The Business of Quant

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Administrivia

- **Jan 28 (Thu), 4-5:30pm**
- **Location**: Zoom
- **TA**: Kylie Ying
- Non-Credit course
- All are welcome: no prerequisites
- Please do give feedback! http://tiny.cc/quant2021

- Contacting the instructor: Rohit Singh (rsingh@mit.edu)

Guest Speakers

Ross Garon
Global Head of Quant Strats
Millennium Partners
Jan 21st

Sanjiv Kumar
Co-founder and CIO
FORT LP
Jan 28th

Recapping last week

- Trade-off between risk, return and capacity
- Source of your strategy's edge:
  - Informational, arbitrage, fundamental etc.
- Why you:
  - Brains, Brawn, Bravery
- Popular strategy ideas:
  - Factor investing
  - Predicting corporate performance
  - Anticipating flows

Factor Investing

Efficient Market Hypothesis:

- Share prices reflect all available information
- Can't beat the market

Capital Asset Pricing Model:

$$R - R_f = \beta(R_m - R_f) + \epsilon$$

Fama-French Factor Model:

$$R - R_f = \beta_m(R_m - R_f) + \beta_s R_{SMB} + \beta_v R_{HML} + \epsilon$$

$$R - R_f = \beta_m(R_m - R_f) + \beta_s R_{SMB} + \beta_v R_{HML} + \beta_p R_{RMW} + \beta_i R_{CMA} + \epsilon$$

More Factors

- A big factor missing there: Momentum
- Value, Momentum and Size are still the most-believed factors

Major academic and private effort to discover new factors:

- Earnings quality
- Low volatility

But...

- Factor zoo?

Why Do Factors Work?

- Risk Premia: no pain, no gain
  - Equity risk premium
  - Value: traps and bad periods
  - Size

- Behavioral
  - Momentum
  - Low volatility

Pros and Cons of Factor Investing

Historically, the Value factor has worked very well...

https://osam.com/Commentary/factors-from-scratch

Pros and Cons of Factor Investing

...but let's dig in a bit more

https://www.investorschronicle.co.uk/stock-screens/2019/10/15/top-value-stocks/

Pros and Cons of Factor Investing

Momentum Factor

Trying your ideas…

Caveat: This is not investment advice!!

- The Python package 'yfinance' also has fundamentals data (e.g. earnings etc.)
  - Lots of factors listed in Appendix A1 of

Taming the Factor Zoo*

Guanhao Feng†
College of Business
City University of Hong Kong

Stefano Giglio‡
Yale School of Management
NBER and CEPR

Dacheng Xiu§
Booth School of Business
University of Chicago

- **More Reading:** AQR (aqr.com) has a good library on factor investing
- **Smart Beta**: low-cost ETFs that offer factor investing. For example,
  - VUG and VTV are Vanguard ETF that invest in S&P 500 Growth and Value stocks, respectively
  - SPMO is an Invesco ETF that invests in S&P 500 stocks heavily exposed to the Momentum factor
  - XBI and IBB are ETFs that give you exposure just to Biotechs
  - Find more on *etf.com* and from providers like Wisdom Tree or Powershares

Breaking Down the Edge: Source

- Informational
- Fundamental
- Risk re-distribution
- Structural (e.g., arbitrage or market-making)
- Flow

Anticipating Flows

"Skate to where the puck is going"- Wayne Gretzky

Figure out what the big guys will buy tomorrow and buy it today

- Index rebalance and smart-beta flow
- Hedge fund and mutual fund holdings reports (13F)
- Prime brokerage reports
- Short Interest

Why is it possible to figure out where flow will go?

Very common approach in shorter-duration quant strategies (e.g. HFT).

Thinking More about Flows

Is trading on flows and sentiments a zero-sum game ?

Is this less “socially good” than making money from bottom-up analysis ?

A model for how markets get more efficient

Fast-turnover Strategy → Medium-turnover Strategy → Slow-turnover Strategy

↓

Fast-turnover Strategy → Slow-turnover Strategy

A Market Efficiency Example:
News Sentiment

View:

- Overnight news on a stock will impact its price today

Strategy:

- Aggregate news sentiment score (4pm y'day - 9:20am)
- Compute signal (based on historical regression) and trade

Over the years, this has degraded:

- The regression goodness-of-fit has gotten a little weaker
- The actual profits have gotten a **lot** weaker

CTAs: Flow based futures trading

https://thehedgefundjournal.com/trend-following-ctas-vs-alternative-risk-premia/

Thank You!