

1. INTRODUCTION

1.1 Introduction of the project

The most significant milestone in financial innovation is achieved with the issuance and trading of derivatives. Along with this positive element, the proponents of derivatives also admit that this term arouses more controversies and most people look at them with suspicion and few would believe that they do contribute to the society's welfare. But the matter of fact is that derivatives are a standard risk management tool that enables risk- sharing and facilitates the efficient allocation of capital to productive investment activities. In this study, we will try and examine the veracity of a few misconceptions that surround derivatives along with their economic benefits.

1.1.1 Definition of Derivatives

One of the most significant events in the securities markets has been the development and expansion of financial derivatives. The term "derivatives" is used to refer to financial instruments which derive their value from some underlying assets. The underlying assets could be equities (shares), debt (bonds, T-bills, and notes), currencies, and even indices of these various assets, such as the Nifty 50 Index.

Derivatives derive their names from their respective underlying asset. Thus if a derivative's underlying asset is equity, it is called equity derivative and so on. Derivatives can be traded either on a regulated exchange, such as the NSE or off the exchanges, i.e., directly between the different parties, which is called "over-the-counter" (OTC) trading. (In India only exchange traded equity derivatives are permitted under the law.)

The basic purpose of derivatives is to transfer the price risk (inherent in fluctuations of the asset prices) from one party to another; they facilitate the allocation of risk to those who are willing to take it. In so doing, derivatives help mitigate the risk arising from the future uncertainty of prices.

For example, on November 1, 2009 a rice farmer may wish to sell his harvest at a future date (say January 1, 2010) for a pre-determined fixed price to eliminate the

risk of change in prices by that date. Such a transaction is an example of a derivatives contract. The price of this derivative is driven by the spot price of rice which is the "underlying".

Two important terms

Before discussing derivatives, it would be useful to be familiar with two terminologies relating to the underlying markets. These are as follows:

Spot Market

In the context of securities, the spot market or cash market is a securities market in which securities are sold for cash and delivered immediately. The delivery happens after the settlement period. Let us describe this in the context of India. The NSE's cash market segment is known as the Capital Market (CM) Segment. In this market, shares of SBI, Reliance, Infosys, ICICI Bank, and other public listed companies are traded.

The settlement period in this market is on a T+2 basis i.e., the buyer of the shares receives the shares two working days after trade date and the seller of the shares receives the money two working days after the trade date.

Index

Stock prices fluctuate continuously during any given period. Prices of some stocks might move up while that of others may move down. In such a situation, what can we say about the stock market as a whole? Has the market moved up or has it moved down during a given period? Similarly, have stocks of a particular sector moved up or down?

To identify the general trend in the market (or any given sector of the market such as banking), it is important to have a reference barometer which can be monitored. Market participants use various indices for this purpose. An index is a basket of identified stocks, and its value is computed by taking the weighted average of the prices of the constituent stocks of the index.

A market index for example consists of a group of top stocks traded in the market and its value changes as the prices of its constituent stocks change. In India, Nifty Index is the most popular stock index and it is based on the top 50 stocks traded in the market. Just as derivatives on stocks are called stock derivatives, derivatives on indices such as Nifty are called index derivatives.

Definitions of Basic Derivatives

There are various types of derivatives traded on exchanges across the world. They range from the very simple to the most complex products. The following are the three basic forms of derivatives, which are the building blocks for many complex derivatives instruments (the latter are beyond the scope of this book):

- Forwards
- Futures
- Options

Knowledge of these instruments is necessary in order to understand the basics of derivatives. We shall now discuss each of them in detail.

Forwards

A forward contract or simply a forward is a contract between two parties to buy or sell an asset at a certain future date for a certain price that is pre-decided on the date of the contract. The future date is referred to as expiry date and the pre-decided price is referred to as Forward Price. It may be noted that Forwards are private contracts and their terms are determined by the parties involved.

A forward is thus an agreement between two parties in which one party, the buyer, enters into an agreement with the other party, the seller that he would buy from the seller an underlying asset on the expiry date at the forward price. Therefore, it is a commitment by both the parties to engage in a transaction at a later date with the price set in advance. This is different from a spot market contract, which involves immediate payment and immediate transfer of asset. The party that agrees to buy the asset on a future date is referred to as a long investor and is said to have a long

position. Similarly the party that agrees to sell the asset in a future date is referred to as a short investor and is said to have a short position. The price agreed upon is called the delivery price or the Forward Price. Forward contracts are traded only in Over the Counter (OTC) market and not in stock exchanges. OTC market is a private market where individuals/institutions can trade through negotiations on a one to one basis.

Futures

Like a forward contract, a futures contract is an agreement between two parties in which the buyer agrees to buy an underlying asset from the seller, at a future date at a price that is agreed upon today. However, unlike a forward contract, a futures contract is not a private transaction but gets traded on a recognized stock exchange. In addition, a futures contract is standardized by the exchange. All the terms, other than the price, are set by the stock exchange (rather than by individual parties as in the case of a forward contract). Also, both buyer and seller of the futures contracts are protected against the counter party risk by an entity called the Clearing Corporation. The Clearing Corporation provides this guarantee to ensure that the buyer or the seller of a futures contract does not suffer as a result of the counter party defaulting on its obligation. In case one of the parties defaults, the Clearing Corporation steps in to fulfill the obligation of this party, so that the other party does not suffer due to non-fulfillment of the contract. To be able to guarantee the fulfillment of the obligations under the contract, the Clearing Corporation holds an amount as a security from both the parties. This amount is called the Margin money and can be in the form of cash or other financial assets. Also, since the futures contracts are traded on the stock exchanges, the parties have the flexibility of closing out the contract prior to the maturity by squaring off the transactions in the market.

The basic flow of a transaction between three parties, namely Buyer, Seller and Clearing Corporation is depicted in the diagram below:

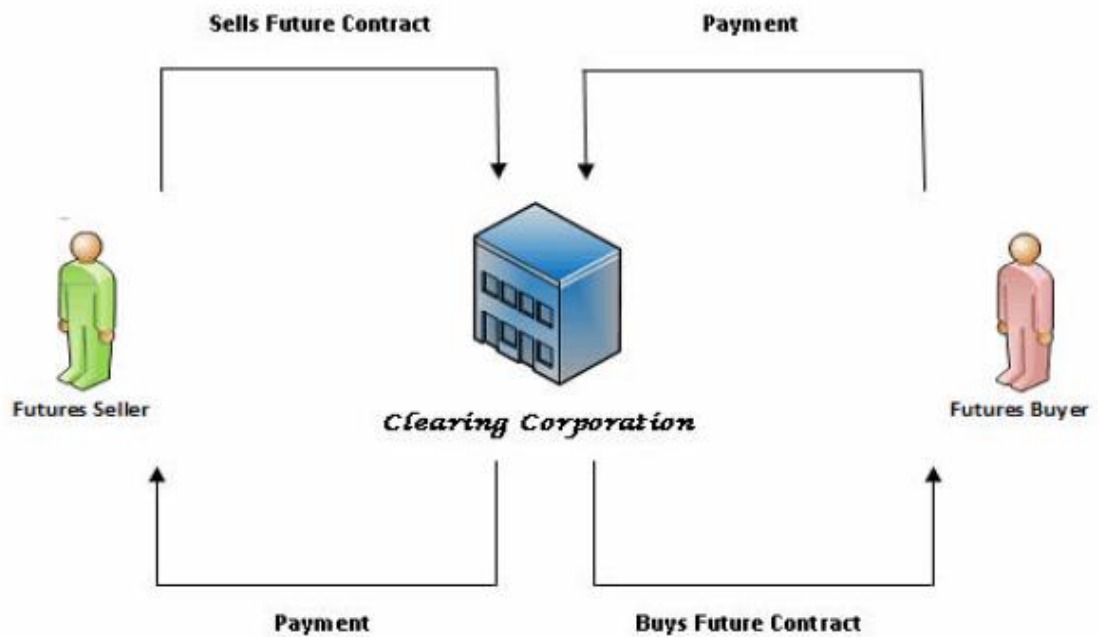


Figure 1.1: Basic Flow of a transaction between parties

Options

Like forwards and futures, options are derivative instruments that provide the opportunity to buy or sell an underlying asset on a future date. An option is a derivative contract between a buyer and a seller, where one party (say First Party) gives to the other (say Second Party) the right, but not the obligation, to buy from (or sell to) the First Party the underlying asset on or before a specific day at an agreed-upon price. In return for granting the option, the party granting the option collects a payment from the other party. This payment collected is called the “premium” or price of the option.

The right to buy or sell is held by the “option buyer” (also called the option holder); the party granting the right is the “option seller” or “option writer”. Unlike forwards and futures contracts, options require a cash payment (called the premium) upfront from the option buyer to the option seller. This payment is called option premium or option price. Options can be traded either on the stock exchange or in over the counter (OTC) markets. Options traded on the exchanges are backed by the Clearing Corporation thereby minimizing the risk arising due to default by the counter parties involved. Options traded in the OTC market however are not backed by the Clearing

Corporation. There are two types of options—call options and put options—which are explained below.

Call option

A call option is an option granting the *right* to the buyer of the option to buy the underlying asset on a specific day at an agreed upon price, *but not the obligation* to do so. It is the seller who grants this right to the buyer of the option. It may be noted that the person who has the right to buy the underlying asset is known as the “buyer of the call option”. The price at which the buyer has the right to buy the asset is agreed upon at the time of entering the contract. This price is known as the strike price of the contract (call option strike price in this case).

Since the buyer of the call option has the right (but no obligation) to buy the underlying asset, he will exercise his right to buy the underlying asset if and only if the price of the underlying asset in the market is more than the strike price on or before the expiry date of the contract. The buyer of the call option does not have an obligation to buy if he does not want to.

Put option

A put option is a contract granting the *right* to the buyer of the option to sell the underlying asset on or before a specific day at an agreed upon price, *but not the obligation* to do so. It is the seller who grants this right to the buyer of the option. The person who has the right to sell the underlying asset is known as the “buyer of the put option”. The price at which the buyer has the right to sell the asset is agreed upon at the time of entering the contract. This price is known as the strike price of the contract (put option strike price in this case).

Since the buyer of the put option has the right (but not the obligation) to sell the underlying asset, he will exercise his right to sell the underlying asset if and only if the price of the underlying asset in the market is less than the strike price on or before the expiry date of the contract. The buyer of the put option does not have the obligation to sell if he does not want to.

Terminology of Derivatives

In this section we explain the general terms and concepts related to derivatives.

Spot price (ST)

Spot price of an underlying asset is the price that is quoted for immediate delivery of the asset.

For example, at the NSE, the spot price of Reliance Ltd. at any given time is the price at which Reliance Ltd. shares are being traded at that time in the Cash Market Segment of the NSE. Spot price is also referred to as cash price sometimes.

Forward price or futures price (F)

Forward price or futures price is the price that is agreed upon at the date of the contract for the delivery of an asset at a specific future date. These prices are dependent on the spot price, the prevailing interest rate and the expiry date of the contract.

Strike price (K)

The price at which the buyer of an option can buy the stock (in the case of a call option) or sell the stock (in the case of a put option) on or before the expiry date of option contracts is called strike price. It is the price at which the stock will be bought or sold when the option is exercised. Strike price is used in the case of options only; it is not used for futures or forwards.

Expiration date (T)

In the case of Futures, Forwards, Index and Stock Options, Expiration Date is the date on which settlement takes place. It is also called the final settlement date.

Types of Options

Options can be divided into two different categories depending upon the primary exercise styles associated with options. These categories are:

European Options: European options are options that can be exercised only on the expiration date.

American options: American options are options that can be exercised on any day on or before the expiry date. They can be exercised by the buyer on any day on or before the final settlement date or the expiry date.

Contract size

As futures and options are standardized contracts traded on an exchange, they have a fixed contract size. One contract of a derivatives instrument represents a certain number of shares of the underlying asset. For example, if one contract of BHEL consists of 300 shares of BHEL, then if one buys one futures contract of BHEL, then for every Re 1 increase in BHEL's futures price, the buyer will make a profit of $300 \times 1 = \text{Rs } 300$ and for every Re 1 fall in BHEL's futures price, he will lose Rs 300.

Contract Value

Contract value is notional value of the transaction in case one contract is bought or sold. It is the contract size multiplied but the price of the futures. Contract value is used to calculate margins etc. for contracts. In the example above if BHEL futures are trading at Rs. 2000 the contract value would be $\text{Rs. } 2000 \times 300 = \text{Rs. } 6 \text{ lacs}$.

Margins

In the spot market, the buyer of a stock has to pay the entire transaction amount (for purchasing the stock) to the seller. For example, if Infosys is trading at Rs. 2000 a share and an investor wants to buy 100 Infosys shares, then he has to pay $\text{Rs. } 2000 \times 100 = \text{Rs. } 2,00,000$ to the seller. The settlement will take place on T+2 basis; that is, two days after the transaction date. In a derivatives contract, a person enters into a trade today (buy or sell) but the settlement happens on a future date. Because of this, there is a high possibility of default by any of the parties.

Futures and option contracts are traded through exchanges and the counter party risk is taken care of by the clearing corporation. In order to prevent any of the parties from defaulting on his trade commitment, the clearing corporation levies a margin on the buyer as well as seller of the futures and option contracts. This margin is a

percentage (approximately 20%) of the total contract value. Thus, for the aforementioned example, if a person wants to buy 100 Infosys futures, then he will have to pay 20% of the contract value of Rs 2,00,000 = Rs 40,000 as a margin to the clearing corporation. This margin is applicable to both, the buyer and the seller of a futures contract.

Moneyness of an Option

“Moneyness” of an option indicates whether an option is worth exercising or not i.e. if the option is exercised by the buyer of the option whether he will receive money or not. “Moneyness” of an option at any given time depends on where the spot price of the underlying is at that point of time relative to the strike price. The premium paid is not taken into consideration while calculating moneyness of an Option, since the premium once paid is a sunk cost and the profitability from exercising the option does not depend on the size of the premium. Therefore, the decision (of the buyer of the option) whether to exercise the option or not is not affected by the size of the premium. The following three terms are used to define the moneyness of an option.

In-the-money option

An option is said to be in-the-money if on exercising the option, it would produce a cash inflow for the buyer. Thus, Call Options are in-the-money when the value of spot price of the underlying exceeds the strike price. On the other hand, Put Options are in-the- money when the spot price of the underlying is lower than the strike price. Moneyness of an option should not be confused with the profit and loss arising from holding an option contract. It should be noted that while moneyness of an option does not depend on the premium paid, profit/loss do. Thus a holder of an in-the-money option need not always make profit as the profitability also depends on the premium paid.

Out-of-the-money option

An out-of-the-money option is an opposite of an in-the-money option. An option-holder will not exercise the option when it is out-of-the-money. A Call option is out-of-the-money when its strike price is greater than the spot price of the underlying and

a Put option is out-of-the money when the spot price of the underlying is greater than the option's strike price.

At-the-money option

An at-the-money-option is one in which the spot price of the underlying is equal to the strike price. It is at the stage where with any movement in the spot price of the underlying, the option will either become in-the-money or out-of-the-money.

1.1.2 Origin of Derivatives

While trading in derivatives products has grown tremendously in recent times, the earliest evidence of these types of instruments can be traced back to ancient Greece. Even though derivatives have been in existence in some form or the other since ancient times, the advent of modern day derivatives contracts is attributed to farmers' need to protect themselves against a decline in crop prices due to various economic and environmental factors.

Thus, derivatives contracts initially developed in commodities. The first "futures" contracts can be traced to the Yodoya rice market in Osaka, Japan around 1650. The farmers were afraid of rice prices falling in the future at the time of harvesting. To lock in a price (that is, to sell the rice at a predetermined fixed price in the future), the farmers entered into contracts with the buyers. These were evidently standardized contracts, much like today's futures contracts.

In 1848, the Chicago Board of Trade (CBOT) was established to facilitate trading of forward contracts on various commodities. From then on, futures contracts on commodities have remained more or less in the same form, as we know them today.

1.2 Objectives of the study

Following are the main objectives of the study.

1. To throw light on the evolution of the various financial derivative products
2. To evaluate the growth and development of financial derivatives market in India, and
3. To study the comparative performance of NSE & BSE derivatives markets in India

This research paper enlightens the reader about the derivatives market of India. This paper attempts to discuss the genesis of derivatives trading by tracing its historical development, types, regulation and policy developments, trend & growth, future prospects and challenges of derivative market in India.

2. LITERATURE REVIEW

It is generally stated that regulation has an important and critical role to ensure the efficient and smooth functioning of the markets. According to Sahoo (1997) the legal framework for derivatives trading is a critical part of overall regulatory framework of derivative markets. The purpose of regulation is to encourage the efficiency and competition rather than impeding it.

According to Greenspan (1997) “By far the most significant event in finance during the past decades has been the extraordinary development and expansion of financial derivatives...” Avadhani (2000) stated that a derivative, an innovative financial instrument, emerged to protect against the risks generated in the past, as the history of financial markets is replete with crises). Events like the collapse of the fixed exchange rate system in 1971, the Black Monday of October 1987, the steep fall in the Nikkei in 1989, the US bond debacle of 1994, occurred because of very high degree of volatility of financial markets and their unpredictability. Such disasters have become more frequent with increased global integration of markets. Sahoo (1997) opines “Derivatives products initially emerged, as hedging devices against fluctuation in commodity prices and the commodity-linked derivatives remained the sole form of such products for many years. Marlowe (2000) argues that the emergence of the derivative market products most notably forwards, futures and options can be traced back to the willingness of risk-averse economic agents to guard themselves against uncertainties arising out of fluctuations in asset prices.

Derivatives include a wide range of financial contracts, including forwards, futures, swaps and options. Forward contract is an agreement between two parties calling for delivery of, and payment for, a specified quantity and quality of a commodity at a specified future date. The price may be agreed upon in advance, or determined by formula at the time of delivery or other point in time” (Web 2). Just like other instruments, it is used to control and hedge currency exposure risk (e.g. forward contracts on USD or EUR) or commodity prices (e.g. forward contracts on oil). Patwari and Bhargava (2006) explain it in simple words and further add that one of the parties to a forward contract assumes a long position and agrees to buy the underlying asset at a certain future date for a certain price and the other agrees to short it. The specified price is referred to as the delivery price. The parties to the

contract mutually agree upon the contract terms like delivery price and quantity. Web4 states that “A Futures Contract is a standardized contract, traded on a futures exchange, to buy or sell a certain underlying instrument at a certain date in the future, at a pre-set price. The future date is called the delivery date or final settlement date. The pre-set price is called the futures price. The price of the underlying asset on the delivery date is called the settlement price. The futures price, naturally, converges towards the settlement price on the delivery date”. Sirisha (2001) explain the Types of Futures which are as follows: Foreign Exchange Futures Currency Futures Stock Index Futures Commodity Futures.

Bhagwat (2012) states that the demand for the international money and financial instruments increased significantly at the global level. In this respect, change in exchange rates, interest rates and stock prices of different financial markets have increased the financial risk to the corporate world. Adverse changes have even threatened the very survival of business world. It is, therefore, to manage such risk, the new financial instruments have been developed in the financial markets, which are also popularly known as financial derivatives,. The basic purpose of these instruments is to provide commitments to prices for future dates for giving protection against adverse movements in future prices, in order to reduce the extent of financial risks. Today, the financial derivatives have become increasingly popular and most commonly used in the world of finance. This has grown with so phenomenal speed all over the world that now it is called as the derivatives revolution. In India, the emergence and growth of derivatives market is relatively a recent phenomenon. Since its inception in June 2000, derivatives market has exhibited exponential growth both in terms of volume and number of contract traded.

Web 5 defines “An Options Contract is the right, but not the obligation, to buy (for a call option) or sell (for a put option) a specific amount of a given stock, commodity, currency, index, or debt, at a specified price (the strike price) during a specified period of time. For stock options, the amount is usually 100 shares. Each option contract has a buyer, called the holder, and a seller, known as the writer. If the option contract is exercised, the writer is responsible for fulfilling the terms of the contract. For the holder, the potential loss is limited to the price paid to acquire the option. When an option is not exercised, it expires. No shares change hands and the money

spent to purchase the option is lost. For the buyer/holder, the upside is unlimited. For the writer, the potential loss is unlimited and the profits are just limited to the amount of option premium. Hull (1995) has also talked of call option and put option. Web 6 opines “A swap is a derivative product, where two counterparties exchange one stream of cash flows against another stream. These streams are called the legs of the swap. The cash flows are calculated over a notional principal amount. The notional amount typically does not change hands and it is simply used to calculate payments. Swaps are often used to hedge certain risks, for instance interest rate risk. Another use is speculation”. There are two basic kinds of swaps: Currency Swaps and Interest Rate Swaps.

3. METHODOLOGY

Descriptive research is conducted using Secondary data. Qualitative analysis is done on the secondary data. The data for collating the research are sourced from:

1. Publicly available documents issued by SEBI,
2. News articles;
3. Other related research papers
4. NSE & BSE websites

4. DATA ANALYSIS

4.1 Derivatives in India

In India, derivatives markets have been functioning since the nineteenth century, with organized trading in cotton through the establishment of the Cotton Trade Association in 1875. Derivatives, as exchange traded financial instruments were introduced in India in June 2000. The National Stock Exchange (NSE) is the largest exchange in India in derivatives, trading in various derivatives contracts. The first contract to be launched on NSE was the Nifty 50 index futures contract. In a span of one and a half years after the introduction of index futures, index options, stock options and stock futures were also introduced in the derivatives segment for trading. NSE's equity derivatives segment is called the Futures & Options Segment or F&O Segment. NSE also trades in Currency and Interest Rate Futures contracts under a separate segment.

A series of reforms in the financial markets paved way for the development of exchange-traded equity derivatives markets in India. In 1993, the NSE was established as an electronic, national exchange and it started operations in 1994. It improved the efficiency and transparency of the stock markets by offering a fully automated screen-based trading system with real-time price dissemination. A report on exchange traded derivatives, by the L.C. Gupta Committee, set up by the Securities and Exchange Board of India (SEBI), recommended a phased introduction of derivatives instruments with bi-level regulation (i.e., self-regulation by exchanges, with SEBI providing the overall regulatory and supervisory role). Another report, by the J.R. Varma Committee in 1998, worked out the various operational details such as margining and risk management systems for these instruments. In 1999, the Securities Contracts (Regulation) Act of 1956, or SC(R)A, was amended so that derivatives could be declared as "securities". This allowed the regulatory framework for trading securities, to be extended to derivatives. The Act considers derivatives on equities to be legal and valid, but only if they are traded on exchanges.

4.1.1 Milestones in the development of Indian Derivative Market

November 18, 1996	L.C. Gupta Committee set up to draft a policy framework for introducing derivatives
May 11, 1998	L.C. Gupta committee submits its report on the policy Framework
May 25, 2000	SEBI allows exchanges to trade in index futures
June 12, 2000	Trading on Nifty futures commences on the NSE
June 4, 2001	Trading for Nifty options commences on the NSE
July 2, 2001	Trading on Stock options commences on the NSE
November 9, 2001	Trading on Stock futures commences on the NSE

August 29, 2008	Currency derivatives trading commences on the NSE
August 31, 2009	Interest rate derivatives trading commences on the NSE
February 2010	Launch of Currency Futures on additional currency pairs
October 28, 2010	Introduction of European style Stock Options
October 29, 2010	Introduction of Currency Options

4.2.2 Participants in the Derivatives Market

As equity markets developed, different categories of investors started participating in the market. In India, equity market participants currently include retail investors, corporate investors, mutual funds, banks, foreign institutional investors etc. Each of these investor categories uses the derivatives market to as a part of risk management, investment strategy or speculation. Based on the applications that derivatives are put to, these investors can be broadly classified into three groups:

- Hedgers
- Speculators, and
- Arbitrageurs

Hedgers

These investors have a position (i.e., have bought stocks) in the underlying market but are worried about a potential loss arising out of a change in the asset price in the future. Hedgers participate in the derivatives market to lock the prices at which they will be able to transact in the future. Thus, they try to avoid price risk through holding a position in the derivatives market. Different hedgers take different positions in the derivatives market based on their exposure in the underlying market. A hedger normally takes an opposite position in the derivatives market to what he has in the underlying market.

Speculators

A Speculator is one who bets on the derivatives market based on his views on the potential movement of the underlying stock price. Speculators take large, calculated risks as they trade based on anticipated future price movements. They hope to make quick, large gains; but may not always be successful. They normally have shorter holding time for their positions as compared to hedgers. If the price of the underlying moves as per their expectation they can make large profits. However, if the price moves in the opposite direction of their assessment, the losses can also be enormous.

Arbitrageurs

Arbitrageurs attempt to profit from pricing inefficiencies in the market by making simultaneous trades that offset each other and capture a risk-free profit. An arbitrageur may also seek to make profit in case there is price discrepancy between the stock price in the cash and the derivatives markets.

4.1.3 Uses of Derivatives

Risk management

The most important purpose of the derivatives market is risk management. Risk management for an investor comprises of the following three processes:

- Identifying the desired level of risk that the investor is willing to take on his investments;
- Identifying and measuring the actual level of risk that the investor is carrying; and
- Making arrangements which may include trading (buying/selling) of derivatives contracts that allow him to match the actual and desired levels of risk.

Market efficiency

Efficient markets are fair and competitive and do not allow an investor to make risk free profits. Derivatives assist in improving the efficiency of the markets, by providing a self-correcting mechanism. Arbitrageurs are one section of market participants who trade whenever there is an opportunity to make risk free profits till the opportunity ceases to exist. Risk free profits are not easy to make in more efficient markets. When trading occurs, there is a possibility that some amount of mispricing might occur in the markets. The arbitrageurs step in to take advantage of this mispricing by buying from the cheaper market and selling in the higher market. Their actions quickly narrow the prices and thereby reducing the inefficiencies.

Price discovery

One of the primary functions of derivatives markets is price discovery. They provide valuable information about the prices and expected price fluctuations of the underlying assets in two ways:

First, many of these assets are traded in markets in different geographical locations. Because of this, assets may be traded at different prices in different markets. In derivatives markets, the price of the contract often serves as a proxy for the price of the underlying asset. For example, gold may trade at different prices in Mumbai and Delhi but a derivatives contract on gold would have one value and so traders in Mumbai and Delhi can validate the prices of spot markets in their respective location to see if it is cheap or expensive and trade accordingly.

Second, the prices of the futures contracts serve as prices that can be used to get a sense of the market expectation of future prices. For example, say there is a company that produces sugar and expects that the production of sugar will take two months from today. As sugar prices fluctuate daily, the company does not know if after two months the price of sugar will be higher or lower than it is today. How does it predict where the price of sugar will be in future? It can do this by monitoring prices of derivatives contract on sugar (say a Sugar Forward contract). If the forward price of sugar is trading higher than the spot price that means that the market is expecting the sugar spot price to go up in future. If there were no derivatives price, it would have to wait for two months before knowing the market price of sugar on that day. Based on derivatives price the management of the sugar company can make strategic and tactical decisions of how much sugar to produce and when.

4.1.4 Open Interest and Number of Contracts

Open interest is the total number of options and/or futures contracts that are not closed out on a particular day, that is contracts that have been purchased and are still outstanding and not been sold and *vice versa*. A common misconception is that open interest is the same thing as volume of options and futures trades. This is not correct since there could be huge volumes but if the volumes are just because of participants squaring off their positions then the open interest would not be large. On the other hand, if the volumes are large because of fresh positions being created then the open interest would also be large.

The Contract column tells us about the strike price of the call or put and the date of their settlement. For example, the first entry in the Active Calls section (4500.00-August) means it is a Nifty call with Rs 4500 strike price, that would expire in August. It is interesting to note from the newspaper extract given above is that it is possible to have a number of options at different strike prices but all of them have the same expiry date.

There are different tables explaining different sections of the F&O markets.

1. Positive trend: It gives information about the top gainers in the futures market.

2. Negative trend: It gives information about the top losers in the futures market.

3. Future OI gainers: It lists those futures whose % increases in open interest are among the highest on that day.

4. Future OI losers: It lists those futures whose % decreases in open interest are among the highest on that day.

5. Active Calls: Calls with high trading volumes on that particular day.

6. Active Puts: Puts with high trading volumes on that particular day.

4.1.5 Settlement of Derivatives

Settlement refers to the process through which trades are cleared by the payment/receipt of currency, securities or cash flows on periodic payment dates and on the date of the final settlement. The settlement process is somewhat elaborate for derivatives instruments which are exchange traded. (They have been very briefly outlined here. For a more detailed explanation, please refer to NCFM Derivatives Markets (Dealers) Module). The settlement process for exchange traded derivatives is standardized and a certain set of procedures exist which take care of the counterparty risk posed by these instruments. At the NSE, the National Securities Clearing Corporation Limited (NSCCL) undertakes the clearing and settlement of all trades executed on the F&O segment of NSE. It also acts as a legal counterparty to all trades on the F&O segment and guarantees their financial settlement. There are two clearing entities in the settlement process: Clearing Members and Clearing Banks.

Clearing members

A Clearing member (CM) is the member of the clearing corporation i.e., NSCCL. These are the members who have the authority to clear the trades executed in the F&O segment in the exchange. There are three types of clearing members with different set of functions:

1) Self-clearing Members: Members who clear and settle trades executed by them only on their own accounts or on account of their clients.

2) Trading cum Clearing Members: They clear and settle their own trades as well as trades of other trading members (TM).

3) Professional Clearing Members (PCM): They only clear and settle trades of others but do not trade themselves. PCMs are typically Financial Institutions or Banks who are admitted by the Clearing Corporation as members.

Clearing banks

Some commercial banks have been designated by the NSCCL as Clearing Banks. Financial settlement can take place only through Clearing Banks. All the clearing members are required to open a separate bank account with an NSCCL designated clearing bank for the F&O segment. The clearing members keep a margin amount in these bank accounts.

Settlement of Futures

When two parties trade a futures contract, both have to deposit margin money which is called the initial margin. Futures contracts have two types of settlement: (i) the mark-to-market (MTM) settlement which happens on a continuous basis at the end of each day, and (ii) the final settlement which happens on the last trading day of the futures contract i.e., the last Thursday of the expiry month.

Mark to market settlement

To cover for the risk of default by the counterparty for the clearing corporation, the futures contracts are marked-to-market on a daily basis by the exchange. Mark to market settlement is the process of adjusting the margin balance in a futures account each day for the change in the value of the contract from the previous day, based on the daily settlement price of the futures contracts (Please refer to the Tables given below.). This process helps the clearing corporation in managing the counterparty risk of the future contracts by requiring the party incurring a loss due to adverse price movements to part with the loss amount on a daily basis. Simply put, the party in the loss position pays the clearing corporation the margin money to cover for the shortfall in cash. In extraordinary times, the Exchange can require a mark to market more frequently (than daily). To ensure a fair mark-to-market

process, the clearing corporation computes and declares the official price for determining daily gains and losses. This price is called the “settlement price” and represents the closing price of the futures contract. The closing price for any contract of any given day is the weighted average trading price of the contract in the last half hour of trading.

Final settlement for futures

After the close of trading hours on the expiry day of the futures contracts, NSCCL marks all positions of clearing members to the final settlement price and the resulting profit/loss is settled in cash. Final settlement loss is debited and final settlement profit is credited to the relevant clearing bank accounts on the day following the expiry date of the contract. Suppose the above contract closes on day 6 (that is, it expires) at a price of Rs. 1040, then on the day of expiry, Rs. 100 would be debited from the seller (short position holder) and would be transferred to the buyer (long position holder).

Settlement of Options

In an options trade, the buyer of the option pays the option price or the option premium. The options seller has to deposit an initial margin with the clearing member as he is exposed to unlimited losses. There are basically two types of settlement in stock option contracts: daily premium settlement and final exercise settlement. Options being European style, they cannot be exercised before expiry.

Daily premium settlement

Buyer of an option is obligated to pay the premium towards the options purchased by him. Similarly, the seller of an option is entitled to receive the premium for the options sold by him. The same person may sell some contracts and buy some contracts as well. The premium payable and the premium receivable are netted to compute the net premium payable or receivable for each client for each options contract at the time of settlement.

Exercise settlement

Normally most option buyers and sellers close out their option positions by an offsetting closing transaction but a better understanding of the exercise settlement process can help in making better judgment in this regard. Stock and index options can be exercised only at the end of the contract.

Final Exercise Settlement

On the day of expiry, all in the money options are exercised by default. An investor who has a long position in an in-the-money option on the expiry date will receive the exercise settlement value which is the difference between the settlement price and the strike price. Similarly, an investor who has a short position in an in-the-money option will have to pay the exercise settlement value.

Accounting and Taxation of Derivatives

The Institute of Chartered Accountants of India (ICAI) has issued guidance notes on accounting of index future contracts from the view point of parties who enter into such future contracts as buyers or sellers. For other parties involved in the trading process, like brokers, trading members, clearing members and clearing corporations a trade in equity index futures is similar to a trade in, say shares, and accounting remains similar as in the case of buying or selling of shares.

Taxation of Derivative Instruments

Prior to the year 2005, the Income Tax Act did not have any specific provision regarding taxability of derivatives. The only tax provisions which had indirect bearing on derivatives transactions were sections 73(1) and 43(5). Under these sections, trade in derivatives was considered “speculative transactions” for the purpose of determining tax liability. All profits and losses were taxed under the speculative income category. Therefore, loss on derivatives transactions could be set off only against other speculative income and the same could not be set off against any other income. This resulted in high tax liability.

Finance Act, 2005 has amended section 43(5) so as to exclude transactions in derivatives carried out in a “recognized stock exchange” from ‘speculative transaction’. This implies that derivatives transactions that take place in a “recognized stock exchange” are not taxed as speculative income or loss. They are treated under the business income head of the Income tax Act. Any losses on these activities can be set off against any business income in the year and the losses can be carried forward and set off against any other business income for the next eight years.

4.1.6 Derivative Exchanges in India

MCX

MCX (Multi Commodity Exchange of India Ltd.) an independent and de-mutualised multi commodity exchange has permanent recognition from Government of India for facilitating online trading, clearing and settlement operations for commodity futures markets across the country.

Key shareholders of MCX are Financial Technologies (India) Ltd., State Bank of India, HDFC Bank, State Bank of Indore, State Bank of Hyderabad, State Bank of Saurashtra, SBI Life Insurance Co. Ltd., Union Bank of India, Bank of India, Bank of Baroda, Canara Bank, Corporation Bank Headquartered in Mumbai, MCX is led by an expert management team with deep domain knowledge of the commodity futures markets.

Today MCX is offering spectacular growth opportunities and advantages to a large cross section of the participants including Producers / Processors, Traders, Corporate, Regional Trading Canters, Importers, Exporters, Cooperatives, Industry Associations, amongst others MCX being nation-wide commodity exchange, offering multiple commodities for trading with wide reach and penetration and robust infrastructure.

MCX, having a permanent recognition from the Government of India, is an independent and demutualised multi commodity Exchange. MCX, a state-of-the-art nationwide, digital Exchange, facilitates online trading, clearing and settlement operations for a commodities futures trading.

NCDEX

National Commodity and Derivatives Exchange Ltd (NCDEX) is a technology driven commodity exchange. It is a public limited company registered under the Companies Act, 1956 with the Registrar of Companies, Maharashtra in Mumbai on April 23,2003.

It has an independent Board of Directors and professionals not having any vested interest in commodity markets. It has been launched to provide a world-class commodity exchange platform for market participants to trade in a wide spectrum of commodity derivatives driven by best global practices, professionalism and transparency.

NCDEX currently facilitates trading of thirty six commodities - Cashew, Castor Seed, Chana, Chilli, Coffee, Cotton, Cotton Seed Oilcake, Crude Palm Oil, Expeller Mustard Oil, Gold, Guar gum, Guar Seeds, Gur, Jeera, Jute sacking bags, Mild Steel Ingot, Mulberry Green Cocoons, Pepper, Rapeseed - Mustard Seed ,Raw Jute, RBD Palmolein, Refined Soy Oil, Rice, Rubber, Sesame Seeds, Silk, Silver, Soy Bean, Sugar, Tur, Turmeric, Urad (Black Matpe), Wheat, Yellow Peas, Yellow Red Maize & Yellow soyabean meal.

NMCE

National Multi Commodity Exchange of India Ltd. (NMCE) was promoted by Central Warehousing Corporation (CWC), National Agricultural Cooperative Marketing Federation of India (NAFED), Gujarat Agro-Industries Corporation Limited (GAICL), Gujarat State Agricultural Marketing Board (GSAMB), National Institute of Agricultural Marketing (NIAM), and Neptune Overseas Limited (NOL).

While various integral aspects of commodity economy, viz., warehousing, cooperatives, private and public sector marketing of agricultural commodities, research and training were adequately addressed in structuring the Exchange, finance was still a vital missing link. Punjab National Bank (PNB) took equity of the Exchange to establish that linkage. Even today, NMCE is the only Exchange in India to have such investment and technical support from the commodity relevant institutions.

NMCE facilitates electronic derivatives trading through robust and tested trading platform, Derivative Trading Settlement System (DTSS), provided by CMC. It has robust delivery mechanism making it the most suitable for the participants in the physical commodity markets. It has also established fair and transparent rule-based procedures and demonstrated total commitment towards eliminating any conflicts of interest.

It is the only Commodity Exchange in the world to have received ISO 9001:2000 certification from British Standard Institutions (BSI). NMCE was the first commodity exchange to provide trading facility through internet, through Virtual Private Network (VPN). NMCE follows best international risk management practices. The contracts are marked to market on daily basis. The system of upfront margining based on Value at Risk is followed to ensure financial security of the market.

In the event of high volatility in the prices, special intra-day clearing and settlement is held. NMCE was the first to initiate process of dematerialization and electronic transfer of warehoused commodity stocks.

The unique strength of NMCE is its settlements via a Delivery Backed System, an imperative in the commodity trading business. These deliveries are executed through a sound and reliable Warehouse Receipt System, leading to guaranteed clearing and settlement.

4.2 Data Analysis

4.2.1 Regulatory framework in India

The trading of derivatives is governed by the provisions contained in the SC R A, the SEBI Act, and the regulations framed there under the rules and byelaws of stock exchanges.

Regulation for Derivative Trading:

SEBI set up a 24 member committee under Chairmanship of Dr. L. C. Gupta develop the appropriate regulatory framework for derivative trading in India. The committee submitted its report in March 1998. On May 11, 1998 SEBI accepted the recommendations of the committee and approved the phased introduction of derivatives trading in India beginning with stock index Futures. SEBI also approved the “suggestive bye-laws” recommended by the committee for regulation and control of trading and settlement of Derivative contract.

The provision in the SCR Act governs the trading in the securities. The amendment of the SCR Act to include “DERIVATIVES” within the ambit of securities in the SCR Act made trading in Derivatives possible within the framework of the Act.

1. Eligibility criteria as prescribed in the L. C. Gupta committee report may apply to SEBI for grant of recognition under section 4 of the SCR Act, 1956 to start Derivatives Trading. The derivative exchange/segment should have a separate governing council and representation of trading/clearing member shall be limited to maximum 40% of the total members of the governing council. The exchange shall regulate the sales practices of its members and will obtain approval of SEBI before start of Trading in any derivative contract.

2. The exchange shall have minimum 50 members.

3. The members of an existing segment of the exchange will not automatically become the members of the derivatives segment. The members of the derivatives segment need to fulfill the eligibility conditions as lay down by the L. C. Gupta committee.

4.The clearing and settlement of derivatives trades shall be through a SEBI approved clearing corporation/clearinghouse. Clearing Corporation/Clearing House complying with the eligibility conditions as lay down By the committee have to apply to SEBI for grant of approval.

5.Derivatives broker/dealers and Clearing members are required to seek registration from SEBI.

6.The Minimum contract value shall not be less than Rs.2 Lakh. Exchange should also submit details of the futures contract they purpose to introduce.

7.The trading members are required to have qualified approved user and sales persons who have passed a certification programme approved by SEBI

4.2.2 Regulatory framework in other markets

In 2000, Congress passed the Commodity Futures Modernization Act (CFMA) to provide legal certainty for swap agreements. The CFMA explicitly prohibited the SEC and CFTC from regulating the over-the-counter (OTC) swaps markets, but provided the SEC with antifraud authority over “security-based swap agreements,” such as credit default swaps. However, the SEC was specifically prohibited from, among other things, imposing reporting, recordkeeping, or disclosure requirements or other prophylactic measures designed to prevent fraud with respect to such agreements. This limited the SEC’s ability to detect and deter fraud in the swaps markets.

Title VII of *Dodd-Frank Wall Street Reform and Consumer Protection Act* addresses the gap in U.S. financial regulation of OTC swaps by providing a comprehensive framework for the regulation of the OTC swaps markets.

The Dodd-Frank Act divides regulatory authority over swap agreements between the CFTC and SEC (though the prudential regulators, such as the Federal Reserve Board, also have an important role in setting capital and margin for swap entities that are banks). The SEC has regulatory authority over “security-based swaps,” which are defined as swaps based on a single security or loan or a narrow-based group or index of securities (including any interest therein or the value thereof), or events relating to a single issuer or issuers of securities in a narrow-based security index. Security-based swaps are included within the

definition of “security” under the Securities Exchange Act of 1934 and the Securities Act of 1933.

The CFTC has primary regulatory authority over all other swaps, such as energy and agricultural swaps. The CFTC and SEC share authority over “mixed swaps,” which are security-based swaps that also have a commodity component.

In addition, the SEC has anti-fraud enforcement authority over swaps that are related to securities but that do not come within the definition of “security-based swap.” These are called “security-based swap agreements.” The Dodd-Frank Act provides the SEC with access to information relating to security-based swap agreement in the possession of the CFTC and certain CFTC-regulated entities, such as derivatives clearing organizations, designated contract markets, and swap data repositories.

Implementation: There are a number of rulemakings required under Title VII. The CFTC and SEC are required to act jointly to define key terms relating to jurisdiction (such as swap, security-based swap, and security-based swap agreement) and market intermediaries (such as swap and security-based swap dealers and major swap and security-based swap participants), as well as adopt joint regulations regarding mixed swaps and prescribe trade repository recordkeeping requirements, and books and records requirements for swap entities related to security-based swap agreements. The SEC is required to consult with the CFTC and the Federal Reserve Board on non-joint rulemakings and with the other prudential regulators on capital and margin rules. The CFTC, SEC and U.S. prudential regulators also are consulting with non-U.S. regulatory authorities on the establishment of consistent international standards for products and entities in this area. *Dodd-Frank's* Title VII mandates regulators, including the Commodity Futures Trading Commission (CFTC) and the Securities and Exchange Commission (SEC), to undertake rulemakings designed to meet G20 objectives of increasing transparency and reducing systemic risk in the derivative markets, including:

- Reporting swap transactions to a swap data repository;
- Clearing sufficiently liquid and standardized swaps on central counterparties;
- Where appropriate, trading standardized swaps on trading platforms; and

- Setting higher capital and minimum margin requirements for uncleared swaps

Other markets	India
<p>Title VII of Dodd-Frank Wall Street Reform and Consumer Protection Act addresses the gap in U.S. financial regulation of OTC swaps by providing a comprehensive framework for the regulation of the OTC swaps markets.</p> <p>The Dodd-Frank Act divides regulatory authority over swap agreements between the CFTC and SEC</p> <p>The Commodity Futures Trading Commission and the European Commission agreed on a common set of requirements in regulating derivatives clearinghouses, an action that they say will ease capital constraints for banks that clear derivatives trades through the CME Group in Chicago, the Intercontinental Exchange in Atlanta and LCH Clearnet in London, among others.</p>	<p>The trading of derivatives is governed by the provisions contained in the SCRA, the SEBI Act, and the regulations framed there under the rules and byelaws of stock exchanges. So the derivatives trading in India is currently regulated by the three agencies, namely Forward Market Commission, Securities Exchange Board of India and Reserve Bank of India.</p> <p>National Securities Clearing Corporation (NSCC) was the first effort in clearing where the clearing corporation becomes the <i>legal counterparty</i> to both legs of every transaction, and thus eliminates counterparty risk</p> <p>With a view to strengthen the regulation of commodity forward markets and to reduce wild speculation, Finance Minister has proposed to merge the commodity market regulator Forwards Markets Commission (FMC) with the capital market regulator Securities and Exchange Board of India (SEBI).</p>

Table 4.1: Comparison between Indian and other markets

4.2.3 Growth of indian derivatives market

The emergence of the market for derivatives products, most notable forwards,

futures, options and swaps can be traced back to the willingness of risk-averse economic agents to guard themselves against uncertainties arising out of fluctuations in asset prices. By their very nature, the financial markets can be subject to a very high degree of volatility. Through the use of derivative products, it is possible to partially or fully transfer price risks by locking-in asset prices. As instruments of risk management, derivatives products generally do not influence the fluctuations in the underlying asset prices. However, by locking-in asset prices, derivatives products minimize the impact of fluctuations in asset prices on the profitability and cash flow situation of risk-averse investors.

Starting from a controlled economy, India has moved towards a world where prices fluctuate every day. The introduction of risk management instruments in India gained momentum in the last few years due to liberalization process and Reserve Bank of India's (RBI) efforts in creating currency forward market. Derivatives are an integral part of liberalization process to manage risk. NSE gauging the market requirements initiated the process of setting up derivative markets in India. In July 1999, derivatives trading commenced in India

4.2.4 Factors contributing to the growth of derivatives

Factors contributing to the explosive growth of derivatives are price volatility, globalization of the markets, technological developments and advances in the financial theories.

A. PRICE VOLATILITY

A price is what one pays to acquire or use something of value. The objects having value maybe commodities, local currency or foreign currencies. The concept of price is clear to almost everybody when we discuss commodities. There is a price to be paid for the purchase of food grain, oil, petrol, metal, etc. the price one pays for use of a unit of another person's money is called interest rate. And the price one pays in one's own currency for a unit of another currency is called as an exchange rate. Prices are generally determined by market forces. In a market, consumers have 'demand' and producers or suppliers have 'supply', and the collective interaction of demand and supply in the market determines the price. These factors are constantly interacting in the market causing changes in the price over a short period of time.

Such changes in the price are known as 'price volatility'. This has three factors: the speed of price changes, the frequency of price changes and the magnitude of price changes. The changes in demand and supply influencing factors culminate in market adjustments through price changes. These price changes expose individuals, producing firms and governments to significant risks. The breakdown of the Bretton Woods agreement brought an end to the stabilizing role of fixed exchange rates and the gold convertibility of the dollars. The globalization of the markets and rapid industrialization of many underdeveloped countries brought a new scale and dimension to the markets. Nations that were poor suddenly became a major source of supply of goods. The Mexican crisis in the south east-Asian currency crisis of 1990's has also brought the price volatility factor on the surface. The advent of telecommunication and data processing brought information very quickly to the markets. Information which would have taken months to impact the market earlier can now be obtained in matter of moments. Even equity holders are exposed to price risk of corporate share fluctuates rapidly. This price volatility risk pushed the use of derivatives like futures and options increasingly as these instruments can be used as hedge to protect against adverse price changes in commodity, foreign exchange, equity shares and bonds.

B. GLOBALISATION OF MARKETS

Earlier, managers had to deal with domestic economic concerns; what happened in other part of the world was mostly irrelevant. Now globalization has increased the size of markets and as greatly enhanced competition. It has benefited consumers who cannot obtain better quality goods at a lower cost. It has also exposed the modern business to significant risks and, in many cases, led to cut profit margins. In Indian context, south East Asian currencies crisis of 1997 had affected the competitiveness of our products vis-à-vis depreciated currencies. Export of certain goods from India declined because of this crisis. Steel industry in 1998 suffered its worst set back due to cheap import of steel from south East Asian countries. Suddenly blue chip companies had turned in to red. The fear of china devaluing its currency created instability in Indian exports. Thus, it is evident that globalization of industrial and financial activities necessitates use of derivatives to guard against

future losses. This factor alone has contributed to the growth of derivatives to a significant extent.

C. TECHNOLOGICAL ADVANCES –

A significant growth of derivative instruments has been driven by technological breakthrough. Advances in this area include the development of high speed processors, network systems and enhanced method of data entry. Closely related to advances in computer technology are advances in telecommunications. Improvement in communications allow for instantaneous world wide conferencing, Data transmission by satellite. At the same time there were significant advances in software programmed without which computer and telecommunication advances would be meaningless. These facilitated the more rapid movement of information and consequently its instantaneous impact on market price. Although price sensitivity to market forces is beneficial to the economy as a whole resources are rapidly relocated to more productive use and better rationed overtime the greater price volatility exposes producers and consumers to greater price risk. The effect of this risk can easily destroy a business which is otherwise well managed. Derivatives can help a firm manage the price risk inherent in a market economy. To the extent the technological developments increase volatility, derivatives and risk management products become that much more important.

D. ADVANCES IN FINANCIAL THEORIES –

Advances in financial theories gave birth to derivatives. Initially forward contracts in its traditional form, was the only hedging tool available. Option pricing models developed by Black and Scholes in 1973 were used to determine prices of call and put options. In late 1970's, work of Lewis Edeington extended the early work of Johnson and started the hedging of financial price risks with financial futures. The work of economic theorists gave rise to new products for risk management which led to the growth of derivatives in financial markets. The above factors in combination of lot many factors led to growth of derivatives instruments.

Statistical data (Information)

The Derivatives Market Growth was about 30% in the first half of 2007 when it reached a size of \$US 370 trillion. This growth was mainly due to the increase in the participation of the bankers, investors and different companies. The derivative market instruments are used by them to hedge risks as well as to satisfy their speculative needs.

The NSE and BSE are two major Indian markets have shown a remarkable growth both in terms of volumes and numbers of traded contracts. Introduction of derivatives trading in 2000, in Indian markets was the starting of equity derivative market which has registered on explosive growth and is expected to continue the same in the years to come. NSE alone accounts 99% of the derivatives trading in Indian markets. Introduction of derivatives has been well received by stock market players. Derivatives trading gained popularity after its introduction in very short time.

Year	Index Futures Turn over (Rs. in Crore)	Stock Futures Turn over (Rs. in Crore)	Index Option Notional Turnover (Rs. in Crore)	Stock Option Notional Turnover (Rs. in Crore)	Total Turnover (Rs. in Crore)	Avg. Daily Turnover (Rs. in Crore)	Trading Days
2000-01	2,365	-	-	-	2,365	11	215
2001-02	21,483	51,515	3,765	25,163	1,01,926	410	248
2002-03	43,952	2,86,533	9,246	1,00,131	4,39,862	1,752	251
2003-04	5,54,44	13,05,939	52,816	2,17,207	21,30,610	8,388	254
2004-05	77,217	14,84,056	1,21,943	1,68,836	25,46,982	10147.33	251
2005-06	15,13,75	27,91,697	3,38,469	1,80,253	48,24,174	19,220.00	251
2006-07	25,39,57	38,30,967	7,91,906	1,93,795	73,56,242	29,543	249
2007-08	38,20,667	75,48,563.2	13,62,110.88	3,59,136.55	1,30,90,477.7	52,153.30	251
2008-09	35,70,111	34,79,642.1	37,31,501.84	2,29,226.81	1,10,10,482.2	45,310.63	243
2009-10	39,34,388	51,95,246.6	80,27,964.20	5,06,065.18	1,76,63,664.5	72,392.07	244
2010-11	43,56,754	54,95,756.7	1,83,65,365.76	10,30,344.21	2,92,48,221.0	1,15,605.48	253
2011-12	35,77,998	40,74,670.7	2,27,20,031.64	9,77,031.13	3,13,49,731.7	1,25,902.54	249
2012-13	25,27,130	42,23,872.0	2,27,81,574.14	20,00,427.29	3,15,33,003.9	1,27,149.21	249
2013-14	30,85,296	49,49,281.7	2,77,67,341.25	24,09,488.64	3,82,11,408.0	1,52,236.69	251
2014-15	7,81,940.	17,89,643.6	56,96,734.03	6,66,655.38	26,12,2401.1	2,04,081.26	128

Table 4.2: Showing the Business Growth in Derivatives Segment Turnover in NSE.

(Source: compiled from NSE and BSE web site)

From the above table we can analyses that there is a growth in the derivatives segment, this growth is witnessed from the year 2005-06, from this year there was tremendous growth in terms of volume and the turnover in NSE. The total turnover in 2000-01, it was Rs 2,365 crores, in 2004-05 it was Rs 25, 46,982crores and in 2013-14 it was Rs 3, 82, 11,408.05crores. Finally it is concluded that the India is seeing the high business growth in the derivatives market.

Year	BSE		NSE		Trading Days
	Total Turnover (Rs in Crores)	Avg. Daily Turnover (Rs in Crores)	Total Turnover (Rs in Crores)	Avg. Daily Turnover (Rs in Crores)	
2000-01	-	-	2,365	11	215
2001-02	-	-	1,01,926	410	248
2002-03	-	-	4,39,862	1,752	251
2003-04	5,021.81	19.77	21,30,610	8,388	254
2004-05	16,112.32	63.69	25,46,982	10,107	251
2005-06	8.78	0.03	48,24,174	19,220	251
2006-07	59,006.62	236.97	73,56,242	29,543	249
2007-08	2,42,308.41	965.37	1,30,90,477.75	52,153.30	251
2008-09	11,774.83	48.46	1,10,10,482.20	45,310.63	243
2009-10	234.06	0.96	1,76,63,664.57	72,392.07	244
2010-11	154.33	0.61	2,92,48,221.09	1,15,151.48	253
2011-12	8,08,475.99	3,246.89	3,13,49,731.74	1,25,902.54	249
2012-13	71,63,576.66	28,654.31	3,15,33,003.96	1,26,638.57	250
2013-14	92,19,434.32	36,730.81	3,82,11,408.05	1,52,236.69	251

Table 4.3: Showing the Comparison Statement Derivatives Market Segment of NSE and BSE (Source: compiled from NSE and BSE web site)

From the above table we can state that there is an increase in the turnover of the financial derivatives in BSE. In the year of 2003-04 the total turnover was Rs 5,021.81 crores and this turnover has been decreased in the year of 2009-10 for Rs 234.06 crores, hence from the year 2011-12 the total turnover has rapidly increased that is Rs 8, 08,475.99crores and in year 2014-15 the total turnover is 1, 02, 40,725.06crores Therefore the total turnover financial derivatives in BSE market is increasing year by year. From the above table we can compare the performance of derivatives market segment in NSE and BSE. In this table, the comparison is done between NSE and BSE regarding the turnover of the financial derivatives traded.

The table shows that the average daily turnover for NSE traded derivatives has shown a tremendous growth since the issuance of derivatives in year 2000. This is because of increase in investors' awareness about various uses of derivatives in hedging the risk.

After analyzing the data given in tables we can say that they are encouraging growth and developing. Industry analyst feels that the derivatives market has not yet, realized its full potential in terms of growth and trading. Analyst points out 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.

4.3 Findings & Recommendations

Financial derivatives have earned a well deserved extremely significant place among all the financial instruments (products), due to innovation and revolutionized the landscape. Derivatives are tool for managing risk. Derivatives provide an opportunity to transfer risk from one to another. Launch of equity derivatives in Indian market has been extremely encouraging and successful. The growth of derivatives in the recent years has surpassed the growth of its counterpart globally. The Notional value of option on the NSE increased from 1195.691178 lakhs USD in 2003 to 354648.1941 lakhs USD in 2012 and notional value of NSE futures increased from 14329.35627 lakhs USD in 2003 to 39228.38563 lakhs USD in 2012. India is one of the most successful developing country in terms of a vibrant market for exchange-traded derivatives. The equity derivatives market is playing a major role in shaping price discovery. Volatility in financial asset price, integration of financial market internationally, sophisticated risk management tools, innovations in financial engineering and choices at risk management strategies have been driving the growth of financial derivatives worldwide, also in India. Finally we can say there is big significance and contribution of derivatives to financial system. Some of the findings are:

1. Indian derivatives market is not well developed market, it is still developing market
2. The availability of financial derivatives products are less and limited particularly in BSE derivatives market.
3. The BSE derivatives market turnover is very less comparatively.
4. The NSE derivatives market turnover is little higher than turnover of BSE derivatives market, but not to the satisfaction level.

Announcing the Union Budget in the Lok Sabha for the year 2015-16, Finance Minister has proposed various changes in order to boost the Indian Financial Market. Needless to mention that although the Budget always comes with great expectations and prospects, the overall aim is to progress and to contribute towards the economic growth of the country by taking an incremental approach. The government proposal

of merger of FMC with SEBI is a welcome step which would help in regaining the investors' confidence which was lost due to NSEL crises, will restraint the wrongdoers and may well lead to the entry of strong institutional investors in the commodity market. Moreover, steps have been taken to strengthen the bonds market by setting up Public Debt Management Agency. Lastly, the changes in the EPF and ESI have created incentives for our youth to join the formal sector and curb the decade old trend of growing informal workforce.⁵

The various reforms as brought up by the Finance bill have been discussed below:

I.PROPOSAL TO MERGE FMC WITH SEBI

With a view to strengthen the regulation of commodity forward markets and to reduce wild speculation, Finance Minister has proposed to merge the commodity market regulator Forwards Markets Commission (FMC) with the capital market regulator Securities and Exchange Board of India (SEBI).

FMC, a statutory body set up in 1953 under the Forward Contracts (Regulation) Act, 1952 (FCRA) is a regulatory authority overseen by the Ministry of Finance, Government of India. The Hitherto, the Commission is a chief regulator of commodity futures markets in India and allows commodity trading in 22 exchanges in India.

Established in the year 1988, SEBI is a regulator for the securities market in India and had been given statutory powers through the SEBI Act, 1992.

However, with the said merger taking into place, there will be a single integrated financial sector regulator SEBI, which will regulate the commodity futures trading apart from the regulating the capital market.

The government has proposed to insert a new section 28A in FCRA, which shall allow the recognized associations to be recognized as stock exchanges under the Securities Contract (Regulation) Act (SCRA). The government has also proposed to insert new sections 29A and 29B, which shall deal in repealing the FCRA and transfer of FMC to SEBI, respectively. All legal actions initiated by FMC would be continued and enforced by SEBI.

Behind the said merger is the unspoken intention of government is to recuperate the lost market confidence after the NSEL payment crisis which occurred in 2013 and affected the market including the small investors. It was also in the September 2013 that the FMC was shifted from the Consumer Affairs Ministry to the Finance Ministry for better monitoring of the NSEL crises.

The merger will prevent the illicit off-market trades which is prevalent in many parts of the country. Such off-market trade involves trading in commodities and stocks which runs into thousands of crores. While the efforts have been constantly made by various regulators and enforcement agencies to restrain such practice, the proposed merger will definitely help in curbing such practice with SEBI being given the jurisdiction to regulate the commodity market in addition to its well managed capital market with a good experience with investigation, search, seizure and taking strict actions.

The entire transition, shall take place over a period of six months to one year under the guidance of a government appointed officer on special duty. Initially, the FCRA (Forward Contracts Regulation Act) would be repealed and the definition of securities under the Securities Contracts (Regulation) Act and the SEBI Act would be amended to include commodity derivatives.

II. PROPOSAL TO SET UP PUBLIC DEBT MANAGEMENT AGENCY

Considering the fast developing Indian equity market, the need of an hour requires to a well developed Bond market to serve the funding needs of infrastructure sectors. With intent to promote investment in India and deepening the Indian Bond market, the Budget has come up with a proposal to set up a Public Debt Management Agency (PDMA) to bring India's external borrowing and domestic debt under one roof. However, all eyes will be on the functioning of this Agency along with the impact which it might likely have on the bond market.

The move to set up a separate PDMA to manage market government borrowings and public debt may cause reduction in the powers of the Central Bank, the same is in line with the trend which most of the Countries follow.

Setting up a separate PDMA will definitely help the RBI focusing on its core functions along with deepening the bond market and facilitating better planning and management of domestic and foreign market borrowings. All in all it will be a win win situation for both the authorities.

III. TO ESTABLISH FINANCIAL REDRESSAL AGENCY

It has been proposed to set up a Task Force to establish a 'sector-neutral' Financial Redressal Agency (FRA) with a view to address grievances against all financial service providers. While making this announcement, it has been further informed that work assigned to the Task Forces on the Financial Data Management Centre, the Financial Sector Appellate Tribunal, the Resolution Corporation, and the Public Debt Management Agency is progressing satisfactorily.

A unified grievance redressal agency has been proposed as a one-stop shop for addressing the financial service providers' grievances which will definitely go a long way in inculcating confidence in ordinary consumers.

Also, the Indian Financial Code is likely to be introduced in the Parliament soon, which is currently being reviewed by the Justice Srikrishna Committee.

Once single complaints resolution agency becomes a reality, any aggrieved consumer can just knock on the doors of this single-point grievance-resolution agency. An independent agency would command greater trust among consumers and create a sense of responsibility among sellers. More important, it could clean up the financial services field, and usher in healthy practices.

IV. PROPOSED OPTIONS TO EMPLOYEES FOR EPF

The budget has come up with something called employee-friendly since Finance Minister has proposed changes under Employees Provident Fund (EPF) and Employees State Insurance (ESI). Under the EPF, it has been proposed to make the employees share contribution towards the Provident Fund an option for the employees having monthly income below certain threshold although the employer will continue to contribute his share of the PF irrespective of the employee opting not

to pay his contribution. Furthermore, employees will be given an option to choose between EPF and the New Pension Scheme (NPS).

Under the current structure, all employees are mandatorily required to contribute 12 % of their basic wages including basic salary and DA as contribution towards PF. The employers also make contribution at the same rate, with 8.33% going towards pension, 0.5% towards Employees Deposit Linked Insurance (EDLI) scheme and remaining towards PF.

With respect to ESI, it has been proposed that the employee should be given an option of choosing between ESI and Health Insurance product as recognized by the Insurance Regulatory Development Authority (IRDA).

The above mentioned step is surely a welcome step and will be beneficial for the low paid workers who suffer deductions greater than high paid workers.

The government proposal of merger of FMC with SEBI is a welcome step which would help in regaining the investors' confidence which was lost due to NSEL crises, will restraint the wrongdoers and may well lead to the entry of strong institutional investors in the commodity market. Moreover, steps have been taken to strengthen the bonds market by setting up Public Debt Management Agency. Lastly, the changes in the EPF and ESI have created incentives for our youth to join the formal sector and curb the decade old trend of growing informal workforce.

The recommendations of this study are in line with those proposed by the finance ministry and suggestions by other analysts. Investors and Indian derivatives market will be positively affected by this proposal. Based on the above analysis and findings, following are the suggestions for improvement

1. There is a need to increase the number of financial products available in Indian derivatives market
2. As derivatives are new products in Indian capital market, most of the investors are not aware about such a new products so canvas is required to make them sense of availability of that new financial products and its usefulness particularly among medium and retail investors.

3. Indian derivatives market is fully regulated market with tight rules and regulation in respect of many aspects like trading, margin money, price limit etc. so it is required to develop rules and provisions in favour of traders in order to attract the traders towards derivatives market.

4. Finally it is suggested that Government has to take keen interest and set up committees to make study the limitations, drawbacks, problems etc. as whole in order to develop Indian derivatives market in such a way to compare with World Derivatives Market.

Way ahead

Considering the massive scope of weather derivatives for the farm sector in India, trading for the financial instrument could set in. The Securities and Exchange Board of India has plans to permit trading in weather derivatives for managing risk in the agricultural sector, which in turn, would bring respite to farmers in the country, as per a Business Standard report.

Post the idea, being unveiled at this year's Union Budget by Finance Minister Arun Jaitley, the same provides a glimmer of hope to get transpired. Additionally, the idea first witnessed addressal at the Commodity Derivatives Market Advisory Committee, as per the report. Definite actions on materializing the plan could firm up as the week wraps up, the report said. With the capital markets regulator introducing the financial instrument, the possibilities of trading entities bringing in customized versions are quite upbeat. Apart from agriculture, weather conditions inevitably affect sectors such as hotels, financial institutions, insurance, confectionery, engineering, construction and others. Hence, the idea, if implemented would play out in favour of these sectors as well, as per experts, added the report.

The research conducted in this area can be useful for the investors who wish to hedge their risk. The investors can use the results to look how the Indian derivatives market has grown and the potential that Indian market has. Investors get to know about the future of derivatives market and the new derivatives that will be launched in future.

4.3.1 Conclusion

India is one of the most successful developing country in terms of a vibrant market for exchange-traded derivatives. The equity derivatives market is playing a major role in shaping price discovery. Volatility in financial asset price, integration of financial market internationally, sophisticated risk management tools, innovations in financial engineering and choices at risk management strategies have been driving the growth of financial derivatives worldwide, also in India. Derivatives provide an opportunity to transfer risk from one to another. The launch of variety of derivative products in Indian financial market has been extremely encouraging and successful. The growth of derivatives in the recent years have made remarkable changes in Indian financial market. Finally, it is concluded that financial derivatives are meaningful risk management tools for corporates, businesses, participants for managing and sharing of risk in the financial market and also contribute lot to development of financial system which is ultimately results in the development of an economy of nation

4.4 Limitations of the Study

This paper analyses the derivatives market of India. A lot has been covered before and after the years in focus, a chronological order of the maneuvers has not been provided.

The subject of our study is influenced by the global economy, domestic economy, climate change and other factors and events affecting the entire world. An always-changing attribute of the above mentioned factors makes it difficult to conduct the study and provide rationale for each and every regulatory changes made by the government .

The equity derivatives market is playing a major role in shaping price discovery. Volatility in financial asset price, integration of financial market internationally, sophisticated risk management tools, innovations in financial engineering and choices at risk management strategies have been driving the growth of financial derivatives worldwide, also in India. Finally we can say there is big significance and contribution of derivatives to financial system and a lot of research can be conducted in this area.

Also, even though the monetary policy decisions taken by the authorities are based on many investigations, discussions and reports, the decisions are a leap of faith. Hence, the outcome may not be the one desired. Hence, the rationales given in this paper are merely situational, based on what happened in the past and may not apply to every other policy decision.

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6. **ADHERENCE SHEET**

Particulars	Last Date	Signature of Mentors	
Title of the Project/Area of Topic Finalization	21-Jan-16		
Literature Review/Objectives of the study	02-Feb-16		
Methodology	18-Feb-16		
Questionnaire/Data Collection tools	03-Mar-16		
Data Collection	17-Mar-16		
Analysis	24-Mar-16		
Conclusion and Recommendations	01-Apr-16		
First Draft	15-Apr-16		
Final Report/Binding and Submission	03-May-16		