

Readme

Title: Nifty Index Options Trading: Profiting from Open Interest Analysis of Options Chain

- Install the required library.
- Restart and Run All or Run Step by Step
- The required library are imported
- The Functions used in the project are defined at the beginning.
- GetUserInput() is going to capture the user input, select any number from 1-7 and press enter, as to how many strikes around the ATM price needs to be considered for analysis. Nifty Index Options has each strike of 50 points apart. So selecting 5 strikes means 250 points on either side of the ATM or spot price is considered for analysis. So ATM = 15000, then the strikes selected are 14750 - 15250.
- GetUserInput_Charts() is going to capture the user input, select any number from 1-7 and press enter. This considers the first highest Open Interest or first highest Change in Open Interest to the next four levels below. Select 1 if you want to analyse the first highest OI or COI level wrt the Close price of the underlying.
- There are two excel files that are used in the project. NiftyData.xlsx and NiftyOptionsData. These two files are loaded to the data frame, and the records are displayed.
- DailyRange() captures the Daily Range and other details and are displayed.
- MaxPain() function , captures the Max Pain details and displayed.
- MaxPain_Top1() captures the one Top Max Pain considering all the strikes for a day.
- MaxPain_IOTM_Top1() captures the one Top Max Pain considering all the strikes for a day separated by ITM and OTM.
- MaxPain_Top5() captures the five Top Max Pain considering all the strikes for a day separated by ITM and OTM.

OPEN INTEREST

- Call_OI_Top5() and Put_OI_Top5() captures the top five Open Interest strikes for Call and Put options.
- CallPut_OI_Top5() merges the Call and Put dataframes.
- Merge_CallPutOI_MaxPain() merges CallPut_OI_Top5 and MaxPain_Top5, so that all details are available in one dataframe.
- The next section is about Visualisation of the Open Interest data.
- The candle chart for the given period of Mar-June 2021 is plotted.

- Various combination of Call, Put, ITM and OTM are imposed and plotted on the candle chart, so that we can compare the positioning of each levels wrt the candle of each day.
- 1-5 Levels of the top Open Interest can be plotted on the chart.

CHANGE IN OPEN INTEREST

- Next the Change in Open Interest data will be analysed
- There are four combinations of Call, Put, ITM and OTM, and there can be Positive values or Negative values for the options Change in OT. All these details are merged with Merge_CallPutOI_MaxPain dataframe.
- The next section is about Visualisation of the Change of Open Interest data
- The candle chart for the given period of Mar-June 2021 is plotted as the base for projecting COI details.
- Various combination of Call Put ITM OTM COI are imposed and plotted on the candle chart, so that we can compare the positioning of each levels of COI wrt the candle of each day.
- 1-5 Levels of the Change in Open Interest can be plotted on the chart

ANALYSIS AND PREDICTION

- The next section is Analysis and Results Prediction of OI and COI details.
- Analyse_OI() analyses the OI details of how it compares to the todays "Close" wrt previous days OI Strike.
- For each level of OI strike for CALL , PUT, ITM and OTM are analysed wrt Close.
- If the OI predicts the next days Close level correctly, then OI is able to predict the trend for the next day. Each such True values are compared to the total transaction period and the percentage success rate is gathered. Higher the Percentage better is the predictable power of OI.
- Analyse_COI() analyses the COI details of how it compares to the todays "Close" wrt previous days COI Strike.
- For each level of COI strike for CALL , PUT, ITM and OTM are analysed wrt Close.
- If the COI predicts the next days Close level, then COI is able to predict the trend for the next day. Each such True values are compared to the total transaction period and the percentage success rate is gathered. Higher the Percentage better is the predictable power of COI.

- The value of 45 against Match_COI_P_COTM_Strike2 means that this combination of Call OTM Positive value of COI is able to predict the trend correctly 45 times out of the total trading days of 82, which translates to 54.85% success.
- These values varies based on the Total Number of Strikes (5,10,15,20, All) on either side of the ATM strike , that are captured for the Analysis.
- The Results are graphically represented in the Result Analysis .xlsx document.

CONCLUSION

- Open Interest and Change in Open Interest can be used to predict the trend of the underlying for the next day.
- Change of Open Interest has better predictable power of trend, above 50% of the time.
- Open Interest has lesser predictable power of trend, less than 50% of the time.