

[QuantFS] What is a Quant?

Welcome Photios!

1

Agenda

- 📅 Please sign up for Optiver
- 📅 Check the website for new goodies
- 📅 DVD coming next week
- 📅 And Now, the feature presentation

2

Quant Investing

Photios Harmantzis, PhD/MBA

April 3, NYU

Dr. Photios Harmantzis

3

Landscape

- *Active* (pure alpha) vs. *Passive* (market, beta)
- *Discretionary* vs. *Systematic* (Model-driven, systems, programs, quant-arbitrage, ...)
- *Goal*: Generate superior returns, controlling for risk, in an increasingly competitive field, that attracts talent
- *Challenges*: consistency/sustainability (more difficult to make money), fees (justifiable?, FoF), hybrids (exotic beta)

Dr. Photios Harmantzis

4

Why Quant?

- *Emotionless/Disciplined* Decision Process
- *Computer Power*: Better Timeliness, Information processing (unlike discretionary managers: focus on one style/sector/few names), Automation, Less Human Interaction
- *Volatility* targeting easier (discretionary more concentrated): Better and easier structuring of leverage and portable alpha for clients
- *Consistency*
- *Opportunities*: Multi-strategies, multi-assets

Dr. Photios Harmantzis

5

Criticism

- Models lack human judgment
- Models work till they don't!
- Data issues: "Garbage in, garbage out"
- "Data Mining"
- "Sample size too small"
- Client: "Difficult to understand!"

Dr. Photios Harmantzis

6

Skill Set

- What most quants do in alternative invest and prop desks: Portfolio Mgmt and Risk Mgmt; Alpha “Cooking”; Control for Risk
- Computer-driven investment process (science/engin) (math, stats, compsci, engin, physics, econ...hard sciences)
- Do I need to know Finance/Econ & Markets?: Drivers of the market vs. Products
- Behind a computer program, a human brain
- Novel Idea Generator
- Detail-oriented
- No room for mistake!
- Ability to explain (to clients), educate (your boss!)
- Typical Day: Model Building, Research (lots of reading), (Back)-Testing, Controls (exit/enter), P/L Management, (Meetings, Hours, Clients..)
- Seminars, Events, Discussions, Forums.

Dr. Photios Harmantzis

7

Subjects

- Time Series Analysis – Econometrics
- Signal Processing & Filtering
- Charting Techniques – Technical Analysis
- Simulation Modeling and Analysis
- Multi-Factor Regressions
- Optimization
- Genetic Algorithms, Stochastic Optimal Control, Machine Learning
- AI - Neural Networks, Pattern Recognition, Natural Language Processing

Dr. Photios Harmantzis

8

Challenges

- *Humans* (Intuition, experience, understanding) + *Computers* (Systematization)
- *Innovation* (Hedge funds now were Mutual funds were 30 years ago)
- *High-Frequency* (from long-term views (business cycles) to Intra-day! *Latency Arbitrage*)
- *Regime-switching modeling* (trade at different time frequencies)
- Portfolio of Models
- Advanced Risk Management (blow ups..)
- Fees, Portable Alpha, Fundamental Indexation, ...

Dr. Photios Harmantzis

9

Remember....

Excellence is an art won by *training* and habituation.

We do not act rightly because we have *virtue* or *excellence*, but we rather have those because we have acted rightly.

We are what we *repeatedly do*.

Excellence, then, is not an act but a habit.

Dr. Photios Harmantzis

10