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ANALYSIS OF INTRINSIC VALUE OF FUTURES AND OPTIONS IN DERIVATIVES MARKET - A STUDY

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ABSTRACT

Financial risk management and investment techniques are the primary foci of this study, which seeks to assess the inherent value of futures and options in the derivatives market. Important financial tools for hedging against market risks or speculating on asset price swings are derivatives, including options and futures. Vital to option pricing is the intrinsic value, which is the gap between the underlying asset's current market price and the option's strike price.

Futures and options pricing processes, variables affecting their inherent value, and performance under unpredictable market situations are all examined in the research. It delves at the interplay between intrinsic value, temporal value, and market behavior to provide light on how investors and traders might make the most of these tools. The study also stresses the need of knowing the intrinsic value while evaluating risks and trying to increase ROI.

INTRODUCTION

A derivative is a kind of financial instrument that derives its value from an underlying asset. Depending on the value of one or more underlying assets, a derivative is a legally binding contract to buy or sell an item at a later period. These deals are struck on the trading platforms of stock markets. This asset pool may include everything from equities and bonds to sugar crude, soyabean, cotton, coffee, the value of the rupee relative to the dollar, and many more besides. A derivative has no value when used alone. That it is important is based on its primary asset. There are a plethora of derivatives, including futures, options, swaps, collars, caps, floors, and forwards. Among derivatives, options and futures are the most prevalent. Producers and consumers have used the derivatives market for millennia to hedge against the unavoidable fluctuations in commodity prices. Although commodities markets were the initial driver of development in India's derivatives market, the demand for products based on financial instruments including bonds, currencies, stocks, and stock indexes has now outpaced that of commodities markets.India has been involved in the black market trade of commodities for a long time, including silver, spices, coffee, cotton, oil, and gold. It was legal to trade in the derivatives market until the Morarji Desai administration banned forward contracts. The unstructured trading formats for stock derivatives were referred to as teji and mandi. Trading futures contracts for a variety of commodities on several platforms is a relatively new development. Mumbai is home to oil and cotton markets, Bhopal to soy beans, Kochi to pepper, Bangalore to coffee, and so forth. In June 2000, the Bombay and National stock exchanges introduced futures trading for the Sensex and Nifty. The Sensex and Nifty options market was launched in June 2001. Options trading on 31 major equities began in July, while futures trading on 31 equities began in November. Currently, 41 stocks are traded in NSE derivatives, and that figure is still growing. There are a variety of financial tools available to traders and investors in the derivatives market, which has grown to become an essential aspect of the international monetary system. Futures and options are among the most popular derivative products traded. The worth of these contracts is based on something else, such a stock, commodity, currency, or index. Options provide the buyer the right, but not the responsibility, to purchase or sell the underlying asset at a fixed price and date, whereas futures contracts impose this requirement on all parties involved.

NEED OF THE STUDY

The turnover rate of the stock market has been increasing at an exponential pace during the last decade. The number of deals and the percentage of investors involved have both increased. Risk management solutions are sought after by investors seeking to reduce their risk exposure.

The BADLA system allowed investors to reduce risk until it was removed by SEBI. However, it had a number of problems, including an inefficient margining mechanism, an unclear expiry date, and the introduction of counter party risk. This problem led SEBI to eliminate the BADLA mechanism.

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SCOPE OF THE STUDY

With the Inter-Connected Stock Exchange serving as a representative sample, this study delves into the world of "Derivatives" in the context of India, especially exploring futures and options. We must admit that the research is not without its flaws. Almost anything may happen. The Indian futures market has been thoroughly investigated, although our research has only touched the surface. This one isn't based on research like NASDAQ or CBOT, which are other international derivatives exchanges.

OBJECTIVES OF THE STUDY

To know about the Derivative market in India
To study the mechanism of the Future Contract and Option Contract
To analyze the risk and return of selected contracts of Futures and Options
To evaluate the intrinsic value of the selected contracts of Derivatives

RESEARCH METHODOLOGY

The methodology of a research study is the strategy or procedure used to systematically collect, evaluate, and understand the results. This document guarantees the validity, reliability, and reproducibility of the research by outlining the procedures utilized to conduct the study. This framework offers a thorough method for methodically carrying out research while maintaining integrity, replicability, and correctness.
The source of data can be done through the primary and secondary source for this study. There is no primary data for this study
Research Design: Descriptive Research Design
Sample Size: 5 Contracts from Futures and Options
Tools for analysis: Risk and Return Analysis through Average Mean and Standard Deviation
Secondary Data: The data which is already available from the secondary sources like Textbooks, Journals, Newspapers etc.

LIMITATIONS OF THE STUDY

Due to time constraints, the project will not be able to collect all relevant data in a timely manner.
The data used in the analysis will come from secondary sources, so their accuracy is uncertain.
The results of the analysis will not necessarily control the investor making decision
The major limitations of the study is time factor

LITERATURE REVIEW

Options, Futures and Other Derivatives by Takeaki Kariya, Regina Y Liu, (Jan 2003): Options futures, as well as the derivative market upon which they are based, are introduced here. One of the primary functions of derivatives in risk management is to allow for the construction of hedging or control positions in various financial markets. If the value of assets like bonds, equities, or currencies were to suddenly drop, that would be an example of risk. Derivatives of many types can be built for various reasons. Option is one of the derivatives that traders deal with the most. Two main varieties exist: the American and the European.

Derivatives: Forwards, Futures, Swaps, and Options by Arlie O Petters, Xiaoying Dong, (Jan 2016): These days, a firm grasp of derivatives is essential for everyone hoping to make sense of the financial markets and contemporary finance. Forwards, futures, swaps (short introduction only), and options are the fundamental building blocks of derivatives, which are covered in this chapter from both a theoretical and practical standpoint. The method is based on learning the methods and contracts, with a special focus on the alternatives. The following chapter will cover the topic of price.

"Options, Futures, and Other Derivatives" by John Hull, (March 2016): Over the years, Professor John C. Hull's "Options, Futures, and other Derivatives" has become the textbook of choice, particularly among business management fraternities and communities. Numerous business schools have "Derivatives Management" in their curriculum. There is a logical path for business school grads to learn about derivative instruments, with ever more complex and challenging tasks eventually leading to involvement in pricing, monitoring, comparing price movements, feasibility, and change prediction.

A study of derivatives market (with reference to futures and options) by Priti Jain Vilas, (April 2023): In order to identify the potential of the derivative market and the extent to which investors are aware of and prepared to take advantage of it. Derivatives are an underutilized asset class that offers promising opportunities for investment and risk management in an age of rising saving and investment rates. There are two main categories of derivatives that I've been researching: futures and options. I've been looking at their risk and return profiles as well as the reasons people invest in them and the money they've made. It examines the disparity between the derivatives market's potential and the extent to which investors may profit from it. An investor's risk capacity and the frequency with

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which they invest interact, according to the results of a factor analysis of variance. There is a correlation between investors' income and their investing pattern, as shown by the chi-square test. According to the research, there is a significant chasm between the derivative market's actual and prospective offerings, as well as investors' actual and perceived market options and levels of knowledge about the market.

A Study on Futures and Options in Derivative by Dr P Subrahmanyam , Ms T Anusha, (Feb 2024): This study dives into the complex futures and options markets to find out how the various procedures affect the return and risk profiles of market participants. The research paints a comprehensive picture of the inner workings of financial market options and futures by drawing on studies of market behavior, mathematical models, and historical data. The first section of the study explains the theory behind futures and options, two derivative products. This study aims to examine case studies and historical market events in search of trends and outliers that have impacted the risk-reward environment for market participants. The article delves further into option pricing models and how they might be applied to analyze implied volatility and market expectations. This paper employs empirical analysis to evaluate the efficacy of option pricing models in capturing market dynamics and explores the impact of market mood on option pricing.

Pricing of Futures/Forwards and Options by Frank J. Fabozzi, (Dec 2012): In the cash market, there are a number of models that have been suggested for valuing financial assets. Futures, forwards, options, swaps, floors, and futures prices are all calculated using arbitrage models. Derivative prices, in their most basic form, are those that prevent market players from making risk-free returns without actually investing any money. The first step in creating a derivative pricing model is to devise a plan to profit from the spread between the underlying asset's cash price and the derivative's value. The derivative's market price reflects the whole cost of the package needed to get the same return as the derivative. Futures contracts, forward contracts, delivery dates, settlement dates, initial margins, variation margins, clearinghouses, cash-and-carry trades, reverse cash-and-carry trades, net financing costs, cost of carry, positive carry, and negative carry are all terms that go into this context. The following terms are used to describe options: call, put, American, European, striking price, expiration date, intrinsic value, time premium, put-call parity relationship, at-the-money, in-the-money, out-of-the-money, and expiration.

DATA ANALYSIS

Comparison of Risk and returns

Contract	Returns	Risk
Ambhuja Future Contract	-0.23	2.49
Ambhuja Call Option Contract	-0.21	2.47
Ambhuja Put Option Contract	-0.20	2.76
Auro Phama Future Contract	-0.28	1.81
Auro Pharma Call Option Contract	-0.11	0.37
Auro Pharma Put Option Contract	-0.09	2.84
Cipla Future Contract	-0.14	1.24
Cipla Call Option Contract	-0.18	0.90
Cipla Put Option Contract	-0.04	0.51



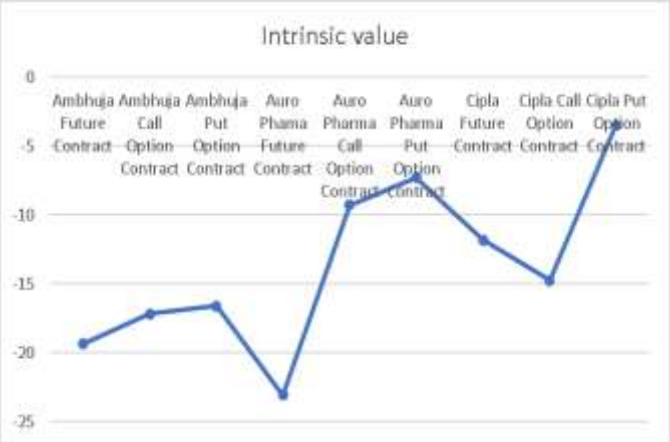
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Interpretation

From the above table and graph we can state that, all the contracts are showing negative returns from the period of three months i.e November, December 2024 and January 2025. The highest return is with Cipla put otpions -0.04 i.e -4% and risk factors os 0.51. The Lowest return is with Auro Pharma Futures -0.28 i.e -28% and risk factors os 1.81.

Comparison of Intrinsic Value

Contract	Intrinsic value
Ambhuja Future Contract	-19.37
Ambhuja Call Option Contract	-17.19
Ambhuja Put Option Contract	-16.6
Auro Phama Future Contract	-23.07
Auro Pharma Call Option Contract	-9.29
Auro Pharma Put Option Contract	-7.3
Cipla Future Contract	-11.82
Cipla Call Option Contract	-14.74
Cipla Put Option Contract	-3.46



FINDINGS

- Intrinsic value of the Future contract of Ambhuja Cements is -19.37, So the value shows negative it is out of money for the contract for the period of three months i.e November, December 2024 and January 2025
- Future Contract of Ambhuja Cements Avg Returns for the period of three months i.e November, December 2024 and January 2025 is -0.23 i.e. -23% and Standard Deviation is 2.49
- Intrinsic value of the Option Contract Call option of Ambhuja Cements is -17.19, So the value shows negative it is out of money for the contract for the period of three months i.e November, December 2024 and January 2025
- Option Contract Call option of Ambhuja Cements Avg Returns for the period of three months i.e November, December 2024 and January 2025 is -0.21 i.e. -21% and Standard Deviation is 2.47
- Intrinsic value of the Option Contract Put option of Ambhuja Cements is -16.60, So the value shows negative it is out of money for the contract for the period of three months i.e November, December 2024 and January 2025
- Option Contract Put option of Ambhuja Cements Avg Returns for the period of three months i.e November, December 2024 and January 2025 is -0.20 i.e. -20% and Standard Deviation is 2.76
- Intrinsic value of the Future contract of Auro Pharma is -23.07, So the value shows negative it is out of money for the contract for the period of three months i.e November, December 2024 and January 2025
- Future Contract of Auro Pharma Avg Returns for the period of three months i.e November, December 2024 and January 2025 is -0.28 i.e. -28% and Standard Deviation is 1.81
- Intrinsic value of the Call Option contract of Auro Pharma is -09.29, So the value shows negative it is out of money for the contract for the period of three months i.e November, December 2024 and January 2025
- Call Option Contract of Auro Pharma Avg Returns for the period of three months i.e November, December 2024 and January

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2025 is -0.28 i.e. -28% and Standard Deviation is 1.81

- Intrinsic value of the Put Option contract of Auro Pharma is -07.30, So the value shows negative it is out of money for the contract for the period of three months i.e November, December 2024 and January 2025
- Put Option Contract of Auro Pharma Avg Returns for the period of three months i.e November, December 2024 and January 2025 is -0.09 i.e. -9% and Standard Deviation is 2.84
- Intrinsic value of the Future contract of Cipla is -11.82, So the value shows negative it is out of money for the contract for the period of three months i.e November, December 2024 and January 2025
- Future Contract of Cipla Avg Returns for the period of three months i.e November, December 2024 and January 2025 is -0.18 i.e. -18% and Standard Deviation is 0.90
- Intrinsic value of the Call Option contract of Cipla is -14.74, So the value shows negative it is out of money for the contract for the period of three months i.e November, December 2024 and January 2025
- Call Option Contract of Cipla Avg Returns for the period of three months i.e November, December 2024 and January 2025 is -0.18 i.e. -18% and Standard Deviation is 0.90
- Intrinsic value of the Put Option contract of Cipla is -3.46, So the value shows negative it is out of money for the contract for the period of three months i.e November, December 2024 and January 2025
- Put Option Contract of Cipla Avg Returns for the period of three months i.e November, December 2024 and January 2025 is -0.04 i.e. -4% and Standard Deviation is 0.51
- All the contracts are showing negative returns from the period of three months i.e November, December 2024 and January 2025. The highest return is with Cipla put otpions -0.04 i.e -4% and risk factors os 0.51. The Lowest return is with Auro Pharma Futures -0.28 i.e -28% and risk factors os 1.81.

SUGGESTIONS

- Create a plan to minimize potential losses and safeguard your investment. You should not risk all of your money on one transaction without first setting stop-loss orders and investing in a variety of assets.
- Make sure investor know the ins and outs of the assets you're dealing. The markets are susceptible to influences like corporate profits, economic data, and global politics.
- If there is a positive difference between the stock price and the strike price, then the intrinsic value of the call option is one; otherwise, it is zero.
- If the gap between the put option's strike price and the stock's current price is positive, then the option's intrinsic value is one; otherwise, it's zero.
- Think about the theta component of time decay in option pricing. Time decay impacts intrinsic value as options approach expiry.
- Think about current interest rates and dividends from underlying equities. Options, especially American-style options, may have their inherent value impacted by these.
- Determine whether an option is in the money, at the money, or out of the money. It sheds light on the present worth and future profitability.
- Analyze the options' risk-reward profile by contrasting their intrinsic worth with their entire premium. Think about the premium in light of the risk it entails.
- Keep an eye on how the market is feeling and any news that might affect the asset's value. Intrinsic values are susceptible to sudden fluctuations, particularly during times of high volatility.

CONCLUSION

The intrinsic value of both call and put options is derived from the relationship between the strike price and the current market price of the underlying asset. When options are in-the-money, they have intrinsic value, while out-of-the-money options have no intrinsic value. However, they still may hold time value. Time plays a critical role in the valuation of options, with the option premium consisting of both intrinsic value and time value. As expiration approaches, the time value decays (Theta), emphasizing the importance of timing in option trading strategies. The Black-Scholes and Binomial models are widely used for options pricing, considering factors like volatility, interest rates, time to expiration, and the underlying asset's price. These models provide a theoretical basis for estimating option premiums and can be useful for both pricing and risk management. The cost-of-carry model in futures contracts highlights the importance of carrying costs and benefits (such as interest rates or dividends) in determining the futures price relative to the spot price.

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