Case Study: Implementing a Trading Strategy

Introduction

The main objective of trading is to make profit; a strategy works as an anchor to not only minimize loss but also maximize profits which enhances the probability of a profitable trade. How a strategy can be rendered profitable is answered in this case study.

This case study shows the implementation of a trading strategy and the stages involved to arrive at a final strategy.

Stages of Implementation

The above flowchart succinctly describes a typical development of a trading strategy and the stages of implementation.

Firstly, an entry strategy is chosen that elucidates when and how to enter the market. The exit strategy explains when to exit the market to maximize the profits and minimize the losses owing to the high volatility of the market.

After deciding on the exit strategy, one back tests and modifies to test the strategies to get a better yield.

Implementation

The trading strategy is implemented in a step wise process and then modified according to the success of the strategy based on the Backtesting results.

Entry Strategy

If only every trader knew when to enter and when to exit, it would have been an easy task to trade.

The data being used is the Nifty Intraday (5 min). Following are the entry strategies:

1. *Buy=Cross (MACD (), Signal ());*
2. *Filter the first intraday data if the difference between the high and the low values is greater than optimized threshold and generate buy as*
   Buy=Cross (MACD (), Signal ());
3. *Identify swing low to define the buy signal.*
4. *Identify swing low and applying filter H-L as mentioned in second strategy.*

Exit Strategy

The next important question is when do we want to stop trading? Most of the traders are perplexed with the fact whether they wait for the market to go higher to capture more profits or to sell earlier with the risk of losing what is being gained.

Optimization

Now we test the strategy by modifying the ways to exit the market to augment the profit factor that is a culmination of risk reward ratio and the winners' %.

The following exit strategies have been considered and backtested to get an insight of the important factors governing the market trades.

1. *Sell=Cross(Signal(),MACD());*
2. ***S-H:*** *Swing high is reached, that is calculated as the third consecutive high.*

3. **S-2:** *Profit reaches a minimum of 5. When either of the above occurs.*
4. **S-3:** *The close reaches 5 above the close of the buy value or there is a swing high.*
5. **S-4:** *If there is a trend, the sell signal is activated according to the trend, else it checks for the profit.*
6. **S-5:** *If there is a profit, then the sell signal is activated, else it checks for the trend and activates the signal.*

Backtest Results

Following table is tabulated for some of the combinations of the exit and entry strategies:

Entry	Exit	W %	N.P	P.F
Buy	Sell	27.75	-275.38	0.88
Buy + Filter	Sell	28.19	-332.41	0.89
S-L	S-H	63.24	23.60	1.01
S-L + Filter	S-H	63.37	51.14	1.02
S-L + Filter	S-2	55.38	114.69	1.04
S-L + Filter	S -3	63.81	124.15	1.04
S-L + Filter	S -4	52.81	427.13	1.14
S-L + Filter	S -5	52.43	260.10	1.08

S-L: Swing Low; S-H: Swing high; W%: winners' %; N.P: Net Profit; P.F: Profit Factor

Inference

- Signals that have been generated solely based on MACD and Signal lines are losing strategies.
- Trend is an important factor for any strategy**.**
- The unwanted first intraday data with high difference between high and low when filtered produces better results.
- Considering only trend will compromise the amount of profits earned.

- Profit margin should also be kept in mind while designing the exit strategy.
- There is always a tradeoff between choosing fewer profits and more trades or more profits and fewer trades which has to be carefully optimized.
- Using single factor to determine the signals is most of the times less profitable than using more than one factor that determine the profits.
- Stronger trends have low risk and high profits.

The reason for the strategy to have such high efficiency is the dominance of the trend that has been considered while entering the market and ignoring the insignificance of high difference of the first intraday bar.

Observation

Trend is one of the important factors of determining how aggressive and profitable the strategy will be. If the trend continues, it is evident that the strategy will have low risk and eventually turn out to be a lucrative investment. But determining trend is a difficult task and can lead to exuberant losses thereby nullifying the purpose of existence of a strategy.

Conclusion

- Entry and exit strategies form a prominent part in the development of the strategy
- Trend is an important factor in devising a strategy.
- Strategy is strengthened by considering other factors affecting the exit strategy, taking-profit or stop loss techniques.
- Profit factor as well as the winners' % is important in assessing the profitability of the strategy.