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Hedging Strategies Using Options and Futures: A Comparative Analysis

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ABSTRACT

Hedging is a risk mitigation tactic used to counterbalance potential financial losses in ventures. Options and futures are often employed financial tools for the purpose of hedging. This study performs a comparative analysis of hedging methods in financial markets, specifically focusing on the use of options and futures. Options offer versatility by allowing for personalized risk profiles through the selection of strike prices and expiration dates, enabling accurate risk control despite the need for prompt decision-making. On the other hand, futures provide standardized contracts that make execution easier and give instant risk reduction, albeit they have less flexibility. Both instruments are essential for safeguarding portfolios against volatility, controlling speculation, and increasing profitability. Gaining a comprehension of these tools enables investors to customize strategies that successfully match their risk tolerance and investment objectives in ever-changing market conditions. On the basis of scope based objectives, empirical analysis has been done theoretically with giving proper examples.

Keywords: Options, Futures, Hedging, Stock Market, Finance, Comparison

INTRODUCTION

'Hedging' is a highly significant and useful application of Futures. Hedging is a straightforward strategy that may be used to safeguard your trading positions from incurring losses in the event of unfavorable market fluctuations. For Instance: Envision possessing a tiny parcel of unoccupied and infertile property adjacent to your residence. Rather than allowing it to remain unoccupied and infertile, you opt to transform the entire area into a lawn and cultivate a selection of aesthetically pleasing flowering plants. You cultivate the small garden, diligently irrigate it, and see its growth. Ultimately, your diligent endeavors yield results as the lawn flourishes with vibrant greenery and the flowers finally begin to bloom (Chandrika, P., 2018). As the plants mature and flowers begin to blossom, they begin to draw the attention of undesirable individuals. Before long, you become aware that your small garden has become a popular spot for several wandering cows. You observe these stray cows contentedly grazing on the grass and damaging the beautiful flowers. You are very vexed by this situation and make the decision to safeguard your small garden. An effective solution is to construct a barrier, such as a wooden hedge or fence, around the garden to deter the cows from accessing it (Tiwari, et.al., 2019). This simple solution guarantees the security of your garden while simultaneously promoting its growth and prosperity.

Connection between this comparison and the markets.

- Envision the process of cultivating a portfolio by selecting individual stocks based on thorough investigation. Gradually, you allocate a substantial amount of money into your investment portfolio. This is comparable to the garden you cultivate.
- After investing your money in the markets, you may come to the realization that the markets are likely to experience a period of turbulence, leading to losses in your portfolio. This is analogous to a stray cow feeding on your grass and damaging your flower plants.
- In order to mitigate potential losses in your market positions, you might create a portfolio hedge by utilizing futures contracts. This is analogous to constructing a barrier (made of wooden shrubs) around your garden.

About Options

Options are a significant form of derivative that grants the holder the right, but not the duty, to receive a payout based on the future price of the underlying asset. However, the primary objective is not only to speculate on Stocks and Indices, but rather the main aim of Options is to assist you in mitigating and accurately managing your risk. The primary objective of Options is to offer the capability to accurately determine the risk of your Portfolio and calculate your risk in various market scenarios. One of the most cautious approaches to utilizing Options is to employ them as a Hedge Strategy

in order to safeguard your Portfolio. Ensuring the protection of your stock investments is comparable to insuring your automobile or mobile device (Nirmala., et.al., 2017)

About Futures

Futures are financial agreements where the buyer is obligated to buy and the seller is obligated to sell a particular item at a predetermined date and price in the future. These contracts are uniform and exchanged on market platforms, which makes them a widely used tool for managing risk and making speculative investments (Goswami, et.al., 2017). Futures serve as a flexible financial instrument employed for mitigating risk, gambling on price fluctuations, amplifying investments, determining prices, guaranteeing liquidity, and broadening investment portfolios.

The following are fundamental characteristics and justifications for the utilization of futures:

- Futures are commonly employed as a means of mitigating price risks. For example, a farmer can secure the price of their produce by selling futures contracts, guaranteeing them a fixed price irrespective of market volatility during the harvest period (Batra, et.al., 2017).
- Investors utilize futures contracts as a means of engaging in speculative activities, aiming to predict the future direction of market prices. Speculators seek to generate profits from price fluctuations by engaging in the purchasing or selling of futures contracts, without the need to possess the underlying product.
- Futures contracts typically necessitate a margin deposit that is merely a portion of the contract's overall value. Traders can utilize this leverage to manipulate significant holdings with a comparatively little investment, so magnifying both possible profits and losses.
- Futures markets play a crucial role in the process of price discovery. Futures prices are a reflection of the market's anticipations regarding the future worth of the underlying asset. These prices can impact spot market prices and provide valuable information to market players.
- Futures markets generally exhibit high levels of liquidity, enabling traders to readily enter and exit positions. The presence of sufficient liquidity in the market guarantees that prices are optimized and allows players to engage in trading activities with little influence on pricing.
- Investors employ futures contracts to achieve portfolio diversification. Investors can mitigate the total risk of their portfolio by incorporating various forms of futures contracts, such as those related to commodities, interest rates, or foreign currencies.

Why Hedging Important?

Hedging is a financial tactic employed to mitigate or control the potential negative impact of price fluctuations on an asset. It entails assuming a counteracting position in a correlated securities to mitigate any potential losses. Hedging is a deliberate and calculated method used to safeguard investments and commercial activities against the unpredictability and instability of the financial markets.

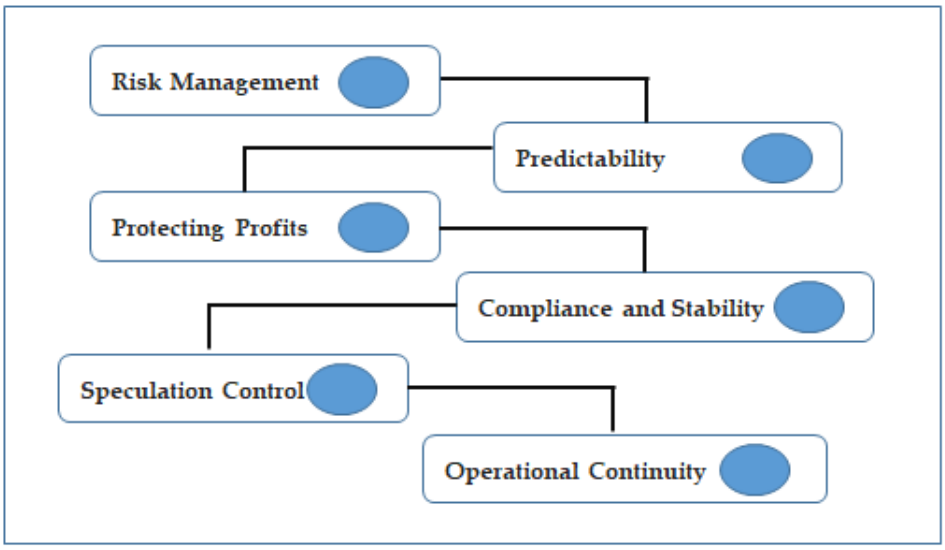

Figure 1: Major Reasons to Hedge

Here are some reasons why hedging is employed:

- Hedging primarily serves to effectively control and reduce risk. Investors might mitigate the potential negative impact of price volatility on their investments by adopting a contrary position in a correlated asset.
- Hedging offers increased certainty in terms of the potential gains or losses associated with an investment. This is especially crucial for organizations that require to allocate funds and predict their financial success.
- Investors and corporations employ hedging as a strategy to secure and guarantee their profits. For instance, a corporation that anticipates generating income in a foreign currency may employ hedging strategies to safeguard against currency swings and guarantee a consistent value in their own currency.
- Certain industries must engage in hedging activities in order to adhere to regulatory mandates. In addition, hedging can offer financial stability by safeguarding against the adverse effects of unforeseen market fluctuations on a company's financial well-being.
- Hedging enables investors to mitigate the risks associated with speculative investments by offering a protective barrier against potential financial losses. This is especially advantageous in unpredictable markets.
- Hedging is particularly beneficial for businesses, especially those engaged in the production and sale of commodities, since it helps to ensure operational continuity by guaranteeing that costs and revenues remain predictable and constant.

REVIEW LITERATURE

Yu and Sun (2023) proposed an extensive framework for achieving optimal hedging by utilizing both options and futures to minimize the impact of price risk and background risk. Their study highlights the benefits of integrating different financial instruments for the aim of hedging. The authors establish criteria for determining the most effective hedging techniques in various situations and put forth a framework aimed at minimizing tail conditional expectation (TCE), which is synonymous with expected shortfall risk (ES) or conditional value at risk (CVaR). Their research suggests that utilizing combination hedging strategies is more effective, particularly when taking into account underlying risks. In this study, Cao and colleagues (2023) examine the application of reinforcement learning (RL) to improve the effectiveness of hedging techniques for barrier options. Barrier options are a type of exotic options that become active or inactive when a specific price level is reached. The study illustrates that RL has the capability to adaptively modify hedging positions in accordance with fluctuating market conditions, surpassing conventional static approaches. Through the utilization of reinforcement learning (RL), the model efficiently reduces risk and enhances hedging performance, presenting a notable progression in the field of financial risk management.

Badshah et al. (2023) examined the efficacy of specific hedging tactics for crude oil futures by analyzing various market conditions. Badshah et al. (2023) emphasized the difficulties linked to conventional hedging methods and suggested the use of selective hedging, which is based on market states, as a potential remedy. An examination of current scholarly works on hedging tactics in commodity markets, with a specific emphasis on crude oil futures. Analysis of several methodologies for mitigating risk and their constraints, highlighting the necessity for flexible tactics. The methodology employed to categorize market conditions typically entails the utilization of statistical tools or econometric models. Explanation of the application of chosen hedging techniques based on detected market conditions. Discussion over the use of factors or indicators utilized to characterize market conditions, such as volatility and price patterns. Empirical findings are presented to demonstrate the effectiveness of selected hedging strategies in comparison to typical hedging procedures. Examining the impact of various market situations on the efficacy of selective hedging. Analyze the results within the framework of risk management and financial decision-making for companies involved in the production, consumption, and investment of crude oil. Comparative analysis of prior research and the practical consequences of the findings. Study limitations and recommendations for future research directions.

In their study, Ghosh et al. (2023) examine the use of asymmetric Dynamic Conditional Correlation (DCC) models to analyze commodities futures and stock market indices in order to develop effective hedging strategies. In their study, Ghosh et al. (2023) highlighted the importance of employing hedging methods in financial markets, specifically in relation to commodities futures and stock market indexes. The text discusses the obstacles and conventional approaches of hedging, which then leads to the introduction of asymmetric DCC models. Ghosh et al. (2023) present a comprehensive analysis of the current body of literature on hedging techniques, dynamic conditional correlation (DCC) models, and prior research examining the relationship between commodities futures and stock market indexes. The current study attempts to identify

and correct gaps in the existing literature. Exposition of the asymmetrical DCC models employed in the investigation. This encompasses the theoretical foundation of DCC models and their utilization in capturing fluctuations in correlations across time. The research includes a detailed description of the data sources, such as specific commodities futures and stock market indices, as well as the time period covered. The empirical findings will be presented, which will include the estimated parameters of the asymmetric DCC models. Examining the fluctuating relationships between certain commodities futures and stock market indices. Assessing the efficacy of hedging techniques using these correlations. Summary of how asymmetric dynamic conditional correlation (DCC) models enhance our knowledge of hedging strategies involving commodities futures and stock market indices.

The study conducted by Jaimungal et al. (2023) examined the creation and implementation of optimal hedging methods that are specifically designed for options in energy futures markets. Jaimungal et al. (2023) highlighted the importance of hedging in effectively managing risk in electricity futures markets, with a specific emphasis on options contracts. The text discusses the difficulties of hedging options because of their non-linear payout structures and the fluctuation in electricity prices. An examination of current scholarly works on hedging tactics in financial markets, specifically on electricity markets and options. Jaimungal et al. (2023) examined several hedging strategies for options contracts and evaluated their efficacy in reducing risk. This text provides a description of the methods employed to develop optimal hedging strategies for options in electricity futures. Explanation of mathematical models or econometric techniques used to develop these tactics, which may involve stochastic modeling of electricity prices. Jaimungal et al. (2023) provided empirical evidence showcasing the effectiveness of the suggested optimal hedging strategies. Examine how fluctuations in electricity costs and market conditions influence the efficacy of various tactics. Comparing the best strategy with typical hedging approaches to emphasize its advantages. An analysis of the results in relation to risk management and financial decision-making for market participants, including electricity producers, consumers, and investors. The significance of the findings for enhancing hedging strategies in electricity futures markets. Summary of how these measures can improve risk management and financial performance in the power industry. In summary, the research adds to the existing body of academic literature by providing new and valuable perspectives on the creation and utilization of optimal hedging methods for options in electricity futures markets. The text focuses on addressing the practical difficulties encountered by market players and offers helpful advice for enhancing hedging choices in unpredictable and intricate energy markets.

The article authored by Cox, Ross, and Rubinstein in 1979 introduces a simplified method for determining the value of options, commonly referred to as the CRR model. This model expands on the fundamental principles established by Black-Scholes, but provides a discrete-time structure that is more straightforward to execute computationally. In 1979, Cox, Ross, and Rubinstein invented the binomial tree model, which is used to simulate the movement of asset prices over time. This model enables the calculation of option values at each point in the tree. The CRR model has had a significant impact on both the theoretical and practical aspects of options pricing. It offers a clearer understanding of the factors that affect option prices and serves as a foundation for further advancements in financial economics. The research by Bessembinder (1992) examined the correlation between systematic risk, hedging pressure, and risk premiums in futures markets. The study examines the influence of hedging operations by market players on futures prices and risk premiums. In Bessembinder's 1992 study, it was proposed that changes in systematic risk factors generate hedging pressure, which in turn affects risk premiums in futures markets. Bessembinder's research (1992) enhanced our comprehension of pricing mechanisms and risk management methods in financial markets by examining these dynamics.

Ederington, L. H. (1979) assessed the effectiveness of recently established futures markets in managing risk through hedging. This analysis assesses the extent to which these markets facilitate effective risk management for hedgers in relation to underlying assets, such as commodities or financial instruments. The study provides a practical evaluation of the efficacy of futures contracts in mitigating volatility and stabilizing returns for hedgers. Ederington, L. H. (1979) findings provide useful insights into the advantages and constraints of utilizing futures markets for the purpose of managing risk, emphasizing their significance in financial markets. Figlewski (1984) examined the effectiveness of hedging and the level of risk involved in stock index futures. The analysis evaluates the efficacy of these futures contracts in mitigating the impact of fluctuations in the underlying stock index, taking into account the possible discrepancy between the futures price and the spot index price (basis risk). This paper experimentally assesses the efficacy of hedging strategies employing stock index futures, offering insights into the extent to which these financial products might reduce risk. Figlewski's (1984) research enhances comprehension of the dynamics of hedging in equity markets and provides valuable insights for financial practitioners and regulators regarding the consequences for risk management techniques. Stulz, R. M. (1982) explored options on the minimum or maximum of two risky assets, analyzing their theoretical framework and practical applications

in financial markets. The study delves into the pricing and strategic implications of these derivative contracts, which offer investors unique opportunities to hedge against or speculate on the performance of asset pairs. In his 2007 publication, Schofield, N. C. presented a thorough examination of commodities derivatives, with a specific emphasis on their marketplaces and practical uses. This course provides a comprehensive overview of commodity markets, encompassing topics such as trading processes, pricing dynamics, and the use of derivatives to mitigate commodity price risk. The book also examines many applications of commodities derivatives in various sectors and locations, emphasizing their significance in hedging, speculating, and portfolio management methods. Schofield, N. C. (2007) work served as a valuable resource for academics, practitioners, and anyone interested in understanding the complexities and opportunities within commodity derivatives markets.

The study conducted by Benninga et al. (1985) analyzed the efficiency of futures contracts in comparison to spot contracts, particularly in the context of hedging. The study investigates how effectively futures contracts can be used to hedge against price fluctuations in underlying assets compared to spot contracts. Through theoretical analysis and empirical evaluation, the authors explore factors such as transaction costs, liquidity, and risk management benefits associated with futures contracts. (Benninga., et.al., 1985) research contributed to understanding the economic rationale behind choosing futures over spot contracts for hedging purposes, providing insights valuable to both academics and practitioners in financial markets. (Mello., et.al., 2000) investigated the relationship between hedging and liquidity in financial markets. They examine how hedging activities affect market liquidity and vice versa, focusing on the interaction between hedgers, speculators, and market makers. The study theoretically analyzes the impact of hedging on asset prices, trading volumes, bid-ask spreads, and overall market efficiency. By exploring these dynamics, (Mello., et.al., 2000) contributed to understanding the broader implications of hedging strategies on market liquidity and the efficiency of financial markets. Their findings provide valuable insights for investors, policymakers, and market participants involved in risk management and liquidity provision activities. (Boyle. Et.al, 1980) introduced discretely adjusted option hedges as a method to manage risk in financial markets. The study focuses on refining hedging strategies by adjusting options discretely rather than continuously, considering practical constraints and transaction costs. (Boyle. Et.al, 1980) explored how these adjustments can enhance the effectiveness of hedging strategies in volatile markets where asset prices fluctuate rapidly. (Boyle. Et.al, 1980) research provided theoretical and practical applications that contribute to the field of options pricing and risk management, offering alternative approaches to traditional continuous hedging methods. (Stoll., et.al., 1986) examined the dynamics of returns in stock index and stock index futures markets. The study investigates how these markets interact and influence each other, focusing on the relationships between spot index prices and futures prices. (Stoll., et.al., 1986) analyzed factors such as market efficiency, arbitrage opportunities, and the impact of trading activities on price movements. (Stoll., et.al., 1986) research contributed valuable results into the behavior and dynamics of financial markets, particularly regarding the integration and efficiency of stock index futures in relation to their underlying indices. Their findings are relevant for understanding market interactions and for developing effective trading and hedging strategies.

Leland, H. E. (1985) explored option pricing and replication in the presence of transaction costs, emphasizing the impact of these costs on financial markets. The study addresses how transaction costs influence the pricing and replication of options, considering factors such as bid-ask spreads and trading frictions. Leland, H. E. (1985) research provides theoretical insights into the complexities of option pricing under realistic market conditions, highlighting the challenges and adjustments required to effectively replicate option positions. His findings contribute to understanding the practical implications of transaction costs on option strategies and risk management in financial markets. Johnson, L. L. (1960) examined the economic principles underlying hedging and speculation in commodity futures markets. The study examines how futures contracts can be utilized both to hedge against price risk and to speculate on future price movements. Johnson, L. L. (1960) explored the dynamics of market participants, distinguishing between hedgers seeking to mitigate risk and speculators aiming to profit from market fluctuations. His theoretical framework helps elucidate the roles, motivations, and impacts of hedging and speculation in commodity futures markets, providing foundational insights that remain influential in financial economics and agricultural economics. Longstaff, F. A. (1995) focused on option pricing and the martingale restriction, a fundamental concept in financial economics. The study explores how option prices are determined under the assumption of no arbitrage and the martingale property, which states that the expected value of the option's payoff discounted at the risk-free rate should be equal to its current market price. Longstaff, F. A. (1995) investigated various models and methodologies used to price options, considering both continuous and discrete-time frameworks. His research contributes to understanding the theoretical underpinnings of option pricing, emphasizing the role of risk-neutral

probabilities and market efficiency assumptions in determining option values. This paper is significant for academics and practitioners involved in derivatives pricing and risk management.

RESEARCH METHODOLOGY

The trade system in India, as well as in certain foreign countries, is subject to manipulation and occasional flaws, which are obstructed by those with enough capital to serve their own interests. To address this issue, we will utilize options and futures strategies to conduct a thorough analysis of price movement. The primary objective of option trading is not solely to speculate on stocks, but rather to assist in the precise mitigation and management of risk. Through the utilization of options and futures trading, a trader can effectively safeguard their investments and generate profits from the stock market. For the sake of the study, only secondary theoretical framework has been used subject to online availability. The research is descriptive in nature. To showcase more pricesly, more than 31 research papers read & incorporated their views in the form of research. So that retail investors can gain more knowledge about futures & options before trading.

OBJECTIVE OF THE STUDY

The primary objective of this research is to assist retail investors who are exposed to the uncertainties in the stock market. By utilizing options and futures trading, these investors may safeguard their hard-earned investment funds and ensure their portfolio remains secure in different market situations. Engaging in options and futures trading can yield additional profits that can be subsequently reinvested in the stock market. It is advisable to prioritize the safety of your portfolio in order to prevent avoidable losses.

Scope Based Research Objectives

- To compare & explore the mechanics, advantages, and disadvantages of hedging using options and futures.
- To do comparison analysis for hedging strategies using options and futures.
- To protect the portfolio from both short-term and long-term market speculations hedging strategies necessary.
- Tracking various futures & option strategies to increase profit & reduce loss.
- To teach retail investors how to use different types of futures and options to keep their risk to a minimum.

Research Results Discussion

 # Objective 1: To compare & explore the mechanics, advantages, and disadvantages of hedging using options and futures.

Table 1: Exploring Mechanics, Advantages, and Disadvantages Hedging Using Options

Options Hedging	**Mechanics:** Options provide investors the right, but not the responsibility, to buy (call) or sell (put) an asset at a defined price before a particular date. However, they do not have to exercise this right. Investors are able to protect themselves against the risk of losses while yet keeping the possibility of rewards on the upside thanks to this flexibility. (2017 book by Hull).	**Protective Put:** Purchasing a put option offers protection against a decrease in the price of the underlying asset. This type of protection is known as a protective put. According to (Chance and Brooks (2015)), if the price of the asset falls below the strike price, the put option can be executed to sell at the higher strike price, which will place a limit on the amount of losses that can occur.	**Covered Call**: Writing a call option on an asset already owned generates premium income. If the asset's price rises above the strike price, the asset will be sold at the strike price, potentially limiting the upside but providing income and partial downside protection (Kolb & Overdahl, 2007).
Advantages:	**Flexibility:** According to Hull (2017), options make it possible to create a wide variety of strategic combinations (such as straddles and spreads) that can be adjusted to certain risk	**Limited Risk:** According to Black and Scholes (1973), the greatest loss that an option buyer can sustain is equal to the premium that they have paid.	

	profiles and market expectations.		
Disadvantages:	**Cost:** Premiums can be expensive, particularly in volatile markets (Chance & Brooks, 2015).	**Complexity:** Effective use of options requires a good understanding of various strategies and market conditions (Kolb & Overdahl, 2007).	
Exploring Mechanics, Advantages, and Disadvantages Hedging Using Futures			
Futures Hedging	**Mechanics:** In the context of futures contracts, the buyer is obligated to purchase an item at a fixed price at a future date, while the seller is obligated to sell the asset. Both parties are obligated to uphold the conditions of the contract due to the fact that it is legally enforceable (Hull, 2017).	**Long Hedge:** Employed by companies that are planning to acquire an asset at some point in the future. They protect themselves from the possibility of prices going up by initiating a long futures position, which allows them to lock in the purchase price (Chance & Brooks, 2015).	**Short Hedge:** Utilized by companies that will, at some point in the future, be the ones to sell an asset. According to Kolb and Overdahl (2007), setting a short futures position allows one to lock in the selling price, which protects against price drops.
Advantages:	**Cost-Efficiency:** Futures typically have lower transaction costs compared to options (Hull, 2017).	**Liquidity:** Futures markets are highly liquid, allowing for easy entry and exit (Chance & Brooks, 2015).	
Disadvantages:	**Obligation:** Futures contracts require fulfillment, which means potential for significant losses if the market moves unfavorably (Kolb & Overdahl, 2007).	**Margin Requirements:** According to Hull (2017), futures holdings necessitate the maintenance of a margin account, which might result in additional expenses and the requirement of a large amount of starting money.	
#: *This comparative analysis explores the mechanics, advantages, and disadvantages of hedging using options and futures.*			

 # Objective 2: To do comparison analysis for hedging strategies using options and futures

Table 2: Comparative Analysis- Hedging Strategies Using Options and Futures

	Options	**Futures**
Risk Management	According to Black and Scholes (1973), options offer asymmetric risk profiles, which enable investors to protect themselves against significant losses while yet maintaining some potential for profitability.	According to Hull (2017), futures provide symmetric risk profiles, which means that they offer certainty regarding future pricing while also exposing both parties to the possibility of big losses or gains.
Cost	Although premiums can be expensive, the risk is only as much as the amount of the premium that is paid (Chance & Brooks, 2015).	According to Kolb and Overdahl (2007), even though they typically have lower costs, they require preserving margin and have the potential for bigger losses.
Flexibility	According to Hull (2017), options provide greater strategic flexibility by providing a variety of	According to Chance and Brooks (2015), futures products are straightforward and less

	sophisticated positions that may be tailored to different market outlooks.	versatile than other options, but they offer confidence in hedging outcomes.
Market Conditions	According to Black and Scholes (1973), options are more appropriate in turbulent markets because the large potential for price swings means that the expense of protection is justified by the high possibility for price swings.	Whenever there is a clear cost benefit associated with locking in pricing, futures are appropriate for use in markets that are either steady or trending (Hull, 2017).

 # Objective 3: To protect the portfolio from both short-term and long-term market speculations hedging strategies necessary.

To safeguard a portfolio from market speculations, both in the short term and long term, investors can use various hedging strategies, such as futures contracts.

Interpreting with examples:

Long-Term Hedging Strategy- Investors frequently utilize futures as a means of hedging their long-term investments, locking in pricing, and managing the risk associated with long-term investments. An example of this would be a pension fund that has a diversified portfolio of equities and wants to safeguard it against the possibility of market declines during the course of the following year. It is possible for the manager of the fund to sell stock index futures contracts that are equivalent to the whole portfolio's value. A decrease in the value of the portfolio will be compensated for by gains in the short futures position in the event that the stock market experiences a fall.

Scenario	Risk Type	Asset	Hedging Instrument	Objective
A pension fund holds a diversified portfolio of stocks	Long-term market risk	Diversified stock portfolio	Sell stock index futures contracts	Protect against potential market downturns over the next year

This table illustrates how a pension fund can hedge against long-term market risks using stock index futures contracts.

Short-Term Hedging Strategy- Protecting oneself against the immediate volatility of the market is the goal of short-term hedging. An illustration of this would be a corporation that anticipates receiving a substantial payment in euros during the next three months, but is anxious about the possibility of the euro depreciating against the dollar. With the help of euro futures contracts, the corporation can protect itself from this risk. A fall in the value of the euro will result in a loss in the value of the payment; however, gains in the futures position will compensate for this loss.

Scenario	Risk Type	Asset	Hedging Instrument	Objective
A company expects a large payment in euros in three months	Short-term currency risk	Euros	Sell euro futures contracts	Hedge against potential depreciation of the euro against the dollar

This table outlines how a company can hedge against short-term currency risk using euro futures contracts to mitigate potential losses due to euro depreciation against the dollar.

Combined Strategy - Protecting themselves against a variety of hazards can also be accomplished by investors through the utilization of a combination of long-term and short-term hedging tactics. Take, for instance: An international investment fund typically has a sizeable portion of its holdings in European bonds and American stocks. Long-term equity risk can be mitigated by the fund through the sale of futures contracts on the S&P 500. For the purpose of mitigating the short-term currency risk associated with European bonds, the fund may invest in euro futures contracts in order to protect itself from unfavorable currency moves.

Scenario	Risk Type	Asset	Hedging Instrument	Objective
Global investment fund holds U.S. equities	Long-term equity risk	U.S. equities	Sell S&P 500 futures contracts	Hedge against potential declines in U.S. stock market
Global investment fund holds European bonds	Short-term currency risk	European bonds	Sell euro futures contracts	Hedge against adverse currency movements related to European bonds

This table illustrates how a global investment fund can use futures contracts to hedge against both long-term equity risk (using S&P 500 futures) and short-term currency risk (using euro futures).

 # Objective 4: Tracking various futures & option strategies to increase profit & reduce loss.

Below table shows various futures and options strategies can be used to increase profit and reduce loss

Strategy	Description	Example
Covered Call	Selling a call option while holding the underlying asset.	An investor holds 100 shares of XYZ stock and sells 1 XYZ call option with a strike price of $110. If XYZ stays below $110 until expiration, the option expires worthless.
Protective Put	Buying a put option to protect against a decline in the value of an asset.	An investor owns 100 shares of ABC stock trading at $50 per share. They buy 1 ABC put option with a strike price of $45. If ABC's price drops, the put option provides downside protection.
Straddle	Simultaneously buying a call and a put option with the same strike price.	An investor buys both a call and put option on XYZ stock with a strike price of $100. They profit if XYZ moves significantly in either direction by expiration.
Strangle	Buying an out-of-the-money call and put option with different strike prices.	An investor buys a call option on ABC stock with a strike price of $55 and a put option with a strike price of $45. They profit if ABC's price moves significantly, regardless of direction.
Bull Call Spread	Buying a call option while simultaneously selling a higher strike call option.	An investor buys 1 XYZ call option at $100 strike price and sells 1 XYZ call option at $110 strike price. They profit from XYZ's price rise, limited to the difference in strike prices minus premiums paid.
Bear Put Spread	Buying a put option while simultaneously selling a lower strike put option.	An investor buys 1 ABC put option at $50 strike price and sells 1 ABC put option at $45 strike price. They profit from ABC's price decrease, limited to the difference in strike prices minus premiums received.
Iron Condor	Combining a bull put spread and a bear call spread to limit potential losses.	An investor simultaneously sells a put option at $90 strike and buys a put option at $85 strike, while also selling a call option at $110 strike and buying a call option at $115 strike

These above strategies demonstrated how futures & options can be combined strategically to maximize profit potential and minimize losses depending on market conditions and investor expectations.

 # Objective 5: To teach retail investors how to use different types of futures and options to keep their risk to a minimum.

Teaching retail investors how to effectively use different types of futures and options to manage risk requires a structured approach. Here's an interpretation focusing on strategies that help minimize risk:

Strategy	Description	Risk Management
Covered Call	Selling a call option while holding the underlying asset.	Limits upside potential but provides income and downside protection to some extent.
Protective Put	Buying a put option to protect against a decline in the value of an asset.	Limits downside risk by ensuring the right to sell the asset at a predetermined price.
Collar	Combining a covered call with a protective put to limit potential losses.	Caps both upside and downside potential, suitable for volatile markets or uncertain times.
Bull Spread	Buying a call option while simultaneously selling another call option at a higher strike price.	Defines the maximum loss upfront while allowing for profit potential if the market moves favorably.
Bear Spread	Buying a put option while simultaneously selling another put option at a lower strike price.	Limits potential losses while defining maximum profit, suitable for hedging against downward market movements.
Straddle	Buying a call and put option with the same strike price and expiration date.	Allows profit from significant price moves in either direction but involves higher costs due to purchasing both options.
Strangle	Buying an out-of-the-money call and put option with different strike prices.	Reduces upfront costs compared to a straddle while still profiting from significant price movements, albeit requiring larger price moves to be profitable.
Iron Condor	Combining a bull put spread and a bear call spread to limit potential losses.	Defines a range within which the investor profits, reducing risk exposure and providing a defined risk-reward ratio.

Interpreting with examples:

A retail investor holds a portfolio of tech stocks but is concerned about potential market volatility.

Strategy	Description	Example
Protective Put Strategy	Buying put options to hedge against downside risk in a stock holding.	An investor holds 100 shares of XYZ Corp. priced at $50 per share. They buy 1 XYZ put option with a strike price of $45 and an expiration date in three months. If XYZ's price drops below $45, the put option allows the investor to sell at that price, limiting potential losses.

- A risk-reward profile is created for each strategy. Think about the potential benefits against the level of risk you are ready to accept.
- Covered calls and protected puts are good places to start while learning the ropes.
- Put in place stop-loss orders to limit your losses by selling positions automatically when they reach a certain price.
- Diversify your tactics across several assets and market circumstances to spread out your risk.
- Always keep an eye on the news and market conditions in case they affect your assets.

This table illustrates the application of a protective put technique to mitigate the risk of a reduction in the value of a stock, hence minimizing potential losses if the stock price falls below a predetermined threshold. Retail investors can optimize risk management in futures and options trading by implementing these tactics and ideas, thereby aligning their investment strategies with their financial goals and risk tolerance levels.

FINDINGS OF THE STUDY

On the basis of the objectives that were presented, the following are some empirical findings concerning the utilization of options and futures for the purposes of hedging, comparing methods, protecting portfolios, and increasing profitability while simultaneously minimizing risk:

- Investors are able to precisely customize their hedging strategies to their risk exposure by taking advantage of the flexibility that options give in terms of strike prices and expiration periods. On the other hand, they necessitate the payment of premiums in advance and their management can be difficult due to the fact that strike prices and expiration dates can vary.
- On the other hand, futures provide standardized contracts that have predetermined expiration dates and contract sizes. This simplifies the execution process, but it restricts the amount of customisation that can be done. Both the initial margin requirements and the ongoing margin maintenance requirements are subject to change depending on the conditions of the market.
- If managed properly, options can be more cost-effective for specific hedging purposes. This is because the premium paid indicates the highest potential loss that could occur by the option. Because of their expiration dates, they offer accurate risk control, but they need decisions to be made in a timely manner.
- Because futures contracts are standardized and their beginning costs (margin) are reduced, futures are an effective method for uncomplicated hedging. Despite the fact that they provide instant protection against unfavorable market moves, they are subject to recurring margin provisions.
- Covered calls, which involve the use of options, and selling futures contracts, which involve the use of futures, are useful strategies for lowering downside risk but potentially restricting possible upside.
- Investors are able to profit from volatility while minimizing risk through the use of more complex methods such as straddles and strangles (options) or spreads (both options and futures). However, these strategies demand a profound grasp of the dynamics of the market.
- When it comes to shielding portfolios from both short-term volatility and long-term market downturns, hedging techniques that make use of options and futures investments are absolutely necessary. utilizing put options, for instance, can protect against sudden price falls, and utilizing long-term futures contracts can protect against longer market trends. Both of these strategies are examples of hedging strategies.
- Investors are able to effectively benefit on market opportunities while simultaneously avoiding the risk of potential losses when they monitor a variety of futures and options methods. Iron condors, which are options, and bull/bear spreads, which are futures, are examples of techniques that offer organized approaches to achieving a balance between risk and profit.
- Retail investors can benefit from learning these tactics to effectively manage risk, beginning with simpler approaches and progressively adopting more complicated strategies as they acquire expertise. This can be accomplished by initially beginning with simpler approaches.
- In order to teach ordinary investors how to use futures and options, it is important to emphasize risk management principles. These principles include diversification, the establishment of defined objectives, and the utilization of tools such as stop-loss orders to confine losses.

- Real-world applications should be the primary focus of practical education. For example, utilizing options to generate revenue (for example, covered calls) or to hedge against downside risk (for example, protective puts) are both examples of practical applications.

Hedging using futures contracts is a powerful tool for managing both long-term and short-term risks in an investment portfolio. By strategically using these instruments, investors can protect their portfolios from adverse market movements and ensure more predictable returns.

CONCLUSION

Both futures and options are useful tools for hedging, and each has its own set of advantages and disadvantages relative to the other. When it comes to hedging, the decision between utilizing options or futures is determined by a number of factors, including the investor's unique hedging needs, the market conditions, the investor's risk tolerance, and the cost of the options. For effective risk management, it is vital to have a comprehensive awareness of the characteristics of each instrument as well as the strategic uses of each instrument. There are distinct benefits associated with using options and futures in the context of hedging and speculation in the financial markets. Options are useful for precise risk management because they offer flexibility and the ability to customize risk profiles through the use of strike prices and expiration dates on the options. In certain circumstances, depending on the plan, they may be cost-effective; however, they require timely execution and monitoring. Futures have the ability to provide standardized contracts that simplify the execution process and are effective for mitigating immediate risk. They offer clear hedging against market swings with fixed margin requirements, but they are less flexible than other options. The protection of portfolios from volatility, the management of speculation, and the enhancement of profitability are all vital functions that both products fulfill. Investors in the retail sector can benefit from having an awareness of these tools since it allows them to successfully build strategies that coincide with their risk tolerance and investment goals.

REFERENCES

1. Badshah, et al. (2023). Selective Hedging Strategies for Crude Oil Futures Based on Market States. Retrieved from https://www.sciencedirect.com
2. Batra, D., & Totala, N. K. (2017). Mezzanine Finance: An Emerging Option In India. Kaav International Journal of Economics, Commerce & Business Management, 4(4), 82-88.
3. Boyle, P. P., & Emanuel, D. (1980). Discretely adjusted option hedges. Journal of Financial Economics, 8(3), 259-282.
4. Benninga, S., & Blume, M. E. (1985). On the optimality of futures contracts over spot contracts: The case of hedging. The Journal of Business, 58(2), 231-255.
5. Bessembinder, H. (1992). Systematic risk, hedging pressure, and risk premiums in futures markets. The Review of Financial Studies, 5(4), 637-667.
6. Black, F., & Scholes, M. (1973). "The Pricing of Options and Corporate Liabilities." Journal of Political Economy, 81(3), 637-654.
7. Chance, D. M., & Brooks, R. (2015). An Introduction to Derivatives and Risk Management. Cengage Learning.
8. Cao, et al. (2023). Hedging Barrier Options Using Reinforcement Learning. Retrieved from https://www.rotman.utoronto.ca
9. Chandrika, P. (2018). Dynamics of Arch Family Models - with Reference to The Gold Futures in The Usa. Kaav International Journal of Economics, Commerce & Business Management, 5(1), 963-970.
10. Cox, J. C., Ross, S. A., & Rubinstein, M. (1979). Option pricing: A simplified approach. Journal of Financial Economics, 7(3), 229-263.
11. Ederington, L. H. (1979). The hedging performance of the new futures markets. The Journal of Finance, 34(1), 157-170.
12. Figlewski, S. (1984). Hedging performance and basis risk in stock index futures. The Journal of Finance, 39(3), 657-669.
13. Goswami, B., & Mukherjee, I. (2017). A Comparative Study of Volatility Between Commodity Futures Market and Stock Market: Evidence from India. Kaav International Journal of Economics, Commerce & Business Management, 4(4), 325-331.

14. Ghosh, R., et al. (2023). Analyzing Commodity Futures and Stock Market Indices: Hedging Strategies with Asymmetric DCC Models. Retrieved from https://www.sciencedirect.com
15. Hull, J. C. (2017). Options, Futures, and Other Derivatives. Pearson Education.
16. Jaimungal, et al. (2023). Optimal Hedging Strategies for Options in Electricity Futures Markets. Retrieved from https://www.ssrn.com
17. Johnson, L. L. (1960). The theory of hedging and speculation in commodity futures. The Review of Economic Studies, 27(3), 139-151.
18. Kolb, R. W., & Overdahl, J. A. (2007). Futures, Options, and Swaps. Wiley-Blackwell.
19. Longstaff, F. A. (1995). Option pricing and the martingale restriction. Review of Financial Studies, 8(4), 1091-1124.
20. Leland, H. E. (1985). Option pricing and replication with transactions costs. The Journal of Finance, 40(5), 1283-1301.
21. Mello, A. S., & Parsons, J. E. (2000). Hedging and liquidity. Review of Financial Studies, 13(1), 127-153.
22. Nirmala, K., & C, S. (2017). Examining the Relationship Between Spot and Future Price of Crude Oil. Kaav International Journal of Economics, Commerce & Business Management, 4(1), 309-314.
23. Stulz, R. M. (1982). Options on the minimum or the maximum of two risky assets: Analysis and applications. Journal of Financial Economics, 10(2), 161-185.
24. Schofield, N. C. (2007). Commodity derivatives: Markets and applications. John Wiley & Sons.
25. Stoll, H. R., & Whaley, R. E. (1986). The dynamics of stock index and stock index futures returns. Journal of Financial and Quantitative Analysis, 21(4), 441-468.
26. Tiwari, S. K., & Malonia, H. P. (2019). An Empirical Study on Financial Derivatives (Future & Options) With Special Reference to PNB & Axis Bank. Kaav International Journal of Law, Finance & Industrial Relations, 6(1), 6-11.
27. Yu, X., & Sun, H. (2023). Optimal Hedging with Options and Futures against Price Risk and Background Risk. Mathematical and Computational Applications. Retrieved from https://www.mdpi.com/journal/mca.
28. "Futures Contract Definition and Example," Investopedia, https://www.investopedia.com/terms/f/futurescontract.asp.
29. "What Are Futures and How Do They Work?" The Balance, https://www.thebalance.com/what-are-futures-contracts-1031106.
30. "The Benefits of Futures Trading," Corporate Finance Institute, https://corporatefinanceinstitute.com/resources/knowledge/trading-investing/futures-trading/.
31. "Understanding Futures Contracts," CME Group, https://www.cmegroup.com/education/courses/understanding-futures/index.html.