Presentation of Findings

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Introduction & Purpose

My Background:

- Current crypto investor and day trader
- Studied data science to quantify trading methodology

Our Purpose Today:

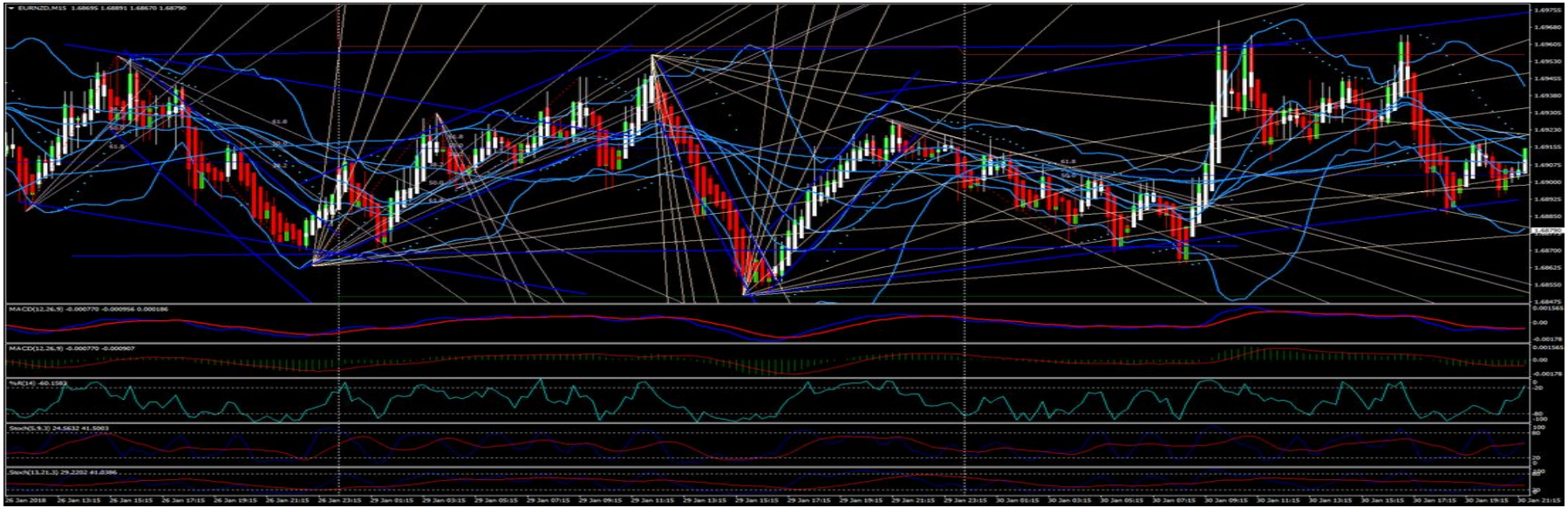
- We trade in the market to make money.
- Trading Edge = Success.
- Review trading methodology: Linear Regression

The power of simplicity

Simple is understandable and actionable

Analysis paralysis

Unable to measure results over repeated trades



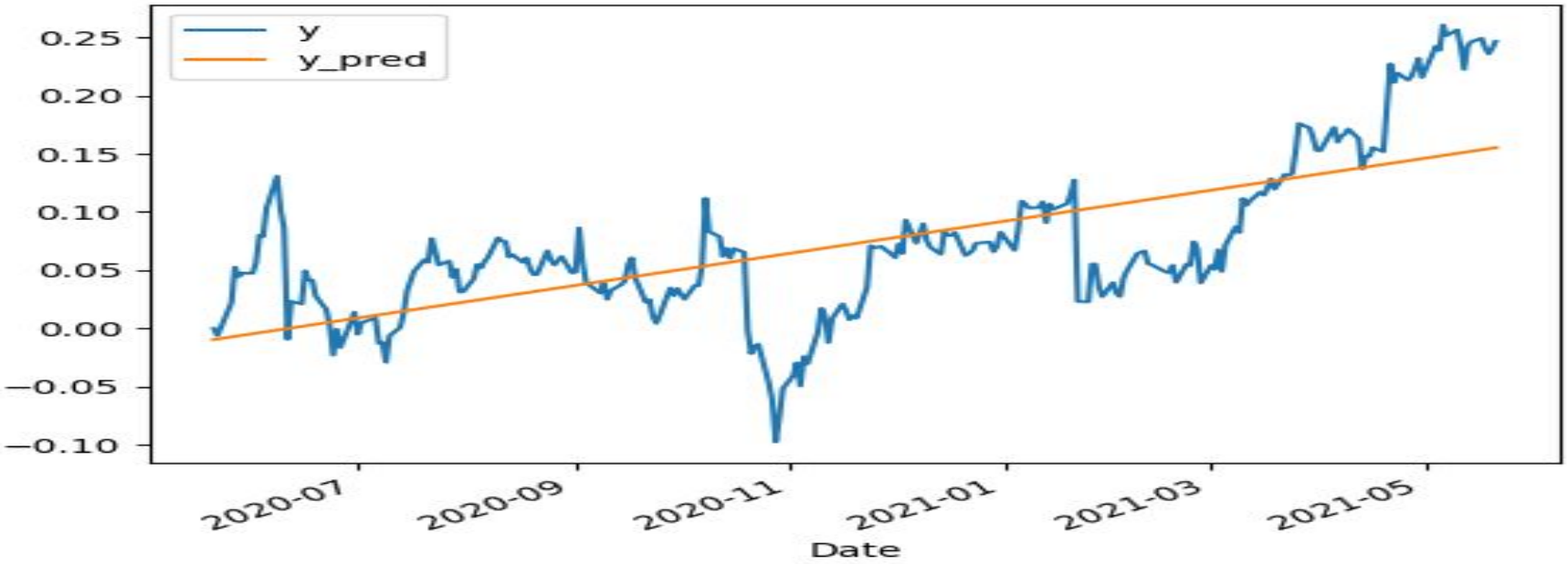
Hypothesis

- The Null Hypothesis is that running the linear regression analysis on Bitcoin's price data over fractal time frames will not serve as an indicator to enter a trade long, and will have no influence on profits and losses due to trading activity.
- The Alternate Hypothesis is that running the linear regression analysis on Bitcoin's price data over fractal time frames will serve as a reliable indicator to enter a trade long, and that this success as an indicator to enter the market long will result in increased profits and minimized losses due to trading activity.

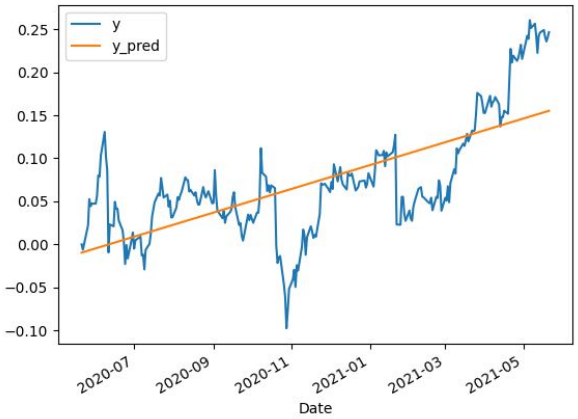
Data Analysis Process

- Linear regression will be run on the three historical fractal time frames (1-day, 5-day, 25-day), and the slope of the regression lines will be calculated and compared.
- A positive trade signal will be defined as two or more neighboring fractal time frames having a linear regression with a positive slope, indicating a positive trend in the market.
- A negative trade signal will be defined as two or more neighboring fractal time frames having a linear regression with a negative slope, indicating either a negative or neutral trend in the market.

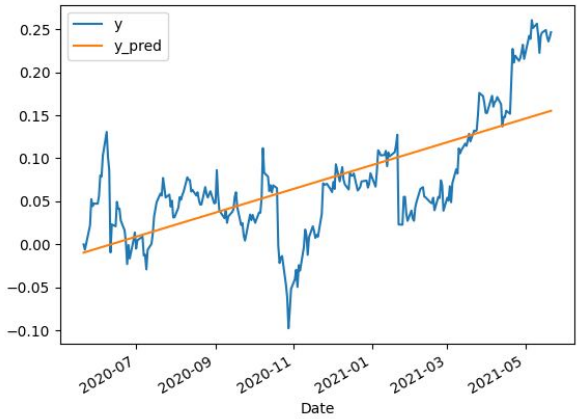
Slope Line


y
y_pred
0.25
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
2020-07
2020-09
2020-11
2021-01
2021-03
2021-05
Date

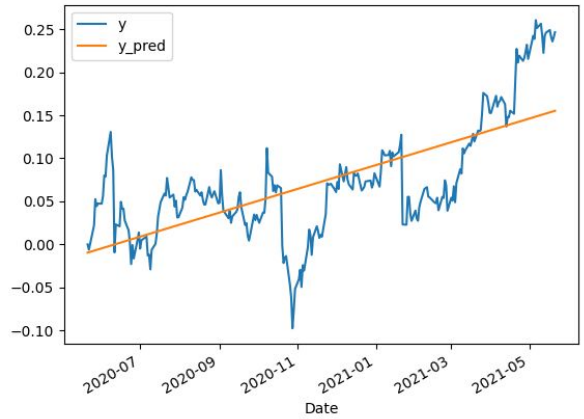
Fractal Timeframes



25-Day



5-Day



1-Day

Experiment Design

- The control group will represent the trader following the null hypothesis, and ignore the linear regression indicators.
  - They will place trades every Tuesday morning, resulting in 52 total trades.

- The experimental group will represent the trader following the alternative hypothesis, and follow the linear regression indicators.
  - If the linear regression indicators show a trade should be placed, only then will they place a trade Tuesday morning, resulting in 52 - weeks skipped total trades.

- All Trades will be entered Tuesday 12:00 a.m., and exited Friday 12:00 a.m.

Results

Control Account: $109,870.04

Experiment Account: $104,140.86

Fail to Reject the Null Hypothesis.

Experiment Limitations

- One limitation of this analysis is the strict time frames used for the trade entry and exit of three days.
- This strict entry and exit is required to standardize the trades across the control and experimental group, but is not how a trader would actually manage their position.
- As position management is outside the scope of this analysis, this limitation is accepted as part of the experimental design.

Expected Benefits

- One expected benefit of the study is the definition and optimization of a trading methodology that results in a positive equity curve over time.
  - Fine tune and improve linear regression.
  - Explore other algorithms.
- A second expected benefit of the study is the standardization of trade entry indicators.
  - Systematic trading allows the trader to calculate probabilities of success of the trading methodology over multiple trading iterations.
  - This can only be done with a clearly defined methodology and indicator, because a trader’s emotional state is not a defined market setup.