Hedge Funds

In Search for Alpha

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How to generate Alpha?

To generate Alpha, an investor needs:

1) Active Investment Strategy
   - Go beyond Beta, go beyond Passive investment

2) Risk Control
   - Tight risk management systems and discipline

That is easier said than done! Easy to promise but hard to deliver!

EMH = all info in the prices / random walk

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Alpha generation

1) Active Investment Strategy

- Trading – based on a set of rules / system
- Macro – based on macroeconomic assessment
- Arbitrage – based on relative value

2) Risk Control

- Risk Limits / VaR / Stops
- Risk Weightings

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Backtesting

Historical data may be used to:

1) **Study the behavior of a security or asset class**
   - Go beyond Beta, go beyond Passive investment

2) Assess the performance of an **investment strategy**
   - Past performance **does not guarantee** future performance…
   - …but can help us to **evaluate a strategy** and to understand how it performed in **different periods** and **market events**

Our **level of confidence** will depend on **stability** of the backtest and on further **out-of-sample tests** (other periods, markets, etc)

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Backtesting guidelines

Example of backtest: **Long Only Strategy on the S&P500**

- Strategy – Always Long
- Dataset – SPX Index Daily Closing Prices for the last 15 years
- Compute Daily Returns – our focus is always on returns, not prices
- Compute Performance Statistics
  - Annualized Return (avg daily log return x 260)
  - Annualized Standard Deviation (stdev of daily log returns x sqrt (260))
  - Sharpe Ratio (why SR is important? why Info Sharpe?)
  - Positive Days and Positive Months
  - Daily Skew, Kurtosis and Distribution of returns
  - Autocorrelations – d, w, m, y
- Analyze the Calendar Performance of the Strategy
  - How does it perform in each and every period?
  - Is it stable across the sample? Are all statistics stable?

Long Only SPX can be used to study the behavior of an Asset Class – US Equity

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Active Strategies

Simple Active strategies

Try to **beat** the long only **strategy with active trading**

Three simple strategies: **Trend-Following, Mean-Reversion, Risk-Weighting:**

1) Go Long only if **Trend** is positive, "The trend is your friend"- may use Price Rate of Change (RoC), Slope of positive drift, Moving Averages (MA), etc…

2) Go Long / Short when the market falls / rises too fast (short-term **Mean Reversion**),"Mr Market is irrational" – use Moving Average +/- n Stdev (Bollinger Band)

3) **Risk Weighting**, maybe risk weighting, risk parity, volatility filters – use Stdev as volatility

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Active Strategies

Add Complexity to basic rules

Following the use of vanilla strategies such as Trend-Following, Mean-Reversion, Risk-Weighting, **derivations of those strategies** can be tested as well, making the trading rule more complex:

Derivations of basic strategies:

1) Try different strategy variations (ex: in 1 also go **short**)

2) Experiment with different **look-back periods**

3) Experiment with different **holding periods**

4) Mix different **asset classes, geographies, etc…**

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Active Strategies

S&P 500 Long-Only

Trend Following

Strategy – Long if medium term trend is positive

1) Use **simple moving average** (50d in ex.) as trend (could use **slope**, **rate of change**, etc)
2) Trading Rule : LONG if price above MA, OUT otherwise

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Active Strategies

S&P 500 Long-Only

Mean Reversion

Strategy – Trade S/T Mean Reversion

1) Use 5-day simple **moving average** as S/T trend and 5-day **standard deviation** to assess market exaggerations
2) Trading Rule: SHORT if price is above 5-day MA + X STD
   LONG if price is below 5-day MA – X STD