Momentum Trading Strategies

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Motivation

Momentum based trading strategies are commonly used for commodities and stocks trading. Since they are widely used, the market continuously learns and adapts which makes these strategies less effective over time and yields poor results leading to financial losses to the traders. Hence, from time to time, these strategies need to be re-evaluated for their efficacy. If necessary, the strategies have to be modified or new strategies have to be developed for profitable trading.

In a trending market, momentum based strategies outperform other strategies and make good money. But when the market stabilizes, these strategies always result in losses. Over the years, traders have been looking for indicators that identify these loss making regimes when the market neutralizes. So, there is a need for improving momentum based strategies using advanced time series algorithms.

Problem

Momentum based strategies employ several technical indicators to identify changes in trends. Moving Average Convergence Divergence or **MACD** is one of the most commonly used technical indicators and in a trending market it performs well.

But when there is sideways movement this technical indicator performs poorly leading to loss making trades. There is a clear need for development of an indicator which identifies the start of neutral markets without many false alarms.

Typically, the ratio of profit to loss making trades is 1:2. This results in the traders not only having to deal with the losses from the sheer volume of non-profitable trades but also the brokerage fees, further cementing the need for reduction in the number of loss making trades.

Our client used a combination of several technical indicators to take a decision on trades which worked well for along time. However, over time, the strategy stopped performing well as is generally expected from momentum based strategies. The client wanted to refine the existing strategy using some advanced time series algorithms.

Solution

Initial back-testing of the existing strategy **(MACD)** revealed that the sideways movement was the leading cause for the losses. We combined advanced trend filtering techniques called **L1-filtering** with moving averages for identifying changes in trends.

This combination helped identify the beginning of neutral markets. Using this as an indicator many loss making trades were avoided which reduced the losses by 50% when back-tested on data over a period of one year.

The ratio of profit to loss making trades went up to 1:1 as against 1:2 for the old strategy. Furthermore, the new strategy has resulted in significant reduction in brokerage by preventing positions on loss making trades. After a rigorous scrutiny of these algorithms, they have been deployed at the client facility. Currently, the software is being used by the client for real-time trading of various commodities.