

FINANCIAL DERIVATIVES IN INDIA: A STUDY

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Abstract

The last two decades have seen huge increase in volume of international trade and transactions resulting in unpredictable variations in financial asset prices, interest rates and exchange rates and consequent increase in financial risks. The emergence of derivative instruments stems from the willingness of economic agents to guard against uncertainties that arise from fluctuations in asset prices. Derivatives as an instrument have no independent value. Their value depends on the underlying asset. The asset can be financial or non financial. Derivatives help traders in taking positions in derivatives market that offset potential losses in the spot market. Another motive for derivatives trading is speculation where appropriate positions are taken to profit from anticipated price movements. Derivatives trading commenced in India in the year 2000 and the market is growing ever since. This paper looks into the history of derivative trading in India and the features of major derivative instruments traded in India.

Keywords: Forward, Futures, Options, Swaps, Interest Rate Derivatives, Commodity Derivatives.

Introduction

The end of Second World War saw the emergence of an economic system where the developed countries through Bretton Woods had fixed exchange rates and the less developed countries had the system of administered pricing. Gradual rise of inflation and unemployment and its consequent effect on interest rates led to the break down of the system of fixed prices. The Bretton Woods system had to go in 1971 freeing the exchange rates to fluctuate. Price fluctuations in its wake injected risks in all types of market including financial markets. This forced the market participants to search ways to mitigate or manage risk. Derivatives are one such risk management tools.

Section 2(aa) of Securities Contract (Regulation) Act of India states that “Derivatives include: (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, and (b) a contract which derives its value from the prices or index of prices

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of underlying securities.” The global derivatives study group has defined it as “ a bilateral contract or payments exchange agreement whose value derives, as its name implies, from the value of an underlying asset or underlying reference rate or index.”

What is a derivative?

The dictionary meaning of derivative is “something which is derived from another source”. A real life example can be butter which is derived from milk. The price of butter depends upon price of milk, which in turn depends upon the demand and supply of milk⁹. A wheat farmer, in order to eliminate risk of change in price of wheat at a future date (when it is ready for sell), may wish to get into a contract in the present time. Such a transaction will take place in a wheat forward market and the price of such a contract would depend on the current spot price of wheat in the spot market. Spot market (or cash market) is a market where the transactions are settled on the spot and once a trade is agreed upon the actual exchange of money for goods – takes place with the minimum possible delay. Here, the wheat forward is the “derivative” and wheat on the spot market is “the underlying”. The terms “derivative contract”, “derivative product”, or “derivative” are used interchangeably. Derivatives are those financial instruments that derive their value from the other assets. The asset underlying a derivative may be commodity or a financial asset. The underlying asset may assume many forms:

- i.) Commodities including grain, coffee beans, orange juice etc;
- ii.) Precious metals like gold and silver;
- iii.) Foreign exchange rates or currencies;
- iv.) Bonds of different types, including medium to long term negotiable debt securities issued by governments, companies, etc.
- v.) Shares and share warrants of companies traded on recognized stock exchanges and Stock Index
- vi.) Short term securities such as T-bills; and
- vii.) Over- the Counter (OTC) money market products such as loans or deposits.

Role of Derivatives

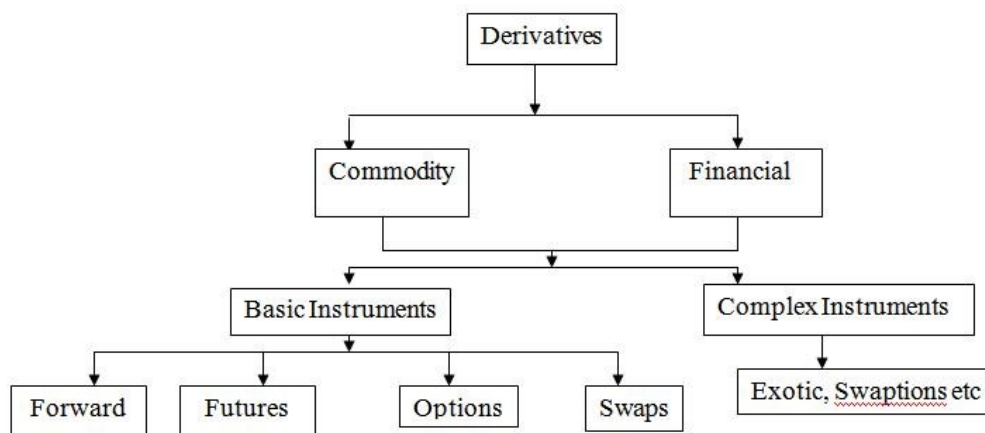
Derivatives are traded for a variety of reasons. Traders take appropriate positions in derivatives market and hedge (offset) potential losses in spot market. Another motive for derivatives trading is for speculation purpose whereby anticipating price movement, positions are taken to garner profit⁶.

Classification of Derivatives

Derivatives can be broadly classified under two categories (i) Commodity Derivatives and (ii) Financial Derivatives. In commodity derivatives the underlying assets can be

commodities like sugar, wheat, gold, silver etc., whereas in case of financial derivatives underlying assets are stocks, currencies, bonds and other interest rate bearing securities etc.

Classification of Derivatives



(Source: [Vashishtha A & Kumar S, 2010](#))

Forward

A forward contract is a simple derivative that involves an agreement to buy/sell an asset on a certain future date at an agreed price. This is a contract between two parties, one who takes a long position and agrees to buy the underlying asset on a specified future date for a certain specified price. The mutually agreed price in a forward contract is known as the delivery price. The delivery price is chosen in such a way that the value of the forward contract to both the parties is zero, which means that it does not cost anything to take either a long or a short position. On maturity, the contract is settled so that the holder of the short position delivers the underlying asset to the holder of the long position who in turn pays a cash amount equal to the delivery price. It may be noted that while the delivery price contracted remains the same, the value of a contract to the parties involved is determined mainly by the market price of the underlying asset. The change in the market price of the underlying asset changes the value of the contract¹⁰. Forward contracts are traded over-the-counter and are not dealt with on an exchange unlike futures contract. Lack of liquidity and counter party default (subsequent upon entering a forward contract, a party to it may fail to meet the contractual obligation) risks is the main drawbacks of a forward contract.

Futures

A future contract is very much like a forward contract and represents an agreement between two parties to buy/sell an asset at a certain time in the future for a certain price. But, while forward contracts are between two parties who directly deal with and have accountability to each other for the particular contract, the futures contracts are (i) standardized contracts (ii) between two parties who necessarily know each other, and (iii) guaranteed for performance by an intermediary, known as the clearing corporation or clearing house. The contracts are guaranteed for performance and offer a high degree of liquidity as they are standardized and are trade able like shares and debentures on an organized exchange like IMM, LIFFE, NSE, BSE, CBOT etc and thus have a secondary market. When a contract is entered into, both the buyer and the seller is required to deposit an initial margin on the contract, the exact amount of which is determined by the exchange and clearing house. Most of the futures contract gets eliminated before the delivery month (date of \maturity) and only an insignificant proportion of them result in delivery. Trader with a long position would sell a contract and thereby cancel his position and similarly a trader with a short position would buy such a contract and get out of this market. Basically, there are two types of futures contracts: commodity futures and financial futures. The commodity futures contracts involve a wide range of agricultural and other commodities, including precious metals¹⁰. The financial futures involve (i) Stock Futures or equity futures, (ii) Stock Index futures, (iii) Currency futures, and (iv) Interest rate bearing securities like Bonds, T- Bill Futures.

Options

An option is a legal contract which gives the holder the right to buy or sell a specified amount of underlying asset at a fixed price within a specified period of time. There are two parties in an option contract-one who buys the option and takes a long position and the other who sells (or writes) the option takes a short position¹⁰. It gives the holder the right to buy (or sell) but there is no obligation on the part of the holder to do the same. The seller (one who is short call) however, has the obligation to sell the underlying asset if the buyer of the call option decides to exercise his option to buy⁹. This is in contrast to forward and futures contract where both the parties have a binding commitment. Options can be categorized as call options and put options. A call option is a contract which gives the owner the right to buy an asset whereas a put option gives the owner the right to sell something. In an American style option the owner can exercise his right any time on or before the expiration date whereas in European style option the owner can exercise his right only on the expiration date and not before it.

Swaps

A swap has been described as ‘an agreement between two parties to pay each other a series of cash flows, based on fixed or floating interest rates in the same or different currencies.’⁷ The parties that agree to the swap are known as counter parties. The two commonly used swaps are: i) Interest rate swaps which entail swapping only the interest related cash flows between the parties in the same currency, and ii) Currency swaps which 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. The principle of comparative advantage, a concept central to international trade, plays an important role in swap transactions. Each counter party borrows in the market where it enjoys a comparative advantage, and through the use of swap obtains financing at a more favorable rate than it would otherwise be able to do so.

Interest Rate Derivatives

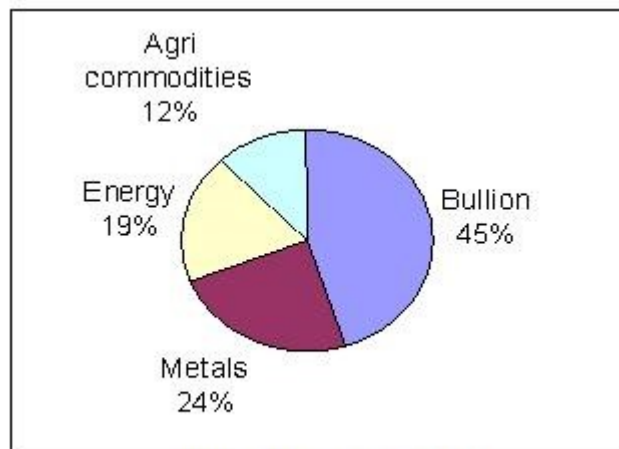
An interest rate derivative is a financial derivative where the underlying asset (interest-bearing instrument) is the right to pay or receive a notional amount of money at a given interest rate. Interest rate futures are used to hedge against the risk of interest rate movements (such as volatility movements or simple directional movements) in an adverse direction, causing a cost to the company. Interest Rate derivatives (IRD) introduced on NSE from 2009, offers futures contracts on 10 Year Notional Coupon-bearing Government of India (GOI) securities and the recently introduced (2011) 91-day Government of India (GOI) Treasury Bill (Source: nseindia).

Commodity Derivatives

Commodity derivatives made their appearance before financial derivatives in the world and also in India³. The Forward Contract Regulation Act (FCRA) governs commodity derivatives in India. The FCRA specifically prohibits OTC commodity derivatives. Accordingly, at this point in time, there are only exchange-traded commodity derivatives. Furthermore, FCRA does not even allow options on commodities. Therefore, at present, India trades only exchange-traded commodity futures⁵. Throughout the last decade the commodity futures market has developed significantly in terms of both network and volume. At present, there is a two-tier structure for Commodity Exchanges in India: Regional and Country-Wide. Currently, there are three such exchanges, viz., MCX (Multi Commodity Exchange), NMCE (National Multi Commodity Exchange) and NCDEX (National Commodities and Derivatives Exchange). MCX has evolved as the largest exchange in the country. MCX started its operations on November 10, 2003 and today it holds a market share of over 80 per cent of the Indian commodity futures market. MCX offers more than 40 commodities across various segments such as bullion, ferrous and non-ferrous

metals, and a number of agri-commodities on its platform. At present, futures contracts are available for over 100 commodities across the country. The total number of commodities traded on Futures Exchanges is categorized into two major groups, viz., Agricultural Commodities and Non-Agricultural Commodities. Non-agricultural commodities are further categorized into bullion/ precious metals, base metals, energy and polymer products. Agricultural commodities are further categorized into cereals, oil and oilseeds, pulses, fibres, plantations, spices and others that include mentha oil, potato, sugar, etc. There has been a change in the composition of trade. Initially, agricultural commodities dominated the market, bullions occupying the second place. In 2010-11, bullions occupied the first position with 45% share followed by metals with 24% and energy with 19%. The share of agricultural commodities in futures trading has come down to the level of 12% (Figure 1). The volume of trade has increased from Rs. 34, 84,485 crore in 2006 to Rs. 94, 94,725 crore in 2010.

Figure 1: Share of Commodity Groups in Trade Volume



(Source: Gupta R, 2011)

Traders in a Derivative Market

Hedgers, speculators and arbitrageurs are three broad categories of participants who trade in the derivatives market. Hedgers face risk associated with the price of an asset. They use futures or options markets to reduce/eliminate this risk. Speculators wish to bet on future movements in the price of an asset. Futures and options contracts can give them an extra leverage, that is, they can increase both the potential gains and potential losses in a speculative venture. Arbitrageurs are in business to take advantage of a discrepancy between prices in two different markets. If, for example, they see the future price of an asset getting out of line with the cash price, they will take offsetting positions in the two markets to earn profit.

Classification of Derivatives Markets

Derivatives markets fall in two broad categories: (i) Exchange-traded Derivatives Markets and (ii) Over-The Counter (OTC) Derivatives Markets.

(i) Exchange-traded Derivatives Markets

The futures contracts are traded on recognized exchanges which are similar to stock exchanges. Future contracts are essentially standardized forward contracts, which are traded on the exchanges and settled through the clearing agency of the exchanges. Trading is done in the same way as other securities like shares. Once an investor decides to buy a certain contract, he calls his broker and instructs to buy him the desired contract. The broker would look for a deal and once a future price is agreed upon between the buyer and the seller the trade is complete. Once the trade is complete the clearing house of the exchange becomes the opposite party to each one of the parties. Thus when an investor goes long a future contract, he/she effectively buys it from the clearing house, and, similarly, when one goes short a futures contract, one is liable to the clearing house only. In effect, the clearing house ensures the integrity of each futures contract by interposing itself between each buyer and seller.

The various exchange-traded derivatives market in India are the National Stock Exchange(NSE), the Bombay Stock Exchange(BSE), the National Commodities and Derivatives Exchange(NCDEX) and the Multi Commodity Exchange(MCX). Some of the international exchanges where such derivatives are traded are The Sydney Futures Exchange, the New Zealand Futures and Options Exchange, Singapore Exchange Derivatives Trading Limited, Commodity and Monetary Exchange of Malaysia, Kuala Lumpur Options and Financial Futures Exchange, Hong Kong Futures Exchange.

(ii) Over-The Counter (OTC) Derivatives Markets

Products/contracts that are traded outside the exchanges are called OTC derivatives. They are contracts which are privately traded between two parties and involve no exchange or intermediary. Swaps, options and forward contracts are traded in the over the counter derivatives market or OTC market. The OTC derivatives markets are much larger than the exchange-traded derivatives markets. The OTC derivatives markets are predominantly institutional markets and individual transactions tend to be fairly large in size, while the exchange traded derivatives markets, on the other hand, have a significant retail component and their average transaction size tends to be much smaller. The terms of an OTC contract are flexible, and are often customized to fit the specific requirements of the user. However, OTC Contracts have substantial credit risk; which is the risk that the counterparty that owes money may default on the payment⁴. The OTC derivative markets in India are well regulated.

Some of the key regulatory safeguards available in the OTC derivative transactions are:

- i. One of the counter parties to the OTC derivative transactions has to be a RBI regulated entity.
- ii. Users are permitted to transact in derivatives essentially to hedge an underlying exposure.
- iii. There are clear prescriptions about the roles and responsibilities of market makers; mostly banks and primary dealers (for interest rate derivatives) are permitted to act as market makers.
- iv. The market maker has the responsibility for assessing customer suitability and appropriateness and they are required to fulfill the prescribed set of requirements while selling any product to a user.
- v. The overall framework within which derivative transactions are to be undertaken has to be guided by the RBI approved policy. The risk management framework should lay down the procedures to deal with any violation of risk limits.

History of Derivatives Market in India

India's tryst with derivatives began in 2000 when both the NSE and the BSE commenced trading in equity derivatives. In June 2000, index futures became the first type of derivative instruments to be launched in the Indian markets, followed by index options in June 2001, options in individual stocks in July 2001, and futures in single stock derivatives in November 2001. Since then, equity derivatives have come a long way. New products, an expanding list of eligible investors, rising volumes, and the best risk management framework for exchange-traded derivatives have been the hallmark of the journey of equity derivatives in India so far.

India's experience with the equity derivatives market has been extremely positive. The derivatives turnover on the NSE has surpassed the equity market turnover. The turnover of derivatives on the NSE increased from Rs 23,654 million in 2000–2001 to Rs 292,482,211 million in 2010–2011, and reached Rs 157,585,925 million in the first half of 2011–2012. The average daily turnover in these market segments on the NSE was Rs 1,151,505 million in 2010–2011 compared to Rs 723,921 in 2009–2010(Source: nseindia).

TURNOVER IN INDIAN DERIVATIVES MARKET

								(Rs billion)
Year/Month	Equity Derivatives				Currency Derivatives			Interest Rate Derivatives
	Index Futures	Index Options	Stock Futures	Stock Options	Forward	Swap	Exchange Traded Currency Options and Futures	Interest Rate Swap
1	2	3	4	5	6	7	8	9
2009-10	39,345	80,281	51,952	5,061	20,359	31,454	37,273	25,695
2010-11	43,569	1,72,694	54,958	10,303	28,902	41,125	84,153	47,464
2011-12	37,564	2,33,384	40,849	9,785	24,134	46,876	98,964	51,238

(Source: rbi.gov.in)

Global Derivatives Market

After the credit crisis took its toll in 2009, the global futures and options industry returned to rapid growth in 2010 after levelling off in 2009. Exchanges in Asia grew especially rapidly in 2010, with growth rates of 42.8 percent, accounting for 39.8 percent of the global volume, compared to 32.2 percent for North America and 19.8 percent for Europe. Most of the increase in volume came from exchanges in China, India, and Korea. In India, the growth story was driven mainly by financial contracts, foreign exchange contracts in particular. One of the most interesting developments in the Asia-Pacific region is the growth of equity index futures and options. These products are traded all across the regions, with some being relatively new to the market and others being very well-established. The newest of the group is the CSI 300 stock index futures, which began trading in April on the China Financial Futures Exchange in Shanghai, and the Kospi 200 index options is the region's most actively traded equity index contract. The NSE improved its ranking in 2010 in terms of traded volumes in futures and options taken together, improving its worldwide ranking from 15th in 2006 to eighth position in 2008, seventh in 2009, and fifth in 2010. The traded volumes in the derivatives segment of the NSE saw an increase of 75.92 percent in 2010, compared to the volumes in 2009 (Source: nseindia).

Conclusion

India is one of the most successful developing countries in terms of a vibrant market for exchange traded derivatives. This reiterates the strengths of the modern development of India's securities markets which are based on nationwide market access, safe and secure electronic trading, and a predominantly retail market. Factors like increased volatility in financial asset prices, growing integration of national financial markets with international markets, development of more sophisticated risk management tools, wider choices of risk management strategies to economic agents

and innovations in financial engineering have been driving the growth of financial derivatives worldwide and also fuelled the growth of derivatives in India. Despite the encouraging growth and developments, industry analysts feel that the derivatives market has not yet realised its full potential in terms of growth and trading. As Indian derivatives markets become more sophisticated, greater investor awareness will become essential. In addition, institutions will need to devote more resources to develop the business processes and technology necessary for derivatives trading.

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