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PS: BANK NIFTY TRADING USING OPTION CHAIN DATA

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ABSTRACT

There are many Price-Volume based algorithm to determine a strategy for trading various securities but using Option chains data along with normal price-volume data may give us an extra edge over those strategies by more accurately predicting market sentiment. We have tried to devise an algorithm based on 21 days weighted moving averages, Open interest, PCR Ratio ,Volume etc which takes the help of PCR and moving average crossing to predict the future movement of market.

INTRODUCTION

We have to devise a robust trading algorithm based on Price, Volume and options data to trade BANKNIFTY. What we aim is to show that incorporating option data over an traditional algorithm may result in better return with optimized risk. When an option contract is written the option writer are at greater risk of loss so they are generally big financial institutions institution or farms who have more data and experienced analysists so if they are selling calls then they have a bearish view about the market and if they sell more put options they have a bullish view about the market) In our strategy we are tending to believe their sentiment about the market.

BASIC DEFINITION

Option: Options are contracts to get the right buy or sell an security(underlying) after a certain period of time at a fixed price. The option buyer pays the premium to the option writer in order to get that right. At that future date the buyer may choose to execute or not execute the contract but the writer is bound to comply with buyer's decision. Put option buyer gets right to sell and call option buyer gets the right to buy the underlying.

Open Interest: Open interest is the no of open contracts (Put or Call) which are yet to be settled as options are tradable a person can sell his option contract to somebody else. In this case Open interest remains same but volume increases.

PCR RATIO: Abbreviation of put to call ratio this is the ratio of total put option open interest and call option open interest.

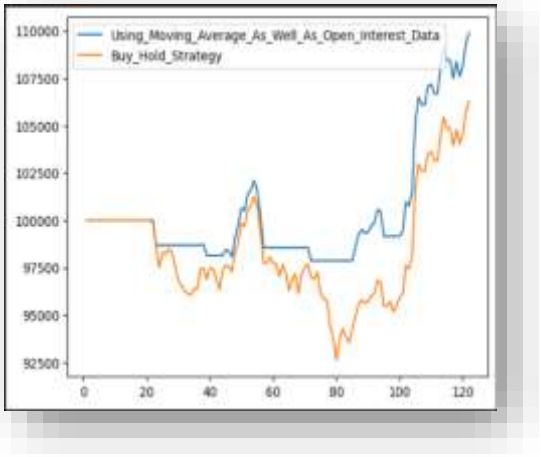
APPROACH

An algorithm based only on Open interest change of the given data but It gave 7.5% returns in specified time period because we cannot get correct entry and exit points just using open interest and it solely cannot predict the price movement of an index.

Machine Learning models to predict the future price using parameters like price volume open interest or PCR but it could not give any better result because the training set was to short and parameters were varied as our ML model did not have enough capacity to predict market sentiment .

In our finalized model we incorporated both the price action and option data namely,21 days Weighted Moving Average(21WMA) , open interest, PCR, volume etc. When price crosses the 21WMA and PCR is greater than 1 then it has an upward momentum as well as it has a positive sentiment in the market so prices are likely to increase in such case we long but If it crosses the 21WMA from above and PCR is less than 1 we can predict a downfall of BANKNFTY and exit from our long position if any. Moreover if the price are higher than MA but PCR is very less or volume is less that signs that stock is overvalued and a possible reversal would occur so we again exit from our long position if any. Similarly if PCR is very high but index price is lesser than average it may be undervalued and reversal would occur so we go for long.

RESULT:



After testing this algorithm on the data given to us we get annualized sharpe ratio of 1.33 and drawdown of 1.3% . Above graph shows the performance of our algorithm with respect to normal buy and hold strategy and 21 days WMA strategy both of which is outperformed in given dataset.