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EXCHANGE TRADED FINANCIAL DERIVATIVES MARKET IN INDIA EVOLUTION, PERFORMANCE AND PROSPECTS

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Abstract: Increased financial risk may cause losses to an otherwise profitable business. This emphasises the importance of risk management to hedge against uncertainty. Financial derivatives provide an effective solution to the problem of risk caused by uncertainty and volatility in the value of the underlying asset. Derivatives are risk management tools that help an organisation to effectively transfer risk. Derivatives are instruments which have no independent value. Their value depends upon the underlying asset.

The Bombay Stock Exchange (BSE) created history on June 9, 2000 by launching the first Exchange-traded Index Derivative Contract in India i.e., futures on the capital market benchmark index - the BSE Sensex. In sequence of product innovation, BSE commenced trading in Index Options on Sensex on June 1, 2001, Stock Options were introduced on 31 stocks on July 9, 2001 and Single Stock futures were launched on November 9, 2002. NSE also responded by introducing the derivatives products from time to time.

The GFC brought the focus back to the derivatives and their trading.Globally, the interest rate derivatives constitute the largest segment of the financial derivatives market. In India, the interest rate derivatives constitute only 1 percent of the financial derivatives market. Equity derivatives constituted nearly 90 percent of the derivatives market.

In India, there are two major markets, namely- NSE and BSE along with other exchanges of India for financial derivatives.Before derivatives trading began, NSE and BSE were all electronic equity spot markets. By international standards, they were small markets. They had roughly equal market share. NSE fared much better than BSE at derivatives trading. After all these changes had fallen into place, NSE and BSE were both amongst top 10 exchanges of the world, measured by the number of transactions.

Majority of transactions in financial derivatives market took place at National Stock Exchange. Currency and interest rate derivatives segment at NSE was much stronger as compared to that of BSE.

In currency derivatives segment of exchange traded market in India volume mostly came from those looking to profit from trading in derivatives rather than those looking to hedge risks. On BSE, proprietary trading accounted for 92% of the total turnover in 2015. Banks, major player in the OTC market accounted for 12-13% of the turnover on NSE and MSEI, while on BSE, their share is less than 3% in 2015.

Foreign entities active in the cash market and to a limited extent in the equity derivatives segment do not play a major role in the currency market. FPIs were allowed to participate in exchange traded currency segment in June 2014.

Though, the financial derivatives market in India has shown growth, the sectoral composition of the market is quite different from the global financial market. There are certain issuesto be tackled to solve the problems in financial derivatives market, particularly in interest rate derivatives.

Keywords: Futures, Options, Financial Derivatives, Risk Management, Exchange rate
JEL Classification Codes: G1, G2.

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Introduction

Increased financial risk may cause losses to an otherwise profitable business. This emphasises the importance of risk management to hedge against uncertainty. Derivatives provide an effective solution to the problem of risk caused by uncertainty and volatility in the value of the underlying asset. Derivatives are risk management tools that help an organisation to effectively transfer risk. Derivatives are instruments which have no independent value. Their value depends upon the underlying asset. The underlying asset may be financial or non-financial.

Section 2(ac) of Securities Contract Regulation Act, 1956 defines derivatives as:

(a) "a security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security",

(b) "a contract which derives its value from the prices, or index of prices, of underlying securities".

a. Objectives: The objectives of the study are:

i. To have look on the evolution of various financial derivative products,

i. To have an overview of financial derivatives market in India,

ii. To find out the trading mechanism of the exchanges,

iii. To examine the various issues in the Indian derivatives market and the future prospects of this market.

b. Hypothesis: The following hypothesis has been made:

"Financial derivatives market in India is under developed and its sectoral composition is different from Global Financial derivatives market."

c. Organisation: The study is organised into seven sections.

Section I is concerned with the introduction and objectives of the Paper. Section II is devoted to a discussion of evolution of financial derivatives market in India. Section III reviews the literature and deals with the concepts, definition, types and classification of financial derivatives. Section IV discusses the status of Indian derivatives market. Section Vcontains regulation and policy developments in derivatives market in India. Section VI compares the global derivatives markets with Indian derivatives market. Section VII contains conclusions and suggestions.

In India, there are two major markets, namely- NSE and BSE along with other exchanges of India for derivatives. Here we shall discuss the performance of financial derivative products in NSE and BSE in India.

Evolution of Financial Derivatives Market in India

The global financial crisis (GFC) has spurned a large volume of literature laying much of the blame for the crisis onindiscriminate use of derivatives, pointing out the danger inherent in derivatives and underscoring the need for further regulating the market. Derivatives play an important role in addressing the risk inherent in the financial transactions.

a. Global financial derivatives market

The history of derivatives on financial securities is rather short. Following the breakdown of the Bretton Woods, which led to floating exchange rates, the CME introduced the first currency futures in 1972. In 1975, CBOT created the first interest rate futures contract to which CME responded with Treasury bill futures contracts in 1975. In 1977, CBOT created the first Treasury bond futures contract. In 1982, Kansas City Board of Trade launched first stock index futures followed by the CBOT's futures contract on S&P 500 index in the same year. In 1983, Chicago Board of Exchange (CBE) introduced an options on an index of stocks.

The GFC brought the focus back to the derivatives and their trading. What happened is basically as follows. Innovative design of derivative instruments facilitated flow of large quantum of funds to the housing sector through sub-prime loans, stimulatinga house

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sector boom and when the housing prices started correcting, derivatives instruments too started losing the value. Both forces interacted with each other, and the snow balling effect brought the market down. Problem perhaps lied not so much on the instruments themselves, but on the adequacy of the market structure to deal with the opacity and complexity of these products and on the lack of appropriate risk management protocol amongst the financial institutions that traded and took positions in these product.

b. Bombay Stock Exchange

The BSE created history on June 9, 2000 by launching the first Exchange-traded Index Derivative Contract in India i.e. futures on the capital market benchmark index - the BSE Sensex. In sequence of product innovation, BSE commenced trading in Index Options on Sensex on June 1, 2001, Stock Options were introduced on 31 stocks on July 9, 2001 and Single Stock futures were launched on November 9, 2002.

BSE also introduced 'long dated options' on its flagship index, Sensex, on February 29, 2008, whereby the members can trade in Sensex Options contracts with an expiry up to 5 years.

Going ahead, on October 1, 2008 BSE launched its currency derivatives segment in dollar-rupee currency futures as the exchange traded currency futures contracts facilitate easy access, increased transparency, efficient price discovery, better counterparty credit risk management, wider participation and reduced transaction costs.

Table 1 gives the chronology of financial derivatives at the BSE:

Table 1: Introduction of Derivatives at BSE

S. No.	Date of Introduction	Type	Product
1	9th June, 2000	Equity	Index Futures, BSE-SENSEX
2	1st June, 2001	Equity	Index Options, BSE-SENSEX
3	9th July, 2001	Equity	Stock Options, 109 stocks
4	9th Nov., 2002	Equity	Stock Futures, 109 stocks
5	13th Sept., 2004	Equity	Weekly Options, 4 stocks
6	1st Jan., 2008	Equity	Chhota (Mini) SENSEX
7		Equity	Futures/Options on Sectoral Indices (FMGC, Metal, Bankex, Oil & Gas
8	1st Oct., 2008	Currency	Futures- US$
9	30th March, 2012		BRICSMART Indices

www.bseindia.com

c. National Stock Exchange

The National Stock Exchange of India Limited (NSE) commenced trading in derivatives with the launch of index futures on June 12, 2000. The futures contracts are based on the popular benchmark Nifty 50 Index.

The Exchange introduced trading in Index Options (also based on Nifty 50) on June 4, 2001. NSE also became the first exchange to launch trading in options on individual securities from July 2, 2001. Futures on individual securities were introduced on November 9, 2001.

NSE, in June 2003, introduced interest rate futures which were subsequently banned due to pricing issue.

The Exchange has also introduced trading in Futures and Options contracts based on Nifty IT, Nifty Bank, and Nifty Midcap 50, Nifty Infrastructure, Nifty PSE indices. The financial derivatives products traded at NSE are given below in Table 2:

Table 2: Introduction of Derivatives at NSE

S. No.	Date of Introduction	Type	Product
1	12th June, 2000	Equity	Index Futures, S&P CNX Nifty
2	4th June, 2001	Equity	Index Options, S&P CNX Nifty
3	2nd July, 2001	Equity	Options- 233 stocks
4	9th Nov., 2001	Equity	Futures- 233 stocks
5	23rd June, 2003	Interest Rate	Futures- T. Bills, 10 Years Bond
6	29th August, 2003	Equity	Futures & Options- CNX IT
7	13th June, 2005	Equity	Futures & Options- Bank Nifty

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8	1st June, 2007	Equity	Futures & Options- CNX, Nifty Junior
9	1st June, 2007	Equity	Futures & Options- CNX-100
10	5th Oct., 2007	Equity	Futures & Options- Nifty Med cap-50
11	1st Jan, 2008	Equity	Futures & Options- Mini Index- S&P, CNX Nifty
12	3rd March, 2008	Equity	Long-term Options- S&P, CNX, Nifty
13	29th August, 2008	Currency	Futures- USD-INR
14	10th Dec., 2008	Equity	Futures & Options- S&P CNX Defty
15	Aug., 2009	Interest Rate	Futures
16	Feb., 2009	Currency	Futures- Additional Pair
17	July 2010	Equity	Futures on CME, S&P CNX Nifty
18	Oct., 2010	Equity	Introduction of European style stock options
19	Oct., 2010	Currency	Options, USD-INR
20	July, 2011		Futures- 91 day GOI T. Bill
21	Aug., 2011	Equity	Derivatives on global indices
22	Sept., 2011	Equity	Derivatives of CNX PSE, CNX. Infrastructure indices

Source: www.nseindia.com

A **currency future**, also known as **FX future**, is a futures contract to exchange one currency for another at a specified date in the future at a price (exchange rate) that is fixed on the purchase date. On NSE the price of a future contract is in terms of INR per unit of other currency e.g. US Dollars. Currency future contracts allow investors to hedge against foreign exchange risk. Currency Derivatives are available on four currency pairs viz. US Dollars (USD), Euro (EUR), Great Britain Pound (GBP) and Japanese Yen (JPY). Currency options are currently available on US Dollars.

MSEI, which was earlier known as MCX Stock Exchange Ltd (MCX-SX) started offering currency derivatives trading in October 2008.

Table 3: Exchange Traded Derivatives Market in India

Derivative	Exchange	
	BSE	NSE
Equity	Futures (Index, Stock) Options(Index, Stock)	Futures (Index, Stock, Volume) Options(Index, Stock)
Currency	Futures ($, £, €, ¥) Options ($)	Futures ($, £, €, ¥) Options ($)
Interest rate	IRF	IRF

The stock market saw quantum change following the scam of 1991. Securities and Exchange Board of India (SEBI) was formed in 1992 and NSE in 1992 (it started operations in1994). Derivatives being leveraged structures have the potential to amplify the loss or gain in an asset. For the same reason, it can also contribute to the volatility.

The currency derivatives market has so far been mostly dominated by the OTC segment and derivatives have been meant as instrument of hedging. That is, an entity can enter into a derivative contract only if it has a foreign currency exposure. One party to the contract has necessarily to be an Authorised Dealer who is supposed to be a market maker. In 2008, currency futures started trading on the exchanges with a view to expanding the derivative products, improving transparency, and price discovery and affording an easy access to the foreign exchange derivatives market. A futures market does not usually work on the basis of an underlying exposure. There is free entry and exit and cash settled. This is a perfect setting for anyone to express a view on the currency and it is quite contrary to the regime for the OTC market. Foreign portfolio investors have been granted permission to participate in currency futures market in an attempt to offer them a viable alternative to the overseas NDF market.

There are only few corporate holding significant open interest in the currency futures. Although the effectiveness of currency

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futures as a hedging instrument remains low for several reasons, the product enjoys complementarity with the OTC products in developed markets as counter parties to OTC transactions aggregate their exposures and cover then through exchange traded products (hub and spokes approach) which are quoted at narrow bid-offer spread.

Globally, the interest rate derivatives constitute the largest segment of the derivatives market. The products were first introduced in 2003 on exchanges were cash settled and based on zero coupon yield curve. After some initial interest, the market liquidity completely dried up. In 2008, interest rate futures (IRFs) were revived and after wide consultation, physically settled futures contracts were introduced on 10 year Government bonds. This product did not survive beyond its infancy. After a lull, a cash settled single bond futures contract was introduced in January 2014 and has been trading with reasonable liquidity.

The reasons for lukewarm response in interest rate product partially lies in the structure of our debt markets. The government bond holding is concentrated amongst banks, insurance companies, provident/ pension funds and Reserve Bank of India. The same goes for the corporate bonds as well.

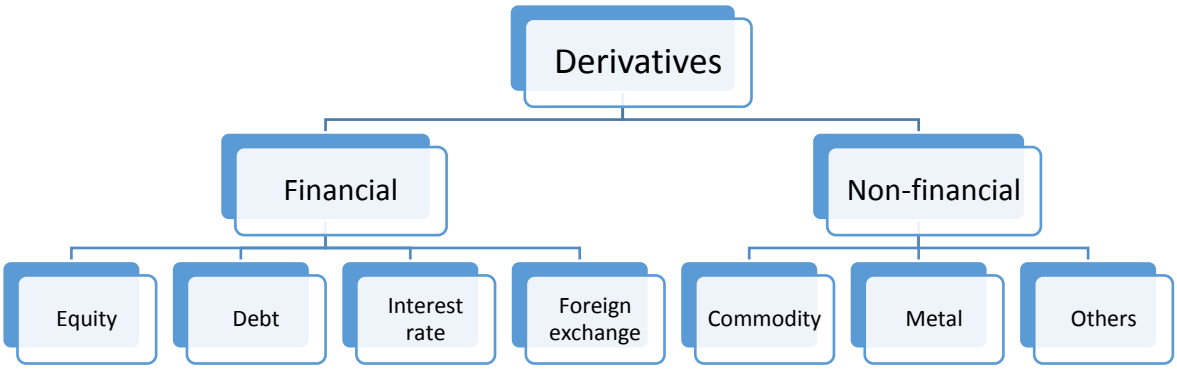
Among the steps taken to bring liquidity into the market is introduction of credit derivatives which helps bond holders to insure themselves against the risk of default. Having introduced aftermath of the GFC, the product has been launched perhaps with a high dose of safety measures as some analysts suggested this could perhaps account for its limited liquidity.

Review of Literature

A Derivative is a financial product which has been derived from another financial product or commodity. The value of a derivative is entirely derived from the value of the underlying asset. The underlying asset may be:

(i) Commodities including grain, coffee beans, orange;
(ii) Precious metals, like gold, silver;
(iii) Foreign exchange rates or currencies;
(iv) Bonds of different types, securities issued by governments, companies etc.;
(v) Shares and share warrants of companies traded on recognised stock exchanges and stock index;
(vi) short term securities such as T bills;
(vii) Over the counter (OTC) money market products such as loans or deposits.

Chart 1: Types of Derivatives



Financial derivatives

Common derivatives are: (i) Forwards (ii) Futures (iii) Options and (iv) Swaps.

A forward contract is a customized contract between the buyer and the seller where settlement takes place on a specific date in future at a price today. Holder of a long (short)

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forward contract has an agreement to buy (sell) an asset at a certain time in the future for a certain price. The buyer (or seller) in a forward contract:

(i) Acquires a legal obligation to buy (or sell) an asset (known as underlying asset),
(ii) At some specific future date (the expiration date)
(iii) At a price (the forward price) which is fixed today

Futures contract is an agreement between two parties to buy or sell a specified quantity of an asset at a specified price and at a specified time and place. Futures contracts are normally traded on exchange which sets the certain standardized norms for trading in futures contracts. The features of a futures contract are given below:

(i) Futures are traded only in organised exchanges,
(ii) Futures contract is required to have standard contract terms,
(iii) Futures exchange is associated with a clearing house,
(iv) Futures contract required margin payment and daily settlement,
(v) Futures positions can be easily closed,
(vi) Futures market are regulated by regulatory authorities like SEBI,
(vii) Futures contracts are executed on expiry date,
(viii) Futures prices are expressed in currency units, with a minimum price movement called a tick size.

Options are derivatives contract that gives the right, but not the obligation to either buy or sell a specific underlying security for a specified price on or before a specific date. The person who buys the option is normally called buyer or the holder. Conversely, the seller is known as the seller or writer. The main characteristics of options are following:

(i) Options holder do not receive any dividend or interest,
(ii) Options yield only capital gains,
(iii) Option holders can enjoy a tax advantage,
(iv) Options are traded on OTC and in all recognized stock exchanges,
(v) Options holder cannot control their right their right on the underlying assets.

Call option holder has the right to receive the asset after making the payment. Put option holder has the right to receive the payment by surrendering the asset.

A swap is an agreement between two or more people or parties to exchange sets of cash flows over a period of time in future. Swaps are agreements between two parties to exchange assets at predetermined intervals. Swaps are generally customized transactions. The swaps include both spot and forward transactions in a single transaction. The parties that agree to the swap are known counter parties. The two commonly used swaps are interest rate swaps and currency swaps.

Interest rate swaps entail swapping only the interest related cash flows between the parties in the same currency.

Currency swaps entail swapping both principal and interest between the parties, with cash flows in one direction being in a different currency than the cash flows in the opposite direction.

Major players in the financial derivatives market

Major players in the financial derivatives market are: (i) hedger (ii) speculators and (iii) arbitrageurs. The hedgers are the final consumers, as it were. The arbitrageurs help establish the law of one price across the market segments so that similar products with similar risk profiles cost the same in various markets at any given point of time. The speculators, a word with negative connotations, essentially do inter-temporal arbitraging and serve a very useful economic function of price discovery, particularly in financial markets.

In as much as the value of all financial assets is based on a view of future, the act of speculation tends to correct the value or overvalued assets. Caution, however, is invited by the fact that the future is uncertain, and leveraged speculation based on irrational exuberance is fraught with dangerous consequences as has been witnessed during many a crisis.

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Uses of derivatives

The uses of derivatives are given below:

(i) Management of risk,
(ii) Price discovery,
(iii) Liquidity and reduced transaction cost,
(iv) Efficiency in trading,
(v) Speculation and arbitrage,
(vi) Hedging,
(vii) Price stabilization function,
(viii) Leverage of value,
(ix) Develop the complete market,
(x) Encourage competition.

Before derivatives trading began, NSE and BSE were all electronic equity spot markets. By international standards, they were small markets. They had roughly equal market share. NSE fared much better than BSE at derivatives trading. After all these changes had fallen into place, NSE and BSE were both amongst top 10 exchanges of the world, measured by the number of transactions.

Options trading is intellectually more complex than futures trading, so it is expected that market participants took more time to gain comfort, and build skills and systems to cope with options trading. Individual stock futures trading took off strongly, and the share of options trading at NSE dropped all the way to below 10%. From late 2007 onwards, global financial market volatility went up dramatically, which might have increased interest in options trading as opposed to futures trading. These factors cane together in 2008 giving a dramatic escalation in the share of option trading to values near 50%. He share of options in 2008 are underestimated to the extent the currency futures trading began, which bolstered futures turnover.

The knowledge of index trading percolated gradually within the community, and the share of index derivatives went up to over 80% of the overall equity derivatives trading.

The RBI has issued guidelines in December 2015 for the introduction of cross currency futures and exchange traded cross currency option contracts in the current pairs of Euro-US$, Pond Sterling-US$, US$- Japanese Yen. Further, exchange traded option contracts in the currency pairs of Euro-INR, GBP-INR and JPY-INR have also been introduced in addition to the existing US$- INR pair. The cross currency contracts shall be enable direct holding of exposures in foreign currencies and facilitate execution of cross currency strategies by market participants.

The key features of the new contracts are:

1. Market Participants, i.e., residents and foreign portfolio investors, are allowed to take positions in the cross currency contracts without having to establish underlying exposures subject to the position limits as prescribed by the exchanges,
2. Authorised dealers category-I bank trading members may undertake trading in all permitted exchange traded currency derivatives within their Net Open Position Limit (NOPL) subject to limits stipulated by the exchanges.

In currency derivatives segment of exchange traded market in India volume mostly came from those looking to profit from trading in financial derivatives rather than those looking to hedge risks.

Attempt to build an exchange-traded currency derivatives market in India as a way to give small and medium enterprises easier access to currency hedging tools have yielded little, with most of the volumes in this segment coming from those looking to profit from trading in derivatives rather those looking to hedge their risks.

Brokerages are the biggest contributors to the volumes in the exchange traded currency derivatives segment and account for more than half of the turnover through proprietary trading. Corporate entities account for a far lower share indicating the genuine end users still prefer to go to over the counter (OTC) market due to lower margins and customized deals. On the NSE, proprietary trading accounted for 57% of the total turnover in the currency derivatives segments in 2015.

Genuine clients do not come to the exchange platform for the simple reason that they find the OTC market more convenient and liquid.

On BSE, proprietary trading accounted for 92% of the total turnover in 2015. Banks, major player in the OTC market accounted

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for 12-13% of the turnover on NSE and MSEI, while on BSE, their share is less than 3% in 2015.

Foreign entities active in the cash market and to a limited extent in the equity derivatives segment do not play a major role in the current market. FPIs were allowed to participate in exchange traded currency segment in June 2014.

Financial Derivatives Market in India

a. Trading mechanism

The trading system of derivatives at NSE, known as NEAT-F&O Trading system, provides a fully automated screen based trading for all kinds of derivatives products available on NSE on a national wide basis. It supports an anonymous order driven market, which operates on a time priority/ strict price basis. The trading system offers great flexibility to users in terms of kinds of orders that can be placed on the terminal. Various time and price related options like immediate/ cancel, limit/ market price, stop loss, etc. can be built into an order. The trading in derivatives is basically to trading in securities in the Capital Market segment.

There are four entities in the trading system of a derivatives market:

1. Trading Members: Trading members can trade either on their own account or on behalf of their clients including participants. They are registered as members with NSE and are assigned an exclusive trading member ID.
2. Clearing Members: Clearing members are members of NSECL. The Clearing Members carry out confirmation/ inquiry of trades and the risk management activities through the trading system. These clearing members are also trading members and clear trade for themselves and others.
3. Professional Clearing Members: A clearing member who is not a trading member is known as a professional clearing member (PCM). Usually, banks and custodian become PCMs and clear and settle for their trading members.
4. Participants: A participant is a client of trading members.

The terminals of trading of Futures and Options segment are available in many cities through India. Besides trading terminals, it can also be accessed through the internet by investors from anywhere.

b. Equity Derivatives Market

Tables 4, 5, 6, 7, 8 and 9 depicts the growth of equity derivatives market (BSE & NSE) from 2005–06 to 2015–16. At NSE, the turnover of equity derivatives grew by 1244% during 2005–16. Trading volume of equity derivatives at NSE was three times higher than that at BSE.

At NSE, equity futures trading constituted 19.1% of total equity derivatives trading in 2015–16, while share of equity options was 80.9%.

Table 4 Growth in NSE Equity Derivatives

Year	No. of contracts	Turnover (Rs. Cr.)	Average daily turnover (Rs. Cr.)
2005 – 06	157619271	4824174.00	19220.00
2006 – 07	216883573	7356242.00	29543.00
2007 – 08	425013200	13090477.75	52153.30
2008 – 09	657390497	11010482.20	45310.63
2009 – 10	679293922	17663664.57	72392.07
2010 – 11	1034212062	29248221.09	115150.48
2011 – 12	1205045464	31349731.74	125902.54
2012 – 13	1131467418	31533003.96	126638.57
2013 – 14	1284424321	38211408.05	152236.69
2014 – 15	1837041131	55606453.39	228833.14
2015 – 16	2098610395	64825834.30	262452.77

Source: www.nseindia.com

At NSE, the shares of index futures, volume futures and stock futures were 36.8%, 0.0% and 63.2% in equity futures trading (turnover) in 2015 – 16. In options derivatives, index

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options constituted 93.3% share, while stock options accounted for 6.7% share of equity options market.

Table 5 Growth in NSE Equity Futures Derivatives

Year	Index Futures		Vol Futures		Stock Futures	
	No. of contracts	Turnover (Rs.)	No. of contracts	Turnover (Rs.)	No. of contracts	Turnover (Rs.)
2005 – 06	58537886	1513755.00	-	-	80905493	2791697.00
2006 – 07	81487424	2539574.00	-	-	104955401	3830967.00
2007 – 08	156598579	3820667.27	-	-	203587952	7548563.23
2008 – 09	210428103	3570111.40	-	-	221577980	3479642.12
2009 – 10	178306889	3934388.67	-	-	145591240	5195246.64
2010 – 11	165023653	4356754.53	-	-	186041459	5495756.70
2011 – 12	146188740	3577998.41	-	-	158344617	4074670.73
2012 – 13	96100385	2527130.76	-	-	147711691	4223872.02
2013 – 14	105252983	3083103.23	17546	2193.24	170414186	4949281.72
2014 – 15	129303044	4107215.20	11274	2256.43	237604741	8291766.27
2015 – 16	140538674	4557113.64	94	10.23	234243967	7828606.00

Source: www.nseindia.com

Table 6 Growth of NSE Equity Options Derivatives

Year	Index Options			Stock Options		
	No. of contracts	Notional Turnover (Rs. Cr.)	Premium Turnover (Rs. Cr.)	No. of contracts	Notional Turnover (Rs. Cr.)	Premium Turnover (Rs. Cr.)
2005 – 06	12935116	338469.00	5770.52	5240776	180253.00	4895.23
2006 – 07	25157438	791906.00	791906	5283310	193795.00	5904.31
2007 – 08	55366038	1362110.88	29286.09	9460631	359136.55	13581.77
2008 – 09	212088444	3731501.84	91715.58	13295970	229226.81	8250.53
2009 – 10	341379523	8027964.20	124416.58	14016270	506065.18	15272.89
2010 – 11	650638557	18365365.76	192637.87	32508393	1030344.21	20474.97
2011 – 12	864017736	22720031.64	253068.22	36494371	977031.13	19612.93
2012 – 13	820877149	22781574.14	184383.24	66778193	2000427.29	34288.56
2013 – 14	928565175	27767341.25	244090.71	80174431	2409488.61	46428.41
2014 – 15	1378642863	39922663.48	265315.63	91479209	3282552.18	61732.59
2015 – 16	1623528486	48951930.60	351221.01	100299174	3488173.75	61118.39

Source: www.nseindia.com

At BSE, equity futures accounted for 0.3% share of equity derivatives trading in 2015 – 16 and 99.7% share was constituted by equity options trading.

In the case of BSE, index futures trading accounted for 90.7% of equity futures trading in 2015 – 16, while the share of stock futures was 9.3%. The index options trading share was 98.4% in equity options trading at BSE in 2015 – 16.

Table 7 Growth in BSE Equity Derivatives

Year	Total Contracts	Total Turnover (Rs. Cr.)	Premium Turnover	Average Daily Turnover
2005 – 06	203	8.78	-	0.03
2006 – 07	17,81,220	59,006.62	-	236.97
2007 – 08	74,53,371	2,42,308.41	-	965.37
2008 – 09	4,96,502	11,774.83	-	48.46
2009 – 10	9,028	234.06	-	0.96
2010 – 11	5,623	154.33	-	0.61
2011 – 12	3,22,22,825	8,08,475.99	-	3,246.89
2012 – 13	26,24,40,691	71,63,576.66	-	28,654.31
2013 – 14	30,19,42,441	92,19,434.32	-	92,19,434.32
2014 – 15	50,54,78,869	2,03,62,741.42	-	83,797.29
2015 – 16	10,62,09,394	44,75,008.32	5,861.82	18,117.44

Source: www.bseindia.com

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Table 8 Growth in BSE Equity Futures

Year	Index Futures		Stock Futures		Total Turnover (Rs. Cr.)
	No. of contracts	Turnover (Rs. Cr.)	No. of contracts	Turnover (Rs. Cr.)	
2005 – 06	89	5.00	12	0.49	5.49
2006 – 07	16,38,779	55,490.86	1,42,433	3,515.50	59006.36
2007 – 08	71,57,078	2,34,660.16	2,95,117	7,609.24	242269.40
2008 – 09	4,95,830	11,757.22	299	8.49	1765.71
2009 – 10	3,744	96.00	8	0.30	96.30
2010 – 11	5,613	154.08	-	-	154.08
2011 – 12	70,73,334	1,78,448.83	3,26,342	10,215.70	188664.53
2012 – 13	47,01,927	1,22,429.78	1,16,933	3,420.07	125849.85
2013 – 14	21,36,269	63,493.84	19,01,877	54,599.42	118093.26
2014 – 15	12,27,926	48,632.35	3,05,714	9,794.26	58426.61
2015 – 16	3,06,712	13,097.16	51,815	1,349.59	14446.75

Source: www.bseindia.com

Table 9 Growth in BSE Equity Options Derivatives (Rs. Cr.)

Year	Index Options		Stock Options		Total Turnover
	Call Turnover	Put Turnover	Call Turnover	Put Turnover	
2005 – 06	3.20	-	0.09	-	3.29
2006 – 07	0.06	-	0.16	0.04	0.26
2007 – 08	31.00	7.66	0.21	0.14	39.01
2008 – 09	6.11	3.01	-	-	9.12
2009 – 10	137.76	-	-	-	137.76
2010 – 11	-	0.25	-	-	0.25
2011 – 12	2,00,089.57	4,18,252.79	1,277.27	191.82	619811.45
2012 – 13	32,30,232.06	37,97,249.53	5,186.57	5,059.75	7037727.91
2013 – 14	57,05,316.57	33,49,884.04	22,185.51	23,945.18	9055200.61
2014 – 15	1,01,12,605.13	1,00,16,621.34	93,854.50	81,233.84	20304314.81
2015 – 16	25,60,540.69	18,25,708.19	31,904.16	42,408.53	4460561.57

Source: www.bseindia.com

c. Currency Derivatives Market

Tables 10, 11 and 12 reveals the growth in currency derivatives market (NSE & BSE). At NSE, currency futures and currency options constituted 61% and 39% share of the currency derivatives market respectively.

Table 10Growth in NSE currency derivatives

Year	Currency futures		Currency options			Total		Average daily turnover
	No. of contracts	Turnover (Rs. Cr.)	No. of contracts	Notional Turnover (Rs. Cr.)	Premium Turnover (Rs. Cr.)	No. of contracts	Turnover (Rs. Cr.)	
2008 – 09	3,26,72,768	1,62,272.43	-	-	-	3,26,72,768	1,62,272.43	1,167.43
2009 – 10	37,86,06,983	17,82,608.04	-	-	-	37,86,06,983	17,82,608.04	7,427.53
2010 – 11	71,21,81,928	32,79,002.13	3,74,20,147	1,70,785.59	946.70	74,96,02,075	34,49,787.72	13,854.57
2011 – 12	70,13,71,974	33,78,488.92	27,19,72,158	12,96,500.98	7,100.69	97,33,44,132	46,74,989.91	19,479.12
2012 – 13	68,41,59,263	37,65,105.33	27,50,84,185	15,09,359.32	10,109.99	95,92,43,448	52,74,464.65	21,705.62
2013 – 14	47,83,01,579	29,40,885.92	18,18,90,951	10,71,627.54	7,297.15	66,01,92,530	40,12,513.45	16,444.73
2014 – 15	35,55,88,963	22,47,992.34	12,50,75,731	7,75,915.32	3,164.45	48,06,64,694	30,23,907.67	12,705.49
2015 – 16	40,97,59,364	27,49,332.96	26,38,23,800	17,52,552.62	6,059.00	67,35,83,164	45,01,885.58	18,602.83

Source: www.nseindia.com

At BSE, currency futures accounted for 66% share of currency derivatives trading, while share of currency options was 33% in 2015 – 16. The U.S. Dollar accounted for 99% share of currency futures trading in 2015 – 16.

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Table 11 BSE Currency Derivatives Turnover (Rs. Cr.)

Year	No. of Contracts	Turnover (Rs. Cr.)	Open Interest	Average Daily Turnover
2013 – 14	3,91,57,195	2,44,312.25	41,532	11,105.10
2014 – 15	30,91,76,043	19,08,543.46	6,64,668	86,751.98
2015 – 16	42,02,26,542	27,63,926.13	12,87,841	1,20,170.70

Source:www.bseindia.com

Table 12 BSE Currency Futures

Year	USD		EUR		GBP		JPY	
	No. of Contracts	Turnover (Rs. Cr.)	No. of Contracts	Turnover (Rs. Cr.)	No. of Contracts	Turnover (Rs. Cr.)	No. of Contracts	Turnover (Rs. Cr.)
2013 – 14	3,35,32,364	2,07,685.26	1,93,074	1,652.23	1,76,606	1,817.63	1,04,967	660.79
2014 - 15	21,11,49,931	12,98,156.19	4,07,525	2,980.73	2,48,758	2,456.64	6,28,326	3,483.72
2015 – 16	27,90,44,942	18,38,277.84	10,66,237	7,785.74	3,16,879	3,136.06	2,07,653	1,159.63

Source: www.bseindia.com

Table 13 BSE USD Options

Year	No. of Contracts	Turnover (Rs. Cr.)	Premium Turnover (Rs. Cr.)	Open Interest
2013 – 14	51,50,184	32,496.33	-	5,974
2014 - 15	9,67,41,503	6,01,466.18	-	1,90,275
2015 – 16	13,95,90,831	9,13,566.86	1,635.74	3,87,638

Source:www.bseindia.com

d. Interest Rate Derivatives Market

The table 14 and 15 shows the growth of interest rate derivatives at NSE and BSE. It is evident that the market in interest rate derivatives picked up momentum 2014 onwards.

Table 14 Growth in NSE Interest Rate Futures

Year	No. of contracts	Turnover (Rs. Cr.)	Average daily turnover
2009 – 10	1,60,894	2,974.59	21.25
2010 – 11	3,348	61.90	0.25
2011 – 12	2,15,200	3,959.21	16.50
2012 – 13	12	0.22	0.00
2013 – 14	15,02,148	30,172.89	123.66
2014 – 15	2,05,87,036	4,21,558.28	1,771.25
2015 – 16	2,60,56,481	5,26,424.57	2,175.31

Source: www.nseindia.com

Table 15BSE Interest Rate Derivatives Turnover (Rs. Cr.)

Year	No. of Contracts	Turnover (Rs. Cr.)	Open Interest	Average Daily Turnover (Rs. Cr.)
2013 – 14	128549	2579.94	73814	62.93
2014 – 15	2033275	41912.65	9684124	176.10
2015 – 16	5687653	114120.56	8887324	471.57

Source: www.bseindia.com

Regulation and Policy Developments in Financial Derivatives Market in India

The L.C. Gupta Committee Report offers a perspective on direction of regulatory responsibility between the exchange and the SEBI. It indorses that SEBI's role should be restricted to approving rules, bye laws and regulations of a derivatives exchange as also approving the proposed derivative contracts before commencement of their trading. The Report emphasises the supervisory and advisory role of SEBI with a view to permitting desirable flexibility, maximising regulatory effectiveness and minimum regulatory cost. Regulatory requirements for authorisation of derivatives brokers/ dealers include relating to

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capital adequacy, net worth, certification requirement and initial registration with SEBI. The Report also suggests establishment of a separate clearing corporation, maximum exposure limits, mark to market margins, margin collection from clients and segregation of client's funds, regulation of sales practice and accounting and disclosure requirements for derivatives trading. The J.R. Varma Committee proposes a methodology for risk containment measures for index based futures and options, stock options and single stock futures. The risk containment measures include calculation of margins, position limits, exposure limits and reporting and disclosure.

Exchange traded equity and commodity derivatives markets are regulated by Securities and Exchange Board of India (SEBI). Before the merger of FMC with SEBI, the Forward Markets Commission (FMC) regulated the exchange traded commodity derivatives market in India. Reserve Bank of India (RBI) as well as SEBI jointly regulates the exchange traded foreign currency and interest rate futures. The foreign currency, interest rate and credit derivatives traded in the over the counter (OTC) market is under the jurisdiction of RBI. The trading in these OTC derivatives is permitted as long as at least one of the parties in the transaction is regulated by RBI.

Global Financial Derivatives Market

Noteworthy growth took place in Indian financial derivatives market.But,two segments i.e., currency derivatives market and interest rate derivatives market are still underdeveloped as compared to global financial derivatives markets. Precisely, interest rate derivatives marketis in its infancy.Although interest rate futures were introduced in 2003, trading was suspended in between and efforts were made again in 2014 to revive the market by introducing a cash settled single bond futures contract. Further, there is scope for the introduction of interest rate options contract.

Though RBI has issued guidelines for trading in cross currency futures involving U.S.$ and Euro, Pound Sterling, Yen, and options contracts in additional currency pairs involving Euro, Pound Sterling and Yen, implementation has yet to take place.

Table 16 shows the lukewarm performance of Indian interest rate derivatives market in sharp contrast to global interest rate derivatives market. There is need to reform Indian debt market to increase liquidity to give momentum to interest rate derivatives market.

Table 16 Financial Derivatives Markets, 2015 – 16

Derivatives	BSE*	NSE*	Global**
Equity	**4489455**	**64825832**	--
Futures	14447	12385729	**--**
Options	4475008	52440103	**--**
Currency	**2763923**	**4501886**	**122**
Futures	1850357	2749333	108
Options	913566	1752553	14
Interest Rate	**114121**	**526425**	**5729**
Futures	114121	526425	4464
Options	--	--	1265

Note: * figures are annual turnovers in Crores of Rupees, ** figures are daily averages in billions of U.S. Dollars.
Sources: www.bseindia.comwww.nseindia.com and www.bis.org

Conclusion

The following conclusions are drawn on the basis of study:

1. At NSE, the turnover of equity derivatives grew by 1244% during 2005–16. Trading volume of equity derivatives at NSE was three times higher than that at BSE. At NSE, equity futures trading constituted 19.1% of total equity derivatives trading in 2015–16, while share of equity options was 80.9%.
2. At NSE, the shares of index futures, volume futures and stock futures were 36.8%, 0.0% and 63.2% in equity futures trading (turnover) in 2015–16. In options derivatives,

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index options constituted 93.3% share, while stock options accounted for 6.7% share of equity options market.

3. At NSE, currency futures and currency options constituted 61% and 39% share of the currency derivatives market respectively. At BSE, currency futures accounted for 66% share of currency derivatives trading, while share of currency options was 33% in 2015-16. The U.S. Dollar accounted for 99% share of currency futures trading in 2015-16.
4. Internationally, the interest rate derivatives constitute the largest segment of the financial derivatives market. In India, the interest rate derivatives constitute only 1 percent of the financial derivatives market. Equity derivatives constituted nearly 90 percent of the derivatives market. The reasons for unenthusiastic response in interest rate product partially lies in the structure of our debt markets. The government bond holding is concentrated amongst banks, insurance companies, provident/ pension funds and Reserve Bank of India. The same goes for the corporate bonds as well.Among the steps taken to bring liquidity into the market is introduction of credit derivatives which helps bond holders to insure themselves against the risk of default.

5. In currency derivatives segment of exchange traded market in India volume mostly came from those looking to hedge risks. Brokerages are the biggest contributors to the volumes in the exchange traded currency derivatives segment and account for more than half of the turnover through proprietary trading. Corporate entities account for a far lower share indicating the genuine end users still prefer to go to over the counter (OTC) market due to lower margins and customized deals.

6. We can say that financial derivatives market in India ispromisingthe growth and developing. Industry analysts opine that the derivatives market has not yet, realized its full potential in terms of growth and trading. Analysts argue that the equity derivative market on the NSE and BSE has been limited to only four product Index-futures, index options and individual stock future and options, which in turn are limited to certain select stock only.

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