Role of Foreign Institutional Investment in Indian Derivatives Market

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A derivative is a financial contract whose value depends on risk factor(s) of a single or a combination of assets such as price of a bond, commodity, currency, share, a yield or interest rate, etc. and allows organizations to break financial risk into smaller components to best meet specific risk objectives. According to IMF, derivatives are "financial instruments that are linked to a specific financial instrument or indicator or commodity and through which specific financial risk can be traded in financial markets in their own right. The value of a financial derivative is derived from the price of an underlying item, such as an asset or index. Unlike debt securities, no principal is advanced to be repaid and no investment income accrues". Derivatives allow financial institutions and other participants to identify, isolate and manage separately the market risks in financial instruments and commodities for the purpose of hedging, speculating, arbitrage price difference and adjusting portfolio risk. The primary objectives of any investor are to maximize returns and minimize risks. Derivatives are contracts that originated from the need to minimize risk. The word 'derivative' originates from mathematics and refers to a variable, which has been derived from another variable. Derivatives are so called because they have no value of their own. They derive their value from the value of some other assets, which is known as the underlying. The term derivative has been defined in Securities Contract (Regulation) Act, as: -

Derivative includes:

a. A security derived from a debt instrument, share, loan, whether secured or unsecured, risk instrument or contract for difference or any other form of security;
b. A contract, which derives its value from the price, or index of prices, of underlying securities.

Derivatives are specialized contracts, which signify an agreement or an option to buy or sell the underlying assets of the derivatives upto a certain time in the future at a prearranged price, the exercise price. The contract also has a fixed expiry period, mostly in the range of 3 to 12 months from the date of commencement of the contract. The value of the contract depends on the expiry period and also on the price of the underlying asset. Derivative contracts can be standardized and traded on the stock exchanges. Such derivatives are called exchange-traded derivatives. Or they can be customized as per the needs of the user by negotiating with the other party involved. Such derivatives are called Over-the–Counter (OTC) derivatives.

STRUCTURE OF DERIVATIVE MARKETS IN INDIA

Derivative trading in India can take place either on a separate and independent Derivative Exchange or on a separate segment of an existing Stock Exchange. Derivative Exchange/Segment function as a Self-Regulatory Organization (SRO) and SEBI acts as the oversight regulator. The clearing & settlement of all trades on the Derivative Exchange/Segment would have to be through a Clearing Corporation/House, which is independent in governance and membership from the Derivative Exchange/Segment.

REGULATORY FRAMEWORK OF DERIVATIVES MARKETS IN INDIA

Derivative markets in India are overseen by two regulators—the Securities and Exchange Board of India for financial products and the Forward Markets Commission (FMC) for futures on physical commodities. SEBI is an independent agency created in 1992, while the FMC, created in 1953, is a department in the Ministry of Consumer Affairs Food and Public Distribution. With the amendment in the definition of 'securities' under SC(R) A (to include derivative contracts in the definition of securities), derivatives trading takes place under the provisions of the Securities Contracts (Regulation) Act, 1956 and the Securities and Exchange Board of India Act, 1992.

Dr. L.C Gupta Committee constituted by SEBI had laid down the regulatory framework for derivative trading in India. SEBI has also framed suggestive byelaws for Derivative Exchanges/Segments and their Clearing Corporation/House, which lays down the provisions for trading and settlement of derivative contracts. The Rules, Bye-laws & Regulations of the Derivative Segment of the Exchanges and their Clearing Corporation/House have to be framed in line with the suggestive Byelaws. SEBI has also laid the eligibility conditions for Derivative Exchange/Segment and its Clearing Corporation/ House. The eligibility conditions have been framed to ensure that Derivative Exchange/Segment & Clearing Corporation/

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House provide a transparent trading environment, safety & integrity and provide facilities for redressal of investor grievances. Some of the important eligibility conditions are-

- Derivative trading to take place through an on-line screen based Trading System.
- The Derivatives Exchange/Segment shall have on-line surveillance capability to monitor positions, prices, and volumes on a real time basis so as to deter market manipulation.
- The Derivatives Exchange/ Segment should have arrangements for dissemination of information about trades, quantities and quotes on a real time basis through at least two information-vending networks, which are easily accessible to investors across the country.
- The Derivatives Exchange/Segment should have arbitration and investor grievances redressal mechanism operative from all the four areas / regions of the country.
- The Derivatives Exchange/Segment should have satisfactory system of monitoring investor complaints and preventing irregularities in trading.
- The Derivative Segment of the Exchange would have a separate Investor Protection Fund.
- The Clearing Corporation/House shall perform full novation, i.e., the Clearing Corporation/House shall interpose itself between both legs of every trade, becoming the legal counter party to both or alternatively should provide an unconditional guarantee for settlement of all trades.
- The Clearing Corporation/House shall have the capacity to monitor the overall position of Members across both derivatives market and the underlying securities market for those Members who are participating in both.
- The level of initial margin on Index Futures Contracts shall be related to the risk of loss on the position. The concept of value-at-risk shall be used in calculating required level of initial margins. The initial margins should be large enough to cover the one-day loss that can be encountered on the position on 99% of the days.
- The Clearing Corporation/House shall establish facilities for electronic funds transfer (EFT) for swift movement of margin payments.
- In the event of a Member defaulting in meeting its liabilities, the Clearing Corporation/House shall transfer client positions and assets to another solvent Member or close-out all open positions.
- The Clearing Corporation/House should have capabilities to segregate initial margins deposited by Clearing Members for trades on their own account and on account of his client. The Clearing Corporation/House shall hold the clients' margin money in trust for the client purposes only and should not allow its diversion for any other purpose.
- The Clearing Corporation/House shall have a separate Trade Guarantee Fund for the trades executed on Derivative Exchange / Segment.

  Presently, SEBI has permitted Derivative Trading on the Derivative Segment of BSE and the F&O Segment of NSE.

FOREIGN INSTITUTIONAL INVESTORS (FIIs) IN INDIA

FIIs are allowed to invest in equity derivatives as per SEBI guidelines. SEBI had issued a circular on 12th Feb, 2002 wherein the regulations in this regard have been specified. RBI had vide circular EC.CO.FII/ /11.01.01(16)/2000-01 dated August 7, 2000 permitted FIIs to trade in exchange traded index futures contracts on the Derivative Segment of BSE and the F & O Segment of NSE provided the overall open interest of the FII would not exceed 100% of market value of the concerned FII's total investment. The SEBI Board vide meeting dated December 28, 2001 has permitted FIIs to trade in all exchange traded derivative contracts and laid down the position limits for the trading of FIIs and their sub-accounts. RBI vide circular ECO.CO.FII/515/11.01.01/(16) 2000-01 dated February 4, 2002 permitted FIIs to trade in all the exchange traded derivative contracts subject to the position limits prescribed hereunder. The FIIs shall be under obligation to adhere to the position limits prescribed for them and their sub-accounts. The FIIs shall also comply with the procedure for trading, settlement and reporting as prescribed by the derivative exchange / Clearing House / Clearing Corporation from time to time. FIIs were inactive during the whole of 2002 and for the first 5 months of 2003 also. The equity markets were during this time period, passing through a dull phase.

Once the markets started moving up smartly, FII action had emerged in the derivatives markets along with an increasing exposure in the cash market itself. The reason for the interest in derivatives segment is the discount in share prices - when compared with the cash segment - which offers an arbitrage opportunity.

Indian stock markets are known to be narrow and shallow in the sense that there are few companies whose shares are actively traded. Thus, though there are more than 4,700 companies listed on the stock exchange, the BSE Sensex incorporates just 30 companies; trading in whose shares is seen as indicative of market activity. This shallowness would also mean that the effects of FII activity would be exaggerated by the influence their behaviour has on other retail investors, who, in herd-like fashion tend to follow the FIIs when making their investment decisions.

These features of Indian stock markets induce a high degree of volatility for four reasons. In as much as an increase in investment by FIIs triggers a sharp price increase, it would in the first instance, encourage further investments so that there is a tendency for any correction of price increases unwarranted by price earnings ratios to be delayed. And when the correction begins, it would have to be led by an FII pullout and can take the form of an extremely sharp decline in prices.

Secondly, as and when FIIs are attracted to the market by expectations of a price increase that tend to be automatically realized, the inflow of foreign capital can result in an appreciation of the rupee *vis-à-vis* the dollar (say). This increases the return earned in foreign exchange, when rupee assets are sold and the revenue converted into dollars. As a result, the investments turn even more attractive, triggering an investment spiral that would imply a sharper fall when any correction begins.

Thirdly, the growing realization by the FIIs of the power they wield in what are shallow markets encourages speculative investment aimed at pushing the market up and choosing an appropriate moment to exit. This implicit manipulation of the market, if resorted to often enough, would obviously imply a substantial increase in volatility.

Finally, in volatile markets, domestic speculators too attempt to manipulate markets in periods of unusually high prices. Any set of developments encourages an unusually high outflow of FII capital from the market, it can impact adversely on the value of the rupee and set of speculation in the currency that can, in special circumstances, result in a currency crisis. There are now too many instances of such effects worldwide for it to be dismissed on the ground that India's reserves are adequate to manage the situation.

The last two years have been remarkable because, though these features of the stock market imply volatility; there have been more months when the market has been on the rise rather than on the decline. This clearly means that FIIs have been bullish on India for much of that time. The problem is that such bullishness is often driven by events outside the country, whether it is the performance of other equity markets or developments in non-equity markets elsewhere in the world. It is to be expected that FIIs would seek out the best returns as well as hedge their investments by maintaining a diversified geographical and market portfolio. The difficulty is that when they make their portfolio adjustments, which may imply small shifts in favour of or against a country like India, the effects it has on host markets are substantial. Those effects can then trigger a speculative spiral for the reasons discussed above, resulting in destabilizing tendencies. Thus the end of the Bull Run in January was seen to be the result of a slowing of FII investments, partly triggered by expectations of an interest rate rise in the U.S.

In such circumstances, the best option for the policymaker is to find ways of reducing substantially the net flows of FII investments into India's markets. This would help focus attention on the creation of real wealth as well as remove barriers to the creation of such wealth, such as the constant pressure to provide tax concessions that erode the tax base and the persisting obsession with curtailing fiscal deficits, both of which are driven by dependence on finance capital.

Position Limits: The position limits for FII and their sub-accounts shall be as under: At the level of the FII

- In the case of index-related derivative products, there shall be a position limit of 15 per cent of open interest in all futures and options contracts on a particular underlying index on the Exchange, or Rs100crore, whichever is higher.
- For a particular underlying security, the position limit shall be 7.5 per cent of open interest on the Exchange, in all futures and options contracts on a particular underlying security, or Rs50crore, whichever is higher.

At the level of the sub-account: A disclosure requirement for any person or persons acting in concert who together, own 15 per cent or more of the open interest of all futures and options contracts on a particular underlying index on the Exchange. The gross open position across all futures and options contracts on a particular underlying security, of a sub-account of an FII, should not exceed the higher of:

- 1 per cent of the free float market capitalization (in terms of number of shares) or
- 5 percent of the open interest in the derivative contracts on a particular underlying stock (in terms of number of contracts). These position limits shall be applicable on the combined position in all futures and options contracts on an underlying security on the Exchange.

Procedures: The Clearing Corporation would monitor the FII position limits at the end of each trading day. For this purpose, the following procedure is prescribed:

- FIIs intending to trade in the F&O segment of the Exchange shall be required to notify certain details such as name, SEBI registration number, details of the Clearing Member/s, who shall clear and settle their trades in the F&O segment, to Clearing Corporation.

Clearing Corporation will allot a unique code to each such FII prior to commencement of trading by them. Clearing Corporation will utilize this for the purpose of monitoring position limits at the level of the FII. For e.g., if the name of FII is say XYZ and it has 2 sub- accounts viz. scheme 1 and 2, the FII code allotted by NSCCL may be "XYZ" (comprising 12 characters).

- Each FII/ sub-account of the FII, as the case may be, intending to trade in the F&O segment of the Exchange, shall further be required to obtain a unique Custodial Participant (CP) code allotted from the Clearing Corporation, through their Clearing Member. CP code normally comprises of 12 alphanumeric characters. Clearing Corporation will allot CP codes to each such FII/ sub-account of the FII.
- FIIs/ sub- accounts of FIIs, which have been allotted a unique CP code by Clearing Corporation, shall only be permitted to trade on the Exchange.
- The FII/ sub-account of FII shall ensure that all orders placed by them on the Exchange carry the relevant CP code allotted by Clearing Corporation as specified in point 3 above, in the relevant field in NEATFO.
- Clearing Member/s of the FII shall submit the details of all the trades confirmed by FII to Clearing Corporation, by the end of each trading day, as per the mechanism specified.
- Clearing Corporation will monitor the open positions of the FII/ sub-account of the FII for each underlying security and index on which futures and option contracts are traded on the Exchange, against the position limits specified at the level of FII/ sub-accounts of FII respectively, at the end of each trading day.
- The cumulative FII position may be disclosed to the market on a T + 1 basis, before the commencement of trading on the next day.
- In the event of an FII breaching the position limits on any underlying, Clearing Corporation will advise the Exchange to withdraw the facility granted to such FII to take any fresh positions in any derivative contracts. Such FII will be required to reduce their open position in such underlying, in accordance with the mechanism provided by Clearing Corporation from time to time. The facility withdrawn may be reinstated upon due compliance of the position limits.
- It shall also be obligatory on FIIs to report any breach of position limits by them / their sub-account/s, to Clearing Corporation and ensure that such sub-account/s does not take any fresh positions in any derivative contracts in such underlying. The sub-account of FII shall be required to reduce open position in such underlying, in accordance with the mechanism specified by Clearing Corporation. Only upon due compliance of the position limits, the sub-accounts may be permitted to take further positions.

Computation of Position Limits: The position limits would be computed on a gross basis at the level of a FII and on a net basis at the level of sub-accounts and proprietary positions.

REQUIREMENTS FOR A FII AND ITS SUB-ACCOUNT TO INVEST IN DERIVATIVES

A SEBI registered FIIs and its sub-account are required to pay initial margins, exposure margins and mark to market settlements in the derivatives market as required by any other investor. Further, the FII and its sub-account are also subject to position limits for trading in derivative contracts. The FII and sub-account position limits for the various derivative products are as under:

	Index Options	**Index Futures**	**Stock Options**	**Single stock Futures**	**Interest rate futures**
FII Level	Rs. 250 crores or 15% of the OI in Index options, whichever is higher. In addition, hedge positions are permitted.	Rs. 250 crores or 15% of the OI in Index futures, whichever is higher. In addition, hedge positions are permitted.	20% of Market Wide Limit subject to a ceiling of Rs. 50 crores.	20% of Market Wide Limit subject to a ceiling of Rs. 50 crores.	Rs. USD 100 million. In addition to the above, the FII may take exposure in exchange traded in interest rate derivative contracts to the extent of the book value of their cash market exposure in Government Securities.
Sub-account level	Disclosure requirement for any person or persons acting in concert holding 15% or more of the open interest of all derivative contracts on a particular underlying index	Disclosure requirement for any person or persons acting in concert holding 15% or more of the open interest of all derivative contracts on a particular underlying index	1% of free float market capitalization or 5% of open interest on a particular underlying whichever is higher	1% of free float market capitalization or 5% of open interest on a particular underlying whichever is higher	Rs.100 Cr or 15% of total open interest in the market in exchange traded interest rate derivative contracts, whichever is higher.

REVIEW OF LITERATURE

Derivatives product can reduce need on the part of firms and banks to hold idle precautionary balance to tide over unexpected adversities, thereby reducing the fraction of funds with these organizations that remain unproductive (Hentchell & Smith, 1997). Financial derivatives are powerful instruments that can facilitate hedging against volatility in exchange rates, interest

rates and securities price (Bhaumik1998,). Derivatives are recognized as the best and most cost efficient way of meeting the felt need for risk hedging in certain types of commercial and financial operations.

Countries not providing such globally accepted risk hedging facilities are disadvantaged in today's rapidly integrating global economy (Parmjit Kaur, 2001). Derivatives trading in options reduce risk, as investors are aware of the maximum loss (Mr. Jitendra Pande, 2002. it had to start at one point of time or the other. Just like a plant needs soil, water and minerals to nurture well, for derivatives you need a healthy cash market in place (Alok Churiwala, 2004).

The introduction of derivatives trading will separate leveraged positions from the spot markets and make it easier for exchanges to implement rolling settlement. This should reduce volatility in the existing markets safer (Ashish Kumar Chauhan, 2004).Share futures are most successful in India than anywhere else in the world because they are seen as a substitute for badla. The new system has to better than the old one and not add to risk in the market (Deana Mehta, 2005).

TRENDS OF FIIs DERIVATIVE TRADE IN INDIA

Little more than a decade later, and India is poised to claim a place as one of the region's largest markets.India's market capitalisation has more than trebled in three years. At about $643bn as of end-August, it compares with about $304.2bn for Singapore, $918.7bn for Australia and $1,242bn for Hong Kong.Only a couple of years back, India had merely two or three companies that were more than a $1bn in terms of market capitalisation.

Today we have nearly 100 companies with more than $1bn, and about 10 or 12 with more than $10bn capitalisation each. So the market has suddenly become of a size that it can't be ignored .The chief reason for this rapid growth is the pick-up in the economy.

Within a year of the NSE's opening in November 1994, it had overtaken the Bombay Stock Exchange, and today claims to account for about 70 percent of India's cash equity trading and nearly all its equity derivatives trade.Since then, the BSE has followed with its own reforms. It was incorporated last year and is expected to become a listed company by May 2007.The improved transparency at the stock exchanges has been matched by corporate governance reforms at the company level. The regulator, the Securities Exchange Board of India, has pushed through rules covering disclosure, the appointment of independent directors and other issues.

Several factors are responsible for increasing confidence of FIIs on the Indian Stock Market, which include, inter -alia, strong macro-economic fundamentals of the economy, transparent regulatory system, abolition of long term gains tax and encouraging corporate results. Reflecting the congenial investment climate, the total number of FIIs registered with SEBI increased to 882 as on March 31, 2006 compared to 685 a year ago, an increase of 197 over the year.

Exhibit: 1 Monthly Trends of FIIs Derivative Trade in India (2004-2006) (Rs. in crores)

Month	Gross Purchase	Gross Sales	Net Investment	Month	Gross Purchase	Gross Sales	Net Investment
Apr-04	6158.3	7069.73	-911.43	**Apr-05**	18935.9	18040.5	895.37
May-04	8868.1	7926.07	942.03	**May-05**	17974.6	15809.3	2165.36
Jun-04	5605.89	4426.94	1178.95	**Jun-05**	16704	15476	1227.38
Jul-04	4841.06	4709.74	131.32	**Jul-05**	18523.6	19309.7	-786.03
Aug-04	5108.49	5926.1	-817.61	**Aug-05**	27593.8	29535	-1941.2
Sep-04	5781.79	6168.56	-386.77	**Sep-05**	25758.3	23709.3	2049
Oct-04	8886.78	9804.15	-917.37	**Oct-05**	29543.4	31389.6	-1846.3
Nov-04	8943.59	8464.22	479.37	**Nov-05**	26859.4	23771.4	3088.05
Dec-04	11969.1	12905.8	-936.74	**Dec-05**	28035.2	29293.3	-1258.1
Jan-05	15394.1	14532	862.17	**Jan-06**	32369.8	31905.3	464.54
Feb-05	13455.4	13060.8	394.53	**Feb-06**	35952.8	38009.8	-2057
Mar-05	15587	16006	-419.15	**Mar-06**	45451.7	47694.5	-2242.8
Total	**110599.6**	**111000.1**	**-400.7**		**323702.6**	**323943.7**	**-241.69**

Source: Authors Calculation, www.sebi.gov.in

Exhibit: 1 shows that net investment of FIIs in derivatives was negative in 2004-05 & in 2005-06, in 2004-05 it was Rs400.7Cr and in 2005-06 it was, Rs241.69Cr. In the month of May, June, September, November and January, net investment in both the years was positive. In both these years, their investment pattern is very similar. In the month of November 2005, net investment of FIIs in derivatives was Rs3088.05Cr. and in October 2005 it was negative, Rs1846.3Cr it shows that there is drastic change in their investment pattern in the Indian derivative market. Future trading in India remains very popular in

last two years in comparison of options. **Exhibit: 2** shows the trend of purchase and sale of derivatives in last two years (instrument wise). Value of index future purchase in terms of Rs. Cr increased by 360.32 percent in 2005-06 from 2004-05, sale for the same period increased by 344.64 percent for index future and open interest at the end of the day increased by 388.24 percent.

Exhibit: 2 FIIs Derivative Trade
(2004-2006)

Detail	2004-2005		2005-2006		Percent Variation	
	No. of contract	Value (in Rs. Cr)	No. of contract	Value (in Rs. Cr)	Col 2 & 4	Col 3&5
1	2	3	4	5	6	7
Buy						
Index Future	1261261	45932.64	6424376	165508.63	509.36	360.32
Index Option	156468	5911.97	648039	16430.55	414.16	277.92
Stock Future	1945040	58523.06	4620997	141137.59	237.57	241.16
Stock Option	7769	232.08	17566	625.38	226.10	268.63
Total	**3370538**	**110599.8**	**11710978**	**323702.2**	**347.45**	**292.67**
Sell						
Index Future	1302546	47900.92	6418174	165089.98	492.74	344.64
Index Option	22223	854.58	158421	4094.54	712.87	279.13
Stock Future	2056663	62002.06	4949791	153944.02	240.53	248.29
Stock Option	8106	242.89	22757	815.3	280.74	335.67
Total	**3389538**	**111000.5**	**11549143**	**323943.8**	**340.73**	**291.83**
Open interest at the end of the day						
Index Future	11170663	408418.92	62703108	1585649.32	561.32	388.24
Index Option	3018951	116848.67	13903932	373484.37	460.50	319.63
Stock Future	31213551	943239.17	76375277	2315095.74	244.68	245.44
Stock Option	183393	5317.13	303538	10636.85	165.51	200.04
Total	**45586558**	**1473824**	**153285855**	**4284866**	**336.25**	**290.73**

Source: Authors Calculation www.sebi.gov.in

Exibit: 3 Notional Value of Open Interest of FIIs In Derivatives
(2004-05) (in Rs Crore)

Items	Apr04	May04	Jun04	Jul04	Aug04	Sep04	Oct04	Nov04	Dec04	Jan05	Feb05	Mar05
1	2	3	4	5	6	7	8	9	10	11	12	13
Index future	998	1327	996	1011	914	1862	1772	1735	2019	2077	2407	3567
Index Option	47	22	57	17	214	478	176	321	303	707	527	1307
Stock Future	2944	1416	1522	1403	2166	3013	3720	3735	6537	5963	5838	7072
Stock Option	0	2	13	0	8	51	5	5	10	2	9	43
Total	**3989**	**2767**	**2588**	**2431**	**3302**	**5404**	**5671**	**5796**	**8869**	**8749**	**8781**	**11989**
Change in Open Position	594	-1222	-179	-157	871	2102	267	125	3073	-120	32	3208
% change	17.51	-30.63	-6.47	-6.07	35.83	63.66	4.94	2.20	53.02	-1.35	0.37	36.53
Cumulative FIIs Investment	113809	110263	109989	110702	113223	115798	117826	126011	136151	135824	145043	152970
Change in Cumulative FIIs Investment	6720	-3546	-274	713	2521	2575	2028	8185	10140	-317	9209	7927
% change	6.27	-3.12	-0.25	0.65	2.28	2.27	1.75	6.95	8.05	-0.23	6.78	5.47

Source:SEBI Annual Report 2004-05

The FIIs were permitted to trade in derivatives market since Feb 2002. The cummulative FII investment was Rs152972Crore as on march 31,2005 and Rs194437Crore on March 31, 2006. Open interest position of FIIs in single stock future was 59% by the end of March 2005 followed by index future (29.7%) . The share in index option was 10.9% whereas the lowest investment was in stock options (.04%).

Exibit: 3. Open interest position of FIIs in single stock future was the highest at 59.9% on March 31, 2006, followed by index future (34.7) . The share in index option was 5.0% while the lowest investment was in stock options (0.4%). Product wise index futures remains more popular than options in Indian derivative market during last two years.

Exhibit: 4 Notional Value of Open Interest of FIIs In Derivatives (2005-06) (in Rs Crore)

Items	Apr. 05	May 05	Jun. 05	Jul. 05	Aug. 05	Sep. 05	Oct. 05	Nov. 05	Dec. 05	Jan. 06	Feb 06	Mar. 06
1	2	3	4	5	6	7	8	9	10	11	12	13
Index Futures	4.871	5,507	6,198	5,853	5,782	5,323	5,989	5,864	5,622	6,669	7,908	9,657
Index Options	66	374	1,147	903	1,433	1,220	1,392	885	856	1,279	2,581	1,392
Stock Futures	4,874	4,889	6,634	8,302	9,594	9,356	7,088	8,436	8,948	9,969	13,442	16,662
Stock Options	1.3	10.1	25.8	48.4	13.5	1.9	3.4	26.1	22.1	19.6	31.0	107.7
Total	9,812	10,780	14,005	15,106	16,822	15,901	14,472	15,211	15,448	17,93	23,963	27,818
Change in Open Position	-2.178	968	3,225	1,101	1,717	-921	-1,429	739	236	2,489	6,027	3,855
% Change	-18.2	9.9	29.9	7.9	11.4	-5.5	-9.0	5.1	1.6	16.1	33.6	16.1
Cumulative Fill Investment	1,51,494	1,50,109	1,55,367	1,63,127	1,67,748	1,72,207	1,67,579	1,69,453	1,77,814	1,80,570	1,88,006	1,94,437
Change in Cumulative Fill Investment	-1,476	-1,385	5,258	7,760	4,621	4,458	-4,627	1,874	8,361	2,756	7,436	6,430
% Change	-1.0	-0.9	3.5	5.0	2.8	2.7	-2.7	1.1	4.9	1.5	4.1	3.4

Source: SEBI Annual Report 2005-06

Exhibit: 5 Turnovers in the Derivative Segments at NSE & BSE

Month/year	Index future	Stock future	Interest Rate Future	Index option	Stock option	Total	(Rs Crore) Open Interest at the end of the period
1	2	3	4	5	6	7	8
BSE							
June'00 to March'01	1673	-	-	-	-	1673	-
2001-02	1276	452	-	83.8	114	1922	-
2002-03	1811	644	-	1.4	21	2478	7
2003-04	6572	5771	-	0.0	332	12074	1
2004-05	13600	213	-	2297.2	3	16112	0
2005-06	5	0.48	-	3.20	.09	8.77	0
NSE							
June'00 to March'01	2365	-	-	-	-	2365	-
2001-02	21482	51516	-	3765	25163	101925	2150
2002-03	43951	286532	-	9248	100134	439865	2194
2003-04	554462	1205949	20	52823	217212	2130649	7188
2004-05	772174	1484067	0	121954	168958	2547053	210652
2005-06	1513791	2791721	0	338469	180270	4824251	38469

Source: NSE & BSE

Derivative trading started in India with the launch of index futures in June 2000 followed by index option in 2001. In June 2003, interest rate futures were launched on the Indian securities markets. The derivatives market has grown substantially since then in terms of both number of contracts and total turnover. However the growth has been concentrated on the index and stock futures. The volume in the future market has grown so significantly that the turnover in the derivatives market has far outpaced the turnover in the cash segment since early 2004.

Presently, NSE dominates the derivatives market in India with its share of over 99 % in the turnover as well as the number of contracts. The trading volume in the derivatives segment in BSE has been declining over the years and has recorded almost nil volumes since May 2005. The total turnover of derivatives in NSE rose by 89.4 % to Rs.4824251 Cr in 2005-2006 from Rs.2547053 in 2004-05.

In fact, the NSE turnover was a miniscule Rs.2365 Cr in 2000-01 when the derivative products were introduced. There has been an exponential rise in the turnover of NSE derivatives segment since 2001-2002. The total number of contracts has also risen by more than 105 % in 2005-06 over the previous year.

In 2005-06, the turnover in the derivatives segment of NSE is about 307% of the cash market turnover, from being 0.2% of the cash market turnover in 2000-01, the derivatives market turnover has risen significantly from Rs413Cr in 2001-02 to Rs19375Cr in 2005-06. There has been an increase of 93% in the average daily turnover in 2005-06 compared to Rs10067Cr in 2004-05. (Exhibit 5)

The product wise share in the turnover of the derivative segment shows that futures are more popular than the options in India. Further investor's interest in individual stock based products is higher than the product based on indices. The options segment call options have more share than the put options. At present, stock futures dominate the derivatives market in India with 58% of the total turnover in 2005-06; followed by Index futures (31%), index option (7%), and stock options (4%).

In fact, NSE is the leader in the global derivatives market in the single stock futures. Of the options, stock options, which constituted 25% of the total turnover in 2000-01 declined to 4% in 2005-06. Index options have progressively increased their share over the years. The share of the index options in total turnover has risen from 3.7% in the initial years to 7.1% in 2005-06. The proportion of index futures has also increased considerably from 21% in 2000-01 to 31%.

The perception of the investors on the market movements and direction of the market can be gauged by the put-call ratio. A put-call ratio of more than 100 shows the investors perception of a bearish market and a put -call ratio of less than 100 shows the perception of investors of a bullish trend in the market. The put-call ratio of index options rose from 54% in 2000-02 to 102% in 2005-06. However, in the case of stock options, put-call ratio was lower. The put-call ratio of stock options, declined from 35% in 2000-01 to 26% in 2005-06.

Open interest represents the notional value of outstanding contracts that are held by the market participants. It is also a measure of how much interest is there in a particular option of future. It can be argued that increasing open interest means that fresh or additional funds may flow into the market, while declining open interest means there may be liquidation. The open interest at the end of each financial year has risen significantly in terms of number of contracts and notional turnover. At the end of March 2006, the open interest for current financial year was Rs38469Cr, indicating a rise of 82.7% over Rs21052Cr as at the end of 2004-05. In fact the value of open interest has risen substantially since 2004-05 reflecting increased interesting the derivative products with fresh funds flowing into the derivative market.

A few studies have been undertaken to ascertain the impact of derivative trading on the equity market in India. These studies have mainly concentrated on the NSE as derivative market shrank over time in BSE. According to a RBI study (Bandibadekar & Ghosh, 2003), volatility in both BSE sensex & S&P CNX Nifty has declined during the period after introduction of index future. Other studies concluded that the introduction of derivatives product did not have any significant impact on market volatility in India. Although, conclusive evidence is yet to emerge, India has made a mark on the derivatives market within a very short period.

Exhibit: 6 Turnovers in the Cash & F&O Segments in NSE

Year	Cash Segment (Rs Crore)	Derivative Segment (Rs Crore)	Derivative turnover as % of Cash Turnover
1	**2**	**3**	**4**
2000-01	1339510	2365	0.2
2001-02	513167	101925	19.9
2002-03	617989	439865	71.2
2003-04	1099534	2130649	193.8
2004-05	1140072	2547053	223.4
2005-06	1569558	4824251	307.4

Source: SEBI Bulletin various issues

The turnover as well as the number of contracts in the derivative segment increased substantially in March 2006 over the previous month. However, the open interest continued to rise significantly in respect of the number of contracts and the notional turnover.

The aggregate turnover rose by 49% to Rs. 7, 34,849cr in March 2006 from Rs4, 92,672cr in Feb 2006. Of the total turnover, the share of single stock futures was Rs473251cr constituting about 58.6%. The turnover of single stock futures more than doubled to Rs4, 73,251cr in March compared to Rs2, 88,715cr in Feb. 2006. The lowest rate was noticed in case of index futures, which rose by 23% in March 2006. The turnover in calls on stock on stock options rose by 50% during the month to Rs18574 Cr in March2006. The put- call ratio of index options was 113% in March 2006. A put- call ratio of over 100% shows investors perception of a bearish market. The total number and value of outstanding contracts increased significantly in Feb 2006 over the previous month. The value of open interest rose by 11.8 % to Rs38469 Cr in March 2006 from Rs34400 Cr in Feb 2006. (Exhibit: 5)

Exhibit: 7 Trends in Derivatives Market in NSE

Index	**2004-05**	**2005-06**	**Feb'06**	**March'06**	**Variation % Col.5&4**	**Variation % Col.3 &4**
1	2	3	4	5	6	7
A. Turnover (Rs. Crore)						
(i) Index future	772174	1513791	156359	192035	22.8	96.0
(ii) Stock Futures	148067	2791721	288715	473251	63.9	88.1
(iii) Stock Option						
Put	36792	36518	2918	3890	33.3	-0.7
Call	132066	143752	12350	18576	50.4	8.8
(iv) Index Option						
Put	52581	169837	16805	24690	46.9	223.0
Call	69373	168372	15526	22407	44.3	143.1
Total	**2547053**	**4824251**	**492672**	**734849**	**49.2**	**89.4**
No. of Contracts B:						
(i) Index future	21635449	58537886	5186835	5952206	14.8	170.6
(ii) Stock Futures	47043066	79586852	7443178	10844400	45.7	69.2
(iii) Stock Option						
Put	1098133	1074780	75740	92657	22.3	-2.1
Call	3946979	4165996	326233	444604	36.3	5.5
(iv) Index Option						
Put	1422911	6521649	559682	772372	38.0	358.3
Call	1870647	6413467	506714	683979	35.0	242.8
Total	**77017185**	**156300630**	**14098382**	**18790218**	**33.3**	**102.9**
C. Open Interest						
No. Of Contract	92646	1028003	1023343	1028003	0.5	73.5
Notional Turnover (Rs. Crore)	21052	38469	34400	38469	11.8	82.7

Source: SEBI Bulletin Apr'06

Derivatives and futures markets are now used by the largest and most sophisticated financial institutions in the world—domestic and international banks, public and private pension funds, investment companies, mutual funds, hedge funds, energy providers, asset and liability managers, mortgage companies, swap dealers, and insurance companies. Financial entities that face foreign exchange, energy, agricultural, or environmental exposure use our markets to hedge or manage their price risk. Financial intermediaries that have exposure in equities use our markets to hedge or to benchmark their investment performance.

Financial institutions that have interest rate exposure from lending and borrowing activities, or their dealing in over-the-counter interest rate instruments, swaps and structured derivatives products, or their proprietary trading activities use our markets to hedge or arbitrage their exposure in money market swaps or to convert their interest rate exposure from a fixed rate to a floating rate or vice-versa. And it's a huge business. In 2005, for example, CME alone facilitated the trading and clearing have more than one billion contracts representing an underlying notional value of nearly $640 trillion.

Exhibit: 8 India's Position in World Derivative Trade

Product	Rank	Number of contracts traded in Feb'06 (in lakh)	Notional turnover (US$ million) in Feb'06
Single stock future	1	74.43	65283
Index future	12	51.87	35355
Stock options	10	4.01	3452
Index options	10	10.66	7311
Total turnover	9	140.98	111401

Source: World Federation of Stock Exchanges

Asia was the world's fastest growing region for derivatives trading. The National Stock Exchange of India doubled its 2005 mid-year volume, recording 101 million traded contracts since the beginning of 2006. The National Stock Exchange of India, the world's most active market for single stock futures, continued to see very rapid growth in this area. Total trading of single stock futures at NSE reached 14.6 million contracts in January and February, up 67.2% from the year ago period. South Africa's JSE took a big jump, with volume in its single stock futures rising 255.3% to 7.1 million. One Chicago stock took a huge leap forward as well, with volume up a stunning 406.3% to 1.2 million.

Exhibit: 9 Top 20 Derivatives Exchanges by Volume *(In millions of contracts)*

Exchange	Jan-june 2006	Jan-june 2005	%change
Korea Exchange	1241.05	1096.61	13.2
Eurex	824.29	639.22	29.0
Chicago Mercantile Exchange	704.59	524.20	34.4
Chicago Board Of Trade	400.70	358.00	11.9
Euro Next Liffe	386.81	403.23	-4.1
Chicago Board Option Exchange	338.40	216.55	56.3
Mexican Derivative Exchange	299.52	209.11	43.2
Bovespa	149.40	70.55	111.8
Bolsa De Mercadories Futuros	133.20	141.33	-5.8
New York Mercantile Exchange	132.45	91.15	45.3
Philadelphia Stock Exchange	130.50	96.56	35.1
NSE India	127.88	67.34	89.9
American Stock Exchnage	101.01	50.02	101.9
Pacific Exchange	98.75	103.50	-4.6
Omx Exchange	92.65	66.34	39.7
Dalian Commodity Exchange	68.21	50.59	34.8
Taiwan Future Exchange	63.57	39.49	60.1
Boston Option Exchange	50.17	33.03	51.9
London Metal Exchange	46.93	36.25	29.5

Source: FIA

Exhibit: 8: The National Stock Exchange of India grew the most rapidly after Mexican Derivative Exchange. Volume at NSE during the first six months of 2006 was more than double the year-ago figures, mainly as a result of heavy trading in equity derivatives. Following NSE among the fastest growing exchanges were the Philadelphia Stock Exchange and Taiwan Futures Exchange. Euronext.liffe, one of the few with a declining rate of growth, slipped below the Chicago Board of Trade in the rankings, though the decline was a function of changes in contract size in its options products

Exhibit: 10 **Top 10 Contracts in India and the U.S.** *(Number of Contacts Jan-July, 2006)*

Financial Futures

	India			US		
Rank	**Contract**	**Exchange**	**Volume**	**Contract**	**Exchange**	**Volume**
1.	Stock futures	NSE	50766737	Euro Dollar	CME	244634316
2.	Nifty	NSE	38696395	E-Muni S&P 500 Inx	CME	129451013
3.	BANKNIFTY	NSE	129241	10-Year Treas, Note	CBOT	124918400
4.	CNXIT	NSE	25346	5 Years Treas. Note	CBOT	63605673
5.	SENSEX	NSE	459	30 Year Treas Bond	CBOT	49425212
6.	Stock futures	NSE	12	E-Mini Nasdaq 100	CME	41011615
7.				Euro FX	CME	20177480
8.				E-Mini Russell 2000	CME	196552232
9.				Two year Treas. Note	CBOT	18101016
10.				Mini DJ Ind. index	CBOT	13951804

Commodity futures

	India			US		
Rank	**Contract**	**Exchange**	**Volume**	**Contract**	**Exchange**	**Volume**
1	Guar Seeds	NCDEX	78205	Crude Oil	NYMEX	33291628
2	Chana/ Garam	NCDEX	62986	Corn	CBOT	21108665
3	Silver	MCX	4662	Natural Gas	NYMEX	11230651
4	Gold	MCX	46526	Soyabeans	CBOT	10936239
5	Urad	NCDEX	33034	Gold	COMEX	9756660
6	Wheat	NCDEX	20806	Henry Hub Swap	NYMEX	9314169
7	Crude Oil	MCX	15287	Sugar#11	NYBOT	8211887
8	Copper	MCX	14924	Wheat	CBOT	7798739
9	Menthe Oil	MCX	11839	No.2 Hgt. Oil , Ny	NYMEX	6684341
10	Silver	NCDEX	11367	Unleaded Reg. Gas	NYMEX	6302473

Sources: *Forward Markets Commission, NSE, NCDEX, and FIA. Indian commodity data was converted from value in rupees to number of contracts, by dividing value of trading during the period by the value of one contract.*

Exhibit: 11 Size of Top 10 Contracts in U.S. and India

	US			INDIA		
Rank	Financial Contract	Exchange	Value of one contract on 16 aug'06 (USD)	Financial Contract contract on	Exchange	Value of one contract 16 aug'06 (USD)
1.	Euro Dollar	CME	$1000000	Stock futures	NSE	$6005
2.	E-Muni S&P 500 Inx	CME	$64950	Nifty	NSE	$7238
3.	10-Year Treas, Note	CBOT	$100000	BANKNIFTY	NSE	$9560
4.	5 Years Treas. Note	CBOT	$100000	CNXIT	NSE	$4700
5.	30 Year Treas Bond	CBOT	$100000	SENSEX	NSE	n/a
6.	E-Mini Nasdaq 100	CME	$31525	Stock futures	NSE	n/a
7.	Euro FX	CME	$160838			
8.	E-Mini Russell 2000	CME	$71010			
9.	Two year Treas. Note	CBOT	$200000			
10.	Mini DJ Ind. index	CBOT	$56760			
	Average size		$188508			$6876

	US			INDIA		
Rank	Commodity Contract	Exchange	Value of one contract on 16 aug'06 (USD)	Commodity Contract	Exchange	Value of one contract on 16 aug'06 (USD)
1	Crude Oil	NYMEX	$71890	Guar Seeds	NCDEX	$
2	Corn	CBOT	$11075	Chana/ Garam	NCDEX	$
3	Natural Gas	NYMEX	$67660	Silver	MCX	$
4	Soyabeans	CBOT	$27613	Gold	MCX	$
5	Gold	COMEX	$63900	Urad	NCDEX	$
6	Henry Hub Swap	NYMEX	$16915	Wheat	NCDEX	$
7	Sugar#11	NYBOT	$14336	Crude Oil	MCX	$
8	Wheat	CBOT	$18575	Copper	MCX	$
9	No.2 Hgt. Oil , Ny	NYMEX	$84710	Menthe Oil	MCX	$
10	Unleaded Reg. Gas	NYMEX	$83080	Silver	NCDEX	$
	Average size		$45975			$

Source: FIA

The world's derivatives exchanges experienced an above average burst in trading activity in the first two months of 2006. Global futures and options volume reached 1.9 billion contracts, up 34.3% over the same period last year. Just as remarkable was the breadth of the trend. Trading volume grew by double-digit rates in every category tracked by the FIA, and only two exchanges out of the top 20 reported a decline in volume. The first two months of 2006 showed that investors have returned in force to this market. Volume in Kospi options surged 57% to 502.4 million contracts. This contract alone makes up more than 40% of the international volume and more than a quarter of the global volume total.

Korea cannot be given all the credit for the swell in international volume, however. Excluding the Kospi, international figures were up 22% over the same two-month period last year. The growth rate was especially strong in markets outside of Europe, such as India, Taiwan, South Africa, and China. Volume at the National Stock Exchange of India jumped 106.9%

to 28.8 million contracts in the first two months of the year. Taiwan's Taifex nearly doubled its two-month total with 17.4 million contracts and JSE Securities Exchange in South Africa grew 113.3% to 11.5 million. China's Dalian Commodity Exchange had the most impressive growth rate, with volume soaring 193.2% to 22.2 million contracts.

Among the established markets, the U.S. derivatives exchanges again led the way. A total of 688.5 million futures and options contracts changed hands in the first two months of the year, an increase of 33.9% over the same two-month period in the previous year.

Figures in this research paper are based on data received from 58 exchanges worldwide. The data include derivatives contracts traded over the counter that were converted into futures through clearing facilities such as the New York Mercantile Exchange's Clear port and Euronext.liffe's Bclear. The figures also include volume in the Trakrs contracts listed at the Chicago Mercantile Exchange. New developments include the addition of the Turkish Derivatives Exchange to the list of participating exchanges and the merger of the Budapest Commodity Exchange with the Budapest Stock Exchange in November 2005.

CONCLUSION

The equity derivatives business is booming. Volume is at an all-time high. Users are flocking to the market. New trading strategies are taking off, and highly structured products are more popular than ever. As one might expect, most equity derivatives shops are having a great year. Several factors are responsible for increasing confidence of FIIs on the Indian Stock Market, which include, inter alia, strong macro-economic fundamentals of the economy, transparent regulatory system, abolition of long term gains tax and encouraging corporate results.

In a relatively short period of time, barely more than a decade, Indian derivatives have burst onto the international scene. They offer an interesting array of trading opportunities. Unfortunately, it is still awkward for international entities to gain access to Indian financial derivates and impossible for them to gain access to physical commodity products. Recently, the FMC has indicated its willingness to allow international futures brokers to broker only domestically originated transactions in India. While we on the outside may be impatient to be invited to participate, the Indian authorities have many considerations to balance. During the past spring and summer, commodity prices in India rose very dramatically, and many people including Congress Party leader, Sonia Gandhi, pointed fingers at the futures exchanges. It appears as though reason has ruled, the messengers have not been shot and commodity futures will continue to operate unfettered, though the regulator, the FMC, will end up being strengthened, which is a good thing, but this incident reminds us that politics in India is never far away from the action.

Portfolio adjustment made by the foreign institutional investors result in destabilizing tendencies in the country's system. The best policy option is to reduce the inflow of FII investment and focus on the creation of real wealth.

The world's derivatives exchanges experienced an above average burst in trading activity in the first two months of 2006. Global futures and options volume reached 1.9 billion contracts, up 34.3% over the same period last year. Just as remarkable was the breadth of the trend. Trading volume grew by double-digit rates in every category tracked by the FIA, and only two exchanges out of the top 20 reported a decline in volume.

Out of the top 20 exchanges ranked by volume, 16 reported double-digit rates of growth, an impressively broad number. The National Stock Exchange of India grew the most rapidly. Volume at NSE during the first four months of 2006 was more than double the year-ago figures, mainly as a result of heavy trading in equity derivatives. Following NSE among the fastest growing exchanges were the Philadelphia Stock Exchange and Taiwan Futures Exchange. Euronext.liffe, one of the few with a declining rate of growth, slipped below the Chicago Board of Trade in the rankings, though the decline was a function of changes in contract size in its options products.

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