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A COMPREHENSIVE ANALYSIS OF HEDGING TECHNIQUES IN THE INDIAN STOCK MARKET: STRATEGIES, APPLICATIONS, AND EFFECTIVENESS AT IIFL

[1] P. Harini, [2] Boini Pranay
[1] Assistant Professor, [2] MBA Student
Department of MBA
Sree Chaitanya College of Engineering, Karimnagar

ABSTRACT

Hedging is an essential risk management technique used by investors and financial institutions to protect their portfolios from adverse market movements. In the Indian stock market, increasing volatility, globalization, and economic uncertainties have heightened the importance of effective hedging strategies. This study provides a comprehensive analysis of various hedging techniques employed in the Indian financial markets, including derivatives such as futures, options, and swaps, as well as portfolio diversification and asset allocation strategies.

The research examines the practical applications of hedging in minimizing market risk, safeguarding investment returns, and enhancing portfolio stability. It evaluates the effectiveness of different hedging instruments across varying market conditions, considering factors such as cost, liquidity, market efficiency, and regulatory frameworks. Special emphasis is placed on the role of stock index futures, options contracts, and sector-specific hedging strategies in managing systematic and unsystematic risks.

The study further explores the challenges faced by investors in implementing hedging strategies, including lack of awareness, high transaction costs, and market complexities. Through an analysis of historical market data and existing literature, the research identifies the strengths and limitations of different hedging approaches in the Indian context.

I. INTRODUCTION

Hedging Technique

Hedging is defined as holding two or more positions at the same time, where the purpose is to offset the losses in the first position by the gains received from the other position.

Usual hedging is to open a position for a currency A, then opening a reverse for this position on the same currency A. This type of hedging protects the trader from getting a margin call, as the second position will gain if the first loses, and vice versa.

However, traders developed more hedging techniques in order to try to benefit from hedging and make profits instead of just to offset losses.

1. 100% Hedging.

This technique is the safest ever, and the most profitable of all hedging techniques while keeping minimal risks. This technique uses the arbitrage of interest rates (roll over rates) between brokers. In this type of hedging you will need to use two brokers. One broker which pays or charges interest at end of day, and the other should not charge or pay interest. However, in such cases the trader should try to maximize your profits, or in other words to benefit the utmost of this type of hedging.

The main idea about this type of hedging is to open a position of currency X at a broker which will pay you a high interest for every night the position is carried, and to open a reverse of that position for the same currency X with the broker that does not charge interest for carrying the trade. This way you will gain the interest or rollover that is credited to your account.

However, there are many factors that you should take into consideration.

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A). The currency to use. The best pair to use is the GBPJPY, because at the time of writing this article, the interest credited to your account will be 24 usd for every 1 regular long lot you have. However you should check with your broker because each broker credits a different amount. The range can be from $10 to $26.

B). The interest free broker. This is the hardest part. Before you open your account with such a broker, you should check the following: i. Does the broker allow opening the position for an unlimited time? ii. Does the broker charge commissions?

Some brokers charge $5 flat every night for each lot held, this is a good thing, although it seems not. Because, when the broker charges you money for keeping your position, your broker will likely let you hold your position indefinitely.

C). Equity of your account. Hedging requires lots of money. For example, if you want to use the GBPJPY, you will need 20,000USD in each account. This is very necessary because the max monthly range for GBPJPY in the last few years was 2000 pips. You do not want one of your accounts to get a margin call. Do not forget that when you open your 2 positions at the 2 brokers, you will pay the spread, which is around 16 pips together. If you are using 1 regular lot, then this is around 145 usd. So you will enter the trades, losing 145 usd. So you will need the first 6 days just to cover the spread cost. Thus if you get a margin call again, you will need to close your other position, and then transfer money to your other account, and then re-open the positions. Every time this happens, you will lose 145 usd!

It is very important not to get a margin call. This can be maintained by a large equity, or a fast efficient way to transfer money between brokers.

D). Money management. One of the best ways to manage such an account is to monthly withdraw profits and balancing your positions. This can be done by withdrawing the excess from one account, take out the profits, and depositing the excess into the losing account to balance them. However, this can be costly. You should also check with your broker if he allows withdrawals while your position is still open. One efficient way of doing this is using the brokerage service withdrawals which are provided by third party companies.

TYPES OF DERIVATIVES

The following are the various types of derivatives.

FORWARDS:

A forward contract is a customized contract between two entities, where settlement takes place on a specific date in the future at today's pre-agreed price.

FUTURES:

A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price. Futures contracts are special types of forward contracts in the sense that the former are standardized exchange traded contracts.

OPTIONS:

Options are of two types-calls and puts. Calls give the buyer the right but not the obligation to buy a given quantity of the underlying asset, at a given price on or before a give future date. Puts give the buyer the right, but not the obligation to sell a given quantity of the underlying asset at a given price on or before a given date.

Warrants:

Options generally have lives of up to one year; the majority of options traded on options exchanges having a maximum maturity of nine months. Longer-dated options are called warrants and are generally traded over-the counter.

LEAPS:

The acronym LEAPS means long-term Equity Anticipation securities. These are options having a maturity of up to three years.

BASKETS:

Basket options are options on portfolios of underlying assets. The underlying asset is usually a moving average of a basket of assets. Equity index options are a form of basket options.

SWAPS:

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Swaps are private agreements between two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts. The two commonly used Swaps are:

Interest rate Swaps:

These entail swapping only the related cash flows between the parties in the same currency.

Currency Swaps:

These entail swapping both principal and interest between the parties, with the cash flows in on direction being in a different currency than those in the opposite direction.

SWAPTION:

Swaptions are options to buy or sell a swap that will become operative at the expiry of the options. Thus a swaption is an option on a forward swap. Rather than have calls and puts, the swaptions market has received swaptions and payer swaptions. A receiver swaption is an option to receive fixed and pay floating. A payer swaption is an option to pay fixed and received floating.

PARTICIPANTS IN THE DERIVATIVE MARKETS

The following three broad categories of participants:

HEDGERS:

Hedgers face risk associated with the price of an asset. They use futures or options markets to reduce or eliminate this risk.

SPECULATORS:

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.

ARBITRAGERS:

Arbitrageurs are in business to take of a discrepancy between prices in two different markets, if, for, example, they see the futures price of an asset getting out of line with the cash price, they will take offsetting position in the two markets to lock in a profit.

SCOPE OF THE STUDY

The Study is limited to "**Hedging techniqes** of Derivatives" with special reference to Futures and Option is the Indian context and the **IIFL(India info line) LIMITED** 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.

NEED AND IMPORTENCE OF STUDY

One of the single best things you can do to further your education in trading is to keep thorough records of your trades. Maintaining good records requires discipline, just like good trading. Unfortunately, many commodity traders don't take the time to track their trading history, which can offer a wealth of information to improve their odds of success most professional traders, and those who consistently make money from trading Derivatives, keep diligent records of their trading activity. The same cannot be said for the masses that consistently lose at trading commodities.

Losing traders are either too lazy to keep records or they can't stomach to look at their miserable results. You have to be able to face your problems and start working on some solutions if you want to be a successful trader. If you can't look at your mistakes and put in the work necessary to learn from them, you probably shouldn't be trading Derivatives.

OBJECTIVES OF THE STUDY

- To analyze the **Hedging techniqes of** derivative market in India
- To analyze the **Hedging** operations of futures and options
- To find the profit/loss position of futures buyer and also the option writer and option holder.

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- To study about risk management with the help of derivatives.

II. METHODOLOGY

The data collection methods include both the Primary and Secondary Collection methods.

1. Primary Collection Methods:

This method includes the data collected from the personal discussions with the authorized clerks and members of the Exchange.

2. Secondary Collection Methods:

The Secondary Collection Methods includes the lectures of the superintend of the Department of Market Operations, EDP etc, and also the data collected from the News, Magazines of the NSE, HSE and different books issues of this study.

LIMITATIONS OF THE STUDY:

1. The study is limited to the Indian stock market only.
2. Analysis is based on historical data and past market trends.
3. Market conditions may change, affecting the relevance of findings.
4. Only selected hedging techniques are considered for analysis.
5. Availability of accurate and complete data may be limited.
6. The study does not cover all financial instruments used for hedging.
7. Individual investor behavior and preferences are not analyzed in detail.
8. Transaction costs and brokerage charges may influence hedging effectiveness.
9. Regulatory changes during or after the study period may impact results.
10. Market liquidity constraints may affect the practical implementation of hedging strategies.
11. The study assumes rational investor behavior in certain situations.

III. REVIEW OF LITRETURE

Hedging is any strategy designed to offset or reduce the risk of price fluctuations for an asset or investment. Hedging should not be confused with hedge funds, which are private investment funds that often, but not always, employ hedging strategies.

When an investor buys or sells a security, the investor bets that the price of the investment will move in a certain direction. As with any bet, there's always the risk of losing money if the price moves in the opposite direction. An investor *hedges against* this risk if he employs any tool or strategy that minimizes this risk.

In general, creating a hedge requires the purchase of a second asset with a negative correlation to the first. If the hedged security does not move as predicted, the hedge minimizes loss to the investor.

A basic example of a hedge is buying a futures contract for a commodity, such as oil. For a company that uses oil in its production process, an oil futures contract locks in a price until a given date, protecting the company from the risk that the price will rise even higher by that time. In this case, the company is said to be hedging against rising oil prices. The flip side of this is that if prices don't rise, but fall, the company will still have to buy the oil at the agreed-upon price.

Hedging is not about making a profit, but about removing uncertainty. Hedging merely aims at reducing unfavorable and unexpected risks.

Various other, more complicated futures hedging strategies exist, as well.

Hedging using Options

A **married put** is a simple example of a hedge that uses options. In a married put, the investor buys shares in a company and correspondingly buys a put option whose strike price is lower than current market price. Should the share prices go up, the put option is worthless and expires. However, should the

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share price go down, the put option is exercised and the investor has recovered some of his loss.

A complicated hedging technique using optiions is delta-neutral hedging. In this strategy, a portfolio of stocks is hedged in such a way that movements in the stock prices do not affect overall portfolio value. However, increases in volatility leads to an increase in portfolio value. One example of this is the CBOE Volatility Index, VIX.

Options are quickly becoming the hedging instrument of choice for investors all over the world, particularly in hedging stock portfolios. This popularity is due to the versatility of returns offered by option strategies, ranging from synthetic closings, complete downside protection, complete delta-neutral hedging and multi-directional profiting.

Is Hedging Profitable?

Hedging is profitable when used sparingly and effectively.

Hedging is used to reduce risk. But with reduced risk comes reduced returns. Hedging is usually expensive, and extensive hedging will not be cost-effective. Should an investor hedge extensively, he may find himself spending all of his investment profits and possibly more towards hedging.

Thus, most retail investors do not hedge, A few investors hedge if they know that their investment values depend on a certain event, such as an earnings report. Should the earnings report be negative, the hedge minimizes losses. Other than that, hedging and counter-risk measures are primarily used by corporations and institutional investors.

5 Hedging Techniques to Reduce Investment Risk

Hedging is ideal for investors with large concentrated stock investments, as it helps them hold positions for a longer time frame, and thus save a lot by avoiding short term capital gain tax. Hedges are most popular among large corporations, institutional investors and portfolio managers as strategically exercising financial instruments enable them to cut down investment risks significantly. Investors must realize the purpose behind using hedging techniques and these should not be wrongly attempted to profiteer. This article will list top five hedging techniques commonly used by stock market investors, but before moving on to them, let us focus on nitty-gritty of an effective hedge.

Simply put, investing in different stocks, whose price movement is negatively correlated, automatically creates a hedge. That's why, hedging always cuts down possibility of returns while minimizing investment risks. Common derivative instruments such as futures and options can be used in creating hedge positions to protect invested capital from losses due to absurd price fluctuations. Diversifying stock investments across global markets, such as emerging world where liquidity keep floating from one market to another, is an effective hedging strategy.

Top Stock Hedging Techniques

Hedging Using Non-Identical Stocks (Pairing)

At times when perfect hedges are not available, for instance- puts are not traded for the stocks held in portfolio then the best way to create hedge is through short sale of a non-identical security, whose price movement correlates with the security held. This technique can be exercised by employees, who are not allowed to short their own company stocks. The main task while applying this technique is to find the right match with similar risk metrics and a high correlation in price movement. This method only works for a short time frame and there is always the risk of hedge getting acquired.

Buy and Sell Options to Minimize Risks

Derivatives in form of options are most handy yet complex hedging instruments and should not be used by layman investors. Tricky pricing aspects of options due to premium feature can only be understood through in-depth knowledge, so that an effective hedge can be put in place. Professional risk managers can do wonders using Options as hedges, but that requires skill and knowledge. Common investors can benefit from simple strategies involving Options for risk management.

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- Call Options- Selling a call option against the concentrated holdings in a particular stock is a hedging technique.
- Put Options- Buying puts against existing stocks in portfolio is just like buying insurance, but remember, there is hefty premium cost.
- Combining Options- Selling a call and buying a put for the same level and same expiry makes a perfect hedge with premium cost at risk and unlimited profit possibility.

Automatic Hedging and Diversification through Exchange-Traded Funds

ETFs are ideal candidates for hedging sector specific stock holdings in different companies through a single short position. However, dealing in ETF future's can be a riskier bet.

Short Against the Box (SATB) still a great short term hedging technique

Once, selling SATB used to be a famous escape route for investors from capital gains tax, as this is a low cost holding technique. But nowadays after congress lifted most of its tax advantages; it is only a short term hedging option. This technique involves shorting the same stock for which hedge is required.

Protect your invested money using Stock and Index Future's

Using future's as hedging instrument is the most cost effective way, but there are certain daily cash flow caps and floors. Individual stock futures and index futures can be utilized to hedge some of the risk till the expiry date of the contract.

Most investors never use hedges or exercise derivatives as these are difficult to understand and implement. Ideally these instruments are for money managers and high worth individuals, who often find it difficult to hedge perfectly in practice.

IV. DATA ANALYSIS & INTERPRITATION

HDFC BANK FUTURES & OPTIONS					
DATE	PRICE		CALL OPTION		
	SPOT	FUTURE	900	930	960
NOV 25	922.75	921.85	100.05	85.75	73.10
NOV 28	898.85	898.90	79.20	66.25	47.00
NOV 29	885.90	885.15	68.40	56.25	45.85
NOV /30	880.40	882.10	35.55	49.90	40.00
DEC/01	911.95	914.60	54.90	62.35	50.45
DEC/2	901.58	902.32	51.25	55.69	49.36
DEC3	898.00	902.55	46.00	45.10	34.50
DEC/05	923.75	926.80	52.00	52.85	40.30
DEC/06	918.55	918.10	60.00	46.55	34.55
DEC/07	919.95	921.55	54.00	43.70	31.70
DEC/8	944.25	946.85	60.10	49.50	35.05
DEC/9	984.95	985.40	95.15	74.35	45.00
DEC/12	1002.20	997.60	109.35	84.75	63.15
DEC/13	1058.65	1062.05	125.00	133.10	106.55
DEC/14	1052.10	1056.15	153.95	125.35	98.35
DEC/15	1018.50	1022.05	119.05	89.70	62.00

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DEC/16	979.80	981.55	112.60	51.20	26.25
DEC/19	912.32	902.54	89.32	75.64	55.21
DEC/20	101.50	103.00	153.95	125.35	98.35
DEC/21	104.80	104.50	119.05	89.70	62.00

ANALYSIS

The Objective of this analysis is to evaluate the profit/loss position futures and options. This analysis is based on sample data taken of HDFC BANK LIMITED scrip. This analysis considered the December contract of HDFC Bank. The lot size of HDFC is 200, the time period in which this analysis done is from 25-11-2025 to 21-12-2025.

DATE	PRICE
	FUTURE
NOV/25	921.85
NOV /28	898.90
NOV /29	885.15
NOV /30	882.10
DEC/01	914.60
DEC/ 02	902.32
DEC/ 05	902.55
DEC/ /06	926.80
DEC/ 07	918.10
DEC/ 08	921.55
DEC/ 09	946.85
DEC/ 12	985.40
DEC/ 13	997.60
DEC/ 14	1062.05
DEC/ 15	1056.15
DEC/ 16	1022.05
DEC/ 19	981.55
DEC/ 20	984.20
DEC/ 21	103.00
DEC/ 22	104.50

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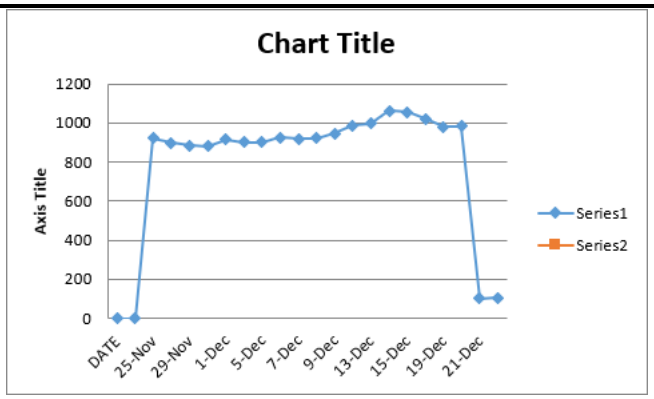

FUTURE MARKET BUYER SELLER

25/11/2019(Buying) 921.85 921.85

24/12/2019(Cl., period) 984.20 984.20

Profit 62.35 Loss 62.35

Profit 200 x 62.35=12470, Loss 200 x 62.35=12470

Because buyer future price will increase so, he can get Profit. Seller future price also increase so, loss also increase, Incase seller future will decrease, and he can get profit.

The closing price of HDFC Bank at the end of the contract period is 984.20 and this is considered as settlement price.

- The first column explains TRADING DATE.
- Second Column explains the SPOT MARKET PRICE in cash segment on that date.
- The third column explains the FUTURE MARKET PRICE in cash segment on that date.
- The Fourth column explains call premiums amounting 900, 930, 960.

CALL PRICES

HDFC BANK FUTURES & OPTIONS					
DATE	PRICE		CALL OPTION		
	SPOT	FUTURE	900	930	960
NOV/25	922.75	921.85	100.05	85.75	73.10
NOV/28	898.85	898.90	79.20	66.25	47.00
NOV/29	885.90	885.15	68.40	56.25	45.85
NOV /30	880.40	882.10	35.55	49.90	40.00
DEC//01	911.95	914.60	54.90	62.35	50.45
DEC/02	901.58	902.32	51.25	55.69	49.36
DEC/05	898.00	902.55	46.00	45.10	34.50
DEC/06	923.75	926.80	52.00	52.85	40.30
DEC/07	918.55	918.10	60.00	46.55	34.55
DEC/08	919.95	921.55	54.00	43.70	31.70

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DEC/09	944.25	946.85	60.10	49.50	35.05
DEC/12	984.95	985.40	95.15	74.35	45.00
DEC/13	**TRADING HOLIDAY**				
DEC/14	**TRADING HOLIDAY**				
DEC/15	1002.20	997.60	109.35	84.75	63.15
DEC/16	1058.65	1062.05	125.00	133.10	106.55
DEC/19	1052.10	1056.15	153.95	125.35	98.35
DEC/20	1018.50	1022.05	119.05	89.70	62.00
DEC/21	979.80	981.55	112.60	51.20	26.25
DEC/22	912.32	902.54	89.32	75.64	55.21
DEC/23	101.50	103.00	153.95	125.35	98.35
DEC/26	104.80	104.50	119.05	89.70	62.00

OBSERVATIONS AND FINDINGS

CALL OPTION:

BUYERS PAY OFF:

- As brought 1 lot of HDFC Bank that is 200, those who buy for 900, paid 100.05 Premium per share.
- Settlement price is 984.20

Spot price 984.20
Strike price 900.00
Amount 84.20
Premium paid (-) 100.05
Net Loss 15.85 x 200 = -3170
Buyer Loss = Rs.3170 (Loss)

Because it is negative it is in the money contract, hence buyer will get more loss, incase spot price decrease buyer loss also increase.

SELLERS PAY OFF:

- It is in the money for the buyer, so it is in out of the money for seller; hence his profit is also increase.

Strike price 900.00
Spot price 984.20
Amount +84.20
Premium Received 100.05
Net profit 15.85 x 200 = +3170
Seller Profit = Rs.3170 (Net Amount)

Because it is positive it is out of the money, hence seller will get more profit, incase spot price increase in below strike price, seller get loss in premium level.

V. FINDINGS

- A **positive** derivative means that the function is increasing
- A M/S. DLF LTD derivative means that the function is decreasing
- A M/S. DLF LTD derivative means that the function has some special behavior at the given point. It may have a local maximum, a local minimum, (or in some cases, as we will see later, a "turning" point)

As a last remark we should remember that the derivative of a function is, itself, a function since it varies from point to point. If we want to, we could plot it on its own set of axes. You can compare the signs and slopes of the individual tangent lines of the original curve with the graph of the derivative.

VI. CONCLUSIONS

Derivates 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 segments. In cash market the profit/loss of the investor depend the market price of the underlying asset. The investor

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may incur huge profits or he may incur huge profits or he may incur huge loss. But in derivatives segment the investor the investor enjoys huge profits with limited downside. In cash market the investor has to pay the total money, but in derivatives the investor has to pay premiums or margins, which are some percentage of total money. Derivatives are mostly used for hedging purpose. In derivative segment the profit/loss of the option writer is purely depend on the fluctuations of the underlying asset.

VII. SUGGESTION

- In bullish market the call option writer incurs more losses so the investor is suggested to go for a call option to hold, where as the put option holder suffers in a bullish market, so he is suggested to write a put option.
- In bearish market the call option holder will incur more losses so the investor is suggested to go for a call option to write, where as the put option writer will get more losses, so he is suggested to hold a put option.
- In the above analysis the market price of **M/S. HDFC** is having low volatility, so the call option writers enjoy more profits to holders.
- The derivative market is newly started in India and it is not known by every investor, so SEBI has to take steps to create awareness among the investors about the derivative segment.
- In order to increase the derivatives market in India, SEBI should revise some of their regulations like contract size, participation of FII in the derivatives market.
- Contract size should be minimized because small investors cannot afford this much of huge premiums.
- SEBI has to take further steps in the risk management mechanism.
- SEBI has to take measures to use effectively the derivatives segment as a tool of hedging.

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