

# Foreign exchange derivatives markets economics essay

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Foreign Exchange Derivatives MarketsINDIARB12067110161Vaishali Rawat (Ms)RB12124110277SHASHIKUMAR VKRB12033110215Mayank DuttRB12067110161Vaishali Rawat (Ms)RB12124110277SHASHIKUMAR VKRB12033110215Mayank DuttIntroductionUndoubtedly the economic liberalization process unleashed in early 1990s has over the last three decades resulted in substantial inflow of foreign capital into India. In conjunction with the dismantling of trade barriers the process of economic liberalization facilitated the integration of domestic economy with world economy. One of the direct and intended consequences of the globalization of trade and relatively free movement of financial assets has been in the area of risk management through derivatives products. This has become a necessity in India just like in other developed and developing countries. With Indian businesses reorienting its operations through a global approach, an urgent need was felt for the evolution of a broad based, active and liquid forex derivatives market. Such markets are required to provide businesses with a spectrum of hedging products for effectively managing their foreign exchange exposures. The global market for derivatives has grown enormously in the recent past. According to the Foreign Exchange and Derivatives Market Activity survey conducted by Bank for International Settlements (BIS) the total estimated notional amount of outstanding OTC contracts increasing to \$111 trillion at end-December 2001 from \$94 trillion at end-June 2000. Compared to the decline in the spot foreign exchange markets, the growth in the derivatives segment is very exciting. The turnover in traditional foreign exchange markets declined by 14 per cent between 1998 (\$1, 490) and 2001 (\$1, 200). Whereas the global daily

turnover during the same period in foreign exchange and interest rate derivative contracts, including what are considered to be "traditional" foreign exchange derivative instruments, increased by an estimated 10 percent to \$1.4 trillion. In India 'Manmohanomics' provided the impetus in the early nineties for the introduction of FX derivatives. Business houses started actively approaching foreign markets not only with their products but also as a source of capital and direct investment opportunities. With limited convertibility on the trade account being introduced in 1993, the economic environment became even more conducive for the introduction of these hedge products. All the above mentioned developments led to a gradual and incremental integration of the Indian financial markets with the global markets. With the advent of LERMS (Liberalised Exchange Rate Mechanism System) in India, in 1992, the market forces started to present an economic architecture with steady price volatility as against the earlier trend of long periods of constant prices followed by sudden, large price movements. The unified exchange rate phase has seen improvement in informational and operational efficiency of the foreign exchange market, though at a snail's pace. Increasingly corporate finance research findings emphasizes the point that measuring risk exposures is an essential component of a firm's risk management strategy. Without knowledge of the primitive risk exposures of a firm, it is not possible to test whether firms are altering their exposures in a manner consistent with theory. Recent product innovations in the financial markets and the use of these products by the corporate sector are also examined. In addition to the traditional "physical" products, such as spot and forward exchange rates, the new "synthetic" or derivative products,

including options, futures and swaps, and their use by the corporate sector are considered. These synthetic products have their market value determined by the value of a specific, underlying, physical product. The peaks and troughs in foreign investments in India over time have led to substantial increase in the quantum of inflows and outflows in different currencies, with varying maturities. Corporate enterprises have had to face the continuing challenges of the shift from low risk to high risk operations involving foreign exchange. Lean and mean operational imperatives ensured that there was increasing awareness of the need for introduction of financial derivatives in order to enable hedging against market risk in a cost effective way. Earlier, the Indian companies had been entering into forward contracts with banks, which were the Authorised Dealers (AD) in foreign exchange. But many firms preferred to keep their risk exposures un-hedged as they found the forward contracts to be very costly. In the current formative phase of the development of the foreign exchange market, it will be worthwhile to take stock of the initiatives taken by corporate enterprises in identifying and managing foreign exchange risk.

**Mechanics of Financial Market**

The trading on stock exchanges in India used to take place through open outcry without use of information technology for immediate matching or recording of trades. This was time consuming and inefficient. This imposed limits on trading volumes and efficiency. In order to provide efficiency, liquidity and transparency, NSE introduced a nation-wide on-line fully automated screen based trading system (SBTS) where a member can punch into the computer quantities of securities and the prices at which he likes to transact and the transaction is executed as soon as it finds a matching sale or buy order from

a counter party. SBTS electronically matches orders on a strict price/time priority and hence cuts down on time, cost and risk of error, as well as on fraud resulting in improved operational efficiency. It allows faster incorporation of price sensitive information into prevailing prices, thus increasing the informational efficiency of markets. It enables market participants, irrespective of their geographical locations, to trade with one another simultaneously, improving the depth and liquidity of the market. It provides full anonymity by accepting orders, big or small, from members without revealing their identity, thus providing equal access to everybody. It also provides a perfect audit trail, which helps to resolve disputes by logging in the trade execution process in entirety. This diverted liquidity from other exchanges and in the very first year of its operation, NSE became the leading stock exchange in the country, impacting the fortunes of other exchanges and forcing them to adopt SBTS also. Today India can boast that almost 100% trading takes place through electronic order matching.

Technology was used to carry the trading platform from the trading hall of stock exchanges to the premises of brokers. NSE carried the trading platform further to the PCs at the residence of investors through the Internet and to handheld devices through Wireless Application Protocol (WAP) for convenience of mobile investors. This made a huge difference in terms of equal access to investors in a geographically vast country like India. The trading network is depicted in Figure 3. 1. NSE has main computer which is connected through Very Small Aperture Terminal (VSAT) installed at its office. The main computer runs on a fault tolerant STRATUS mainframe computer at the Exchange. Brokers have terminals(identified as the PCs in

the Figure 3. 1) installed at their premises which are connected through VSATs/leased lines/modems. An investor informs a broker to place an order on his behalf. The broker enters the order through his PC, which runs under Windows NT and sends signal to the Satellite via VSAT/leased line/modem. The signal is directed to mainframe computer at NSE via VSAT at NSE's office. A message relating to the order activity is broadcast to the spectivemember. The order confirmation message is immediately displayed on the PC of the broker. This order matches with the existing passive order(s) otherwise it waits for the active orders to enter the system. On order matching, a message is broadcast to the respective member. The trading system operates on a strict price time priority. All orders received on the system are sorted with the best priced order getting the first priority for matching i. e., the best buy orders match with the best sell order. Similar priced orders are sorted on time priority basis, i. e. the one that came in early gets priority over the later one. Orders are matched automatically by the computer keeping the system transparent, objective and fair. Where an order does not find a match, it remains in the system and is displayed to the whole market, till a fresh order comes in or the earlier order is cancelled or modified. The trading system provides tremendous flexibility to the users in terms of kinds of orders that can be placed on the system. Several time-related (day, immediate or cancel), price-related (buy/sell limit and stop loss orders) or volume related (Disclosed Quantity) conditions can be easily built into an order. The trading system also provides complete market information on-line. The market screen at any point of time provides complete information on total order depth in a security, the five best buys and sells

available in the market, the quantity traded during the day in that security, the high and the low, the last traded price, etc. Investors can also know the fate of the orders almost as soon as they are placed with the trading members. Thus the NEAT system provides an Open Electronic Consolidated Limit Order Book (OECLOB). Limit orders are orders to buy or sell shares at a stated quantity and stated price. If the price quantity conditions do not match, the limit order will not be executed. The term 'limit order book' refers to the fact that only limit orders are stored in the book and all market orders are crossed against the limit orders sitting in the book. Since the order book is visible to all market participants, it is termed as an 'Open Book'. NEAT SYSTEM The NEAT system supports an order driven market, wherein orders match on the basis of price and time priority. All quantity fields are in units and prices are quoted in Indian Rupees. The regular lot size and tick size for various securities traded is notified by the Exchange from time to time. Market Types The Capital Market system (the NEAT system) has four types of active markets: (i) Normal Market: Normal market consists of various book types in which orders are segregated as Regular Lot Orders, Special Term Orders, and Stop Loss Orders depending on the order attributes. (ii) Auction Market: In the auction market, auctions are initiated by the exchange on behalf of trading members for settlement related reasons. (iii) Odd Lot Market: The odd lot market facility is used for the Limited Physical Market and for the Block Trades Session. (iv) Retail Debt Market: The RETDEBT market facility on the NEAT system of capital market segment is used for transactions in Retail Debt Market session. Trading in Retail Debt

Market takes place in the same manner as in equities (capital market) segment.

## **Corporate Hierarchy**

The trading member has the facility of defining a hierarchy amongst its users of the NEAT system. This hierarchy comprises: The users of the trading system can logon as either of the user type. The significance of each type is explained below:

- (i) **Corporate Manager:** The corporate manager is a term assigned to a user placed at the highest level in a trading firm. Such a user receives the end-of-day reports for all branches of the trading member. The facility to set branch order value limits and user order value limits is available to the corporate manager. The corporate manager also has facility to set symbol wise user order quantity limit. He can view outstanding orders and trades of all users of the trading member and can also cancel/modify outstanding orders of all users of the trading member.
- (ii) **Branch Manager:** The branch manager is a term assigned to a user who is placed under the corporate manager. The branch manager receives end-of-day reports for all the dealers under that branch. He can set user order value limit for each of his branch. He can view outstanding orders and trades of all users of his branch and can also cancel/modify outstanding order of all users of his branch.
- (iii) **Dealer:** Dealers are users at the lowest level of the hierarchy. A dealer can view and perform order and trade related activities only for himself and do not have access to information on other dealers under either the same branch or other branches.



## Market Phases

The trading system is normally made available for trading on all days except Saturdays, Sundays and other holidays. Holidays are declared by the Exchange from time to time. A trading day typically consists of a number of discrete stages as below:

(i) Opening: The trading member can carry out the following activities after login to the NEAT system and before the market opens for trading:

- (a) Set up Market Watch (the securities which the user would like to view on the screen)
- (b) View Inquiry screens

At the point of time when the market is opening for trading, the trading member cannot login to the system. A message 'Market status is changing. Cannot logon for sometime' is displayed. If the member is already logged in, he cannot perform trading activities till market is opened.

(ii) Pre-open: The pre-open session is for a duration of 15 minutes i. e. from 9: 00 am to 9: 15 am. The pre-open session is comprised of Order collection period and order matching period. The order collection period of 8\* minutes is provided for order entry, modification and cancellation. (\* - System driven random closure between 7th and 8th minute). During this period orders can be entered, modified and cancelled. The information like Indicative equilibrium / opening price of scrip, total buy and sell quantity of the scrip is disseminated on the NEAT Terminal to the members on real time basis. Indicative NIFTY Index value & % change of indicative equilibrium price to previous close price are computed based on the orders in order book and are disseminated during pre-open session.

Order matching period starts immediately after completion of order collection period. Orders are matched at a single (equilibrium) price which will be open price. The order matching happens in the following sequence: •

Eligible limit orders are matched with eligible limit orders • Residual eligible limit orders are matched with market orders • Market orders are matched with market orders

**Equilibrium price determination**

In a call auction price mechanism, equilibrium price is determined as shown below. Assume that NSE received bids for particular stock xyz at different prices in between 9: 00 am & 9: 07/08 am. Based on the principle of demand supply mechanism, exchange will arrive at the equilibrium price - price at which the maximum number of shares can be bought / sold. In below example, the opening price will be 105 where maximum 27, 500 shares can be traded

**During order matching period** order modification, order cancellation, trade modification and trade cancellation is not allowed. The trade confirmations are disseminated to respective members on their trading terminals before the start of normal market. After completion of order matching there is a silent period to facilitate the transition from pre-open session to the normal market. All outstanding orders are moved to the normal market retaining the original time stamp. Limit orders are at limit price and market orders are at the discovered equilibrium price. In a situation where no equilibrium price is discovered in the pre-open session, all market orders are moved to normal market at previous day's close price or adjusted close price / base price following price time priority. Accordingly, Normal Market / Odd lot Market and Retail Debt Market opens for trading after closure of pre-open session i.e. 9: 15 am. Block Trading session is available for the next 35 minutes from the open of Normal Market. The opening price is determined based on the principle of demand supply mechanism. The equilibrium price is the price at which the maximum volume is executable. In case more than one price

meets the said criteria, the equilibrium price is the price at which there is minimum unmatched order quantity. In case more than one price has same minimum order unmatched quantity, the equilibrium price is the price closest to the previous day's closing price. In case the previous day's closing price is the mid-value of pair of prices which are closest to it, then the previous day's closing price itself will be taken as the equilibrium price. In case of corporate action, previous day's closing price is adjusted to the closing price or the base price. Both limit and market orders are reckoned for computation of equilibrium price. The equilibrium price determined in pre-open session is considered as open price for the day. In case if only market orders exists both in the buy and sell side, then order is matched at previous days close price or adjusted close price / base price. Previous day's close or adjusted close price / base price is the opening price. In case if no price is discovered in pre-open session, the price of first trade in the normal market is the open price.

(iii) Normal Market Open Phase: The open period indicates the commencement of trading activity. To signify the start of trading, a message is sent to all the trader workstations. The market open time for different markets is notified by the Exchange to all the trading members. Order entry is allowed when all the securities have been opened. During this phase, orders are matched on a continuous basis. Trading in all the instruments is allowed unless they are specifically prohibited by the Exchange. The activities that are allowed at this stage are Inquiry, Order Entry, Order Modification, Order Cancellation (including quick order cancellation), Order Matching and Trade Cancellation.

(iv) Market Close: When the market closes, trading in all instruments for that market comes to an end. A message to this

effect is sent to all trading members. No further orders are accepted, but the user is permitted to perform activities like inquiries and trade cancellation.(v)

Post-Close Market: This closing session is available only in Normal Market Segment. Its timings are from 3. 50 PM to 4. 00 PM. Only market price orders are allowed. Special Terms, Stop Loss and Disclosed Quantity Orders, Index Orders are not allowed. The trades are considered as Normal Market trades.

Securities not traded in the normal market session are not allowed to

participate in the Closing Session.(vi) Surcon: Surveillance and Control

(SURCON) is that period after market close during which, the users have inquiry access only. After the end of SURCON period, the system processes the data for making the system available for the next trading day. When the system system starts processing data, the interactive connection with the NEAT system is lost and the message to that effect is displayed at the trader workstation. Major Segments of the NEAT ScreenThe trader workstation

screen of the trading member is divided into the following windows:(i) Title

bar: It displays trading system name i. e. NEAT, the trading member name the user id, user type, the date and the current time.(ii) Ticker Window: The

ticker displays information of all trades in the system as and when it takes place. The user has the option of selecting the securities that should appear

in the ticker. Securities in ticker can be selected for each market type. On

the extreme right hand of the ticker is the on-line index window that displays the current index value of NSE indices namely S&P CNX Nifty, S&P CNX

Defty, CNX Nifty Junior, S&P CNX500, CNX Midcap, CNX IT, Bank Nifty, CNX

100 and Nifty Midcap 50, CNX Realty, CNX MNC, CNX FMCG, CNX Energy,

CNX Infra, CNX Pharma, CNX PSU Bank, CNX PSE and CNX Service and India

VIX. The user can scroll within these indices and view the index values respectively. Index point change with reference to the previous close is displayed along with the current index value. The difference between the previous close index value and the current index value becomes zero when the Nifty closing index is computed for the day. The ticker window displays securities capital market segments. The ticker selection facility is confined to the securities of capital market segment only. The first ticker window, by default, displays all the derivatives contracts traded in the Futures and Options segment.

(iii) Tool Bar: The toolbar has functional buttons which can be used with the mouse for quick access to various functions such as Buy Order Entry, Sell Order Entry, Market By Price (MBP), Previous Trades (PT), Outstanding Order (OO), Activity Log (AL), Order Status (OS), Market Watch (MW), Snap Quote (SQ), Market Movement (MM), Market Inquiry (MI), Auction Inquiry (AI), Order Modification (OM), Order Cancellation (OCXL), Security List, Net Position, Online Backup, Supplementary Menu, Index Inquiry, Index Broadcast and Help. All these functions are also accessible through the keyboard.

(iv) Market Watch Window: The 'Market Watch' window is the main area of focus for a trading member. This screen allows continuous monitoring of the securities that are of specific interest to the user. It displays trading information for the selected securities.

(v) Inquiry Window: This screen enables the user to view information such as Market by Order (MBO), Market By Price (MBP), Previous Trades (PT), Outstanding Orders (OO), Activity Log (AL), Order Status (OS), Market Movement (MM), Market Inquiry (MI), Net Position, Online Backup, Index Inquiry, Indices Broadcast, Most Active Securities and so on. Relevant information for the selected

security can be viewed.(vi) Snap Quote: The snap quote feature allows a trading member to get instantaneous market information on any desired security. This is normally used for securities that are not already set in the Market Watch window. The information presented is the same as that of the Market Watch window.(vii) Order/Trade Window: This window enables the user to enter/modify/cancel orders and to send request for trade cancellation and modification.(viii) Message Window: This enables the user to view messages broadcast by the exchange such as corporate actions, any market news, auctions related information etc. and other messages like order confirmation, order modification, order cancellation, orders which have resulted in quantity freezes/price freezes and the exchange action on them, trade confirmation, trade cancellation/modification requests and exchange action on them, name and time when the user logs in/logs off from the system, messages specific to the trading member, etc. These messages appear as and when the event takes place in a chronological order. Basket TradingThe purpose of Basket Trading is to provide NEAT users with a facility to create offline order entry file for a selected portfolio. On inputting the value, the orders are created for the selected portfolio of securities according to the ratios of their market capitalisations. All the orders generated through the offline order file are priced at the available market price. Quantity of shares of a particular security in portfolio are calculated as under: No. of Shares of a security in portfolio =  $\frac{\text{Current Portfolio Capitalisation}}{\text{Summation [Last Traded Price (Previous close if not traded) * No. of Issued shares]}}$  In case at the time of generating the basket if any of the constituents are not traded, the weightage of the security in the basket is

determined using the previous close price. This price may become irrelevant if there has been a corporate action in the security for the day and the same has not yet been traded before generation of the file. Similarly, basket facility will not be available for a new listed security till the time it is traded.

**Reverse Basket on Traded Quantity**

The Reverse Basket Trading provides the users with an offline file for reversing the trades that have taken place for a basket order. This file will contain orders for different securities of the selected basket file. The Orders are created according to the volume of trade that has taken place for that basket. This helps to monitor the current status of the basket file as the latest status of the orders are displayed in the list box. It is advisable to create each basket with a different name and clean up the directories regularly and not tamper with the original basket file once it has been loaded as it may give erroneous results.

## Index Trading

The purpose of Index Trading is to provide users with a facility of buying and selling of Indexes, in terms of securities that comprises the Index. The users have to specify the amount, and other inputs that are sent to the host, and the host generates the orders. The Index Trading enables the users for buying or selling an Index Basket. Putting orders in securities in proportion that comprises the chosen index, simulates the buying and selling of Index basket. Formula Used to calculate no of shares of each security is

$$\text{No of Shares of a security in index} = \frac{\text{Amount} * \text{Issued Capital for the security}}{\text{Free Float Factor}}$$

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Current Market Capitalization of the Index  
Current Market Capitalization of the Index = Summation [Last Traded Price (Previous close if not traded) \* No of Issued shares]  
The no of shares are rounded off to the nearest integer. If the Index basket contains any security whose regular lot is not one, then the file will need to be corrected by the user to accommodate shares in tradable lots.

## Buy Back Trades

The purpose of Buy Back Trade functionality is to give information to the market about the buy back trades executed from the start of the buy back period till current trading date in the securities whose buyback period is currently on. The front screen shows Symbol, Series, Low price (Today), High price (Today), Weightage, Average price, Volume (Today) and Previous day Volume.

Role of Financial Market in the Economy  
The macroeconomic growth of a country is generally determined through its pace of economic progress. Since the initiation of economic liberalisation by the Government, the country has positioned herself as one of the most powerful markets emerging in Asia, boasting the fourth largest economy worldwide in terms of GDP, and the tenth largest in terms of market exchange rates. The country experienced a strong push towards an extensive reform programme comprising internal and external economic liberalization, sustained domestic deregulation and an intensive integration with the global economy. The reforms moved at a snail's pace during seventies and then went up in the eighties. The average growth rate during 1992-93 to 1996- 97 was 6. 6%, came to 5. 5% during 1997-98 to 2001- 02 and reduced substantially to 3.

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8% during 2002-03 because of sharp, drought-induced fall in agricultural output. From then onwards there was significant improvement in the rate of growth averaging over 9 per cent during 2005 to 2008. The GDP growth rate was 9.5 per cent during 2005-06 and rose to 9.7 per cent in 2006-07 but declined marginally to 9.2 per cent during 2007-08. The proximate drivers of this growth spurt included the sustained investment boom, increase in productivity, unusual buoyancy in international economic environment and a demand- and-technology driven acceleration of modern services output. Subsequently, the economy observed substantial resilience during 2008-09, after the growth momentum continued nearly for four years, and the economic growth decelerated to 6.7 per cent due to the global financial crisis. The three factors that helped India to cope up with the crisis and soften the blow were: i) the robust, well-capitalised and well-regulated financial sector, (ii) gradual and cautious opening up of the capital account and iii) the large stock of foreign reserve. In 2009-10, the GDP growth beat all expectations and reached 7.4 per cent to establish that the recovery from the slowdown was well underway. The recent phase of growth was driven by robust performance of the manufacturing sector on the back of government and consumer spending. Moreover, the fiscal stimulus measures taken by the government, together with a loosening monetary policy also helped in pushing up the overall GDP growth. Since 2001, the country has been fast emerging as a global manufacturing hub with a remarkable acceleration and notable double-digit growth rate during 2006-2007. Encouraged by an increasing presence of multinationals, scaling up of operations by domestic companies and an ever expanding domestic market,

the Indian manufacturing sector has been averaging more than 9 per cent growth during 2004-08, with a record 12.5 per cent in 2006-07. While the growth slowed down during 2008-09, it remained impressively positive during the early stages of global economic downturn. Output in the capital goods sector registered annual growth of 9 per cent during 2007-08, which is significantly slower than the nearly 16 per cent average for the period 2003-07. Consumer goods output, which enjoyed double-digit annual gains during 2004-06, slowed modestly from 7 per cent during 2007 to 6 per cent during 2008. The economic survey report considers 1993-94 as the base year and has indicated that the index of industrial production has increased to about 221.5 in 2005-06, 247.1 in 2006-07 and 304.2 in 2009-10. The emergence of India as one of the fastest growing economies attributed to the rapid growth of its service sector. Contribution of services to GDP in the period 2001-2004, has been more than 60 per cent per annum and nearly 63 per cent of the GDP in 2007-08. In the last ten years (1994-2004), the service sector has grown on an average by 7.9 per cent per annum, ahead of agriculture with growth of 3 per cent and manufacturing sector with growth of 5.2 per cent per annum. Among the most talked-about aspect of India's booming tertiary sector is the surge of the information technology (IT), and in particular, an impressive growth of the export of software and ITeS. The ratio of the IT sector output to the country's GDP increased from 0.38 per cent in 1991-92 to 4.5 per cent in 2004-05 and over the same period the IT services exports grew at a phenomenal 47.5 per cent per annum. According to Central Statistical Organisation, the services sector continued to grow during the fourth quarter of 2008-09. Trade, hotels, transport and

communication grew 6.3 per cent in January-March 2009 as compared to 5.9 per cent in October-December 2008. As per NASSCOM's Strategic Review 2010, the BPO sector continues to be the fastest growing segment of the industry and is expected to reach US\$ 12.4 billion in 2009-10, growing at 6 per cent. Agriculture is one of the strongholds of the Indian economy and it accounts for 18.5 per cent of the GDP and provides employment to 58.2 per cent of the work force. It is evident that there is only a marginal increase of 2.4 per cent aggregate growth in the agriculture sector as compared to growths of about 8.1, 9.0, 7.8 per cent in industry, service and manufacturing sector. The average growth rate of agriculture and allied sectors during 2006-07 and 2007-08 has been more than 4 per cent as compared to the average annual growth of 2.5 per cent during the 10th Five-Year Plan. The growth decelerated from 4.9 per cent in 2007-08 to 1.6 per cent in 2008-09, and subsequently to a meagre 0.2 per cent mainly on account of the high base effect of 2007-08 and a fall in the production of non-food crops including oilseeds, cotton, sugarcane and jute. The total food grain production in 2007-08 was 230.78 million tonnes as against 217.3 million tonnes in 2006-07. There has been substantial improvement in the economic infrastructure consisting of transport and communication, generation and distribution of conventional and non-conventional energy, banking, finance and insurance facilities, development of social overheads like health and educational facilities during the different plan periods. This developing infrastructure helped sustaining India's growth rate during the recent global meltdown. The index for six core industries comprising crude oil, petroleum refinery products, coal, electricity, cement and finished carbon

steel rose by 2. 9 per cent in March 2009 over March last year. The Indian foreign exchange market witnessed far reaching changes since early 1990s following the phased transition from a pegged exchange rate regime to a market determined exchange rate regime in 1993 and subsequent adoption of current account convertibility in 1994 followed by substantial liberalisation of capital account transactions. The current account balance is usually regarded as the single most widely monitored indicator of a nation's external balance position. In India, the position remained comfortable throughout the period 2000-01 to 2007-08, ranging between a high of 2. 3 per cent of GDP in 2003-04 and a low of minus 1. 5 per cent in 2007-08. The relative strength of the current account balance has been concurrent with the marked rise of India's merchandise trade to GDP ratio from a meagre 0. 5 per cent during early 1990s to 23 per cent in 2000-01 and then to 35 per cent in 2007-08. Due to contraction in global trade volume India's merchandise exports showed a negative growth during 2008. However, there was a turnaround during 2009-10 in merchandise export when the monthly average growth was 32. 9 per cent. Merchandise imports, on the other, also contracted and subsequently rebound during 2009-10. Acceleration in the economic growth is also depended on total factor productivity. Studies showed that both industry and service sector had recorded increase in productivity it was more pronounced in case of the latter. Significant lowering of the import duties also helped productivity gains in industry. By 2006, the average share of imports and exports in GDP had risen to 24 per cent. Software exports increased more than six folds from USD 5. 7bn in 2000-01 to USD 37bn in 2007-08 raising the contribution to GDP from 1. 2 per cent to 3. 2 per cent.

During 2000-01, the imports and exports recorded USD 50. 54bn and USD 44. 56bn respectively with a trade balance of (-) USD 5. 98bn. The trade balance in 2009-10 rose to USD 108. 16bn with imports USD 286. 82bn (increase of about 56. 75 per cent from 2000-01) and exports USD 178. 66bn (increase of 40. 09 per cent from 2000-01). India's balance of payment (BoP) has been characterised by deficit in current account and surplus in capital account during 1990-91 to 2000-01. The position underwent major shifts from 2001-02 when the current account balance turned positive for three consecutive years up to 2003-04. The balance then moved back to deficit territory and the economy experienced a current account imbalance of 1. 5 per cent of GDP in 2007-08 and increased sharply to 3. 2 per cent in 2008-09. The impact on the capital account was more pronounced as the capital account surplus dropped from a record high of 9. 2 per cent of GDP in 2007-08 to a meagre 0. 8 per cent of GDP in 2008-09. And this is the lowest level of capital account surplus for India since 1981-82. The decline in exports of goods and services in response to weak global demand had a dampening impact on overall GDP. However, a higher current account deficit led to stronger absorption of foreign capital and, in turn, implied higher investment activities financed by foreign capital contributing to stronger recovery of growth. The position improved during 2009-10, with turnaround in exports in the latter part of the year and resumption in capital flows. Foreign exchange reserves (FERs) in India have increased not only in absolute terms but also in relation to other variables like SDRs, gold and foreign currency. FERs have grown significantly from a paltry USD 9. 22bn in 1990-91 to USD 25. 2bn during 1994-95. The growth continued with the reserves touching USD 279.

06bn during 2009-10. The outward looking policy helped to accentuate the huge reserve to manage not only rising imports but also external debts, monetary expansion and liquidity growth. With capital inflows exceeding current account deficits, foreign exchange reserves increased to USD 15.1bn (1.9 per cent of GDP), USD 36.6bn (4.0 per cent of GDP) and USD 92.2bn (7.9 per cent of GDP) during 2005-06, 2006-07 and 2007-08 respectively. During 2008-09 (April-December) the FERs declined to USD 20.4 billion (2.3 per cent of GDP) due to global financial crisis. Discussion of players, their profiles and objectives in the MarketBroad-basing the broker network, shining a light on investor education and variegating products would go a long way in ensuring greater investor participation in the capital markets. In spite of being a trillion-dollar economy with an almost-robust 30 per cent-plus savings rate, households in India continue to overwhelmingly invest in real estate and gold, due to the natural inflation hedge that these non-financial assets have been seen to offer in recent times. . According to a recent news report " capital markets, including mutual funds, account for merely 3-4 per cent of total household savings, reflecting a lack of investment culture in India. Interestingly, this percentage has remained virtually stagnant over the last decade, despite stock markets, for all their upturns and downturns, delivering a compounded annual growth rate of 16.6 per cent from 2001-02 to 2001-12." International evidence shows that as economies move to higher income levels, stock markets play a greater role in economic development. Widening the investor base and the right policy reforms will help in attaining long-term sustainable economic growth. The broad constituents of this growth are as follows: Fund Raisers are companies

that raise funds from domestic and foreign sources, both public and private. Fund Providers are the entities that invest in the capital markets. These can be categorized as domestic and foreign investors, institutional and retail investors. The list includes subscribers to primary market issues, investors who buy in the secondary market, traders, speculators, FIs/ sub accounts, mutual funds, venture capital funds, NRIs, ADR/GDR investors, etc.

Intermediaries are service providers in the market, including stock brokers, sub-brokers, financiers, merchant bankers, underwriters, depository participants, registrar and transfer agents, FIs/ sub accounts, mutual Funds, venture capital funds, portfolio managers, custodians, etc. Organizations include various entities such as BSE, NSE, other regional stock exchanges, and the two depositories National Securities Depository Limited (NSDL) and Central Securities Depository Limited (CSDL). Market Regulators include the Securities and Exchange Board of India (SEBI), the Reserve Bank of India (RBI), and the Department of Company Affairs (DCA). Market Regulator

ChartAppellate Authority: The Securities Appellate Tribunal (SAT)Participants in the Securities MarketSAT, regulators (SEBI, RBI, DCA, DEA), depositories, stock exchanges (with equity trading, debt market segment, derivative trading), brokers, corporate brokers, sub-brokers, FIs, portfolio managers, custodians, share transfer agents, primary dealers, merchant bankers, bankers to an issue, debenture trustees, underwriters, venture capital funds, foreign venture capital investors, mutual funds, collective investment schemes. Recent trend in the Market

## **Trends in Exchange Rate**

A look at the entire period since 1993 when we moved towards market determined exchange rates reveals that the Indian Rupee has generally depreciated against the dollar during the last 15 years except during the period 2003 to 2005 and during 2007-08 when the rupee had appreciated on account of dollar's global weakness and large capital inflows (Table 2. 4). For the period as a whole, 1993-94 to 2007-08, the Indian Rupee has depreciated against the dollar. The rupee has also depreciated against other major international currencies. Another important feature has been the reduction in the volatility of the Indian exchange rate during last few years. Among all currencies worldwide, which are not on a nominal peg, and certainly among all emerging market economies, the volatility of the rupee-dollar rate has remained low. Moreover, the rupee in real terms generally witnessed stability over the years despite volatility in capital flows and trade flows (Table 2. 5).



**Table 2. 3 : Extent of RBI Intervention in Foreign exchange Market****RBI Intervention in Foreign exchange market (\$ billion)****Foreign exchange Market Turnover (\$ billion)****Column 2 over 3 (in per cent)****1****2****3****4**

2002-0345. 61, 5602. 92003-0480. 42, 1183. 82004-0542. 02, 8921. 52005-0615. 84, 4130. 42006-0726. 86, 5710. 42007-0881. 212, 2490. 72008-09P83. 912, 0920. 7P: Provisional  
Note : RBI Intervention includes both purchases and sales of US dollar by the RBI Source : Reserve Bank of India.

**Table 2. 4 : Movements of Indian Rupee 1993-94 to 2008-09****Year****Range (Rs per US \$)****Average Exchange Rate (Rs per US \$)****Daily average Appreciation/ Depreciation****Coefficient of Variation (%)****Standard Deviation****1****2****3****4****5****6**

1993-9431. 21-31. 4931. 370. 030. 10. 051994-9531. 37-31. 9731. 40-0.

110. 30. 121995-9631. 37-37. 9533. 46-6. 175. 80. 561996-9734. 14-35.

9635. 52-5. 771. 30. 211997-9835. 70-40. 3637. 18-4. 474. 20. 371998-

9939. 48-43. 4242. 13-11. 752. 10. 241999-0042. 44-43. 6443. 34-2. 790.

70. 102000-0143. 61-46. 8945. 71-5. 192. 30. 152001-0246. 56-48. 8547.

69-4. 151. 40. 132002-0347. 51-49. 0648. 40-1. 480. 90. 072003-0443. 45-

47. 4645. 925. 401. 60. 192004-0543. 36-46. 4644. 952. 172. 30. 312005-

0643. 30-46. 3344. 281. 511. 80. 222006-0743. 14-46. 9745. 28-2. 222. 00.

272007-0839. 26-43. 1540. 2412. 532. 10. 382008-0939. 89-52. 0945. 92-

12. 367. 80. 73Source : Reserve Bank of India.

## Table 2. 5: Trend in External value of the Indian Rupee

**Year**

**36 country REER (Trade Based): Base 1993-94= 100**

**REER**

**% Variation**

**NEER**

**% Variation**

1993-94 100. 00

-

100. 00

-

1994-95 104. 324. 398. 91-1. 11995-96 98. 19-5. 991. 54-7. 51996-97 96. 83-

1. 489. 27-2. 51997-98 100. 774. 192. 043. 11998-99 93. 04-7. 789. 05-3.

21999-00 95. 993. 291. 022. 22000-01 100. 094. 392. 121. 22001-02 100. 860.

891. 58-0. 62002-03 98. 18-2. 789. 12-2. 72003-04 99. 561. 487. 14-2. 22004-

05 100. 090. 587. 310. 22005-06 102. 352. 389. 852. 92006-07 98. 48-3. 885.

89-4. 42007-08 104. 816. 493. 919. 32008-09 94. 31-10. 084. 66-9. 8

Source : Reserve Bank of India. The various episodes of volatility of exchange rate of

the rupee have been managed in a flexible and pragmatic manner. In line

with the exchange rate policy, it has also been observed that the Indian

rupee is moving along with the economic fundamentals in the post-reform

period. Thus, as can be observed maintaining orderly market conditions have

been the central theme of RBI's exchange rate policy. Despite several

unexpected external and domestic developments, India's exchange rate performance is considered to be satisfactory. The Reserve Bank has generally reacted promptly and swiftly to exchange market pressures through a combination of monetary, regulatory measures along with direct and indirect interventions and has preferred to withdraw from the market as soon as orderly conditions are restored. Moving forward, as India progresses towards full capital account convertibility and gets more and more integrated with the rest of the world, managing periods of volatility is bound to pose greater challenges in view of the impossible trinity of independent monetary policy, open capital account and exchange rate management. Preserving stability in the market would require more flexibility, adaptability and innovations with regard to the strategy for liquidity management as well as exchange rate management. Also, with the likely turnover in the foreign exchange market rising in future, further development of the foreign exchange market will be crucial to manage the associated risks.

**Conclusion**At the outset it must be said that the Indian forex derivatives market is still in a nascent stage of development. However, there is no doubt that it offers tremendous opportunities for growth. The institutionalization of a vibrant forex derivatives market in India would critically depend on the growth in the underlying spot/forward markets, growth in the rupee derivative markets along with the evolution of a supporting regulatory structure. Factors such as market liquidity, investor behavior, regulatory structure and tax laws will heavily influence behavior of market variables in this market. It is a foregone conclusion that increasing convertibility on the capital account would accelerate the process of integration of Indian

financial markets with international markets. Some of the necessary preconditions to this as suggested by the Tarapore committee report are already being met. Increasing convertibility does carry the risk of removing the insularity of the Indian markets to external shocks like the South East Asian crisis, but a proper management of the transition should speed up the growth of the financial markets and the economy. Introduction of derivative products tailored to specific corporate requirements would enable corporate to completely focus on its core businesses, de-risking the currency and interest rate risks while allowing it to gain despite any upheavals in the financial markets. Increasing convertibility on the rupee and regulatory impetus for new products should see a host of innovative products and structures, tailored to business needs. The possibilities are many and include INR options, currency futures, exotic options, rupee forward rate agreements, both rupee and cross currency swap options, as well as structures composed of the above to address business needs as well as create real options. A further development in the derivatives market could also see derivative products linked to commodities, weather, etc which would add great value in an economy where a substantial section is still agrarian and dependent on the vagaries of the monsoon. Though the country's economy is booming, India must confront a number of challenges to sustain rapid economic growth over the long run. Sustaining such growth will require the government to fast track the reforms in many areas to free the economy from the clutches of political vagaries and bureaucratic control. Moreover, the policymakers should identify reforms in policies as well as institutions to accelerate growth and also to make the growth inclusive.

Where reforms in policies include fiscal, monetary and financial sector to ensure macroeconomic stability, the institutional reforms are necessary to strengthen the financial institutions and to ensure appropriate incentive and accountability. India should also take initiatives to overcome the challenges to foster labour-intensive manufacturing and agricultural sector and broaden economic prosperity. While the country has liberalized its international trade and investment regime, the economy is still too insulated from international competition. If the Central and State policymakers exercise leadership and address the challenges, India will become one of the leading economic powerhouses in near future.