

A STUDY ON THE PERFORMANCE OF FUTURES MARKET IN SELECT STOCKS

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ABSTRACT:

In this project we mainly discuss about the derivatives market especially futures and they are used as the risk management tool in the Indian market scenario. Derivatives being financial instruments depend on the value of the various financial variables like stock prices, commodity price, interest rate, indices, exchange rate etc.

The derivatives market has a wide scope in the world market. Their growth is immense during that last two decades. Still there are many who do not know about the functionality of derivatives market. The main objective of this study is to show the pay-offs of select stocks in the futures market.

This project mainly focus on futures and estimated prices of future contracts, their classification, features and functions. This tells us how these futures are used for hedging the risk, how these are used as protection from the risk exposure and how the existing risk can be transformed into margins.

This study also reveals that investment in derivatives with proper knowledge will let the investors to earn profits in any kind of market situations. But now-a-days even the educated persons are not willing to invest in derivatives market. So it is recommended that SEBI must take necessary steps in improving the derivatives market so that more investors may invest in the derivatives in the future.

INTRODUCTION OF FUTURES

Futures are the one of the most important type in derivatives markets which were designed to solve the problems that are existed in forward markets. A future contract is an agreement between two entities to buy or sell an asset at a certain time in the future at a certain price. But when compared to forward contract, the future contracts are standardized contracts and are traded through exchanges. To facilitate liquidity in these contracts, the exchange specified certain standard features for the contract. It is standardized contract with standard-underlying instrument, a standard-quantity and quality of the underlying instrument that can be delivered, (or which can be used for reference purpose in settlement) and a standard timing of such settlement.

Prior to the maturity a futures contract may be offset by entering into an equally opposite transaction. Many futures transactions are offset this way.

The standardized items in a futures contract are:

- Quantity of the underlying asset
- Quality of the underlying asset
- Location of settlement
- The units of price quotation and minimum price change
- The date and the month of delivery

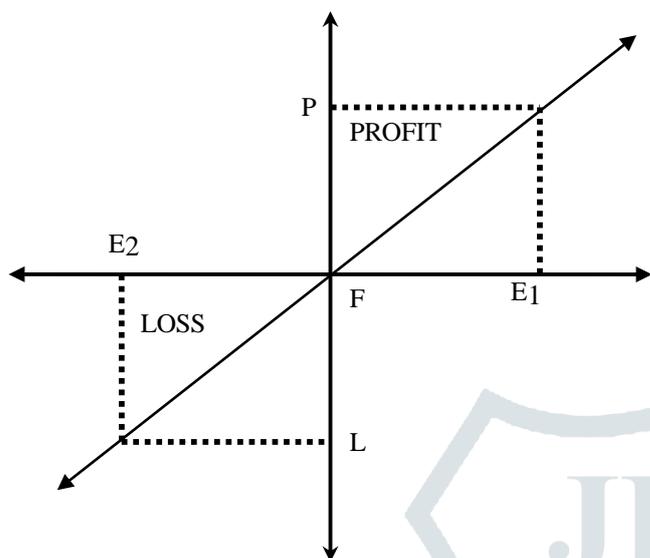
Futures contracts are classified into the following types:

1. **Commodity Futures:-** Future contract is made between two different parties to buy or sell particular commodities at a particular price and at a particular time period. Underlying assets for these contracts are agricultural products, gold, silver, iron, bronze etc.
2. **Financial Futures:-**
 - a. **Stock Futures:** These contracts are based on stock market indices. Various agreements are made on the basis of securities issued by different companies. The different indices for changes of stock values are given by various stock exchanges.
 - b. **Interest Rate Futures:** To protect the future interest rates various contracts are made. They are barely applicable for bonds, debentures and other debt instruments.
 - c. **Foreign Exchange Futures:** These contracts are useful or the exports and imports to protect the appreciation depreciation of particular currency rates.
 - d. **Cost of Living Index Futures:** These are also called inflation futures contracts based on a specified cost of living index.

PARTIES IN THE FUTURES CONTRACT

There are two parties in a futures contract, the buyers and the sellers. The buyer of the futures contract is one who takes Long position on the futures contract and the seller of the futures contract is the one who takes Short position on the futures contract. The pay-off for the buyers and the seller of the futures of the contracts are as follow:

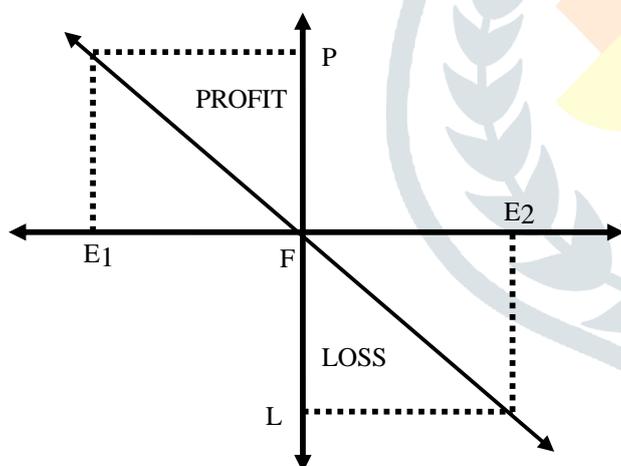
PAY-OFF FOR A BUYER OF FUTURES



CASE 1:-The buyers bought the futures contract at (F); if the futures price goes to E1 then the buyer gets the profit of (FP).*

CASE 2:-The buyer gets loss when futures price is less than (F); if the futures price goes to E2 then the buyer gets the loss of (FL).*

PAY-OFF FOR A SELLER OF FUTURES



CASE 1:-The seller sold the future contract at (F); if the future goes to E1 then the seller gets the profit of (FP).*

CASE 2:-The seller gets loss when the future price goes greater than (F); if the future price goes to E2 then the seller gets the loss of (FL).*

PRICING FUTURES

Futures are priced by using cost of carry method. By this method we can calculate fair value of the future but this value always deviates from the observed price. Arbitragers would take the advantage to capture the riskless profits. This process pushes the prices of the futures back to its fair value.

The cost of carry model used for pricing futures is given below.

$$F = Se^{Rt}$$

Where,

F = future price

S = Spot price

r = continuously compounded annual rate

T = Time till expiration

e = 2.71828

General formula for forward price:

$$F = S^{(1+r \cdot q)^t}$$

FUTURES TERMINOLOGY

- **Spot price:** The rate existing at the time of transaction.
- **Future price:** The rate at which the contracts are traded in the future market.
- **Contract cycle:** The time period over which the contract has been traded in the market is called as contract cycle. The NSE futures have a time period of one month and three months period.
- **Expiry date:** It is date on which the contract expires.
- **Contract size:** It is the amount of asset that is traded in the market.
- **Cost of carry:** It is used to summarize the relationship between spot price and future price. This measure also includes storage cost, interest that is paid to finance and dividend paid.
- **Initial margin:** It is the amount which is initially deposited by the investor at the time of entering into a contract. The need to margin arose in order to overcome the counterparty risk.
- **Marking to market:** At the end of each day the accounts of investors are adjusted to reflect the changes in the futures closing price i.e. the investors account gets debited if any loss occurs and vice versa. This is called as marking to market.
- **Maintenance margin:** This is maintained in order to ensure that the balance in the margin account will never become negative. If it falls below the maintenance margin then the investor will get margin call to top up the margin account.

RESEARCH METHODOLOGY:

OBJECTIVES OF THE STUDY

1. To study in detail the trends in futures in Indian market.
2. To study the performance of stocks and futures contracts of the select stocks.
3. To find the pay-off of the futures of the select companies for three years.
4. To study growth of business in the futures segment both in stock futures and index futures for the past three years..

STATISTICAL TOOLS:

Moving averages: Moving averages acts as an indicator which helps the trader to identify the trends in the futures market. It also helps in forecasting the prices of future contract in future. In this study 3 months moving average is used.

SAMPLING:

Sampling method: Convenience method of sampling is used.

Sampling size: Three years of data is used for the analysis purpose.

DATA SOURCES:

Primary data: No primary data had been collected for this analysis.

Secondary data: For data analysis purpose I have taken ten random companies which belong to different industrial sectors traded in NSE in the past the past three years. In order to get more information I have collected the data from various websites, journals and also some articles.

Secondary data can be collected by

- Various portals like www.nseindia.com etc.
- Financial newspapers, economic times etc.

DATA ANALYSIS

Here analysis is carried out by taking select stocks of NSC for the period of three years 2017-2020. The companies are BATAINDIA, Idea limited, BHEL, ONGC and Wipro by taking the yearly averages of the values for studying the performance of futures of those companies.

STATEMENT SHOWING THE AVERAGE FUTURE VALUE OF SELECT STOCKS FOR THE PERIOD OF 2017-2020

| BATAINDIA | | | | | | |
|-----------|---------|--------------|------------------|------------------|---------------|-----------------------------|
| Symbol | Date | Settle Price | No. of contracts | Underlying Value | Pay-off | % change in no.of contracts |
| BATAINDIA | 2017-18 | 675.21 | 535399 | 669.89 | -5.32 | |
| BATAINDIA | 2018-19 | 1001.56 | 963400 | 996.07 | -5.49 | 80% |
| BATAINDIA | 2019-20 | 1559.79 | 864795 | 1552.35 | -7.44 | -10% |
| | | | | | -18.25 | |
| IDEA | | | | | | |
| Symbol | Date | Settle Price | No. of contracts | Underlying Value | Pay-off | % change in no.of contracts |
| IDEA | 2017-18 | 88.72 | 1363940 | 88.09 | -0.63 | |
| IDEA | 2018-19 | 46.65 | 1674046 | 46.19 | -0.46 | 23% |
| IDEA | 2019-20 | 7.96 | 1986991 | 7.98 | 0.02 | 19% |
| | | | | | -1.07 | |
| BHEL | | | | | | |
| Symbol | Date | Settle Price | No. of contracts | Underlying Value | Pay-off | % change in no.of contracts |
| BHEL | 2017-18 | 119.72 | 981141 | 118.87 | -0.85 | |
| BHEL | 2018-19 | 73.17 | 837186 | 72.8 | -0.37 | -15% |
| BHEL | 2019-20 | 53.16 | 930456 | 52.79 | -0.37 | 11% |
| | | | | | -1.59 | |
| ONGC | | | | | | |
| Symbol | Date | Settle Price | No. of contracts | Underlying Value | Pay-off | % change in no.of contracts |
| ONGC | 2017-18 | 178.75 | 1226477 | 177.96 | -0.79 | |
| ONGC | 2018-19 | 161 | 1262731 | 160.66 | -0.34 | 3% |
| ONGC | 2019-20 | 133.46 | 1519303 | 133.38 | -0.08 | 20% |
| | | | | | -1.21 | |
| WIPRO | | | | | | |
| Symbol | Date | Settle Price | No. of contracts | Underlying Value | Pay-off | % change in no.of contracts |
| WIPRO | 2017-18 | 332.23 | 880653 | 335.24 | 3.01 | |
| WIPRO | 2018-19 | 307.25 | 1064405 | 304.95 | -2.3 | 21% |
| WIPRO | 2019-20 | 255.49 | 929976 | 254.44 | -1.05 | -13% |
| | | | | | -0.34 | |

INTERPRETATION:

BATAINDIA: Bata India had recorded total pay-off of -219.02 for the period of 2017-20. The value of the asset was increased by 133.65% and the no. of contracts was also increased by 109.5%.

IDEA LIMITED: The total pay-off of Idea ltd was -12.34 for the period of 2017-20. There was a huge decrease in the value of asset which is 96.53%. The no. of contracts was also reduced by 26.74% by the end of three years.

BHEL: The total pay-off was recorded as -17.84 for the period of 2017-20. The value of the contract was decreased by 85.9%. The no. of contracts was also decreased and the percentage was 30.49 %.

ONGC: The total pay-off was recorded as -14.42 for the period of 2017-20. The value of the underlying asset was decreased by 61.8%. There was an increase in the no. of contracts by 195.23%.

WIPRO LIMITED: For the period of 2017-20 Wipro had shown a total profit/loss -47.36. There is not much difference in the settle price and underlying value. The value of the asset has fallen by 61%, which shows that the company is not performing well.

STATEMENT SHOWING THE CALCULATION OF 90 DAY MOVING AVERAGE OF BUSINESS GROWTH IN FUTURES SEGMENT

| Month / Year | Index Futures | | Stock Futures | | Total | Total | 90 days moving average |
|--------------|------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------------|
| | No. of contracts | Turnover (cr.) | No. of contracts | Turnover (cr.) | No. of contracts | Turnover*(cr.) | |
| Apr-17 | 4174077 | 314580 | 15323013 | 1160683 | 120075991 | 9459682 | |
| May-17 | 4816269 | 375949 | 19724492 | 1402148 | 148521296 | 11881402 | |
| Jun-17 | 4052219 | 322144 | 15718759 | 1110362 | 138106114 | 11432267 | |
| Jul-17 | 4224510 | 346732 | 16974717 | 1234363 | 144985600 | 12192441 | 10924450 |
| Aug-17 | 4789537 | 399317 | 17470818 | 1257968 | 170687530 | 14735150 | 11835370 |
| Sep-17 | 4467175 | 369891 | 17314055 | 1280396 | 158481644 | 13550361 | 12786620 |
| Oct-17 | 4238220 | 358296 | 16836256 | 1261300 | 149949690 | 13081715 | 13492651 |
| Nov-17 | 4378831 | 377959 | 19600435 | 1396413 | 172944249 | 15451469 | 13789075 |
| Dec-17 | 4769247 | 406556 | 17181163 | 1244069 | 154914693 | 13707150 | 14027848 |
| Jan-18 | 5031029 | 450376 | 21968814 | 1698947 | 174725401 | 16009779 | 14080111 |
| Feb-18 | 6420118 | 556256 | 19092878 | 1354152 | 180435255 | 16026618 | 15056133 |
| Mar-18 | 6313352 | 532399 | 17552966 | 1196720 | 200051085 | 17456826 | 15247849 |
| Apr-18 | 4993824 | 433691 | 19971346 | 1431957 | 24965170 | 1865648 | 16497741 |
| May-18 | 4991448 | 446741 | 21801493 | 1430487 | 26792941 | 1877227 | 11783030 |
| Jun-18 | 5182508 | 468591 | 20044920 | 1317353 | 25227428 | 1785944 | 7066567 |
| Jul-18 | 4672793 | 429457 | 21816111 | 1476882 | 26488904 | 1906339 | 1842940 |
| Aug-18 | 4086103 | 394229 | 21581854 | 1544987 | 25667957 | 1939216 | 1856504 |
| Sep-18 | 5832447 | 540040 | 21640734 | 1464394 | 27473181 | 2004434 | 1877167 |
| Oct-18 | 8230210 | 667270 | 24929740 | 1488065 | 33159950 | 2155335 | 1949996 |
| Nov-18 | 6717256 | 441855 | 21315096 | 1187157 | 28032352 | 1629012 | 2032995 |
| Dec-18 | 6343194 | 432194 | 20474282 | 1170839 | 26817476 | 1603033 | 1929593 |
| Jan-19 | 6852010 | 472303 | 21835896 | 1277386 | 28687906 | 1749689 | 1795793 |
| Feb-19 | 5953512 | 413440 | 20566789 | 1156661 | 26520301 | 1570101 | 1660578 |
| Mar-19 | 5969217 | 429104 | 19555608 | 1200843 | 25524825 | 1629947 | 1640941 |
| Apr-19 | 5521413 | 406219 | 18819091 | 1159128 | 24340504 | 1565348 | 1649912 |
| May-19 | 7895357 | 588153 | 23660383 | 1370551 | 31555740 | 1958705 | 1588465 |
| Jun-19 | 6309990 | 477376 | 19739114 | 1119495 | 26049104 | 1596871 | 1718000 |

| | | | | | | | |
|--------|----------|--------|----------|---------|----------|---------|---------|
| Jul-19 | 6896920 | 508570 | 22036758 | 1313831 | 28933678 | 1822401 | 1706974 |
| Aug-19 | 8743443 | 606554 | 22257696 | 1206917 | 31001139 | 1813471 | 1792659 |
| Sep-19 | 9192584 | 640331 | 22234125 | 1246228 | 31426709 | 1886560 | 1744248 |
| Oct-19 | 8317454 | 580596 | 22705088 | 1233713 | 31022542 | 1814309 | 1840811 |
| Nov-19 | 6438144 | 477983 | 22779787 | 1256617 | 29217931 | 1734600 | 1838113 |
| Dec-19 | 5400188 | 411241 | 18929870 | 1123918 | 24330058 | 1535158 | 1811823 |
| Jan-20 | 7217406 | 543290 | 20519117 | 1403776 | 27736523 | 1947066 | 1694689 |
| Feb-20 | 7188853 | 539317 | 19762076 | 1309425 | 26950929 | 1848741 | 1738941 |
| Mar-20 | 16000000 | 921441 | 23937233 | 1175952 | 39593362 | 2097393 | 1776989 |

INTERPRETATION:

The above graph shows that growth of business in the segment of futures including both stock and index futures. The graph was in the upward trend from Apr-17 to Mar-18. There was a sudden decline in the business of futures in the year Apr-2018 by 89%. From May-18 to mar-20 there was neither increase nor decrease in the turnover. This shows that the business of futures in the last two years was in certain range.

FINDINGS

The study was undertaken to find the profit or loss in future contracts of some randomly picked ten companies. This study includes the data of three years 2017 to 2020. Some findings for the analysis are

- In the above analysis except reliance industries all companies shown negative pay-off for the last three years from 2017 to 2020.
- In some companies the decrease in underlying value resulted in increase in the no. of contracts of the company.
- The turnover in future market in the year 2017-18 was in the increasing trend and relatively more when compared to that of the next two years. In the month of may-18 there was a great decline in the futures market.

CONCLUSIONS

- Launch of equity derivatives in Indian market has been extremely encouraging and successful. The growth of derivatives in the recent years in Indian market has surpassed the growth of its counterpart globally.
- Derivative products can be referred as the risk management tool which is very useful in managing the risk, hedging the risk and also transferring the risk from one who is risk averse to the one who accepts the risk.
- Futures are used for the purpose of hedging the risk.
- The profits and losses in futures and options, in derivatives market, are purely depending on the fluctuations of the underlying asset. The risk in buying futures is less when compared to that of buying stocks.
- It is concluded from the above analysis the pay-off of all companies except reliance are negative. Compared to all companies TCS has shown huge growth in the futures segment.
- The growth of business in the segment of futures including both stock and index futures were in the upward trend from Apr-17 to Mar-18. There was a sudden decline in the business of futures in the year Apr-2018 by 89%. From May-18 to mar-20 there was neither increase nor decrease in the turnover. This shows that the business of futures in the last two years was in certain range.

SUGGESTIONS

- Derivatives are developing market in India. So it cannot be known by every investor. Hence, it is recommended SEBI to take steps in order to create awareness among various investors about options and futures market.
- It is recommended to minimise the size of the contract so that every small investor will be able get the opportunity to invest in the future market.
- It is recommended that the investors must invest in futures only from short term perspective as price of underlying asset changes rapidly.
- It is recommended to reduce the restrictions of derivatives on trading.
- There should be transparency on the transactions of the investor.
- It is suggested to take further measures to use these derivative contracts more efficiently.

- A continuous training is recommended to remain as the member of market and this initiative cannot be considered as a cost centre but should be considered as the investment for future.
- The awareness drive for investment must be an uninterrupted practice that makes the investor to invest their money in the market with full knowledge of risks which are involved in the business.
- Effort should be made to keep the track on value of asset so that profits can be generated. It is recommended to make a long term plan regarding the derivative market segment. This enables an organisation to have a large scope for the future.

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