Algorithmic Trading

- Momentum Based Strategy → statistics to define if this is going good.
- Arbitrage Algorithmic Trading
- Statistical Arbitrage Algorithmic Trading
- Market Making Algorithmic Trading

Momentum Based Strategy

- seeks to take benefit from continuance of existing trend by taking advantage of Market Swing.

Why it Works ?

- Either the Strategy is compensated for extra risk /
- There are behavioural factors due to which premium.

Momentum trading

- higher digree of volatility and tries to capatilise on Market Volatily.

Types

→ Earning Momentum Strategy may profit from under-reaction to information related to short term earning.

→ Price Momentum Strategy

- may profit from market's slow response to broder set of information including long-term.

Arbitrage

Event-Driven Strategy.

Bankrupcy, Acquisition, Merger, spin-off could be events that drives such kind of Investment Strategy.

Statistical Arbitrage

↳ mis pricing One/More asset based on expected value.

→ More academic way - spread risk among thousand / Million trade expecting to gain +ve.

Mean Reversion Hypothesis

↳ will return to long-run mean/average.

Market Making

↳ provide liquidity to securities which aren't frequently traded on the stock exchange

Bid-ask spread and trading volume into consideration.

High Frequency Trading - is a passive market Making.

↳ Modelled together to get liquidity cost curve
fees paid by liquidity taker.

1. First Model - inventory risk

2.1 Second Model - adverse selection between Informed & Noise trade.

Machine Learning In Trading

Bayesian Networks

Evolutionary Computation (inspired by Genetics)

Build a trading strategy

1. Decide the Strategy paradigm
   - Market making
   - Arbitrage
   - Alpha Generating
   - Hedging
   - Execution Based

Backtesting

1. CAGR
2. Hit Ratio
3. Average Profit / Trade
4. Average Loss / Trade
5. Volatility of Return
6. Sharpe Ratio
   - excess return / Volatility