Portfolio construction

It's all about purpose

- Risk hedging: Ex. derivative hedging, financial risk reduction, etc.
- Rent generation: wealth management
- Capital accumulation: longterm investment and pensions

Portfolio construction

- Risk hedging: replication/super replication strategies
- Rent generation and Capital accumulation: similar but differ on liquidity management

Efficient inefficience

- There seem to be strategies that consistently 'beat the market'
    - Ex: Successful hedge funds (ex. Renaissance, Berkshire H., Intec, etc.) and wealth management trusts (Harvard Trust management)
- This is possible because of the difference between model and reality:
    - People are not fully rational
    - There are capital/research costs
    - Information is not available to everyone simultaneousl
    - There are transaction costs
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Efficient inefficience (cont.)

- Idea: exploit inefficiencies, for example (see L. Pedersen, Efficiently inefficient):
  - Risk premium and over-reaction
  - Delayed over-reaction, or initial under-reaction
  - Liquidity risk premium
  - Friction risk-premium
  - Leverage constraints
  - Slow adjustment in markets
- Warning: in general the advantage generated by inefficiencies are short-lived and might be only paying for unseen risks.
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(some) Methods for quantitative portfolio construction

- Factor models: Based on linear regression.
  - Ex: Fama-French, Value, Momentum, Carry
- Maximal Sharpe ratio and efficient rebalancing
- Nonlinear methods: neural networks

General framework for quantitative portfolio construction

- 1. Initial idea and tests
- 2. Tuning
- 3. Backtesting
- 4. Risk estimation
- 5. Adjustment