



Trading Rule: Rolling Level Regression

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1 Rule Description

This trading rule recommends portfolio allocation based on the value of rolling error obtained when comparing the historical ground truth prices with their predictions from research. The smaller the error, the greater the size of the recommended allocation. The allocation is scaled by the Kelly Fraction.

2 How to Trade

In order to trade with the rules InferTrade provides, we calculate allocations for each day. We then we allocate that percentage of our total portfolio value (cash + stocks) to the market we are trading - to do this we buy or sell stocks to reach the target allocation.

How Allocation Determines Trade Size

The allocation is the fractional amount of the portfolios value used to determine the size of the trading position. For example, if the allocation for Microsoft (MSFT) shares is 50%, and we have \$100, we invest \$50 so that the value of held stock is the same as the value of held cash.

Rule Specific Trading Details

Given default parameter values, if the asset drift is 0.001 and the error is 0.02 (2% daily volatility), this rule will take a $0.001/(0.02)^2 = 2.5$ or 250% leveraged position.

3 Rule Parameters

Below is a table summarizing the parameters specific to this trading rule.

Parameter Name	Default Value	Description	Symbol
Kelly fraction	1.0	Amplitude weighting. 1.0 is maximum growth if regression is exact. <1.0 scales down positions taken.	F
Regression length	50	This is the number of days used to estimate the regression coefficients.	L

4 Equation

The following equations describe the rolling level rule:

$$y_t = \kappa r_t + c \tag{1}$$

$$z_t = F \frac{y_t}{E_y^2} \tag{2}$$

where r is the value of the research series, y_t is the predicted price at time t , E is the standard error, F is the Kelly Fraction, and z is the resultant fractional portfolio investment.

5 Glossary

- **Bullish:** Positive outlook on the market. Expectation of positive returns.
- **Bearish:** Negative outlook on the market, Expectation of negative returns.
- **Allocation:** The allocation is the fractional amount of the portfolios value used to determine the size of the trading position.
- **Parameter:** Value used by the trading rule in the calculation for trading position
- **Trading Rule:** Strategy to determine when to buy, hold or sell a position.

Further Links

1. InferTrade: <https://www.infertrade.com>
2. Privacy Policy / Legal notice: <https://www.infertrade.com/privacy-policy>
3. InferStat Ltd: <https://www.inferstat.com>