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A Model for Calculating the Effectiveness of Writing and Hedging SBI Derivatives

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Abstract: Options in the stock market are a form of risk management that can help protect investors from various potential liabilities. Increased demand for derivatives is reflected in higher trading volumes every day. Over time, it has been easier for regular investors to get their hands on derivatives. The major Indian exchanges trade a wide range of financial goods, including stock derivatives. This article explains how to trade F&O on the National Stock Exchange (NSE) in India. To write options, the NSE typically employs call-and-put options. It may be able to design ways to achieve this goal by studying the State Bank of India (SBI) options chain for the first quarter of fiscal years 22 and 23. Based on the current stock price, the suggested computational approach writes call (CE) and put (PE) options for the upcoming month's settlement date. CE and PE were written at prices twenty rupees higher and lower than the stock options strike price, respectively. Furthermore, the pricing for both products has been reduced to zero rupees. According to our research, selling options to firms with minimal volatility is a good idea.

Keywords: ANOVA, Derivatives, Option-chain, Regression, Residual normality

1. Introduction

Studies in machine learning, data science, cyber security, and other related fields are becoming increasingly popular [1-3]. The study uses data science or a computational model to monitor performance for hedging and writing on the SBI derivatives option chain. A financial market, as opposed to a market, is an online platform where brokers assist consumers in buying and selling exchange rates, stocks, shares, and derivatives. On exchanges or over-the-counter, shareholders of publicly traded firms can be acquired. When the stock market rises, individuals are more likely to engage in equity trading [4]. Individuals with minimal financial resources can create a substantial income and live comfortably by investing a small quantity in low-risk portfolios. People can also make money through stock trading, which may be more lucrative than getting a high-paying job or starting a business. Nonetheless, stock market investments are susceptible to foreseeable and unanticipated risks. Politics, the economy, trends, the seasons, investor psychology, and other variables may all contribute to these dangers [5, 6]. Due to the difficulty of profit forecasting and the stock market volatility, those who dislike taking risks do not invest in capital market assets. When this occurs, it is essential to comprehend how the stock market functions. The purpose of stock market forecasts is to predict a stock's future value or another financial instrument [7]. If investors could adequately predict the future value of equities, they could invest smartly and generate substantial profits. Finally, the significance of the study in that field was acknowledged, and it received the necessary attention to relieve investors' anxieties regarding stock market investment [8, 9]. Numerous experts from different fields have performed the study and made substantial contributions, despite the difficulty of predicting the stock market. However, few studies have been done to study and explain the relationship between the stock market and the option chain [10, 11]. Investors might choose between a call option and a put option depending on their demands. The first provides the investor with the right, but not the obligation, to acquire a set number of shares at a specified price. The second option gives the investor the right, but not the obligation, to sell shares at a specified price. The seller enters an option contract that allows the buyer the right, but not the obligation, to buy (in the case of a call option) or sell (in the case of a put option) a specific asset at a specified price in the future (the "Strike price" or "exercise price"). In exchange for allowing the buyer to choose, the buyer pays a "premium" to the seller. Exchange-traded options are offered on public markets with the same contract terms as regular options. It facilitates trading for numerous investors. They guarantee that the liquidator will pay, so minimizing the risk for the other party. Options are utilized for hedging, predicting the market's direction, arbitrage, and adopting strategies that enable investors to benefit under various market scenarios. As part of this