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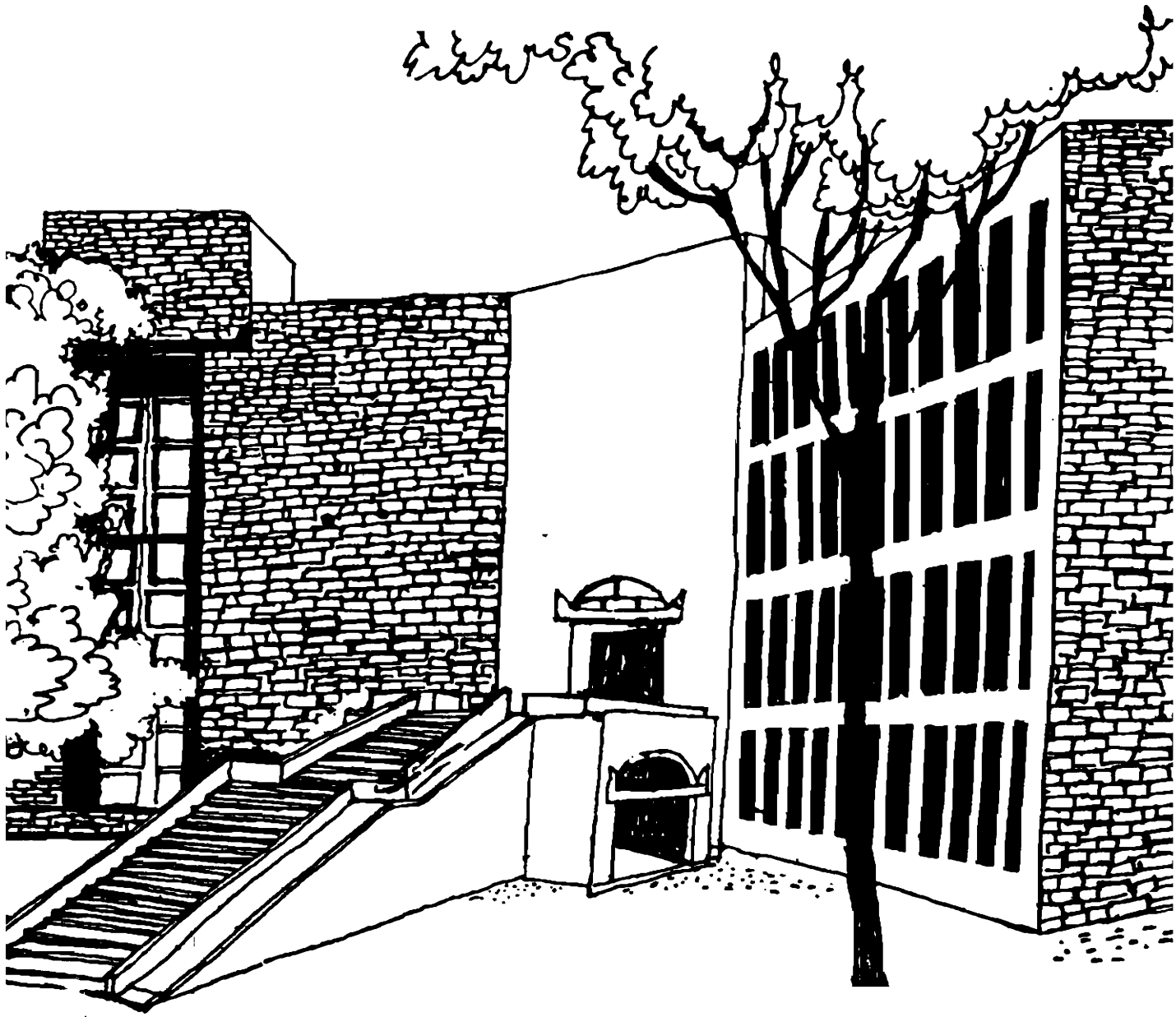

FUTURES TRADING IN INDIA - ARE WE READY ?

By

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(Dr. RAMESH GUPTA)

ABSTRACT

The article examines the nature of futures market and its development abroad. It provides a theoretical framework reviewing behaviour of future prices and a need for an effective arbitrage between spot and futures market to ensure competitive and fair pricing for hedge seekers.

In the Indian context, it examines the hedging needs of Indian investors and probes the robustness of cash markets. Major deficiencies in our cash markets are absence of facilities for margin trading , short sale, dematerialised settlements and electronic funds transfer among participants.

Efficient arbitrage is the key to functioning of the futures market. In India arbitrage can be done only in one direction which is to buy in spot and sell in futures market when basis (that is difference between spot and futures prices) after adjusting for carry cost is at premium. If basis is at discount arbitrage would involve sell in short and buy in future, but this would not be possible in the absence of short sale. This skewness in arbitrage would delink the two markets and futures market would turn into a casino.

The article also critically examines the empirical work of Shah and Thomas and questions the validity of their estimates of `impact cost' and other `event studies' in support of futures market.

The article ends asking the regulators what is the hurry? Derivative trading requires a critical mass of sophisticated investors, supported by credit and stock analysts, serviced by market-makers prodding a modicum of liquidity and protected by keen regulators. If SEBI is finding it hard to manage system for carry-over business (that is, badla which is akin to a weekly forward market), how is it going to regulate risk in a futures market where transactions would remain outstanding for 6 months and more.

Regulators are cautioned to avoid economically unjust demands of a few vested interests and let `public interest' of several million shareholders take precedence over a few `inter est groups' which are known for peddling hot money.

FUTURES TRADING IN INDIA - ARE WE READY ?

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Much of the written and public discourse in India tends to perpetuate comfortable myths that future trading is necessary for globalizing Indian stock markets and that one should not worry much about its unintended and sometimes even harmful effects for domestic investors. The most charitable judgement one can make of these educational endeavors through the public media for their Indian audience is that they are exactly what they claim to be - oversimplified examples. Most of the articles merely define future trading and its obvious uses in portfolio management. Hardly anybody (including SEBI Committee on Derivatives) has cared to examine in greater depth prerequisites required for future trading to ensure a reasonably competitive market and its likely effect on the spot market and investment climate in India.

One singular truth about future trading which remains undisputed is that the justification for future markets depends on the need for risk hedging. The market simply does not come into existence solely to furnish a speculative arena, nor does it persists if hedgers, the genuine and long term investors, do not find it rewarding to continue in those markets. The higher the level of hedging, the higher the level of future business. Therefore, it is very important that we understand fully the theory and practice of hedging and carry out an examination of the demand and supply forces that would determine its acceptability and viability in the Indian market place.

There are many who regard `speculation' and `gambling' as

synonymous terms. One generally hears of `investing in securities' and `gambling in futures'. However, the usual differentiation is based on the nature of the risk and the social good involved. Gambling involves the creation of a risk for the sole purpose of inducing someone to take it. The horse race, poker game, and roulette wheel all create risks that would not be present without them. Gamblers are willing to accept these risks in return for the opportunity to win some money. On the other hand speculation deals in risks that are necessarily present in the system. These risks would be present whether future markets existed or not. If speculators are not there, somebody else would have to take them.

Any kind of future trading involves hedgers and speculators. For efficient functioning of future markets, speculators are necessary, because the volume of business done by genuine - hedgers at any given time is frequently too small thus limiting the liquidity necessary for an efficient market. Moreover, a preponderance of hedgers frequently tends to want to buy at the same time or sell at the same time. Thus speculators along with professional traders and arbitrageurs are needed to take the other side of some of these trades. Speculators provide a continuous liquid market. Without the speculators future market would not function. Therefore if the future markets operates for the social good, the speculator who makes the operation possible also contributes to the social good.

However, one must caution here that specially in stock markets which are secondary in nature, sometimes market practices and systems evolve in such a way that excessive trading creates its own market risk without adding any economic value to the society. For example, high volume turnover of securities in the secondary markets without new investment coming into the capital markets or reallocating the resources among different sectors,

creates (and/or increases) market risks without any economic or social benefits. And then people who in the first place have created this economically unjustified risk begin pleading for instruments to hedge this risk. Thus, the hedging device itself becomes a new game to be played by sophisticated operators without adding much economic value and thus speculators and futures become gamblers.

HEDGING: COMMODITY AND FINANCIAL FUTURES

There is a basic difference between commodity futures and the equity index futures. In the former, hedging is done to protect manufacturers, traders and consumers of commodities from price variation in primary goods (i.e., agricultural and metallurgical commodities). Hedging through commodity futures markets allow the risk of price changes to be shifted, and hence the costs of production, marketing and processing are reduced. If this is true, and if the cost savings are passed on to the consumers, future trading will benefit the consumers on whose behalf the economy is supposed to function. And if the speculators made this all possible, there could be little quarrel with the argument that their services had social value. Similarly, in the currency exchange markets if exchange risks for exporters and manufacturers can be reduced by the speculators, and benefits are passed on to the consumers, it would have social value.

In commodity and currency futures, speculation deals in risks that are necessarily present in the process of marketing of goods and services in a free capitalistic system. For example, as soybean grow and is harvested, concentrated, and disbursed, the obvious risks of price changes must be taken by those who own the soybeans or have commitments to buy them, either in original form or as oil or meal. These risks would be present whether future

markets existed or not. If the speculator was unwilling to take them, someone else would have to do so. The speculator in commodity markets does not inject risk into the economy merely because of a desire to speculate.

Investors in stock markets generally take two kinds of risk- stock specific risk and market risk. Two distinct types of strategies are implemented to manage these two types of risks. The first strategy is "stock selection"' that is, trying to select stocks to buy that will outperform the market and, to a lesser extent, trying to select specific stocks to short that will underperform the market. If one wants to take only market risk one does so by diversifying one's investments among various stocks which are not highly correlated.

The strategy for managing market risk is "market timing', that is, switching to very volatile stocks during times of expected bull markets and to low volatility stocks or even money market instruments during times of expected bear markets. This strategy involves "asset allocation' that is, shifting among equities, money and bonds. Of course, market timing strategy may interfere with stock selection strategies and/or reduce the effectiveness of portfolio diversification. There may however be problems in both stock selection and market timing strategies using only the cash stock market. With stock index future contracts the problem in implementing both types of strategies can be reduced or eliminated.

DEVELOPMENT OF FUTURE MARKETS ABROAD

All over the world, future trading has been introduced first in commodities and only later in financial futures. Even in financial futures, trading has been introduced based on dire

economic needs and after making sure that cash market in under lying securities function efficiently.

In the USA, prior to mid-1970s, future contracts on financial instruments did not exist and virtually all trading was in agricultural and metallurgical commodities. Future markets in foreign currencies were introduced in 1972 mainly to hedge against currency fluctuation. The collapse of the Smithsonian Agreement in March 1973, which led to a free float of all currencies, contributed greatly to the development of these markets. The listed currencies were British pound, the Canadian dollar, the West German mark, the Japanese yen and the Swiss franc which were all **freely convertible currencies** even at that time. Should we not first create the conditions for free convertibility of rupee before we talk of future markets in currencies!

Interest rate futures were introduced in 1975. With respect to contracts available, many futures contracts have been listed by several different stock exchanges, but relatively few succeeded and became actively traded. While there has been much discussion with respect to why some interest rate futures contracts succeeded and others failed, and there remains much uncertainty in this regard, all the successful futures contracts have at least one ingredient - they all have commercial hedge users and active arbitrageurs in spot and future markets. To have successful arbitrage operations, one needs highly liquid and well developed markets in debt securities. Unfortunately, in India it is still lacking and therefore, it is not on RBI's priority list.

Stock index futures markets began on March 24, 1982. By this time equity markets in USA were highly developed. There were thousands of pension funds, mutual funds and large net worth investors were in place employing sophisticated portfolio managers.

Cash markets were deep, electronic banking and funds transfers were common even among retail investors; a depository system with adequate insurance cover was available for settlements. Security trade were settled on a rolling basis where squaring of transactions were available only for the day. Institutional and legal frameworks existed for both margin trading and short sale. The Impact cost of big transactions which are critical for arbitrage in spot and future markets were relatively small. Bid-ask prices for securities were quoted for actual delivery and involved real investment by portfolio managers.

BEHAVIOR OF FUTURE PRICES

In a world with little uncertainty, the price of a future contract should exceed the spot price of the asset underlying the contract by the so-called cost of carry, that is, the cost of holding the asset from the present to the settlement date. For a commodity this would be equal to interest costs for the given time period plus the expenses of storage, insurance and other transaction costs. For financial futures this is only the inter est cost for the funds locked in (including the costs of any variation margin that may have to be posted as a result of the daily market-to-market procedures).

The difference between the future price and the spot price is known as the basis, and the basis should, in a stable world, equal the cost of carry. If the basis was substantially higher than the cost of carry, arbitrageurs would sell the future short and buy the commodity, making a guaranteed profit upon delivery of the commodity to settle the future contract. Similarly if the basis was substantially below the cost of carry, owners of the commodity would sell in the spot and go long in the future. They would earn interest by investing the proceeds of the sale and at settlement

time would have more than enough money to take delivery of the commodity, thus getting it back with a monetary profit to boot.

"The greatest tragedy in all history is the murder of a beautiful theory by a gang of brutal facts" (Anonymous). The real world, however, especially the world of financial assets is not at all stable. Consequently, financial futures prices (which are generally settled in cash only) reflect not only the cost of carry but also, in large measure, the market's anticipation of what spot prices will be at the time of settlement. Using options as an analog, the intrinsic value of a financial future contract is set by the spot price of the financial asset underlying the contract, while the time cost of the contract is set by the cost of carry (mainly interest costs) and the perceived opportunities for gain or loss due to the price volatility of the asset and maturity of the contract.

DETERMINANTS OF INDEX FUTURES PRICES

The basis between the index and the future price is defined as the future price minus the index. There is a formula that gives the conceptual (theoretical) relationship between the index and the future prices, usually called the fair value. This formula says that the fair value of the futures price should equal the current level of the index plus the net cost of carrying the stocks representing the index until the maturity of the future contract. This net carry cost equals the short-term financing cost as measured by the Treasury bill of the appropriate maturity minus the dividend yield of the index. This basis obviously becomes zero as the time passes because the dollar value of the net carrying cost declines. At the maturity of the futures contract, the future price equals the index and this is called convergence.

However, in practice this basis may actually be at a premium or a discount to fair value. This spread varies significantly both on an hour-to-hour and on a day-to-day basis. Analysts watch this basis continuously. One reason why this basis is watched is for market information. Some assert that premium provides a bullish signal and indicates that there will be a subsequent increase in the value of the index. Discounts, accordingly, provide a bearish signal. The basis for this assertion is that due to their greater liquidity, changes in the stock index futures contracts precede changes in he underlying market in either direction.

PARTICIPANTS IN FUTURES MARKET

Major players in the futures market are hedgers, arbitragers and speculators.

(a) Hedgers:

Hedging is carried out to eliminate the risk associated with price fluctuations. Future contracts can be used to hedge two types of positions:

a) Current portfolio holdings

b) Investing expected (or realizing needed) cash flows in future

The hedging function solely focuses on the role of transfer ring the risk of price changes to other holders in the futures markets. The other side of the transaction necessary to accomplish this might well have been taken by another hedger who was offsetting an opposite risk or was liquidating another hedge as a result of a change in his position in the cash markets. More often than not it is taken by a speculator attempting to make a profit.

Stock portfolios are more closely related to the overall market, and thus, have a higher component of systematic risk and

a low component of specific risk than individual stocks. In Index futures a broad portfolio can, thus, be hedged more effectively than individual stocks - there would of course also be less chance of outperforming the market. But the return on such a hedged portfolio however would be equal to the short-term inter est rate. This seems appropriate - a risk free return for a risk-free investment (a hedged stock portfolio). This is the case only if future contracts are initially priced at a fair value. If it is priced at a premium or at a discount, arbitragers would bring it closer to the fair value. To earn more than a risk-free rate of return, hedgers often seek a reduction in the risk due to price fluctuations instead of looking for complete elimination of risk, by partially hedging the position while some hedging is carried out to make profit from movements in the basis.

(b) Arbitrageurs

Arbitrageurs play a major role in functioning of future markets. When arbitrage is fluent and effective, market efficiency is obtained. In theory, the basis difference should reflect the cost of carrying only. If it is sold at a premium, that is future price is too high relative to the present index value, arbitrageurs can buy diversified portfolios of stock of large companies and sell equivalent amounts of overpriced stock index futures. At the time of settlement, a profit would be equal to the amount by which the futures were overpriced at the time of the arbitrage. Similarly, if the future price is to low relative to the spot price of the index, arbitrageurs could sell stock portfolios short and buy index futures, thereby assuring a profit at settlement.

Two major factors should be noted which preclude this from being a perfect arbitrage situation and which therefore, often

permit other price relationships to prevail. The first factor is the so-called tracking error. This arises from the fact that it is costly for arbitrageurs to replicate precisely the index at all times.

Second, besides the cost of carrying (including the costs of any variation margin that may have to be posted as a result of the daily market-to-market procedures), there are significant transactions costs in an arbitrage involving hundreds of stocks. These costs are not only brokerage commission, but are so called **impact costs** which are incurred to execute such large orders in a brief time period and then resell the stocks at settlement time in order to raise the cash to cover the short futures positions. In addition, there are also legal, institutional and income tax considerations.

(c) Speculators

Speculators are interested in profiting from a price change in a future contract. Speculative buying and selling of index futures frequently causes their price to diverge substantially from the prices implied by both the cost of carry, tracking and transaction costs. When these divergences occur, huge amounts of arbitrage activity do take place, notwithstanding its complexity, and proper spot and futures price relationships are reestablished. Indeed, this type of arbitrage activity has, at times, exceeded the normal trading on the NYSE because the prospective rates of return are often well in excess of money market rates. If arbitrage is not possible, futures market gets delinked with the spot market and functions like a casino.

Due to the possibility of transacting in the overall stock market in one decision, the low transaction costs, the low margins,

the liquidity, and the ease of shorting, stock index futures contracts have been used extensively by speculators to make extraordinary profits.

TRADING OF FUTURES IN INDIA

The most sophisticated new financial product in the world will go nowhere if it does not meet the basic need of the a society. Perhaps less obviously, demand for a financial instrument is ineffective if no one will supply it in a convenient marketplace at a price consistent with the demand.

Before introducing any future trading in India, a question one needs to ask here is a) who and how many are these investors who have **genuine needs** to hedge their market risk and b) who are the potential counterparties to such trade who are going to provide hedging. Only after assessing the demand and supply for hedging, one should introduce an instrument which would serve a social purpose.

If a future trading in index in India is advocated on the basis of hedging needs of investors, one must assess the market demand and supply source before introducing the product in the market. To determine demand, one would need to know -

1) How many investors (individual, institutional) in India hold and/or approximate the index portfolio ?
2) What are the objectives in holding this portfolio ?
3) What is size of their portfolio ?
4) What are their hedging needs ?
5) At what price would they be seeking hedging ? (As we have discussed earlier, perfect hedging would result in earning only a risk-free rate of return minus administrative costs).
6) Would it be possible to have a reasonably continuous demand

curve given the number of hedge seekers and their stated price preferences.

Similarly, on the supply side would there be a sufficient number of hedgers who would like to offset the opposite risks or liquidate another hedge as a result of a change in their positions in the cash markets. And if hedgers are few in number and if all hedger seekers are on the same side, which is most often the case, arbitrageurs and speculators would be needed to provide the other side of the transaction. For arbitrageurs to function properly, we would need to examine the working of the cash market, because arbitrage would be done in spot and future markets. Two major hurdles in perfect arbitrage are a) **tracking error** - whether they would be able to trade in index portfolio or a mix of shares (particularly in the absence of short sale facilities) which would approximate the market risk inherent in their bought portfolio - minor error can wipe out their profits; and b) **impact costs** which are incurred to execute such large order in a brief time period.

If the above is not possible in our existing cash markets, then only speculators are going to dominate the future markets. Speculators needs to have large funds to operate and an appetite to take the risk. In India, one would need to assess the numbers of such players. If such numbers are small because of institutional and legal constraints which inhibit their operations (e.g., mutual funds, government dominated financial institutions etc.), we would not be able to have a competitive market. Few speculators would be able to dictate the markets because there would not be many left to provide the opposite side of the trans actions. This question become more crucial when settlements are done in cash only and not by actual delivery (which is the case in index future trading). One would have no choice but to enter the contract at dictated prices.

POTENTIAL USERS- A SURVEY BY SEBI COMMITTEE ON FUTURES

L.C.Gupta's committee as stated in its interim report has done a questionnaire based survey among potential users of financial derivative in India, such as mutual funds, other financial institutions, commercial banks, investment bankers and stock brokers. The committee has explored the likely nature of potential demand for equity derivatives of each kind. The survey findings placed index futures much higher than individual stock futures in terms of both priority and desirability. The reasons given for strong preferences for trading in index futures are a) institutional and large equity holders' need for portfolio hedging, b) stock index cannot be easily manipulated while individual stocks can be (except that index can be manipulated only by manipulating prices of its component securities); c) stock index, being an average, is less volatile than individual stock price; d) future index are cash settled all over the world, therefore physical delivery is not required.

Based on the above survey, the Committee concluded that despite many problems with functioning of Indian cash markets, we should launch the future index.

The report does not provide much detail about the questionnaire and the mode of conducting the survey. One does not even know what was the target population and how the sample was drawn. No information is provided about the geographical spread of the sample, composition in terms of education, institutional affiliation, trading and investment needs. It is also not known whether sampled individuals are actively participating in trading/investment activities or just happen to be members of an interest group residing only in certain areas of a metropolis. India has an investment population of 20 million spread across the

country, so a sample survey of 112 people cannot be used to justify that demand exists and to prompt the regulatory agency to launch a product without examining the adverse consequences for the large investor population on a national trading network.

Further, the questions asked in the survey are presumptive, misleading and seek only ranking preferences. The questionnaire does not probe their hedging needs and the price they would be wiling to pay for meeting such needs. Further, it tabulates the number opting for a choice without performing the necessary statistical (i.e., non-parametric) tests to validate the findings.

One is skeptic about its validity to determine the need for futures trading in India. One should not put too much reliance on it. One would expect that the Sebi appointed Committee of national importance would be more circumspect in making such claims for the existence of demand for instruments which have wide ranging impact on stock market operations and investment processes in the country.

PREREQUISITE FOR INTRODUCING FUTURES TRADING

It is a universally recognized phenomenon that a strong spot (cash) market is a prerequisite for an effective futures market. The two markets are aligned through arbitrageurs to ensure that prices in both markets remain tied to underlying fundamental factors. If such arbitrage trades are not possible in a competitive way, future markets would be delinked from fundamentals and would be nothing more than a casino. After all, derivatives derive their value from the cash asset.

FUNCTIONING OF SPOT MARKETS IN INDIA

The existence of stock exchanges in a economy is justified both by their operational efficiency in terms of transferring savings to the corporate users as wells as allocative efficiency in the sense that savings gravitate to those investment outlets which offer the highest prospective risk-adjusted rates of re turn. Society is going to evaluate functioning of our stock exchanges on this criterion only.

The infrastructure improvements in the ,Indian stock market since about 1994, have contributed to higher liquidity and market efficiency. The introduction of screen based on-line trading system by stock exchanges is the major development in this regard. The National Stock Exchange (NSE) first commenced on-line trading in the debt segment in June 1994 and equity segment in November 1994. BSE introduced on-line trading system (BOLT) in March 1995 and now has national connectivity. Now most of the stock exchanges in India use screen based trading. As a result, total turnover of the 22 bourses together has moved from Rs. 227,368 crore to RS. 646116 crore showing a growth of 184 %. The NSE posted a turnover of Rs. 294,504 crore during 1996-97 against Rs. 68,141 crore in 1995-96 (an increase of 332 %), while BSE had Rs. 124,284 crore in 1996-97 vs Rs. 50064 crore in 1995-96 (an increase of 148%).

What does this high volume trading really mean ? Do these high volumes represents merely continuous exchange of securities and money among a few active participants without much investment activity in the economy ? Given our system of batch settlement and differences in trading cycles among our stock exchanges, it may very well represents intra-valan speculation, inter-valan speculation (which allows longer settlement period for outstanding position - carryforward facility makes it possible) and inter-exchange arbitrage. One indicator of this is that the actual

delivery on our stock exchanges is not more than 10 per cent. These delivery percentages are also misleading, because most often these deliveries are not genuine investment transactions but passing around of the delivered scrips among well- endowed investors involved in inter-valance speculative trade and inter-exchange arbitrage (mainly between BSE and NSE) as they have different trading cycles. Financial Institutions are no exception to this. NSE and BSE jointly can do an empirical study to verify this well known fact among market participants. Further, there is high concentration of trading in few securities which may not make possible for arbitrage in index portfolio.

Heavy volume trading on Indian bourses has its own attractions; a) there are large potential profits for smart and well endowed operators and b) stimulation received from the trading activity itself. Non-delivery trade on Indian bourses constitute 90 percent of the trading. Policy makers may be surprised to find that in fact high volumes without delivery affects the genuine price discovery processes and thereby adversely affects the investment processes. One observes that more often prices of Indian stocks are determined by technical factors than the fundamental values.

REQUIREMENTS FOR ROBUST SPOT MARKETS IN INDIA

It is alleged that the way trading and settlement system exists right now, cash markets are mixed up with forward markets. This happens mainly because we have batch settlement with one-week trading cycle as opposed to rolling settlement system based on a day's trading. The difference between the two systems is that in the rolling system a forward position can be taken up only for the day (speculation over intra-day price change) as opposed to one week in weekly settlements. This has nothing to do with the

markets but with infrastructure facilities which are available to us. If we can have an effective and all participative depository system and electronic banking system where securities and funds can be transferred instantaneously, rolling settlement would become feasible. Further, we should also have margin trading and short sale facilities to have robust and liquid cash markets.

These facilities would be possible only if we can institutionalize the savings and thereby equity holding also. With the number of retail investors running into millions and having independent holdings in their name and securities in their possession, settlement on a rolling basis is not possible. For dematerialisation of securities and effective working of a depository, the small investors must have faith in intermediaries in whose name their securities would be held by the depository. And that this would happen only if proper insurance is in place.

The other mode is institutionalization of savings. In developed countries the retail savings have been institutionalized and the major players in the financial markets are financial institutions. In India also we are moving in that direction, but unfortunately the experience of the last 4-5 years after liberalization has completely disenchanted small investors. First, they have been fleeced by free pricing in the primary market while promoters including large corporate investors, particularly MNC's, were happily allocating shares at preferential prices to themselves taking advantage of lacunae in Section 81 of our Companies Act. Then we had failures of almost all mutual funds in their promises and performance (including foreign ones like Morgan Stanley); followed by the CRB Capital phenomenon discrediting the NBFC. One may argue that these kinds of frauds and scam do take place. But they also leave a system where trust and confidence gets badly affected. Unfortunately, our legal, institutional and financial

system is not well developed to prevent such misconduct on the part of individuals controlling these institutions. Voluntary institutionalization of savings has not been successful in India; in fact it has miserably failed. The only institutionalized mode of savings in India has largely been contractually enforced savings where returns and repayments are assured by the governmental agencies.

In this scenario, let us see what is possible. Nobody can deny the fact that we should have active and liquid spot markets, and to have this, some institutional framework has to be put in place to provide for margin trading and short sales. If in the near future it is not possible then let us not discard or make regulations which would inhibit the indigenously evolved `carry forward system' in which participants themselves take care of these needs at a price negotiated at the end of each settlement. There has been misuse of this facility, but that was when we did not have screen based trading and reporting of all transactions was not done. Now all trades are on computer, having same level of transparency ensuring adequate monitoring and surveillance as any other trade in the system. To some people the word badla is anathema without realizing its technical and practical value at this juncture of our institutional development. If examples of the working of foreign markets are used to educate us in derivative trading, we can also make modest attempts to educate our regulators, media personnel, opinion makers and foreigners concerned with financial markets developments in India. May be they will find it useful like our herbal medicines to meet short term deficiencies in the system. The regulators should not make investors a scapegoat for strong views held by some individuals who may not really fully understand the actual functioning of stock markets in the Indian contexts, however, well read and informed they may be about foreign practices. Trading is not based only on

economically rational theories, but cut across many disciplines - economics, mathematics, sociology, statistics and psychology being the most obvious. Movements in stock markets are followed by almost every informed individual just like cricket scores, but there are very few who really understand the working and intricacies of the stock market trading games in India.

EVALUATION OF EMPIRICAL STUDIES IN SUPPORT OF FUTURES TRADING

It is well known that efficient arbitrage is the key to the function of the future markets. To highlight the importance of the role of arbitrage in derivative trading I would like to quote verbatim from the publication by Ajay Shah and Susan Thomas of Indira Gandhi Institute of Development Research (IGDR) Bombay from their publication titled `Derivatives in India : Frequently Asked Questions'. Question and answer number 2.3 in the publication reads as follows:

> *Q 2.3. What is the role of arbitrage in the derivative area ?*
>
> ***ANSWER:*** *All pricing of derivatives is done by arbitrage and by arbitrage alone. In other words, basic economics dictates a relationship between the price of the spot and the price of a futures. If this relationship is violated then an arbitrage opportunity is available, and when people exploit this opportunity, the price reverts back to its economic value. In this sense, arbitrage is basic to pricing of derivatives. Without arbitrage, there would be no market efficiency in the derivative market: prices would stray away from fair value all the time. Indeed, a basic fact about derivatives is that the market efficiency of the derivatives market is inversely proportional to the transaction costs faced by*

arbitrageurs in that market. When arbitrage is fluent and effective, market efficiency is obtained, which improves the attractiveness of the derivatives from the viewpoint of users such as hedgers and speculators.

A logical query would be do Indian markets present the opportunity of a fair arbitrage between futures market and the spot market? A few studies have been done on this. The most frequently quoted studies are by Shah and Thomas, reportedly published as Technical Report, CMIE, Bombay, and another by UTI Institute of Capital Markets. There may be other studies but they are not so well circulated and/or known.

The two studies show conflicting results mainly because of differences in the methodology and the time periods used for testing their models. In 1990's structural changes in Indian stock markets have been so many and so fast that conclusions drawn by using data from one period cannot be presumed to be valid for another period. Some of the important changes were, constitution of SEBI as a regulatory agency, abolition of CCI, free pricing of new issues, abolition of badla, screen based trading, open electronic limit order book market, national wide integrated markets (thanks to NSE and now BSE's BOLT connectivity), counter party trade guarantee by the clearing house, setting up of depositories, allowing portfolio investment by foreign institutional investors, PSU disinvestment, growth in savings of households backed by changing attitudes and investing habits towards investment in shares etc. Any time series data used for this period to find out the effect of an event would be an useless exercise.

Event studies have their own value to enhance knowledge and sharpen the analytical tools for academic purposes. But to draw

policy conclusions based on these studies in the absence of continuous and reliable data is fraught with dangers. Similar comments can be made for the often quoted study advocating abolition of badla by Ajay Shah titled ` The impact of speculation upon volatility and market efficiency : The badla experience on the BSE' (dated 25 March 1995). One is tempted to quote US Federal Trade Commission (Reference : U.S. Industrial Commission Report House Doc. 94, 56th Cong. 2d Sess.House)

> *Frequently attempts have been made to deal with the question of the stabilizing effect of future trading by comparing periods prior to the practice of trading in futures with periods since there has been such trading. Such a comparison, in order to prove anything must first prove that the other things are equal - either that there have not been no other changes between the two periods or that any other changes that may have occurred had no effect on the fluctuation of grain prices. Obviously no such proof can be offered in the case under consideration... (vol VI, p. 261).*

For arbitrage to prevail the key difficulty faced is liquidity which affects the transaction cost faced in buying or selling the entire index as a portfolio. In this context the only study done in India is by Shah and Thomas of IGDR. They report their conclusions (in answer to their question no. 2.12 of the earlier cited paper `Derivatives in India : Frequently Asked Questions:

> *"The one-way market impact cost faced by arbitrageurs working the NSE-50 is around 0.25%. This is similar to that seen by arbitrageurs working the S&P 500. This suggests that market liquidity by itself will not*

be a serious constrain in the face of an index derivatives market in India. It should be noted that market impact cost is not the only component costs that arbitrageurs face. It is true that post-trade costs are higher in India (thanks to the small role that the book-entry trading plays (as of to-day). However market liquidity is not a constraint in index based products based on Nifty."

The methodology used in impact study is similar to what other researchers have used in studying the markets abroad. The critical variable in this study is whether quotes available on NSE represents the spot market prices as assumed by the authors. Our markets are not pure spot market but a mixture of forward and spot market because of our batch settlement system and the difference in trading cycles among stock exchanges. In our quoted prices, there is an implicit assumption that an opposite position has been created and that most likely the transaction would be reversed within a trading cycle. The people who operate in the stock markets know fully well that on Tuesday afternoon on NSE and Friday afternoon on BSE one witnesses the most volatile price fluctuation in a few scrips which are fancied by speculators. These fluctuations are there mainly because everybody is trying to square off their positions playing cat and mouse game with stock quotations. Thus, the prices quoted in our spot markets are driven most often by outstanding positions (technical factors) rather than fundamentals.

For a moment, let us assume that even if arbitrageur is able to buy these shares at given bid-ask spread prices during the valan, the counter-party would not have shares ready to deliver at the time of settlement. There is bound to be an auction where seller will have to buy it back from arbitrageur only, because

nobody else would have shares ready to deliver. It would be profitable for an arbitrageur to become a speculator and dictate prices in the auction.

If spot trading was only for actual deliveries, prices would be very much different. One can notice it when somebody tries to corner the stock, or some genuine investors take fancy to the stock. There are numerous examples which can be cited to support this hypothesis. Just to illustrate, remember the euphoria surrounding HDFC scrip a few months ago ? The stock zoomed from Rs. 3400 to 4700 within a few days in July on the news that foreign investors have lined up to buy the share after 24 percent ceiling was raised to 30 percent. And as soon as RBI announced that the ceiling had been reached, prices crashed to 3400. This was a situation when FII's were actually asking for deliveries and not indulging in a speculative trade waiting to be squared off within same valan or near future.

To get authentic impact cost data one would have to look into quotes for actual investment trades and not the bid-ask quotes in our limit-order books. To draw convincing conclusions about the impact costs, one would require total transparency by stock exchanges, major investors and transfer agents of companies providing data of actual transfer of shares for investment purposes. To repeat, quotes on Indian stock exchanges are for creating and squaring off positions and not for actual deliveries (at least not in heavy weight and highly capitalized companies in the index). For other light weight companies as per their own estimates impact costs are quite high and trading volumes are not sufficient to support large scale arbitrage.

Further, Shah and Thomas have routinely ignored and/or deemphasised the post- trade costs involved in transfers which are

considerable in India due to bad deliveries, delay in transfer and default risk - one of the major concerns cited in the survey done by Sebi's Committee on Derivatives.

More importantly, for arbitrage to be effective, there should be a **short sale** facility available to arbitrageurs. If the basis (i.e., difference between future and spot prices) is at a discount, arbitrageurs should be able to sell in the spot market and buy the futures. In the present Indian conditions, if one is not holding the index portfolio this cannot be done (some legal provisions have been made for short-sale by financial institutions, but they are impractical and inoperative mainly because of heavy transaction costs and the procedural hassles involved in using it.) When arbitrage is possible only one way (i.e., when basis is at premium), there is going to be a **skewed and imperfect market, giving free rein to the speculators**. Who would be the beneficiary of introducing such trading, one does not have to guess.

Further in India, it is not difficult for manipulators to focus on stocks which have a high weight in the index but have poor liquidity. This would obtain the maximum advantage in the index per unit of capital deployed into manipulation. Past trading data show that only 5-6 scrips have 90 per cent of the trading, the rest are not worth even mentioning. But these remaining shares (mostly PSU and so called FERA companies) do have lot of weight because of their high capitalization in the index.

CONCLUSION

Derivative instruments do play a significant role in allocating and transferring risk and there is no doubt that risk allocation is among the primary functions of capital markets.

However, derivative trading requires a critical mass of sophisticated investors, supported by credit and stock analysts, serviced by market-makers providing a modicum of liquidity and protected by keen regulatory overseers. If SEBI is finding hard to manage risk in badla market which is a keen to a weekly forward market, how is it going to effectively oversee the futures market where transactions remain outstanding for more than three months?

The desirability of adding derivatives, such as futures trading depends crucially on the solidity and maturity of cash markets in underlying securities. To make cash markets robust and effective first let us put in place the mechanism of margin trading, short sale, dematerialised settlement and electronic transfer of funds among market participants. Let our regulators not behave like the French queen Marie Antoinette who advised her subjects to eat cake when they were starving for bread.

In the end, one can only ask what is the hurry in introducing derivative trading? First, regulators owe it to domestic investors to put in place a stable and reliable spot market for conducting genuine investment processes while avoiding the allure of sensuous hot money. Policy makers would have to decide whether it is important to protect the interest of overwhelming number of domestic investors which provides more than 95 percent of the savings for the country's development as opposed to satisfying the gambling instinct of providers of hot money. Genuine foreign investors which are willing to take risk in Indian markets are welcome, but not at domestic investors expense. If they are seeking hedges even from market risks, they should not expect to earn more than a risk-free return. They are gaining sufficiently by international diversification., They must learn to take some amount of risk to make extra gains. That's what the risk-return paradigm is all about.

It is a historically known fact that the contrast of `public interest' and `interest group' provides different conceptions of rationality in regulatory processes. It would be heartening if decision making of national importance involves wider investor participation than just the selected few who have vested interests, however, deep their pockets may be.