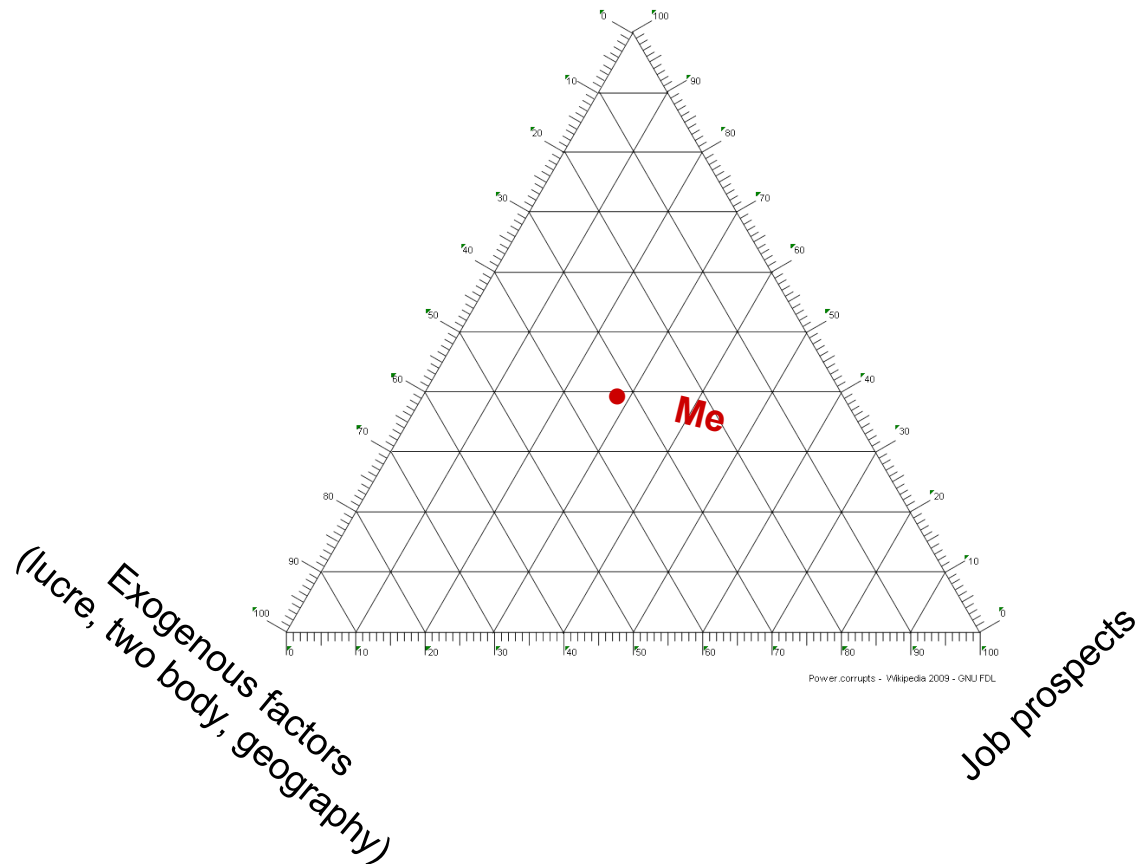

From Physics to Finance

Ternary diagram of reasons to abandon academia

Research not so exciting



Why do quants exist?

Some well-known quantity problems:

- Options pricing
 - Modern portfolio theory
 - Optimal execution
 - Big data, huge complexity
-

What kinds of quants are there?

Banks ("the sell side")

- desk quant, quant trader
- model validation
- risk analytics

Funds ("the buy side")

- alpha research
- risk analytics
- optimization, execution
- high frequency

Other:

- Bloomberg, MSCI Barra etc
-

Why do physicists get hired?

applied math

data analysis

programming

back-of-the-envelope pragmatism

Stuff that will help you get a job

Programming: C++, Java, Python, Perl, R, MATLAB, Excel and VBA

Math: stochastic processes, basic statistics, timeseries, regression analysis

Gravy: convex optimization, machine learning, dynamic programming, control theory, random matrix theory, statistical resampling methods

Statistics are different in finance

Table 1. Power Law Λ CDM Model Parameters- WMAP Data Only

Parameter		Mean (68% confidence range)	Maximum Likelihood
Baryon Density	$\Omega_b h^2$	0.024 ± 0.001	0.023
Matter Density	$\Omega_m h^2$	0.14 ± 0.02	0.13
Hubble Constant	h	0.72 ± 0.05	0.68
Amplitude	A	0.9 ± 0.1	0.78
Optical Depth	τ	$0.166^{+0.076}_{-0.071}$	0.10
Spectral Index	n_s	0.99 ± 0.04	0.97
	χ_{eff}^2/ν		1431/1342

^aFit to WMAP data only

Interviews

Take nothing for granted

Some books I like

Serious:

Øksendal, *Stochastic Differential Equations*

Bouchaud and Potters, *Theory of Financial Risk and Derivative Pricing*

For interviews:

Crack, *Heard on the Street*

Fun:

Lowenstein, *When Genius Failed*

Derman, *My Life as a Quant*
