



ALGOSTRATEGY DEVELOPMENT

Volatility-VIX strategy



Overview of Strategy

MISSION

Our strategy's main goal was maximizing profits while minimizing loss. We also tried to increase the Sharpe ratio to make a more reliable strategy. We aim to optimise our factors while trading options, which are financial instruments whose value is derived from an underlying asset.

ASSET SELECTION

We had chosen to trade options primarily because they can make money in all environments, like in our backtesting period when stock markets moved dynamically, e.g., when covid hit, also, the profit that can be earned by selling put options and buying call options can be huge.



Strategy

We tried out a few more ideas on blueshift platform, this was the best one we could tune accurately to generate high returns

We have chosen to sell put-and-call options instead of buying them as these were yielding more profits.

We have also chosen to trade stocks in between using vix as the indicator as the market was moving quite stably in between so we were making simple profit using takeprofit and stop loss

We have applied EMA on the underlying asset, and to understand the trend of the market we have used 5EMA and 9EMA:

- if $5\text{ema} > 9\text{ema}$ asset is going up
- if $5\text{ema} < 9\text{ema}$ asset is going down

When $5\text{ema} > 9\text{ema}$, we have used bull spread and bought call options

When $5\text{ema} < 9\text{ema}$, we have used bear spread and bought put options

When vix goes below 16, it indicates that the market is getting stable and will most probably rise, so we long stocks of major companies in different sectors

All the other stop loss and take profits values were optimized by backtesting the strategy multiple times.

Start Date
Wed Jul 1 2020

End Date
Sun Jan 1 2023

Starting Capital
1,000,000

Ending Capital
26,496,517

Strategy vs. Benchmark Performance



Performance Metrics

Annual Returns	276.5 %
Cumulative Returns	2551.09 %
Annual Volatility	69.04 %
Sharpe Ratio	2.25
Maximum Drawdown	-32.83 %
Omega Ratio	1.62
Sortino Ratio	4.33
Skew	1.6
Kurtosis	10.12
Stability of Timeseries	70.83 %

TAKE
PROFIT

0.7

STOP
LOSS

0.4

Why we think our strategy is really apt?

As we have effectively captured the trend of the market by using exponential moving averages and generating trades on options, we have also tried capture the volatility of market using INDAVIX.

We ran multiple backtests to find the best parameters for optimizing our returns. Also the sharpe ratio obtained is 2.25 which is really good and represents a stable trading strategy.

Our code file is attached below:

https://drive.google.com/file/d/1IRTICY6nFgXquJpyC1o5P8O3WmIxwq0t/view?usp=drive_link

RULE NUMBER ONE: FUCK WHAT THEY THINK

-- JORDAN BELFORT(WOLF OF WALL STREET)

