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# THE ROLE OF FINANCIAL DERIVATIVES IN RISK MANAGEMENT

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**Abstract**
*The Indian derivative market has become multi-trillion dollar markets over the years. Marked with the ability to partially and fully transfer the risk by locking in assets prices, derivatives are gaining popularity among the investors. Since the economic reforms of 1991, maximum efforts have been made to boost the investors' confidence by making the trading process more users' friendly. Still, there are some issues in this market. So, the present paper is an attempt to study the evolution of Indian derivative market, trading mechanism in its various products and the future prospects of the Indian Derivative market. The present paper is descriptive in nature and based on the secondary data. Inspite of the growth in the derivative market, there are many issue (e.g., the lack of economies of scale, tax and legal bottlenecks, increased off-balance sheet exposure of Indian banks need for an independent regulator etc), which need to be immediately resolved to enhance the investors' confidence in the Indian derivative market.*

***Key Words: Derivatives, Indian Derivatives Market and Trading Mechanism.***

## INTRODUCTION

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.

The present study 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.

## LITERATURE REVIEW

1. According to DR. (MRS.) KAMLESH GAKHAR "The Indian derivative market has achieved tremendous growth over the years, and also has a long history of trading in various derivatives products. The derivatives market has seen ups and downs". According to Shawkat Hammoudeh ": Risk management is crucial for optimal portfolio management. One of the fastest growing areas in empirical finance is the expansion of financial derivatives".
2. According to Asani Sarkar "Derivatives may be traded for a variety of reasons. A derivative enables a trader to hedge some preexisting risk by taking positions in derivatives markets that offset potential losses in the underlying or spot market".
3. According to Apanard (Penny) Prabha"Derivatives' role during the financial crisis and subsequent anemic recovery is also examined. Derivatives are shown to have an even larger positive impact relative to the pre-crisis period. This is not surprising given that firms use derivatives to minimize cash-flow volatility associated with underlying risk".

## DERIVATIVES

Section 2(ac) of Securities Contract Regulation Act (SCRA) 1956 defines Derivative 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".

The International Monetary Fund (2001) defines derivatives as "financial instruments that are linked to a specific financial instrument or indicator or commodity and through which specific risks can be traded in financial markets in their own right. The value of a financial derivative derives from the price of an underlying item, such as an asset or index. Unlike debt securities, no principal is advanced to be repaid and no investment income accrues."

## PARTICIPANTS IN THE DERIVATIVE MARKET

Patwari and Bhargava (2006) stated that there are three broad categories of participants in the derivative market. They are: Hedgers, Speculators and Arbitrageurs.

A **Hedger** is a trader who enters the derivative market to reduce a pre-existing risk. In India, most derivatives users describe themselves as hedgers (Fitch Ratings, 2004) and Indian laws generally require the use of derivatives for hedging purposes only.

**Speculators**, the next participant in the derivative market, buy and sell derivatives to book the profit and not to reduce their risk. They wish to take a position in the market by betting on future price movement of an asset. Speculators are attracted to exchange traded derivative products because of their high liquidity, high leverage, low impact cost, low transaction cost and default risk behaviour. Futures and options both add to the potential gain and losses of the speculative venture. It is the speculators who keep the market going because they bear the risks, which no one else is willing to bear.

The third participant, **Arbitrageur** is basically risk-averse and enters into the contracts, having the potential to earn riskless profits. It is possible for an arbitrageur to have riskless profits by buying in one market and simultaneously selling in another, when markets are imperfect (long in one market and short in another market). Arbitrageurs always look out for such price differences. Arbitrageurs fetch enormous liquidity to the products which are exchanges traded. The liquidity in-turn results in better price discovery, lesser market manipulation and lesser cost of transaction.

**FINANCIAL DERIVATIVES**

At present the Indian stock markets are not having any risk hedged instruments that would allow the investors to manage and minimize the risk. In industrialized countries apart from money market and capital market securities, a variety of other securities known as “derivatives” have now become available for investment and trading. The derivatives originate in mathematics and refer to a variable which has been derived from another variable. A derivative is a financial product which has been derived from another financial product or commodity. The derivatives do not have independent existence without underlying product and market. Derivatives are contracts which are written between two parties for easily marketable assets. Derivatives are also known as deferred delivery or deferred payment instruments. Since financial derivatives can be created by means of a mutual agreement, the types of derivative products are limited only by imagination and so there is no definitive list of derivative products.

Financial derivatives are financial instruments that are linked to a specific financial instrument or indicator or commodity, and through which

**DERIVATIVES PRODUCTS TRADED IN DERIVATIVES SEGMENT OF BSE**

The Bombay Stock Exchange (BSE) created history on June 9, 2000 when it launched trading in Sensex based futures contract for the first time. It was then followed by trading in index options on June 1, 2001; in stock options and single stock futures (31 stocks) on July 9, 2001 and November 9, 2002, respectively. It permitted trading in the stocks of four leading companies namely; Satyam, State Bank of India, Reliance Industries and TISCO (renamed now Tata Steel). Chhota (mini) SENSEX7 was launched on January 1, 2008. With a small or 'mini' market lot of 5, it allows for comparatively lower capital outlay, lower trading costs, more precise hedging and flexible trading. Currency futures were introduced on October 1, 2008 to enable participants to hedge their currency risks through trading in the U.S. dollar-rupee future platforms. Table 1 summarily specifies the derivative products and their date of introduction on the BSE.

| S. No | Product | Traded with underlying asset | Introduction Date |
|---|---|---|---|
| 1 | Index Futures | Sensex | June 9,2000 |
| 2 | Index Options | Sensex | June 1,2001 |
| 3 | Individual Stock Option | Concerned Company Stock | July 9, 2001 |
| 4 | Individual Stock futures | Concerned Company Stock | November 9,2002 |
| 5 | Weekly Option | 4 Stocks | September 13,2004 |
| 6 | Chhota (mini) | SENSEX | January 1, 2008 |
| 7 | Currency Futures | US Dollar Rupee | October 1,2008 |

**DERIVATIVES PRODUCTS TRADED IN DERIVATIVES SEGMENT OF NSE**

NSE started trading in index futures, based on popular S&P CNX Index, on June 12, 2000 as its first derivatives product. Trading in index options was introduced on June 4, 2001. On November 9, 2001, Futures on individual securities started. As stated by the Securities & Exchange Board of India (SEBI), futures contracts are available on 233 securities. Trading in

options on individual securities commenced w.e.f. July 2, 2001. The options contracts, available on 233 securities, are of American style and cash settled. Trading in interest rate futures was started on 24 June 2003 but it was closed subsequently due to pricing problem. The NSE achieved another landmark in product introduction by launching Mini Index Futures & Options with a minimum contract size of Rs 1 lac. NSE created history by launching currency futures contract on US Dollar-Rupee on August 29, 2008 in Indian Derivatives market. Table 2 presents a description of the types of products traded at F&O segment of NSE.

**Products Traded in F&O Segment of NSE**

| Sl.no | Product | Traded with underlying asset | Introduction Date |
|---|---|---|---|
| 1 | Index Futures | S&P CNX Nifty | June 12,2000 |
| 2 | Index Options | S&P CNX Nifty | June 4,2001 |
| 3 | Individual Stock Option | Concerned Company Stock | July 2, 2001 |
| 4 | Individual Stock futures | Concerned Company Stock | November 9,2001 |
| 5 | Interest Rate Future | T – Bills and 10 Years Bond | June 23,2003 |
| 6 | IT Futures & Options | CNX IT | August 29,2003 |
| 7 | Nifty Futures & Options | Bank | June 13,2005 |
| 8 | Nifty Junior Futures & Options | CNX | June 1,2007 |
| 9 | Futures & Options | CNX100 | June 1,2007 |
| 10 | Midcap 50 Futures & Options | Nifty | October 5,2007 |
| 11 | Mini index Futures & Options | S&P CNX Nifty index | January 1, 2008 |
| 12 | long Term Option contracts | S&P CNX Nifty Index | March 3,2008 |
| 13 | Currency Future | US Dollar Rupee | August 29,2008 |

**OBJECTIVES OF THE STUDY**

- To study about Indian derivative market.
- To study the trading mechanism of derivatives exchange.

**TRADING MECHANISM OF FINANCIAL DERIVATIVES**

Web10 states that 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. It offers great flexibility to users in terms of kinds of orders that can be placed on the terminal. Various time and price-related conditions like Immediate/Cancel, Limit/Market Price, Stop Loss, etc. can be built into an order. The trading in derivatives is essentially similar to that of trading of securities in the Capital Market segment.

**ENTITIES OF DERIVATIVES MARKET**

There are four entities in the trading system of a derivative 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 NSCCL. They 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 or/and other.
3. **Professional clearing members:** A clearing member who is not a trading member is known as a professional clearing member (PCM). Typically, banks and custodian become PCMs and clear and settle for their trading members.
4. **Participants:** A participant is a client of trading members like financial institutions. These clients may trade through multiple trading members, but settle their trades through a single clearing member only.

The terminals of trading of futures & options segment are available in 298 cities at the end of March 2006. Besides trading terminals, it can also be accessed through the internet by investors from anywhere.

**TYPES OF DERIVATIVES**

There are four main types of derivatives that fall under the broader heading of financial derivatives. These derivative types are:

1. Forwards
2. Futures
3. Options
4. Swaps.

1. **Forward contract:** 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 agreed today. In case of a forward contract the price which is paid/ received by the parties is decided at the time of entering into contract. It is simplest form of derivative contract mostly entered by individual in day to day life. The holder of a long (short) forward contract has an agreement to buy (sell) an asset at a certain time in the future for a certain price, which is agreed upon today. The buyer (or seller) in a forward contract:
    - Acquires a legal obligation to buy (or sell) an asset (known as the underlying asset)
    - At some specific future date (the expiration date)
    - At a price (the forward price) which is fixed today.

The basic features of a contract are given in brief here as under:

- Forward contracts are bilateral contracts, and hence, they are exposed to the counter party risk. There is risk of non-performance of obligation either of the parties, so these are riskier than to futures contracts.
- Each contract is custom designed, and hence, is unique in terms of contract size, expiration date, the asset type, quality etc.
- In forward contract, one of the parties takes a long position by agreeing to buy the asset at a certain specified future date. The other party assumes a short position by agreeing to sell the same asset at the same date for the same specified price. A party with no obligation offsetting the forward contract is said to have an open position. A party with a close position is, sometimes, called a hedger.
- The specified price in a forward contract is referred to as the delivery price. The forward price for a particular forward contract at a particular time is the delivery price that would apply if the contract were entered into at that time. It is important to differentiate between the forward price and the delivery price. Both are equal at the time the contact is entered into. However, as time passes, the forward price is likely to change whereas the delivery price remains the same.
- In the forward contract, derivative asset can often be contracted from the combination of underlying assets; such assets are often known as synthetic assets in the forward market.
- In the forward market, the contract has to be settled by delivery of the asset on expiration date. In case the party wishes to reverse the contract, it has to compulsory go to the same counter party, which may dominate and command the price it wants as being in a monopoly situation.
- In a forward contract, covered party or cost of carry relations are relation between the prices of forward and underlying assets.
- Forward contract are very popular in foreign exchange market as well as interest rate bearing instruments. Most of the large and international banks quote the forward rate through their „forward desk" lying within their foreign exchange trading room. Forward foreign exchange quotes by these banks are displayed with the spot rates.

2. **Future Contract:** 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. Future contracts are normally traded on an exchange which sets the certain standardized norms for trading in futures contracts.

The features of a futures contract may be specified as follows:

1. Futures are traded only in organized exchanges.
2. Futures contract required to have standard contract terms.
3. Futures exchange has associated with clearing house.
4. Futures trading required margin payment and daily settlement.
5. Futures positions can be closed easily.
6. Futures markets are regulated by regulatory authorities like SEBI.
7. The futures contracts are executed on expiry date.
8. The futures prices are expressed in currency units, with a minimum price movement called a tick size.

The quality of positive economic theory explains about its ability with precision clarity and simplicity. The main characteristics of futures explained by a good economic theory are as follows:

1. There are a limited number of actively traded products with futures contracts.
2. The trading unit is large and indivisible.
3. It has no more than maturity of 3 months.
4. The success ratio of new contract is about 25% in the world financial markets.
5. Futures are seldom used by farmers.
6. There are both commercial and non-commercial users of futures contract in interest rates and foreign exchange.
7. The main use of the future by the commercial users is to hedge corresponding cash and forward positions.
8. The positions of the non-commercial users take almost entirely speculative positions. In foreign exchange futures, the positions of the commercials users are unbalanced. A Study of Derivatives Market in India and its Current Position

3. **Options Contract:** Options are derivative contract that give 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. In theory, option can be written on almost any type of underlying security. Equity (stock) is the most common, but there are also several types of non-equity options, based on securities such as bonds, foreign currency, indices or commodities such as gold or oil. The person who buys an option is normally called the buyer or holder. Conversely, the seller is known as the seller or writer. Again we can say "An option is a particular type of a contract between two parties where one person gives the other person the right to buy or sell a specific asset at a specified price within a specified time period." Today, options are traded on a variety of instruments like commodities, financial assets as diverse as foreign exchange, bank times deposits, treasury securities, stock, stock indexes, petroleum products, food grains, metals etc. The main characteristics of options are following:

1. Options holders do not receive any dividend or interest.
2. Option yield only capital gains.
3. Options holder can enjoy a tax advantages.
4. Options are traded on OTC and in all recognized stock exchanges.
5. Options holders can control their rights on the underlying assets.
6. Options create the possibility of gaining a windfall profit.
7. Options holder can enjoy a much wider risk- return combinations.
8. Options can reduce the total portfolio transaction costs.
9. Options enable with the investors to gain a better returns with a limited amount of investment.

A call which is the right to buy shares under a negotiable contract and which do not carry any obligation. The buyers have the right to receive the delivery of assets are known as „call option."In this option the owner has the right to sell the underlying asset under the negotiable contract. Put option holder has the right to receive the payment by surrendering the asset. The writer of an option is a stock broker, member or a security dealer. The buyer of an option pays a price depending on the risk of underlying security and he as an investor or a dealer or trader.

We distinguish between the right to buy or sell assets:

- **Call or call-options:** A call (or a call-option) is a contract between a holder (the buyer) and a writer (the seller) which gives the holder the right to buy a financial asset from the writer on or until the maturity date T at a fixed strike price K.
- **Put or put-option:** A put (or a put-option) is a contract between a holder (the seller) and a writer (the buyer) which gives the holder the right to sell a financial asset to the writer on or until the maturity date T at a fixed strike price K.

The basic features of options or followings:

1. The option is exercisable only by the owner namely the buyer of the option.
2. The owner has limited liability.
3. Owners of options have no voting rights and dividend right.
4. Options have high degree of risk to the option writers.
5. Options involving buying counter positions by the option sellers.
6. Flexibility in investors needs.
7. No certificates are issued by the company.

4. **Swaps Contract**

A swap is an agreement between two or more people or parties to exchange sets of cash flows over a period in future.

Swaps are agreements between two parties to exchange assets at predetermined intervals. Swaps are generally customized transactions. The swaps are innovative financing which reduces borrowing costs, and to increasecontrol over interest rate risk and FOREX exposure. The swap includes both spot and forward transactions in a single agreement. Swaps are at the centre of the global financial revolution. Swaps are useful in avoiding the problems of unfavourable fluctuation in FOREX market. The parties that agree to the swap are known as counter parties. The two commonly used swaps are interest rate swaps and currency swaps.

Interest rate swaps which 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 the cash flows in one direction being in a different currency than the cash flows in the opposite direction.

**DEVELOPMENT OF DERIVATIVE MARKETS**

Derivatives markets have been in existence in India in some form or other for a long time. In the area of commodities, the Bombay Cotton Trade Association started futures trading in 1875 and, by the early 1900s India had one of the world's largest futures industries. In 1952 the government banned cash settlement and options trading and derivatives trading shifted to informal forwards markets. In recent years, government policy has changed, allowing for an increased role for market-based pricing and less suspicion of derivatives trading. The ban on futures trading of many commodities was lifted starting in the early 2000s, and national electronic commodity exchanges were created.

In the equity markets, a system of trading called "badla" involving some elements of forwards trading had been in existence for decades.6 However, the system led to a number of undesirable practices and it was prohibited off and on till the Securities and Exchange Board of India (SEBI) banned it for good in 2001. A series of reforms of the stock market between 1993 and 1996 paved the way for the development of exchange traded equity derivatives markets in India. In 1993, the government created the NSE in collaboration with state-owned financial institutions. NSE improved the efficiency and transparency of the stock markets by offering a fully automated screen-based trading system and real-time price dissemination. In 1995, a prohibition on trading options was lifted. In 1996, the NSE sent a proposal to SEBI for listing exchange-traded derivatives. The report of the L. C. Gupta Committee, set up by SEBI, recommended a phased introduction of derivative products, and bi-level regulation (i.e., self-regulation by exchanges with SEBI providing a supervisory and advisory role). Another report, by the J. R. Varma Committee in 1998, worked out various operational details such as the margining systems. In 1999, the Securities Contracts (Regulation) Act of 1956, or SC(R)A, was amended so that derivatives could be declared "securities." This allowed the regulatory framework for trading securities to be extended to derivatives. The Act considers derivatives to be legal and valid, but only if they are traded on exchanges. Finally, a 30-year ban on forward trading was also lifted in 1999. The economic liberalization of the early nineties facilitated the introduction of derivatives based on interest rates and foreign exchange. A system of market-determined exchange rates was adopted by India in March 1993. In August 1994, the rupee was made fully convertible on current account. These reforms allowed increased integration between domestic and international markets, and created a need to manage currency risk. Figure 1 shows how the volatility of the exchange rate between the Indian Rupee and the U.S. dollar has increased since 1991.7 The easing of various restrictions on the free movement of interest rates resulted in the need to manage interest rate risk.

**SUGGESTION**

In terms of the growth of derivatives markets, and the variety of derivatives users, theIndian market has equalled or exceeded many other regional markets.13 While the growth is being spearheaded mainly by retail investors, private sector institutions and large corporations, smaller companies and state-owned institutions are gradually getting into the act. Foreign brokers such as JP Morgan Chase are boosting their presence in India in reaction to the growth in derivatives. The variety of derivatives instruments available for trading is also expanding.

**CONCLUSION**

The Indian derivative market has achieved tremendous growth over the years, and also has a long history of trading in various derivatives products. The derivatives market has seen ups and downs. The new and innovative derivative products have emerged over the time to meet the various needs of the different types of investors. Though, the derivative market is burgeoning with its divergent products, yet there are many issues. Among the issues that need to be immediately addressed are those related to, lack of economies of scale, tax and legal bottlenecks, increased off-balance sheet exposure of Indian banks, need for an independent regulator etc. Solution of these issues will definitely lead to boost the investors' confidence in the Indian derivative market and bring an overall development in all the segments of this market.

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