

Introduction

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This book, edited by one of India's leading academic authorities on capital markets, Dr. Susan Thomas, is a welcome, timely addition to the literature on India's nascent, but rapidly growing, *derivatives market*. It was a privilege to be asked to write the preface for it. The book contains informative, thought-provoking papers by experts in diverse disciplines. No decision-maker in Indian finance can afford to be unfamiliar with its contents.

Serious literature on Indian finance is growing inexorably. It must, if only to reflect the growth, diversification, sophistication, as well as the regional/global dimensions of India's financial markets. But it has not burgeoned to the extent it should. Nor has it stimulated as much *informed* public debate, about the future course of development of India's capital markets, as the subject deserves. Relative to the size, width and depth of its capital markets, India's financial *media* capabilities are *over* developed. Media focus on financial markets and those who operate in them is hyperactive. But it is sensational and superficial. Substantive technical and policy debate remains narrowly confined to self-anointed *cognoscenti*. At public, political (and senior bureaucratic) levels, basic financial and economic literacy – along with knowledgeable awareness of what works – remains seriously deficient. When one compares India's capital markets to those of other countries (developed and developing) and considers the regular emission of *serious* research literature on finance, and the economics of finance, in those markets, the lag between market development and of supporting research literature in India is puzzling given the abundance of quality human capital that India possesses to focus on these issues.

Perhaps the gap is due to India, despite its prominence, still being a poor country with low average *per capita* income, inadequate physical and institutional infrastructure, primitive public services and dysfunctional political and legal systems. It may be because Indian finance remains the preserve of closet ‘experts’ who know each other within a charmed inner circle and who prefer – unconsciously or otherwise – to confine debate about the system’s capacities, idiosyncrasies, shortcomings and future to themselves. Maybe it is because an uncomfortably cosy, unhealthy nexus persists in India’s financial system between market operators and regulators too prone to political pressure and regulatory capture. The ubiquitous way in which India’s political system pervades every aspect of life creates a nexus that leads tediously to scam after scam in India’s financial markets with no meting out of appropriate retribution to discourage bad behaviour and improve the setting for the future. All of that is undeniable. It makes a digression necessary to put matters in context.

The truths outlined above obscure a more important reality that India’s policy-makers and public need to take cognisance of. Poor and backward though it may be, India – because of its sheer human bulk – is emerging inexorably as a significant regional and global power in the 21st century. It has large and growing *commercial* (i.e. trade, finance and investment) and *security* interests that extend far beyond its borders.

In contrast with China’s meteoric rise within the span of a single generation as the only power with the potential of posing a competitive and security threat to the United States, India is ‘emerging’ in the world almost reluctantly; in an inadequately prepared, incoherent, quasi-comatose state. It seems to be adapting to its evolving global role through default rather than design. India’s leaders are more obsessed with internal contradictions than with external implications. And in India the idea of accomplishing anything within one generation remains anathema; especially when time honoured tradition requires senile dementia to be a precondition for elevation to office and power.

Explaining the rise of the British Empire between 1740-1857, Jan Morris noted that it was driven by adventurist private interests (exemplified by the East India Company) and had progressed in a state of “uncontrolled absent-mindedness, narcissistic introspection and excessive shortsightedness, without foresight or intention on the part of the government at home.” India’s accession to a global role in the 21st century, commensu-

rate with its interests, seems to be analogous. Its private sector is showing the way in adapting to and seizing opportunities of globalisation, while its so-called 'leaders' seem oblivious, if not antipathetic, to what is happening around them and sleepwalking into the future; content to be buffeted by events rather than anticipating and controlling them.

With markets now driving economic and financial globalisation, and American hegemony determining the shape of global security (or insecurity to be more accurate) arrangements, India's *geopolitical* importance has assumed new dimensions. Geographically it commands access to the Indian Ocean, Arabian Sea and Central Asia – i.e. the world's main hydrocarbon reservoir whose resources are likely to be much more keenly competed for (especially with China's phenomenal growth) than they have been in the past. India is the only plausible Asian counterweight to China in terms of size and potential military capacity. In a market-driven world governed under new WTO rules that do not permit the luxury of costly and self-defeating autarchy, India has become *commercially* important to global production and trading systems dominated by American, European and Japanese transnational corporations (TNCs). The size, demography and latent capability of its population – one-sixth of the world – makes India one of the fastest growing (and eventually the largest) *potential* consumer markets of the 21st century. At the same time, an increasingly powerful, wealthy, vociferous and educated Indian diaspora is wielding considerable intellectual, artistic, cultural, culinary, literary, political *and financial* influence in the US and Europe, bolstering India's global significance. All this is of crucial interest to global financial markets and hence (because of the need for heightened and more sophisticated risk management) to the emergence of global (and national) derivatives markets.

The demise of the Cold War abruptly ended India's ineffectual and self-defeating foreign policy of 'non-aligned alignment' with the losing side. But the unhealthy accompanying obsession with unworkable (and discredited) socialism as the basis for political and economic development has not yet died the overdue and natural death that it should have in 1990. Its debilitating impact lingers in the public ownership and perennial mismanagement of too large a part of India's economy and financial system. That is impeding and retarding progress in its banking, insurance, asset-management, capital and derivatives markets – a point to which we shall return later.

Since 1990, India's financial system has become more exposed to the global bonding of the financial, IT and telecommunications industries whose linkages keep widening, deepening and growing. India's fitful, ambivalent attempts at privatisation (and opening to private participation in the provision of infrastructure services) have also contributed to reciprocal intrusions with the global financial system impinging on India's capital markets and *vice-versa*. The dotcom and telecom bubbles have burst, but the *financial* connections they created have remained intact. One outcome has been the creeping but relentless *internationalisation* of India's financial system, regardless of domestic popular or political preferences. The choice of a sheltered domestically protected alternative to a globally connected financial system no longer exists.

The only choice is whether India's financial markets adapt to globalisation willingly, efficiently and effectively (in which case India has much to gain) or whether they do so in a reluctant, desultory, grudging manner. If history is any guide, the *desi* norm favours the latter approach; which will ensure that India will lose in terms of foregone time and opportunity costs. Sadly, neither India's politics nor its institutions reflect conscious recognition or any deep appreciation of these fundamental realities. They continue to behave as if they are locked in a 1970s time warp. But, developments in India's financial markets and in its economic policies do appear to recognise them even if in a sub-conscious manner.

Why is that digression pertinent? For an obvious reason; as India emerges from autarchic isolation into unwitting global prominence, its key 'systems' (political, economic, social, financial, institutional) and 'markets' (consumer, producer, commodity, factor and financial) are being exposed to the hot influences of globalisation – some subtle, others quite rampantly 'in-your-face'. Being perhaps the most tactile, open and non-physical, India's *financial system and market* have felt the earliest and greatest pressure to accommodate and adapt to globalisation more quickly than other systems and markets. One of the inevitable consequences of those influences is the emergence of derivatives.

Global financial markets abandoned inefficient, ineffective, obsolescent approaches to risk hedging and risk management two decades ago. It was natural that India would eventually (but inevitably) go the same way, especially if its financial market was to adapt in becoming a part of what is

slowly but surely evolving as a single global financial market. Unfortunately that happened later rather than sooner.

A former President of the Bombay Stock Exchange (BSE) felt strongly that derivatives markets had emerged in India over the objections of brokers and other capital market participants, because bright 'boys' went to Wharton and returned insistent on applying what they had learnt instead of listening to the counsel of their elders and betters who 'knew' India and what would work in it. He seemed unaware that when derivatives became a standardised key to unbundling and managing risk in banking, investment, capital and insurance markets around the world, it was inevitable that they would also need to be established in India. In a globalising world there was no other choice.

That prologue establishes the background and context in which derivatives markets have emerged in India and how they are likely to evolve. They are evolving in a typically Indian fashion: fitfully rather than effortlessly. The need for derivatives was acknowledged (intellectually) as being necessary at the outset by academics and the handful of knowledgeable financial policy-makers that India had in the early 1990s. But the creation of a market for such contracts was strongly opposed on practical and 'cultural' grounds by BSE broker-dealers who had dominated (and abused) capital markets as principals for their own benefit, rather than recognising that they were mere intermediaries between issuers of securities and ultimate investors. The regulatory authorities did not condemn or override BSE's foot-dragging on self-serving grounds. Instead they wasted valuable time trying to achieve a consensus that remained elusive instead of overriding patently absurd objections and fast-tracking the process.

As a member of the L.C. Gupta Committee, I recall the obstructionism of the broker-dominated BSE (through its President) in using every means to delay the introduction of derivatives and maintain the inefficient, opaque *badla* system for as long as possible. I was dumbstruck by a senior regulator arguing, in defence of that indefensible position, that he was uncomfortable about dispensing with *Indian* derivatives (i.e. *badla*) and introducing *foreign* derivatives (i.e. futures and options)! In contrast to these bizarre arguments, the more professionally managed NSE took the opposite view, pressing for early introduction of derivatives for which it had prepared the ground assiduously and meticulously. Ravi Narain's paper on *Experiences with Derivatives Trading at NSE* attests to that. Unsurprisingly, the NSE's

painstaking groundwork has resulted in its branded futures and options index contracts now dominating trading on the derivatives market.

Three years after their introduction, derivatives markets in India have shown considerable growth in contracted volumes. But they are not growing as fast nor as robustly as they should in terms of price discovery, the width of bid-ask spreads, the temporal spread of contracts, and the range of futures and options contracts on a variety of underlying transactions; especially in banking markets. While the volume of contract trading has grown impressively, the range and diversity of contracts and instruments developed and traded have not increased commensurately. In short, the derivatives market in India is not widening and deepening in the way that it should, nor as rapidly as it should, in as large diverse and dynamic a financial market as India's. Why is that so?

Several reasons explain that phenomenon. One looms particularly large. It is that the *institutional* segment of the capital market has not yet begun to use derivatives for risk hedging or for position taking in the way that such investors should. That is for two reasons. *First*, the development of derivatives has so far been excessively skewed toward derivatives used in the equity rather than debt or forex markets. *Second*, India's financial institutions are dominantly slothful, retarded *state-owned* financial intermediaries (SFIs) – i.e. the public sector banks (PSBs), mutual funds (UTI as well as those run by the public banks), insurance companies (LIC and GIC), pension funds and non-bank financial intermediaries (e.g. state level financial institutions of various types) of various types. Though private financial intermediaries now exist in almost every segment of the financial market, and though their influence is growing, they still represent less than 80% of overall financial assets.

SFIs have been characteristically slow to adapt to new ways of disaggregating and managing risk, thus leaving themselves exposed to more portfolio, value, interest rate and currency risk than their unencumbered capital base can carry. Their senior managers and staff lack the knowledge – and for that reason are wary – of operating in derivatives markets whose instruments, mechanics, trading and mathematics they do not understand and cannot grasp easily. Had these financial intermediaries been private, independent, innovative and genuinely competitive as they should have been – and as they are in most successful countries with the notable exceptions of China and Singapore neither of which India can emulate for a variety of

reasons – experience with derivatives market development might be very different.

That point is brought home – albeit more circumspectly and diplomatically than I am doing – by Rajendra Chitale, in his paper on the *Use of Derivatives by India's Institutional Investors*. In a brisk, non-discursive style, he points out that as traded options and futures contracts are concentrated in the equity segment of the capital market, Indian banks have not yet become major players in these derivatives. Yet, outside India, global banks are the most important players in currency derivatives, interest-rate derivatives and credit derivatives. They use these instruments actively to manage portfolio and balance sheet risk on a day-to-day basis. These instruments have yet to emerge properly in India although there is an urgent need for them; especially we move somewhat unsteadily toward the inevitable opening of our capital account – another strategic issue on which the stance of policy-makers is characterised by wary ambivalence and unconstructive ambiguity.

Despite the absence of properly constructed tradeable interest-rate derivatives, private domestic and foreign banks in India are beginning to dabble in *interest rate swaps* (IRS) and *forward rate agreements* (FRAs). Public sector banks (PSBs) have been reticent to offer to their clients, or trade, these instruments to any significant extent. Compared to tradeable interest rate derivative contracts these are imperfect and inefficient instruments for managing interest rate risk although they do provide necessary some hedging capability to the clients of banks. As Chitale points out:

“The consequence is a paradox. On the one side you have foreign and privately owned (new generation) domestic banks who run a (interest rate) derivative trading book but do not have the ability to set significant counterparty credit limits on a large segment of corporate customers of PSBs. On the other side, are PSBs who have the ability and the willingness to set significant counterparty credit limits on their corporate customers, but are unable or unwilling to write IRS' or FRAs with them. Thus end-user corporates are denied access through this route to appropriate hedging and yield-enhancing products to manage their asset-liability portfolios.”

These themes are further developed, with a different twist, in two papers on (a) *Fixed Income Derivatives for India* by Vijayan Subramani and Ananth Narayan G. and (b) the *Foreign Exchange Derivatives Market in India: Status and Prospects* by Neeraj Gambhir and Manoj Goel. The

first paper elaborates on the MIBOR (Mumbai interbank offer rate) based overnight index swaps (OIS), as well as the MIFOR (Mumbai interbank forward offer rate) MITOR (Mumbai interbank Tom offer rate) and GoI bond market segments that have developed since 1999. Periodic settlements reduce credit exposure inherent in OIS's. Though not ideal, nor readily tradeable, these instruments help to mitigate for the absence of an Indian rupee (INR) term money market.

Subramani and Narayan explain how MIFOR and MITOR swaps have enabled Indian corporates to access a surrogate interbank term money market for INR using the USD/INR forward market; an unintended outcome of imperfect forex swaps with implications for domestic monetary and forex reserve management that have tested the RBI's regulatory capacity and flexibility. The paper makes it clear that risk managers and derivative specialists in more sophisticated foreign and Indian banks are pushing the edge of the envelope into the unknown, with instruments such as quantos, i.e. a rupee IRD with a floating rate benchmark of another currency (mainly USD). In doing so they are raising regulatory issues concerning permissible indirect risk exposure depending in movements in both INR and USD swap and forward rates as well as the USD/INR spot and forward exchange rates.

The authors applaud the innovative genius of treasury risk managers in Indian debt markets trying to do their best to manage interest rate and forex risk in the absence of full capital account convertibility and of standard tradeable derivative instruments in debt and forex markets. But they leave untouched the question of whether such convolutions are necessary, and whether risks might be better managed (especially where price discovery and risk unbundling are concerned) if the Indian authorities permitted derivatives in debt and forex markets to develop at a natural, market-driven pace rather than inhibiting them. Excessive pre-emptive regulatory caution seems to be rooted knowledge-deficit concerning the use, consequences and mathematics of such derivatives, coupled with excessive conservatism induced by ill-informed media scare-mongering about how dangerous derivatives are.

Gambhir and Goel underscore that point (obliquely and implicitly) by indicating what has been happening in *global* forex derivatives market over the last couple of years while India has been lagging. They point out that although global trade in currency derivatives has been substantial, forex

derivatives in India are still dominated by INR/USD forward contracts with RBI stipulations governing which players can enter into such contracts and requiring that a *real* trade or investment interest must underlie every forward transaction. The volume of INR/USD forwards has grown dramatically since the mid-1990s reflecting enormous latent demand coming into the open. That has resulted in bid-offer spreads shrinking rapidly and in more efficient pricing in the forward market. But it has left problems of term, tenor, depth and liquidity unattended.

Although cross currency forwards and options are being resorted to as the RBI opens up these possibilities, Gambhir and Goel argue for the more rapid creation of tradeable currency futures and options. Along with swaps, tradeable forex derivatives would also enable enhanced *tailored* options (based on intelligent combinations of tradeable derivatives) such as swaptions, collars, strips, saddles, etc. to emerge and cater to risk management profiles of individual corporates or of particular project financing transactions. As the authors observe:

“The development of a vibrant forex derivatives market in India would critically depend on growth in underlying spot/forward markets, growth in rupee derivative markets along with the evolution of a supportive regulatory structure.”

The dominance of intellectually lethargic, uninnovative, change-resistant SFIs in the Indian financial system prevents the natural outcome – of banks and other financial institutions using standard derivatives for risk as well as balanced asset-liability management – from materialising. Despite their conservatism, lack of a customer-service oriented culture, and ostensible risk-aversion, the intrusion of political influence over management has resulted in state-owned banks (like Indian Bank), FI's (like IFCI and IDBI) and mutual funds (like UTI) becoming exposed to excessive portfolio credit risk as well as interest rate and currency risk.

SFIs have now run up non-performing asset (NPA) portfolios of a size that threaten the foundations of the Indian banking system. Yet, they are too averse to using interest rate, forex and credit derivatives to manage treasury risk in a sophisticated way to reduce both their NPAs and their overall risk! These are the bizarre contradictions that emerge when governments become bankers and financiers. The continued dominance of SFIs in India's financial markets is a deformity that disfigures and disables Indian finance. Politicians and policy-makers need to overcome their self-interest

(in terms of exerting improper influence over PSBs for their own patronage purposes) to rectify this situation and prevent further damage to India's economic future.

The rigidity of the Indian institutional investor segment may well be the largest constraint on continued derivatives market development. But it is by no means the only one. Legal and tax ambiguities also retard progress. Chitale refers to some *en passant*. They are discussed in depth in the paper on *Legal Aspects of Derivatives Trading in India* (Shashank Saxena) which traces the history of regulation for forward trading in India since 1956. It points out that the legal framework for regulation has had to be revised in the light of episodic disruptions in financial markets caused by broker defalcations and scams in 1968, 1972, 1983, 1992 and 2001. The basic problem with India's regulatory ethos has been a tendency to see any form of speculation in securities as 'gambling' – i.e. morally repugnant, anti-social and counterproductive. But the participation of knowledgeable speculators is what makes financial markets work. It forces markets to be transparent, liquid, deep, broad and responsive to changes in risk-reward opportunities over various temporal periods.

Though frequently prone (especially in emerging markets) to trading on insider knowledge and benefiting from information asymmetries (which is the task of regulation to discourage and penalise) sophisticated speculators/arbitrageurs are essential counter-parties to risk-hedgers in financial (and especially derivative) markets. That is because no market works as a one-way street. For risks to be hedged by one party, someone on the other side has to be prepared to take risks on at a price. Without speculative counter-parties, financial markets would be illiquid, inefficient and ineffective in fulfilling their main purpose as resource mobilising and allocating mechanisms.

In financial markets it is *speculators* (or, in more neutral parlance, insurers, market-makers and options-writers) who enable efficient price-discovery in real time and allow for efficient, continuous two-way, 'bid-ask' market-making. That fact has yet to impress itself in Indian political, policy and regulatory circles. Until it does, a proper mind-set on the part of the authorities is unlikely to develop for the sensible growth and development of capital and derivative markets. The aim should not be to discourage speculation altogether but to ensure that it is informed and occurs in a productive, useful way that respects established rules and minimizes

the risk of damage to the liquidity, functioning, transparency or integrity of India's financial markets.

In aiming at the wrong objective, and using the wrong tools for market monitoring and surveillance, draconian regulation aimed at preventing speculation has resulted in the Indian capital market becoming more rather than less vulnerable to predatory manipulation by unscrupulous operators (often supported or protected by political forces) as financial scam after scam unfolds. India's financial regulation is *over-prescribed* (too many overlapping and inconsistent laws, rules and regulations subject to frequent reinterpretation and change thus making the regulatory system capricious and unstable) but inevitably *under-administered* (because of insufficient human and institutional capacity and improper political influence being applied over regulators whose impartiality must be protected and credible).

Regulatory conservatism and failure are inhibiting the emergence of more types of derivatives – e.g. currency, interest-rate and credit derivatives as well as long-term tailored as well as traded swaps and swaptions – that are urgently needed for better segregation of different types of risk and improved risk management in Indian banking, insurance, and asset management markets. Regulators, investment banks, major commercial banks (both the global foreign banks, large new generation private banks and PSBs), insurance companies and mutual funds, along with derivatives exchanges need to consult pro-actively on risk management needs in these market segments of the Indian financial system. They need to design appropriately structured contracts (based on similar contracts available in more sophisticated foreign markets) that would be tradeable and useful in the Indian market.

Oddly enough, enabling FIIs, and the more sophisticated foreign insurance companies and mutual funds that are accustomed to dealing in these derivative markets abroad, to participate more fully in derivatives markets, along with the availability of a wider range of derivatives, would also enhance the use and quality of equity derivatives as considerably 'more perfect' rather than still 'highly imperfect' risk-management instruments.

Regulatory shortcomings are compounded by ambiguities in Indian tax laws and rules. The Income Tax Act does not specifically exempting derivative transactions from being treated as 'speculative'. Considerable uncertainty is thus created for foreign and domestic institutional and individual investors alike. As Saxena suggests, exchange traded derivative

contracts *must* be exempted from the purview of speculative transactions. The Indian tax authorities must swiftly remove all outstanding ambiguities for domestic and foreign taxpayers in India concerning gains/losses that accrue from derivatives trading regardless of whether these are attributable to hedging or speculation because one cannot occur without the other.

They need to announce that for institutional and individual investors income from such transactions will be regarded as non-speculative and allow investors/ traders (i.e. option writers) to choose whether such gains/losses should be treated as regular income or capital gains. Moreover, they should permit losses from such transactions to be treated as a 'cost of doing business'. For tax purposes, these should be offset not only against gains specifically from derivatives but from other sources of income as well. They should also make clear that no withholding taxes are to be levied on gross or net income accruing from derivatives contracts. Clarifications such as these would relieve another impediment to further development of the derivatives market.

That the Indian derivatives market is suspended somewhere between nascence and maturity is brought home by the paper on *Mispricing of Volatility in the Indian Index Options Market* by Jayant Varma. His analysis of index options mispricing would probably be confirmed by similar analysis of put/call options and futures prices on single stocks as well. As he suggests, despite the substantial investments made by the NSE, brokerages, other exchanges and regulators on theoretical training and simulation, the Indian derivatives market has not had enough time for the 'learning-by-doing' phenomenon to take hold. Put/call options on indexes and stocks available are too close in time from contract entry. It is impossible to write a contract for a year out. Bid-ask spreads on various strike price intervals suggest inexplicable peculiarities in: assessments of future market movements, significant information asymmetries and opacity concerning knowledge about companies and the manipulation of individual stocks, concerns about the capriciousness of regulatory behaviour in the face of a market crisis, expectations of global and domestic influences on market volatility and future market risks.

Pricing seems to reflect both undue conservatism (i.e. risk aversion) and narrow risk-bearing capacity on the part of option-writers thus making genuine risk hedging for more than one calendar quarter very difficult for investors. Moreover, the established mind-sets of regulatory and tax au-

thorities on 'speculation' is limiting the propensity of option writers to be bolder in market-making for derivatives contracts and in pricing risk along lines that make theoretical and operational sense.

Varma's view is substantiated by Ajay Shah in his paper on *Market Efficiency in the Indian Equity Derivatives Market*; and by Ashok Jogani and Kshama Fernandes in *Arbitrage in India: Past, Present and Future*. Shah's paper demonstrates convincingly the degree of market *inefficiency* reflected in the extent and persistence of derivative contract mispricing. It finds persuasive evidence of the existence of arbitrage opportunities between prices of derivative contracts that systematically permit (in theory) supernormal riskless returns to be earned employing relatively simple mathematically derived strategies involving: (a) cash and carry futures arbitrage; (b) put-call parity arbitrage; and (c) early exercise of options before maturity. In attempting to discover why such arbitrage opportunities are not being regularly exploited in practice by savvy operators in Indian markets to smooth out price distortions, Shah enumerates a list of twenty-four constraints that can broadly be categorised as deficiencies in *regulation, implementation* and *institutional capacity*. These can be overcome by improving policies, governance of asset management, securities infrastructure and poor back-office functioning in securities brokerages reflected in an absence of real-time feeds and the analytical capability to undertake efficient arbitrage. Testing these hypothetical constraints through a quick and crude survey, Shah finds that all of them are indeed operative. He suggests that the focus of financial sector regulatory and development policy should now shift from an obsession with basic market design issues to ensuring the soundness of information and making markets more efficient through transparency.

Shah's musings on derivatives arbitrage are substantiated by Jogani and Fernandes whose paper (written in a way that will appeal to practitioners) lends an additional dimension of history and practicality to them. They make the case that arbitrage is not opportunistic or counterproductive speculation but an essential form of financial intermediation that makes markets more efficient by smoothing out price distortions. With specific reference to the Indian equity derivatives market the authors make interesting points concerning: (a) the absence of a clear relationship between the cost of carry on the index futures market and normal interest rate levels in the economy; (b) lack of knowledge on the part of traditional market arbitrageurs about

derivative trading strategies, especially in arbitraging across the spot, futures and options markets; (c) Indian mutual funds not yet having figured out how to undertake reverse cash and carry arbitrage (i.e. stock repos); (d) unusually low *futures* prices on the index derivatives market accompanied by reasonably priced *options* prices; (e) the unusual arbitrage opportunities that arise at dividend declaration time; (f) the large pricing anomalies that persist between BSE/NSE prices and ADR/GDR prices for the same underlying shares because of the absence of convertibility and fungibility; (g) constraints on short sales of stocks compounded by the absence of a sufficiently strong formal stock lending/borrowing operation; (h) the impact of the absence of hedge funds; and (k) imperfect understanding on the part of operators and regulators of the key individual risks that arbitrageurs are exposed to and the capital intensity of arbitrage.

One of the strengths of this book is that it embraces a range of papers that embrace the theoretically sublime with the practically important/interesting and even further to nuts and bolts. In the last category are papers that highlight the crucial importance of IT systems infrastructure in supporting the efficient functioning of derivatives markets and the essential role of a clearing facility.

In their paper on *Business Transformation for Derivatives Users and Intermediaries using IT Systems*, Ashish Chauhan and Sunita Thomas paint an evocative picture of how critical (and integral) well-designed IT systems are when it comes to the functioning of derivatives markets in which trading is more complex than in the spot market. Absent such systems, derivatives markets as we know them would not exist. If they did, they would not function. One of the features of the Indian experience is that the commitment of the Indian exchanges (and particularly of the NSE) to 'state-of-the-art' automation and screen based trading from the outset have enabled other, less capable intermediaries to participate in these markets with much lower levels of automation and expertise. Complexity has been handled at the centre leaving the periphery to operate comfortably without the same level of investment in systems and IT specialists.

Elaborating on constraints identified by Shah and by Jogani and Fernandes as *institutional shortcomings*, Chauhan and Thomas point out that intermediaries operating in Indian capital markets still do not have: (a) a single interface for dealing in both spot and derivatives markets thus compounding inefficiency in executing simultaneous trading strategies (e.g.

stock purchases accompanied by sales of covered calls and puts); (b) essential analytical tools for supporting trading decisions; (c) adequate systems for monitoring client positions, margin requirements and risk exposure in real time; (d) adequate decision support tools for risk management, funds transfer and collateral checking; (e) proper back office control and containment systems with instantly traceable electronic and paper trails; (f) standard messaging interfaces across intermediaries; or (g) the ability to handle sudden peak loads in trading volumes without the risk of systems crashing through transaction processing overload.

In suggesting how these deficiencies might be overcome the authors believe that the option is for intermediaries to adopt Straight-through-Processing (i.e. STP which permits a trade to go through its entire front and back office life-cycle without any manual handling or redundant processing) along with (a) the deployment of a real-time funds transfer system; (b) adoption and enforcement of an internationally accepted messaging standard (e.g. ISO 15022) across all exchanges and intermediaries that permits intermediaries to share information transparently and effectively; and (c) real time information transfer between custodians, exchanges and exchange members. Operational problems will be encountered in achieving this systemic nirvana and in addressing these the authors look at the *Chanakya* and *Pradnya* software packages for front and back offices to see how these practical difficulties can be overcome.

Enriching discussion of the nuts and bolts aspects of financial markets, R.H. Patil's paper on *The Clearing Corporation of India Ltd. (CCIL)* explains its role and functions. Launched in 2001, CCIL began operations a year later. It is owned by all the major banks and primary dealers in the government securities market, and focuses on settlement of transactions in debt securities, repos and forex, CCIL is a significant addition to the institutional structure of India's capital markets. Its operations will lower transaction costs in debt markets by reducing counter-party risk, settlement-timing risk, liquidity risk, exposure risk, and collateral (margin) risk.

CCIL has already created a new tradeable derivative product for the debt market in the form of a 'collateralised borrowing and lending obligation' (CBLO) incorporating features of a standard tripartite repo, a money market call, and a tradeable short-maturity securitised debt instrument. It is designed to facilitate: (a) transactions in the repo market by eliminating the need for borrowers and lenders to unwind and rewind specific transactions

on their maturity dates; and (b) an active and efficient term money market by improving price discovery of bid/offer rates for different maturities. CCIL is likely to expand its role as derivative instruments in the debt and forex markets develop in the same way that they have in equity markets and as the banking sector uses them more frequently for risk and treasury management. It is already contemplating the creation of a trading platform and clearing /settlement of OIS (overnight index swap) transaction as well as for a broader range of interbank IRS transactions.

If there is an omission in this book it is on the subject of *credit derivatives* and the need for their swift introduction in India to complete the armoury of derivative weapons available to banks in particular for managing their portfolio risks. Mayur Shetty has written an evocative article on that subject (*A Hedge with an Edge*) in *The Economic Times, (Mumbai) of Wednesday, December 11, 2002 (pg 7)*. An expanded version of that piece would have strengthened the contents of this volume; but I refer to that article so that readers can make their own efforts to round things out. Hopefully that omission will be rectified in what should become annual sequels to this book so that players on derivatives markets are kept abreast of developments without excessively long interregnums.

No discussion of derivatives can be complete without considering the role and value of *commodity* derivatives; especially for as large a country as India. It is already one of the largest markets in the world for agricultural, metal and mineral commodities (including gold, silver, cotton, tea, coffee, spices, oilseeds, oil, coal, copper, copra, wheat, rice, palm oil etc.) even if it is not as significant a market for the famed derivatives on various types of meat and orange juice traded in the Chicago and London commodity pits. The volume of commodity and commodity derivatives trading can only grow as India develops, and as local incomes and consumption capacity for all commodities increases.

When it comes to the conceptual and substantive elements of risk hedging, commodity derivatives are similar to financial derivatives. Three papers – by: (a) T.S. Jagardharini and R. Putran (*Issues before a National Multi-Commodity Exchange*); (b) D.S. Kolamkar (*Regulatory and Policy Issues for Commodity Derivatives in India*) and (c) Susan Thomas (*The Jaggery Futures Market at Muzzafarnagar: Status and Policy Recommendations*) – point out that India was an early starter with commodity futures. Trading in cotton futures was traceable to 1875 and continued (along with

futures in oilseeds and many other commodities) until the 1960s when misplaced anti-speculative regulatory fervour reversed that trajectory. India's vibrant product-specific commodity futures markets were dismantled in the mid-1960s.

Attempts have been made to revive commodity futures markets with economic liberalisation. But India now has to confront the legacy of decades of policies that debilitated its commodity markets. Futures trading was revived (in the 1990s) in six commodities: potatoes, jaggery, jute, turmeric, castor seeds and oils, and pepper. But, after a decade, none of these markets have achieved levels of liquidity that characterise similar markets outside India, or even the levels that existed prior to the ban on commodity futures. One reason, according to Thomas, is that between 1963-1990 commodity futures trading did not disappear. It went underground. Once established, it has proven difficult, even with liberalisation, to get 'black market transactions' to resurface naturally and for liquidity to be transferred back from opaque and illegal markets with zero tax and no reporting requirements to legal and transparent markets that involve tax and reporting implications.

All three papers on commodity futures enumerate the many difficulties faced in reviving these markets. They include, *inter alia*: (a) excessive and entrenched government intervention (through price controls, subsidies, compulsory purchasing, buffer stocks, rationing and controlled retailing) at state, central and local levels in agricultural markets that prevents these markets from functioning efficiently and allowing farmers to increase their incomes; (b) market fragmentation with a limited number of market makers (i.e. speculators/ arbitrageurs) resulting in an absence of sufficient liquidity; (c) an absence of organised, interconnected spot markets resulting in flawed price discovery mechanisms with no transparency and no means for arbitrage to smooth out price differentials in geographically separated markets; (d) influential commodity producers and traders being member-brokers of commodity exchanges and freezing out small producers and hedgers from participation – resulting in a situation not unlike that of the BSE impeding the development of financial derivatives; (e) imperfect mechanisms and lack of standardisation for physical and financial delivery, assignment, settlement, documentation and warehousing (with no warehouse receipt based settlement) and custodial arrangements;

and (f) capricious and unpredictable regulatory behaviour resulting in the ever present danger of markets being summarily closed down.

To overcome this formidable plethora of obstacles, Jagardharini and Putran propose the creation of a National Multi-Commodity Exchange (equivalent to the NSE for traded securities) to rectify these deficiencies and permit a more efficient commodity derivatives market to emerge. Kollamkar modifies that idea to avoid a single monopolistic exchange and create specialised regional exchanges instead.

Using the jaggery futures market as a case-study, Thomas illuminates micro-details in which the devil lies. To improve matters she suggests development of: corporatised commodities futures exchanges run by independent professional managers rather than by broker-members; better designed futures contracts of shorter duration to be traded alongside extant contracts to meet the needs of hedgers and improve price discovery; removing the need for the Futures Markets Commission (FMC) to approve trades once contract designs and basic principles governing trades have been cleared – i.e. to shift FMC's modus operandi from ineffectual micro-management to meso/macro-management and regulatory rather than audit surveillance; expanding the number of quality grades on which futures contracts for various commodities can be traded; introducing options contracts to augment futures; greater transparency in the real time dissemination of price information for spot and futures trades; automation of systems for trades and price-posting to eliminate practices such as manipulation of short squeezes; and adapting/employing the kind of exchanges, regulatory and clearing/settlement institutions, as well as IT systems and technologies that have been developed for financial derivatives for use with commodity derivatives.

A number of committees have looked into these issues and the 2002 Budget Speech of the Finance Minister announced the expansion of futures and forward trading for all agricultural commodities and bullion. At the same time, significant steps have been taken toward decontrolling spot markets in several commodities with the number of essential commodities (in which the government will still intervene) being pruned to a mere seventeen. But the integration of spot and futures markets in commodities faces the hurdle of state governments refusing to exit from controlling spot markets in many commodities produced in their states.

These obstacles can only be overcome gradually in a raucous undisciplined federal democracy like India's that does not permit swift resolution of any contentious issues. In such a system political power is ceded with reluctance to apolitical market forces and impartial institutions outside political control and patronage. Yet that is the challenge that India's leadership must face if the transition from a failed socialist economic model to a more successful market model is to be made and if India is to finally establish its rightful place in the pantheon of nations that are capable of determining their own futures (no pun intended) and those of the regions around them.

Equity Derivatives

