The Analytics Edge in Asset Management

Chapter 20

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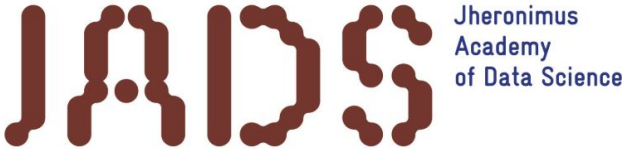

Target Portfolio

We use **Alpha Models**, which take into consideration:

Value Investing

$$\alpha_v = \frac{Earning}{Market\ Capitalization}$$

Momentum Investing

$$\alpha_m = Return$$

Variables and Objective Functions

Variables: Fractions of portfolio invested in each stock

$$w_f = \left[w_f(1), w_f(2), ..., w_f(N) \right]$$

$$w_t = \left[w_t(1), w_t(2), ..., w_t(N) \right]$$

Objective Function: Minimize the discrepancy to the target portfolio

$$min \sum_{i=1}^{N} \left| w_f(i) - w_t(i) \right|$$

Constraints

- Sectors diversification
- Number of stocks
- Desired return
- Low illiquidity
- Low transaction costs
- Number of transactions
- Low benchmark risks

Results

- Tested with historical data of US Stock Market
- 1970-2003: outperform S&P 500 by 4%
- 2002-2010: S&P 500 (2.24%), proposed model (4.48%)
- Riversource Investments: 8 professionals manage $10 billion of assets

Thank You