper- based trading, and was extremely supportive of the depository initiative. Like NSE, NSDL came up with lightning speed and was ready to take off in November 1996.

Tata Share Registry, which handled share transfers for Tata group companies, had done a lot of groundwork on a paper-based share depository. R Chandrasekaran, MD, had even published a 'blueprint' for a share depository, with support from RR Nair, who headed the BSE's excellent research and statistics department at that time. Chandrasekaran had planned the depository for the Tata group. However, in the late- 1980s, the government came up with the idea of setting up a central depository, mainly for all the shares held by public sector institutions. As always, IDBI was to spearhead this effort and the Tatas were requested to permit Chandrasekaran to head it.

This was the Stock Holding Corporation of India Ltd (SHCIL) and everybody had assumed that it would, eventually, become India's central depository. Patil, while at IDBI, had a major role to play in this effort too. "Mr Nadkarni had asked me to set up SHCIL, when I was at IDBI. I myself signed the articles of association of SHCIL and remained on the board right up to 2001, when the Ketan Parekh scam happened," he had told us in an interview in 2007.

"The idea behind SHCIL was simple. Institutions like UTI, GIC, LIC their subsidiaries, etc, used to deposit their investments with banks, which were not giving them good service. And so, we came up with the idea of setting up a separate company to handle this work. IDBI had to fight hard to get approval for SHCIL. Stock holding was a very small idea in the whole economic system, but it had to go to the Cabinet for clearance. It showed how strong the government's control was over the financial system," recalled Patil.

Patil and Chandrasekaran did not see eye-to-eye on the project. Patil felt that Chandrasekaran's ideas were not practical, and that he was 'relying exclusively' on the United States Agency for International Development (USAID), which ran the Financial Institution Reform and Expansion (FIRE)

project and was a consultant to the depository venture. Patil wasn't impressed with the work they were doing. He also found their proposed cost excessively high. He said, Chandrasekaran had proposed a Rs600-crore (Rs6 billion) depository, while his own back-of- the-envelope calculation told him that it shouldn't require more than Rs50-60 crore (Rs500-600 million). So, when the time came for setting up a depository, NSE decided to go on its own and SHCIL remained a custodial agency for shares purchased by public sector institutions.

Although Patil felt that the depository could be set up with Rs50 crore (Rs500 million) equity and additional capital could be brought in later, SEBI was keen on a well-capitalised entity with a Rs300 crore capital (Rs3 billion) to keep out non-serious players. Ultimately, a compromise figure of Rs100 crore (Rs1 billion) was arrived at. "When we implemented the project, the final project cost was Rs50 crore, which was my initial estimate… Chandrasekaran lost out because he couldn't convince shareholders to put up so much of money," said Patil. Sadly, nobody remembers Chandrasekaran's sterling work and SHCIL turned into a very controversial organisation under a subsequent chairman and managing director, who were sacked and investigated. [31]

NSDL started with several advantages. As the executive director at SEBI, Bhave, NSDL's founding chief, literally wrote and steered the clearance of the NSDL statute with great support from Dr PJ Nayak, joint secretary at the finance ministry. In the early days, NSDL symbolised the success of professionally-run private entities (with public sector institutions as shareholders), in delivering key financial reforms. Like NSE, NSDL had its share of vested interests to fight. Here is a startling racket that NSDL discovered when it started operations. Those days, physical certificates had to be delivered along with the transfer form, affixed with revenue stamps, to the share transfer department of companies. Often, the stamps had to be pasted on separate sheets that were then attached to the transfer form.

The staff of the share transfer departments were quietly extracting the stamps and re-selling them to brokers. An

executive from a top firm was also caught selling these used revenue stamps and sacked. There was a massive and yet-unknown nationwide racket of fake and forged stamps and judicial paper that finally exploded in 2001 as the Rs3,000-crore (Rs30 billion) Telgi scam. Its unlikely mastermind was one Abdul Karim Telgi, [32] who started life as a small-time vegetable vendor and counterfeiter in Belgavi district of Karnataka. He was eventually sentenced to 30 years imprisonment and passed away in 2017.

Several top police officials, including a former police commissioner, were dragged into the investigation and jailed. In the 1990s, market insiders spoke of how revenue stamps used for share transfers had a coded hierarchy – No.1, 2, 3 and 4. Only those working with share transfers knew how it worked and this was a small portion of the bigger stamp racket. The No.1 stamps were the genuine ones, printed on security paper in government presses. No.2 were fake stamps, but printed on genuine security paper, stolen from the security presses (the Telgi investigation later revealed collusion with employees). No.3 were fake stamps on fake security paper. And No.4 were the worst of the lot – they were used stamps removed from transfer forms and recycled for a price. Nobody had a clue about how big the fake stamp racket was until 2001. Moving to paperless trading would wipe out the illegal stamp racket. This meant a loss of illegal gratification to share transfer department officials. Naturally, there was resistance and a variety of obstructions to prevent NSDL from succeeding.

Rolling Settlements

NSE started with a weekly settlement system and ensured that it was conducted with clockwork efficiency. A couple of days still got added for delivering the securities and cash, which meant that the entire process took 10 days. If prices fluctuated wildly in those 10 days, there was a risk that one of the parties could default. So, NSE introduced a rolling settlement, starting with a T+5 cycle, meaning that each day’s trades were settled five days thereafter. With rolling settlement, India entered the global league of more efficient markets. Once T+5 was successfully implemented, SEBI pushed for a T+3 settlement

cycle and even further shortening.

The T+3 settlement cycle was a triumph of operational efficiency for the regulator and exchanges, but tough on investors for several years. Internet communication, power supply, computerisation, electronic fund transfer and other market infrastructure, including the number of depository participants (DPs) were not well developed in April 2003, when SEBI ordered the move to a T+2 settlement system. SEBI chairman GN Bajpai [33] even pushed for a T+1 settlement, but dropped the idea when all intermediaries, including exchanges, resisted it and the banking system refused to budge. Bajpai's relentless push, however, forced RBI to introduce Real Time Gross Settlement (RTGS) to allow instant transfer of funds, putting India among the most developed capital markets of the world.

The DP network remained a serious bottleneck. NSDL had expected banks to be more enthusiastic about becoming DPs, but this did not happen fast enough. So sellers found it difficult to ensure proper delivery by reaching signed depository slips on time for the settlement. It led to dubious practices such as brokers asking investors to entrust them with a set of signed depository slips, which were often misused to dupe them. Signing a blank depository slip was no different from signing a blank cheque. When rampant misuse caused outrage, brokers came up with something even more dangerous for investors. They asked clients to sign a power of attorney (PoA), which allowed brokers to deliver shares from investors' demat account to meet the T+2 deadline. In practice, the PoAs gave brokers blanket power over investors' portfolios and led to horrific abuse of customer accounts. There were innumerable complaints about brokers speculating with investors' shares and inflicting huge losses on them. Shockingly, SEBI as well as NSDL refused to respond and investors were left to fend for themselves.

Patil acknowledged this situation in his conversation with us and said, "One is often tempted to ask what the investor has gained from shortening the settlement cycle, except providing an opportunity for some people to claim that India is ahead of even the developed countries in terms of shorter settlement

cycles." This was a response to SEBI's relentless push to shorten the trading cycle without understanding complexities on the ground or fixing problems that investors faced.

Badla and Derivatives Trading

"One source of opposition to all these changes – from dematerialisation to holding a settlement sacrosanct – was the so-called '*badla*' lobby," recalled Patil. This was a bunch of speculators at the BSE, who had a vested interest in perpetuating *vyaj badla* or the traditional carry-forward system, which was unique to Indian stock exchanges, mainly BSE. Investors, who had bought or sold certain scrips, which figured in the list of *badla* stocks (specified group), could carry them forward from one settlement to the next by paying a margin and carry-forward charge (*vyaj badla*).

The cost of carry-forward trade would be decided at a special 'badla' session to match buyers, sellers and financiers for each settlement. When the demand for finance was high, badla charges would shoot up. While the system served to generate volumes and ingeniously combined share lending, carry forward and financing all in one, it was grossly abused due to BSE's poor supervision. Patil recalled: "There was a lot of mischief happening because badla dealt with physical share certificates. Shares deposited with the badla financiers were being delivered by them into the market. They knew that once the depository is set up, badla would stop; at least the cream to be earned through badla funding would go away. So, when we proposed a rolling settlement, the badla lobby opposed it."

Finally, despite antagonism from a lobby of brokers and businessmen, SEBI banned badla in December 1993. Brokers went on a 10-day strike in protest and wanted the SEBI chairman sacked. GVR was finally removed as SEBI chief in January 1994 and was elevated to the Planning Commission. SS Nadkarni replaced him at SEBI, but continued the ban on badla, despite persistent lobbying to reintroduce it by brokers, politicians and a very large section of the business media. Nadkarni suddenly passed away on 31 January 1995 and DR Mehta, an IAS officer and then deputy governor at RBI, succeed him on 21 February 1995. Deeply sympathetic to BSE

and the brokers' lobby, Mehta announced that the badla ban would be reconsidered, within a day of becoming the SEBI chairman.

For this, Mehta appointed a committee headed by the late GS Patel, former chairman of UTI, which submitted a quick report on the revised carry-forward system (RCFS) in March 1995. Soon after, SEBI lifted the ban on *badla* after imposing some conditions. [34] But BSE, in the grip of fractious brokers, found it difficult to develop software that could ensure that SEBI's conditions were met. When it could not introduce the modified *badla* quickly enough, some large market players ("the more disciplined and professional-minded ardent supporters of *badla*," as Patil described them) felt that NSE would be more efficient in introducing the modified *badla*, given its proven capabilities in developing good software and approached Patil. But he chose not to do it.

"The main reason why we did not favour *badla* trading is that it is a hybrid product; a mix of the cash and the futures market. It muddies the price discovery process," said Patil. "It was my strong conviction that *badla* might have served some purpose in the past, when the government banned forward trading abruptly, but it had outlived its utility and needed to be phased out and replaced with futures and options trading," he recalled. So, NSE approached SEBI to launch index futures.

BSE implemented RCFS in January 1996; the Calcutta and Delhi stock exchanges did not. Meanwhile, NSE continued to innovate. In January 1997, NSE introduced an online risk monitoring system that tracked open trading positions in real-time, not just at the end of the day. Brokers who crossed their exposure limits were immediately and automatically logged out of the system. They were re-connected once they allowed NSE to close out their positions, reduce exposure, or brought in additional money as margins. This was a culture shock, especially for those who were also brokers at BSE and regularly used their influence to get the BSE governing board and administration to keep their trading positions open for as long as they wanted.

Meanwhile, BSE was not even happy with the revised

carry-forward system and wanted to go back to the old ways. In January 1997, the BSE president wrote to SEBI requesting a relaxation of certain aspects of the RCFS "to make it more practical and efficient." At a meeting on 27 March 1997, SEBI obliged by setting up a committee under Professor JR Varma of the Indian Institute of Management, Ahmedabad, to review RCFS. The committee presented its report on the modified carry- forward system (MCFS) in July 1997 proposing several relaxations; the report was accepted by SEBI in October 1997. MCFS reduced the margin requirement from 15% to 10%, raised the limit per broker to Rs20 crore (Rs200 million) and removed the Rs10 crore (Rs100 million) limit per badla financier.

The committee's report was not unanimous. Patil, a member of the Varma committee, wrote a three and a half page dissenting note. The concluding paragraph read, "All the major steps taken by SEBI, especially during the recent past, have been to strengthen the surveillance and margining mechanism. Because of these market friendly steps, it has been possible to prevent market disruption, despite periodic sudden surges in trading volumes or volatile market conditions. During these volatile periods, there have been some broker failures but the market integrity continues to be maintained. Before considering relaxation of any of the current margin or other requirements, which have all been put in place for protecting the market integrity, it may be worthwhile to carefully examine impact of these relaxations on the health of the market."

These words proved prophetic. In 1998, Harshad Mehta was back on the bourses rigging up stock prices exactly as he did in 1992. He had arrangements with the management of three companies – BPL, Videocon and Sterlite – to ramp up their share prices. Despite being a convicted scamster, Harshad was now invited to write columns by several newspapers that were convinced it would send circulation figures soaring. Harshad's columns dispensed investment wisdom and plugged the greatness of stocks he was ramping up. *The Times of India* also planned to introduce Harshad

Mehta's column in the very paper that broke the scam story. Sucheta brought it to the attention of HK Dua, who was then editorial adviser to the group. She went on a month's leave to look for alternatives and quit the paper. Dua was shocked and managed to convince chairman Ashok Jain that the column would seriously dent the paper's credibility. His advice was reluctantly accepted and the storm blew over. But Dua left the paper soon thereafter and also advised Sucheta that she would do well to look for a change, since her days at the paper were clearly numbered. He was right. But the issue of Harshad Mehta turning into an expert columnist went to the Press Council of India on a complaint filed by consumer activist Manubhai Shah. [35] *The Times of India* group defended its action on the ground that Harshad Mehta's expertise as a trader was of interest to readers. The Press Council ruled against the attempt to convert him into a credible commentator.

Harshad's positioning as a market-guru and columnist was supposed to help him ramp up shares through a vast network of investment entities (a SEBI investigation, referred to them as the Damayanti group). In a few short months, Harshad had pushed BPL, Videocon and Sterlite to astronomical heights. With the media lending him credibility, there was a carefully orchestrated buzz that his old magic was back. From around Rs70 in late-December 1997, he had pushed the stock price of BPL to Rs449 in early-May 1998. Videocon soared from around Rs10 to Rs44, while Sterlite, Anil Agarwal's flagship company, doubled in these six months. BSE's poor supervision and the fact that its governing board members were part of Harshad's close coterie, led to a raft of speculators jumping in to build huge and unsustainable positions in the three stocks.

On 11 May 1998, India declared itself a nuclear power after the success of the Pokhran tests. This led to global condemnation and sanctions against India. Suddenly, we were a pariah nation and this led to a sharp fall in stock prices as FIIs sold heavily. Panicky domestic investors added to the selling pressure. The Sensex, which quoted above 4300 in late-April, collapsed and dropped below 3000 by mid-June

1998. The Russian financial crisis depressed the market further in August and September.

As the market collapsed, Harshad's bubble burst and a set of brokers close to him was unable to pay for their purchases, mainly in BPL, Sterlite, Videocon and Pentafour Software. After two days of intense negotiations to save face and arrange a bailout by friendly financiers, BSE brashly announced that was no crisis and that they did not have a single broker default. The explanation was then accepted at face value. But soon news leaked about how this was achieved and SEBI launched an investigation. LK Singhvi, a revenue service officer who had also served with the enforcement directorate, led this investigation. The investigation was tough because, by then, senior SEBI officers were upset at the embarrassment caused by the long rope that Mehta had given the BSE.

SEBI came up with shocking evidence that RC Mathur, then BSE's executive director, had permitted the trading system to be illegally opened on three separate occasions to allow brokers to insert transactions in BPL, Videocon and Sterlite shares at prices that were well above the day's closing price. This was done to bail out certain brokers on the basis of a negotiation conducted by governing board members. The official who was asked to reopen the trading system refused to obey oral instructions, forcing Mathur to issue written orders, [36] which created a clear trail for investigators.

SEBI's findings exposed the extent to which powerful brokers would manipulate the system and showed that the BSE had learnt no lessons at all, despite losing out to NSE in trading volumes. Tampering with the BOLT trading system is like a bank permitting its computer systems to be misused to move money between various accounts. It vitiates the integrity of the system and makes a mockery of market regulation. The tampering was done because BSE did not want to admit a crisis and to protect Harshad and his cronies on the governing board.

Three broker directors of BSE, including Rajendra Bhantia (BSE's vice-president), orchestrated the entire price negotiations and illegal action to hush up the June 1998

payment crisis. All three were present when the tampering of the trading system was ordered and executed. BSE executive director Mathur later alleged that he was forced to accept shares in lieu of cash margins by the president and vice-president. SEBI's investigation also revealed that Bhantia's firm was directly involved in price-rigging. Mathur himself had bought the three scrips from brokers involved in the price-rigging. SEBI's investigation [37] traced the links of the 18-odd brokers to Harshad Mehta.

Another SEBI inspection, through Aneja Associates, revealed a shocking mess in the BSE clearinghouse, which had led to the build-up of a huge backlog of deliveries. In the *badla* system, shares were not delivered to the financer who financed the trade but were kept with the clearinghouse of the exchange. In this case, Harshad Mehta and his associates illegally took out *badla* shares from the clearinghouse and re-introduced them into the market. Ironically, in one of his articles, Harshad had ranted about *badla* being a form of financial terrorism because it helps the pessimists (bears) and punishes the optimists (bulls). His suggestion was that we should move to futures & options, when essentially his whole game was to exploit the administrative and regulatory loopholes in the system.

When SEBI ordered punitive action against BSE's top brass, the broker community was miffed. They had come to expect unstinted support from the then SEBI chairman, DR Mehta. The impact of excessive speculation and poor supervision of the BSE was in sharp contrast to the professionally-managed NSE. While NSE brokers also indulged in excessive speculation, the Exchange ruthlessly declared six brokers as defaulters within days of the crisis. Its losses were Rs27 crore (Rs270 million) as against the trade guarantee money of over Rs400 crore (Rs4 billion) available with the Exchange, demonstrating the robustness of its risk-management system.

NSE, which decided not to introduce badla, had repeatedly pointed out that rampant price-rigging in one exchange would always impact the other, by creating huge arbitrage opportunities. Patil's stance and foresight were vindicated. "I

was clear right from day one, that India should graduate into the globally accepted and most efficient form of futures trading, viz., options and futures; hence, at that time, our efforts were, concentrated on getting SEBI approval for these products," he said. NSE had started talking about derivatives, as the way forward within two years of starting its operations, in 1996. The BSE clung on to its age-old and flawed badla system, with a lot of support from the media.

Meanwhile, NSE introduced its own carry-forward product called Automated Lending & Borrowing Mechanism (ALBM) in February 1999. Under ALBM, buyers could either borrow money to fund their purchases or sellers could deliver shares by borrowing them through the NSE Clearing Limited (NCL). ALBM was off to a slow start. Its turnover was negligible. In December 1999, NCL modified the ALBM scheme. Turnover jumped from Rs10 crore (Rs100 million) in March 2000 to Rs700 crore (Rs7 billion) in April 2000, as the market caught on to the idea. Interestingly, ALBM was launched without SEBI's nod; NSE would repeat this more than a decade later by starting HFT without proper regulatory approval. After NSE had already launched ALBM in 1999, a SEBI committee was formed in July 2000, again under the chairmanship of Prof JR Varma, to ratify it. ALBM came under a cloud after the 2001 scam and was eventually scrapped.

In late-2000, Patil retired from day-to-day running of the NSE and became the chairman. He moved on to set up another unique and path-breaking institution called the Clearing Corporation of India (CCIL), which was also his brainchild [38] and transformed trading in the government securities market. Patil was a rare professional who had turned down an offer to be chairman of SEBI, although the government was willing to change the rules to give him a term beyond 62 years. To understand the significance of his decision, one only needs to understand the obscene lobbying that goes on, even for the post of full-time board member or deputation to senior positions at SEBI, not to speak of the chairman's post.

When Patil planned to step down, NSE was already a roaring success story and the powerful post of MD was coveted by many politically connected persons. But Ravi

worked with Patil to manage a coup of sorts by getting the board of directors to clear his appointment long before Patil's plan to step down became public and the political lobbying for the post picked up momentum. There was still a huge fracas over Ravi's appointment with a nasty letter making its way to finance minister Yashwant Sinha, in an attempt to have him shunted out. But Ravi had powerful supporters in Delhi who quickly quelled the campaign.

Ravi was a quiet, low-profile, anxious looking person, often under stress of work. But behind a nerdy façade was a shrewd mind, a powerful networker who was constantly evaluating and manipulating people to benefit himself and NSE. When he took over NSE in 2000, he immediately faced a storm. Another stock market boom, bust and scam surfaced, which was fanned partly by NSE's own modified ALBM scheme. This could have been a big setback for NSE but it turned lucky. Let's look at this story next.

5.

First Signs: The ALBM Fiasco

Finance Minister Yashwant Sinha announces a great Union Budget but the stock market collapses. The biggest market operator goes bust and is put behind bars by the Central Bureau of Investigation (CBI) for questioning. There is a run on a cooperative bank. Some junk stocks that had run up 10-15 times crash to 5%-10% of their peak value. Brokers go bust. Preliminary investigations unravel a scheme of parking stocks and price rigging in a nexus between banks, brokers, stock operators, mutual funds and companies. The broker- members of the BSE governing board, including the president are deeply mired in controversy. The regulators are found to be sleeping. A Joint Parliamentary Committee is appointed to probe all this. No, we are not talking of Scam 1992. We are talking of Scam 2001.

The above quotation is from our book [39] *The Scam: From Harshad Mehta to Ketan Parek h* , which described the two major stock market scams of 1992 and 2001. We wrote: “In a remarkable repetition of history, exactly nine years after Harshad Mehta’s over-trading split apart the creaky Indian equities and debt market, the Indian stock market and its mammoth, nationwide trading system was brought to the brink of disaster in March-April 2001. At the centre was Ketan Parekh, a quiet, one-time buddy of the voluble Harshad.”

Throughout 1999 and early-2000, India was in the grip of a strong bull market, mainly driven by stellar profits of software companies. Blue- chip stocks, like Infosys and Wipro, started to quote at astronomical valuations and, in their wake, the stocks of many shady pretenders like Global Telesystems, Himachal Futuristic (HFCL), DSQ Software and Software Solutions International (SSI) were on a parabolic rise. The BSE Sensex rose from around 3000 at the end of 1998 to over

5000 by December 1999 and then, in a final frenzied leap to 6150 in February 2000, a 100% rise in just over a year.

Then came the bust. In three months, the Sensex plummeted to a low of 3831 in May 2000, a crash of 40%, and further down to 3491 in October, as 'dotcom' shares collapsed in the US. Rigged-up stocks of companies like HFCL plummeted 70-80% but there was still no hint of a scam. At the beginning of January 2001, the Sensex again rose to 4000. This classic bear market rally peaked at 4462 on 16 February 2001 before declining on the eve of the Budget. Yashwant Sinha's Budget drove the index up 177 points on 28th February but the rally did not last more than a few days. On 2nd March, talk of a possible payment crisis involving Ketan, and weak global markets, pulled the Sensex down by 176 points. The next day, SEBI launched a probe against a bear cartel suspected of price manipulation and announced a set of measures to curb market volatility, but still tried to assure people that there was no payment crisis. It made no difference to the negative sentiment.

On 7th March, SEBI banned short sales and, on 8th March, BSE president Anand Rathi resigned over allegations that he had sought sensitive information about the market positions of top brokers from the surveillance department. Ketan miraculously managed to clear his dues to BSE in that settlement, but this turned out to be a whitewash because he had huge speculative positions in other exchanges and his illegal access to bank funds was still to surface. Over the next few days, depositors of Madhavapura Mercantile Cooperative Bank in Gujarat rushed to withdraw their deposits on rumours that the Bank was unable to recover money from Ketan Parekh. On 13th March, Madhavpura closed down all its branches, unable meet the pressure of cash withdrawals. On 12th March, SEBI sacked the entire governing board of BSE.

Another crisis was brewing at the Calcutta Stock Exchange and SEBI had launched a probe. Meanwhile, *Tehelka*, a new publication, funded by Shankar Sharma, an aggressive stock market operator, and others did a sting operation on defence deals, which led to a political crisis and a swing of 900 points

intra-day and a crash by 227 points at the end of the day. By 12th April, the Sensex had slumped to 3120, a 30% crash in just two months from the pre-Budget peak of 4462. This led to a heated debate in Parliament over rampant market manipulation with the demand for a Joint Parliamentary Committee (JPC), which was soon set up. Yashwant Sinha's Budget was, indeed, a very good one and he had every reason to be proud of it; but the scam spoiled things for him and the government, while also exposing fault lines in the regulatory system and havoc that can be caused by broker-run exchanges.

A team of brokers, who had wangled a meeting with finance minister Sinha to lobby their case, said he refused to even look at them during the interaction. But BSE was not the only one in trouble. NSE's Automated Lending & Borrowing Mechanism (ALBM), a faulty carry-forward system, had also contributed to the collapse. Remember, SEBI chairman DR Mehta and board member JR Varma had restarted badla with diluted restrictions. This alone was responsible for unbridled speculation on the BSE and CSE during the dotcom boom. SEBI was eventually forced to announce a ban on badla in May 2001 and introduce rolling settlements.

NSE's ALBM Fiasco

The JPC exposed the first chinks in NSE's armour over ALBM. It started out as a different product from *badla* but, in April 2000, as the market got overheated, it quietly merged the cash and carry-forward segments to avoid a payment crisis, says an NSE insider. That is the point at which ALBM turned into *badla* with a new name. This merging of cash and carry forward was done without the approval of or informing SEBI and remains one of the best-kept secrets of the 2001 scam, says this insider. The JPC grilled NSE over ALBM, the sudden withdrawal of funds and the fact that a big chunk (39%) of it was from the Reliance group alone. How did NSE come to be embroiled in this mess? Let's look at the ALBM story more closely.

ALBM was introduced by the NSE Clearing Ltd (NCL) [40] and NSE in February 1999, when Patil was at the helm, but it didn't take off. NCL then proposed changes to ALBM in a

letter to SEBI on 26 October 1999. This modified scheme was made operational after two months. SEBI found that the modified scheme was not a pure stock lending scheme but a hybrid product, incorporating features of both stock lending and deferral of carry-forward positions. Shockingly, it did not have risk management measures, which are normally associated with deferral products such as the BSE's MCFS or even the modified *badla* mechanism. The main concerns about deferral products have been: (a) possibility of the ballooning of positions; (b) potential misuse of borrowed securities by selling them on other markets to depress prices; and (c) selection of appropriate securities.

NSE wanted to steal a march over BSE with its own version of badla,with even more diluted standards. When BSE executives looked at the scheme, they were appalled and drew SEBI's attention to it. The regulator constituted a group under Prof JR Varma, in May 2000. One of its terms of reference was to determine whether NSE's modified ALBM confirmed to the Stock Lending Scheme of 1997. The group submitted its report in July 2000, but indicated that this crucial issue would be dealt with in Part II of the report. Stunningly, Part II of the report was not submitted even after the JPC hearings had begun. [41]

Let's recount the legal status of ALBM. The introduction of a deferral product requires prior approval of SEBI. Although the modified ALBM had the features of a deferral product, NSE introduced it in December 1999 ***without the regulator's approval.*** The approval came 10 months after its launch – in October 2000. (NSE took similar liberties with the regulator when it launched HFT in 2010.) So, wasn't the modified ALBM illegal during the intervening period from December 1999 to September 2000? The JPC report bluntly said, "Though NSE had filed revised scheme with SEBI in October 1999 and operationalised it in December 1999, i.e., after two months, SEBI did not consider the proposal for revision" even though the carry-forward character of the revised scheme had become known to them in early January 2000.

The JPC went on to say, "(SEBI) also did not think fit to stop the operation of the Modified Scheme even after realizing

that the modification involved great risk to the investors. The apparent lack of risk management measures in the revised ALBM should have led SEBI to take immediate corrective measures. It took seven months for SEBI to decide that the issue needed to be examined by an expert group… on the basis of (group's) recommendations, SEBI prescribed some risk containment measures but adequate risk management measures were still not put in place till October 2000, when it finally accorded its approval to revised ALBM scheme."

Noting the 'inordinate delay' in taking action by SEBI on the modified ALBM, JPC suggested that "the matter be investigated by the Finance Ministry and responsibility of those in the SEBI and the NSE be fixed." Well, even the risk containment measures prescribed by SEBI were not complete. SEBI permitted withdrawal of securities under ALBM, even though the GS Patel committee, which went into the issue of re- introduction of *badla* in 1995, had recommended that no withdrawal of securities should be permitted under the deferral scheme. Were these the first signs of regulatory capture? Or was the regulator in awe of an exchange that recorded an annual growth rate of 86% from 1995-96 to 2000-01? [42] The fact is that SEBI rescinded the provision for withdrawal of shares from the clearinghouse under the ALBM only in February 2001.

While NSE launched ALBM to beat BSE's *badla* and succeeded, just one player dominated the entire system of *badla* across both the exchanges: a Reliance group company, Reliance Shares and Stock Brokers (RSSB), which was almost exclusively investing money on behalf of its client Reliance Petroleum, accounting for 96% of the total RSSB trades. In February 2001, the amount invested was Rs1,900 crore (Rs19 billion). Smelling trouble with pay-in at BSE and CSE, RSSB withdrew its funds completely by 7 March 2001. Liquidity is oxygen for the market. When Reliance withdrew the money, positions had to be squared up, adding to pay-in problems leading to a market crash.

Between April 2000 and March 2001, the turnover in the normal segment at NSE was around Rs12,50,000 crore (Rs12,500 billion), while ALBM turnover was around

Rs85,000 crore (Rs850 billion), or 6.8% of the total turnover. In ALBM, borrowers of securities could deposit the collateral with NCL or could withdraw the shares subject to margins. Under BSE's MCFS, shares against *vyaj badla* were to be kept deposited with the clearinghouse. The argument for allowing withdrawal of securities under ALBM was that a member could possibly be using it to borrow securities to meet obligations outside the NSE/NCL system; hence, it was not feasible to mandate that all financiers' shares should be compulsorily deposited with the clearing corporation.

This was a big loophole. There were allegations that ALBM was misused by withdrawing securities against pure borrowing transactions. So JPC asked SEBI to examine the ALBM data. Since RSSB's funds constituted 39% of the total ALBM volume and its funding comprised 65% of the pure borrowing transactions in ALBM between October 2000 and March 2001, SEBI restricted its examination to transactions of RSSB and Reliance Petroleum Ltd.

Until October 2000, there was no way to identify pure borrowing transactions and retention of shares received as collateral with NCL and brokers could withdraw shares from the clearing corporation. So, even though shares were received as collateral against RSSB's borrowing, they remained in the beneficiary account of its client, Reliance Petroleum, until they were returned to the broker. From October 2000 to March 2001, RSSB had more purchases than sales and its transactions were sharply down. So, SEBI concluded that the ALBM facility was not misused. In February 2001, the option for withdrawal of shares from the clearing corporation was cancelled.

Ketan Parekh, in his deposition, told the JPC that withdrawal of large funds affected the market. "Supposing Rs2000 crore was withdrawn in a span of ten days in February-March 2001, it is inevitable that the bulls had to either liquidate their positions or take delivery," he said. The powerful Reliance Petroleum had explained its withdrawal of funds from ALBM saying its peak investment of Rs1,600 crore (Rs16 billion) was reduced to zero because of lower interest yields, business requirements and allegations about

payment problems having increased market volatility. [43]

The JPC asked that if a player could distort the market by pumping in or withdrawing funds from ALBM, would it not amount to market manipulation? The SEBI chairman replied defensively: “It is very difficult to say that at this stage.” His view was that a registered entity was entitled to withdraw money if the activity was legal, unless done with a malafide intention. A senior SEBI executive admitted to the JPC that the “financing aspect of ALBM was left out in the risk management system.” He mentioned in this context that “one of the problems that had plagued the Indian markets was the non-availability of transparent, regulated, organised sources of funding through the banking system” and that it was to “fill this void, the need for carry forward schemes and ALBM had arisen.”

NSE got away without a scratch for launching a product that had no clear legal sanction, which had led to market instability on withdrawal of funds. Its failure to seek permission was justified through legal opinions. However, action had to be taken and SEBI discontinued ALBM and other deferral products from 2 July 2001. The JPC found it ‘appalling’ that SEBI did not realise ALBM’s role in the market crash nor did it initiate any investigation after the crash. When asked why, Mehta replied that NCL “was the one body which we left out.” The report asked SEBI to be more alert in the performance of its functions after noting that it was only at its instance that the regulator had investigated ALBM and “came out with a revealing report after persistent and probing questioning.”

The JPC blamed SEBI for “lack of vigilance which allowed the withdrawal of Rs1,900 crores from the (NSE’s) ALBM mechanism in two weeks,” leading to a market crash. The Committee admonished NSE and asked it ‘to exercise due care’ and observe ‘due process’ before introducing or modifying a scheme. ALBM was the first black spot in NSE’s unblemished record, until then. It would not be the last.

JPC’s strictures notwithstanding, NSE got off lightly in this episode because the entire system did not want to damage an

exchange that had done so well and set new standards in market efficiency and safety. This was achieved through a lot of back-channel negotiations. There have always been plenty of rumours about how both SEBI and NSE agreed to let senior officials quit as the price to be paid for going soft on them, without putting anything on record. Another reason why the ALBM issue was buried is that the Reliance group was as much at the centre of this controversy and its clout is well known. Its key executives worked overtime to dilute the issue; hence, there are strictures in the JPC report without any serious punitive action. This is also true of how JPC dealt with several corporate houses that were deeply involved with Ketan Parekh's price manipulation.

According to market circles, NSE's role in ALBM was quietly buried with Raghavan Putran, [44] head of NCL and a well-liked member of the founding team taking the fall for the Exchange. Sometime after the JPC hearings, he suddenly quit to join the Yogananda ashram in Kolkata to follow the spiritual path. But he remained a consultant with the Exchange for the next two decades, flying down to Mumbai every other week. Even as a consultant, Raghavan was the low-profile, go- to man for the founding team and senior executives, until his role and stature were diminished during Chitra Ramkrishna's tenure as NSE's MD. According to the market grapevine, an executive director who remains closely connected with SEBI also had to quit for failure to notice the machinations at the CSE; this too was projected as a normal exit. Raghavan strongly denies that his leaving NSE has anything to do with the JPC investigations, but the rumours refuse to go away.

In contrast, BSE was harshly indicted by the JPC for the conduct of its governing board and management. Although this was well-deserved, one BSE insider says, "If you look at the overall problem, there was a larger issue at the NSE." He insists that, in April 2000, NSE had kicked the can down the road, when it merged the cash and derivatives segments, to avoid a default; consequently, the problem only got bigger. These were the first signs of compromise in an organisation that was, until then, justifiably proud of its systems and ethics. Such compromises would grow with NSE's capture of the

regulatory system to protect its turf.

Having put ALBM behind it, NSE under Ravi continued to grow bigger and stronger every year. Ravi's key strength was cultivating good relationships with finance ministry officials. The fact that his father was an economist and a close friend of Manmohan Singh and that Ravi himself had worked with Montek Singh Ahluwalia, was naturally a big help. Ravi's nervous demeanour went well with his suspicious and circumspect persona but he was skilled at networking and cultivating powerful allies and connections. Ravi was careful never to drop names or even let on that he had access or a personal equation with two of the most powerful people in the world of finance those days. But he exploited these links to the hilt for NSE's growth. Unhindered by competition and buoyed by a booming capital market, NSE expanded rapidly in multiple directions, flourishing controversially under P Chidambaram, who became the finance minister in 2004, and later under CB Bhave as the SEBI chief.

6.

A New Regime

On 30 October 2004, NSE celebrated its 10th anniversary. To the knowledgeable, the event said a lot about how things were changing under the new dispensation, led by Ravi. By now, NSE was the 3rd largest exchange in the world and had moved into its own corner building at the newly developed Bandra-Kurla Complex (BKC). A sweeping road that cut through BKC led to the imposing corporate head offices of India's biggest banks and financial institutions with their high and glittering glass façades. To the left, was the turgid Mithi river with sprawling slums on its banks. NSE had the corner plot on a back-lane, leading the way to ICICI Bank and the now discredited Infrastructure Leasing & Financial Services. SEBI Bhavan, which is almost across the road from NSE, was still coming up.

Finance minister P Chidambaram was the chief guest at its anniversary event at the Grand Hyatt nearby, where the cream of Mumbai's financial world had gathered at an imposing banquet hall, along with NSE officials. Ravi seemed all aflutter over handling his first major public event after taking over as MD. Chitra was the master of ceremonies, ensuring that the duo was fully in control of the scripted event. Dr Patil, NSE's chief architect, who had stepped down as MD in 2001, was in the front row. He found no mention in the speeches by his two protégées Ravi and Chitra, who were basking in NSE's unalloyed success at its 10-year milestone. At the lunch that followed, the self-effacing Patil was not even at the high table with the FM. Debashis shared a table with him along with CB Bhave, then MD of NSDL and a couple of bankers.

There were whispers among the audience, especially NSE officials, about the failure to acknowledge Dr Patil's contribution. After the programme, when a few of us decided to chat over coffee, Ravi rushed off saying that he needed to speak to the staff and apologise for the 'blunder' of having forgotten to acknowledge Patil in the entire ceremony. Was such an 'oversight' possible in a scripted speech to mark a

major milestone? Or was it an early signal of the new thinking at NSE? Typically, Patil did not take the incident to heart. He remained on NSE's board till his premature death from cancer on 12 April 2012.

NSE's annual report for FY11-12, after Patil's death said, "The board regrets to report the sad demise of Patil, a member of the board and former managing director of NSE and consequent cessation as director… The board wishes to place on record its sincere appreciation and gratitude for his valuable contribution made during the tenure as director." There was no mention of his pioneering role. Later, NSE instituted the RH Patil Memorial Lecture, but kept it a very low-key event, often squeezed into some conference sponsored by NSE. It was only in 2018, that Vikram Limaye, the new MD, upgraded it into a high-profile event, inviting three Nobel Laureates in succession – Robert Merton, Robert Engle and Eugene Fama – to deliver the memorial lecture.

Ravi moved aggressively to consolidate the Exchange's lead over BSE and turn it into a near-monopoly. In June 2000, BSE had beaten NSE by a day in the race to introduce futures, but didn't make much headway after that. The Exchange had lost valuable time lobbying for the continuance of *badl a* , which was decisively buried after the Ketan Parekh scam. The winner-take-all principle applies in markets and NSE worked at it by strengthening systems and running awareness programmes. It also introduced trading in index options (June 2001), trading in options on individual stocks (July 2001) and trading in individual stock futures (November 2001) in quick succession. Over time, this took NSE to the global league.

Patil was completely against introducing individual stock futures. He wrote in 2006: "The original plan of bringing futures to the country in place of *badla* was to introduce index futures, index options and stock options. The SEBI committee that went into the issue of equity-based futures was not in favour of individual stock futures, which are currently being traded on the NSE. In fact, all over the world, the widely accepted futures products are index futures, index options and stock options. In most countries, where equity futures are traded, individual stock futures either do not find any place, or

even if they are grudgingly allowed, not much trade takes place in them. Most market players either do not find individual stock futures useful or, consider them highly risky." [45] He believed that individual stock futures had been introduced in a hurry despite the 'obvious risks' that they posed 'to the safety and integrity' of the Indian capital market. But "all those who had mourned the death of *badla* are very happy that a similar product is now available for them to play their games," he wrote.

Patil's position was simple: Derivatives help investors to hedge against risk. The stock price of a company reflects the influence of two factors: performance of the company and the state of the market (bearish or bullish conditions). Investors want to guard against this second risk. They can use index futures to do so; stock futures are not needed. What if an investor wanted to make a speculative bet in a specific stock? "He may as well buy options in such stocks. In fact, stock options are safest for an individual since his upside risk in buying an option is limited to the extent of the premium paid for buying stock options ," he wrote. [46] Futures in individual stocks are considered risky because they can be easily manipulated. His article explained that a trader in individual stock futures has to pay only the margin amount and not the full value of the contract, so leveraging becomes easy. A large group of speculators acting in concert would find it easy to manipulate the market price for a fairly small sum of money.

His fears were borne out two decades later in the glaring market manipulation of scrips like Infibeam, PC Jewellers and Vakrangee, which were rigged by speculators with the help of institutional investors. What Patil wouldn't have envisaged was that NSE itself aids such manipulation by introducing very questionable scrips in the futures & options segment. This needs a separate discussion. It is harder to manipulate index futures, which reflect the movement of a set of large companies. Perhaps the new NSE management was shrewd enough to understand how stock futures would boost its bottom-line. NSE's profit has rocketed since 2001 when derivatives were introduced and they account for 90% of trading on the market. But even as NSE racked up massive

daily turnovers, the market complexion did not change fundamentally. An answer to a question in parliament [47] in August 2010 revealed that nearly 20 years after India embarked on financial liberalisation accompanied by a boom in stock investing, the Indian stock markets remained narrow, shallow, illiquid and concentrated in the hands of a few individuals in key centres.

Sardar Sukhdev Singh Dhindsa, a Rajya Sabha MP, asked for the number of clients and PAN identities of those who actively traded in NSE and contribute to 50%, 60%, 70%, 80% and 90% of total trading turnover on an average, on a daily basis in the cash equity market and in the equity futures & options segment. He sought data for three months from April to June 2010. The answer was startling. The minister of state for finance, Namo Narain Meena, replied that only 30.90 lakh (3.09 million) investors traded on the NSE's cash market in those three months. Of these, 52% were retail, high net-worth individuals (HNIs) and corporate customers. Institutional investors and proprietary traders accounted for 48% of all trading (24% each). Also, 50% of trading came from a shockingly low 451 investors, of which 156 were proprietary traders! Mind you, this data is for a three-month period and not one single day.

By then, the derivatives segment was seven times larger than the cash segment and was the main source of NSE's profit, high valuation and the fat salaries of its top management. So, one would have expected many more participants in the derivatives segment; but those numbers were just as skewed. Only 575,000 participants traded in derivatives in the three-month period. Of these, 97% accounted for only 10% of total trading, while 3% of participants accounted for 90%. Sliced further, the data showed that 50% of NSE's massive derivatives turnover came from just 106 investors, of whom 58 were proprietary traders!

The D Swarup committee report of 2009 said that India had 80 lakh investors (8 million) who invested in debt and equity markets, either directly or through mutual funds and market-linked insurance plans. [48] This official figure represented a

sharp decline from the two crore (20 million) investor population, claimed in an investor survey commissioned by SEBI in the 1990s. In fact, India's investor population, even in 2020, was estimated at just 2% of the population or about 28 million, including mutual fund investors. So, while NSE succeeded in creating large trading volumes, it hadn't deepened and widened the market.

Following its success with index and stock options, and futures, NSE became keener on launching new revenue-boosting speculative products. However, most of them, such as volatility futures, international futures and interest-rate futures had bombed. Also, it began to operate like a private fief while continuing to lobby policy-makers in Delhi, projecting itself as a *sarkari* (government-owned) exchange. What was once a pejorative epithet now worked to its advantage. Many officials were sent on deputation to NSE to understand how capital markets functioned and they turned into strong allies later. Many bureaucrats actually believed that NSE was a government institution, while BSE, even after demutualisation, was seen as a broker-run entity. This may have been part of a deliberate strategy, similar to the one followed by Ravi Parthasarathy of the failed IL&FS.

In fact, from 2007, NSE's ownership structure was undergoing a quiet change, [49] as its original founders – cash-strapped government institutions and banks – cashed out with major gains, often reducing the government's burden of recapitalising them through the exchequer. This also won major brownie points for NSE with the finance ministry. In 2007, the New York Stock Exchange (NYSE), Goldman Sachs, General Atlantic and Softbank Asian Infrastructure Fund acquired a 5% stake each in a deal valued at Rs2,070 crore (Rs20.70 billion) from a consortium of sellers that included ICICI Bank, IFCI, IL&FS, Punjab National Bank and General Insurance Corporation of India. There was an official announcement about this from NSE, but no further dilutions were made public, even as valuations soared and newer investors came in. In 2010, NYSE sold its stake to Temasek Holdings, controlled by the government of Singapore. NSE's website [50] provides an annual list of shareholders under broad

categories only from 2012.

On 15 July 2008, it disclosed that the number of shareholders had jumped from 27 to 47 with the entry of several Indian and foreign shareholders and certain individuals. This list is intriguing. The allocation to Goldman Sachs and NYSE had set valuation benchmarks and boosted NSE's image. The new shareholders included well-known names like S Gopalakrishnan, Azim Premji of Wipro and M3 Investment Private Limited (of the Bilakhias who once owned Hindustan Inks). Other shareholders included: Reliance Strategic Investments, Kampani Finance Limited, Ratna Commercial Enterprises Pvt Limited (a company owned by the Burmans of Dabur), Rambhaben Ukabhai Tanti (mother of Suzlon's Tulsi Tanti) and Autometers Systems Limited, a UK-based company. Another intriguing name was Prithviraj S Kothari the MD of Riddhi Siddhi Bullion Ltd. How NSE, as a first-line regulator and market infrastructure institution, could induct so many new private shareholders with potential conflict of interest is another mystery about this secretive organisation.

The new investors needed to meet the 'fit and proper' criteria specified by the regulator; there is also an overall cap of 49% on total foreign investment in stock exchanges. However, SEBI never raised 'fit and proper' as an issue until BSE planned its listing and later, in the controversy over Jignesh Shah at MCX-SX. Over the years, NSE has fought hard to avoid listing its shares to the point of blocking listing attempts by other exchanges as well. At the same time, it kept providing quiet and profitable exits to institutions seeking to disinvest their holding. But some large investors had begun to get restive and vociferously demanded an exit through listing.

In 2005, M Damodaran was chosen SEBI chairman. He was the non- executive chairman of NSE, NSDL and IL&FS, the three organisations that IDBI had promoted or held significant stakes in. Before moving to SEBI, Damodaran was to hand over charge at IDBI to one of the senior-most executives, who would also have ended up chairing these organisations like him. So he asked the MDs of all three organisations if they wanted to be appointed executive chairman and he would help

facilitate it. CB Bhave at NSDL and Ravi Parthasarathy at IL&FS accepted the offer but Ravi Narain turned it down.

Ravi had once told us that he preferred to have a non-executive chairman, who could act as a sort of shield when it came to difficult government meetings, political pressure on behalf of recalcitrant market intermediaries or manipulative but powerful corporate houses. NSE had a string of carefully chosen chairmen who were high profile, but did not interfere and were quietly supportive. After 2010, the Exchange had powerful former finance ministry bureaucrats such as Dr Vijay Kelkar and, later, Ashok Chawla, as chairmen. This structure allowed Ravi to maintain a low profile. He rarely gave interviews, although he made it a point to be very friendly with select journalists. In hindsight, what happened on the 10th anniversary event of NSE was telling. It was a glimpse of how NSE would evolve over the next 10 years.

7.

The Cult of Secrecy

Raj Kumari Agrawal's late husband was a member of the Jaipur Stock Exchange (JSE). After he passed away, she demanded the release of various deposits lying with the JSE but the exchange ignored her. So she filed an application under the Right to Information Act, 2005 (RTI) in September 2006 seeking information such as daily progress report of various letters written by her about her money lying with the exchange, along with copies of all notes, remarks, communications, comments, recommendations and decisions of the exchange.

Agrawal assumed that JSE was under the ambit of the RTI Act, India's landmark law that forces government organisations and public authorities to be transparent. RTI has empowered ordinary people, who are usually pushed around by government officials, to receive information from government files (subject to a few exclusions) on payment of a small fee or photocopying charges, where applicable. The Act covers government organisations as well all "authorities, bodies or institutions of self-government established or constituted by or under the Constitution" or by any other law made by parliament, state legislature, or if notified by appropriate government.

When the JSE ignored Agrawal's queries, she filed a first appeal and finally approached the central information commission (CIC) when her appeals were turned down. Meanwhile, K Lal had filed an appeal against NSE, which declined to respond saying that the Act did not apply to it. A third appeal was filed by Yogesh Mehta, who said that the Bombay Stock Exchange (BSE) should come under the RTI Act. The finance ministry had also referred an application by AR Bajaj that the Delhi Stock Exchange (DSE) should be under the RTI Act.

Since there were differing views and multiple orders on

this issue, CIC decided to put the matter before its full bench. In Bajaj's case, the appellate authority at the DSE had rejected his application on the following grounds:

- DSE was neither established nor constituted by or under the Constitution, or by any law made by parliament or state legislature.
- Stock exchanges have not been established or constituted by a notification issued or order made by the appropriate government and, as such, they are not a public authority.
- DSE is not owned or substantially financed by the government directly or indirectly.
- The control, if any, by the government on a stock exchange including DSE is only a regulatory control like the government exercising regulatory authority over an incorporated company under the Companies Act, 1956.

NSE's advocate used similar arguments in its defence before the full bench of the CIC. He also argued that NSE is a public limited company under the Companies Act, 1956, like any other. If NSE is held as a public authority, then all industrial undertakings, companies and SEBI-registered intermediaries like stockbrokers, mutual funds, etc, would probably come within the purview of the RTI Act. He further argued that even the notification of exchanges under the Securities Contracts (Regulation) Act, 1956 (SCRA) would not bring stock exchanges, including NSE, under the purview of the RTI Act. This is because the notification is issued by SEBI, which cannot be equated with a government notification.

NSE further argued that the management of the Exchange is vested in a board of directors which is not appointed by the government; its accounts are not subject to an audit by the Comptroller and Auditor General of India (CAG) and shareholders have the liberty to elect an auditor of their choice. The government does not exercise any financial, functional or administrative control over the stock exchange and, as such, they are not and cannot be regarded as 'public

authorities' under the RTI Act. Finally, although various government-controlled bodies had a 35.71% stake in NSE at that time, it would soon drop to 28.71% since nine foreign investors were about to buy NSE shares from existing shareholders.

SEBI did not agree with this stand. In fact, executive director (legal) Sandeep Parekh made very persuasive arguments, establishing that the government as well as SEBI had full control over stock exchanges. Specifically, several provisions of the SCRA prove that stock exchanges are substantially government-controlled and are part of the 'State'. Many of SEBI's arguments were accepted by the CIC bench, comprising Wajahat Habibullah and four others, and they ruled that the RTI Act applies to stock exchanges. The order explained that, although exchanges may have been incorporated as a company, any company cannot run a stock exchange under Section 4 of the SCRA. It is the grant of recognition by SEBI, which exercises the powers of the government under SCRA that enables a company to function as a stock exchange. Although a board manages the day-to-day functions of exchanges, and they do have the powers to make by-laws, these extensive powers are conferred on them under Section 9 of the SCRA. CIC pointed out that rules made or amended by exchanges have to be published in the Central Gazette or respective state gazettes where applicable. Thus, by-laws framed by stock exchanges, once approved by SEBI and notified, acquire statutory force.

CIC also quoted a large chunk of the Delhi High Court order in *Delhi Stock Exchange vs. KC Sharma* : "The control by the Central Government/ SEBI (of the stock exchanges) are deep and invasive… It may be that it does not receive any financial assistance. But receiving financial assistance is not the only criteria for holding that an instrumentality of the State would come within the purview of the definition of 'other authorities'." The CIC pronounced that "a stock exchange being a quasi governmental body working under the statute and exercising statutory powers has to be held to be a 'public authority'." It directed JSE and NSE to put in place an RTI regime in their respective organisations within

one month of its decision. Other exchanges were given three months to comply with the requirements of the RTI Act.

NSE immediately appealed against the CIC order in the Delhi High Court. Why was it so afraid of coming under the RTI Act? Or was it an instinctive, visceral dislike for transparency? Subsequent developments suggest it was the second. NSE's appeal to the Delhi High Court came up for hearing after 33 long months, but failed. Justice Sanjiv Khanna delivered a detailed and precise judgement that went into definitions of various terms such as self-government, authority, institution, body, public function and so on, to uphold the CIC judgement. His order said: "Registration or recognition under Section 4(3) of the Securities Act by the Central Government has the effect of constituting or establishing 'an authority' or an 'institution of self-government' as defined above."

Now, step back and consider the sequence of events. In 2002, the Delhi High Court held that stock exchanges are a public authority. In 2005, the Supreme Court upheld this judgement. That year, when the RTI Act came into effect, NSE was automatically under its ambit because 51% of its shareholding was with the government and it was also a public authority. In 2007, SEBI, which regulates NSE, was clear that the Exchange was a public authority that came under the RTI Act. NSE disregarded this. CIC then ruled that the RTI Act was applicable to NSE; the Exchange filed an appeal in the Delhi High Court and lost again. What does NSE do? It digs in its heels and appeals again to a division bench and hires former additional solicitor general Abhishek Manu Singhvi, then a Congress spokesperson and member of Rajya Sabha, as its advocate. The case, which took 33 long months to come up before the single bench of the Delhi High Court, now came up for hearing in just three weeks. More importantly, the single bench order was immediately stayed and remains in limbo since 2010.

Gaming the legal system to exploit the slow judicial process is a tactic usually adopted by crooks, not a first-line regulator and public authority, which had set benchmarks in professionalism and transparency when the stock market was

a hotbed of manipulation. According to the late Prakash Kardaley, former journalist and a leading RTI activist, "Whether or not the NSE wins its battle against the public's right to know, it has already lost the battle for public perception on the transparency and openness of its operations." [51] Kardaley asked, quite presciently, "What is wrong in being transparent, unless one desperately wants to cover up one's own misdeeds? Transparency in public life, either as the spirit or as a piece of legislation, when codified into a law, knows its legitimate *Laxman Rekh a* . It does not cause any unwarranted invasion of an individual's privacy. It does not expect disclosure of any information that would be detrimental to society at large. On the other hand, it attacks excessive and unnecessary secrecy that, in fact, is injurious to the well-being of society. Any opposition to the spirit of transparency, therefore, must be seen as profound disrespect to society."

There is another twist to this episode. SEBI's affidavit to the CIC stated that over 50% of NSE's shares were held by government-owned or controlled institutions. This had changed in the run up to the hearing. As we wrote in the previous chapter, on 10 January 2007, the public sector shareholding was down to 20% with the entry of some marquee global investors including the NYSE. So, NSE's affidavit insisted that government institutions held a stake of only 32.7% in the Exchange, although that is not relevant to it being a public authority and first-line regulator. While resisting transparency through RTI, NSE was also campaigning against the listing of stock exchanges, which would subject it to strict reporting and disclosure norms under the listing agreement and also bring it under constant scrutiny by a bunch of stock analysts. The finance ministry can easily clarify that the RTI Act is applicable to stock exchanges, but it has chosen to remain silent.

Refusing To Share Annual Reports

Why was NSE so secretive and why did it behave as if it had a lot to hide? Was it the personal philosophy of its top brass, which was allergic to any kind of public scrutiny? Strange as

it seems, NSE wouldn't even share its annual report in its first few years of operations. It was this discovery that led to Sucheta switching from being a supporter of NSE to a sceptic in early 2000. At a meeting of the Consumer Education and Research Centre at Ahmedabad, when she was discussing how NSE was transforming the capital market, Prof V Raghunathan of IIM Ahmedabad asked her why then was the NSE unwilling to share its annual report with him. There was never a direct refusal; but, despite multiple reminders to the MD, he wasn't sent a copy. It seemed so absurd to think that an organisation that swore by transparent processes would not share a statutory document like an annual report, that too with an academic from a reputed management institution. By way of comparison, BSE, controlled by brokers, not only published a detailed annual report, but also generously distributed it to the media.

It did occur to Sucheta that she had never seen an NSE annual report either, but she was extremely confident that there was some miscommunication and offered to speak to Ravi. Ravi's response was exactly what she had expected. He promised to have it sent to the professor. A few months later, the professor said that he was yet to receive the report. She asked Ravi again and was assured that there must have been a slip up and it would be done. Weeks later, the elusive annual report had still not been shared. A pattern was emerging; so she now asked for a copy for herself. This is when things came to a head and she was told that NSE had decided not to share the annual report with anybody.

Angry at being played for months and stupefied that NSE was actually keeping the annual report a secret, she asked Ravi what was NSE hiding? She also said that if she did not get a copy of the report, she would write about it and take it up with SEBI and the ministry of corporate affairs (MCA). Astonishingly, Ravi accused her of 'blackmail' for demanding a statutory document! An argument followed. However, Ravi called back and said in a huff that he had discussed the issue internally and had decided to share the report, but requested her not to write about it. Suspicious, she said that it would depend on what was there in the report.

Strangely, there was nothing in the report that required any secrecy. If anything, it showed a very profitable exchange. So why was NSE going to such lengths to hide the annual report?

The answer was unbelievable. NSE was highly profitable and did not want brokers to know the fat margins it was able to extract. As trading volumes increased, NSE did, indeed, announce a reduction in fees and transaction charges from time to time as a gesture. However it has remained extraordinarily profitable, and its ability to extract various fees and charges only increased after it launched derivatives trading and achieved near-monopoly status. As a private organisation, all decisions and spending by this Exchange were controlled by a closed group of three or four persons for nearly 23 years with no interference or oversight from anybody. That is one reason why regulatory capture was so important to NSE. It quickly co-opted everybody who mattered but being part of NSE's charmed circle came with strings attached.

Sucheta took up the issue with SEBI and, within a year or so, it became mandatory for the exchanges to put up their annual reports and accounts on their website. Others too have felt NSE's (and BSE's) chill of secrecy. A former journalist writing under the pseudonym 'Fairval' has blogged about his experience with making a simple list like India's top-20 brokerages. "Years ago, when I was with ET Intelligence Group, I was trying to find out one simple thing – 'Who are India's top 20 brokerages?' My colleagues had pointed out that NYSE, and some other exchanges regularly post this info on their websites. We were curious why this data was not available in India. We simply tried asking NSE and BSE. For months we were stonewalled." [52]

"I finally wrote a letter to NSE and BSE, with a copy to SEBI, asking for this information. I also asked them to clarify why they couldn't share the info, if they still decided not to. NSE still completely ignored our query. They simply did not reply, nor did their media department or the offices of Ravi Narain or Chitra give us any response (despite repeated phone calls etc). And this was to an official query, on ET

letterhead. Even Cabinet ministers are more responsive. Bandi Ram, who was then with BSE, called me and my colleague for a meeting. From him, this much we could figure out. Apparently, NSE, BSE and SEBI had conferred on our query, and decided not to give us the data. But Bandi did not quite tell me the exact reason. He was trying to tell me 'this is not good for the stability of the market'. So we said, 'give us 6-month-old data'. For example, who were India's top 10/20 brokers, in say Jan-Dec 2009, if it was to be revealed now, can't have any bearing on market stability. At this point, Bandi dithered, so we drank our tea, left his office and effectively gave up the chase."

Such stonewalling happened regularly because SEBI had a series of weak chairmen who were either too timid or awed by NSE's access to finance ministry mandarins, academics and, later, the minister himself. If NSE, founded by government institutions, is secretive and largely unaccountable, it is not alone. NSDL, IL&FS and SHCIL were all funded by public sector money but were run like private fiefs, despite operating in the regulatory penumbra. Most of these institutions were born as part of India's economic liberalisation in the early 1990s and set up as private entities, with a public sector ownership. [53]

Many of them, including SHCIL, expanded into newer areas of business that were outside the purview of any regulator. This was happening even as publicly-listed companies were subject to more stringent and rigid disclosure and accountability norms under the listing agreement. These disclosure norms have reached such absurd levels that a clutch of well-run companies preferred to delist their shares and go private. Lack of sunshine always takes its toll. Each of these institutions – SHCIL, NSDL, IL&FS and NSE – was either engulfed in huge scams or collapsed, like IL&FS, inflicting huge damage on the system. The finance ministry bureaucrats, under various dispensations, have a big role to play in permitting and facilitating the growth of these organisations. No one has ever been held accountable.

As for NSE, not only did it continue to grow its core business rapidly, but with the backing of New Delhi started

using its power to ruthlessly block any competition, got into businesses with conflict of interest and made questionable top-level appointments. Let’s look at this dark side of NSE and how it exercised absolute power and, ultimately, paid the price for it.

PART II

ABOVE THE LAW WITH ABSOLUTE POWER

2008–2015

8.

A Weak & Compromised SEBI

On 19 February 2008, Chandrashekhar Bhaskar Bhave became the sixth SEBI chairman. Although his appointment was strange, he was still expected to take SEBI to new heights. Instead, it was probably the worst phase yet, with the market watchdog captured and tamed by NSE and the finance ministry. With hindsight, this was not surprising, given the many machinations that led to his appointment. As chairman, he had to be 'ring-fenced' (read saved) from SEBI's investigation into the multiple applications scandal at National Securities Depository Ltd (NSDL) which he headed between 1996 and 2008. More about that later.

Bhave had joined SEBI at the request of GVR, SEBI's best and most formidable chairman yet, as he went about building a powerful market regulator after getting its statutory teeth in 1992. GVR's ethics and reputation rubbed off on all those who worked with SEBI at that time. They came across as no-nonsense regulators under a chairman who did not hesitate to take on the powerful market lobbies. GVR's team, as part of the first independent regulator in India, framed many original regulations and statutes. In this, Bhave, as senior executive director in charge of the important secondary market portfolio, quickly became his main lieutenant. But GVR was moved up to the Planning Commission after SEBI investigated and found murky dealings of a company called Goldstar, with links to prime minster PV Narasimha Rao's sons in the 1992 securities scam.

DR Mehta, who was SEBI chairman between 1995 and 2002, was a complete contrast ('market-friendly') and wanted his own team. He brought in senior officials from the IAS, enforcement directorate and income-tax department into senior positions. Bhave no longer had the same equation with Mehta and was looking for a change. But, before that, one of

the key tasks he accomplished was to draft legislation for an independent depository under SEBI and steer it through the finance ministry and parliament. This meant that mutual funds, brokers, stock exchanges and other intermediaries were all directly under SEBI's regulations, but the depositories were set up under a separate Act of the parliament – SEBI Depositories Act 1996. [54] Bhave then left SEBI to start and head the very first institution born out of the new law he had drafted – the NSDL.

Despite his differences with Bhave, Mehta was very supportive of the effort to introduce paperless trading. His decision to make paperless trading mandatory for secondary market transactions gave a big fillip to the dematerialisation process. This was the basis for NSDL's monopoly profits (operating margins in excess of 50% from high levies on investors) and rapid expansion to other businesses, far beyond its statute. Effectively, the second in command at SEBI was now heading a market infrastructure institution. Old-timers at SEBI would tell us that they always believed that Bhave would return as chairman someday. Even during GN Bajpai's stint (2002-05), the joke was that SEBI officials did not dare to be tough on NSDL for fear that Bhave would be back as their boss. That is exactly what happened.

As NSDL chairman, Bhave was literally 'the man who could not be questioned' by the regulator. Under him, NSDL showed a high- handed disregard for the difficulties faced by retail investors in getting access to depository participants (DPs) and giving timely sale-purchase instructions to their brokers. This led to the dangerous practice of investors signing blank DP slips or a power of attorney (PoA) giving brokers untrammelled access to their investments. The massive abuse and misuse of investor funds and securities that followed, remains the single biggest irritant even today, despite tinkering with the rules for over 15 years. But no flak stuck to Bhave, despite his adamant stand. NSDL operated like an independent entity, taking directions directly from the finance ministry, under finance secretary, Vijay Kelkar, who was a huge admirer and supporter of 'Chandu' Bhave.

Interestingly, Bhave wasn't NSE's first choice to head

NSDL – not because he was unsuited to head the depository, but because NSE had no idea that he was available. One day, Patil received a call asking him to invite Bhave to head NSDL and that was it. The NSE team, which was incubating NSDL, was very happy to comply. The person who tipped off Patil was most likely SH Khan, who was then the chairman of IDBI as well as NSE. Who told Khan that Bhave was willing to quit SEBI and should be invited to head the depository? We know that it wasn't GVR who made the call, because we asked him. Bhave, a Maharashtra cadre IAS officer, had to quit the service in order to join NSDL, which was set up as a private entity.

Dramatic Appointment

Bhave's appointment as SEBI chairman in February 2008 was even more surprising and dramatic. A file with a letter for Damodaran's reappointment as chairman was already on PM Manmohan Singh's table and was expected to be signed. But everything changed in a few short hours. UK Sinha, [55] former SEBI chairman, calls it 'peculiar' that the PM's office, while approving Bhave's appointment, made it a point to write a detailed note 'saying how Damodaran had done a good job and he ought to have been given an extension'. Was it that Damodaran was not going to be so easy to dictate to? A lame duck, ring-fenced SEBI chairman to follow him, seemed preferable to the finance ministry.

Bhave and Ravi Narain were certainly among the few persons with experience of capital market regulation and heading significant market infrastructure intermediaries. In fact, P Chidambaram had sounded them out for the SEBI chairman's job in late-2004 (since Bajpai's term was ending in 2005) but they had turned it down. Both said they couldn't afford the sharp pay cut since they had children studying abroad. Over the next three years, Bhave at NSDL and Ravi at the NSE enjoyed huge pay increases on par with the best in the private sector. They also operated like heads of government institutions and exerted a lot of power over the regulator, while not being subject to any external scrutiny, vigilance, restrictions or even the RTI Act, like government

entities.

Damodaran started out on extremely good terms with the finance ministry but soon fell out with Chidambaram. Some say it was over his attempt to curb participatory notes (PNs). It is hard to say, since both, the finance ministry and SEBI, seemed quite happy to turn a blind eye to the preposterous e-stamping scam [56] at SHCIL and the heist of a subsidiary company. This was between 2005 and 2007 and it was the PMO that finally stepped in to nip it in the bud. It was Sucheta's persistent writing that brought the sordid story to the attention of the PMO and SHCIL shareholders, much to the dislike of the finance ministry.

In a nutshell, SCHIL, like NSE and NSDL, was set up by a clutch of public and private sector institutions. Yet, right under their nose, the chairman and the MD of SHCIL (R Jayaraman Iyer and S Ramanathan, respectively) had created a subsidiary, SHCIL Services Limited that started out almost as a mirror company of the parent, but surreptitiously transferred a significant holding to private and foreign investors. This subsidiary held the highly lucrative e-stamping business that was contracted to a Singapore company. While the Indian public was made to believe that e-stamping, after the infamous Telgi scam, [57] would be done by a professionally-managed company owned by public sector banks and institutions, the truth was that the business itself was deceitfully hijacked under the collective noses of the finance ministry, banks and institutions.

Iyer and Ramanathan were sacked after the PMO asked IDBI to take charge of SHCIL; they were later arrested in connection with the scam which has been successfully buried by ensuring that no mainstream publication reported it. Sucheta was specifically told to stop reporting it in the *Indian Express* leading to her discontinuing her columns for the group. The SHCIL scam is significant because Damodaran was also close to Iyer and Ramanathan of SHCIL and it also seemed to have the backing of the finance ministry. Iyer was apparently an astrologer and *Vaastu shastra* [58]. expert. He had helped rearrange the SEBI chairman's office at Nariman

Point in accordance with *Vaastu* principles and, later, SEBI Bhavan at Damodaran's instance. The finance ministry also had no interest in investigating the shenanigans at SHCIL.

When Damodaran's term was ending, the finance ministry started the hunt for a new chairman. Bhave was again a contender and was invited for an interview. He made it a point to appear, but requested the committee not to consider him for the job because NSDL was fighting six show-cause notices issued by SEBI in 2006. This was in connection with the multiple-applications scam that happened during his tenure. As we said earlier, Damodaran's extension papers were all but signed when frantic machinations changed things in a few hours and Bhave was appointed. KP Krishnan, joint secretary, capital markets division at the finance ministry, carried out all of Chidambaram's wishes. Even as Bhave's 'ring-fenced' appointment was announced, he diligently worked at making it palatable by calling many of us, senior journalists, and explaining why this was good for the regulator and would not dent SEBI's credibility or bury the multiple applications or IPO scam investigation. What was this scam?

The IPO Scam

Deepak Sanchety, who was a chief general manager at SEBI under Mehta, had gone back to his parent cadre and was posted in the investigation wing of the income-tax (I-T) department. As part of another investigation, he hit upon data on the cornering of shares reserved for retail investors through multiple applications. He got suspicious on seeing a string of refund orders, with perforated separators intact, being issued by banks in the name of the same individual. The I-T department shared its findings with SEBI, which launched its own investigation, to expose a well-oiled mechanism to corner shares reserved for retail investors by submitting a large number of fictitious IPO applications. The investigation showed how tens of thousands of fake dematerialised (demat) accounts and fictitious applications were facilitated by banks, investment bankers, registrar & transfer agents and, finally, the depositories that allowed fake

demat accounts to be opened.

Based on the *prima facie* findings, SEBI issued various *ex-parte* directions against 82 financiers, 24 operators, 12 depository participants (DPs) and two depositories. Unfortunately, SEBI overplayed its hand by issuing *ex-parte* orders with drastic recommendations, including a change in top management, and ordering a disgorgement of Rs45 crore (Rs450 million) without completing the investigation or establishing wrongful gain. The perceived unfairness of this action made it easy for NSDL to play the victim. It challenged the SEBI orders and obtained a stay from the appellate tribunal. The war between SEBI and NSDL ended up letting off all others involved in the scam by paying a small settlement. Those involved included market operators, brokers, and even the Karvy group and DSQ Software, which had issued fake shares. But these are separate stories.

Interestingly, in 2006 itself, after SEBI's initial orders, RBI had imposed hefty penalties [59] on a dozen banks involved in the scam for opening fake accounts and failing to implement 'know your customer' requirements. Only NSDL stoutly denied any wrongdoing whatsoever and chose to fight. This was typical of Bhave. It was this scam that KP Krishnan and Chidambaram were trying to insulate Bhave from when they gave him the SEBI job.

The idea was that Bhave would recuse himself from all issues related to NSDL's IPO scam investigation (the farcical ring fence) and a three- member committee of the SEBI board – comprising V Leeladhar, a former banker and RBI deputy governor, Dr G Mohan Gopal, a former Harvard law professor and then head of the National Judicial Academy, and Anurag Goel, secretary ministry of corporate affairs – would investigate the scam and present an independent report. It was widely assumed that this three-member committee would give Bhave a clean chit. Strangely enough, it ended up as a two-member committee since Goel did not participate at all.

Mohan Gopal–Leeladhar Report

In December 2008, the two-member committee sent shock waves through SEBI and the finance ministry by refusing to exonerate the depositories and had scathing observations about NSDL's role. The drama that followed exposed how the finance ministry was fully aware that the 'ring fence' was just a piece of fiction. The report also had some adverse remarks against SEBI for the manner in which it had mishandled the IPO scam. Initially, the board simply suppressed the report. Then, with active backing from the finance ministry, the board turned hostile against its own committee members, charging them with exceeding their brief in criticising SEBI's functioning. But Leeladhar's term soon ended, so Mohan Gopal alone was the target of heated scenes at board meetings, but he did not back down. SEBI refused to release the report, much less act on it. Eventually, a public interest litigation filed in the Andhra Pradesh High Court, led to a court order directing SEBI to disclose the report in November 2009. This revealed that the Gopal-Leeladhar committee had issued three orders – a fact that was suppressed until then.

Before complying with the court order, the SEBI board declared two orders as 'non est' or null and void. One pertained to NSDL's role in the IPO scam; the second to lapses in the dematerialisation of DSQ Software shares (it predates the IPO scam); and the third to a DP called Rajnarayan Capital Market Services Limited (RCMSL), which NSDL was apparently very reluctant to discipline. Only this order was to be served and implemented. The board also decided that instead of a sub- committee, the entire board (except Bhave), would look at the issue afresh and pass new orders. Mohan Gopal's objections were brushed aside. This manoeuvre allowed three whole-time members (WTMs) loyal to Bhave to participate in the meeting and the outcome was predictable.

In December 2009, the late Justice JS Verma, one of the most respected Chief Justices of India's Supreme Court gave a rare legal opinion on the matter. He said that the SEBI board's action to quash the two quasi- judicial orders 'violates established legal and Constitutional principles',

since only a judicial forum of appropriate jurisdiction could review the orders. Justice Verma's opinion had been formally placed before the SEBI board meeting on 22 December 2009, chaired by TV Mohandas Pai, former CFO of Infosys. The board had also procured a legal opinion from C Achuthan, former presiding officer of the Securities and Appellate Tribunal (SAT). Interestingly, Achuthan [60] then practising as a lawyer had represented the Karvy group in the very IPO scam matter; he was also a director on the NSE board! On 2 February 2010, the SEBI board exonerated NSDL and disposed of the show-cause notice of April 2006 with a simple order that said: "None of the directions issued under the 1st Interim Order needs affirmation and no further directions are required."

Separately, the SEBI board also exonerated NSDL in the scandalous DSQ Software case, [61] although the promoter of the Chennai-based software company was deeply involved in speculative excesses that marked the Ketan Parekh scam in early 2000. NSDL had dematerialized 1.3 crore (13 million) shares allotted on preferential basis to four entities and allowed them to be delivered in settlement without verifying if they had obtained listing permission. It also dematerialised 30 lakh (3 million) shares issued as employee stock options without the mandatory lock- in, thereby increasing its capital by 50% without shareholders' consent. Dinesh Dalmia [62] eventually ended up spending three years in jail for a variety of charges.

On 24 December 2010, Mohan Gopal finally wrote [63] an explosive and anguished letter to prime minster Manmohan Singh, explaining how an "informal clique of current and serving bureaucrats, SEBI officials, lawyers and corporate interests orchestrated a subversion of the due process of law. They illegally interfered with independent SEBI adjudication, manipulated legal opinions, suppressed and misrepresented facts and misled the SEBI Board and Government officials about the legality of the Orders. Law, regulations and established precedent were violated. NSDL was given undue special treatment. NSDL was relieved of a fine of crores of rupees, and SAT decisions adverse to SEBI

but favouring NSDL, were not appealed to the Supreme Court as they should have been."

The upshot: 'SEBI-under-Bhave' judged and exonerated 'NSDL-under- Bhave' through a process that was thinly disguised as independent, but was, in fact, fully gamed from start to finish. The letter, obtained under the Right to Information Act by well-known activist Subhash C Agarwal, was important from the policy perspective as well. It highlighted four structural fault lines in the legal framework for securities regulation that made the abuse of power possible:

1. Inadequate transparency, lack of public accountability through parliamentary oversight, absence of protection for whistle-blowers and unwillingness to hear investors' voices.

2. Conflict of interest had caused 'an influential bureaucrat-corporate- media nexus to emerge, which has immense power to influence SEBI's decision-making to its own advantage'.

3. Ineffective framework for law enforcement with overlapping enforcement and punitive provisions leading to multiple proceedings that often ended up excusing wrongdoers through opaque consent orders and faulty adjudication.

4. Outdated governance structure, including a lack of transparency about the resources that SEBI commands.

Mohan Gopal wrote about how a company guilty of 'criminal market manipulation' was let off by a WTM asking it to "be more careful in future." We believe this refers to the Zee group's role in the Ketan Parekh scam; it was exonerated within three days of Bhave's appointment. Mohan Gopal asked the prime minster to order a high-level inquiry into SEBI's functioning. Manmohan Singh merely forwarded his letter to the finance ministry knowing full well that it would do nothing.

All the issues raised by Mohan Gopal a decade ago are valid even today. But his letter and suggestions were simply

buried. The PM's silence and unwillingness to act had a huge impact on the next chairman's tenure even after P Chidambaram shifted to the home ministry and Pranab Mukherjee became the finance minister. The finance ministry under Chidambaram was extraordinarily sensitive to every market movement. Any sharp swing or volatility, due to a policy decision or RBI action drew a statement from Chidambaram to allay market fears. Former RBI governors, including Y Venugopal Reddy, have documented these run-ins with him in their memoirs. The finance minister wanted even tighter control over SEBI, its independence and credibility be damned. A pliant SEBI chairman was essential to this.

No wonder, installing a 'ring-fenced' or lame duck SEBI chairman, beholden to North Block, was exactly in the finance ministry's interest. Meanwhile, NSE was equally close to the finance ministry. So, while NSE and SEBI are almost neighbours at Mumbai's swank Bandra-Kurla Complex, NSE's capture of SEBI, via New Delhi, was complete under Chidambaram, KP Krishnan and Bhave. NSE dictated capital market policy to the point that a committee on financial sector legislative reforms was dominated by NSE's board members, legal advisers and favoured academics who had exclusive access to trading data from the Exchange. While NSE misused its power and connections, the competition watched helplessly.

After Bhave left in 2011, pressure on the SEBI chairman continued in a different way. UK Sinha, his successor, was put on the back foot by wild allegations levelled by Dr KM Abraham, a WTM and Bhave acolyte. As many as seven public interest litigations (PILs) were also filed in succession against his appointment. Sinha has recorded the harassment in his book, *Going Public: My Time at SEBI* (2019). In August 2011, Abraham wrote to the PM accusing the then FM Pranab Mukherjee and chairman Sinha of interfering in several high-profile cases. Sinha retaliated with an equally hard-hitting 13-page letter [64] exposing murky goings-on at the regulatory body. Among these were shocking revelations such as Abraham's 'sting operations' against his own

colleagues by surreptitiously recording their conversations, and his attempt to stop an appeal to the apex court against SAT's clean chit to NSDL.

When Bhave was the SEBI chief, SAT had exonerated NSDL and expunged certain adverse remarks by the Gopal-Leeladhar committee. But things did not end there. A PIL had been filed in Delhi against the attempt to bury the IPO scam. The matter eventually reached the Supreme Court as a special leave petition challenging SEBI's dismissal of the committee's report. The apex court expressed its unhappiness at the outright rejection of the report, and asked SEBI whether it would revisit its decision to give a clean chit to NSDL. Then SEBI called a special board meeting on 26 April 2011 and decided to reconsider the Gopal-Leeladhar report and, at the end of July 2011, it reopened [65] the NSDL case that had been dismissed as 'null and void'. SEBI also filed an appeal [66] against the SAT order in November 2013.

It remains a mystery why Bhave made the order into a personal indictment when the Gopal-Leeladhar committee had not accused him of personal impropriety or misconduct. His stand seemed to be that NSDL was flawless under his leadership and, therefore, above any inquiry or action. In the process, he damaged NSDL but, worse, did irreparable harm to SEBI's credibility. Was it merely ego and exaggerated self-image? In an interview to *Business Standard* on 14 September 2010, Bhave had said, he often looks in the mirror to ask: "Am I proud of what this guy did today?" The answer invariably is a resounding yes, Bhave said. He also said, "Nothing else bothers me, as your conscience will never lie."

When Bhave became the chairman, many who had known him from the SEBI days, expected him to redeem himself after all the questions that were raised about NSDL under him. Bhave's reputation for personal integrity had remained high, despite our criticism of NSDL's ambitious expansion into areas where the only regulatory oversight over its operations [67] was the benign approval of friendly finance ministry bureaucrats. Unfortunately, a man who became SEBI chairman with the highest possible expectations left

behind an extremely controversial legacy that did long-term damage to the regulator. For the purpose of this book, it can safely be said that the naked ambition and arrogance of NSE's top brass ballooned under a benign and collusive SEBI headed by a 'ring-fenced' Bhave and, of course, continued under Sinha. Our next few chapters will show how.

9.

Client Code Scam:

Tax Evasion through NSE

Since 2008, SEBI had become one more institution, which followed the principle of 'show me the person and I will show you the rule.' It acted tough with the small fry, while NSE was treated like the proverbial son-in-law. NSE's competitors were subjected to intense scrutiny, delays and harassment. But if there were allegations against NSE, SEBI handled it with kid gloves. Take a look at how SEBI dealt with the extremely serious issue of client code modification (CCM) being done for tax evasion.

Sometime in 2010, SEBI was goaded into inspecting NSE by the ministry of finance. There were complaints from the revenue department that NSE had allowed client codes to be modified well after the trades were done. NSE, the first-line regulator, seemed unaware or unconcerned about it. SEBI, which has spent crores of rupees on market surveillance software, also didn't bother with it. It was pushed into action by the income-tax department through finance ministry. On 22 November 2010, SEBI forwarded the ministry's letter to NSE asking it to report the volume of transactions where client codes were modified along with its comments on issues that it had raised. On 3 December 2010, NSE replied with some data. It was alarming. In March 2010 alone, client codes were modified in more than Rs55,000 crore (Rs550 billion) worth of transactions. Some brokers were especially active in doing this. SEBI took a whole month to react to NSE's response.

On 29th December, it reminded NSE that modification of client codes is allowed only to correct inadvertent errors in punching orders. And so, such modification is expected to be rare. If a broker modifies client codes in 500 trades, it is not considered to be 'in order'. SEBI asked NSE to provide

detailed data regarding CCM for each market segment such as cash, equity derivatives and currency derivatives. NSE was also asked how it verified the genuineness of CCM. Finally, SEBI asked NSE to conduct a special audit of brokers who had frequently modified client codes in March 2010 and submit the findings.

On 10 January 2011, NSE replied. The next day, SEBI issued a show- cause notice (SCN) charging NSE with failing to provide information and clarification that it wanted; failing to conduct a special audit of CCM as ordered by the regulator; and failing to put in place an appropriate mechanism for supervision of the practice of CCM. NSE's reaction, a clear indicator of how seriously it took SEBI, was to ignore the letter for two months. On 11 March 2011, it asked for a personal hearing. SEBI obligingly permitted this and the hearing was scheduled on 13 June 2011 – three months later. Remember, this was seven months after the finance ministry had pushed SEBI to find out what was going on at NSE! Effectively, nothing was done until then.

Three weeks before the long-delayed hearing, NSE wrote to SEBI on 23 May 2011 asking for an adjournment. The request was promptly granted and a new hearing scheduled for 1 July 2011. By this time, NSE finally began tightening the screws on brokers to ensure that CCMs declined. In July, J Ravichandran (director NSE), Ravi Varanasi (senior vice-president) and Somasekhar Sundaresan (advocate for the Exchange) appeared before Prashant Saran (SEBI WTM) and asked for another 10 days to file written submissions. The Exchange was asked to submit the data on orders entered by the brokers on behalf of non-institutional clients in terms of value. On 12 th July, NSE finally provided written submissions that argued:

- Modification of client codes is an 'integral and operative feature' of the stock market. It is permitted by SEBI and stock exchanges to take care of human errors in entering client codes at the time of placing orders.
- The mechanism designed to reduce CCM was in place for over 10 years and does not require the recording of

reasons or prior approval from the stock exchange. Ever since the UCC (unique client code) requirement was introduced in 2001, the modification of client codes has been permitted immediately after closure of market hours by uploading a file in a specified format until 16.15pm. There is no scope for modification of any client code beyond this narrow window.

- Modification of client codes is automatically recorded in the system and penalty is imposed when it exceeds the specified daily tolerance limits. Disciplinary action is initiated when the trade value of CCM reaches a significant level. It said that 82 members were issued notices between January 2010 and January 2011 and their operations inspected with client code modification as a focus area.
- It is difficult to know the intent behind modification and impractical to require prior approval of the stock exchange with recorded reasons for every modification. So reasons provided by clients are accepted at face value and NSE does not investigate. Review of client code modification is a *post-facto* scrutiny, as is clear from the SEBI circular dated 6 February 2003.
- The sheer volume of orders every minute makes it practically impossible to maintain records of the reasons for every client code modification.
- NSE's penalty system had seen the percentage of orders modified drop to as low as 0.01% of the total orders since 11 March 2011, after NSE replied to SEBI's SCN.
- There is no need to do anything about client code modification. If SEBI felt that the penalty framework was inadequate, it may increase the scale of penalties as was done on 5 July 2011.

NSE argued that there was no failure to comply with any advice, as per SEBI's letter dated 29 December 2010 and that its response of 10 January 2011 was comprehensive. [68] Prashant Saran summarised all issues into four questions.

Did NSE fail to provide the information/ clarifications that SEBI wanted in its first letter? Did NSE conduct a special audit as advised by SEBI? Did NSE fail to supervise modification of client codes? And did NSE allow the modification of client codes for reasons other than to rectify genuine errors?

On the first issue, NSE got a clean chit. Saran was satisfied that NSE did not fail to provide the information asked by SEBI. On the second question, he noted, “Although NSE has submitted an analysis of the data collected which it terms as an audit, **the same does not contain any supporting papers** or requests of the clients for modification of client codes. Further, **NSE has also not provided SEBI with a thorough analysis of the reasons/ factors** contributing to the large numbers of client code modifications.” (*Emphasis added*.) NSE had claimed that it had carried out independent verification through visits to brokers’ offices and these were submitted in its letter dated 10 January 2011.

On the third question of whether NSE failed to supervise client code modification, the inspection showed it was rampant and NSE had no control over brokers’ actions. Saran noted the following:

1. The inspection listed the top-10 brokers with modified trades in March 2010. Most of these trades were not for institutional clients like foreign investors or mutual funds. Six of the 10 brokers in the table [69] had no institutional business. So clearly, client code changes were widespread.

S. No	Broker	No. of trades modified	No. of trades modified of top 10 clients	No. of trades modified within a pair of clients with largest number of modifications
1.	East India Securities Ltd.	38,661	29,073	6,713
2.	Aadya Trading & Investment	30,109	14,061	1,447

	Pvt. Ltd.			
3.	Master Capital Services	18,708	8,718	714
4.	Crosseas Capital Services Pvt. Ltd.	18,031	9,034	499
5.	India Infoline Ltd.	16,406	14,486	3,697
6.	Inventure Growth & Securities Ltd	15,285	9,416	1,387
7.	Open Futures	13,777	11,793	2,346
8.	Labdhi Finance Corporation	11,197	8,073	725
9.	Maverick Share Brokers Pvt. Ltd.	10,498	4,168	495
10.	Mbl & Company Ltd.	10,172	7,019	3,991

Source: SEBI

NSE had previously argued that it is incorrect to look at absolute numbers. A broker with a higher trading volume is likely to have more client code modifications. Similarly, a broker with institutional clients may have modifications on account of errors in reporting the correct sub-account or mutual fund scheme, which need to be corrected.

2. These arguments were theoretically correct but, in fact, false. NSE's data of March 2010 showed that CCM was concentrated among a few clients and brokers.

- India Infoline's top-10 clients accounted for 88% of the total number of trades modified.
- More than 15% of the modification of client codes took place between a single pair of clients with respect to four brokers among the top-10 brokers who had the maximum code modifications.
- In the case of three out of 10 brokers, more than 75%

of the trades were modified on account of only 10 clients.

- Only 51 clients out of the 10 brokers modified 110,860 trades worth Rs12,337 crore (Rs123.37 billion), i.e., 72% of the total value of trades. On an average, each of the 51 clients had modified client codes worth Rs242 crore (Rs2.42 billion) in a single month.

3. East India Securities was an interesting case. On the basis of 20 working days in a month, it modified client codes in 3,000 trades a day! Further, it modified client codes of 6,713 trades between just one pair of clients.

4. Five of the brokers referred to in the table above, viz., Crosseas Capital Services, Labdhi Finance, MBL, Open Futures and Aadya Trading, do not have institutional clients in the equity derivatives segment. Three others, viz., Maverick Share Brokers, Inventure Growth and Master Capital Services had not executed a single trade on behalf of any institutional client. However, all eight brokers modified a large number of their trades.

5. NSE's main argument that brokers with higher trading volumes would have a larger incidence of CCM turned out to be a lie. These 10 brokers executed 6.24% of the total NSE trades in March 2010, but were responsible for 27% of the total modified trades representing 31% of the total value of CCM. Saran concluded that the figures did not support NSE's argument. If the trend of modification of client codes was a normal phenomenon, then there should not have been such huge difference in the percentage points. But Saran carefully stopped short of commenting on the main point here, which is, whether NSE failed to control and supervise the modification of client codes.

The fourth issue was whether the Exchange had allowed CCM for reasons other than to rectify genuine errors. On this, Saran made elaborate observations and came to pretty negative conclusions. Here is a summary of his findings.

- The number of modified orders in the equity segment

shot up in January-March 2010 and crashed by 64.52% in April 2010. [70] The number of modified trades in the equity derivative segment jumped 76.6% between January and March 2010! These increases were against a fall in traded volumes. Similarly, modified trades in currency derivatives rose 2,147% between January and March 2010 even as the total trading volumes in that segment fell by 19%.

- If modification of client codes was done to rectify inadvertent errors in punching orders, such erroneous orders should be randomly distributed over months. Saran's order says: "The significant variation in the modification of client codes in the immediate months around March 2010 gives rise to a genuine doubt whether the modifications have been carried out for purposes other than those to rectify genuine errors. **I note that NSE is silent on the reasons for sudden increase in CCMs during the month of March 2010."** (*Emphasis added* .) What were the reasons? We will come to that later.

- On NSE's argument that SEBI should consider only the number of orders, not trades, Saran concluded: "There is no fundamental difference in the data pattern when the metric employed is number of orders rather than number of trades."

- The SEBI circular of 2003 on CCM is clear that the change in client code is generally not allowed except where there is a genuine mistake. The circular also asks stock exchanges to keep a strict watch and control on CCM. SEBI asked NSE to explain how it ensures that client codes are modified only in genuine cases. SEBI also asked for a reason-wise break-up of trades where client codes had been modified by the top-10 brokers in March 2010. But, as Saran noted in his order, **"… (NSE) nowhere explains as to how the modification in client code is being carried out only in genuine cases."** (*Emphasis adde d*).

- About NSE's argument that it is not possible to know

the intent behind modifications and reasons cited by brokers had to be accepted at face value because millions of orders are entered every day, Saran's order notes that " **...no such reasons from the clients have been produced by NSE before SEBI, despite their being given sufficient opportunities."** (*Emphasis adde d*).

- Although the SEBI circular specified a two-tier penalty structure – which included escalation for repeat offenders, Saran said: **"I note that NSE did not have any mechanism to penalise the repeat offenders."** (*Emphasis adde d*).
- Worse, SEBI discovered that NSE had a penalty structure in place for its equity segment but none in equity derivatives and currency segments. It hastily introduced them only after SEBI's SCN was issued on 11 February 2011. Clearly, when NSE was arguing that client code modification is recorded automatically in the system and that there was penalty framework in place, it was a lie.
- Saran noted that until this hearing, NSE 'has never expressed its difficulty' in determining whether reasons for CCMs were genuine. He also made some important points. One, that not only was the number of errors a strong indicator of whether or not the errors are genuine, but brokers had been allowed to modify the price and number of shares purchased as well – **these are fields where no modification is allowed even in case of genuine error and the broker has to compensate the clients** (*Emphasis adde d*), if he commits a mistake. This happens very rarely. The fact that thousands of errors were committed in a month requiring CCM made it obvious that there were other reasons for this and not a genuine mistake.
- Saran concluded that " **NSE has taken a laid-back attitude towards the problem and either totally ignored or perfunctorily imposed minor penalties to the brokers .** " (*Emphasis adde d*). He also found that recurring instances of code modification in March 2011

> showed that "NSE acted negligently in discharge of its regulatory duties." As a self-regulatory organisation and first-level supervisor of the trading community, "it should have taken the initiative to inform SEBI about these recurrent CCMs" and found a solution to stop recurring incidents as well as put in place " **an appropriate mechanism to identify the repeat offenders and provide effective punishments .** " He attributed the failure to do so to NSE's complacency that " **its systems and procedures are far superior .** " (*Emphasis adde d* .)

Further, the fact that CCMs dropped significantly after SEBI's intervention indicated that the modifications were for reasons "other than for rectifying genuine errors." The reasons were: tax evasion and money laundering. Remember, the original complaint of CCM had come from the revenue department. They had suspected that the motive was to allow clients to book loss-making trades in accounts that had a profit and vice versa. This helped to depress reported profits and the tax payable just before the financial year ended.

That was the reason why brokers dealing only with retail clients modified such a large number of trades. It also explained why code modifications had shot up in the January-March period and peaked in March when adjustments had to be done to lower taxes. It is also the reason why CCMs dropped by 64.5% in April. Traders were passing on profits and losses to each other as per their convenience, in a mockery of whatever system NSE had set up. SEBI, although staffed by many people from the revenue department, failed to see this and was reluctant to act, even after receiving a complaint from the revenue department.

Given the strong observations about NSE's many lapses, what was Saran's final conclusion? He wrote: "While dealing with matters concerned with discharge of regulatory functions, there would be few occasions where monetary penalty would be appropriate. Suspending/ interrupting the working of the stock exchanges is also not an appropriate penalty as it involves negative externalities and could be considered only in extreme cases. Therefore, given the nature

of the lapses and the efforts made, I am of the opinion that penalty of warning would be appropriate in this case… I warn National Stock Exchange of India Limited to be more cautious and perceptive in discharge of its regulatory duties."

Yes, shockingly, NSE was let off with just a warning and absolutely no penalty. What better evidence of 'regulatory capture' than a regulator concluding that even levying a penalty should only be done in extreme cases? It is no surprise that NSE continued to behave as though it was above any reproach, criticism and rules. Such repeated favourable orders strengthened NSE's sense of invincibility – and ironically, made it fragile. The saga of modifications, reversals or what NSE circulars call 'abnormal and non-genuine transactions' continues and the Exchange has issued repeated circulars from 2018 to February 2020 threatening to "levy a penalty of a minimum of 15% up to a maximum of 100% of profit earned / loss incurred on the trading members for both profit and loss making non-genuine transactions." The Exchange has been at pains to explain that such reversals have dropped drastically; but they have clearly not ended, even after the change in top management, multiple investigations and penalties imposed on it.

10.

Flash Crash but No Scratch

At 08:30 in the morning on 5 October 2012, Sagar Shah, a dealer for Emkay Global Financial Services, told his information technology (IT) department that the operating system of his computer has crashed. At 08:45 the IT department replaced his system and reinstalled the Omnesys order management software, used for placing orders. At 09:10, Sagar logged into the Omnesys system to start trading. At 09:15, the market opened with Nifty50 index at 5815. At 09:48:52, Kalpesh Parekh, head of the cash market dealing section of Emkay, got an order to sell Rs35 lakh (Rs3.5 million) value of Nifty Basket and Rs7 lakh (Rs700,000) value of Sensex Basket [71] from Franklin Templeton Mutual Fund. He decided to execute it in two tranches, i.e., one of Rs17 lakh (Rs1.7 million) and another of Rs18 lakh (Rs1.8 million) and assigned it to Sagar. But, while placing the first order, Sagar chose ‘quantity’ instead of Rs17 lakh in ‘value’. This converted an order of Rs17 lakh (Rs1.7 million) into a single sell order worth Rs980 crore (Rs9.8 billion) at 09:50:54. It turned out to be the single largest sell order ever in the Indian markets.

Just four seconds later, Sagar realised his error, after orders worth Rs660 crore (Rs6.6 billion) had already got executed. He tried to cancel pending orders but could not, as they had already hit the Exchange’s server. Just before this order was entered, Nifty50 was at 5767.50. Under the weight of his huge error, or what is called a ‘fat-finger’ trade, the Nifty [72] crashed. At 09:50:58, a marketwide circuit filter got triggered; the trading system broadcast the message “M/C: 1 Members are requested to note that there would be a market halt if the index value crosses 5217.60 (-570 points).” The trading system sent a second broadcast at “09:50:58 M/C:1 S&P CNX Nifty has hit 5170.60. The markets will close.” However, by the time the circuit-breaker took effect, another six minutes has elapsed and the index breached 15% circuit-

breaker level too and reached 4888.20 by 09:51:04, vacuuming up orders that were already in the system.

Under the rules, trading should halt for one hour, if there is a 10% movement of the Nifty, and for two hours, if there is a 15% movement. However, NSE reopened trading at 10.05, supposedly "in consultation with BSE and SEBI officials." The market quickly recovered with the Nifty climbing back to 5625.60, just 2.46% short of the level it was at, before the fat-finger trade. This episode shook the market and exposed the quality of NSE's systems and processes, but we will come that later.

Let's go back to what transpired on that morning. Sagar immediately reported the mistake to Kalpesh and to the IT department. By 09:51, Rs650 crore (Rs6.5 billion) worth of the Nifty Basket order had got executed. Incidentally, while the cash market was halted, the derivatives market (futures & options) continued to trade. At 09:54, Prakash Kacholia, MD of Emkay Securities, called Chitra Ramkrishna, then deputy MD of NSE, to inform her about the massive wrong order.

At 10:01, Sandeep Singal, co-head institutional equities of Emkay, instructed his dealing team to buy Nifty futures & options at suitable strike prices to mitigate the possible losses on the fat-finger sell trades of the Nifty Basket. All these positions were squared off within an hour. Emkay made a loss of about Rs51.58 lakh (Rs5.16 million) on these hedging transactions. At 10:05, as soon as the cash market of NSE resumed trading, some more orders (approximately Rs5 crore or Rs50 million) got executed as they were pending in the system. These pending orders were converted into 'limit orders' by NSE, at the first traded price when the error took place. Limit orders are those that can only be bought/sold at a specified price. Emkay then cancelled all pending orders in the system from the administration terminal. It also started to buy back the Nifty Basket in the cash segment with a view to square off the existing position.

At 11:45, Emkay's top brass, Prakash Kacholia, Krishna Kumar Karwa and Anish Damania, went to NSE to explain exactly what had happened and also requested the Exchange

officials, including Chitra, to cancel the error trades. At noon, Emkay's system was put into square off mode, but the orders were not being executed even then. So NSE told Emkay to square off the fat-finger trade into its 'error account'. Emkay started following NSE's instructions, but doing so attracted a margin under NSE's margining system with the result that Emkay's trading rights were automatically disabled.

NSE helped Emkay reactivate its trading terminal for 10 minutes to square off the transactions. Sagar Shah's punching error and the need to buy back the trades caused Emkay a loss of about of Rs51 crore (Rs510 million). Who were the buyers, or the counterparties to Emkay's sell trades? There were 665 trading members and 14,000 clients involved, out of which eight were responsible for 70% of the total trades. These were: Inventure Growth and Securities, Prakash K Shah Shares and Securities, Labdhi Finance Corporation, Adroit Financial Services, Religare Securities, Mesh Stock Brokers, Focus Shares and Securities and CNB Finwiz.

Emkay wanted these trades annulled, arguing that they had placed their buy orders far away from the traded prices and got lucky when Emkay's huge sell order crashed through various price levels and hit their much lower bid prices. These brokers were clearly aware that they got blue-chip index stocks at throwaway prices. When the market normalised immediately, they sold these stocks and made windfall gains. But more importantly, four of the counterparties – Inventure, Prakash Shah, Labdhi and Focus – had not only placed trades far away from the market price but did not have adequate margin money deposited, which was in violation of SEBI/NSE norms.

Members are required to deposit margins upfront, based on their daily average trading, i.e., expected gross open positions. When they trade in excess of margin, there is a problem. The NSE system provides for this possibility by generating alerts when margins cover 70%, 80%, 90% and 95% of trades. Once margin utilisation hits 100%, brokers are expected to stop executing further orders until they bring in additional margin. In this case, NSE's disciplinary action

committee found that Inventure and Prakash Shah allegedly exceeded their exposure limit by 740% and 718%, respectively, by executing buy trades worth Rs214 crore (Rs2.14 billion) and Rs158.87 crore (Rs1.59 billion), respectively, as against collateral available of 13% and 14% for execution of these transactions. They had evaded margin, which is a violation of NSE's rules. But there was a problem with NSE's systems too; we will discuss that later.

NSE's rules required brokers to confirm the availability of adequate capital before proceeding with trades that are in excess of a specified threshold. If counterparty brokers confirmed capital adequacy without actually having adequate capital, it would amount to misrepresentation, and such brokers ought not to profit unjustifiably from the fat-finger order. Emkay argued that the by-laws permit annulment of a trade on grounds of such wilful misrepresentation.

During the investigation, it transpired that Inventure and Prakash Shah regularly put in orders worth hundreds of crores of rupees far away from the traded prices in the hope of making money by accidental crashes – usually without adequate margins/limits/capital adequacy. For instance, Inventure had placed orders of Rs1,083.42 crore (Rs10.83 billion), for both buy and sell side for a basket of scrips. Prakash Shah had placed total buy orders worth Rs416.71 crore (Rs4.17 billion). This was 144 times the margin he had deposited with NSE, leading to a 86% margin shortfall. He also had sell orders worth Rs305.40 crore (Rs3.05 billion), of which Rs298.41 crore (Rs2.98 billion) worth of orders were at 20.28% above the last traded share price. Hundreds of other brokers had also put in such orders at prices away from the day's trading levels in the hope of scalping a profit from mistakes; but they were small orders and were properly matched since they had adequate margins.

Sometime on that fateful day, NSE inspected the risk management systems and controls of Emkay Securities and issued a press release in the evening to declare that the fat-finger trade was an 'erroneous order' and followed it up with a show-cause notice the next day. On 7 th October, Emkay appealed to NSE to annul the trades since they were

outcomes of a ‘material mistake’ under NSE’s by-laws. On 10 th October, Emkay’s trading rights were restored and the firm was allowed to function as before.

On 29 th October, NSE’s disciplinary action committee (DAC) imposed a penalty of Rs25 lakh on Emkay. But almost seven months later, on 29 April 2013, NSE rejected Emkay’s application to annul the trades, which would mean that the brokerage firm would have to pay Rs51 crore (Rs510 million) to the counterparties. NSE continued to work at shifting the blame and went after counterparty brokers, Inventure and Prakash Shah, for violating various rules and for “unbusinesslike conduct, unprofessional conduct, adverse impact on market and investors at large.” It slapped a penalty of Rs25 lakh on Inventure and Rs20 lakh on Prakash Shah for violating a bunch of rules.

Emkay appealed to SAT arguing that this was obviously a case of an error. It argued that it had never, in the past, placed a single sell order worth Rs980 crore. No reasonable person would have placed a single basket order for sale of Nifty50 shares worth such a huge amount. NSE ought to have annulled the trades. NSE argued that Emkay’s systems and processes were faulty and it must pay for its mistake. Separately, NSE also went after the counterparties benefiting from the fat-finger trade, on the ground that they had violated margin rules.

The Emkay view had a lot of support from market participants. A well-known market expert told us how NSE managed to hide the flaws in its own system by aggressively going after brokers. He says, “It is not a question of margins at all. It can’t be that I had put up a margin of Rs10 and was suddenly sold the Taj Mahal because someone hit the wrong price button. They could jolly well have put in orders, without adequate margins, and expected the exchange to have risk management systems that bounce those orders. If you ask me, there was no case for a penalty. You can’t penalise a guy for putting in an order that is 20 times his net worth because he is not expecting it to be hit. That is for the exchange management system to block.” But NSE was so big

and powerful and, by then, so vindictive that nobody dared to voice such views openly.

In the Emkay fat-finger trade too, there were two different kinds of problems that did not get adequately discussed. As our source explains, "There is generally a bunch of 30-40 brokers who put trades in the system way below market which often get executed. These are small orders where the brokers are playing for some correction and mistakes; they usually have margins and those transactions cannot be annulled. In the Emkay case too, out of the entire Rs51 crore (Rs510 million) problem, such trades accounted for about Rs15 crore (Rs150 million), which the broker had to accept, since they were backed by adequate margins. Only Prakash Shah and Inventure had large orders and no margins. So this is really a failure of the exchange's system and trades ought to have been annulled. In fact, a minority order of SAT has upheld this – that you cannot levy a small penalty and allow someone to make windfall gains." So, let's look at what the regulator had to say. SEBI, working very slowly as usual, issued a show-cause notice to NSE on 28 April 2013, nearly six months after the episode. It pointed to several gross errors on NSE's part. It addressed four crucial issues.

Four Questions About NSE's Systems

1. Why did the index blow past the 10% circuit-breaker?

Why did NSE's trading not halt automatically when it hit the 10% circuit-breaker and remain open for another six seconds causing the index to breach even the 15% level? The Exchange has claimed that once the 10% level was breached, "the system stopped accepting new orders" immediately and "the market halt process was initiated within its system." It argued that the halt process involves not only stopping fresh orders, but communication between the multiple trading engines, risk management system, index systems and surveillance systems. All this would involve a 'minimum process time' in bringing the entire market to halt.

On 5 October 2012, the circuit-breaker was triggered at 09:50:58 and market halted at 09:51:04 just six seconds from

triggering the circuit-breaker. In the meantime, orders existing within the system got executed. The minimum process time – in this case, six seconds – is technically called in-flight time. NSE hired an international consultant David Tsoi to argue that "in-flight orders is not a matter of concern to the regulators and the exchanges accept the same as the inevitable consequence of modern technological development."

SEBI dismissed this logic out of hand. Prashant Saran's order [73] on 10 October 2014 said that SEBI's circular of 28 June 2001 was clear in its intent and scope: "…from July 02, 2001 an index-based market wide circuit breaker [74] system will apply at three stages of the index movement either way at 10%, 15% and 20%. These circuit breakers will bring about a coordinated trading halt in all equity and equity derivative markets nationwide."

The wording of the SEBI circular is absolutely clear that circuit- breakers would bring trading to a halt. It does not permit "that on trigger of circuit breaker, only accepting fresh orders will be stopped, which will lead to trading halt after execution of all the executable orders already in the system." An immediate trading halt for some time after a very sharp rise or fall in the index, was meant to give the market, time to avoid impulsive or panicky actions. NSE's contention, if accepted, would negate the very purpose of the circular, said Saran. He added that orders that were matched in the system after the 10% breach, because NSE failed to implement the circuit-breaker correctly, had dragged the market further down by another 5%. Saran also noted that NSE has not sought any clarification from SEBI, or expressed difficulty in halting trading immediately. Even after the fat-finger crash, it had not requested SEBI for any change or redefining of parameters for halting the market.

Saran held that in failing to stop trading immediately after the Nifty breached the 10% mark, NSE had contravened provisions of the SEBI circular no. SMDRPD/Policy/Cir-37/2001, dated 28 June 2001. In effect, NSE's system was simply not compliant with SEBI's order and it was solely

responsible for a further 5% market decline. These orders led to higher losses, but NSE refused to admit any deficiency.

2. Why did the derivative market stay open and why did the cash market reopen within 15 minutes?

As mentioned earlier, SEBI's 28 June 2001 circular was clear that the market should have remained shut for an hour once the Nifty crashed 10% and for two hours after it plummeted 15%. Yet, NSE halted trading only for 15 minutes. NSE had an interesting twist in its argument. It claimed, when the marketwide circuit-breaker was triggered in the past, Nifty and Nifty Futures moved in tandem; hence, cash and derivatives trading were both halted. Emkay's fat-finger only caused the Nifty to crash almost 900 points, but the Nifty near month futures contract dropped only 100 points while the Sensex fell only 62 points – which would only be about 20 points on the Nifty. Since the marketwide circuit-breaker was triggered only due to one fat-finger trade and the derivatives market as well as the BSE were largely unaffected, "halting of derivatives market would have adversely impacted the interest of investors and market participants apart from… causing confusion in the minds of the investors," it claimed.

Saran said the SEBI circular "does not provide for any exceptions" and asks for a market halt "without giving any liberty to stock exchanges to assess the situation and act according to their assessment." It also does not give stock exchanges the discretion to decide how long the halt can be. So NSE was held to have violated SEBI's circular, putting 'the securities market at a serious systemic risk'. NSE countered that it had decided to reopen trading "after consulting SEBI and informing BSE." Saran refused to accept this as NSE "failed to produce any supporting proof" of 'consultation with SEBI' or 'informing BSE'. Reopening trading without a formal consultation with SEBI (and then claiming it had) or BSE, attempting to portray the flash crash as a relatively minor issue, deflecting attention from its own systemic issues only shows NSE's enormous confidence, a result of its regulatory capture.

3. Inadequate order/trade limit controls and risk management systems of at the broker and exchange level

That the market collapsed under the weight of a single wrong order raises serious questions about control and trade limits. A SEBI circular, dated 31 January 2000, required NSE to ensure system-based control on the trading limit and exposure per client while permitting brokers to have computer-to-computer link (CTCL). The circular also required brokers to "set pre-defined limits on the exposure and turnover of each client" and ensure that brokers' systems were "capable of assessing the risk of the client as soon as the order comes in." When system-based controls lead to an order being rejected, the client has to be informed and the broker's system also has to have a 'review and release' facility to allow the order to pass through. The SEBI order noted how NSE had failed to ensure any of this.

NSE argued that SEBI's circular covered risk management of internet- based trading and did not apply to the fat-finger trade; it also tried to deflect responsibility for ensuring system-based controls on to brokers. It argued that the Exchange does not need to maintain order/trade limit controls and risk management. Saran refuted this with elaborate documentation to show how the fat-finger order was executed through a CTCL platform, which is a non-exchange terminal. Ever since the CTCL facility was introduced in 2000, it requires an annual system audit from a certified auditor; but NSE had done nothing beyond an audit, to ensure that brokers actually had system-based controls in place.

Saran scathingly concluded that NSE had "taken a conscious decision to delegate the risk management responsibility" and that NSE "did not have suitable systems to manage risk in case of failure of stockbroker's risk management system." Had these been in place, when the broker's risk management system failed, order level checks at the stock exchange would have prevented the erroneous trade being entered.

Amazingly, right until 15 July 2005, NSE had 'quantity

freeze' for the cash market that could have prevented an Emkay type of episode. It was abandoned because "the requirement was not mandated across exchanges." The SEBI order noted that if "quantity-freeze checks were made at the exchange-level, the fat-finger trade would not have passed through and upset the market equilibrium on October 05, 2012." After the Emkay incident, SEBI issued a circular on 13 December 2012 asking stock exchanges to perform order-level checks on all categories of orders placed on stocks, exchange traded funds (ETFs) and futures. That this loophole was fixed later only establishes that SEBI and NSE were as much responsible for the Emkay incident as brokers and their counterparties.

4. Inadequate order/trade limit controls and risk management of counterparties of Emkay Global

While Emkay made a humungous error, the counterparties to its trades made windfall gains on orders placed at unrealistic prices without paying adequate margins. On a margin of Rs4 crore (Rs40 million), Inventure had buy orders worth Rs1,083.42 crore (Rs10.83 billion), or 271 times the available margin. Of these, one of its clients, Ankit Financial Services, had buy orders for a massive Rs468.96 crore (Rs4.69 billion) at 18.64% below the last traded price. Of these, Rs214.82 crore (Rs2.15 billion) worth of orders were matched. The client had a margin of only Rs4 crore (Rs40 million) – an 87% margin shortfall. Inventure also had huge sell orders for Ankit, at unrealistic prices, which never got triggered. Inventure's terminal had buy and sell limits in double digits, yet the very large order was matched. Prakash Shah also had a margin shortfall of 87%.

All this made a mockery of NSE's surveillance systems. It had issued a circular on 22 February 2005 advising members to be diligent about not entering orders at unrealistic prices. "NSE cannot say that its responsibility was fully met when it had advised its stock brokers to have system-based control on the trading limit of clients… the available margins were grossly inadequate. This is clearly a failure on the part of NSE to ensure proper risk management by its stock brokers," observed Saran's order. But this is how the order ended: "

NSE is censured for its conduct and is directed to be careful and cautious… **”** and it is “directed to carry out a comprehensive review, by an Independent Expert of the processes followed, checks in place, systems employed…” **(** ***Emphasis added*** **)**

Although Saran had picked apart NSE’s defence and the illusion of a perfect exchange, the order ended in a whimper because the harsh indictment wasn’t followed by suitable punishment. Why was NSE let off so lightly? Why did it have the gumption to reopen trading without consulting SEBI? Here is what Dinesh Narayanan wrote in *The Economic Times (ET)* [75] in 2016: “After the market shut, the then FM, P Chidambaram, called Narain on the phone and soon after, the exchange reopened. ‘The goal was always to resume trading after a short shutdown. Everyone was on the same page,’ Chidambaram told *ET* via a text message. When *ET* pointed out that it violated SEBI guidelines, he replied that the SEBI chairman was on board. SEBI chief Sinha did not respond to calls and text messages to his mobile phone seeking comment.” A NSE board member told *E T* ’s Narayanan, “That is the problem. Non-written communication is much faster and there is no audit trail.”

Did Ravi make a serious mistake in taking oral orders directly from the finance minister and bypassing the regulator? Well, NSE took a gentle rap, although the Emkay issue turned messier. Ravi stepped down as MD & CEO soon after. But NSE’s perceived closeness and clout with the finance ministry only increased as did its contempt for the regulator. Meanwhile, the Emkay matter reached SAT. Two of three judges, JP Devdhar and Jog Singh rejected the trade annulment plea of Emkay. However, the majority order did point out “NSE ought to have appreciated whether imposing penalty on Emkay was appropriate, for violations committed by Inventure and Prakash Shah for huge unauthorized profits running into several crores.” [76] But the third judge AS Lamba took a radically different view.

He said NSE had left the field wide open by issuing the circular about not placing orders far from normal market

price, "since no limit has been put in quantitative terms… As a matter of fact N **SE should have been more careful** in issuing this important circular, by putting reasonable, unambiguous directions for everyone to understand and follow, but it is seen that N **SE has observed a mere formality** by issuing this circular" with the result that the circular "deserves only, as much respect, which everyone concerned has accorded, by interpreting as they can." He called it a " **matter of regret, that NSEs circulars, bye-laws, rules are drafted in a manner, which do not lead to clarity .** "

Lamba observed: "Despite an event of such magnitude taking place, shaking securities market in India to its foundations, NSE chose to conduct a limited purpose inspection, not bringing out anything of relevance or confirming that it was a one off mistake." Lamba's views about NSE and its conduct are harsh and eye-opening.

- NSE's DAC, he said, **had acted in an "unprofessional, un-businesslike and ad-hoc manner** without going into any depth of the problem and in a perfunctory manner…"
- On NSE's inspection of brokers following the crash, he observed, " **the less said the bette r** " and that the inspection was " **conducted, in haste" and "found what Respondent (NSE) wanted to find .** " Instead of getting to the bottom of why the fat-finger trade disrupted the market, NSE conducted " **a standardized inspection of all big players… and found same fault with all concerned and fined everyone .** " (*Emphasis adde d*).

NSE continued to take the stance that it was, indeed, a perfect institution and that the incident of 5 October 2012 was 'one-off'. Prashant Saran, who wrote the SEBI order, disagreed. He said that technological systems in a stock exchange should be robust enough to anticipate and prevent such events from happening where no single event or fault can shut down an exchange. "A six seconds delay in closing down the market causing the index to drop so much that it

crosses the next trigger is not at all acceptable.”

The issue of whether NSE was correct in refusing to annul trades continued to be litigated before the SAT. The new SAT bench disagreed with NSE’s contention that in an anonymous trading system the counterparties are unknown and the trades cannot be cancelled. The investigation had clearly established how and why these counterparties had benefited. On 26 March 2015, the appellate tribunal finally ordered the Exchange to accept the ‘settlement’ worked out by Emkay and the counterparties. Emkay had reportedly offered around Rs34 crore (Rs340 million) as against Rs51 crore (Rs510 million) that it needed to pay. [77]

NSE was asked to accept the settlement proposed by Emkay and release the payment in four weeks without going into the issue of whether or not it had the powers to do so. Essentially, Prakash Shah and Inventure got 50% of the gain, Emkay suffered a loss of Rs30-Rs32 crore (Rs300-320 million), of which Rs15 crore (Rs150 million) came from orders matched with smaller traders and the remaining to Prakash Shah and Inventure. Since NSE had already impounded the payments, the payout was done with interest. The counterparties stood to make super profits while paying relatively trivial penalties.

An NSE insider, who was witness to the mayhem when the fat-finger trade occurred, says that his first reaction was that the trades should be cancelled; but he was told that an exchange was not a bank or an ATM and it could not be done. Just weeks later, he attended a meeting of the International Organisation of Securities Commissions (IOSCO) and heard a discussion on risk mitigation. The IOSCO guidelines are very clear on the issue, he said. While every exchange may have a robust risk mechanism, there will be rare issues like fat-finger trades. All exchanges and regulators must have rules and processes in place to undo the damage that might happen. Clearly, NSE knew what ought to be done, but did not do it. Those in charge had decided on a path and they were going to take it, whether principled or not, and there was no going back, he maintained.

"Unyielding insistence on sanctity of trades could confer windfall gains upon counterparties who are fortunate (and perhaps even canny) to have taken the benefit of the erroneous trades. One method of preventing undue advantage to such counterparties would be to disgorge the profits they may have obtained so as to balance the equities between the parties. The fact that SAT has left the door open for some form of reconsideration (including annulment) suggests it is cognisant of these inequities that need to be rectified," writes Umakanth Varottil [78] in a legal analysis of the order.

There is also the view that annulling fat-finger trades, as a rule, would create a moral hazard and allow negligent or rogue traders to game the system to their benefit. Interestingly, a SEBI review on trade cancellation and annulment made it clear that exchanges have, in the past, annulled trades in exceptional situations when it was warranted. [79] It listed several instances when this was done, even in the run up to the flash crash triggered by Emkay Global. The note also says that error trades or freak trades were not a new problem for securities markets, although the disruption caused by the Emkay episode was significantly bigger.Admitting that SEBI had not prescribed any regulatory framework for 'annulment of trades', it pointed out that exchanges were empowered by their by-laws to annul trades that they deem fit, once brokers initiate a cancellation request. The note proposed that exchanges must provide for annulment of trades as well as review, in exceptional circumstances, based on strict parameters and proper investigation of circumstances.

NSE's stubborn insistence on not permitting annulment differed from that of IOSCO as well as SEBI. But, typically, NSE managed to rally support for its point of view. The Financial Sector Legislative Reforms Commission (FSLRC) had discussed the issue of 'finality of financial transactions'. In March 2013 it recommended that " **transactions on an Infrastructure Institution should be final and not undone under any circumstances** (*emphasis added*), because unwinding of trades in such annulment is usually a complex process that may necessitate cancellation of all dependent /

resultant trades."

Interestingly, the FSLRC was headed by Justice BN Srikrishna, a former director of NSE. One of the prime movers behind FSLRC's discussions and recommendations was Ajay Shah who has been closely associated with NSE through Indira Gandhi Institute of Development Research (IGIDR) and directly associated with the finance ministry. A securities lawyer, who repeatedly represented the NSE, was also on FSLRC's committees.

The IGIDR's finance research group came up with a detailed academic discussion on SEBI's proposal to permit annulment of trades in exceptional circumstances. It argued that the "only beneficiary of trade annulment policy is the offending party" and how "the operational cost of trade annulment will be considerable" on the exchange as it will have to find "each and every order which was traded during such incidents." IGIDR's finance research group, headed by Susan Thomas, has been supported in a big way by NSE grants. It also chipped in with its views on NSE's discussion paper that recommended annulment of trades in exceptional situations. [80] Ajay Shah wrote several articles and blogs on the high cost of trade annulment. NSE's unusual support to IGIDR, sharing of trade data and possible *quid pro quo* is now a matter of a larger SEBI investigation following the HFT scam. Fat-finger trade and the client code modification, where NSE was let off lightly, do not even begin to show how extensive was its regulatory capture. Our next five chapters elaborate the true extent of NSE's reach.

11.

Regulatory Capture – I:

Start of NSE Co-location

NSE had acquired absolute power by 2010 and with that came hubris. It was determined to maintain its market dominance at any cost, crush competition, bypass SEBI rules or arm-twist the regulator into facilitating lucrative acquisitions. The source of its arrogance was regulatory capture, after Bhave became the SEBI chairman. Things had reached a stage where, as a senior SEBI official told us, it seemed futile to even question NSE. "Even if someone in SEBI put up a note saying NSE had not done something right, there would be pressure to take a softer view. Notes and actions recommended by junior officials often lost steam at the top level and were never acted upon. When the chairman wanted something done, there would be clear instructions to go into it. There were never any instructions from the top to examine NSE's actions until 2017," he said. The Emkay fat-finger trade was one example. SEBI's middle-level officials were keen on following up the notice to NSE with directions for "failure to contain the price fall." But our source says, "We definitely had a sense from the top brass that no harsh action was to be taken against NSE."

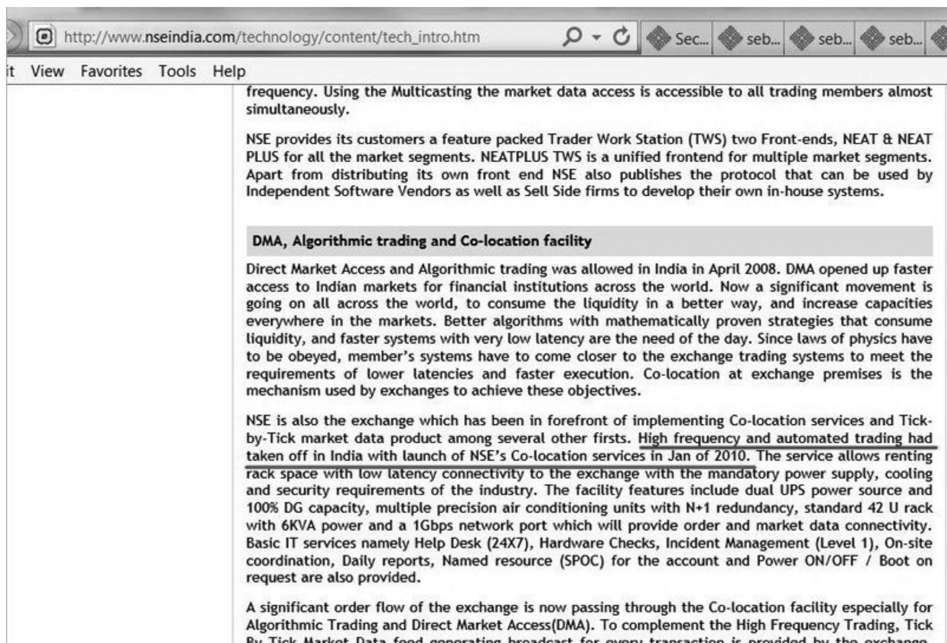
While NSE was beyond reproach, it was open season when it came to its rivals. SEBI officials, even juniors, thought nothing about keeping top executives of other exchanges waiting when they arrived for scheduled meetings, or humiliating and upbraiding them in public. One of them finally complained to a whole-time member (WTM) and asked if he could skip some such meetings. On the other hand, Chitra Ramkrishna, as NSE MD, only attended meetings called by the SEBI chairman. Her perceived equation and influence with bureaucrats at North

Block, especially finance minister P Chidambaram, attracted fear and awe. At SEBI, she got appointments on demand and was escorted in the chairman's special elevator often bypassing the mandatory visitor's pass that heads of other exchanges could not avoid.

This also suggests that NSE didn't think much of SEBI regulations and the need to obtain permissions. Its launch of direct market access and co-location services is a good example of this attitude. Here's what an insider told us: "In 2007, a group of us in SEBI were very excited about permitting exchanges to start direct market access or DMA. We did some background work, but the chairman [81] wasn't very keen. When Mr Bhave took over in February 2008, we were told that the DMA circular had to be put up for discussion and it was done in three days."

The circular was issued in April 2008, just two months into Bhave's tenure. It had a cleverly inserted line, which said that DMA could also be used for algo trading. "Nobody noticed it then, but if you read the circular carefully it is there," says this SEBI source. "We were also told that only NSE would be allowed to start DMA. But we objected and said that permission cannot be granted to NSE alone and decided to address the draft to all exchanges with nationwide terminals. Since NSE was already prepared and in touch with the chairman, they got a jump start and could introduce it quickly, while other exchanges like the BSE scrambled to put things together after the circular was issued. That was the start of algo trading in India."

Not only was NSE, a near-monopoly, handed a huge start by the regulator, it also wangled an advantage when it came to offering co- location facilities (Colo). NSE quietly launched Colo in January 2010, (see image) less than two years after the circular for DMA was issued. [82] Important market developments such as these usually start with a SEBI discussion paper issued in consultation with its TAC and are followed by formal guidelines after taking into account feedback from various stakeholders.


http://www.nseindia.com/technology/content/tech_intro.htm

frequency. Using the Multicasting the market data access is accessible to all trading members almost simultaneously.

NSE provides its customers a feature packed Trader Work Station (TWS) two Front-ends, NEAT & NEAT PLUS for all the market segments. NEATPLUS TWS is a unified frontend for multiple market segments. Apart from distributing its own front end NSE also publishes the protocol that can be used by Independent Software Vendors as well as Sell Side firms to develop their own in-house systems.

DMA, Algorithmic trading and Co-location facility

Direct Market Access and Algorithmic trading was allowed in India in April 2008. DMA opened up faster access to Indian markets for financial institutions across the world. Now a significant movement is going on all across the world, to consume the liquidity in a better way, and increase capacities everywhere in the markets. Better algorithms with mathematically proven strategies that consume liquidity, and faster systems with very low latency are the need of the day. Since laws of physics have to be obeyed, member's systems have to come closer to the exchange trading systems to meet the requirements of lower latencies and faster execution. Co-location at exchange premises is the mechanism used by exchanges to achieve these objectives.

NSE is also the exchange which has been in forefront of implementing Co-location services and Tick-by-Tick market data product among several other firsts. High frequency and automated trading had taken off in India with launch of NSE's Co-location services in Jan of 2010. The service allows renting rack space with low latency connectivity to the exchange with the mandatory power supply, cooling and security requirements of the industry. The facility features include dual UPS power source and 100% DG capacity, multiple precision air conditioning units with N+1 redundancy, standard 42 U rack with 6KVA power and a 1Gbps network port which will provide order and market data connectivity. Basic IT services namely Help Desk (24X7), Hardware Checks, Incident Management (Level 1), On-site coordination, Daily reports, Named resource (SPOC) for the account and Power ON/OFF / Boot on request are also provided.

A significant order flow of the exchange is now passing through the Co-location facility especially for Algorithmic Trading and Direct Market Access(DMA). To complement the High Frequency Trading, Tick By Tick Market Data feed generating broadcast for every transaction is provided by the exchange.

(*This page has now been modified by NS E*)

Why was the established process ignored this time? In fact, there is no record available in the public domain about NSE starting Colo services, except a mention in NSE's annual report for FY09-10 (page 23). It states, "In line with exchanges across the globe, the NSE has provided its members a colocation facility for their DMA and ALGO Trading. The co-location setup is a state of the art, highly robust, resilient and secure infrastructure."

BSE registered a formal protest about SEBI facilitating NSE's head start. It sent a note emphasising the need for a fair regulatory framework, which SEBI simply ignored. BSE officials were upset but not surprised; by now, they were used to NSE receiving instant approvals or even *post-facto* approvals. Unfortunately, NSE's clout was not matched by equal attention to technology, in a business where technology is all- important. According to the anonymous whistle-blower, who exposed the malpractices and market manipulation in NSE's Colo, "When

to provide faster price refresh. In line with exchanges across the globe, NSE has provided its members a co-location facility for their DMA and ALGO Trading. The co-location setup is a state of the art, highly robust, resilient and secure infrastructure.

New Product Launches

New business products like Interest Rate Futures (IRF), Mutual Fund Services System (MFSS), New currency pairs, Hang Seng BeES, listing filing by Madras Stock Exchange (MSE) on NSE have been introduced.

23

the NSE started TBT (tick-by-tick) in 2010, all independent software vendors (ISVs) wrote programs using the NSE's API (application program interface), which defines the protocol as per which information will flow from the exchange. Logically, all people should be on equal footing… since this was essentially a patchwork solution put together by the NSE, it had several internal inconsistencies. The system had to cater to a significant load, which it was not architected for." SEBI remained unaware of this flaw, which was the source of market manipulation.

SEBI Buried Complaints

SEBI had a chance to find out what was going on in NSE's Colo servers in July 2011, when it received a complaint about undue advantage given to foreign institutional investors (FIIs) from Colo. The complaint sought discontinuation of Colo, saying, "FIIs had the unfair advantage of faster and better execution and timing the order compared to normal retail investors." Following this, on 1 July 2011, Pawandeep, a manager from the policy division of SEBI's market regulation department, wrote to stock exchanges asking for their comments. It is not clear what NSE had to say, but BSE replied and complained about NSE's anti-competitive practices. However, NSE's Colo continued as before.

In November 2011, agenda item No.16 at SEBI's board meeting was "status paper on on-going issues in secondary market". The paper admits that no specific guidelines on algo trading or Colo had been prescribed. Sub-item No.7 was on "Development of Algorithmic Trading and its Supporting Infrastructure". There is no information on whether this agenda item was discussed at that, or the next three board meetings held on 3 rd January, 28 th January and 24 March 2012. Finally, in March 2012, SEBI issued guidelines on algo trading.

CIRCULAR

CIR/MRD/DP/ 09 /2012 March 30, 2012

To
All Stock Exchanges

Sir / Ma'am,

Sub: Broad Guidelines on Algorithmic Trading

1. It has been observed that adoption of technology for the purpose of trading in financial instruments has been on a rise over the past few years. Stock brokers as well as their clients are now making increased usage of trading algorithm (hereinafter referred to as "algo").
2. Based on recommendations of Technical Advisory Committee (TAC) and Secondary Market Advisory Committee (SMAC), it has been decided to put in place the following broad guidelines for algorithmic trading in the securities market.

At that time, SEBI clearly knew that algo trading conducted on the exchanges was irregular. SEBI's 30 March 2012 circular had said, "For stock brokers that are currently executing orders through algos, a period of three months is provided to the stock exchanges, within which the approval process shall be completed and minimum risk controls shall be established, if not already done." A fair investigation into the NSE's algo scam would not have been limited to the whistle-blower's allegations in 2015 about unfair practices in the NSE's Colo servers. It ought to have extended to 2010 to find out how and why the Exchange started algo trading without official clearances, and why the regulator failed to act on it for two years until the 2012 guidelines were issued. But this would require SEBI to take a close and hard look at its own officials, starting at the very top.

The SEBI official we quoted earlier confirms the irregularity of allowing NSE to start Colo. "Instead of addressing the co-location issue and formulating a policy, SEBI decided that whoever is offering co-location already can continue to do so." He says this was an oral instruction from the SEBI chairman and the WTM-in-charge. So, all of a sudden, India had launched algo trading without any fanfare. Our source says, "We put out a *post facto* circular on algo trading in 2011- 12, which triggered a hue and cry about NSE starting algo without a policy framework." NSE

had ensured it could start algo and offer Colo facilities without any competition, based on oral consent from the chairman; such was its control over the regulator.

To our blunt question on whether SEBI, under chairman Bhave, had ensured that NSE and its members alone could offer Colo, this official replied: "Yes. This was patently unfair. But why did the BSE accept it? I believe that apart from SEBI top brass, even BSE is to be blamed. Why was it bound by anything that is not in writing?" This official told us that someone from BSE later approached him to ask if the 'oral instructions still stand'. He asked, "What instructions are you talking about? Nothing exists on paper. I think the market also needs to hold the regulator to account."

Anyone who understands the feudal mindset prevalent in the Indian administrative set up would know that it is suicidal to challenge the regulator unless you are really pushed to the wall. No regulated entity would dare to 'hold the regulator to account', without serious repercussions. Our next two chapters show what happened when BSE and Multi Commodity Exchange (MCX) tried to hold SEBI to account.

12.

Regulatory Capture – II:

Block BSE & MCX-SX

It is widely believed that NSE's success is entirely due to its efficiency and, of course, the 'network effect', [83] but were these factors good enough to create a near-monopoly? The fact is, over the years, NSE managed to neuter every competitive threat to its growth, with the help of SEBI or the finance ministry under P Chidambaram. These episodes have remained well-hidden from the public eye and, hence, NSE is seen only as a shining example of professionalism and competence. For one, India's oldest exchange, The Stock Exchange, Bombay (BSE) made two separate efforts to fight back and regain its lost glory. The finance ministry thwarted its first attempt and, the next time, it was SEBI. Separately, the indomitable Jignesh Shah and his sky-high ambitions also put up a huge challenge. He had to battle SEBI every step of the way to get approval for setting up a stock exchange; when he finally got a licence, the National Spot Exchange scam destroyed him.

The BSE Challenge

As it worked towards 'demutualisation' or corporatisation of the exchange (which happened in August 2005), BSE first tried to bring in NASDAQ of the US as a partner. Recounts Ghanshyam Dass, who was MD, NASDAQ OMX – Asia Pacific & Middle East from January 2000 to February 2008: "When I joined NASDAQ in 1999-2000, I was very keen on us signing up with the NSE or BSE. We wanted to take a 26% stake, which was then permitted under the law. NSE was keen on a tie- up but they didn't want to give us that kind of stake. But we weren't interested in a small stake, because if we had less than 26%, under Indian company law, we would have had no right of intervention or control, to effectively manage things. So, BSE was the next best option.

We worked hard for over a year on a very comprehensive deal. The price we had finalized was much better than BSE's valuation today as a listed company. Kotak Mahindra Bank was handling the entire process. Everything was finalised. My team was here and we were supposed to sign an agreement the next day. In the evening, when the US market opened, we would have transferred the amount. I wrapped up my call with NASDAQ the previous evening – they ended with 'all the best'. But that morning mysteriously and suddenly, the government issued a gazette notification amending Press Note 4, which said that no foreign investor could hold more than a 5 % stake in an exchange." [84]

Dass and his team had been working on the deal between 2001 and 2005 and had spoken to GN Bajpai and M Damodaran (two successive SEBI chairmen), who, he says, were guiding him and believed that the investment was good for the country. He was also interacting with RBI and the finance ministry. But no one had any idea about the overnight amendment to Press Note 4. No prizes for guessing who stood to lose the most had the deal gone through. "I think there was very effective lobbying to bring in that regulation," Dass says. "People felt threatened that if NASDAQ comes in and revamps the entire trading platform of BSE and brings in the kind of robustness that NASDAQ is known for, it would have been a game changer."

A few years later, after suffering a relentless decline in its market position, embarrassing exits of two executive directors and worse, BSE again tried to get its act together. It brought in a qualified team with international experience around 2009. It recruited Madhu Kannan, who had worked at SEBI, before moving to the US where he worked at Merrill Lynch and the New York Stock Exchange (NYSE). Kannan was bubbling with ideas and had the freedom to recruit a crack team with global experience. So he brought in Jim Shapiro, his former boss at NYSE, and Sayee Srinivasan from the Chicago Mercantile Exchange. But he soon hit an invisible wall, despite a good equation with many former colleagues at SEBI, as well as JN Gupta, a key executive director who had returned to SEBI, for a second stint after

Bhave became the chairman. Gupta had worked closely with Bhave when he was senior executive director at SEBI after which he left the regulatory body for an overseas stint.

Kannan found that SEBI officials appeared sympathetic and supportive of BSE's efforts to become a meaningful competitor, but blocked most of their proposals. One of these, which stunted the Exchange's growth at a crucial time, was BSE's proposed initial public offering (IPO) and listing. "There was no reason why they could not have allowed us to go public. We were ready. There isn't much difference between what they have allowed later and what we had proposed," Kannan told us.

In August 2009, four months after he took over as the CEO, BSE put together a five-year growth plan. Until then, the Exchange had a presence only in the cash market; it now planned to get into derivatives trading, especially currency derivatives. It also needed a clearing corporation and wanted better control over the Central Depository Services (India) Ltd (CDSL), in which the Exchange had a 35% shareholding. BSE had persuaded a public sector bank to sell its stake in CDSL, which would increase its holding from 36% to 54%. Suddenly, Kannan received a call from SEBI asking, "Why didn't you take our approval?" There was no rule that required BSE to seek prior approval to increase its stake; but SEBI would not hear of it, or budge. In contrast, as other sections of this book will show, NSE launched high-frequency trading (HFT), acquired stakes in CAMS and Omnesys, and even appointed key management persons without bothering about SEBI approval, although these were explicitly needed in each case.

Why did SEBI object to BSE's acquisition? Probably because a 54% stake in CDSL would allow BSE to appear much stronger, financially, by presenting consolidated financial results. Also, since CDSL was very profitable, BSE could perhaps have used some of the money to increase its market share by starting a market-making programme that it planned. SEBI's interference clearly reflected bias. It was refusing permission for something that had been allowed to NSE, the dominant exchange, but not to BSE. Over several

calls and meetings, BSE tried to persuade SEBI to see reason. "The NSE had its own clearing corporation, why shouldn't we?" was its question; SEBI had no answer, but did not relent either. So BSE went higher up and approached KP Krishnan, the powerful joint secretary in the finance ministry and right-hand man of P Chidambaram. [85] It could get a few other things sorted out, but not this.

The other issue was the approval for algorithms used for derivatives trading. This eventually turned controversial enough to spill out into the media. Here's how things worked. A broker could write a trading algorithm (algo), which had to be submitted to the respective exchanges for clearance. What goes into an algo is a proprietary formula, which is expected to help the firm make money, so the source code was a secret. BSE was liberal in clearing algos. A top executive told us, "At BSE, we decided that we don't care what is your algo; it is your product that matters. We will only look at it as a throughput and test it on our system to see if we can handle it at the exchange end at your peak level of use." On the other hand, algo writers say that NSE insisted on firms sharing their source code.

This, they suspected, was probably being passed on to Omnesys in which NSE had a shareholding. The person who approved the algos at NSE was Suprabhat Lala, assistant vice-president of trading operations. His wife Sunita Thomas owned an algo design company Infotech Financials P Ltd. What upset BSE was that NSE refused to clear any algorithm, which included trading or analytics of competing exchanges like BSE or MCX, and prevented 'smart order routing' that allowed the algo to pick up the best price across exchanges. This was clearly an anti-competition strategy that was unfair to BSE. It was SEBI's job to ensure a level playing field by investigating BSE's complaints. But SEBI maintained a sphinx-like silence.

The BSE management team those days was not used to the servility expected from Indian regulated entities. Jim Shapiro, BSE's head of market development, refused to keep his frustration bottled up. Speaking at a technology seminar in November 2009, he lashed out at the unfairness of the

system (and the silence of the regulator) saying he felt as though he had landed in a regulatory Alice in Wonderland. [86] The talk caused ripples across the market and IT community and quickly went viral.

Shapiro's long diatribe bluntly pointed out how SEBI did not see the encouragement of competition as a central part of its mandate. He said: " *One exchange in India, the NSE, has implemented an approval process for members who wish to deploy automated or algorithmic trading strategies (including automated market making and smart order routing)… NSE insists, on the one hand, that no member can deploy an algorithmic trading strategy on its market unless they seek prior approval of the algorithm used. On the other hand, they also insist that no algorithm will be approved if it involves trading or analytics involving trading on an exchange, which competes with the NSE.*

NSE's regulatory stance on algo trading is holding back the development of the Indian market because – among other things – it has effectively banned firms from deploying smart order routing strategies, which are standard market practice in other markets around the world with competing exchanges or trading platforms. Smart order routing helps firms get their customers the best price – automatically – wherever that price may be. It also disciplines pricing across markets and makes them more efficient.

More importantly, this intrusion into the legitimate activities of firms … allows one exchange to prevent a firm from trading on other competitor exchanges, by exploiting its market power and regulatory authority. In practice, if a firm does not refrain from using algorithmic trading to trade on BSE, NSE will NOT approve its algorithm to trade on the NSE… NSE imposes a condition on any firm that wishes to co- locate at the NSE facility – you must promise that you will not use your computer server to send an order to any exchange except the NSE. This restrictive stance of NSE… is also holding back the development of the Indian market… First, it significantly raises the costs and complexity for a

firm that wishes to engage in algo trading on other exchanges – because it requires that firm to set up a separate infrastructure and makes it impossible to route all orders to Indian exchanges through one server. Second, it holds back development of the market by restricting the ability of firms to trade on the exchange of their choosing at any point in time… ***In effect, NSE uses its market power and regulatory power to lock up firms and prevent them from trading on competitor exchanges in the future.*** (*Emphasis adde d*).

…Are the practices noted above in violation of any specific rules or regulations? I am not a securities lawyer. But ever since I started my career on Wall Street, I have been a believer in the 'smell test'. If something doesn't pass that test, you don't do it… For many years, for example (until 2000 when the rule was finally fully revoked), the NYSE tried to prevent its members from trading NYSE-listed stocks in the OTC market through something called Rule 390. The ability to impose such a rule – in the absence of regulatory intervention – is directly proportional to an exchange's market power. If a smaller market with 10% market share had tried to do so, customers will simply stop being members of that exchange. If a dominant market with 95% market share does so, it is difficult for a customer to leave.

NSE's policies on algo trading and co-location noted above are tolerated by firms because of NSE's tremendous market power. In the end, Rule 390 was abolished because the largest member firms objected to it and convinced the SEC that what was positioned as an investor protection rule was actually anti-competitive. Similarly, I believe that only when Indian market participants find their collective courage and voice, will NSE's policies change and will the drift toward increasing monopoly power be halted."

Jim Shapiro's blunt speech gladdened the hearts of market participants, but was largely supressed by the media and completely ignored by the regulator. A video of the event shows an NSE representative at the conference, who kept mum. With the regulator remaining unmoved, it was no

surprise that the BSE team was disheartened and soon disbanded. These were global professionals who had hoped to make history.

Ironically, when it had a professional management in place, BSE no longer had the same powerful lobbying ability of the Brokers' Forum, whose belligerent comments made media headlines, while their political contacts constantly questioned the regulator. As the BSE board of directors was gradually purged of broker directors, it also lost its clout with the government. The brokers themselves shifted the bulk of their business to NSE. BSE, which had a fighting chance to recover lost ground, wasn't allowed to catch up because of NSE's regulatory strong capture.

MCX-SX and Its Struggles

Jignesh Shah, sharp and hugely ambitious, began his career in BSE's computer department. He was determined to start a stock exchange in India and went on to set up a string of exchanges, in India and abroad, before he was brought to a crushing halt. MCX-SX, launched in late- 2008, had to struggle every inch of the way for four years before it was allowed to start operations. Jignesh openly and consistently blamed the SEBI top brass, alleging that they put up a series of roadblocks at NSE's instance, often invoking archaic and confusing regulations for ownership and control of stock exchanges. SEBI insiders also affirm that the regulator showed extraordinary favours and deference to NSE, especially during 2008-2011, when Bhave was the SEBI chairman. Separately, there is enough evidence that BSE and MCX-SX were hobbled; the latter sought recourse to litigation when the regulator refused to step in to ensure a level playing field.

The story goes back to 13 November 2006 when SEBI issued the MIMPS (Manner of Increasing and Maintaining Public Shareholding in Recognised Stock Exchanges) Regulations, 2006, requiring every older stock exchange to ensure that at least 51% of its equity was publicly held and that no person could, directly or indirectly, or acting in concert, hold more than 5% of the paid-up capital. In 2008,

SEBI and RBI, as joint regulators, had permitted stock exchanges to start separate currency derivatives platforms. All three exchanges rushed to set them up. MCX-SX had applied for a stock exchange licence, which it obtained in September 2008; but it was allowed to trade only in the currency derivatives segment and that too for one year. Even here, NSE was allowed to start a loss-leading operation that aimed at crippling competition by not charging a fee. But more about that later.

On 22 December 2008, MCX-SX applied for permission to launch the cash and equity derivatives segment. SEBI asked it to fulfil certain conditions under MIMPS Regulations within one year, even though MIMPS was specifically applicable to older exchanges, which were owned by brokers' associations, by a process called demutualisation. The conditions were tough. Under MIMPS Regulations, no one could hold more than 5% of capital, which meant that MCX and Financial Technologies (FT), promoters of MCX-SX, had to dilute their stake by selling it to a large number of investors. Why would any entrepreneur have any interest in building a successful exchange with a 5% stake? Clearly, the rules were meant to block Jignesh Shah. We will discuss this too in detail later.

On 31 August 2009, SEBI renewed the recognition of MCX-SX for another year, subject to full compliance with the relevant provisions of MIMPS Regulations by 15 September 2010. Between May and November 2009, MCX-SX made a series of share placements to 18 banks, mostly public sector banks, and signed complicated deals with Punjab National Bank and IL&FS with exit options for them. In December, the two main promoters of MCX-SX, Financial Technologies (FT) and MCX, as also IL&FS, cancelled a large part of their shareholding to bring it down to 5% each, as per the MIMPS Regulations.

MCX-SX said it would follow the MIMPS Regulations, but simultaneously issued warrants to these entities. Our sources say that this idea of cancelling shares and issuing warrants had come from a senior SEBI official. But SEBI objected to the issue of warrants and accused MCX of trying

to pull a fast one. MCX moved the Bombay High Court for sanction of the scheme of capital restructuring and obtained an order on 12 March 2010. Believing that it was now compliant with MIMPS Regulations, on 7 April 2010, MCX-SX requested SEBI's permission to trade in all market segments including equity, just like BSE and NSE. But SEBI would not respond. On 16 July, MCX-SX filed a writ petition in the Bombay High Court seeking its intervention to order SEBI to take a decision. MCX and FT committed not to violate the MIMPS Regulations. On 10 August 2010, a division bench of the Bombay High Court directed SEBI to take a final decision by 30 September 2010.

Ordered by the Court to take a time-bound decision, SEBI examined the MCX-SX application closely and concluded that it had not complied with the Regulations. In fact, it called its scheme of capital reduction and issuing of warrants a subterfuge. A notice was issued to MCX-SX on 30 August 2010 rejecting its application. SEBI gave five reasons: one, excessive concentration of economic interest in the hands of the two promoters, MCX and FT; two, failure to ensure full compliance with the MIMPS Regulations; three, promoters (MCX and FT) were acting in concert and holding more than 5% of shares; four, promoters had entered into buyback arrangements that were in the nature of illegal forward contracts (as mentioned above, with institutions); and five, that the conduct of MCX-SX and its promoters lacked honesty and, therefore, they were not 'fit and proper' to run an exchange. On 16 th September, MCX-SX responded to each of these allegations but, on 23 September 2010, KM Abraham, WTM of SEBI, rejected its application upholding all five charges against the exchange. Once again, MCX-SX approached the Bombay High Court for justice.

MCX-SX wasn't alone in being put through the wringer by SEBI. As soon as Ashish Chauhan became the deputy CEO of BSE in 2009, he had asked for a meeting with chairman Bhave to seek guidance on listing the Exchange. BSE was under pressure from its institutional investors and brokers to go public. Bhave is understood to have agreed, in principle, that SEBI will support BSE's listing, but, when the

Exchange applied for permission, it was told, "We are setting up a committee and whatever it decides, everyone should go by it." Both, BSE and MCX-SX, were keen on listing and this was an old trick of seasoned bureaucrats to derail action through a carefully constructed committee.

On 22 December 2009, the SEBI board decided to ask Bimal Jalan, once a bureaucrat, and former governor of RBI, to head the committee. The other members were: KP Krishnan, from the finance ministry, Kishore Chaukar, former investment banker, Uday Kotak of Kotak Bank, Prof G Sethu of the National Institute of Securities Market, and KM Abraham. On 22 November 2010, just two months after Abraham had denied MCX-SX permission to trade in equities, the Jalan committee [87] submitted its recommendations, which were supposed to have a shelf life of five-years. Some said this was just long enough to kill NSE's competitors and change the rules again. Not surprisingly, in January 2021, SEBI again issued a discussion paper to "Review ownership and governance norms to facilitate new entrants to set up stock exchanges/ depository". [88]

It was no surprise that the Jalan committee was against listing of exchanges as well as the entry of private corporate entities. It favoured only the NSE model where large financial institutions brought in equity and would have Rs1,000 crore (Rs10 billion) net worth with an anchor investor holding a 24% stake for 10 years. In its view, stock exchanges should not be driven by the profit motive and ought to make only a few percentage points above the RBI bond rate! Why would any institution invest 24% in a bourse to get a fixed return?

The ridiculous recommendations were designed to prevent any exchange or market infrastructure institution (like exchanges, clearing corporations and depositories) from going public. It was fairly well known that Ravi and Chitra at NSE had an aversion to listing, even though private equity investors had pumped thousands of crores of rupees into NSE. Listing would bring intense scrutiny from investors and

analysts, when the two were running NSE like a fief. Under increasing pressure from large foreign investors to list the Exchange, NSE found the Jalan committee's recommendations a handy excuse. Interestingly, many of those who were consulted by the committee were outraged that their views were ignored. [89]

Having achieved the objective of delaying listing of BSE and MCX- SX, SEBI put the Jalan committee report into cold storage. This left MCX-SX, which was bleeding cash, with an uncertain future. It was also unfair to BSE brokers who had been told since the 1990s that 'demutualisation' would help them unlock the value of their membership cards. Fortunately, most of the bizarre recommendations of Jalan committee were eventually junked. Bhave left SEBI in early-2011, after an effort to give him and the WTMs a five-year term did not work out. But the deliberate confusion created by the Jalan committee ensured that NSE's dominance remained unchallenged. In February 2011, UK Sinha became the SEBI chairman. He too did nothing for a year. In fact, his first term was spent battling numerous court cases against his appointment. His book, *Going Public: My Time at SEB I* , suggests they were engineered by 'his predecessor', without naming him.

Meanwhile, MCX-SX had gone to the Bombay High Court against Abraham's order arguing very convincingly against each reason for rejecting its application. It contended that 'concentration of economic interest' was a concept invented by SEBI to reject his application, since it was not mentioned in any regulation or statutory provision. He also argued that MCX-SX was already set up as a corporate entity (as opposed to other exchanges which were broker associations that were seeking to convert into corporate entities by giving trading members equity in lieu of their membership rights). The MIMPS Regulations of 2006 were meant to facilitate the conversion of India's 20-odd exchanges into corporate entities and were being wrongly applied to MCX-SX. Over 51% of its shares were already held by the 'public', and it was in compliance with MIMPS Regulations. It also argued against the charge that FT and

MCX were ‘acting in concert’ and claimed that the ‘buyback’ arrangements it had entered into were perfectly legal and SEBI itself had permitted them in at least 13 cases.

On 14 March 2012, the Bombay High Court accepted most of MCX- SX arguments, except that it should have kept SEBI informed of its scheme of capital reduction and buyback. It directed SEBI to consider MCX-SX’s application ‘afresh in terms of the observations’ contained in its judgement and to decide the matter within a month. SEBI filed an appeal in the Supreme Court. But it also decided to checkmate Jignesh Shah by accepting some of Jalan committee’s recommendations at a board meeting on 2nd April. What it did was to junk the recommendations on capping profit and managerial remuneration (which would have hurt the NSE), but accepted the recommendation that no single investor will be allowed to hold more than 5%. Only a stock exchange, depository, insurance company, banking company or public financial institution would be allowed a higher shareholding of up to 15%.

Meanwhile, on 11th April, the Supreme Court directed SEBI to decide MCS-SX’s application to start an equities trading platform within three months. The regulator said it would change MIMPS Regulations and the bourse also agreed to adhere to the new rules; but the damage was already done. Establishing an exchange is a risky business and entrepreneurs would only be willing to take on the risk if they held a substantial stake. To insist that shareholding should be only 5% prior to the business getting operational was only designed to kill MCX-SX.

On 10 July 2012, MCX-SX finally got permission to trade in equities. The new SEBI rules allowed it to start trading with a three-year window to enhance public shareholding to 51% and to reduce the promoters’ holding to 5% each. MCX-SX struggled to take off and, by the following year, Jignesh Shah was consumed by the crisis in his National Spot Exchange Limited (NSEL), which was accused of running an illegal operation and was shut down.

After the NSEL debacle, SEBI ruled that Jignesh was not

fit and proper to run exchanges and threw him out of MCX and MCX-SX. Many used Jignesh's disgraceful end to conclude that Abraham had seen through him correctly, when he denied MCX-SX a stock exchange license This is fallacious. Abraham was only dealing with the issue of MCX-SX's application as per the existing regulations, three years before the NSEL debacle. In fact, even the Bombay High Court had rejected Abraham's arguments and ruled in favour of MCX-SX. This was not Jignesh's only battle with the regulator or the NSE. In the next chapter, we recount how he was soon fighting to save his core business, the broker front-end software, which had an 80% market share.

13.

Regulatory Capture - III:

Block Financial Technologies

While the BSE management preferred to maintain a public silence over its tussle with NSE, the combative but now-discredited Jignesh Shah chose to wage an all-out war. Many would say – and there is a book that makes this argument [90] – that he was the target of a gang comprising NSE, former finance ministry and SEBI officials out to destroy him and decimate the global empire he had built. Just a few months after NSE started operations, this maverick engineer quit his job with the BSE on 1 January 1995 to become an entrepreneur. Jignesh prided himself on lightning execution. Having built the Multi Commodity Exchange (MCX) and made it India's largest commodity exchange in just a few years, he was desperate to muscle into the lucrative business of stock markets. NSE ruled this segment and enjoyed an obscene operating margin of 70% by leveraging its near-monopoly power to the hilt. If anyone could threaten that margin, and who was both feared and hated by the NSE top brass, it was Jignesh. This soon led to NSE *v s* . Jignesh – a fight to the finish that eventually destroyed him, while NSE, as an institution, remained relatively unscathed.

Eager to create a global empire of exchanges at breakneck speed, Jignesh launched many flaky projects with extremely poor-quality managers to oversee his grand ambitions. One of his ventures, National Spot Exchange Limited (NSEL), was launched with insignificant regulatory oversight and clearance from the ministry of consumer affairs. It functioned below the radar and collapsed in 2013, bringing down his whole empire with it. This is not the place to discuss how and why Jignesh crashed, but what happened when it posed a serious challenge to NSE. By the time Jignesh emerged as the first and credible challenger to NSE's iron-grip over the stock market ecosystem in 2006-07, Ravi and Chitra had

spent almost a decade on the job, nurturing their wide and very powerful network of influence. Once derivatives trading took off and volumes soared, NSE had established absolute dominance. Given its excellent track record, it was seen as an ideal institution, combining the best of public ownership and professional management.

But Jignesh posed an unprecedented threat. Unlike BSE, he had no legacy issues of ownership, control, accountability or pressure to regulate trading in thousands of listed companies. Jignesh was hard-charging and tech-savvy. He had his skin in the game and was willing to go head-to- head with NSE and even deploy some of NSE's own tricks and strategies. He had the capacity to break the near-monopoly of NSE. MCX-SX allowed Jignesh to get into foreign exchange trading and, later, launch a stock exchange. He promoted the Indian Energy Exchange (IEX), which managed to garner an 80% market share. He then acquired stakes in exchanges at Dubai, Singapore, Mauritius, Botswana and Bahrain.

The moment Jignesh announced his intention to get into products that were completely dominated by NSE, it was an all-out war. NSE's influence went deep into the system and Jignesh probably underestimated them. The exchange business is not a place for open competition through better products and services. It is a regulated business. Regulators and the government can make or break you. NSE had a retinue of camp followers who worked assiduously to break Jignesh and raise doubts about his systems and practices. With the backing of SEBI and the finance ministry, it was even easier. This was fairly common knowledge in the market and has been documented by books like *The Target* and others.

Several officials confirm that NSE's clout with the finance ministry had a big influence on SEBI even under chairman UK Sinha right until 2015. Actions speak louder than words, as was obvious from the fact that Jignesh was repeatedly forced to litigate outside SEBI's regulatory ambit, in order to get clearances or justice. One of the first cases, where the finance ministry openly sided with NSE, was in the commodities market where MCX ruled with an 80% market

share in key commodities like crude oil, gold and silver. Its much smaller rival, National Commodities & Derivatives Exchange (NCDEX), was struggling, with its focus on agro-commodities. NCDEX, like NSE, had also been set up by a clutch of public sector banks and institutions.

Here's how the battle played out. The first step was to bring NCDEX more under NSE's control. Next, bring the commodities business under SEBI's oversight, instead of strengthening the commodity regulator. With SEBI already captured by NSE, it would be easy to tame MCX. NCDEX started with contracts in agri-commodities and metals, which commanded low trading interest, but was no match for MCX in products that really mattered – internationally-traded crude oil and metals, mainly gold. NCDEX did its best to boost trading volumes but nothing worked until the finance ministry came to the rescue. Quite unusually, in an official note of December 2007, KP Krishnan lamented how NCDEX's performance suffered significantly. The market share for all NCDEX contracts had dropped from over 50% (two years ago) to 13% in the latest month, he wrote, [91] citing views of stakeholders and directors.

The only way to revive NCDEX was for NSE to take an active role in its management and bring about a synergy between the business, marketing and other areas of the two exchanges, he said, and proposed a plan. "A key prerequisite for this is for NSE to become the single largest shareholder in NCDEX. Currently, NSE's shareholding in NCDEX stands at 15%, the same as LIC and NABARD. This can happen smoothly if LIC and NABARD sell 5-6% each of their equity stakes in NCDEX to NSE." [92] Krishnan's action was questionable on several counts. MCX and NCDEX were regulated by the Forward Markets Commission, which was under the ministry of consumer affairs. Krishnan was a finance ministry bureaucrat. He had no business to meddle in the falling volumes of NCDEX. Also, NCDEX and NSE were not government entities; once promoted by public sector institutions, they were now private companies with diverse shareholding, both Indian and global. Krishnan ordered LIC and NABARD, who have their own independent

boards, to do the finance ministry's bidding on behalf of NSE.

Jignesh got to know about this note and, on 10 July 2012, MCX complained to the secretary of the department of consumer affairs (DCA) and the central vigilance commissioner (CVC), questioning the role of the finance ministry and the propriety of Krishnan's conduct. Whether or not it was due to this complaint, Krishnan was transferred to his parent cadre in Karnataka for almost a year; but he continued to work mostly in Delhi as a representative of the Karnataka government. Moreover, Krishnan was only doing his minister's bidding. According to Jignesh, the battle between him and NSE began way back in October 2004 when P Chidambaram tried to bring the commodity markets under the finance ministry's oversight.

Demonising ODIN

A clear-cut and far bigger threat to Jignesh was NSE's attack on his front-end software for brokers called ODIN, which was developed by Financial Technologies Ltd (FT). [93] This software allowed brokers to connect with the cash and derivatives segment and was so popular with NSE and BSE brokers that ODIN had a market share of more than 80%, competing against many international companies such as US-based TIBCO (operating through Wipro), IBM, TCS and Leading Edge. Most of the competitors slowly dropped off until only TCS remained in the race. ODIN was a cash cow for Jignesh and the reason behind FT's astronomical market valuation, then.

NSE and Jignesh were already battling it out on the currency derivatives exchange where NSE was not charging any trading fees. It now decided to attack ODIN, with its own trading solution, called NOW, developed by National Stock Exchange Information Technology (NSEIT). This too was offered free of cost to brokers and done through a company called Omnesys Technologies, in which NSE had a 26% stake. NSE's predatory pricing, designed to kill FT, did not work. Despite being offered free, NOW failed to get market share. So NSE stepped up the heat. Sometime in late-2008,

NSE alleged that trading members who use ODIN have been complaining about bugs in the software leading to invalid order cancellation requests. ODIN was around since 1998 and dominated the market; yet, NSE put ODIN on a 'watch list' without any explanation. It was a big blow to FT's credibility, prestige and to its cash cow. NSE also started indicating to its members that if they use ODIN, they would not be on NSE's platform.

As with other deceits, it all started with a whisper campaign to discredit Jignesh. FT stumbled on NSE's game when Fort Share Broking P Ltd (Fort) of Kolkata sought permission for internet-based trading from NSE. On 1 October 2008, NSE's assistant vice-president (AVP) Suprabhat Lala wrote to Sanjay Parakh of Fort: "We understand that your TBT solution has been provided by M/S Financial Technologies Ltd. Please note that M/S Financial Technologies Ltd has been kept under Watch List by the exchange as there have been system and performance issues on multiple occasions and which have been brought to their attention." On 10 th October, Vishal Mainkar of FT wrote to Lala expressing surprise that ODIN was on a 'watch list', since NSE had never informed FT about any system or performance issues. It asked NSE to provide details about the technical issues and "chronology of their occurrence at specific broker IDs." NSE ignored this letter. ODIN was then being used in over 100,000 computers and news about the 'watch list' caused a scare.

NSE timed its blow well. On 28 August 2008, against the backdrop of a global financial crash, NSE launched its currency exchange, quickly followed by BSE on 1 st October and MCS-SX on 7 th October. NSE and Jignesh were now in a face-to-face combat. NSE did not invite FT/MCX's top brass to the inauguration of the currency derivatives exchange, a common courtesy in the industry.

The ODIN software would have been a natural product for the currency exchange; but NSE kept it out of its approved vendor list. On 11 September 2008, *The Economic Times* reported that NSE also refused to share what is known as the

application program interface (APIs) with FT/MCX, which was imperative to run the software. NSE's refusal to share API was aimed at giving its own rival product, NOW, a chance to find acceptance and to kill ODIN. The same whisper network let on to the media that NSE was worried about sharing API, since it would give rival MCX access to information about major traders.

After NSE refused to clarify why ODIN was on a 'watch list', Devang Neralla, director – technology at FT, wrote a two-page letter to Ravi on 16 th October, formally requesting for APIs for currency derivatives. He said it was a matter of concern that while other vendors of CTCL have been empanelled, FT which by far is the biggest, has been left out. He again referred to the 'watch list' and NSE's letters 'cautioning' members to be careful in dealing with FT, and pointed out that no details were provided to the company.

NSE informed top FT officials that there was no such move. Devang asked Ravi to 'expressly state' whether FT had been kept under watch or be kind enough to provide written information to "dispel the rumours in the market which are unfortunately attributed to NSE." He also asked if there was any decision about sharing the API with FT. Ravi asked Lala to reply. He wrote, "We would like to draw your attention to several instances when issues have been faced by trading members using your CTCL solution. On these occasions, the Exchange has brought this to the attention of your officials. Also please refer to our letters of March 03, 2008 and June 01, 2007 in this regard. Consequently, since there are concerns with your CTCL product, as you may be aware, your empanelment status has been kept under 'Watch List' by the Exchange in the larger interest of the market participants. Based on the track record of complaints from members using your CTCL product and your empanelment status being on 'Watch List' we are unable to take up your application."

Devang immediately hit back with a four-page reply to Lala, which said FT had received only two communications from NSE in over 10 years of selling CTCL software and they had been satisfactorily replied to. There was no

communication after that. He also said that if, indeed, there were problems with ODIN, why did NSE wait for six months to let FT know and that too as a response to a letter to its MD? Why wasn't this officially and transparently communicated? The letter ended by asking nine questions which ranged from: what are the criteria for putting vendors on the watch list; how many vendors have been put on watch list; what did NSE mean by track record and repeated complaints; what is the standard practice of empanelment of CTCL vendors, etc.

FT pointed out that over 100,000 terminals used its technology and any systemic problem would not have remained hidden in a highly competitive market with soaring volumes. Lala took his own time to respond. On 7th November, he breezily wrote back, "We stoutly deny the allegations" and reiterated that there were specific issues with ODIN without providing details or evidence of what was wrong. Unlike previous letters, this was signed as asst. vice-president, but Lala's name was missing. Devang pointed this out in his response, reiterating that no complaints about ODIN were highlighted to FT.

It was a cheap trick, one among many by an exchange that prided itself as a professional organisation and among the biggest exchanges in the world. If trading software used by 80% of the market was put on a 'watch list', it was imperative that FT be issued a notice and an opportunity to correct it and not spread panic, unless that was precisely the idea behind the move. That the market remained unperturbed only proved that brokers were also aware of NSE's mischief. This issue was squarely under the ambit of the market regulator; but, of course, SEBI remained silent. So, in December 2008, FT was forced to drag NSE to Bombay High Court, alleging 'malafide intentions of stifling competition' with a view to cause a loss. The Court agreed. In an order on 12 January 2009, Justice AV Nirgude stated, "The allegations in respect of malafides have considerable substance… as no previous notice was given." The judge asked for the product to be independently inspected and audited.

On 30 th January, at a detailed hearing, the judge remarked that NSE "cannot use its whims and fancies to pick and choose their approved vendors." The judge ordered a systems audit of ODIN and directed NSE not to deny approval for the product to new users and ensure that existing users should continue using it. NSE lost the case, but not before it managed to keep Jignesh under pressure for three long years. Note that a matter that involved two exchanges and a software vendor that was used by 80% of the market had to be settled by the High Court because SEBI did not act. Were it, indeed, a systemic issue, as alleged by NSE, and ODIN really had technical issues, then SEBI was endangering the market with its silence and inaction. This is another example of SEBI's tacit support to NSE's trickery, instead of ensuring that unfair competitive strategies were not allowed to ruin a rival. This display of NSE's clout from 2008 onwards not only had a chilling impact on other exchanges and intermediaries, it also signalled to SEBI's rank and file that NSE could not be questioned.

Currency Derivatives

By the beginning of 2009, Jignesh had managed to spread the footprint of FT/MCX overseas with investments in five exchanges. In India, it was dominant in commodity and power trading with ambitions to start a stock exchange. In effect, he posed a real threat to NSE's virtual monopoly. Despite the High Court order and temporary truce over ODIN, the battle between NSE and its competitors – BSE and MCX- SX – was to reach another extraordinary level, while the regulator studiously looked the other way. This time, it was currency derivatives, where NSE used its deep pockets to corner the market through predatory pricing. It waived admission fee, transaction fee and data-feed fee on the currency derivatives exchange and justified it saying that any new product required support and time for market adoption, a period when transaction charges can be waived.

MCX-SX and BSE could not compete, if they imposed transaction charges, but by not doing so, they were haemorrhaging cash. It was an unfair competition, argued

FT/MCX. BSE has always chosen to remain silent in public. When MCX-SX complained to SEBI, it replied that the market regulator was not concerned with predatory pricing. The immensely profitable NSE, which derived hundreds of crores of rupees of profits from stock and futures trading, was given a walkover by the regulator.

This wasn't NSE's first attempt at predatory pricing. It had tried the same strategy at NCDEX in the commodity market where it cut transaction charges to just 5 *paise* per Rs100,000 of trade after 5pm, against Rs3 per Rs100,000 for trades in the morning session, a concession of 98.33%! MCX used to have a high turnover in the late evening session because it offered trading in international commodities; so, the NCDEX move was aimed at wooing customers away from MCX. The Forward Markets Commission (FMC), the commodities regulator, had stayed the NCDEX move, prompting it to approach the Bombay High Court, which dismissed its petition.

Since SEBI refused to intervene for a year after NSE launched the killer predatory pricing in currency derivatives, MCX-SX complained to the Competition Commission of India (CCI) on 16 November 2009. It also took NSE's refusal to share its APIs for the currency segment with FT to the competition regulator. In March 2010, the Commission reviewed the complaint and referred it to the director general (DG) for investigation. The DG report in September 2010 supported MCX-SX's contentions, noting that NSE waived transaction charges, admission fees and data-feed fee and reduced the amount of deposits from its members "and used these waivers and deductions as exclusionary devices to weaken and harm the competition."

After hearing both sides, CCI noted: "…it is proved beyond a reasonable doubt that the NSE has the design of eliminating competitors in currency derivatives." [94] It intended "to acquire a dominant position in the CD (currency derivatives) segment by cross subsidizing this from the other segments where it enjoyed virtual monopoly. It also camouflaged its intentions by not maintaining separate accounts for the CD segment… The past conduct of NSE and

the conduct in the CD segment shows a longing for dominance in any segments in which the NSE operated by dominating its competitors."

It ordered NSE "to cease and desist from unfair pricing, exclusionary conduct and unfairly using its dominant position in other market/s and to maintain separate accounts for each segment with effect from 01.04.2012." It also asked NSE to ensure that appropriate transaction costs were levied. On the ODIN issue, CCI directed NSE "to put in place a system that would allow NSE members free choice to select NOW, ODIN or any other market watch software for trading on the CD segment. If necessary, this may be done under the overall supervision of SEBI." Finally, CCI levied a 5% penalty on the average turnover of three years, which came to Rs55.5 crore (Rs555 million). On 3 August 2011, NSE agreed to remove 'FTIL-ODIN' from its watch list and also shared the API for the currency market with FT. This also ended the suit that was pending before the Bombay High Court.

On the predatory pricing issue, NSE appealed to Competition Commission Appellate Tribunal, which in a majority judgement (five out of seven with two dissenting orders) upheld the conclusion of CCI on 5 August 2014 and the contention of 'abuse of dominant market position' in the currency market. NSE immediately filed an appeal before the Supreme Court, which stayed the penalty in September 2014. Later, MCX-SX, which has since been renamed the Metropolitan Stock Exchange of India (MSEI) after the removal of Jignesh Shah, filed an application seeking compensation of Rs856 crore (Rs8.56 billion) from NSE before Competition Commission Appellate Tribunal. After the Appellate Tribunal ceased to exist, the matter is pending before the National Company Law Appellate Tribunal.

The battle of NSE *vs*. FT was out in the open. Jignesh won because he could approach the competition regulator. Since SEBI was a mute spectator, Jignesh was battling NSE as well as the regulator in the crucial 2008-11 period. MCX-SX was permitted to trade only in the currency market and needed to get an extension of its permission to operate every

year. As we wrote in the previous chapter, it had to approach High Court against SEBI's repeated rejection of its application to trade in equities. These extraordinarily partisan actions of the regulator and finance ministry have hardly come for scrutiny, probably because of NSE's support and sponsorship of mainstream media as well as major academic institutions and think-tanks.

14.

Regulatory Capture – IV:

Grab CAMS & Omnesys

From 2008, NSE was at the peak of its power but liked to project itself as a government-owned company in Delhi.

So convincing was this image that a BSE official, who met a senior bureaucrat, to request that disinvestment of public sector undertakings should also be done through BSE, was told it could only happen at the NSE because it was a government institution, while BSE was a private entity! It required a lot of persuasion to get the official to call for details and verify that there was no difference between NSE and BSE and the former was a private company, not subject to oversight by the comptroller and auditor general of India (CAG) or central vigilance commission (CVC). Once he was convinced, he angrily said, "So, NSE has been misleading me all along." It is hard to say if NSE actually lied openly but this was the impression it created.

Another story goes like this: "We once received a demand order from the Department of Telecommunications to pay Rs900 crore for the use of VSAT. This was around 2010. We had 1,200 VSATs and NSE had more than twice as many – almost 3,000 VSATs. Yet, we received a notice and NSE did not," recalls a technology officer at BSE. He was asked to find out why and discovered that a powerful bureaucrat ensured that NSE wasn't sent the notice. "It was a demand based on a wrong interpretation," he says, "but the point is that NSE did not even get a notice due to their clout."

The extraordinary story of Omnesys Technologies P Ltd further illustrates this. Omnesys was a struggling, Bengaluru-based software company. On 2 July 2008, just before NSE launched its currency derivatives exchange, it acquired a 26% stake in Omnesys through its wholly-owned subsidiary, DotEx International. The importance of this acquisition can

be seen from the fact that Chitra Ramkrishna, NSE's joint MD, took a position on its board of directors. But there was one small problem. Omnesys' parent company was a stockbroker and it was unethical, if not downright illegal, for NSE, as the first-line regulator of stockbrokers, to have a commercial interest and board representation on an entity it regulated. Typical of NSE at that time, it did not bother with SEBI's permission and the regulator looked away.

Omnesys was key to NSE's war with Jignesh Shah. While ODIN, which dominated broker front-office software, could connect to many exchanges, NSE's product could not. BSE was unwilling to sign up with Omnesys' NOW because it came from a 100% subsidiary of NSE, its direct competitor. Without the BSE linkage, NOW couldn't claim to compete with ODIN. Here's what happened. One day, a senior SEBI official called up Madhu Kannan, who was BSE's CEO then, and told him, "You have to go to NEAT House (NSE's residential apartments at Prabhadevi, where its top brass lived) and sign a data sharing agreement with NSE." "He had little choice," says a person with first-hand knowledge of events; it was the regulator's *dikta t* .

At the meeting were Ravi Narain, Chitra Ramkrishna and JRavichandran, the company secretary. It was a fait accompli and all that BSE could do was to negotiate some small issues like not charging for order routing. A one-page note was ready, when it was realised that there was no printer at NEAT House. The whole group trooped to the NCDEX office at Prabhadevi, where the agreement was printed and signed. So, when NSE wanted something, a call from the regulator ensured that BSE fell in line. Unlike the belligerent broker-run BSE of the past, it was now a professionally-run exchange and its officials had no incentive to defy the regulator.

Omnesys, founded in 1997 by Shrikant Pandit, was struggling to survive until DotEx acquired a 26% stake paying Rs56.12 per share. It also sold a 10% stake, to one JP Nayak at a higher Rs74.82 per share. The fortunes of Omnesys, which had accumulated losses of over Rs4 crore (Rs40 million), changed immediately after NSE's

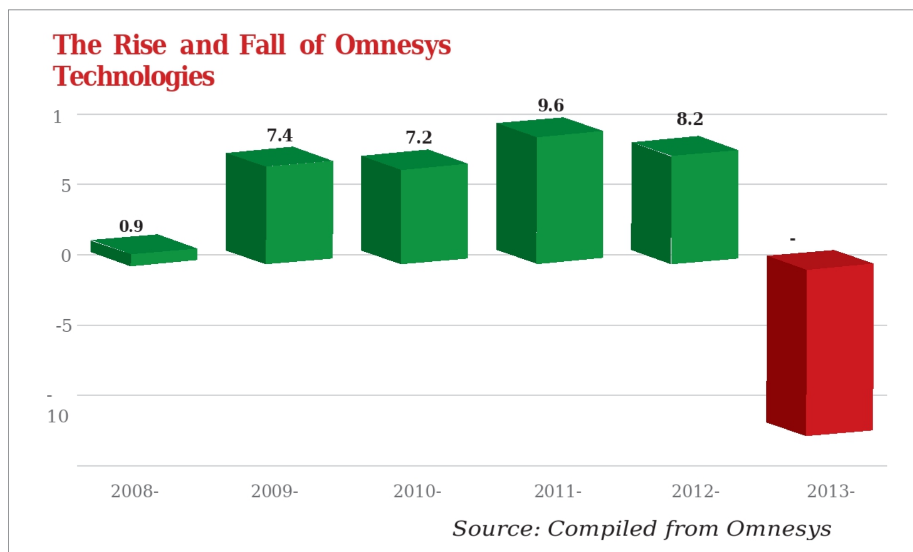
investment. It made a profit of Rs910,000 that year and, in the following year (2009-10), a profit of Rs7.47 crore (Rs74.7 million)! What changed so dramatically? Well, HFT or algo trading was just revving up at NSE and Omnesys provided the gateway. As Ken Fong, the whistle-blower of NSE's Colo scam, said in his first letter, "Omnesys was the market leader with its DMA product being highly popular on the institutional desk. Its algo trading solution was also popular among the domestic prop firms." Moreover, the Omnesys staff was on better terms with NSE than other vendors.

So, consider this. Only NSE was offering DMA and HFT trading then, and Omnesys, in which it held a 26% stake, sold algo trading solutions to brokers. More importantly, as we wrote earlier, all algos needed to be approved by NSE. It was soon apparent that algos from Omnesys were granted faster approval and brokers were quick to exploit this. But market participants and technology developers were furious that NSE demanded source codes and competitive details from them, when it had a stake in Omnesys. In effect, it was both, a regulator and a competing player. But SEBI again looked the other way at this open conflict of interest, until the algo trading scandal unfolded.

But this was not all. Omnesys also launched a managed data centre service for its algo clients under which it would technically be managing the servers as well as software for its clients. The whistle-blower said that Omnesys provided hardware and customised software under managed services and, therefore, could deliver far superior performance compared to any other algo system. "The crux of this was the knowledge that connecting faster would put the server ahead in the queue," he wrote. Omnesys was so sure of success that it demanded a 20% profit share from its clients, in addition to the manhours billed for managed services. While everyone thought it was the software that gave Omnesys its edge, it was 'simply front-running,' wrote Ken Fong. If this is true, Omnesys, as an NSE company, knew something that others didn't and we now know what that may have been.

Omnesys suddenly started making huge and consistent

profits – coinciding precisely with the years of the Colo scam! This was when NSE was using a tick-by-tick (TBT) system, by which price and order information was released sequentially so that the first to connect received the information first. The following year, NSE shifted to multicast technology (which broadcasts information to everyone at the same time), and all players, who were probably gaming the system by logging in early, began to lose their edge. NSE also lost the battle with ODIN. Almost immediately after this, surprisingly, Omnesys's profits collapsed and it ended FY13-14 with a huge loss of Rs12.73 crore (Rs127.3 million) but something strange happened before that.



In September 2013, even as Omnesys was bleeding, Thomson Reuters, a newswire and data company, bought it from NSE for a massive Rs240 crore (Rs2.4 billion) or a premium of about Rs700 per share! What was the basis for such a high valuation? Was Thomson Reuters giving NSE an exit? It has never complained about being sold a lemon either! SEBI's meandering investigation into the NSE scam made no attempt to get at the truth then.

After the algo scam, on 30 April 2019, an order by SEBI's WTM, G Mahalingam examined SEBI's initial allegation that "Omnesys had the knowledge that connecting faster would put the server ahead in the queue." The show-cause notice had also alleged front-running by OPG Securities in

collusion with NSE staff, but the allegations against NSE officials were disposed by Mahalingam, since SEBI's investigation team could not put together the evidence to back up the charges.

Stake In CAMS

Sometime in 2010, BSE was interested in buying a 51% stake in CAMS, which processes mutual fund transactions and offers investor services mainly to mutual funds. Again, someone from SEBI called up Madhu Kannan and said, "We cannot allow you to invest in companies where there is a conflict of interest." The acquisition of a market intermediary like CAMS would amount to a conflict of interest, he was told. Bhave was the SEBI chairman then. Registrars, like CAMS, are regulated by SEBI and, hence, it was considered a market intermediary. Typically, the message was conveyed orally, and the Exchange had not dared to ask SEBI to convey its objections in writing. That was a fatal error. "There is no noting in the SEBI's files, we were simply pressured to back out," says a former BSE official. This had happened even when SEBI had remained silent about NSE's deal with Omnesys. There was worse to come.

In December 2013, three years after BSE dropped the plan to buy CAMS, NSE struck a deal with two shareholders of CAMS to buy a 45% stake! NSE did not even think it necessary to inform SEBI. This time, UK Sinha was the SEBI chairman. Apparently, SEBI no longer saw any conflict of interest in an exchange buying a market intermediary, nor was it bothered that NSE had not even informed it. In a conversation with agitated BSE seniors, NSE officials pointed out that there was no record of SEBI rejecting BSE's plan to buy CAMS – a convenient argument. As always, there was not even a murmur in the mainstream media.

Even in June 2012, when SEBI announced new guidelines for recognition of stock exchanges and clearing corporations (guidelines that were mainly designed to block MCX-SX), it did not explicitly forbid exchanges from holding stakes in unrelated business such as transaction service-providers. According to our sources, NSE wanted CAMS and Sinha

allowed it because someone higher up blessed the deal. Had BSE taken over CAMS, it would have had a strong lock on the mutual fund distribution business. It would also have given BSE crucial leverage on its scale of operations. NSE had the money and it made no difference to the Exchange then; but, in 2020, when CAMS went public, this investment turned hugely profitable.

Sometime in 2018, *The Hindu BusinessLine* reported that SEBI, under Sinha, was looking into NSE's purchase of a stake in CAMS along with some other deals such as investment in a wind power project. [95] It is a mystery why he took more than three years to act. In the draft red herring prospectus for its IPO (initial public offering) that was filed by NSE a few years ago, there is an admission that SEBI has made some preliminary observations about how NSE's investment in these entities was "not incidental to stock exchange activities, under Regulation 41(3) of the Stock Exchange and Clearing Corporation (SECC) regulations."

The document admitted that NSE could face penalties, including instructions to divest all or a portion of its shareholding in such entities. Under chairman Ajay Tyagi, SEBI finally issued a formal show-cause notice to NSE in February 2020 and penalised it on 1st October. [96] SEBI has asked NSE to divest its holdings in all non-core business, but not before the Exchange made a mega profit on the CAMS deal. The SEBI adjudication order imposed a penalty of Rs6 crore (Rs60 million) on NSE for buying stakes in businesses that are not related or incidental to its core business, without the regulator's approval. Apart from CAMS, these investments included NSEIT, NSDL E-Governance Infrastructure, Market Simplified India and Receivables Exchange of India. NSE's investments in these six companies range from 25% to 100% of their capital.

NSE acquired a 45% stake in CAMS in 2013 through its wholly- owned subsidiary. It subsequently sold a 7.5% stake to Warburg Pincus Fund and continued to hold 37.50%. NSE's argument that CAMS provides back-end services to market participants and hence is related with the business of

the Exchange was rejected by SEBI. The SEBI order says, a controlling stake in CAMS would allow NSE to capture a significant chunk of mutual fund transactions resulting in "concentration of business, which may not be in the interest of investors and overall development of the market." More importantly, the SEBI order says, "NSE, being the leading stock exchange, should have set higher standards of compliance… the violation is repetitive in nature and has continued for a long period." The question then is: Has SEBI really punished NSE at all? A Rs6-crore (Rs60 million) penalty for six violations, amounts to just Rs1 crore (Rs10 million) for the CAMS case. This was a joke and here is the math to prove it.

SEBI started investigating the case in early 2017. NSE continued to hold a 37.5% stake. Five days after the SEBI order (October 2020), CAMS got listed after a successful public offering. The shares were offered at Rs1,230 and closed at around Rs1,401.40 on listing day. In December 2013, NSE bought the CAMS stake at Rs187.86 per share. On listing, NSE's investment was worth Rs2,444 crore (Rs24.44 billion), giving NSE a profit of Rs2,102 crore (Rs21.02 billion). This is in addition to the profit of Rs125 crore (Rs1.25 billion) it had already pocketed on the 7.5% stake sale to Warburg Pincus. Remember, SEBI's order of 1st October says that buying this stake was illegal in the first place. So, after paying a Rs1 crore (Rs10 million) penalty for an illegal activity, NSE is richer by over Rs2,500 crore (Rs25 billion). In fact, the value increased much more as the CAMS stock kept rising. Who says violations, gaming the system, or hounding the competition doesn't pay?

15.

Regulatory Capture – V: Illegal Appointments

Ravi Narain's term as the CEO of NSE was to end in 2014. But, in October 2012, just days after the Emkay 'fat-finger' debacle, he informed the board of his intention to quit at the end of March 2013. On 26 November 2012, NSE issued a press release announcing that Chitra Ramkrishna has been appointed as the MD & CEO. Ravi's deputy for one and a half decades, tall, stately and attractive, Chitra could turn on the charm to make the right connections or cut dead those who, she decided, were no longer important. A chartered accountant, she was on the fast track, soon after she joined the project finance division of IDBI in 1985.

After a two-year stint in the powerless SEBI along with Ravi and Nageswara Rao, she returned to IDBI to work in the treasury and fixed- income departments. In 1992, she moved to NSE as part of Dr RH Patil's founding team and emerged as the internal successor to Ravi Narain after Raghavan Putran quit; she maintained a low profile, but was a part of all key decisions. On her appointment, the media [97] was happy to focus on her conservative south Indian upbringing and passion for learning Carnatic music (she played the Veena, a stringed Indian musical instrument). But appearances are deceptive and her real persona was anything but conservative.

Around the time NSE was getting ready for its debut, the US direct marketing firm Amway had just come into India and captured the imagination of India's middle class. Everybody was lured by the prospect of making big money by becoming an Amway distributor, creating a down chain and selling its over-priced soaps and detergents. Chitra's colleagues remember how immersed she was into Amway distribution. A financial columnist, who attended one of Amway's big promotional events, says he was surprised to find that Chitra was one of the key speakers at the event. How was this even possible, we asked a colleague? The

answer was quite simple. Most people have forgotten that NSE was initially launched as a debt market exchange, which shut down within three months. Since Chitra headed that division, she had plenty of time for other activities.

It is interesting that she assiduously maintained a low profile right until she took over as the MD. After that, PR experts skilfully handled her image. Access was limited to a few select publications or journalists, while television channels were quick to give her awards. It was easy for every member of the founding team to claim credit for some aspect or the other of NSE's success and growth. A particularly flattering piece by *Forbes* magazine titled, *Chitra Ramkrishna: Queen of the Bours e* , credited her with starting "Internet trading at NSE in February 2000." The same article says how "she must regularly be in touch with all her teams so that her objective of continually producing new, investor- friendly offerings keeps the exchange on top." [98] This is ironical because when questioned by SEBI in the algo scam, she was quick to distance herself from key decisions and pin all accountability on to her technical teams.

When the going was good, Ravi was quoted as saying, "What made her stand out is her passion and commitment, and her ability to understand complex issues which have the potential to transform the securities market." According to the writers, "Inside NSE, she is known as tough and single-minded. She fosters team spirit and maintains a healthy balance between control and freedom. More importantly, she sees to it that performance is rewarded. NSE insiders say she is a visionary and knows what needs to be done over a period of time so that energy levels at the exchange are maintained." These glowing paeans to her professionalism are in sharp contrast to the irregularities that we unearthed about her appointment as the MD & CEO and Ravi's elevation to vice-chairman's position.

Dubious Appointment

Normally, the appointment of a CEO is the prerogative of the board of directors and shareholders. But certain closely regulated market infrastructure institutions not only need to

follow a laid down selection process, but also obtain the regulator's stamp of approval for top appointments. For example, in 2018, RBI refused to allow Rana Kapoor to have another term in Yes Bank and Shikha Sharma in Axis Bank. Consistent with this regulatory principle, a SEBI circular issued on 6 April 2010 had said that the appointment of a stock exchange CEO shall be subject to prior approval.

In June 2012, SEBI issued another circular which reiterated the same rule. On 20 June 2012, SECC Regulations [99] were published in the Union Gazette of India; Regulation 25 (1) says, "The appointment, renewal of appointment and termination of service of the managing director of a recognised stock exchange or a recognised clearing corporation shall be **subject to prior approval of the Boar d** " (SEBI). (*Emphasis adde d*). So NSE knew about this rule when Ravi decided to quit and the Exchange had to appoint a successor. Did it follow this rule? This sequence of events provides the answer.

On 6 November 2012, the NSE board constituted a selection committee comprising Ravi Narain, SH Khan (former chairman of the NSE and IDBI), S Venkiteswaran (former NSE director and senior advocate), and Deepak Satwalekar, who was a public interest director (PID). These eminent and busy individuals managed to hold their first meeting on the very day they were appointed, and also discussed and formulated the competencies and selection criteria for the post of MD & CEO. It is almost as though the members knew they would be appointed and were present on the spot and ready to get cracking instantly. If that weren't enough, committee members had their calendars free to meet just two days later to strongly recommend that an internal candidate was best suited for the CEO's position, after considering some internal candidates, without sharing any names. After a 'detailed discussion', Chitra Ramkrishna was recommended for the post with a five-year tenure.

The committee also created a brand new designation of vice-chairman, for Ravi, without thinking through the fact that the Exchange could not possibly have the chairman and vice-chairman in non-executive posts. More about that later,

but the real question is: Why this unseemly haste when the incumbent MD had two more years to go before his term ended? We believe that it was all done as an afterthought to ensure technical compliance with SEBI rules. Regulation 25 (2) of SECC rules requires that "every recognised stock exchange or clearing corporation shall determine the qualification, manner of appointment, terms and conditions of appointment and other procedural formalities associated with the selection/appointment of the managing director." This explains why the hastily put together selection committee had to go through the motions of drawing up the selection criteria and process.

On 26 November 2012, NSE issued a press release saying its board had approved the appointment of Ms Chitra Ramkrishna as MD & CEO and that she would take charge "with effect from April 1st 2013 for a period of five years." There was no mention of seeking or obtaining SEBI approval or if any other candidates were considered for the post. After all, the committee's mandate was to shortlist candidates from "within the organisation, from other exchanges in the country, other parts of financial sector in the country and from exchanges globally." Could it have done all that within two days? Was anyone from outside even allowed to apply? This farcical selection not only made a mockery of the committee's responsibility but also of the SEBI rule of seeking prior approval. NSE's press release did not even bother to mention that appointment was subject to SEBI's approval.

Was there some urgency in Ravi moving out and Chitra being appointed instantly? Did it have to do with the Emkay fat-finger trade and the FM's call? Or, was it, as market rumours suggest, the finance ministry and Chidambaram were keen to elevate Chitra? This is most likely because our investigation shows that SEBI not only did not object to NSE's irregular processes, but also helped regularise her appointment.

First, the composition of the selection committee was strange. It was supposed to have two independent members, but both Khan and Venkiteswaran were former directors.

Second, NSE wrote to SEBI seeking approval for Ms Ramkrishna's appointment only on 13 December 2012 when it had already announced her appointment on 26th November. Surprisingly, SEBI issued elaborate new guidelines for exchanges and clearing corporations, which included rules for appointment of CEOs on 13th December, exactly a day after NSE's belated request for approval of Chitra's appointment. Was this pure coincidence or proof of the cosy relationship between the regulator and the Exchange? SEBI did not provide a clear answer to our RTI query on when it received NSE's application for approval of the appointment. That the approval was required even before the 13th December guidelines were issued, was something SEBI was willing to ignore.

Subsequent events show that Chitra was hardly the best person to head the Exchange, but the founding team was treating the post as a kind of inheritance that was passed from Patil to Ravi and from him to Chitra. Given the high salary that went with the job and NSE's status as the world's third largest exchange, it could have picked the best talent in the world. A SEBI internal note [100] of 24 January 2013 helped regularise Chitra's appointment post-facto. Noting that NSE has selected Ms Chitra Ramkrishna as MD & CEO 'without open advertisement', it, however, said that the Exchange had completed the selection process and applied for approval "before issuance of the aforesaid circular." SEBI's note pretended that there were no rules before 13 December 2012, which NSE has miraculously beaten by a few hours.

Even after SEBI sanctified the appointment, a few more irregularities needed fixing. SEBI's 13 December 2012 circular required that the CEO's compensation policy would have a ' *malus* and clawback arrangement'. [101] Chitra's appointment had no such clause, although NSE wrote to SEBI on 21 January 2013 that her compensation was in accordance with SEBI rules! The regulator later decided not to ignore this and gently sought compliance by writing to the Exchange on 4 February 2013. NSE's compensation committee, which met on 8 th February, agreed to comply but conveyed this to SEBI only on 18 th February. Immediately

afterwards, on 20 th February, SEBI noted that the appointment and compensation was now in accordance with SECC regulations. [102] The compensation and clawback rules became important six years later, in 2019, when SEBI issued an order demanding that NSE claw back the compensation paid to Ravi and Chitra for their negligence in the algo scam.

Ravi’s sudden decision to quit two years before his term ended shocked many, especially since he would be giving up a fat salary of over Rs8 crore (Rs80 million) a year. Well, he didn’t really quit, but only got himself promoted to vice-chairman and gave up front line responsibility. But, if Chitra’s appointment was improper, then Ravi’s elevation as vice- chairman, to a newly created post, was completely bizarre.

We discovered this only when we dug deep and filed RTI applications after NSE sued us for defamation. On 13 December 2012, NSE sought the regulator’s approval to appoint Ravi as public interest director (PID) and as non-executive vice-chairman of NSE. What outsiders did not know was that two individuals, VN Raghupathy and Sudesh Joshi, sent representations to the regulator questioning his appointment and compensation. SEBI, as usual, sent the queries to NSE seeking answers. NSE responded on 31 December 2012 informing that no compensation package or residential accommodation had been approved for Ravi as vice-chairman.

On 11 January 2013, one Vijender of New Delhi sent a legal notice to SEBI regarding Ravi’s appointment as PID. He correctly questioned how a founding member of the Exchange, who had held the highest decision-making post as MD & CEO for the preceding 12 years, could be considered a PID. It violated SEBI guidelines in letter and spirit. So NSE quickly changed its stance and informed SEBI on 4 January 2013 that Ravi would be a ‘shareholder director’. However, the board resolution and shareholders’ approval [103] was for his appointment as PID and not a shareholder director.

But there was a big catch. A SEBI internal note pointed out that SECC Regulations do not provide for the post of

vice-chairman at all, and the non-executive chairman can only be from PIDs, because the same rules that apply to the 'non-executive' chairman, would apply to the vice-chairman. [104] This meant that Ravi could not be a shareholder director, but had to be a PID. The internal note further said that specific approval of shareholders was required to make him a shareholder director, so SEBI returned the application.

NSE had proposed a five-year term without rotation for Ravi. This too fell foul of the SEBI rule that PIDs can be appointed as chairman of a stock exchange only for a fixed term of three years; the same would apply to the new post of vice-chairman. Clearly, NSE was making appointments as it thought fit, without any regard to SEBI rules and guidelines. Instead of rejecting the appointment outright, SEBI had it examined by its legal affairs department, which confirmed on 25 March 2013 that a shareholder director cannot be a vice-chairman but took upon itself the job of providing NSE an elaborate road map to fix the problem! It said: "If Mr Ravi Narain is appointed as vice chairman, then he may be appointed in the category of a public interest director and all the provisions pertaining to public interest director may be applicable… In the circumstances, **it is advised** that Ravi Narain may be appointed as a Public Interest Director as per Regulation 23 (2) of SECC." (*Emphasis adde d*)

Since Ravi wanted to be appointed for five years, the legal department even went on to suggest what SEBI should do about that! It wrote: "Narain shall be nominated by SEBI on the Board of NSE for a fixed term of three years or for such extended period as may be approved by SEBI… SEBI may decide on appointing Ravi Narain for five years." A handwritten note on the file says "Appointment may be as a PID and tenure is for SEBI to decide. Nomenclature may be vice chairman as proposed." As is clear, SEBI closed its eyes to a member of the founding team suddenly being designated a public interest director, making a mockery of the very concept. One senior SEBI official, however, had the conscience to write on the file, "It is not appropriate for us to advise. It is for NSE to decide as per own regulations and

their constitution with approval from SEBI, wherever required.” SEBI informed NSE that its regulations did not bar the appointment of a vice-chairman; however, “if he has to act as chairman, in his absence, he can’t unless he is a PID.” [105] So Ravi switched overnight from a key management person to a ‘public interest director’ with SEBI’s blessings and also remained on all NSE group companies’ boards and innumerable committees.

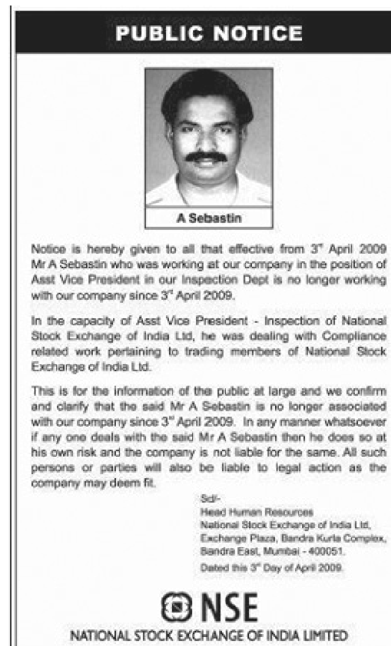
We don’t know how the legal notices and objections to NSE’s top appointments were eventually buried by SEBI, but even these machinations pale in comparison to how Chitra got one Subramanian Anand (internally known as ‘Subbu’) to parachute into the Exchange, bypassing all SEBI rules. He eventually became the group operating officer, a post that would surely require stringent regulatory clearances and compliance with appointment processes. Extraordinarily, Subbu was even kept out of the list of key management persons, while enjoying the second highest remuneration and perks at the Exchange. What is worse, he had absolutely no experience related to the running, administration, regulation or technology of a large and complex exchange.

How could an exchange, which operates in a highly sensitive and regulated space, stake claim to professionalism when the board, the regulator and the finance ministry were kept in the dark? In February 2020, SEBI finally issued a show-cause notice to NSE on Subramanian’s dubious appointment. It has still not questioned Ravi Narain’s silence on the matter, since he was one person who would know.

16.

Murky Practices

Aloysious Sebastin, a competent and mild-mannered middle-level compliance officer resigned from his job as assistant vice-president at NSE and joined MCX in October 2008. He was one of many who had joined MCX, but NSE decided to make an example out of him by subjecting him to outrageous public humiliation.



PUBLIC NOTICE

A Sebastin

Notice is hereby given to all that effective from 3rd April 2009 Mr A Sebastin who was working at our company in the position of Asst Vice President in our Inspection Dept is no longer working with our company since 3rd April 2009.

In the capacity of Asst Vice President - Inspection of National Stock Exchange of India Ltd, he was dealing with Compliance related work pertaining to trading members of National Stock Exchange of India Ltd.

This is for the information of the public at large and we confirm and clarify that the said Mr A Sebastin is no longer associated with our company since 3rd April 2009. In any manner whatsoever if any one deals with the said Mr A Sebastin then he does so at his own risk and the company is not liable for the same. All such persons or parties will also be liable to legal action as the company may deem fit.

Sd/-
Head Human Resources
National Stock Exchange of India Ltd,
Exchange Plaza, Bandra Kurla Complex,
Bandra East, Mumbai - 400051.
Dated this 3rd Day of April 2009.

NSE
NATIONAL STOCK EXCHANGE OF INDIA LIMITED

On 6 April 2009, to the utter shock of Sebastin and his family, NSE issued a 'public notice' in some leading newspapers with his photograph, announcing that anyone dealing with the 'said Mr A Sebastin' would do so at their own risk. Although Sebastin was employed in Mumbai, NSE ensured that the advertisement was published in Malayalam, in his home state of Kerala, so that he would be disgraced before his family, friends and relatives.

Such notices are usually published when an employee commits financial fraud or a serious betrayal of trust. NSE was careful not to mention any misdemeanour, but allowed people to speculate. Worse, when the media asked questions, NSE claimed that Sebastin's 'services were terminated' because he 'had not met the company's requirements'. It also indicated, without being specific, that the employee had

failed to complete 'severance' formalities. This was a blatant lie, as Sebastin was able to prove in court. Not only was his resignation accepted, but he also had evidence of a formal handover of charge, an exit interview and an email assurance that he would be relieved. For over six months, NSE refused to give Sebastin his severance benefits like provident fund (PF) and gratuity, causing him to send a legal notice on 4 April 2009 asking for his dues to be cleared. Holding back PF is illegal; so the NSE credited it to his account immediately after the legal notice was served, but would still not pay his other dues.

Instead, it published the disgraceful public advertisements and simultaneously issued him a termination letter, almost six months after he had quit the Exchange! Absolute power can make one lose all sense of propriety and proportion. Acutely distressed, Sebastin filed a criminal defamation case in the Mumbai Metropolitan Court against NSE, Ravi Narain and Chitra Ramkrishna. A criminal defamation suit can be embarrassing, because it requires the accused to make a personal appearance in court, until 'leave of absence' from attending the hearings is granted. Ravi and Chitra obviously had no intention of turning up in a metropolitan court along with those accused of serious crimes. The Exchange has a massive legal budget so it moved the Bombay High Court to have the defamation suit quashed. But its actions had been so egregious that the High Court dismissed its application. An order, issued on 25 March 2010, said: "If an apology is published in the same newspapers in the same manner, it will give an end to the criminal litigation."

Sebastin was ready to accept an apology and end the matter, but NSE was unwilling to eat humble pie. On 25th March, it filed an affidavit refusing to apologise, claiming that its public notice had not cast any aspersions on Sebastin's character or efficiency. The HC didn't buy the argument. It asked if such notices had been issued when other employees had resigned or were terminated by the Exchange. NSE had to admit that it had not happened. The Court order noted that Sebastin had clearly been "singled out for issuing such an advertisement along with a photograph,"

which adversely affected his reputation. The Court refused to interfere with the criminal defamation case or quash it.

A conceited NSE then marched to the Supreme Court in appeal, but received a rude jolt. In April 2010, the bench of Justice P Sathasivam and Justice HL Dattu said that the Bombay High Court had granted one opportunity to NSE to tender an apology but it did not do so, and the bourse should be ready to face action. Faced with the prospect of Ravi and Chitra having to appear before the Mumbai Metropolitan Magistrate's Court, the NSE quietly signed an out-of-court settlement with Sebastin.

The second example of NSE's dirty tricks involves a website called Mumbaiwalla.com, which wrote about how the BSE had complained to SEBI, on 25 July 2014, about a huge mismatch of Rs400 crore (Rs4 billion) in the accounting entries between NSE and its fully-owned subsidiary, the NSE Clearing Ltd (NCL). NSE's books had a provision for a transfer of Rs474.22 crore (Rs4.74 billion) towards NCL's Settlement Guarantee Fund (SGF). The clearinghouse, however, acknowledged only Rs72.38 crore as a receivable, with a note saying that the loss had been 'appropriated' from NSE's contribution.

The BSE alleged that NSE and NCL "were attempting to conceal losses on account of a defaulting member, Prime Broking," wrote the website. BSE argued that "NCL cannot pick a number from a provision made by its parent entity to off-set its losses. Either it makes the full provision or just doesn't make anything at all," the website said. Prime Broking is also in court against NSE.

Once the website carried the BSE letter, it triggered a long saga involving NSE's public relations official, Girish Dikey of Ketchum Sampark, initially trying to persuade the website to drop the article, then set up conference calls with NSE's communications head, Divya Malik Lahiri, and, finally, threatening to send a legal notice to the website. When it refused to succumb to pressure, NSE's official Twitter handle (@NSEIndia) announced that it was initiating legal action against Mumbaiwalla. Within hours, legal notices were sent

to Mumbaiwalla and all those who were associated with it. In the course of conversations with the website, NSE's communications head spoke of how she had persuaded several newspapers to 'drop' the story. But the website wrote "Mumbaiwalla feels sometimes you just have to take a stand, for the sake of your own self-respect. Let the chips fall where they will." As it turned out, this matter did not go to court, since the website shut down after its owner Saumit Sinh, suffering from depression, died by suicide. [106]

The next time NSE tried its aggressive, strong-arm tactics with the media was with *Moneylif e* . In our case, it was much too arrogant to even respond to our simple queries on what turned out to be an enormous scam and chose to go to court. It is interesting that NSE's board, packed with legal, academic and financial luminaries, never reined in its misuse of legal power and resources to suppress criticism.

Using Consultants

Using consultants in important operational positions, even heads of departments, was a neat ploy adopted by NSE to ensure unambiguous loyalty and hire whom they pleased. As the Exchange grew, the number of consultants increased. They not only headed core operations, but also provided a range of liaison services and business intelligence. Even in critical positions, such as chief technology officer, NSE did not have a full-time employee. Ravi Apte, who held the position, was a consultant. Dr VR Narasimhan was a consultant in the critical job of heading the regulatory division. He had earlier worked with the Kotak group and NSDL, and was also a division chief, secondary markets at SEBI. Kinjal Medh, in the critical role of chief marketing officer, was another consultant. He joined in May 2013, from FCB Ulka, an advertising agency. Raghavan Putran, as mentioned earlier, had been a consultant for nearly 18 years. Finally, there was the controversial appointee – Subramanian Anand – a consultant who was designated group operating officer. We have more on this later.

NSE was known to have a first-class recruitment policy on par with the best in the world. Until 2012, all recruitment was

systematised and went through HRD (human relations department). Things changed in early-2013, when the hiring of consultants increased after Chitra was designated the MD. It is strange that the nomination and recruitment committee (NRC) asked no questions about this practice, until after the algo scam and the Subramanian Anand episode. “They can hire anyone, sack anyone, give anyone any contract,” said a senior HR employee, explaining the sweeping powers delegated to the MD by the board.

The same employee told us how Suprabhat Lala, who has now been served a show-cause notice by SEBI in the algo scam, was hired. “NSE has a rule of not hiring anyone from brokerage firms. But Lala was working for Geojit Securities. He quit the job and took a sabbatical so that he could join the NSE after a break. A graduate by qualification (BSc Physics), Lala became the head of trading (2010-2013) at a time when NSE had a policy not to promote non-professionals beyond a point. But Lala’s rise was phenomenal.”

He later married Sunita Thomas founder-director of Infotech Financial and Chanakya Tradevistas that provided algo trading solutions and software to clients such as the controversial OPG Securities, which got preferential access to NSE’s servers. As we wrote earlier, Sunita’s sister Susan is married to Ajay Shah and SEBI has indicted Ajay Shah, Sunita Thomas and Suprabhat Lala for violating SEBI’s unfair trade practices’ regulations. Sunita’s firm, Infotech Financials, was also charged with getting access to granular trading data of the NSE through Ajay Shah.

PART III

THE GREAT HFT SCAMS

2010–2014

17.

A Scam Unfolds

Little did we know that the brown paper envelope that landed on Sucheta's desk on a cool afternoon in January 2015 would, over the next two years, rip open the cosy cabal of market manipulators that functioned right inside India's biggest exchange. The envelope contained a letter to BK Gupta, SEBI's deputy general manager, in the market supervision division. It was copied to Sucheta.

What the whistle-blower wrote, using a pseudonym Ken Fong, was highly technical but explosive. It described in great detail a sophisticated market manipulation operation, at NSE's Colo facility, that had gone on for over three years between 2011 and 2014 'with collaboration of NSE data centre staff'. "The NSE's management team have chosen to hush up the matter," he alleged. Fong claimed that he worked in the technology team of a Singapore-based hedge fund, with a large exposure to Indian stock markets. Its operations employed complex algorithms or algos, [107] which are the heart of superfast automated trading.

NSE runs two data streams to disseminate market information. One is called snapshot, which goes out to retail/wholesale brokers and TV channels and, eventually, to investors every few seconds. This contains pending buy and sell orders and the number of shares against those orders. The second stream of information, called tick-by-tick (TBT), is far more granular and contains every single order and trade, and is disseminated to large investors at the Colo servers located at NSE's premises. These servers are available on hire for a steep rent. [108] So, by default, information is received by high-frequency traders in the Colo server farm, a few seconds before other investors.

Fong alleged that, within the Colo facility, some traders were getting market data ahead of others by a few microseconds [109] due to the limitations of the TBT system. This was in connivance with NSE's technology staff. TBT, which spewed new orders one by one, was based on old

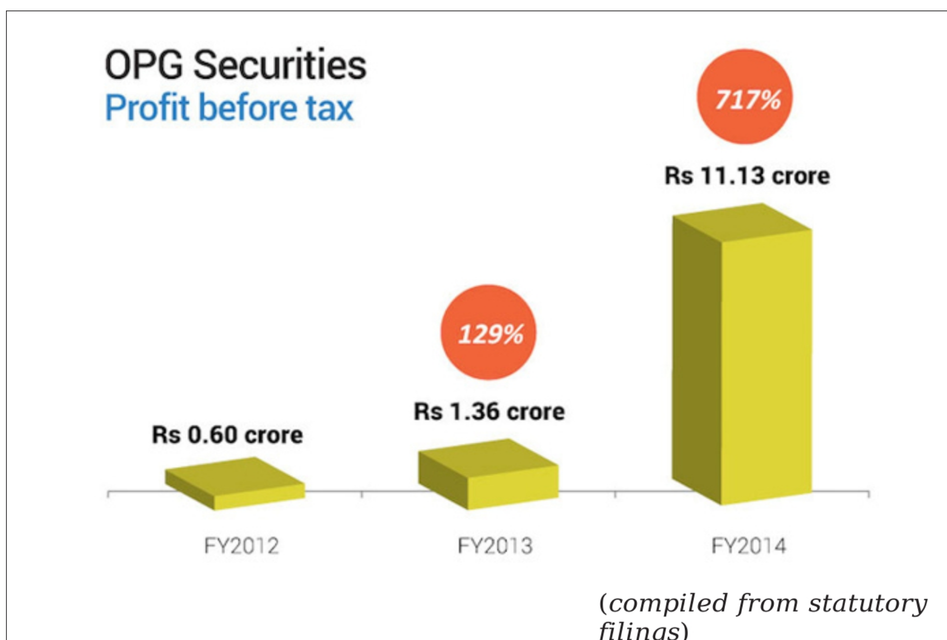
technology called TCP/IP and it offered data on a first-come- first-served basis. Some traders, with the help of NSE staff, ensured that they were the first to log in every day. The firm connecting first to the server would get price information ahead of the others and thus enjoy an unfair advantage. This cycle would be repeated for every bit of price information, putting that firm ahead of others throughout the day. No global exchange in the world was using this architecture; they used an alternate architecture called multicast, which ensures dissemination of data to all users at the exact same time.

How did this happen? Well, NSE started Colo in a big hurry in 2010. As we have explained in Chapter 11, it had no regulatory approval to do so. In its hurry to grab revenues, NSE put together a patchwork solution with many holes. It was a system readymade for misuse, and some brokers quickly realised this with the help of NSE's favoured advisers. For one, the system had to cater to a significant load, which was not budgeted for. When the demand for Colo shot up, the Exchange added multiple new servers to increase capacity to allow more traders to connect. According to Fong, the load was not the same across servers. There was a higher load (longer queue to connect) on some servers and a lower load (shorter queue) on others. If a player knew which server had lower load, he could connect to it and be ahead of the rest in getting price information. This allowed the broker/trader to mint money, since the volume of orders executed per millisecond was gigantic.

Here's how it worked. If server 1 had 20 users and server 2 had 50, all those connected to server 1 would get faster price quotes and be able to execute trades much faster than those connected to server 2. The technology did not allow one to hop across servers during the day. "It thus became crucial to be the first one to connect to a lowest load server," at the start of trading, explained the whistle-blower. NSE's system was built to handle two more issues. It had a backup server, just in case one of the servers failed. If the primary server failed, everyone connected to it would be

automatically switched to the backup server. NSE was also required to ensure that access was evenly distributed across servers. So, the server that each trading member would connect to was decided in advance. The Exchange knew "the number of connections on a server and (would) try to keep the load constant across servers apart from planning capacity to handle the load and, of course, invoice its members. If anyone tried to connect to a different server, NSE would be able to track it and would call up the member and ask him to fall in line," says Ken Fong's letter.

Within a year of NSE starting its Colo services, the smart guys had "figured out that the way to game the system lay in being the first one to connect to the server and preferably a server which was the fastest. A server could be faster due to a lower load (20 *v/s* 50 guys logging in) or it could be that the hardware of the server was slightly more powerful," wrote Fong. He alleged that Sanjay Gupta of OPG Securities was one of the key players who exploited the system. Our investigation showed that OPG's profits skyrocketed in 2013-14 (see chart). An income-tax raid on his house, in November 2017, revealed a stash of Rs11 crore (Rs110 million) in cash. His brother was known to be extremely close to the son of a powerful Union minister in the UPA government.



(*compiled from statutory filings*)

Gupta was not a technical whiz but apparently very good

at building ‘informal relationships’. During his interactions with the NSE data centre team, he realised that he needed someone who knew the nuts and bolts of the system. He was working with Omnesys for his algos; so he managed to get a crucial person working in NSE’s Colo installations ‘on his payroll’. The TBT connection was, typically, established an hour before the market opened, but the precise time wasn’t fixed. Gupta quickly ‘warmed up’ to people at NSE’s data centre, who let him know the time at which the servers would be started so that he was the first to connect. [110]

Soon, others realised that it was crucial to know when the servers would fire up and wrote a software code that would continuously check if the TBT server was started, so as to connect ahead of others. That is when Omnesys launched a managed data centre service for its clients, claiming that it provided performance far superior to any other algo service available. Omnesys was so confident about putting clients ahead in the queue that it charged a 20% profit share from its clients. Intriguingly, the algo system of Omnesys generated a profit on every trade! Anyone who has even a rudimentary knowledge of trading would know that this was simply impossible.

Even Omnesys knew this; so it billed the profit in terms of man- hours for managed services every month and kept it variable. “Everyone just believed it was a difference in their software which gave them an edge whereas it was simply front-running,” wrote the whistle-blower. At this time, NSE’s reputation was at its peak as a professional, competent and highly profitable entity. The sordid underbelly of the HFT business was kept well-hidden through glowing media reports and its immense influence with the finance ministry, senior bureaucrats and academic institutions. When Omnesys started selling its disguised front-running services on a large scale, Sanjay Gupta was worried about losing his ‘competitive advantage’; so, he built an in-house software which no one else would have access to and hid what he was doing, says Fong.

To match a bid/offer price using algos and push out an

order takes 50 microseconds in an efficient system and 200 microseconds in an inefficient system, according to the whistle-blower. [111] By contrast, the time taken at NSE to receive an order and send out the confirmation took ages – from 2 to 10ms (milliseconds). [112] Clearly, the order processing speed was not as important as the ability to game the system. "If you could connect first to the lowest load server every day, you would be 100 times faster than the average person on co-location." What about all the other investors? Fong says, "…Well they were the people who never even reached the stadium where the race would take place." Most ordinary investors are clueless; they are not even in the price race of the modern trading system.

Converted into profits, the advantage of being ahead by 20-50 milliseconds (one fortieth of a second) ran into hundreds of crores of rupees. About OPG Securities, the whistle-blower says, "I could tell you that it was worth about Rs2 crores per month at least or roughly a Rs100 crores [113] in three years though the balance sheet of Indian firms never seem to indicate such figures probably due to tax juggleries. The quantum in case of Omnesys is easier to guess – you simply need to know the figure of managed services invoicing and multiply by 5." But this game of making super profits through faster access was now unravelling. Others figured out OPG's success formula and he now needed a new trick. "This is where NSE co-location staff proved very helpful. They would grant him access to the time they would switch on the servers and would give him access to servers which were the latest and least crowded," wrote Fong. There was another significant clue to NSE's mischief. The Exchange needed to invest a few thousand dollars to synchronise time across the Colo server farm with the Exchange clock, right down to the millisecond. But it did not do it. Hence, every computer had its own timestamp [114] and nobody could prove 'latency numbers'. "This gave OPG a solid lead all through 2011 and most of 2012," says Fong.

"Nirvana in Technology"

In October 2012, Ravi Apte retired as the chief technology officer. Apte, under whose charge the flawed HFT system came up, had claimed in an interview that NSE had 'attained *nirvan a* ' in technology. "Trading speed on NSE is close to the speed of light. And this is the limit," he said. [115] Was Apte unaware of how rickety NSE's system was and that it was being misused by a select few? But by the time Apte left, complaints about the unfairness of NSE's system were piling up. Umesh Jain joined as chief technology officer at NSE in October 2012 and after meeting a lot of players, discovered the problems and initiated re-engineering of TBT architecture based on multicast technology. He also put in, what is called, a load balancer, [116] so that the load was evenly distributed.

Umesh also implemented NTP (network time protocol), which ensured that all servers at NSE have the same time, to microsecond accuracy, and also that the same facility was available to all members in Colo. This ensured that audit trails from different servers can be analysed collectively, in case of any issues in sequencing. Since earlier orders got matched ahead of the market, it was obvious that something was improper. NSE could not explain it away as random differences or the abilities of different software. Armed with the logs (though not necessarily understanding why this was occurring) different firms started approaching NSE to question the sequence of events.

Umesh's moves upset the gravy train of Omnesys and those who had gamed the system. Fong alleges that OPG switched gaming of access to backup servers, which were equally powerful but were supposed to be used only if the primary servers had a problem. But this, too, was brazenly misused. The backup servers with zero load provided latency advantage and the gaming continued. Around this time, a couple of global players went live at NSE's Colo server farm. Soon the re-engineering of TBT was complete and multicast TBT rolled out. This was much faster than before but, more important, it provided data to all traders at

the same time and was the death knell for Omnesys. According to the whistle-blower, suddenly the market share of OPG fell off the charts and Omnesys's managed services lost their advantage and went off track. Curiously, NSE had already dumped its stake in Omnesys on to Thomson Reuters!

In the four months after she got this letter, Sucheta showed it to select technical experts connected to the market to understand issues; she tweeted about it without revealing details, and also shared it with sources in some Central government investigation agencies. A couple of overseas traders responded to the tweet and met us to describe and corroborate how NSE dealt with algos and the Omnesys advantage! But as Michael Lewis's book *Flash Boys* says on the jacket: "Now, the world's money is traded by computer code, inside black boxes in heavily guarded buildings. Even the experts entrusted with your money don't know what is happening and those who do aren't about to tell – because they are making a killing." This was NSE's trump card.

When Sucheta sent multiple messages to Ravi and Chitra asking for their view on the whistle-blower's letter, they simply ignored them. Remember, NSE had already received the letter from SEBI and provided a written explanation. So arrogant was its top management that it did not even see the need to deny the contents, as it had done in their response to SEBI. We then published the entire letter [117] on www.moneylife.in on 19 June 2015 with the intention of crowd-sourcing additional information. In early July, Sucheta wrote a column for *Moneylife* magazine, saying that the finance ministry has suggested that, apart from SEBI, RBI should also take a detailed look at the implications of continuing HFT without adequate safeguards. Remember, NSE had a great equation with P Chidambaram, but he was no longer the finance minister.

"NSE's management of HFT servers in the initial years until 2013 (which are the subject of the whistle-blower's letter) may need a detailed review by SEBI or an investigation agency," said Sucheta's government source,

off-the-record. In fact, RBI's Financial Stability Report, released in June 2015, also identified algo trading as an area of concern with a detailed discussion. Clearly hidden from the public were NSE's deep links with bureaucrats in New Delhi. NSE was confident that its attempt to steamroller us with a defamation case would be fully backed up by North Block, while SEBI maintained its usual silence. Events, of course, took a dramatic turn.

18.

Rising Stink & a New Scam

With the benefit of hindsight, it might seem that the sequence of events that unfolded in the algo scam was seamless and inevitable: SEBI getting a whistle-blower's letter, *Moneylife* publishing it, NSE getting slammed by the Bombay High Court, SEBI commissioning multiple investigations leading to skeletons tumbling out of NSE's cupboard, a change in the board of directors and, finally, the exit of Ravi and Chitra. But there was nothing so certain or smooth about the way the scam unravelled. The rule of law often does not apply to the powerful in India. SEBI could have continued to drag its feet or its TAC could have been happy to accept NSE's explanation dismissing the whistle-blower's allegations. Either of these would have buried the algo scam, with NSE's version being filed away by the regulator. It is one man who made all the difference, Prof Dr Ashok Jhunjhunwala of IIT Madras and head of SEBI's TAC. But we are getting ahead of the events.

As in the past, SEBI had written to NSE, filed its explanation and closed the chapter on any investigation or regulatory action over Ken Fong's letter. Since the whistle-blower also exposed holes in SEBI's own regulations, the watchdog got busy fixing them and covering its track. On 9 February 2015, SEBI sent the whistle-blower's letter to NSE, 'advising' it to look into the matter. Two months later, on 17 April 2015, NSE deigned to reply. SEBI simply filed the response. An insider says this was done after putting it up to a whole-time member (WTM). So, no investigation, no audit and no serious questioning! The algo scam would have been buried right then, although it was clear even to a lay person that there was plenty of merit in the letter and, at the very least it required serious investigation.

SEBI officials knew this too. That is why, on 13 May 2015, the regulator quickly cobbled together a circular addressing all the serious issues raised by the whistle-blower's letter and much more! But it did not order an

investigation. Here's a summary of the May 2015 circular, whose innocent sounding 'guidelines' quietly plugged the gaps exposed by the whistle-blower.

It said that the co-location facility of stock exchanges shall: provide Colo services in a **fair, transparent and equitable** manner; ensure fair and equal access to the facilities and data feeds; ensure that all Colo users get **similar latency**; ensure **all stockbrokers are accommodated**; have enough rack space to **meet the needs of all stockbrokers and expeditiously decide** on the request of stockbrokers/data vendors and communicate the decision within 15 working days. The guidelines told exchanges to allow stockbrokers to **receive data feeds from other stock exchanges** and allow routing of orders to other stock exchanges (smart order routing); make available on their website charges and requirements to avail Colo facility; publish on their websites **quarterly latency reports** and have a mechanism to **identify orders emanating from the co-located servers**.

Most importantly, the guidelines emphasised the importance of **integrity and security of the data** and trading systems. For this, stock exchanges shall prevent **unauthorised access** to Colo; frame guidelines on access and conduct of stockbrokers' employees in the premises of the stock exchange, including in co-located space; **not provide access in any form to stockbrokers' employees** to the exchange's trading platform and databases. [118]

As you can see, this addresses the exact malpractices pointed out by the whistle-blower. Why was the regulator spelling out standard operating procedures five years after NSE started Colo? Wouldn't any well-run company have put them in place, as a matter of routine, before Colo was offered? The way SEBI's circular pinpointed issues, shows that it was perfectly convinced about the holes that Ken Fong had located in NSE's operations. The full import of this circular became clear only a year later, when details of how capriciously NSE ran its Colo spilled out in the public domain. By then, NSE had quietly moved from TCP/IP TBT to Multicast TBT, so the regulator was happy to let sleeping

dogs lie with the excuse that "the problem has been addressed," says our source. And, yet, the regulator remained silent when NSE had the temerity to file a defamation suit and issue vehement denials on affidavit.

After the algo scam investigation, SEBI imposed a Rs1,000-crore (Rs10 billion) fine on NSE, but who will hold the regulator accountable for this shocking failure to ensure that rules and guidelines governing fair market practices were in place before Colo was started? Perhaps this is why SEBI wanted to go easy on NSE. Remember, algo trading allows computer programs to effect massive trades in milliseconds giving large, privileged investors the opportunity to rake in super profits. At the time of writing, there is still no attempt to quantify the extent of this illegal profiteering. Media reports on the algo scam go straight from the whistle-blower's letter to SEBI's investigation, ignoring how SEBI was set to bury the outrageous scam. No outsider could have had access to this data and only the regulator could have called for it, and it finally had to.

Two things torpedoed the plan to bury Ken Fong's letter. First, NSE's suit forced us to dig deep, investigate everything it had done and also seek help from friends in investigation agencies, who ensured that the right questions were asked through the finance ministry. The second important factor was the determination of Prof Ashok Jhunjhunwala, chairman of SEBI's TAC, to unearth the truth. An alumnus of IIT-Kanpur and a PhD from the University of Maine, he is a rare academic driven by a mission to take the benefits of science and technology to rural India and a great believer in cooperation between industry and academia. He founded the TeNet group at IIT Madras, as well as its incubation cell and the IIT-Madras Research Park.

His revolutionary attempt to cut the high cost of laying phone lines by using wireless technology, at a fraction of the price, is the stuff of corporate legends. His life is one of amazing contrasts. While he sits on the boards of several corporates, his personal life is one of utter simplicity. His home at IIT-Madras has a floor seating arrangement only. On the one hand, he has been honoured with a Padma Shri, the

Shanti Swarup Bhatnagar Award and Dr Vikram Sarabhai Research Award, on the other, in the mid-1990s, he was hounded by the government, for his uncompromising stand on issues, at the behest of corporate lobbyists. Interestingly, Prof Jhunjhunwala comes from a large joint family that was into several small businesses, including stockbroking.

Given this background, not only was he very competent, but also unfazed by NSE's clout and steam-rolling attempts; nor did he depend only on the feedback and papers put before the TAC. He gathered his own information and, at times, asked SEBI to provide him details that were not available. Soon, he had first-hand information about the experiences of SEBI's investigation officials probing NSE.

Suddenly, the tone and tenor of SEBI changed. It now decided that NSE's reply of 17 th April "did not adequately address the concerns/ issues" raised by the whistle-blower and asked the Exchange to submit another report, after it was reviewed by its own standing committee on technology. NSE replied on 31 st July, reiterating that there were no irregularities and the whistle-blower's allegations were baseless. NSE's standing committee boasted academic luminaries such as Dr S Sadagopan, director, Indian Institute of Information Technology, Dr NL Sarda, formerly from IIT Bombay, and Dr VA Sastry; but, as always, they went along with NSE's management.

By 10 August 2015, the whistle-blower wrote a second letter trying to help SEBI verify the details in the first one. NSE had begun to face more questions by then. On 22nd July, Veerappa Moily, who headed the standing committee of parliament on finance, called upon SEBI to submit a report on malpractices in high-frequency trading (HFT). On 30th July, the SEBI chairman, UK Sinha, said, anyone trying to manipulate the markets with new-age trading technology tools would be slapped with strong penal measures. A few days later, he spoke of how regulators across the world were struggling to control HFT.

On 18 th August, reacting to allegations of data fudging and misuse of HFT, UK Sinha warned that SEBI would act

and that it had the power to change the management. On 7th September, *The Economic Times* wrote that SEBI was considering steps to ensure a level playing field in HFT. Public pronouncements like these often tend to play to the gallery; the real deal is when it leads to action. NSE paid no heed to Sinha's threats. When the Bombay High Court slammed NSE for its arrogant and frivolous litigation, its response was to file an appeal and throw more money to shore up its legal defence. It was also vociferous in its claim that it was blameless and its systems simply could not be rigged.

Unfair and Unequal Access

The key to a solid investigation was to understand the Colo system and establish the lack of fair and equal access. SEBI's team simply did not have the expertise to do this. In September 2015, in an email interview to the *Mint* [119] newspaper, NSE argued that logging in first did not provide any advantage by using an analogy. It had argued before the Bombay High Court that "The time lag between the first person and the last person (depending on the load) is a maximum 50 micro seconds (1 micro second = 1 millionth of a second) which by no stretch of imagination can confer any advantage to any person."

When asked to confirm this, the Exchange explained: "the first member will not necessarily receive the data first, since there is network congestion to deal with… The best example is that two people may leave a station in a car; Person A leaves a few seconds before the Person B but there is no way to know who will arrive at the destination first. If on a train, or if there is no traffic, then the person to leave first arrives first. Not so by road which has a large variance in travel time. To ensure Person A arrives first, he might have to leave at least some time before Person B (even more during peak hours), not a few seconds. A network is like a road, with congestion, multiple routes and variances."

A market expert with deep knowledge of trading systems simply exploded at this. "The answer is all hogwash. They are giving false analogies. One, in trading, any one being

slightly ahead, however small compared to others, has an advantage. Two, you are not getting down at a station and going out. You are meeting in the station when you are using co-location." But NSE was confident that few people would be able to prove otherwise. In the same interview, NSE asserted, "SEBI has asked exchanges to provide fair and equal access to colocation space, so that no member is prioritised, refused access or charged differently. We have ensured that." Three years later, on 12 April 2018, when grilled under oath [120] by SEBI, Chitra chose to fudge and hedge on the issue.

Manoj Nair (SEBI): What were the steps taken to ensure that 'equal and fair' access was followed?

Chitra Ramkrishna: While these principles (of equal and fair access) would need to be embodied in the actual practices and implementation, the respective departments may have had their own monitoring ranges…To the best of my knowledge, the respective CTOs and/or their teams would have been operationally responsible…

How did others in NSE's tech team respond to this question?

N Muralidharan (Ex-MD & CEO of NSE IT): I do not recall the criteria of 'fair and equitable' being considered as we were focusing on safety and reliability in the initial phase.

This is an extraordinary claim by a senior official. The very purpose of paying fat fees to NSE to avail co-location facilities within the Exchange is to ensure faster connection to the main server. What would be the point of this, if fair and equitable access is not guaranteed?

Ravi Apte (former CTO): I do not recall any specific discussion or documentation with respect to 'fair and equitable' access.

Ravi Narain (former MD & CEO): Equal and fair access was seen to be an outcome of ensuring adequate capacity at all times… I have no recollection of a written equal and fair access guideline…

So, NSE clearly lied in its interview to the *Mint* when it finally broke its silence – fair and equal access was neither an objective for the Exchange, nor was it ensured. It also raises questions about how and why NSE was allowed to start algo trading and Colo services without any formal clearance or guidelines by SEBI. But that question has not even been asked so far. On 3 October 2015, Ken Fong, wrote a third letter; this time, only to Sucheta and not to SEBI. Now that the defamation case was behind us, he wanted us to work on the "new scams brewing at NSE."

His letter said, SEBI conducted a 'surprise' inspection of NSE Colo but "from the further course of events it became apparent that the objective was only to pay lip service to the noise being raised in the media. I also realized that SEBI seems to be inept at tackling the issues at hand when they try to do an inspection two years after all the events rather than analysing the logs." He had now come across a way to "very simply and indisputably prove or disprove" his allegations. It was from the data, which NSE had shared with Ajay Shah and Susan Thomas of lGDIR for 'research purposes'. Subsequent investigations have shown that they shared this data with algo shops run by Susan's sister Sunita Thomas, who also happens to be the wife of Suprabhat Lala, NSE's head of trading operations.

IGIDR's research helped put an intellectual stamp on NSE's argument that HFT is good for the market since it improves liquidity. The report was available with a simple Google search. The whistle-blower noticed that "NSE has a timestamp which has granularity far greater than the one required for proving or disproving the allegation." The simplest way to handle the investigation, he said, would be check the latency between the orders of various members, after sharp market moves. If one or more members were consistently ahead, and this could not be explained merely by the processing time difference between the algos that each of them use, then his allegation would be correct.

A Second Scam

On the evening of Monday, 29 July 2019, VG Siddhartha,

founder of the coffee chain, Café Coffee Day had left Bengaluru for Sakleshpur in Hassan district of Karnataka. On the way, he reportedly directed his driver Basavaraj Patil to drive towards Mangaluru. At a bridge near Ullala, he got down from the car, told his driver he was going for a walk. He never returned. His body was found in the river 36 hours later, causing a sensation across corporate India and the stock market.

Siddhartha was a serial entrepreneur. Apart from Café Coffee Day, his investment vehicle Sivan Securities had made early bets on many software companies, including Mindtree Limited. He also promoted Way2Wealth (W2W), a broking firm, through which he had a majority stake in AlphaGrep through which he did HFT. Siddhartha owned 51% of AlphaGrep, while Mohit Mutreja and Parshant Mittal owned 49%. Mittal was a portfolio manager at AQR Capital Management, run by Cliff Asness, famous for his quantitative investment style. Mutreja was a trader at Citadel group, which runs the largest securities firm [121] and one of the top hedge funds in the world.

AlphaGrep set up shop in 2010, immediately after NSE launched its unregulated Colo business, and has emerged as one of the largest HFT firms on the Indian markets. Almost 50%-60% of traded volumes on the NSE come from HFT shops [122] and AlphaGrep does 5%-7% of this volume. With offices in Mumbai, Bengaluru, London, Singapore and Hong Kong, the firm is also active in several other countries including the US, China and Brazil.

AlphaGrep claims to use a disciplined and systematic quantitative approach, combined with ultra-low latency trading systems and robust risk management to develop trading strategies. But we now know that HFT firms at NSE's Colo were hardly competing on pristine and unique trading strategies alone. They were gaming the system too. In his third letter, Fong said that "the same brazen approach of playing favourites continues at NSE," despite the media furore over Colo. NSE had provided preferential access to one firm in particular for connecting across NSE and BSE

co-locations at least four to five months ahead of others. The firm was AlphaGrep. How exactly did AlphaGrep benefit? The scam went like this, says Fong. Since NSE controls 85% of cash trading volumes, price setting happens at NSE and it is later reflected on BSE's Colo. So, anyone who knows the price change at NSE before others at BSE's Colo would benefit immensely, he said.

BSE had long been asking for connectivity to be permitted across exchanges, to make the overall market more efficient through smart order routing. But NSE stonewalled this for years, with help from the regulator. Even after connectivity was allowed, the two exchanges did not share a common link across members. Instead, each member had to put up his own infrastructure across the Colo farms of both exchanges. "NSE has been using this as a lever to control who can access data across colocation and at what speed. The general latency across colocations is in the order of 1.5 to 2 milliseconds," said the whistle-blower.

"To connect, you needed to use the network of internet service- providers (ISPs). For example, Tata Teleservices in Mumbai has an optical fibre backbone over which it carries all customers from, say, Fort (where BSE is located) to Bandra-Kurla Complex (where NSE is located). AlphaGrep figured out that major telecom companies would not be able to give it faster access and located a cable operator who had a fibre optic network and was willing to provide a 'dark fibre'. In this case, they found Sampark Infotainment, which was willing to provide a near dark fibre with minimal switching equipment," wrote the whistle- blower. A dark fibre is basically an unused optical fibre, and so has no switching equipment, allowing for faster connectivity, simply because it carries less traffic.

NSE's policy was to allow links to be terminated only by approved lSPs; Sampark Infotainment was not an ISP and could not get entry into NSE's Colo. "AlphaGrep with its muscle of volume and good contacts managed something no one is supposed to. It got its near dark fibre terminated across NSE and BSE Colo without Sampark being an empanelled vendor in Apr-May 2015," says the whistle-blower. Its job

was made easier by the fact that BSE does not own its Colo and it is managed by a third party, which does not have to follow any standards for link termination. “The order of latency, which they could get across the link, was around 400 micro seconds. This was one fifth of what all others were having. If they could trade at one-fifth the speed of the market, the benefit is not hard to fathom,” says Fong.

The benefits were immediately visible in AlphaGrep’s numbers. From April to August 2015, its market share jumped from around 5% of BSE’s total turnover to around 15%. The huge volume jump should itself have triggered an investigation by the regulator. It did not, but the competition clearly noticed what was going on. By June-July, other HFT firms realised that they were clearly being beaten by someone having faster access to the system, rather than a better algorithm. They soon found out what was going on and demanded ‘a similar link’ via Sampark. Shockingly, NSE now began the process of empanelment of Sampark Infotainment and even allowed it to install its network devices at the Exchange. It then realised this would be illegal, because Sampark had no regulatory approvals to act as a retail ISP. But algo traders kept up the pressure and threatened to take the issue to the regulator or media if they were not allowed similar access. NSE had to find a way out of this.

In September 2015, “it ingeniously brokered an agreement between Sampark and Reliance Infocomm wherein Reliance would officially be the billing partner and all the links would actually be run by Sampark. This was a smart way to give *post facto* legitimacy to an illegal activity. As usual, this may never see light of any detailed analysis by SEBl unless active media scrutiny forces SEBI to act,” wrote the whistle-blower. Well, NSE’s marketing budgets, and strategy of denying access to those who asked uncomfortable questions, had prevented ‘active media scrutiny’ for years.

But NSE’s tactics did not work with Jhunjhunwala at the TAC. So, after he asked SEBI for the whistle-blower’s third letter, he was both shocked and also curious to get to the bottom of it. Jhunjhunwala is a man with a deep sense of

public service, probably inherited from his maternal grandfather who was a Gandhian and had also worked closely with Vinobha Bhave. Once he had made up his mind to investigate, he was uncompromising and tenacious, especially when he heard that the SEBI team was being stalled and bullied by NSE and some of its directors.

19.

Lies, Obstructions, Denials

NSE's explanations for the algo scam did not satisfy SEBI's technical advisory committee (TAC), especially when Prof Jhunjhunwala had begun to receive feedback about how the inspection team was bullied by NSE's senior executives. So, SEBI set up a cross-functional team (CFT), [123] which submitted its report on 30 November 2015. Although the CFT did not have the competence to go into all the details, it did identify major loopholes in the NSE system. It confirmed that until 2014, NSE's tick-by-tick (TBT) allowed members logging in earlier to receive price information ahead of those who logged in later. Also, that three of NSE's TBT servers had higher speeds than two others. This advantage translated into huge profits, since the very purpose of paying fees and setting up servers in NSE's Colo farms is to get faster data.

CFT established that in March-April 2012, OPG managed to log in first 97% of the time on one server and 100% of the time on two servers. It got a similar advantage in March-April 2013 on most days. Most importantly, OPG invariably managed to log in first on servers with higher speeds. So flawed were NSE's systems that investigation showed OPG and some other brokers regularly logging in to backup servers from time to time. On 27 April 2012, OPG had connected to the backup server at 07:23:23 when the server had started at 07:23:28, i.e., 5 seconds earlier! Backup servers, by their very nomenclature, are supposed to be available as a backup if something goes wrong with the main server. NSE's system shockingly allowed brokers to flout rules, merely issuing ineffectual reprimands after noting the violation. SEBI's investigation has not bothered to zero in on this, as the key enabler of serious fraud and profiteering. It has neither investigated nor quantified how this fraud translated into mega profits. In OPG's case, the early login advantage led to a jump in trading volumes from 15.81 lakh to 47.81 lakh contracts (1.58 million to 4.78 million) in the February 2012-August

2013 period.

The CFT report submitted on 30 November 2015 nailed several lies. The investigation, as well as NSE's email of 29 September 2015, confirmed that "there were no load balancers implemented in dissemination server." This contradicts NSE's assertion on 17 April 2015, that the "load balancing feature was implemented on the basis of customer feedback on improvement. While load balancing surely improved the way machines are loaded, by no means earlier mechanisms were giving preference to one member over others." In fact, investigations showed that load balancing was done manually and, even here, select brokers were given preference.

NSE also lied about randomiser logic. [124] Randomisers also ensure fair access by randomly picking a connection to begin dissemination of data, rather than starting with the first connection each time. Contradicting the whistle-blower's charge, NSE claimed to have implemented randomisation logic since February 2012, "at packet level and not connectivity level." When SEBI's CFT sought more details, NSE changed its tune and came up with some technical mumbo-jumbo. The CFT cut through the obfuscation saying, "It *prima facie* appears that NSE had not implemented any randomisation logic… it was terming a feature of TCP/IP as a part of its randomisation logic." The CFT also asked NSE to clarify whether its April submission was a lie, or, in polite language, whether there were "deviations in their submission to SEBI." NSE ignored the query. On 21 October 2015, CFT again asked NSE for a clarification, which it ignored again.

Here's another example of NSE's disdain for the regulator. When the CFT asked NSE to provide day-wise/server-wise information about the first 20 logins on each Colo server for 2010 -2014, NSE's response was to provide less than six months data for FY10-11, and two months each for FY11-12 and FY12-13 of five servers. "Even after repeated follow- up, the data is still awaited," notes a helpless CFT. Remember, only NSE dared to ignore the regulator; any other intermediary would have faced the brunt of severe regulatory action.

After CFT presented its report on 30 November 2015,

Jhunjhunwala told Sinha that there were enough details in the report to warrant a deeper investigation. Sinha was probably unsure about the technical competence of his team at SEBI and asked if the TAC itself could investigate. Jhunjhunwala said it was "not the TAC's mandate to investigate" complaints and whistle-blowers' letters. They then decided to get external forensic expertise and TAC was requested to vet them. Jhunjhunwala was clear that he wanted a thorough and detailed investigation and not 'routine, superficial stuff'. Many of the names that came up for consideration to conduct the investigation were rejected because they had business links with NSE and could not be relied upon to work independently without tipping off the Exchange. After talking to several firms, he went back to the SEBI chief and said, "I will have to look for somebody different." Sinha gave his assent.

His choice was to find independent-minded and competent academics from his network. He drove down to the Indian Institute of Technology, Bombay, spoke to several people and then decided on Om Damani, from the department of computer science and engineering, and a few youngsters. Damani's educational background is identical to that of Jhunjhunwala. Both studied at St. Lawrence, Ballygunge, Kolkata, and later at the Indian Institute of Technology, Kanpur. Jhunjhunwala also identified five SEBI officers, all below 30, who were very keen on the investigation. They were the support team attached to the TAC with a mandate to establish whether or not the events described in the whistle-blower's letters were random occurrences.

Almost immediately, the team encountered the haughty arrogance of NSE's top brass. Chitra, the MD, was furious and kept repeating that all this was nonsense and a sheer waste of time. "Our technology committee has looked at everything and found nothing wrong." The team came back dejected and told Jhunjhunwala that NSE was trying to steamroll them. Chitra even said that the data sought by the team could not be given, or only minimal data would be provided. The team fortuitously discovered that SEBI already had the required data and could reconstruct what happened in a month. On 2 March 2016, the IIT team corroborated the whistle-blower's

allegations. In summary it said:

- NSE architecture was prone to market abuse thereby compromising market fairness and integrity, and those who managed to log in early had the advantage of quicker order matching. Also, an entity logging in earlier retains the advantage of faster data access throughout the day.
- OPG was consistently able to log in first and get access to servers with higher speed. In fact, OPG even tried to crowd out other algo traders by occupying 2nd and 3rd positions on those servers.
- It appeared plausible that OPG and a few others were given preferential access to backup servers of NSE's TBT system.
- OPG Securities gained materially from exploitation of TBT architecture; once Multicast TBT was introduced, OPG's advantage and success reduced dramatically.

Faced with this second corroboration of the whistle-blower's allegations, NSE should have been on the back foot; instead, the IIT team also faced its high-handedness. "NSE has not fully co-operated with us as they have not given timely response, or have not responded at all, and have not deployed enough resources to answer all queries in a timely fashion," says its report. Consequently, it was unable to determine whether certain brokers enjoyed an information advantage.

After reviewing the IIT report on 15 March 2016, TAC formally sought NSE's response to the whistle-blower's first two letters. By then, Jhunjhunwala was convinced that there were serious lapses, but he believed they would be lower down the chain of command and those in charge would want to cooperate and initiate corrective action. Instead, Chitra was adamant that there was no wrongdoing at all and the NSE board backed her. Incidentally, the NSE board draws among the highest remunerations in corporate India. In 2015-16, independent directors pulled in a total of Rs1.66 crore (Rs16.6 million) in fees from NSE. Dr KRS Murthy and YH Malegam got over Rs48 lakh (Rs4.8 million) each, while SB Mathur got Rs38.55 lakh (Rs3.8 million) and Dr S Sadagopan Rs20.75

lakh (Rs2.07 million). As the legendary investor Charlie Munger has said: “Show me the incentive and I will show you the outcome.”

Jhunjhunwala was convinced that the board was not exercising independent oversight. “The NSE board looks like a rubber stamp and the management does whatever it feels like,” he said, but SEBI chairman Sinha, at that time, seemed reluctant to get tough. Contrary to his public pronouncements, his internal plea was, “we have our constraints.” When Jhunjhunwala pointed to the clear pattern of wrongdoing, Sinha again asked TAC itself to investigate. It required a police-type investigation with interrogation; so, TAC declined to do it. SEBI eventually did not order such an investigation and it was conducted by its own officials. The results are evident in the weak questions lobbed at NSE’s top brass with no follow-up, and the anaemic conclusions of the show-cause notices that were eventually issued.

Interestingly, both SEBI and TAC were clear that they wanted a complete clean-up without NSE or the investing public having to suffer. Sinha thought about it for a while and said, “I am the one who can change the board.” Jhunjhunwala concurred that it was indeed the first step. By end-March 2016, there were serial exits from the NSE board – SB Mathur, chairman; YH Malegam, eminent accounting expert with a long stint on the RBI and NSE boards; KRS Murthy, former director of Indian Institute of Management, Bangalore; S Sadagopan, director of Indian Institute of Information Technology, Bangalore. Justice BN Srikrishna, former Supreme Court judge, also exited in August. We gather that NSE was clearly told not to seek a reappointment for these directors.

In their place, came tax expert Dinesh Kanabar, Naved Masood retired secretary, ministry of corporate affairs, TV Mohandas Pai, former chief financial officer of Infosys, and Dharmishta Raval, an Ahmedabad- based lawyer and former executive director (law) of SEBI. She is also one of the four members of SEBI’s high-powered committee that considers consent applications. NSE would try to file a consent plea later to get out the mess. On Sinha’s request, Jhunjhunwala also

suggested three possible names for the post of NSE chairman. This was probably the first time that SEBI wasn't going to automatically approve a name forwarded by NSE. The list included Ashok Chawla, former finance secretary and chairman Competition Commission of India. Chawla joined the NSE board in February and became the chairman in April 2016. Soon after, SEBI escalated matters by calling the entire NSE board for a meeting; the chairman also met Chitra and Chawla separately. But Chitra remained adamant that there was no wrongdoing, say our sources.

Initially, the new NSE board behaved no differently from the old one probably due to NSE's insistence that there was absolutely no wrongdoing. On 12 May 2016, a 20-page letter issued by the NSE board denied every single conclusion of the CFT and IIT expert committees. NSE rubbished TAC's findings, saying that the committee had simply repeated the whistle-blower's allegations without an independent investigation. This was reported by some newspapers along with NSE's intention to challenge the findings. It was similar to NSDL's belligerence under Bhave in the IPO scam.

As part of its replies, NSE produced a report from its standing committee on technology (SCT) consisting of four people. Three were the same worthies who had rubbished the whistle-blower's letter of 30 July 2015: S Sadagopan, now an ex-NSE director, Dr VA Sastry, a former director, and Prof NL Sarda. They were joined by Dharmishta Raval, the ex-SEBI hand. Led by a new board, NSE's SCT told SEBI that there was no substance in the complaint. But there was a slight change in stand. NSE was now saying that an early login was possible, but even if a member was always the first to log in, it was immaterial. The allegations in the whistle-blower's second letter were similarly denied.

Clearly nothing would change as long as Ravi and Chitra continued to be in charge. After all, the directors were mere outsiders who gathered for well-paid meetings at NSE's request. They had no inside knowledge of how the Exchange functions beyond the information put before the board. The SEBI chief summoned the NSE board for a discussion on 7th July with TAC members. An incensed Jhunjhunwala bluntly

laid out the facts. He told the NSE chairman and MD: "There is an issue here. Something is wrong. You will have to admit it and then find out what went wrong. If you fail to do that, SEBI will take the strongest possible action." Dharmishta Raval, the freshly-appointed 'public interest director' on the NSE board, decided to use her legal skills to defend NSE. Here's what a source tells us about the exchange between them.

Ms Raval: Short of saying that something has gone wrong, we are willing to do anything.

Dr Jhunjhunwala: Why? When something has gone wrong, why won't you accept?

Ms Raval: We don't know whether something has gone wrong. And what we don't know, we cannot accept.

Dr Jhunjhunwala: That is your problem. Whether you accept or don't accept, it is your problem. But I am not going to let it be. I am very clear about where we stand.

At that stage, chairman Ashok Chawla, a seasoned bureaucrat, got the message and intervened. He said, "We will cooperate and do what is required." SEBI had to call the NSE board twice to make things happen. One version of events is that Chawla put his foot down after the second board meeting and said, "Nothing doing, enough is enough. This is an organisation that has to be seen to be transparent. We need to come out clean."

On 9 September 2016, SEBI ordered NSE's board to launch an independent examination (including forensic investigation by an external agency) addressing concerns highlighted in the TAC report. It would investigate the lack of processes that allowed irregularities to occur, find collusion, if any, and fix accountability in three months. Significantly, as an interim measure, all revenues emanating from the Colo facility were ordered to be placed in an escrow account. This was the first blow to NSE.

Deloitte Touche and Tohmatsu was appointed to conduct a forensic audit, although Deloitte had just completed a business continuity project for NSE, which had required it to go through the same systems that it subjected to forensic audit.

[125] Deloitte chairman PR Ramesh and Dharmishta Raval are colleagues on SEBI's high-powered committee to deal with consent applications. The decision to appoint Deloitte was taken by NSEs' audit committee, which included chairman Ashok Chawla, Dharmishta Raval and Ravi Narain. In the small incestuous financial world of Mumbai, the conflict of interest didn't raise any eyebrows.

Recounting the events of that period, an NSE insider told us that Ravi and Chitra were emphatic that there was nothing to worry about, and confident that their long-standing contacts and enormous resources would help paper things over. But NSE grossly underestimated the only person who mattered, Ashok Jhunjhunwala. When the issue was taken to TAC, it was purely based on their terms of reference. They had no clue about how the man worked and how deeply he would get involved, once he undertook any responsibility. NSE wasn't particularly worried about Deloitte and continued with deceptions, obfuscation and stonewalling. But before Deloitte could submit its report, something dramatic happened. Dinesh Kanabar was parallelly investigating the appointment of Subramanian Anand, who was Chitra's strange personal appointee and had the fastest possible rise to group operating officer, after coming in as chief strategic advisor to the MD. Kanabar was doing this on the SEBI chairman's instructions to the board, based on a complaint it had received about Subramanian's shadowy appointment.

Subramanian was not listed as a key management person (KMP) in NSE's disclosures to SEBI or in its annual reports, despite being appointed to the boards of several group companies and being the second most important person in the group companies. Kanabar's findings were so startling that it was clear to the board that he had to go. The NSE board met in the third week of October 2016 over video conference to review the enquiry report. There was a unanimous decision that he had to leave instantly. He 'foreclosed his contracts' (according to NSE's media communications) and left office that very day.

By then, it would finally have been clear to the board that NSE was nowhere as perfect and professional as it pretended

to be. At the board meeting on 2 December 2016, some 17 months before her term was to end, Chitra suddenly resigned. The suddenness of the news sent shock waves through the market. NSE said she had "tendered her resignation due to personal reasons and expressed her desire to step down with immediate effect." J Ravichandran, the most low-profile member of the original founding team, who was also very close to Ravi and Chitra, was told to hold charge as CEO. A company secretary and lawyer, Ravichandran was then the group president of NSE and the second- highest paid employee of the Exchange.

20.

Damned by Deloitte

On 23 December 2016, NSE submitted Deloitte's report to SEBI. Stripped off jargon and verbiage, NSE's Colo server farm comes across as an absolutely lawless place. Deloitte found that NSE did not maintain logs or records of the sequence in which the server applications were started. There was no documented process for allocation of specific members to servers. NSE did not have a standard operating procedure (SOP) for allocation of members on POP servers. Certain members were allowed access to multiple TBT servers, which was not in line with the sequential method. Preferential access was allowed to stockbrokers in violation of fair and equitable principles that should be bedrock of a stock exchange. And, NSE was quick to respond to the requests of certain brokers (such as OPG Securities), but slow in responding to those of others. NSE's IT team specifically asked for certain members to be moved to specific servers, while denying the same favourable treatment to others.

Deloitte also confirmed all the faults established by TAC's expert committee and dug out many more issues as well. For instance, it confirmed that NSE's TBT architecture was prone to manipulation, which was used by some brokers to profit by logging in early. OPG Securities was connecting first, second and third to a certain server for two and a half years from January 2012, but there were no data logs on how the initial connection was initiated. One of the members, Universal Stock Brokers, had openly admitted that it could get higher speeds by connecting to a secondary server.

Email from Universal Stock Brokers to COLO Support dated 10 February 2012

From:	MANISH GARG <manishgarg222@hotmail.com>
To:	colo support <colosupport@nse.co.in>
Date:	02/10/2012 04:28 PM
Subject:	RE: Connections on Fallback Server TBT FO - Universal Stock Brokers Pvt. Ltd.

From our experience we have observed that main server (IP 24) is slower than the secondary server (IP 27) therefore we have been connecting to secondary server.
Hope that you will keep on allowing us to connect to the secondary/Primary server as per our need and wish.
Thanking You

Manish Garg
For Universal Stock Brokers Pvt Ltd.

There were many examples of such lawlessness. In January 2012, members were asked not to connect to the secondary servers without instructions. But until 16 February 2012, OPG Securities was still connecting to the secondary servers. Multiple emails show that OPG did not move off the secondary server even by the end of the month.

None of these transgressions was innocent. For example, the absence of load balancers "appears to have created advantages for certain members due to manual intervention. Load balancing was done manually where members were allocated to servers based on existing load," noted Deloitte. It confirmed that 'manual load balancing' across servers was not 'performed equitably', since members allocated to servers with fewer occupants, or allocated to specific ports had an advantage. Deloitte identified that the coding included a function that removed the advantage to a member connecting first to a server. This function was introduced only in the F&O segment in 2012. It was never replicated in TBT, even though it was developed in 2011. [126] Could this be merely sloppiness, since it allowed certain trading members to make huge profits?

NSE Used Unauthorised & Non-empanelled Vendors

The Deloitte team also found enough evidence to support the whistle-blower's charge, in his third letter on dark fibre, that Way2Wealth and GKN Securities secured point-to-point connectivity through Sampark Infotainment (Sampark), in violation of NSE's policies. NSE's circular of 31 August 2009 allowed members to take connections to Colo only from Mahanagar Telephone Nigam Ltd, Tata Telecom,

Bharti Airtel or Reliance Communications. Sampark was not on NSE’s list. However, Nagendra Kumar of the NSE team, by an email of 6 April 2015 granted permission for point-to-point connectivity through Sampark. Stunningly, NSE employees tried to obstruct the Deloitte investigation as well. Here is what its report said:

- NSE’s employees (in particular Abhishek Soni, Mahesh Soparkar, Avadhut Gharat) did not cooperate with the auditor during the process of examination.
- Market data logs for certain TBT servers were not available for a 15-day period under review.
- Market data logs only captured information at the server level and did not have information of the respective sender on each server.
- The Deloitte team could not analyse specific benefit in terms of latency for trading members connecting at different positions in the queue, since it was not shown logs that captured tick-wise time of dissemination for each server.
- While reviewing NSE’s emails, the Deloitte team discovered that there were discussions about implementing both, load balancer and randomisers, but they were not pursued by NSE’s IT team. Deloitte noted that it “did not receive clear responses as to why these were not pursued.”
- In the absence of any data retention policy, electronically stored information such as emails and other electronic documents of certain key former employees, such as Ravi Apte (ex-CTO), Jagdish Joshi (project manager, Colo Support) and Mamatha Rangaprasad (AVP - NSE.IT / NSE) were not available.

Why is it that a high-tech company handling real-time data, which is also a one of the world’s largest exchanges, did not have a data retention policy? Especially in an environment where brokers regulated by it are mandated to record and retain all conversations with their clients. The answer is that NSE had brazenly lied. It did have a data

retention policy. Umesh Jain, who took over as CTO from Ravi Apte, had fixed this issue very early in his tenure.

The fix he provided not only ensured 100% data retention from that date but had also salvaged at least 95% of email correspondence, which would otherwise have been lost. So clearly, the past data was hidden from the Deloitte team with lies about not having data. In fact, when Umesh Jain was served a show-cause notice, he demanded access to his own data. Sources say he knew precisely where it was stored, which is why a reluctant NSE gave him access. NSE employees were again suppressing facts, giving evasive replies and making statements that contradicted email records, as they did with the TAC expert committee.

On 17 January 2017, the TAC met to review the damning Deloitte report. This was two years after the whistle-blower's first letter. The minutes of the meeting show that the TAC was incensed that NSE's new board was behaving exactly like the old one. NSE's letter of 23 December 2016 and Ashok Chawla's letter of 26th December showed that NSE's board has merely taken 'on record' the Deloitte report, without any indication of "corrective actions it has taken or has planned to take in view of the findings of the forensic auditor." The NSE letter also did not say whether the board had "fixed accountability for the breaches" pointed out by the SEBI-TAC committee and the forensic audit, note the minutes.

Deloitte's work was limited to the equity derivatives segment in 2010-15. Since TCP/IP-based TBT data was also available to stockbrokers in other market segments, such as cash market, currency derivatives and interest rate futures, TAC felt that they were probably manipulated too and asked the NSE board to investigate each of these segments. It also asked NSE to institute an enquiry into non-cooperation by its employees with the forensic auditor and the SEBI-TAC team. Specifically, it wanted the board to find out "whether such suppression of facts, evasive replies, contradictory statements were made with any specific intent to curtail examination."

But NSE has not conducted any such enquiry and SEBI's inaction, even five years later, makes it clear that it has chosen to ignore this stunning defiance by NSE officials. NSE's employees had claimed that it had no standard operating procedures for most issues covered by the investigation, including the dark fibre investigation. [127] Even here, Deloitte reported, "We have not been provided with any NSE policy documenting the process to be followed." The irony is that even after the massive glitch that stopped trading at the NSE on 24 February 2021, SEBI and its technical advisory committee have, once again, asked the Exchange to conduct an investigation to 'fix responsibility' for the decision not to switch to the disaster management site. No lessons have been learnt five years later!

Since SEBI has not probed deeper, we will never know whether the high-technology exchange was merely incompetent or had deliberately gamed its systems and not maintained records in order to cover its tracks. We believe it is the latter because it is inconceivable that the Exchange would not have formulated such crucial technology policies. After all, a SEBI circular of 29 November 2011 had advised stock exchanges to undertake a system audit on an annual basis.

One of the areas supposed to be covered in this audit is electronic document control and audit of electronic record retention and review of SOPs for various processes and operations. Had NSE admitted that it had a policy, it would have had to share emails and data and that would have exposed its top brass completely. PricewaterhouseCoopers (PwC) and Ernst & Young (E&Y) had done an annual system audit for NSE for a few years; but surprisingly, SEBI did not think it necessary to summon PwC and E&Y and get at the truth.

What Deloitte Ignored

Deloitte corroborated most issues raised by the SEBI-TAC report, but it chose to ignore a core issue that was part of its mandate, which is to investigate possible collusion of NSE's

employees with certain stockbrokers to give them preferential access and fix responsibility for failing to implement load balancers and randomiser. Deloitte's report says a set of employees, [128] may have shown preferential behaviour to stockbrokers OPG Securities, GKN Securities (these two appear to be associate companies), Way2Wealth and Universal Stock Brokers.

However, both Deloitte and NSE, ignored the TAC's instructions to "investigate collusion, if any, and fix accountability" for the breaches. It is no surprise that the TAC meeting on 17 January 2017 again asked "NSE's Board to examine the role played by its employees" to establish possible 'collusion and connivance' and also 'initiate suitable actions against stockbrokers' after a probe. Five years later, there is absolutely no attempt to fix responsibility of employees. Instead, NSE has even challenged SEBI's weak and vague order, which includes a disgorgement component, instead of a penalty.

A Fourth Letter

On 14 February 2017, the whistle-blower sent a fourth letter with regard to the currency market, which is regulated by SEBI as well as RBI. This closely typed, 13-page letter addressed to SEBI and Sucheta, identified loopholes in NSE's systems architecture that remain unplugged even after the wide-ranging SEBI investigation and the switch to a multicast system.

More worryingly, it said that currency derivatives and commodity markets operate in a 'regulatory vacuum'. He went on to allege that a couple of global HFT firms had been accessing price/data feeds, which are prohibited for non-bank participants for Indian trades. Illegal access to this data gives them a huge two-second information advantage that they exploited through large trading volumes which are, sometimes, as high as 30%-40% of the entire daily volume in USD-INR futures. One foreign firm (which has faced regulatory investigation abroad) alone had "made a profit of anywhere between Rs200 million to Rs300 million (2013-14) in the very first year that it gained access to prohibited

data feeds in India," he claimed.

Providing an update on the NSE Colo situation, he said "…a select few traders still get to calculate real-time latency across multiple gateways and then route all orders via the fastest gateway." NSE continued to drag its feet about introducing basic transparency measures such as allowing point-to-point connectivity at Colo, required to catch preferential access to a select few. The letter offered a long and technical narrative on what could be done to fix the problem.

According to the whistle-blower, commodity exchanges were under the least regulatory oversight and needed urgent attention. He claimed that some telecom firms with national long distance licences that are disallowed by NSE because they do not have certain equipment, are easily operating on commodity exchanges. There are firms providing dark fibre links to commodity exchanges quite openly, for inter-exchange connectivity, he said, and some firms were even providing different speeds of connectivity based on what they were paid. SEBI, which was already struggling with the NSE issue, seemed to have no inclination or resources to investigate the currency or commodity market scams. At the time of writing, there has been no regulatory action by SEBI.

The TAC expert committee report, Deloitte report and the whistle- blower's fourth letter showed that the rot was deep and spread across all market segments. On 28 February 2017, just as UK Sinha was getting ready to demit office, he ordered a forensic audit into the cash market, currency derivatives and interest rate futures for the period 2010–2015. The audit, based on the recommendations of the TAC, was also supposed to estimate the benefits/profits to brokers by exploiting loopholes. E&Y was asked to examine manipulation, preferential access, multiple logins to a single server, randomisation, etc. Strangely, even before E&Y could file its report, SEBI fired off a weak set of show-cause notices to NSE, its employees and select brokers which seemed more intent on diluting the scam and letting off offenders, rather than ensuring a clean-up.

21.

A Strange Appointment & Ignominious Exits

"They were absolutely headstrong about the problem at co-location. They thought they could manage everything. SEBI officials are a bunch of idiots… nobody understands exchange technology. We can fix any problem," was the thinking of the NSE top management, says a former senior executive. What was the source of this cockiness? Well, Ravi and Chitra were a part of NSE's founding team and had 'managed' every problem over 23 years, including the JPC on the Ketan Parekh scam, multiple failures of NSE's systems and competition from Jignesh and BSE. As we have seen, they had an army of current and retired officials and regulators backing them.

Very few policy-makers and politicians understand capital markets and complex trading systems, especially since there is little verifiable information in the public domain. It is the same at the market regulator. The chairman and WTMs are often in post-retirement jobs, while cadre officials have little hands-on experience of running exchanges or understanding of technology. So, they had no option but to listen to the NSE team that had demonstrably built an extraordinarily successful exchange. After all, NSE ranked among the top-3 exchanges globally for years and was world's biggest derivatives exchange in 2019, based on contracts traded.

NSE's cockiness was on the rise since Ravi took charge as MD. Here is an early example. Sometime in 2005, when a SEBI team led by an executive director reached the Exchange to conduct a spot investigation into a system breakdown, it was actually locked in a room and not allowed to interact with anyone for some time. A livid M Damodaran, SEBI chairman, summoned Ravi and Chitra to his office and gave them an earful. Later, when SEBI was all set to ask Sanjay Pandey, an IPS officer with a degree in computer science from IIT Kanpur, to investigate the

system failure, Ravi headed off the move by asking Pandey to join an internal investigation team that eventually came up with a bland report that was soon forgotten.

This pattern was repeated over the years and, probably, explains NSE's defiance of the regulator and sense of invincibility. Remember, it also got away in the ALBM (automated lending and borrowing mechanism) scandal, since the final JPC report stopped short of indicting it for any failure.

Chitra Ramkrishna was next in line to rise to power at NSE. By the time she took over as MD on 1 April 2013, NSE had SEBI in its grip, and the media and academia were eating out of its hand because of its ability to distribute financial largesse. It had also learnt the art of image management by limiting media access to 'friendly' journalists. A sense of hubris was inevitable and this was evident from her actions. Her very first decision as MD, almost as if in celebration of her appointment, was to issue a unilateral order to appoint Subramanian Anand (Subbu) without consulting anybody. The HR department was handed a text of this appointment letter and ordered to issue it without changing a word of the draft.

It appointed Subramanian as an 'advisory consultant' – whatever that meant. The letter was issued in December 2012 and he joined the Exchange in April 2013. The appointment letter talked about his 'rich expertise in various fields' without specifying what they were and whether he ever had anything to do with markets, technology or regulation. His job profile was equally vague; it said, he will "facilitate advice in the areas as required from time to time from the office of MD and CEO."

NATIONAL STOCK EXCHANGE OF INDIA LIMITED

ANNOUNCEMENT

Dear Colleagues,

We welcome Mr. Subramanian Anand as an Advisory Consultant on Board NSE, w.e.f 01.04.2013. Mr. Subramanian brings with him 21yrs of rich experience and expertise in various fields and will facilitate advice in the areas as required from time to time from the office of MD & CEO.

We wish him good luck in his endeavor.

Regards

Chandra

In other words, he started out as a personal adviser and consultant, or what would be a bright young executive assistant in any other company.

Subbu is apparently a mechanical engineer and a management graduate from Annamalai University. A senior NSE executive pointed out how there is little or no information about him on LinkedIn or the numerous websites that track corporate profiles.

Internal guidelines of large international companies, such as PayPal, say that it is highly suspicious if someone’s footprint has been completely wiped out from the internet. Subramanian, who had no digital footprint, went on to become the group operating officer in this large, highly technology-intensive and sensitive organisation, which is a first-line regulator.

Then there is the issue of compensation. Subbu earned an annual salary of Rs14.75 lakh at Transafe Services, a little known joint venture between the government travel company, Balmer Lawrie and ICICI Bank. Chitra hired him for an annual paycheque of Rs1.4 crore (Rs14 million). Since he was an ‘advisory consultant’, it was a one-woman decision, which did not have to meet any fitment rules or HR processes. This was only the beginning of Subbu’s super meteoric rise at the NSE. In less than two years, he was being paid almost Rs4 crore (Rs40 million) and was

entitled to the same lavish perks (such as first-class international travel, a hefty per diem and allowances, and a weekly trip to Chennai which was his home). NSE's salary structure included fixed and variable pay, depending on performance. "Subbu always got A+. So, he could always take home 100% of variable pay," says an NSE source.

Pretty soon, it was clear that the advisory consultant was effectively the Number 2 in the organisation. Chitra would not clear any decisions unless they were routed through Subbu. She ensured that nobody had any doubts about his position by giving him an office on the same floor as hers. There was only one other office on that floor, which was for the visiting chairman or vice-chairman and it had access to a reserved elevator. After Ravi relocated to Delhi, Subbu also occupied his apartment at NEAT House.

We usually find such high-level recruitments at the top in a family- owned company, since the owners call the shots. That it could happen at an exchange, where top appointments have an elaborate process and are scrutinised and cleared by the regulator under 'fit and proper' criteria, points to how clueless SEBI was about the goings-on at NSE. Subbu did not come to the NSE alone. His wife Sunita headed NSE's Chennai office. On the same day that Subbu joined NSE, Sunita's terms of employment changed from employee to consultant. According to NSE's HR sources, this was done to avoid an apparent conflict with the internal rules about husband and wife being in the same organisation, with the wife technically reporting to husband.

As we wrote earlier, hiring 'consultants' on short-term contracts at senior positions was a tactic adopted by Ravi and Chitra to ensure complete loyalty and unquestioning confirmation by seniors. A stream of exits from NSE's senior positions showed that those who disagreed or disapproved of how things worked, usually did not have their contracts renewed, says our source. Many of these officers had found it difficult to deal with Subbu who had no understanding of running an exchange or technology; they were also worried about frequent 'oral diktats' from

him.

Subbu progressively came to acquire wide powers for reasons best known only to Chitra. When questioned about him by SEBI, after the algo scam, she said he was known to the family. An NSE insider says, she had deep interest and faith in astrology and strange rituals, bordering on superstition, and wouldn't do anything without consulting astrological charts under his guidance. Astrology or not, by March 2015, Subbu got into the boards of DotEx International Limited, [129] India Index and Services Products Ltd and NSE IT. Our question is, even if others were in the dark, surely vice-chairman Ravi Narain, who had been with NSE since the very beginning, knew that the appointment was irregular and ought to have blown the whistle.

Exactly two years after he joined, Subbu was designated group operating officer (GOO) in April 2015 without any formal evaluation. A note from Chitra's office reads… "I propose to use the facility of our Chief Strategic Advisor to reduce my burden. Considering the rich experience and guidance sought from CSA over two years, I propose to bring the following departments under his leadership and direct supervision, which will give me the space for concentrating on other initiatives." A huge part of NSE's critical functions was handed over to him including people management, new business, corporate communication, marketing, business excellence, research and development, pricing, strategic planning and subsidiaries (IISL, DotEx, NSE Tech and NSE IT)! It set tongues wagging. Curiously enough, somewhere in the two years, his designation had already changed from 'advisory consultant' to 'chief strategic advisor', nobody knows when.

In August that year, the board granted to Subbu powers that were reserved for the MD and deputy MD till then. How did the nominations and remuneration committee (NRC) clear his elevation? The NRC comprised Ravi, YH Malegam, a reputed chartered accountant and SB Mathur, former chairman of LIC. J Ravichandran, long-time company secretary and loyalist, was also promoted to

"Group President – F&A, CSR and Corporate General Counsel in addition to being company

In order to concentrate and move up this ladder, I propose the first of the following changes:

Mr J Ravichandran has over a period of time, brought in value and experience, in terms of his concerted efforts and engagement with all our stakeholders. In line with a higher responsibility, it is proposed that effective April 01, 2015, Mr J Ravichandran will be re-designated as **Group President – F&A, CSR and Corporate General Counsel**, in addition to being the Company Secretary of NSE.

As the next change, I propose to use the facility of our Chief Strategic Advisor(CSA) to reduce my burden. Considering the rich experience and guidance sought from CSA over two years, I propose to bring the following departments under his leadership and direct supervision which will give me the space for concentrating on other initiatives.

Effective April 01, 2015 CSA will be re-designated as **Group Operating Officer and Adviser to MD**, and will handle People Management, New Business, Corporate Communication, Marketing, Business Excellence, Research and Development, Pricing, Strategic Planning and Subsidiaries (IISL, DOTEX, NSE Tech & NSE IT). Apart from these, he will continue to assist the MD office, from time to time on various initiatives.

I hope you will all welcome and support this initiative and bring our Company to great heights. I wish both of them the very best for future endeavours.

Regards

MD & CEO"

secretary", maybe to ensure that he did not raise questions that he was legally required to. He is among the highest paid executives in this position in India.

Here is what is unbelievable about Subbu's appointment. NSE as a first-line regulator has to identify key management persons (KMP) to SEBI. NSE never listed him as KMP, despite his rapid rise in the organisation. The annual report of 2013-14 makes no mention of him. He suddenly appeared in the 2014-15 annual report as GOO, just after J Ravichandran, group president and company secretary. And yet, since he was a 'consultant', his salary and other details were not disclosed in the annual report. Operationally and, in terms of remuneration, which was now Rs4 crore (Rs40 million) per annum, Subbu was the Number Two man in the organisation. Only Chitra earned more than him, at Rs7.87 crore (Rs 78.7 million) gross.

Our NSE source agrees that as GOO, Subbu had to be

designated as KMP. “There is no two ways about that and it is a violation of SEBI rules,” he says. This deviousness also triggered gossip within NSE and ought to have percolated to SEBI, especially after the algo investigation began in earnest. SEBI paid attention only when Jamie Jones, a second whistle-blower, exposed his questionable appointment. When Chitra was interrogated by SEBI under oath about why he was not KMP, she replied: “Typically the regulatory department would guide us on which of the staff are designated as KMP. Based on the functions and role that he was playing; he was not identified as KMP.” It is strange that the company secretary has not been questioned about this.

Interconnected Doors & Other Changes

As Subbu got more entrenched in the NSE, rumours started swirling about him and Chitra. There were only three offices on the 7 th floor of the NSE building, occupied by Ravi, Chitra and a chairman’s office. There was also a secretarial bay and an office where Raghavan Putran used to sit whenever he came from Kolkata. After Ravi stepped down and Subbu was appointed, the space on that floor was reorganised to make way for Subbu’s office, while Raghavan was relocated to another floor. An interconnecting door came up between the offices of Chitra and Subbu and one of the three lifts in the building was also permanently blocked for them even though there was a shortage of lifts. Subramanian was also allotted Ravi’s former apartment at the top floor of NEAT House in Mumbai.

Things changed professionally too. According to a media report, “Subramanian now controlled access to Ramkrishna and had become an extra-constitutional authority of sorts. Senior managers who could earlier walk up to Chitra now had to wait for a green signal from Subramanian, which would sometimes take days. Talk in the office was that Ramkrishna would not take a decision without first consulting Subramanian.” [130] An NSE insider told us, “We don’t know what hold he had on her that she stopped

meeting her own people. Those who had walk-in access were told that you have to come through him. Some people got so disgusted that they stayed away."

Inside NSE, those who didn't fall in line by coming via Subbu got no response to their emails and even requests for meeting were ignored by Chitra. Eventually, everyone was made to go to him even if they did not report to him on paper, to get their work done. "When Ravi was the MD, Chitra used to come along with him for meetings. To me, she always came across as a very level-headed person. But after she became MD, something changed. I don't know what," says a senior SEBI executive.

NSE came under SEBI's scanner in 2015 for the algo scam, but this bizarre situation continued. Subbu's appointment letter was not available to company secretary SN Ananthasubramanian and Co (SNA) for the secretarial audit. The management is said to have claimed that it was an internal communication. Former NSE chairman, SB Mathur, told *The Economic Times* that none of the secretarial reports placed before the board were qualified and, hence, there was no reason to suspect anything amiss. [131] When asked by the paper, SNA had said that the NSE 'management' had responded adequately to queries about Subbu. His firm no longer does the secretarial audit of NSE.

The Jamie Jones letter of August 2016 (an alleged whistle-blower who emailed a letter to SEBI and copied it to several journalists including Sucheta) had alleged that Chitra and Subbu made frequent domestic and international official trips. [132] SEBI, finally, wrote to NSE asking the new board to investigate Subbu's appointment. Dinesh Kanabar, tax expert and former deputy CEO at KPMG India, chaired NSE's NRC (nominations and remunerations committee) and was asked to conduct the investigation. An insider relates the following sequence of events. He says, Kanabar had expected to do a routine check and asked for Subbu's appointment and evaluation files. But Chitra was reluctant to make them available. She said, NSE had

already responded to SEBI and Kanabar needn't bother with the investigation. When he causally asked about Subbu's previous employment, her response apparently was: "How is it relevant?"

This seems to have got Kanabar's antenna up. He politely insisted on having the files, and this time the HR department was happy to supply all the information he needed. When Kanabar and some of the new directors were asked by the finance ministry to join NSE's board, it had been made clear that a clean-up of the Exchange was a part of the mandate. The records shocked him completely. NSE has international standards and processes for appointments, and these had been followed meticulously for all appointments, including those of consultants, except in case of Subbu. Chitra alone decided his appointment, repeated promotions and perks; he had never been put through a formal evaluation. The records confirmed what we mentioned earlier about his salary jumping from Rs14.75 lakh (Rs1.47 million) per annum in his previous job to Rs1.4 crore (Rs14 million) without any basis or justification. More than anything else she may have done, Subbu's appointment and elevation exposed the complete lack of governance and accountability at the Exchange under Chitra and her belief that she could get away with anything. The HR department also showed Kanabar the connection between Subbu and his wife Sunita Subramanian, and how her ratings and compensation had also jumped significantly, along with his.

The NSE board met in the third week of October 2016 mainly to discuss the findings about Subbu. The NRC report was so damning that the board was unanimous about the action that had to be taken. Kanabar was very clear how it would be done. Chitra was called in and told that 'he (Subbu) has to go right now'. She was asked to leave the room right away, inform him that he had to go, take charge of his computer and access cards, etc, escort him out of the building and report back to the board in 15 minutes. There was no question of any argument, time or compromise on the matter; and she complied. Subbu also had to vacate his

apartment that very day. Subbu's wife continued with NSE until December, when she was also eased out. The company secretary, SN Ananthasubramanian has also been replaced. One ignominious chapter in the history of NSE just ended; but it did not stop there.

"Chitra felt completely humiliated. She was a shadow of herself. Her mood was off. The tension was palpable. Finally, the board was asking searching questions and seeking more details. By now, the HR department refused to suppress information sought by the board and they had apparently built a case against her," says an insider. To the board and SEBI, it was clear that the clean-up would not stop at Subbu. The issue was so serious that Chitra also had to go.

On 2 December 2016, the board was to discuss the Exchange's listing plan. That morning, chairman Ashok Chawla and Dinesh Kanabar asked Chitra to come for a talk before the board meeting was to start. The plan was to ask her to submit her resignation. At 9am Chawla and Kanabar were in the NSE chairman's office at Bandra-Kurla complex, when Chitra walked in and asked to speak to Chawla alone. They went to Chitra's office and she informed him that she had sent her resignation to SEBI the previous night and handed over a copy of a hand-written resignation letter.

Clearly, someone had tipped her off that she was going to be asked to step down and she pre-empted the move. Her resignation ought to have been submitted to the NSE chairman not SEBI. Anyway, it was promptly accepted at the board meeting that followed.

Interestingly, for the year 2015-16, Chitra had earned Rs7.87 crore as remuneration. But she drew about three times that amount for the last eight months of her tenure, precisely when NSE was in turmoil. Including variable pay, leave encashment, leave travel allowance, medical allowance and gratuity, her compensation added up to a stupendous Rs23 crore (Rs230 million) in the aftermath of the algo scam. The question that remained was about Ravi

Narain and his apparent participation in the clean-up, when he was as much a part of the problem, since he had remained silent about Subbu and other issues.

In February 2020, SEBI got around to issuing a show-cause notice to NSE over the appointment and promotion of Subramanian Anand. The notice mentioned that Chitra, as MD & CEO, shared "certain internal information pertaining to the NSE with an alleged third party." The third party here referred to Subbu before he was appointed as consultant at NSE. SEBI tracked IP addresses from NSE's computers and found very personal messages as well as official matters being discussed on email with an outsider. Since neither party is employed with the NSE today, the Exchange is seeking to 'settle' the case. The new board also cleaned up the system of appointing consultants by insisting that those who came in full time should be taken on the rolls and certain others discontinued.

Ravi Narain's Dubious Role

NSE launched algo trading without SEBI's specific approval when Ravi was the MD. When the algo scam broke, Ravi was the non-executive vice-chairman, in a specially-created post that allowed him to retain power at NSE without accountability. He was on all the important committees of the board—the audit committee, nominations and remuneration committee, stakeholder relationship committee as well as the risk assessment and review committee. He was also a director on many of the companies that NSE had floated.

NSE's Colo and HFT business exploded under his watch and, eventually, ended in a scam, because the system was full of holes that a professional exchange would certainly have plugged. Even after he moved to a non-executive position, as a member of the founding team, he would have been expected to advise and guide the board and speak up about the capricious appointment of Subbu, his elevation, not to mention that of his wife at the Chennai office. But Ravi remained silent and, thus, complicit in the goings-on.

And yet, there are two versions to the equation between

Ravi and Chitra. Some say they were close associates who fell out and it was Chitra who engineered his exit to a non-executive role and her own appointment as MD through her equation with the finance ministry. This version has it that Ravi moved to Delhi, had little to do with operations in Mumbai and Chitra was quick to ensure that Subbu moved into his office and apartment, signalling his place in NSE's hierarchy. An unsigned article in *Moneycontro l* , dated 4 January 2017, also says there was no love lost between them and there were two factions in the Exchange—one which swore allegiance to Ravi and the other threw in their lot with Chitra. However, another insider says, "Chitra used to check everything with Ravi, even after he stepped down as the managing director. He even helped put together the list of Key Management Persons (KMP) when the current board asked for it." [133] We may never know which version is accurate. The fact that Ravi remained on so many boards and committees of the NSE group right until he resigned is indicative of his continued clout at the Exchange. We also know that he lobbied hard in Delhi to bury the scam and would probably have succeeded but for the formidable Ashok Jhunjhunwala.

He is 'spread like oil' in Delhi, is how a top official from an investigation agency described Ravi's lobbying after the algo scam investigation began in earnest. For a long time, it seemed that Ravi would escape unscathed from the algo scandal, but his carefully constructed set-up was shattered after SEBI received a formal complaint questioning the 'independence' of the forensic examination. After all, the forensic audit covered the period 2010-15 and Ravi was MD from 2010 to 2013. It is amazing that neither SEBI nor the NSE board saw anything wrong with Ravi hanging on for almost two years after the algo scam, in a phoney position created for him.

Finally, TAC recommended that "in order to ensure independence of the investigation process, NSE's Board may be advised to NOT engage Shri Ravi Narain in supervisory or investigative capacity for the purpose of further investigation of the matter." Despite this, Ravi stuck

around for five more months and, finally, quit only on 2 June 2017, after SEBI issued the first set of show-cause notices.

22.

SEBI Acts, Hesitantly

On 22 May 2017, SEBI issued two sets of show-cause notices (SCNs), without waiting for Ernst & Young (E&Y) to submit its report. By this time, the SEBI-TAC report and the Deloitte report had already nailed NSE, despite its defiance and non-cooperation. The first SCN was sent to 14 persons and ran into 350 pages, padded up with correspondence and investigation reports. It read like a procedure to wind up the investigation rather than one aimed at punitive action. No attempt was made to pinpoint responsibility, even though two detailed investigations had corroborated the whistle-blowers' allegations. Although it is clear that NSE's top management called the shots (they certainly took the credit for every success and rewarded themselves with extraordinary salaries and perks), SEBI chose to make 14 persons jointly and severally responsible for decisions, as well as operational issues. Interestingly, Subramanian Anand was not included, at this time – more proof that he had no operational responsibility, although he had total control as the group operating officer.

The SCN was about violation of a variety of regulations [134] and code of ethics covering: fairness and transparency, compliance, due diligence and failure to maintain high standard of ethical responsibility, failure to honour principles of justice and equity, etc. The rest of it was largely a narration of the findings of the TAC and Deloitte reports and covered issues such as faulty systems that were easily manipulated by select brokers, absence of SOPs, the dark fibre issue, etc. SEBI also alleged that there were oral instructions from 'seniors' about allocation and switching of Colo servers. The enormity of these systemic issues is obvious. The algorithm-based HFT whipped up average trading volumes of nearly Rs3 lakh crore (Rs3 trillion) a day in 2015-16 and large institutional brokers invested huge money in writing algos and hiring Colo servers precisely to get that nanosecond of advantage in accessing prices. And, yet, SEBI did not even attempt to address NSE's

extraordinary falsehoods, denials and lack of cooperation all through the investigation.

On the dark fibre issue also, there was no attempt to pin specific responsibility for the decisions, even after the TAC report detailed the dubious process of how Sampark Infotainment was regularised and provided dark fibre connectivity. SEBI's SCN makes no mention of the sudden increase in turnover of AlphaGrep (a subsidiary of Way2Wealth Capital Services), although it was confirmed by the TAC report. Way2Wealth's volumes increased from 3.31% in January 2014 to over 9% in the second half of 2015, says the TAC. And its share of algo-trading increased from 12.98% to over 25% in the same period. Elsewhere, it notes that Way2Wealth's turnover increased from 7.5% in April 2015 to 12% by August 2015, and dropped to around 10.6% after December 2015, "presumably as a result of other brokers being allowed to lay their Colo line." SEBI's SCN does not mention any of this and stops at noting that the Exchange violated its own policies by allowing Sampark Infotainment to provide the dark fibre link. Surely, this was not a collective decision by 14 NSE employees? So, where was the specific charge?

Even the failure to cooperate with investigations and provide 'requisite' information to forensic auditors and expert committees is a bland noting without any specific charge. Can anyone get away by failing to cooperate with a regulator empowered with the enormous powers that SEBI has? The forensic audit had raised serious questions about three persons, namely, Jagdish Joshi, Avdhut Gharat and Mahesh Soparkar, as having helped OPG Securities. The forensic report specifically noted that Jagdish Joshi was very prompt in responding to OPG Securities and not to others like Barclays Capital, Adroit Financial and Pace Stockbroking. In fact, Pace had its request to switch to a better server curtly turned down on the grounds that "we don't change parameters on member request." Yet, SEBI made no effort to nail them either. Quoting these findings from the forensic audit, the SCN says, "It may be relevant to note that MTBT (multicast tick-by-tick) was introduced in

April 2014 and Jagdish Joshi left the NSE in May 2014, after which we have seen a decline in the number of first connects." There is no specific charge against any individual and they were eventually let off by SEBI.

Consent Plea

Given the tepid notice, NSE clearly expected to wrap up the scam by filing a consent plea [135] without admitting or denying guilt. This audacious move would have signalled that the algo scam was a minor infraction. However, the regulator had accepted the recommendations of a high-powered committee under Justice AR Dave which said, "The board may not settle any proceeding if it is of the opinion that the alleged default has marketwide impact, loss to investors or affects the integrity of the market." The algo scam was certainly in this category. NSE is a first- line regulator and cannot get away with such egregious wrongdoing and arrogant defiance just because it is too big to punish. NSE's website says, it is "required to set out and implement rules and regulations to govern the securities market."

SEBI, finally, rejected NSE's consent plea in March 2018, after eight long months. We believe that SEBI was keen to close the investigation despite the Dave committee recommendations, but for a public interest litigation (PIL) filed in the Madras High Court and an investigation started by the Central Bureau of Investigation (CBI). [136] Since the Madras High Court had admitted the petition and issued notices, it may have exposed SEBI's own failure to regulate NSE effectively and touched on issues that SEBI wanted to bury.

The PIL [137] sought specific action against NSE's entrenched top management, which ran the Exchange for over two decades and wanted them declared 'not fit and proper'. It alleged that this was a case of "market abuse by insiders with prior access through preferential information, front-running as well as committing fraud…" Meanwhile, Prof Jhunjhunwala continued to push for accountability and fixing of responsibility. E&Y had submitted its forensic audit

of cash, currency derivatives and interest rate futures in December 2017. Although the report had fresh evidence of wrongdoing at NSE's Colo, the TAC, which discussed the report on 14 th December, found it lacking.

TAC grilled two E&Y executives who conducted the forensic audit on numerous issues that they had failed to check. It asked them to rework the report. Code-named Project Kairos, the reworked E&Y report, submitted in May 2018, confirmed all the earlier charges, fished out a bunch of suspicious-looking email exchanges but still did not establish collusion. On 14 June 2018, TAC met at New Delhi to discuss E&Y's revised report. Present at the meeting were Madhabi Puri-Buch, WTM at SEBI, Manoj Nair, chief general manager, and three other officers of SEBI. The minutes of the meeting (available with us) show E&Y's forensic audit had found "additional evidence in terms of data, email communications, etc," which was in line with the findings of SEBI-TAC report and the Deloitte report of December 2016. Despite clear confirmation of wrongdoing, E&Y, "has not arrived at clear inferences/ conclusions," it noted, while wondering "why a forensic firm like E&Y is incapable of drawing conclusions from obvious findings, and does it compromise its position as an independent forensic auditor?"

Despite TAC's focus and efforts, SEBI seems disinclined to do anything beyond issuing ineffectual show-cause notices. NSE's evasive replies were recorded and SEBI passed a weak order that was immediately challenged at SAT. But other forces have disrupted this game plan a little. In May 2018, there was another sensational twist. CBI filed a first information report (FIR) on 30 May 2018 against unnamed NSE and SEBI officials, specifically naming Ajay Shah, an academic who has worked very closely with the finance ministry, as well as NSE, and had access to trading data not available to anyone else through IGIDR in Mumbai.

The nine-page FIR, based on 'source' information, went into issues that SEBI officials had carefully avoided. Many of these were contained in the Jamie Jones's letter referred to earlier. He had exposed the shady appointments at SEBI,

patronage of academics and think-tanks, and also offered calculations of the extent of profiteering by those who got preferential access to NSE's systems. He estimated such profits at a massive Rs50,000 crore (Rs500 billion)! SEBI had not bothered to follow up the letter; instead, insiders tell us that the regulator spent a lot of time tracking the IP address to try to discredit him, until the CBI jolted it into action. SEBI officials are scared of harassment by CBI, whose interrogation techniques tend to be harsh and humiliating. It had the desired impact of hardening a few spines at SEBI.

Ajay Shah, who was named in the FIR, was a consultant with the finance ministry for four years from 2001 and then with the National Institute of Public Finance and Policy (NIPFP). Ajay and his wife Susan Thomas, as leading market academics, have been a part of almost all key policy-making committees relating to the capital market. This made them extremely influential in academic and institutional circles in India and abroad. The couple, who studied at IIT Mumbai, before going abroad for higher education, always had close relatives and mentors among several powerful bureaucrats in government and heads of financial institutions. Ajay also benefited from the goodwill of his father, Dr Narottam Shah, a reputed economist who went on to set up the Centre for Monitoring Indian Economy (CMIE) in 1976, and built it into a highly regarded economic think-tank.

Ajay and Susan's equation with NSE was probably cemented immediately after they returned to India in the early-1990s. Their focus was always on capital markets and derivatives trading, which they helped evangelise through their academic writing and media columns. They've also had unprecedented access to NSE, including data and information that was not available to others. They were on the committee that developed the Nifty50, which was NSE's answer to the immensely popular 30-share BSE Sensex, and powered its index futures trading. The access to NSE was mutually beneficial and also gave Ajay and Susan multiple sources of income, other than the grants to their academic institutions or think-tanks. For instance, Ajay was on the board of the

Clearing Corporation of India for a decade and also on the National Commodity Derivative Exchange (NCDEX), in which NSE had a significant stake. The duo also conducted training programmes and workshops for NSE and was also given research projects by the Exchange and its affiliates.

The couple had an equally good equation with CB Bhave. Ajay Shah was on NSDL's executive committee between 1996 and 2008, the entire period that Bhave headed NSDL, before he moved to SEBI. Ajay and Susan were big proponents of derivatives trading and argued that algo trading enhanced market liquidity. While smart algorithms can execute trades at lightning speed and whip up large trading volumes, it is debatable whether this has truly enhanced liquidity. CBI's FIR claimed that Shah developed the Chanakya software for algo trading that was used by the broker, OPG Securities, which got favourable access to NSE's servers. CBI alleged that Sanjay Gupta of OPG Securities, and his brother-in-law, Aman Kokrady, were illegally trading in Dubai, Ghana, Singapore, Hong Kong and China.

CBI only scratched the surface of multiple shady connections discussed by market circles. Other brokers mentioned by the whistle- blower, in connection with the dark fibre matter, did not figure in this FIR. CBI has since done nothing about this case perhaps because it had too many other priorities and was racked by a sordid internal war in late-2018. But this flimsy FIR did serve an important role. It goaded a reluctant SEBI to act and it continues to issue new show-cause notices in the 2015 scam.

Cosy Cabal of Academics and Relatives

The investigation into NSE's dealings with the two academics also became public due to a question in the Lok Sabha in August 2018. [138] Pon Radhakrishnan, the minister of state for finance, said that SEBI had examined the role of one of the professors associated with NIPFP and "observed that the professor had employed a device/scheme/artifice, wherein the confidential and sensitive data provided by NSE was misused in a fraudulent manner, which resulted in

compromising the integrity of the securities market.”

When SEBI had questioned Chitra, she said that she was unaware of any conflict of interest because “she does not recall such a disclosure” being flagged to her! As we said earlier, the close relationship of these two academics with NSE’s top management and finance ministry bureaucrats was never a secret. But it is, finally, their emails that exposed the whole can of worms. Testimony shows that NSE gave generous grants to IGIDR, and Ajay and Susan had ‘full discretion’ on the use of these funds.

IGIDR sub-contracted work to Infotech Financials, one of the two firms offering trading algorithms founded by Sunita Thomas (Susan’s sister), who is married to Lala, head of compliance and market operations at the NSE. SEBI accused Ajay Shah, Infotech Financial Services and two of its directors of misusing the Exchange’s trading data provided to them, for commercial gains. This was based on emails to Sunita Thomas accessed from Ajay Shah’s computer.

SEBI relied on an email from Shah to his sister-in-law Sunita instructing an employee to start working on trading strategies, which could go into algorithm trading work. He wrote in parenthesis: “But you have to swear everyone to silence on the fact that the data that we are getting out of NSE for VIX and LIX is being used for algorithmic trading work – it would be a severe problem if this fact comes to light since the NSE has not given anyone else this data.” This was an explosive revelation, although Shah came up with a bland explanation for the email. SEBI indicted Ajay Shah, Infotech, Sunita Thomas, Krishna Dagli and Suprabhat Lala and held them guilty of violating SEBI’s unfair trade practices’ regulations. All of SEBI’s orders have been contested. Thanks to a stay order from the appellate tribunal, NSE employees, Lala and Ravi Varanasi, remain in very senior positions at the NSE as before.

23.

A Desktop Investigation & Weak Orders

In 2018, when the National Stock Exchange (NSE) was planning to celebrate 25 years of its existence, Vikram Limaye, the new MD & CEO, was confident that the bourse would soon put the algo trading controversy behind it. NSE even filed a revised consent application with SEBI. As it happens, Limaye's confidence turned out to be premature. SEBI's first show-cause notice (SCN), filed in May 2017, was a lame one. Effectively, the whole gang – NSE's senior staff who were negligent and the brokers who were involved in the scam – were set to go scot-free.

A second set of SCNs, issued on 3 July 2018, had a much wider scope. They covered eight entities [139] in the preferential access case and another 17 entities in the 'dark fibre' case, [140] running into over 1,500 pages. The third SCN, following CBI's FIR, addressed illegal data-sharing with Ajay Shah and Susan Thomas. Although SEBI interrogated many persons, the new SCNs only drew upon a part of the work of SEBI-TAC, Deloitte and E&Y. Here's what they finally said on the issue of preferential access.

In the absence of randomisation of POP servers and installation of load balancers, NSE's TBT architecture was prone to market abuse and had thereby compromised market fairness and integrity. NSE had ignored the principle of 'fair and equitable' access, while designing the system architecture. Hence, NSE has violated a host of SEBI rules. The SCNs primarily blamed Ravi Narain, who was MD & CEO till March 2013, Chitra, who held the post from April 2013 to December 2016, and Subramanian Anand. SEBI said it was their laxity and dereliction of duty that led to the brokerage firm, OPG Securities, getting preferential access to select servers, day after day. The extent of unfair access by

OPG could have been possible only through the active connivance of NSE officials, said the notice. SEBI also issued a supplementary SCN on NSE's 'inconsistent responses' as well as poor procedures, policies and documentation. SEBI has issued two more orders, which we will discuss later.

The whistle-blower's second letter was about select brokerage firms getting access through 'dark fibres'. Emails and other messages exchanged between NSE officials and various brokerage firms showed that NSE had readily allowed trading members Way2Wealth and GKN to obtain a dark fibre link from an unauthorised vendor called Sampark Infotainment; but had refused it to others. It characterised this as "a fraudulent scheme of arrangement between NSE, W2W, GKN and Sampark…" NSE was also charged with discrimination, non-adherence to principle of fairness and equal opportunity and not having a transparent process of authorising telecom service-providers.

Desktop Investigation

Despite a second and improved set of SCNs, SEBI was unable to fix accountability of specific persons even though it is armed with enormous policing powers. SEBI relied almost entirely on the forensic audits that it asked NSE to conduct and the findings of the TAC-supervised experts. Naturally, SCNs have no hard evidence about who was responsible for things going wrong at NSE's Colo. Was this deliberately done to protect NSE? The difference between the first and second SCNs was that SEBI interrogated NSE officials, brokers and others like Sampark. It dutifully recorded a series of bland and evasive answers by NSE's top brass, including Ravi and Chitra, who exercised tight control over the Exchange. And, yet, both of them repeatedly deflected responsibility to others down the line. They claimed to have no knowledge about Sampark and OPG Securities, were vague about the role of Omnesys and the data access provided to Ajay, Susan and those connected with them. Ravi and Chitra's answers to most questions were: 'can't remember' or that 'department heads would know it' or that 'they would have ensured compliance'. Ravi did not recall

any meeting with OPG and is 'not aware' of any incentives or recommendations to use Omnesys as an algo- trading software vendor.

While whistle-blowers made specific allegations about the role of Omnesys, SEBI's pre-set questions had no follow-up or cross- questioning. Asked if he was "aware of the conflict of Suprabhat Lala being related to Sunita Thomas (running an algo software developer company – Infotech Financials)," Ravi replied that he "was not aware of any such relationship." This is strange indeed, since their close personal friendship as well as official dealings with Ajay Shah and Susan Thomas go back at least 25 years. When Chitra was asked the same question, she brushed it aside saying, "I do not recall any disclosure being flagged to me." Wouldn't this amount to shocking negligence on the part of NSE, since Lala was directly responsible for disclosures, as head vigilance and compliance at various times?

Is it possible that Ravi did not know that Lala was married to Sunita Thomas whose firm wrote and sold algos? Significantly, Ajay and Susan were the only academics with such deep access into NSE (although NSE also funded research at the Indian School of Business, Hyderabad, and other foreign institutions). Ajay Shah's testimony revealed that he and Susan had full discretion on the use of funds (although they did not receive direct payment). Ajay further admitted that IGIDR often sub- contracted work to Infotech Financials, recommended its services and also shared data with it. In fact, they were all part of NSE's inner circle. SEBI's SCN made no attempt to join the dots and come to specific conclusions.

Chitra always projected herself as an expert in technology but, at the interrogation, she claimed no knowledge, and deflected responsibilities to the three technology heads. Questions about the failure to implement load balancers and/or preferential access were brushed off as 'operational' or 'technical' issues about which she had no specific knowledge. At a time when the Companies Act and SEBI's corporate governance rules require detailed disclosures by independent directors, can a top exchange have such lax

systems of compliance and poor disclosure of 'related-party' information or conflict of interest? Clearly, a sensitive and systemically important institution and first-line regulator functioned like a private fief. SEBI's investigation and SCNs fail to nail this.

Perhaps the reason is that while SEBI has draconian powers of search, arrest and freezing of assets, it does not have policing experience to guide investigation. SEBI has charged NSE officials with allowing 'consistent unfair access' selectively. An inside source explained this strategy as follows: "The challenge before us was to decide what we could nail NSE on? We were apprehensive about being able to establish collusion and make a legally sound and fool-proof case. We examined the issue under fraudulent and unfair trading practices, but none of the findings come under the definition of fraud. So, our emphasis was to nail them down on principles, so we need not prove anything beyond a point. This was exactly the line that TAC too suggested."

This is why SEBI has repeatedly asked senior NSE officials to comment on whether their Colo policies took into account the principles of fair and equal access. That was exactly the problem with SEBI's investigation. Since it did not focus on pinning responsibility, the answers that it got were sheer obfuscation. These vague responses then formed the basis of SEBI's weak and anodyne orders.

Along with E&Y, NSE also commissioned the Indian School of Business (ISB), Hyderabad, to determine whether certain brokers made undue profits. Its report gave a clean chit to NSE. ISB found no collusion between NSE and its trading members and could not compute the alleged ill-gotten gains. Why was this assignment given to ISB in the first place, when NSE had funded a trading laboratory at the business school, leading to an obvious conflict of interest?

SEBI's Orders

In April 2019, SEBI came up with five orders with regard to: granting preferential access, allowing dark fibre connectivity and data sharing cases.

1. Against OPG: OPG Securities, Sanjay Gupta, Sangeeta Gupta and Om Prakash Gupta were ordered not to access the securities market and abstain from buying, selling or dealing in securities, in their proprietary account(s), for five years. The securities it held remained frozen. They were fined Rs15.57 crore (Rs155.7 million) along with 12% interest per annum from 7 April 2014 onwards for securing unfair access to NSE's systems. OPG directors, Sanjay Gupta and Sangeeta Gupta, were barred from accessing the securities market for five years. OPG was not allowed to take any new clients for one year.

2. Co-location Issue: SEBI estimated that NSE earned a profit of Rs624.89 crore (Rs6.25 billion) during 2010-11 to 2013-14 from its Colo operation. It was asked to disgorge this amount along with 12% interest per annum (the total amount came to Rs1,000 crore or Rs10 billion) and deposit it with the Investor Protection and Education Fund (IPEF). Finding Ravi guilty, SEBI asked him to disgorge 25% of the salary drawn for FY10-11 to FY12-13 to the IEPF. Chitra was asked to disgorge a quarter of her salary drawn for FY13-14. Both have been prohibited from associating with a listed company, market infrastructure institution (MII) or SEBI-registered intermediary for five years.

NSE was also prohibited from accessing the securities market for six months and ordered to carry out a system audit at frequent intervals; to reconstitute its standing committee on technology at regular intervals and frame a clear policy on whistle-blower complaints. The Exchange was also asked to initiate an enquiry against Mahesh Soparkar and Deviprasad Singh and submit a report to SEBI within six months. Interestingly, the order referred to the Prevention of Fraudulent and Unfair Trade Practices (PFUTP) regulations that SEBI officials were trying to sidestep. "NSE has committed a fraudulent and unfair trade practice as contemplated under the SEBI (PFUTP) Regulations. It is established beyond doubt that NSE has not exercised the requisite due diligence while putting in place the TBT architecture," the regulator noted.

3. On Data Sharing: NSE was directed to take legal action

against Ajay Shah, Infotech Financial Services, Sunita Thomas and Krishna Dagli (directors of Infotech Financial) for violating the provisions of the 'professional service agreement' signed with Infotech and for misusing the data made available to them. NSE was also ordered to prepare a detailed documented policy for data usage and data sharing with external persons/entities in a fair and transparent manner. This extremely strange order has not been followed up, since NSE has challenged SEBI's actions.

4. Against Ajay Shah and Others on Data Sharing: Ajay Shah was directed not to hold any position in the management or in the board of, or be associated in any manner with MIIs (market infrastructure institutions) or SEBI-registered intermediaries or with any listed company for two years. A similar order was directed at Infotech Financials, Krishna Dagli, Sunita Thomas and Suprabhat Lala.

5. Dark Fibre Issue: SEBI said that since NSE is a recognised stock exchange and the leading MII, it occupies a pivotal role as a front line regulator. Therefore, apart from reformatory steps, "considering the gravity of the allegations that have been established… additional exemplary directives need to be issued… as an effective deterrence and dis-incentive… to permitting such violations in future."

SEBI also directed NSE to deposit Rs177.43 crore (Rs1.77 billion) earned through its Colo facilities between 8th May and 10th September 2015 with the investor fund. For allowing Sampark "to provide P2P connectivity to select stock brokers in a preferential manner, without having a proper licence, while also denying the same to others," SEBI asked NSE to transfer Rs62.58 crore (Rs620 million) to the investor fund. NSE was also asked to get its Colo network architecture and infrastructure audited by an independent auditor. The Exchange was directed not to introduce any new derivative product for six months from the date of the order. But, since the order has been challenged, SEBI has not bothered with its restrictions and allowed NSE to launch futures & options trading based on its financial services index in January 2021.

Two Colo traders, Way2Wealth and GKN Securities, were found to have “fraudulently availed of P2P connectivity” through the ‘unauthorised’ Sampark, to gain undue advantage “in terms of low latency and high bandwidth.” SEBI asked them to deposit the income from their proprietary trading accounts for the period when they enjoyed this advantage into the investor fund. This amounted to Rs15.34 crore (Rs150 million) for Way2Wealth and Rs4.9 crore (Rs49 million) for GKN.

Other NSE employees, Subramanian Anand, Ravi Varanasi, Nagendra Kumar and Deviprasad Singh, were all barred from holding any position in MIIs or SEBI-registered intermediary for two to three years. Similar orders were passed against Shashibhusan, Sonali Gupta, Om Prakash Gupta and Rahul Gupta. Sampark Infotainment and its director Prashant D’Souza were directed not to offer any new telecom services to any MII or SEBI-registered intermediaries for two years.

Interestingly, NSE’s new board not only continued to defend the actions of the earlier management but also offered to legally defend every NSE employee or consultant who was a target of SEBI action. This was designed to ensure that all of them followed the same strategy so that SEBI would not be able to find contradictions in their submissions. All agreed to the deal except Umesh Jain, the chief technology officer.

The whistle-blower had identified him as the person who worked at cleaning up the system. He wrote, “When Umesh Jain joined as CTO in October 2012, he started off by meeting a lot of players in the system and when he discovered the most common issue was TBT servers, he set up a simple system in a couple of months.” The letter goes on to say that Umesh Jain discovered “the high differential between multiple servers. Latency difference of 50 mm across servers was common.” He is credited with dismantling TBT and introducing load balancers to even out the load. This is when the highly profitable Omnesys, in which NSE had a stake, lost its edge.

SEBI’s shoddy investigation did not even take note of this

and Umesh was also served a show-cause notice. When pressured by NSE, he stuck to his guns and used his own lawyer. He nailed NSE's claim about not storing email backups, forcing the Exchange to grudgingly allow him to access information that would exonerate him. SEBI had accused him of 'laxity and dereliction' when it was he who cleaned up the unfair TBT system.

A SEBI insider involved in the investigation says, "Umesh was straight and really good at his work. But, whenever he was called to SEBI for anything, he was always accompanied by another person from NSE, like a shadow, probably to see that he doesn't speak more than he should. I noticed that they wouldn't let him alone." And, yet, until SEBI exonerated him in August 2019, he was traumatised and lost multiple career opportunities. Ravi Apte, the former CTO, was also exonerated in the same order, since NSE had nothing on him. Subramanian Anand the group operating officer was also exonerated in that case but faces other charges. Five years later, SEBI continues to send out newer orders on the algo scam of 2015 including some that seem repetitive, while there is no visible progress on the challenge to its first orders.

24.

Epilogue

Over the past three and a half decades of covering the financial sector, we have repeatedly seen how cases are systematically diluted when they drag on for decades. The orders, when finally issued, are weak or irrelevant. This is not by chance; it is usually manipulated by the accused with enormous financial resources. The obvious objective of investigating the algo scam was to fix responsibility, impose penalties and disgorge illegal profits. When the first is not done, the other two are immediately weakened – SEBI neither fixed responsibility nor quantified illegal profits. This is because its officers do not have the training or skills that were available to SEBI in the 1990s, when senior officials from the police, income tax department and enforcement directorate headed SEBI's inspection and investigation divisions. After 2013, SEBI lobbied hard to get enormous powers including search, seizures and interrogation but does not have the people to exercise them.

This is why SEBI repeatedly asked NSE to investigate itself and pin responsibility on its own people! This was indeed ridiculous when NSE's founding team had been around for 23 years and had built deep linkages throughout the system with its ability to dole out highly paid jobs, directorships, consultancy, research assignments and sponsorship support to individuals and organisations across the financial sector. NSE was also allowed to use a flawed report from the Indian School of Business, which it supports (NSE-ISB Trading Laboratory), to claim that no one gained much from gaming the system.

As a market expert says: "None of the investigators or the regulator actually computed how much profit the accused had made by misusing early access, although this data was easily obtainable. Instead, they went on to make estimates. When you have the exact data, why would you want to estimate?" Also, SEBI has not even charged NSE for having started illegal HFT operations in 2010.

The most astounding aspect of the case was how NSE has got away, by first deny wrongdoing, lying, obfuscating facts and, when caught, refusing to cooperate with every single investigating team – SEBI-TAC, Deloitte and Ernst & Young! As a result, the investigating teams did not even get access to critical emails, allowing NSE to lie about data not being available under the excuse that it did not have a data retention policy. Can you imagine the consequence to any other market intermediary that refused to cooperate with SEBI, or a broker refusing to cooperate with NSE?

Of course, SEBI continues to issue new show-cause notices. In February 2020, it issued one about NSE's various questionable investments and Subramanian Anand's appointment. By mid-December 2020, NSE had obtained a stay on that order from SAT, adding to the long list of algo scam-related cases that have been stayed and remain in limbo. In early-2021, SEBI asked NSE to probe a complaint from Universal Stock Brokers of Delhi about a consultant offering a service to bypass a crucial part of NSE's system to get a trading advantage. NSE has appointed Arvind Sawant, retired Chief Justice of the Kerala High Court, to conduct a detailed enquiry, which is ongoing at the time of writing. On 10 February 2021, SEBI issued an adjudication order against NSE levying a penalty of Rs1 crore (Rs10 million) on the Exchange and Rs25 lakh (Rs2.5 million) each on the two former MDs, Ravi and Chitra. [141] On 11 February 2021, it issued another adjudication order levying a penalty of over Rs5 crore (Rs50 million) on OPG Securities and its three directors Sanjay Gupta, Sangeeta Gupta and Om Prakash Gupta. [142] These orders, like all the previous ones, are also likely to be contested.

Meanwhile, on 21 January 2020, NSE announced that it had emerged as the world's largest derivatives exchange in 2019 by the number of contracts traded (surpassing the CME group of US) and it is the 3 rd largest exchange in the world in cash equities based on number of trades – all because of algo trading. Vikram Limaye, MD & CEO revealed that NSE's cash equity segment had grown by more than 90% in five years (since the algo scam), with daily average turnover

jumping to about Rs34,264 crore (Rs342.6 billion) in 2019 and the daily average turnover of equity derivatives increasing 70% to Rs88,772 crore (Rs887.7 billion) in the same period. New investor registrations also jumped by 1.2 crore (12 million) especially from smaller cities.

The booming business and profit of NSE continues to hide the pathetic state of its regulatory function. Between November 2019 to March 2021, NSE registered a stunning 21 broker- defaults, [143] one of the highest ever, after years of continuous tightening of rules and reporting requirements. Such defaults impose huge losses and distress on millions of clients, even though, on paper, investors are protected in a variety of ways such as the settlement guarantee fund and investor protection fund of Exchange. In reality, the Exchange rejects big chunks of the claims for one reason or the other. So high was the number of defaults that, in December 2020, SEBI had to order the Exchange to treble its investor protection fund to Rs1,500 crore (Rs15 billion).

The defaults continue in 2021. This has neither attracted the attention of mainstream business media nor any notice from the finance ministry. SEBI's response to the losses has been to keep tinkering with the rules to make it more difficult for a small number of crooked brokers to misuse shares, while placing an onerous burden on the vast majority of others and on investors to monitor their shares and transactions constantly. The regulator has made dematerialisation mandatory but takes no responsibility for the safety of investors' shares entrusted to depository participants.

High broker defaults and market manipulation were two reasons why SEBI got its statutory teeth in 1992 after the Harshad Mehta scam. This time, even the finance ministry seems oblivious to what is happening. Unlike P Chidambaram, the NDA finance ministers have shown little interest in the stock market. While the late Arun Jaitley at least understood the markets, having handled litigation for several market intermediaries, Nirmala Sitharaman has showed no interest at all until February 2021. What is a score of broker defaults when stock indices are about the only

bright spot in an economy suffering from an economic downturn and grappling with a pandemic?

Equally curious is the strange silence of NSE's institutional investors. Remember how 16 foreign institutional investors had dashed off a joint letter to the finance ministry in October 2015 to say that listing is the next logical step after demutualisation of exchanges? Earlier, on 26 June 2015, NSE (still under the Ravi-Chitra management) had infuriated investors with a restructuring plan that would carve out a separate entity for non-regulated businesses – CAMS, DotEx, IISL and others. This, too, had led to investor protests. But not anymore.

Ignoring the algo scam investigation, the NSE board had approved a listing plan in June 2016; a red herring prospectus was filed with SEBI, which has remained in cold storage after the Exchange was indicted in April 2019 and ordered to disgorge Rs1,100 crore (Rs11 billion). Logically, NSE's investors could have asked the bourse to pay up as ordered by SEBI and move ahead with the IPO. After all, many of us believe that the Exchange got away with no damage because SEBI never attempted to make out a strong case, under the pretext that NSE, as an institution, should not be damaged. One shocking rumour is that NSE may have paid up the fine and closed the chapter on the algo scam, but someone very senior in SEBI advised them to appeal.

Meanwhile, some investors, including public sector banks and institutions, have been quietly selling their NSE shares in private deals without pressing for listing. This probably works well for NSE, which continues to remain a closed organisation, although far less arrogant. In the January 2021 release cited above, Limaye said, "Our achievements have been made possible by supportive government and regulatory policies, state of the art technology infrastructure, a robust risk management framework and broad based trust and participation by the entire spectrum of global and domestic investors." Indeed, the government and the regulator have been very supportive of this near- monopoly to the extent that it has repeatedly delivered only a soft rap on the wrist for the scandalous violations and transgressions documented in this

book.

But the wonderland of Indian regulation doesn't cease to surprise. While we have extensively documented how SEBI and the finance ministry actively participated in keeping NSE's competitors stunted through partisan policies, SEBI has recently put out a discussion paper titled "Review of Ownership and Governance norms for facilitating new entrants to set up Stock Exchange/Depository". [144] A regulator who struggled for 15 years to shut down 20-odd regional exchanges and ineffectively experimented with OTCEI and Interconnected Exchanges of India, harassed BSE and MCX over listing, to the point of setting up a committee to back its decisions, now wants to change the rules of game again to introduce competition! Show me the person and I will show you the rule, is the way Indian regulation continues to work. It is sadly exemplified not only by how NSE has been treated with kid gloves for the algo scam but also how SEBI goes about supervising other intermediaries.

NSE's Trading Glitch

On 24 February 2021, NSE came to a slow, grinding halt. Traders were unable to update trades from 9.54am and began to post tweets. The derivatives market was shut at 11.40am and cash market at 11.43am. Embarrassingly, the big outage – the 10th in less than four years – showed that neither SEBI nor NSE has learnt any lesson from the past. As Debashis wrote in *Moneylife* (on 25th February), standard operating procedures for closing and re-opening the market (for an extended trading session that day) were ignored. The Exchange inexplicably failed to switch to the disaster recovery site, as it was supposed to after 45 minutes. Interoperability between exchanges (that was put in place in November 2018), which would have allowed all trades to shift to BSE and be cleared by BSE-promoted clearing corporation, didn't work. Investors suffered losses when their trading positions were forcibly squared off on NSE, because the Exchange's large brokers were not informed until 3.18pm that it would reopen for an extended session.

What was worse, this time, a SEBI press release incorrectly claimed, with wrong data, that interoperability between the exchanges had worked. The regulator also claimed to be in constant touch with the NSE management, making it a party to all the wrong and inept decisions that day. And, yet, the regulator also asked NSE to provide a root cause analysis of what went wrong and why the disaster recovery site could not be operated. NSE's claim that telecom instability led to the outage has also found very few takers. Finance minster Nirmala Sitharaman has, however, taken the matter a lot more seriously. The SEBI chairman was called in for a video conference on the issue and a report in the Business Standard newspaper claimed that SEBI's TAC has been "mandated to probe the trading halt and fix accountability."

At the time of writing, many questions remain unanswered. A market insider, pointing to the slow shutdown of the Exchange, over one hour and 40 minutes, describes it as "slow moving train wreck" and says it has all signs of a cyber attack. On 8 th March, a Bloomberg report echoed these concerns. [145] The three-minute gap between the closure of the derivatives market and the cash market at 11.43am also needs a clear explanation. A three-minute delay is more than a lifetime on an exchange which permits high-frequency traders to run millions of trades in microseconds. The investigation may throw up more surprises.

As always, NSE's bungling and the support it enjoys from the regulator stand in sharp contrast to the wildly profitable monopoly operations that it runs. For the first half of 2021, its stand-alone revenues shot up 51% and operating margin hit an obscene 73%, when the most efficient Indian firms can at best manage a 24%-28% margin [146] . Since most of NSE's operational revenues and high profits come from the transaction charges levied on traders and investors, these super profits show how ruthlessly NSE is exploiting its monopoly power.

Indeed, NSE has been sending out congratulatory messages to brokers who build up large but frothy volumes

without inspecting their dodgy strategies. One such broker, Anugrah Share and Stock Broking, was congratulated in 2014 when its trading volume jumped an eye- popping 2,546%. It was running a Ponzi scheme that went bust in 2020 inflicting hundreds of crores of losses on investors. *Moneylife* has reported extensively on this. [147]

All of this shows a strange paradox: NSE's structural inefficiencies were gradually built over the years and run alongside its extraordinary market dominance and extraction of monopoly profits. The effect of this paradox is the high cost that NSE is inflicting on market participants. This is likely to continue in the presence of regulatory support; merely bringing new players into the system will not address the issue, unless there is a fair and level playing field for all.

Acknowledgements

This book has been the result of over 30 years of reporting on capital markets and on the NSE, from the time it was just an idea in a high-powered committee report. Over these decades, innumerable people have helped with information and insights that find mention in this book. Some of them are no longer with us, and some want to remain anonymous. A majority of those who spoke to us, or provided data for this book – SEBI officials, investigators, friends in government agencies, NSE officials, key market intermediaries – also need to remain anonymous. We are grateful to all of them for their help.

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[1] IDBI: Industrial Development Bank of India

[2] Rs100 crore = Rs1 billion; Rs10 crore = Rs100 million

[3] Justice Patel's order of 9 September 2015: https://indiankanoon.org/doc/197656447/

[4] DB: division bench

[5] The order of 21 September 2015 was issued by Justices VM Kanade and Dr Shalini Phansalkar-Joshi in appeal 715 of 2015, against NOM 1220 of 2015 and Suit 627 of 2015.

[6] Rs50 lakh = Rs5 million; Rs23.5 lakh = Rs2.35 million Rs1.5 lakh = Rs150,000

[7] UK Sinha: *Going Public: My Time at SEB I* ; Penguin, 2019

[8] Both of us reported extensively on the Harshad Mehta scam in *Times of India* and *Business Toda y* , leading to our best-selling book, *The Scam: From Harshad Mehta to Ketan Parek h* , which is available for sale from our website www.moneylife.in as well as on Amazon.

[9] Tarun Khanna: *Billions of Entrepreneurs: How China and India Are Reshaping Their Futures and Your s* ; Harvard Business Review Press; February 2008.

[10] The Associated Chamber of Commerce and Industry of India.

[11] Debashis Basu & Sucheta Dalal: *The Scam: From Harshad Mehta to Ketan Parekh*

[12] Montek Singh Ahluwalia was the finance secretary, PJ Nayak, joint secretary capital markets, the late SS Nadkarni was IDBI chairman and the late RH Patil, executive director, IDBI.

[13] RH Patil's interview to *Moneylife* in 2007 was later published in *Pathbreakers 2* and is referred to several times in this chapter.

[14] *Moneylif e* : 2007 interview: https://tinyurl.com/yc3au7vj

[15] Patil recalled an industrialist wanted a loan from IDBI. "He was not a big businessman but politically connected and a troublesome fellow. One day, he sought an appointment with Mr Nadkarni. When I told him about it, he said, 'Okay give him time when I am not under pressure and give him one full hour.' After that hour, the industrialist went back convinced that it was good that IDBI did not give him any loan."

[16] *Moneylif e* : 2007 interview: https://tinyurl.com/yc3au7vj

[17] Quote edited for brevity.

[18] Ashish Chauhan is now the MD & CEO of BSE.

[19] GV Nageswara Rao is now the MD & CEO of National Securities Depository Ltd.

[20] Joint Parliamentary Committee report: http://loksabhaph.nic.in/writereaddata/InvestigativeJPC/InvestigativeJPC_635612541266248975.pdf

[21] Sucheta Dalal: "The Story of Scams and Scamsters"; *Indian Express*; 10 February 2003: http://www.suchetadalal.com/?id=62f3afe6-490f-766f-492e831faa05&base=sub_sections_content&f&t=The+story+of+scams+and+scamsters+%2810+February+2003%29

[22] Sucheta Dalal: "How Harshad Mehta Did It Again" (3-part article): https://www.rediff.com/money/2001/apr/26dalal.htm

[23] JR Varma teaches at the Indian Institute of Management, Ahmedabad. He is considered a whiz at finance and was the youngest WTM at SEBI for a short stint before returning to academics. He also headed SEBI's TAC at one time.

[24] Many quotes of Patil in this chapter are from his lecture: "Transformation of the Indian Capital Market", Indian Merchant's Chamber, 13 December 2005: https://preview.tinyurl.com/y5huh2ub

[25] OTCEI was de-recognised by SEBI on 31 March 2015.

[26] International Securities Consultancy Ltd.

[27] *Moneylife*: 2007 interview; https://tinyurl.com/yc3au7vj

[28] In many official documents, 4th November is recorded as the day NSE started trading equity, but one of the founding team recollects it as *Muhurat* trading day in 1994.

[29] SS Nadkarni died on 31 January 1995.

[30] The Telgi stamp scandal exploded in the early-2000s.

[31] Sucheta Dalal: "Loot & Scoot"; Cover Story; *Moneylife*; 5 July 2007: https://www.moneylife.in/article/loot-and-scoot/1033.html

[32] This scam was widely covered and references and links can be found at: https://en.wikipedia.org/wiki/Abdul_Karim_Telgi

[33] GN Bajpai: *A Game Changer's Memoir*; Penguin Random House India Pvt Ltd; 2018; p.76

[34] The conditions included a carry forward limit of Rs7.5 crore per broker, a 90-day trading limit, settlement only by delivery after the 75th day, a limit of Rs10 crore on financier funding, 15% margin on carry-forward trades and scrip-wise sub-

limits on carry-forward positions.

[35] The late Manubhai Shah was managing trustee of the Consumer Education and Research Centre, a well-known consumer organisation based in Ahmedabad.

[36] Sucheta Dalal: "Evidence Shows BSE Is Tampering with Trades"; *Indian Express*; November 1998.

[37] Sucheta Dalal: "How Harshad Mehta Did It Again"; 2001: https://www.rediff.com/money/2001/apr/25dalal.htm

[38] Dr YV Reddy: RH Patil Memorial Lecture; 27 October 2017: https://www.ccilindia.com/AboutUs/Documents/YVR-Final%20(1)%205-11-17.pdf

[39] The earlier version, *The Scam: Who Won, Who Lost, Who Got Away*, was published in 1992. It was updated and republished after the Ketan Parekh Scam with a new title.

[40] NSE Clearing Ltd was earlier National Securities Clearing Corporation Ltd.

[41] Joint Parliamentary Committee Report, p.140, para 6.131

[42] *Ibid*; p.139, para 6.127

[43] *Ibid*

[44] Sucheta Dalal: "The Low-profile Competencies behind NSE"; *Indian Express*; 1 November 2004

[45] RH Patil: "Current State of the Indian Capital Market"; *Economic & Political Weekly*; 18 March 2006: (quotes edited for readability) https://www.jstor.org/stable/4417964?seq=1

[46] *Ibid*

[47] Unstarred question 1669 by Rajya Sabha MP Sardar Sukhdev Singh Dhindsa, 10 August 2010

[48]

https://dea.gov.in/sites/default/files/D%20Swarup%20Committee%20Report%20%281%29.pdf

[49] *The Economic Times*: 10 January 2007: https://economictimes.indiatimes.com/nyse- goldman-sachs-to-buy-20-stake-in-nse/articleshow/1128074.cms

[50] https://www1.nseindia.com/global/content/investor_rel/nseil_shp_home.htm

[51] *Moneylife*: "NSE Digs in Its Heels"; 3 November 2010: https://www.moneylife.in/article/nse-digs-in-its-heels/10868.html

[52] Breaking Down a Very Contentious Issue: Just How Well Run Are India's Financial Markets? https://seekingalpha.com/article/222802-breaking-down-a-very-contentious-issue-just-how-well-run-are-indias-financial-markets

[53] Sucheta Dalal: "Escaping Public Scrutiny Altogether"; *Indian Express*; 9

April 2007: http://archive.indianexpress.com/news/escaping-public-scrutiny-altogether/184776/0

[54] SEBI Depositories Act, 1996: https://www.sebi.gov.in/acts/act03a.pdf

[55] UK Sinha: *Going Public: My Time at SEBI* ; Penguin, 2019; p67

[56] Sucheta Dalal: "Loot & Scoot"; Cover Story; *Moneylife* ; 5 July 2007: https://www.moneylife.in/article/loot-and-scoot/1033.html

[57] https://en.wikipedia.org/wiki/Abdul_Karim_Telgi

[58] *Vaastu shastra* is the traditional Indian system of architecture that provides guidelines for designing and maintaining a harmonious living condition in dwellings by channelling positive energies. Its efficacy is unproven.

[59] *The Economic Times* : "RBI penalises more banks"; 28 February 2006:

https://economictimes.indiatimes.com/ipo-scam-rbi-penalises-more-banks/articleshow/1431116.cms

[60] C Achuthan passed away in September 2011.

[61] Sucheta Dalal: "The Curious Case of the Suppressed Orders"; *Moneylife* ; 3 December 2009: https://www.moneylife.in/article/the-curious-case-of-suppressed-orders/2653.html

[62] www.suchetadalal.com: The DSQ Saga

[63] Sucheta Dalal: "Mohan Gopal's Explosive Exposé of SEBI's Functioning under Bhave"; *Moneylife* ; 9 May 2011: https://www.moneylife.in/article/dr-mohan-gopals-explosive-expos-of-sebis-functioning-under-bhave/16246.html

[64] Sucheta Dalal: "The Stink Coming from SEBI"; *Moneylife* ; 12 August 2011: https://www.moneylife.in/article/the-stink-coming-from-sebi-i/18897.html

[65] *Moneylife* : "SEBI Re-opens Mohan Gopal Committee Report on NSDL's Role in IPO Scam"; 29 July 2011: https://www.moneylife.in/article/sebi-re-opens-mohan-gopal-committee-report-on-nsdls-role-in-ipo-scam/18500.html

[66] Sucheta Dalal: "NSDL's IPO Scam Case Won't Go Away"; *Moneylife* ; 26 November 2013: https://www.moneylife.in/article/nsdls-ipo-scam-case-wont-go-away/35390.html

[67] Sucheta Dalal: "NSDL's Spreading Electronic Tentacles"; *Indian Express* ; 23 May 2005: http://archive.indianexpress.com/oldStory/70871/

[68] Under Ravi and Chitra, NSE always denied every wrongdoing, outright. It was an operating credo, designed to defend the image of a 'perfect institution'.

[69] SEBI Order: https://www.sebi.gov.in/enforcement/orders/apr-2012/order-in-the-matter- of-modification-of-client-codes-of-trades-in-respect-of-nseil_22523.html

[70] India's financial year ends on 31 st March and this is when tax liability is

computed and adjustments to taxable profit are made.

[71] Nifty Basket order is one that constitutes all underlying stocks of the Nifty50 index and a Sensex Basket order would constitute all 30 stocks comprising the Sensex, according to their respective weightage in the indices.

[72] Nifty in this chapter refers to the Nifty50 index.

[73] https://www.sebi.gov.in/sebi_data/attachdocs/1412947246897.pdf. Prashant Saran was WTM at SEBI.

[74] A circuit-breaker is a regulatory measure to temporarily halt trading in an individual stock or the entire market, when the increase/decrease in the stock price/market index touches a pre-determined level. It is an emergency brake forced by the regulator to calm volatile markets.

[75] Dinesh Narayanan: "Behind the Professional Veil of National Stock Exchange"; *The Economic Times*; 27 December 2016: https://economictimes.indiatimes.com/markets/stocks/news/behind-the-professional-veil-of-national-stock-exchange/articleshow/56192096.cms

[76] https://www.sebi.gov.in/sebi_data/attachdocs/1409205761114.pdf

[77] SAT order of 26-3-2015 asking NSE to accept the settlement: https://sat.gov.in/ENGLISH/PDF/E2015_JO2015134.PDF

[78] SAT order on 'flash crash'; 8 September 2014: https://indiacorplaw.in/2014/09/sat-order-on-flash-cras.html

[79] https://www.sebi.gov.in/sebi_data/attachdocs/1381312419464.pdf

[80] https://ifrogs.org/PDF/201310FRG_responsetotradeannulmentpolicy.pdf

[81] M Damodaran was the SEBI chairman between 2005 and 2008

[82] *Moneylife*: "NSE Started Tick-by-tick Service Illegally in 2010 while SEBI Looked the Other Way": https://www.moneylife.in/article/nse-started-tick-by-tick-service-illegally-in- 2010-while-sebi-looked-the-other-way/55096.html

[83] Network effect is defined as the exponential increase in the value of a good or service as more and more interconnected users use it. The classic example is the telephone or email, where a larger number of users increases the value to each. The more people use an exchange platform the more is the network effect such as liquidity and trading volumes and, hence, the value to each user; so the importance of that platform increases.

[84] Press Note 4 regulates foreign investment in India.

[85] Krishnan apparently helped BSE get rid of a couple of government directors.

[86] https://youtu.be/8zHEjsGzL-Y

[87] Bimal Jalan had mysteriously resigned from the RBI before his term ended and went on to become a Rajya Sabha member in 2003. This was a highly unusual privilege accorded to a member of administrative service by the political

establishment.

[88] SEBI discussion paper on setting up new exchanges/depository:

https://www.sebi.gov.in/reports-and-statistics/reports/jan-2021/discussion-paper-on-review-of-ownership-_____and-governance-norms-for-facilitating-new-entrants-to-set-up-stock-exchange-_depository-_48679.html

[89] *Moneylife*: "Bimal Jalan Report Ensures NSE Monopoly"; November 2010: https://www.moneylife.in/article/bimal-jalan-report-ensures-nse-monopoly/11598.html

[90] Shantanu Guha Ray: *The Target*; Speaking Tiger; 2017.

[91] The internal note is reproduced in the book *The Target*;

[92] *Ibid*.

[93] Now renamed 63 moons technologies Ltd.

[94] Competition Commission of India order June 2011:

https://www.cci.gov.in/sites/default/files/MCXMainOrder240611_0.pdf

[95] *Hindu BusinessLine*: 12 January 2018: https://www.thehindubusinessline.com/markets/nses-45-stake-purchase-in-cams-under-sebi-scanner/article9474199.ece

[96] SEBI adjudication order: https://www.sebi.gov.in/enforcement/orders/oct-2020/adjudication-order-in-the-matter-of-national-stock-exchange-of-india-limited_47776.html

[97] http://www.forbesindia.com/article/leadership-awards-2013/chitra-ramkrishna-queen-of-the-bourse/36367/1

[98] *Ibid*.

[99] SECC Regulations: Securities Contracts (Regulation) (Stock Exchanges and Clearing Corporations) Regulations, 2012

[100] MRD/DSA/48/2013 of 24th Jan 2013

[101] The term *malus* is broadly used as an opposite to bonus and provides for downward adjustment of incentive awards for top management.

[102] *Moneylife* filed RTI applications to get details of the appointments and file notings. SEBI files note, "We may consider the appointment of Mrs Chitra Ramkrishna as MD & CEO of NSE on proposed compensation package w.e.f. April 1, 2013." Another file noting, on 14 March 2013, says, "the proposal is in accordance with the SECC Regulations," putting a lid on all irregularities of the appointment process.

[103] Regulation 24(1) of the SECC Regulation, 2012 says that shareholder

directors shall first be approved by the board followed by shareholders' approval, before submission to SEBI for approval.

[104] A SEBI note MRD/DSA/ON/5/4/2013 of 12 March 2013, discussing NSE's request for approval, pointed out that the SECC Regulation, 2012 doesn't provide for the post of vice-chairman and the chairperson can only be from PIDs.

[105] All the quotes in this para are from various RTI responses.

[106] https://www.thehindu.com/news/cities/Delhi/Journalist-hangs-self/article14471279.ece

[107] Algo trading or algorithmic trading is automated trades where computer programs are written to detect tiny profit opportunities and execute extremely large trades within milliseconds or nano seconds based on pre-defined parameters, often using machine learning or artificial intelligence. The efficiency of these trades depends on the proximity of brokers' servers to the exchange.

[108] The challenge to NSE's tech team was to generate this stream as a broadcast, which it managed sometime in 2014. It was called Multicast TBT.

[109] Front-running, in market parlance.

[110] From Ken Fong's first letter to SEBI.

[111] This means one-fifth of a millisecond since 1,000 micro seconds is one millisecond and 1,000 milliseconds make one second.

[112] This was proportional to the load on the Exchange's systems. The average time has been reducing from 10 milliseconds in 2010 to 2 milliseconds in 2014 as NSE improved its technology. The order of variation between different TBT servers ranged from 5ms to 50ms, which was a function of the load on the TBT server. Further variability would be based on the sequence in which traders connected to a TBT server.

[113] Rs100 crore = Rs1 billion; Rs2 crore = Rs20 million

[114] Latency is the time taken for order matching and confirmation of trade after a client keys it in.

[115] *Business Standard:* 21 August 2012

[116] Load balancers manage load across systems disseminating data in order to ensure consistent response time to all market participants in order to achieve fair and equal access. In effect, load balancers distribute trading volumes evenly, automatically and instantly across all servers so that no single trader got an advantage.

[117] *Moneylif e* : "Blowing the Whistle on Manipulation in NSE": https://www.moneylife.in/article/blowing-the-whistle-on-manipulation-in-nse/42337.html

[118] Emphasis added

[119] *LiveMint*: "NSE Denies Employees connived with trading members for faster access"; 14 September 2015: https://www.livemint.com/Money/dzpjFcLN3NXMMsAXfSlMbK/NSE-denies-employees-connived-with-trading-member-for-faster.html

[120] SEBI documents reviewed by *Moneylife*

[121] It handled more than a quarter of all US equity volume during the first half of 2020, according to Bloomberg, and it dominated the booming retail trading market by handling 41% of the transactions. https://www.bloomberg.com/news/articles/2020-09-25/citadel-doubled-profit-increased-dominance-in-wild-2020-trading .

[122] Shreedhar Manek: "AlphaGrep and the shadowy world of high frequency trading"; *The Ken*; 24 November 2020: https://the-ken.com/story/alphagrep-in-the-shadows/

[123] Drawn from its integrated surveillance department (ISD), market regulation department (MRD) and market intermediaries' regulation and supervision department (MIRSD).

[124] Although NSE developed a randomiser in 2011, it was implemented only for a small sub-set of TBT architecture called BucketPOP servers and not on the main TBT system

[125] Dinesh Narayanan: *The Economic Times*; 27 December 2016: https://economictimes.indiatimes.com/markets/stocks/news/behind-the-professional-veil-of-national-stock-exchange/articleshow/56192096.cms

[126] The code for BucketPOP included a 'rand' function that was supposed to make the access random and deny advantage to a member connecting first.

[127] Whistle-blower Ken Fong's 3rd letter.

[128] Jagdish Joshi, Abhishek Soni, Avadhut Gharat, Mahesh Soparkar, Rajnish Nagwekar, Mamatha Rangaprasad, Smrati Kaushik and Nagendra Kumar – some had left the Exchange by then.

[129] Now known as NSE Data & Analytics Limited.

[130] *Moneycontrol*: "How Ravi Narain built the NSE, and then lost his grip": https://www.moneycontrol.com/news/trends/features-2/how-ravi-narain-built-the-nse-and-then-lost-his-grip-2296629.html

[131] *The Economic Times*: "Behind the Professional Veil of National Stock Exchange": https://economictimes.indiatimes.com/markets/stocks/news/behind-the-professional-veil-_of-national-stock-exchange/articleshow/56192096.cms

[132] When Ravi was MD, it was a rule that Ravi and Chitra never travelled at the same time and at least one of them was at the Exchange all the time. This changed

with Subramanian Anand, even though he was sort of No 2.

[133] *Moneycontrol*: "How Ravi Narain built the NSE, and then lost his grip": https://www.moneycontrol.com/news/trends/features-2/how-ravi-narain-built-the-nse-and-then-lost-his-grip-2296629.html

[134] Under the Securities Contracts (Regulation) Regulations, 2012 for stock exchanges and clearing corporations (SECC Regulations).

[135] A consent proceeding settles administrative or civil matters by paying an amount determined by a high-powered committee without admitting or denying guilt.

[136] Sucheta Dalal: "NSE Algo Scam: CBI Steps in Where SEBI Was Pussyfooting"; *Moneylife*; 31 May 2018: https://www.moneylife.in/article/nse-algo-scam-cbi-steps-in-_where-sebi-was-pussyfooting/54193.html

[137] Debashis Basu and Yogesh Sapkale: "Algo Scam: Declare NSE Directors, Key Management Persons, Employees and Brokers as 'Not Fit & Proper', Says Petition in Madras HC"; *Moneylife*; 24 August 2018

[138] Algo Scam: NSE Gave 'Special Treatment' to Ajay Shah While Providing Confidential and Sensitive Data, Reveals Lok Sabha Reply Based on SEBI Inputs. https://www.moneylife.in/article/algo-scam-nse-gave-special-treatment-to-ajay-shah-while-providing-confidential-and-sensitive-data-reveals-lok-sabha-reply-based-on-sebi-_inputs/55150.html

[139] NSE, Ravi Narain, Chitra Ramkrishna, Subramanian Anand, Ravi Apte, Umesh Jain, Mahesh Soparkar, Deviprasad Singh.

[140] NSE, Chitra Ramkrishna, Subramanian Anand, Umesh Jain, Ravi Varanasi, Nagendra Kumar, Deviprasad Singh, four employees of Way2Wealth Brokers, four employees of GKN Securities, Sampark Infotainment and Prashanth D'Souza, CEO of Sampark.

[141] SEBI adjudication order; 10 February 2021: https://www.sebi.gov.in/enforcement/orders/feb-2021/adjudication-order-in-respect-of-three-entities-in-the-matter-of-nse-co-location_49079.html

[142] SEBI adjudication order against OPG: https://www.sebi.gov.in/enforcement/orders/feb-2021/adjudication-order-in-respect-of-four-entities-in-the-matter-of-nse-co-location_49104.html

[143] *Moneylife*: https://www.moneylife.in/article/in-2020-highest-broker-defaults-in-20-years-nse-expels-18-brokers-2-firms-wind-up-voluntarily/62290.html

[144] https://www.sebi.gov.in/reports-and-statistics/reports/jan-2021/discussion-

paper-on-review-of-ownership-and-governance-norms-for-facilitating-new-entrants-to-set-up-stock- exchange-depository-_48679.html

[145] India Formulates New Strategy to Counter China’s Cyber Threat https://www.bloomberg.com/news/articles/2021-03-08/china-hacking-concern-revives-india-focus-oncybersecurity-plan

[146] https://www.moneylife.in/article/will-sebi-give-us-the-real-story-behind-the-nse-system-failure/63118.html

[147] https://www.moneylife.in/tags/anugrah.html