Indicators Explanation

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I. Introduction

This document contains seven indicators for predicting the stock price. All indicators must be calculated from the original price of the stock in the daily range.

II. Short-term Indicators

A. Momentum

Momentum computes the change of the stock price in the form of percentage. It is a very straightforward lookback indicator, which means that we calculate the current price compared to a previous period we defined. It measures the speed of price movement.

1) Input:

- Stock Price DataFrame, pd.df
- Lookback Period: int, default=14

B. Exponential Moving Average (EMA)

It is slightly like the moving average, but with an exponential weight. It assigns greater weight to the recent prices to capture more features from the new market.

1) Input:

- Stock Price DataFrame, pd.df
- Window Size: int, default=20

C. Stochastic Oscillator

Oscillator compares the current stock price with the prices of a previous period. This indicator could quickly find if overbought or overbuy is happending, making it a good indicator for short-term investment.

1) Input:

- Stock Price DataFrame, pd.df
- Lookback Period: int, default=20
- Window Size: int, default=3

D. Commodity Channel Index (CCI)

CCI calculates the deviation of the current price from the moving average of a period. It can indicate whether the stock is overbought or oversold.

1) Input:

- Stock Price DataFrame, pd.df
- Window Size: int, default=20

III. Long-term Indicators

A. On Balance Volume (OBV)

OBV is the opposite of Momentum indicator. Instead of following the trend of current price changes, OBV accumulates volume based on the direction of price changes.

1) Input:

- Stock Price DataFrame, pd.df
- Volume, Current Price Volume

B. Average Directional Index (ADX)

ADX is for capturing the market momentum. It measures the strength of a trend. The trend is typically a comparsion of positive and negative price changes.

1) Input:

- Stock Price DataFrame, pd.df
- Window Size: int, default=14

IV. Abnormal Monitor Indicators

A. Average True Range (ATR)

ATR represents the true price of the stock over a period. Note that it is not a traditional price prediction indicator, but it provides the activity level of the current market. It is widely used in Gamma Stock.

1) Input:

- Stock Price DataFrame, pd.df
- Window Size: int, default=60