

# A STUDY ON HEDGING OF EQUITY RISK WITH FUTURES CONTRACTS

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## 1. INTRODUCTION:

A derivative is a financial instrument, whose value depends on other, more basic, underlying variables. Derivative is a product/contract which does not have any value on its own i.e. it derives its value from some underlying. The variables underlying could be prices of traded securities and stock, prices of gold or copper, prices of oranges to even the amount of snow that falls on a ski resort. Derivatives have become increasingly important in the field of finance. Options and futures are traded actively on many exchanges. Forward contracts, swaps, and different types of options are regularly traded outside exchanges by financial Institutions, banks and their corporate clients in what are termed as over-the-Counter markets-in other words; there is no single market place or an organized Exchange. The problem is either investing in futures is profitable or in options.

The real motivation to use derivatives is that they are very useful in reallocating Risk either across time or across individuals with different risk bearing Preferences.

Derivative instruments are basically of two types-traded on the floor of an exchange and OTC or over the counter. Trading instruments on the floor of an exchange entails little counter party risks. Banks, Securities firms, companies and investors to hedge risks, to gain access to cheaper money and to make profit, use derivatives. Derivatives are likely to grow even at faster rate in future.

## OBJECTIVES OF THE STUDY

- To analyze the derivatives market in India.
- To make a comparative study of futures n options.
- To find the profit/loss position of futures buyer and option buyer.
- To study about the risk management with the help of derivatives.
- To get informed with various terminologies in the derivative market.
- To understand Payoff patterns of Derivatives Contracts in real market conditions
- To be familiar with preparation of various derivatives reports for clients

## NEED FOR THE STUDY

India's three-year old futures market is the on the verge of fast becoming a haven for retail investors. They are slowly emerging as instruments for mass investment, hedging and speculation. What is noteworthy is that notwithstanding stringent margins, small set of scripts and surveillance and reporting requirements still the derivatives volume have surpassed cash market volumes within such a short time. Derivatives have a number of advantages such as hassle free settlement, lower transaction cost, flexibility in terms of various permutations and combinations of trading strategies etc.

- To help in transferring risks from risk averse people to risk oriented people
- To help in the discovery of future as well as current prices
- To catalyze entrepreneurial activity
- To increase the volume traded in markets because of participation of risk averse people in greater numbers
- To increase savings and investment in the long run

## SCOPE OF THE STUDY

The study is limited to derivatives with reference to five companies selected for the study and the study is restricted to only futures of the selected companies as sample. The companies taken for the study are Bajaj Finance, South Bank, Tata Consultancy Services(TCS), Bharat Heavy Electricals Limited(BHEL), and Jindal Steel. The study cannot be said as totally perfect, any alteration may come. The study has made a humble attempt at evaluation of derivatives market only in the INDIAN context.

The Study is limited to “Derivatives” with special reference to Futures in the Indian context and the Inter-Connected Stock Exchange have been Taken as a representative sample for the study. The study can't be said as totally perfect. Any alteration may come. The study has only made a humble Attempt at evaluation derivatives market only in India context. The study is not based on the international perspective of derivatives markets, which exists in NASDAQ, CBOT etc.

In India, all attempts are being made to introduce derivative instruments in the capital market. The National Stock Exchange has been planning to introduce index-based futures. A stiff net worth criteria of Rs.7 to 10 corers cover is proposed for members who wish to enroll for such trading. But, it has not yet received the necessary permission from the securities and Exchange Board of India.

## 2. LITERATURE SURVEY

### DERIVATIVES

Derivative is a product whose value is derived from the value of one or more basic variables, called bases (underlying asset, index, or reference rate), in a contractual manner. The underlying asset can be equity, forex, commodity or any other asset. For example, wheat farmers may wish to sell their harvest at a future date to eliminate the risk of a change in prices by that date. Such a transaction is an example of a derivative. The price of this derivative is driven by the spot price of wheat which is the "underlying".

In the Indian context the Securities Contracts (Regulation) Act, 1956 (SC(R) A) defines "derivative" to include-

1. 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.
2. A contract which derives its value from the prices, or index of prices, of underlying securities. Derivatives are securities under the SC(R)A and hence the trading of derivatives is governed by the regulatory framework under the SC(R)

### FACTORS DRIVING THE GROWTH OF DERIVATIVES

Over the last three decades, the derivatives market has seen a phenomenal growth. A large variety of derivative contracts have been launched at exchanges across the world. Some of the factors driving the growth of financial derivatives are:

1. Increased volatility in asset prices in financial markets,
2. Increased integration of national financial markets with the international markets,
3. Marked improvement in communication facilities and sharp decline in the costs,
4. Development of more sophisticated risk management tools, providing economic agents a wider choice of risk management strategies, and
5. Innovations in the derivatives markets, which optimally combine the risks and returns over a large number of financial assets leading to higher returns,

reduced risk as well as transactions costs as compared to individual financial assets.

### 3. RESEARCH METHODOLOGY

#### SELECTION OF THE SCRIPS

The scrip's are selected on a random basis and from five different sectors. The profitability position of the futures and options is studied. The scrips taken for the study for both futures and options are GMR Infrastructure Ltd, Hindustan Unilever Ltd, Ranbaxy Laboratories Ltd, Reliance Communications Ltd and Tata Motors Ltd.

#### DATA COLLECTION

The mode of data collection is secondary. The data is collected from the business newspapers and internet.

#### ANALYSIS

The analysis consist of the tabulation of the data assessing the profitability positions of the futures n options holders and sellers, representing the data with graphs and making the interpretation using data.

#### LIMITATIONS OF THE STUDY

- The study is limited to selected five companies.
- The data is of three months and the analysis is done on weekly basis.
- The data collected is from 01-10-2019 to 31-12-2019, which is the expiry date of the selected samples.
- The standard deviations and correlation analysis is limited to three months calculation analysis only.
- Hedging ratio calculation is limited to quarterly calculation basis.
- The graph is the relation between spot and forward price calculated analysis only for three months period only.
- This analysis cannot be taken universal.

### 4. DATA ANALYSIS & INTERPRETATION

#### DATA ANALYSIS AND INTERPRETATION

Statement showing Calculation of standard deviations, correlation and Hedging of future contract

Company 1:BAJAJFINANCE

Calculations:

Standard Deviation Of Underlying (Spot)Value : 283.75

Standard Deviation Of Settle (Forward) Price: 258.38

Correlation of Underlying (Spot) value and Settle (Forward) Price: 0.998

Hedging Ratio:  $\text{Correlation} * \text{Standard deviation of Spot value} / \text{Standard deviation of Forward Price} = 1.10$

Interpretation:

The above calculation shows the Future contract for the month of Oct 2016 to the expiry date of 31st Dec 2016 in Bajaj Finance. The Standard Deviation Of Underlying (Spot) Value is 283.75 and Standard Deviation Of Settle (Forward) Price is 258.38. The total correlation value is 0.998 and Hedging ratio is 1.10. As per above analysis at least One Contract must be taken to hedge risk using future Contract in Bajaj Finance Bond.

Company 2: SOUTH BANK

Calculations:

Standard Deviation Of Underlying (Spot)Value : 1.17

Standard Deviation Of Settle (Forward) Price: 1.29

Correlation of Underlying (Spot) value and Settle (Forward) Price: 1

Hedging Ratio:  $\text{Correlation} \times \text{Standard deviation of Spot value} / \text{Standard deviation of Forward Price} = 0.91$

Interpretation:

The above calculation shows the Future contract for the month of Oct 2016 to the expiry date of 31st Dec 2016 in South Bank. The Standard Deviation Of Underlying (Spot) Value is 1.17 and Standard Deviation Of Settle (Forward) Price is 1.29 and Hedging ratio is 0.91. The total correlation value is 1.00. As per above analysis One Contract must be taken to hedge risk using future Contract in South Bank Bond.

COMPANY 3: TCS

Calculations:

Standard Deviation Of Underlying (Spot) Value : 94.38

Standard Deviation Of Settle (Forward) Price: 100.54

Correlation of Underlying (Spot) value and Settle (Forward) Price: 0.99

Hedging Ratio:  $\text{Correlation} \times \text{Standard deviation of Spot value} / \text{Standard deviation of Forward Price} = 0.93$

Interpretation:

The above calculation shows the Future contract for the month of Oct 2016 to the expiry date of 31st Dec 2016 in TCS. The Standard Deviation Of Underlying (Spot) Value is 94.38 and Standard Deviation Of Settle (Forward) Price is 100.54. The total correlation value is 0.99 and Hedging ratio is 0.93. As per above analysis One Contract must be taken to hedge risk using future Contract in TCS Bond..

## 5. FINDINGS OF THE STUDY

The present project work has been undertaken to study the standard deviations of settling Price, Standard deviations Of Underling Price, Correlation in between and to find hedging ration analysis for the quarter of Oct 2016 to 31<sup>st</sup> Dec 2016, during the analysis, following facts has been identified.

The **Bajaj Finance** contract has a Standard Deviation Of Underlying (Spot) Value is 283.75 and Standard Deviation Of Settle (Forward) Price is 258.38. The total correlation value is 0.998 and Hedging ratio is 1.10. As per above analysis at least One Contract must be taken to hedge risk using future Contract in Bajaj Finance Bond.

The **South Bank** contract has a Standard Deviation Of Underlying (Spot) Value is 1.17 and Standard Deviation Of Settle (Forward) Price is 1.29. The total correlation value is 1.00 and Hedging ratio is 0.91. As per above analysis One Contract must be taken to hedge risk using future Contract in South Bank Bond.

The **TCS** contract has a Standard Deviation Of Underlying (Spot) Value is 94.38 and Standard Deviation Of Settle (Forward) Price is 100.54. The total correlation value is 0.99 and Hedging ratio is 0.93. As per above analysis One Contract must be taken to hedge risk using future Contract in TCS Bond.

The **BHEL** contract has a Standard Deviation Of Underlying (Spot) Value is 17.54 and Standard Deviation Of Settle (Forward) Price is 17.58. The total correlation value is 0.99 and Hedging Ration is 0.99. As per above analysis One Contract must be taken to hedge risk using future Contract in BHEL Bond.

The **JINDALSTEEL** contract has a Standard Deviation Of Underlying (Spot) Value is 8.45 and Standard Deviation Of Settle (Forward) Price is 8.24. The total correlation value is 1.00 and Hedging Ration is 1.02. As per above analysis

One Contract must be taken to hedge risk using future Contract in JINDAL STEEL Bond.

## SUGGESTIONS

The study reveals the effectiveness of risk reduction using hedging strategies. It has found out that risk cannot be avoided. But can only be minimized. It has been found that, all the strategies applied on historical data of the period of the study were able to reduce the loss that rose from price risk substantially.

- A knowledge need to be spread concerning the risk and return of the derivative market from RBI and SEBI for retail investors.
- If an investor wants to hedge with portfolios, it must consist of scrip's from different industries, since they are convenient and represent true nature of the securities market as a whole.
- The hedging tool to reduce the losses that may arise from the market risk. Its primary objective is loss minimization, not profit maximization. The profit from futures or shares will be offset from the losses from futures or shares, as the case may be. As a result, a hedger will earn a lower return compared to that of an unhedger. But the unhedger faces a high risk than a hedger.
- The hedger will have to be a strategic thinker and also one who think positively. He should be able to comprehend market trends and fluctuations. Otherwise, the strategies adopted by him earn him earn losses.
- The hedging tool is suitable in the short term period. They can be specifically adopted by the investor, who are facing high risks and has sufficient liquid cash with them. Long term investor should beware from the market, because of the volatile nature of the market.

## 6. CONCLUSION

- Derivative market is an innovation to cash market. Approximately its daily turnover reaches to the equal stage of cash market. The average daily turnover of the NSE derivative segment is presently the available scrip's in futures and options segment.
- In cash market the profit/loss of the investor depends on the market price of the underlying asset. The investors may incur huge profits or he may incur huge losses. But it derivatives segment the investor enjoys huge profits with limited downside.
- In cash market the investor as to pay the total money, but in derivatives the investor has to pay premium or margins, which are some percentage of total money.
- Derivatives are mostly used for hedging purpose.
- In the derivatives segment the profit/loss of the option holder/option writer is purely depended on the fluctuations of the underlying asset.

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