QuantiPy

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Outline

Part I

- Quant Strategy Workflow
  - Data Gathering
  - Screening
  - Alpha Generation
  - Performance Analysis
- Modular Programming

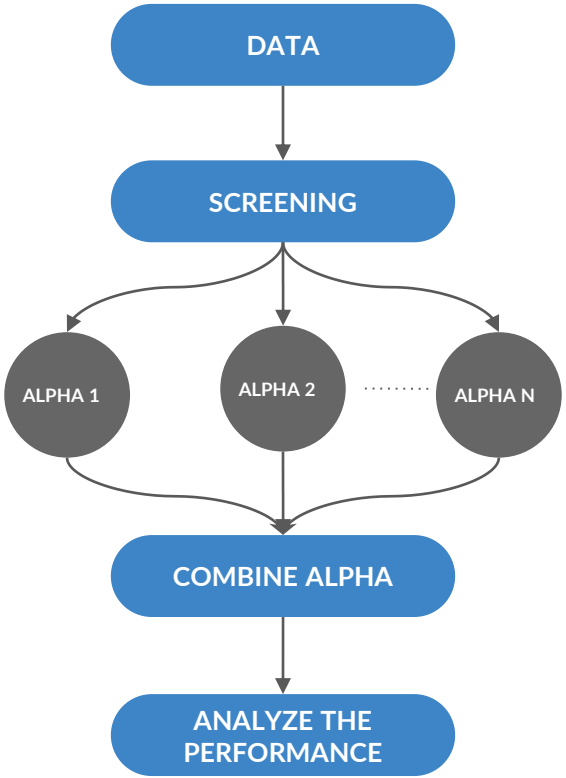
Part II

- Systematic vs Unsystematic Risk
- Beta Calculations and Interpretations
- Betting Against Beta (Quantitative + Fundamental)

Strategy Workflow

“Successful investing is anticipating the anticipations of others.”
John Maynard Keynes

Strategy Workflow



Data

All quant strategies start with data

Which dataset contains the information I need to predict future returns?

Example

Price series: *Open, High, Low, Close, and Volume*

Source: Blueshift, Quandl, your broker etc.

Fundamental: *Valuations, Income Statement, Cash Flow Statements, Earnings Calendar, Broker ratings, Analyst estimates, etc.*

Source: Morningstar etc.

Sentiments: *Trader mood*

Source: stocktwits and PsychSignal

Legal, Regulatory, and Economic: *Inflation rate, GDP, Fed meeting dates, etc.*

Source: EventVestor

Note: You can refer to Getting Market Data Course on Quantra for working examples to get different data.

Screens

In this step, you screen out instruments which you don’t want to be part of your portfolio.

Example:

- Penny stocks
- Low liquidity
- High volatility
- Remove stock which went through M&A

Alphas

Define the hypothesis which can predict future returns

- Sell in May and go away
- January effect
- If the market rises for two days then it will continue to rise
- Buy and hold quality stocks
- Mean-reversion
- Trend following

Create an expression for your hypothesis

- Moving average 2 days > moving average of 7 days then buy and vice-versa

Combine the Alphas (as single alpha factor won't be sufficient)

Analyze Performance

Analyze the performance of the strategy

Example

- Sharpe Ratio
- Returns
- Volatility
- Sortino Ratio
- Max Drawdown

“Past performance is the best predictor of success”
Jim Simons (Renaissance Technologies)

Betting Against Beta

Risks in Investment

Idiosyncratic risk	Systematic risk
Specific to a firm	Market-wide
Doesn’t affect the whole market	Affects all the firms
Diversified away	*Cannot be diversified away*

Beta Interpretation

Beta	Interpretation	Example
> 1	More volatile than the market	Indiabulls Housing
1	As volatile as the market	Asian Paints
0 and 1	Less volatile than the market	Colgate-Palmolive
0	Not correlated to the market	Smallcap stocks*
< 0	Negatively correlated to the market	Gold, VIX

Source: Reuters

BAB Strategy

Beta is a measure of the risk that cannot be reduced by diversification.

Strategy Rationale

People prefer assets with higher expected returns per unit of risk

MF and retail investors are constrained in the leverage

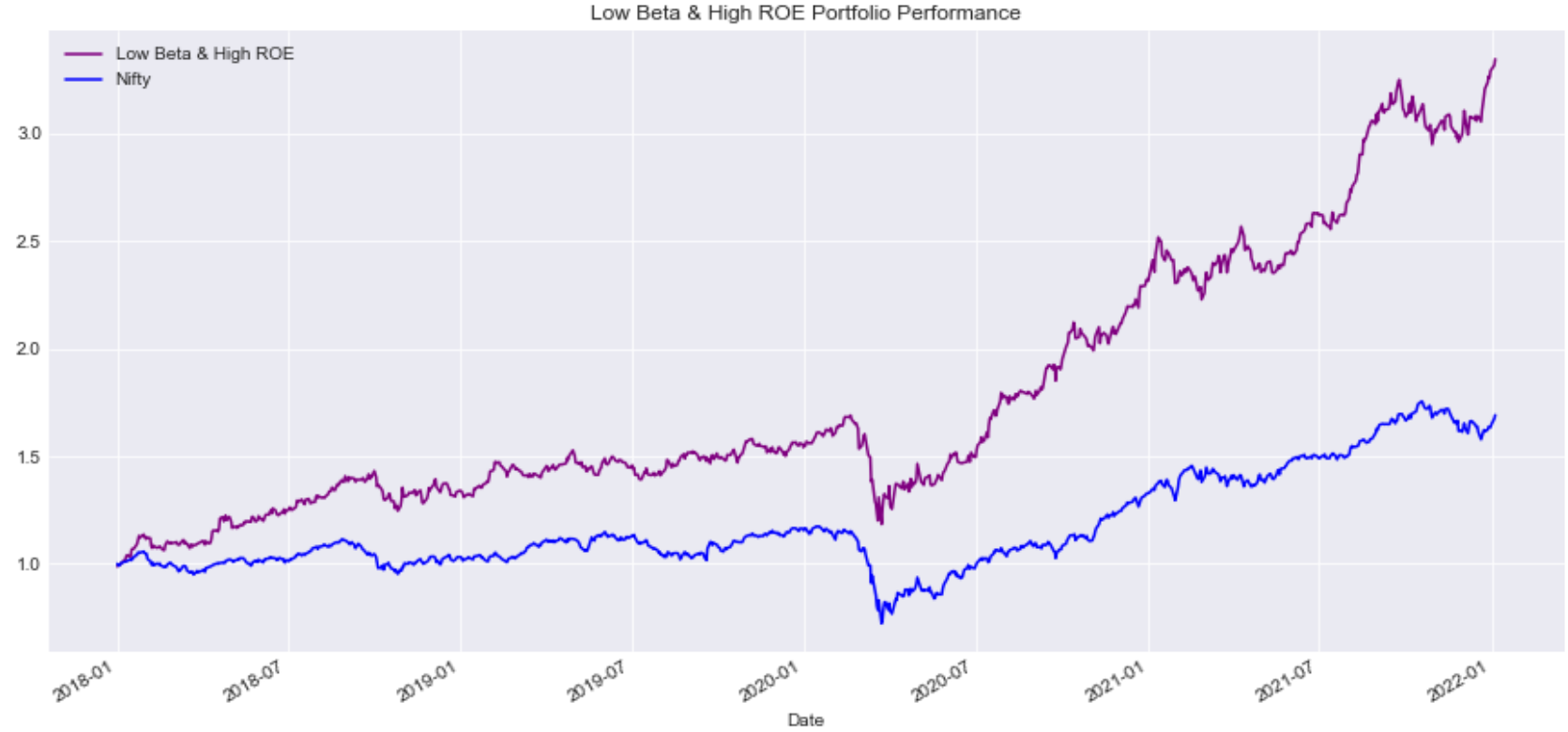
They tilt allocation to high beta assets to improve returns resulting in over pricing

Source: Betting Against Beta - Andrea Frazzini and Lasse H. Pedersen

Individual Stock Returns

Portfolio Returns

Enhancement



Additional Readings

- Betting against beta
- Quality minus junk

Keep in Touch

- Email
- Twitter
- LinkedIn
- Quora

Thank you!