

[www.reallygreatsite.com](http://www.reallygreatsite.com)

MANAS HOSTEL

**KRITI 2024**

# TRADING STRATEGY

# CONTENT



1. BRIEF INTRODU

2. ANALYSIS OF OPTION PRICE-  
VOLUME DATA

3. STRATEGY LOGIC AND SIGNAL  
GENERATION

4. RISK MANAGEMENT

5. STRATEGY EXECUTION AND  
BACKTESTING

6. PERFORMANCE METRICS



# INTRODUCTION

→ PCR: PUT TO CALL RATIO=PCR(Open Interest) =  
(Put Open Interest/Call Open interest)

→ **OPEN INTEREST (OI)**: Open interest is the total number of outstanding derivative contracts for an asset — such as options or futures — that have not been settled.

# Analysis and insights from option price data

Data for analysis: 01-07-2023 to 31-01-2023 BankNifty's option call and option put.

## Data preprocessing:

Replaced the empty values with 0, for calculations.

Cumulative summed the open interest corresponding to each date, and calculated the PCR ratio based on it.

## Variables:

- position: Tracks the current trading position; 0 for neutral position, 1 for a long position, and -1 for a short position.
- val\_buy: Stores the value of the underlying asset when a buy (long) position is initiated.
- val\_short: Stores the value of the underlying asset when a short position is initiated.
- portfolio\_returns: A list to collect the portfolio capital after each trade.
- portfolio\_capital: The starting capital, set at 1,000,000 units.

stop\_loss\_percent: The predefined 3% stop-loss percentage

# STRAGETY LOGIC AND SIGNAL GENERATION METHOD

The core of the strategy revolves around the **PCR**, a widely recognized market sentiment indicator. Positions are determined based on the **PCR values**.

Buy Signal: A **PCR < 0.75** suggests bullish market sentiment, prompting a long position.

Sell/Short Signal: Conversely, a **PCR > 1.25** indicates bearish market sentiment, triggering a short position.

## HOW ARE TRADES EXECUTED:

Position checking -> Stoploss execution -> Seeing PCR ratio

BUY position -> you can only sell or sell short.  
Sell is executed if you hit a stoploss.  
Sell short -> if we hit a short signal, then we will sell and then short the stock

- No Current Position (position == 0):
  - Buy Signal: If PCR is less than 0.75, it signals bullish sentiment, so a buy (long) position is initiated, and val\_buy is updated with the current underlying value. The value of the underlying asset is subtracted from portfolio\_capital.
- Current Long Position (position == 1):

Stop-Loss Trigger for Long Position: If the current underlying value drops to or below the buy value adjusted for the stop-loss percentage, the long position is closed, portfolio\_capital is updated, and the trade is recorded in portfolio\_returns.
- Current Short Position (position == -1):

Stop-Loss Trigger for Short Position: If the current underlying value rises to or above the short value adjusted for the stop-loss percentage, the short position is closed, portfolio\_capital is updated, and the trade is recorded in portfolio\_returns

## RISK MANAGEMENT MEASURES

A stringent **stop-loss of 3%** is integrated to the strategy, safeguarding the portfolio against adverse market movements.

# STRATEGY EXECUTION & BACK TESTING

- **Full Capital Investment:** Each trade **employs the entire capital** (portfolio\_capital), maximizing the potential return on each position while aligning with the strategy's risk-reward profile.
- **Sequential Trade Execution:** The strategy executes trades based on the current position and PCR readings, with transitions from buy to sell (or vice versa) strictly following the stop-loss execution to avoid lookahead bias.
- **Backtesting Rigor:** The strategy undergoes rigorous backtesting against historical data, ensuring each trade is executed at the last day's closing price, mirroring realistic market conditions and avoiding lookahead bias.





# PERFORMANCE

Total Capital Invested : 1000000

Total number of trades :

Hold>Returns of BANKNIFTY in the same period = 7.2%



**SHARPE**

**14.43**



**SORTINO**

**25.17**



**MAX  
DRAWDOWN**

**-4.17%**



**RETURNS  
TO  
DRAWDOWN**

**4.52%**

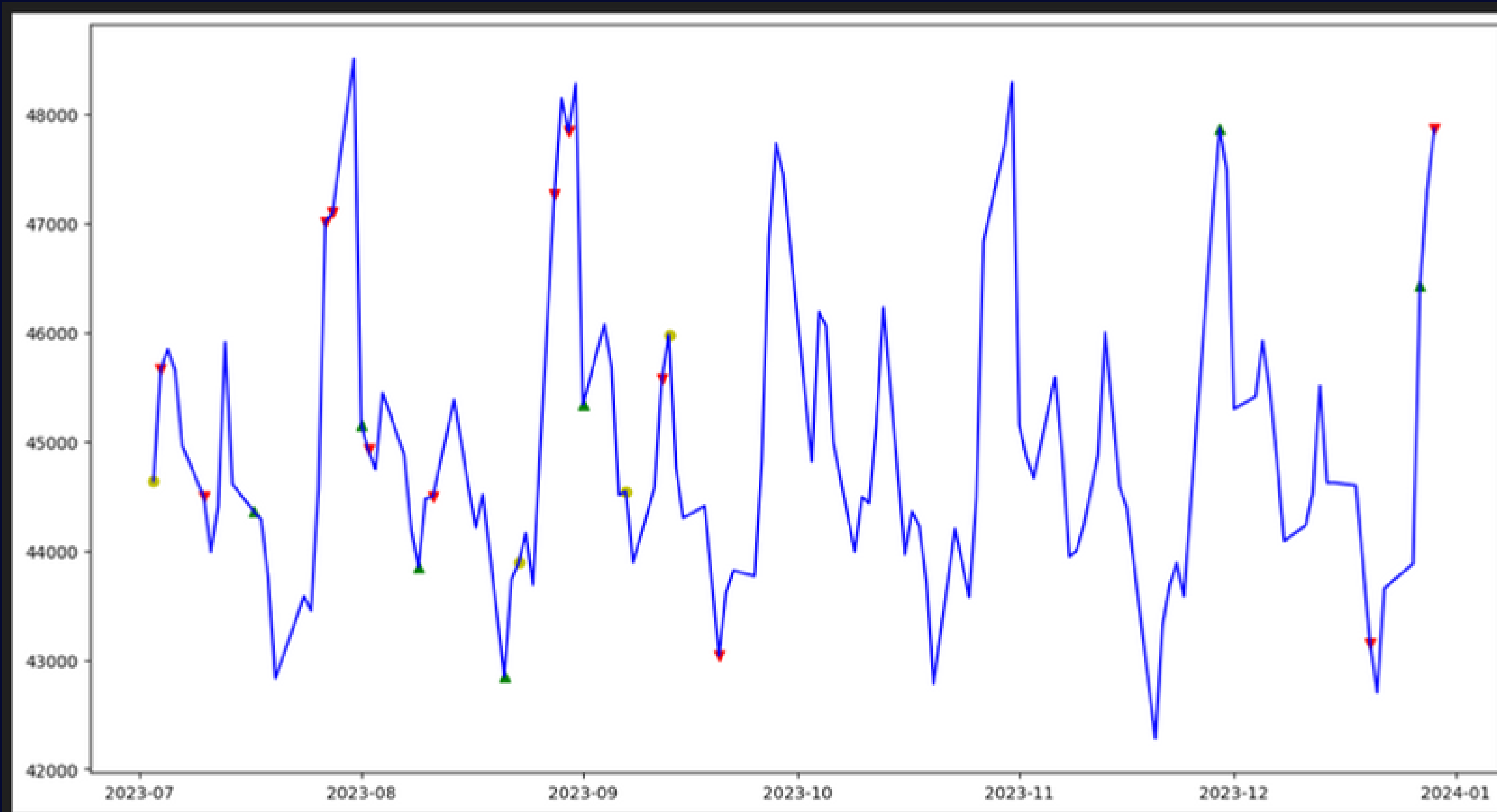


**CAGR**

**18.88%**



# TRADING SIGNALS



**THANK YOU**