Introduction to Trading Strategies

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Outline

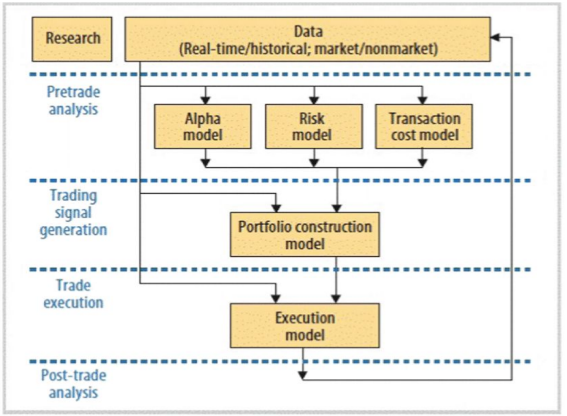
- Trading Rationals
- Overview of trading system
- Risks with automated trading systems
- Types of trading strategies
- Momentum
- Mean Reversion

Discretionary vs Systematic

Discretionary

Source: the balance

Systematic



Source: Research Gate

Systematic Trading

- Systematic Trading involves set of instruction and steps that is executed by an algorithm.
- It can be backtested and risks can be quantified using historical data and quantitative models.
- Avoid human cognitive biases and risk associated with human emotions.
- Complex strategies can be only executed using systematic trading as they are not possible for humans. A good example is HFT strategies.
- Systematic Trading strategies can be fully automated to run without any human intervention.

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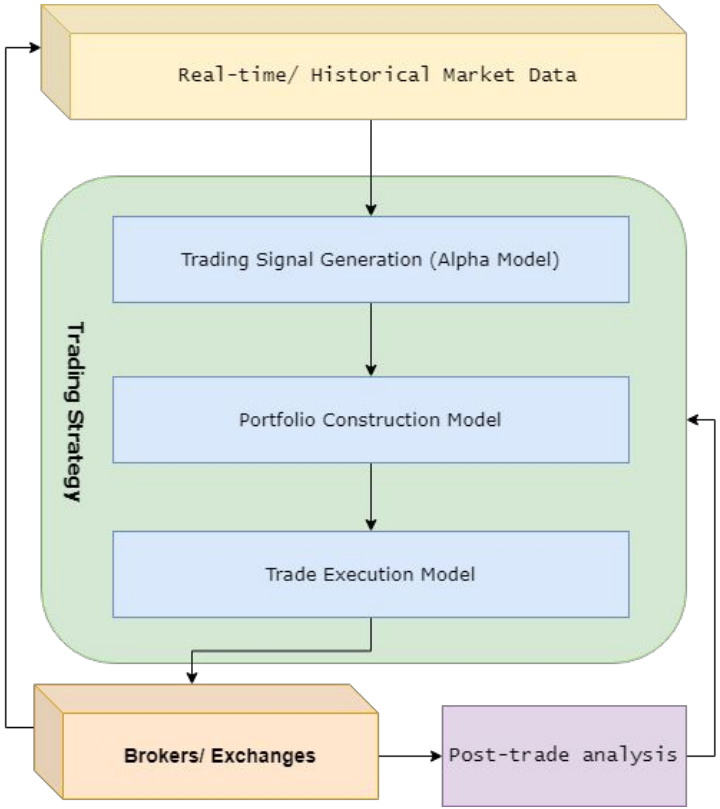
Architecture of a Trading System



- Trading systems depends on data for trade generation from the trading strategy.
- The alpha model generates a the trading signals which are combined using a portfolio construction model for optimal risk profile.
- The orders of trades are sent to brokers/exchange by the trade execution model for optimal execution.
- Order fill data is analysed by during post-trade analysis.

Risks with Automated Trading

- **Extreme market events**: Trading systems are designed for particular market regime and condition, during extreme market conditions may not be able to react and lead to adverse effects.

- **Lack of Transparency**: Automated trading system can get very complex and turns into a black box.

- **Bug in the algorithm**: With increasing complexity the chances of having bugs in the system increases and in turn increases the chance of catastrophe.
  https://www.bbc.com/news/magazine-19214294
  https://www.henricodolfing.com/2019/06/project-failure-case-study-knight-capital.html

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Classification of Trading Strategies

Momentum

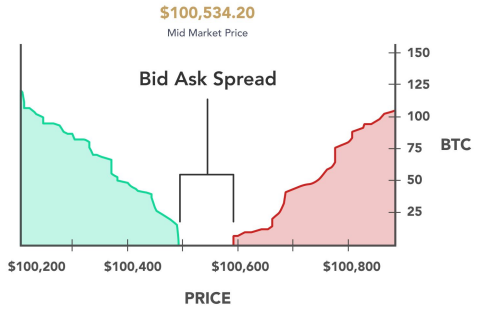
- Time series
- Cross-sectional

Source: auquan

Mean-reversion

- Statistical Arbitrage
- Time series
- Pairs-trading

Market making



Source: River financials

Time-series Momentum

Notebook Link : https://bit.ly/3vLUHJo

Pairs-trading

Notebook Link : https://bit.ly/3MhsqRG

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