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Assignment-2 (MID-EVAL)

Algo Findev

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# Overview

The target of this assignment is to develop a trading strategy using technical indicators for both small cap and large cap stocks listed on the National Stock Exchange (NSE) in India.

Together, we have worked upon the following indicators-

1.Donchian Channels ( Volatility Indicator)

2.Relative Strength Index (RSI) ( Momentum Indicator)

# Goals

Our basic task is to work on a code that performs the following functions-

1.Generate trading signals, backtest the strategy over a two-year period, and analyze the results.

2. Also, investigating the strategy's shortcomings, propose improvements, and explore the potential of incorporating additional indicators for better performance.

Moving forward, we kept quite a simple approach by choosing a small and a large cap stocks, namely- Deltacorp and Reliance respectively, taking a timeline of about 2 years. Next we will be Interpreting the results , throwing light upon the topics such as the strengths, weaknesses, and limitations of the strategies applied.

# **Observations**

## Donchian Channel Strategy

The Donchian Channel strategy, also known as the price channel breakout strategy, has its strengths, weaknesses, and limitations. Here are some of the key points to consider:

Strengths:

1. Simplicity: The Donchian Channel strategy is relatively simple to understand and implement. It involves identifying the highest high and lowest low over a specific period to determine entry and exit points.

2. Objective rules: The strategy relies on clear and objective rules based on price action, reducing the impact of emotional decision-making.

Weaknesses:

1. Whipsaw and false breakouts: During ranging or choppy market conditions, the Donchian Channel strategy may result in whipsaw trades or false breakouts, where price briefly moves beyond the channel but then returns within the range.

2. Lagging indicator: The Donchian Channel strategy relies on past price data, which makes it a lagging indicator. It may not provide timely signals during fast-moving markets or periods of rapid price changes.

Limitations:

1. Lack of trend identification: The Donchian Channel strategy focuses on breakouts but does not provide explicit guidance on identifying or confirming trends. It may result in trades against the prevailing trend.

2. Lack of risk management: The strategy does not inherently include risk management techniques such as stop-loss orders or position sizing. Traders need to incorporate risk management principles to protect their capital.

Overall, the Donchian Channel strategy can be a useful tool in a trader's arsenal, especially in trending markets. However, it is important to consider its limitations and combine it with additional indicators, risk management techniques, and market analysis to enhance its effectiveness and address its weaknesses.

## RSI Strategy

The RSI (Relative Strength Index) strategy, a popular momentum oscillator, has its strengths, weaknesses, and limitations. Here are some key points to consider:

Strengths:

1. Trend identification: RSI helps identify overbought and oversold levels, indicating potential trend reversals. It can signal when an asset is likely to be overvalued (overbought) or undervalued (oversold).

2. Divergence detection: RSI can be used to spot divergences between price and the indicator itself, which may indicate a potential trend reversal or continuation.

3. Clear signals: RSI generates clear buy and sell signals based on specific threshold levels, making it easy to interpret and implement.

Weaknesses:

1. False signals: RSI can generate false signals, especially in ranging or choppy markets. It may indicate overbought or oversold conditions that do not result in meaningful price reversals.

2. Lagging indicator: RSI is based on past price data, making it a lagging indicator. It may not provide timely signals during fast-moving markets or periods of rapid price changes.

Limitations:

1. Limited to specific timeframes: RSI is sensitive to the chosen period or timeframe. What works well on one timeframe may not be as effective on another, requiring customization for different assets and market conditions.

2. Lack of trend confirmation: RSI alone may not provide confirmation of an ongoing trend. It can be used in conjunction with other indicators or technical analysis tools to enhance trend identification.

It is essential to consider these strengths, weaknesses, and limitations when using the RSI strategy. Combining RSI with other technical indicators, risk management techniques, and market analysis can improve the effectiveness of the strategy and help address its limitations. Additionally, backtesting and thorough analysis of historical performance can provide insights into the suitability and performance of the RSI strategy for different market conditions.

## Combined Strategy

Strength:

1. Objective and rule-based approach: The Donchian channel and RSI are both objective indicators based on mathematical calculations. This introduces a rule-based approach to trading, which can help improve consistency and discipline in executing trades.

2. Effective risk management: By combining the breakout signals of the Donchian channel with the confirmation provided by the RSI, traders can better manage risk.

3. The Donchian channel is a trend-following indicator that captures the high and low range of prices over a specified period. This allows traders to identify and participate in trending markets. The RSI, on the other hand, measures the strength and momentum of price movements. By combining these two indicators, traders can effectively identify trending markets and potential momentum shifts.

Limitations:

1. Inadequate for certain market conditions: The combined strategy may not perform well in certain market conditions, such as during periods of low volatility, ranging markets, or sudden and sharp price movements.

2. The combined strategy requires parameter selection for both the RSI and Donchian channel.Determining the optimal values can be subjective.

Improvement suggested for Combined Strategy:

1. We can implement other indicators as well to validate signals to provide additional confirmation.

2. By adding trend filters we can enhance the accuracy of our proposed strategy.

3. Instead of relying on just single timeframe we can consider using multiple timeframe to filter false signals.

Which is better:

Best strategy depends on various market factors. So we need to backtest the strategy which we are going to apply and generate results based on that.We should also consider other indicators, risk management techniques etc. to do effective trading.

Contributions:

Both of us studied about the given topic from the bucket and worked on code, generated buy sell signal, cumulative return, plotted the graph, analysed which strategy will be better among them and then documented .

Problems faced by us:

The main problem occurred in generating buy sell signal . For Donchian channel very few signals were generated whereas for RSI consecutive buy sell signals were being generated.

After solving this issue , main issue was that less signals were generated.