From Physics to Finance

Presentation to CERN Finance Club
by Irwin Sheer
My Qualifications

- PhD Experimental Elementary Particle Physics, UA1 Experiment CERN
- Post Doctoral Studies, L3 Experiment CERN
- Staff Physicist SSC Laboratory
- Group Leader, Timber Hill Inc. (aka Interactive Brokers)
- Managing Director, BlackRock Inc.
Road from Physics to Finance

- Well traveled path (“My Life as a Quant”, E. Derman)
- Almost all of the physicists that I know who made the transition were successful.
- Having the wherewithal to get the job done is an important quality that cannot be understated.
- Understanding how important schedules and budgets are is critical for success in business.
- Applied Math, Computing and Data Science skills are all very valuable
- Lots of very challenging problems to solve
- Finance laws are neither fixed nor immutable (unlike Physics)
- Ideas do not necessarily speak for themselves - you may have to develop good marketing skills
- If you make a career out of finance and are successful you will likely end up in a management position
- A PhD can be both a benefit and a burden
Typical Jobs for Physicists in Finance

- Sell side vs Buy side
- Cost centers and Profit centers
- Information Technology (IT) - easier to get but not as interesting or renumerating
- Risk Management - good place to start out
- Strategy - usually requires finance experience
- Portfolio Management - need to establish your bonafides first
- Quantitative Trading - holy grail for a lot of physicists
How to Land a Finance Job

• Read carefully and work problems in books by authors like J.C.Hull or P.Wilmott also investigate online learning in Quantitative Finance and Risk Management

• Polish off your programming skills (C++, R, Python)

• Learn about data sciences (tons of online learning options, i.e. Coursera)

• Refine your resume for a Finance job

• Leverage LinkedIn for networking and posted jobs

• Look for jobs posted on quantitative finance or data science blogs

• Go to quantitative finance job fairs

• Find one or two recruiters to work with
Interviewing Successfully

• Do your homework on the company before you interview with them

• Don’t just passively let them interview you - make sure to interview them as well!

• Brainteasers are to see how well you think out of the box. If you don’t know the answer try to work it out (i.e. think out loud). Perhaps even engage the interviewer to point you in the right direction.

• After establishing your skills try to steer interview away from them (skills can be learned) to your qualities (tenacity, attention to detail, plays well with others, etc.) which are fundamental parts of your personality and will probably not change.

• Always be yourself, if you try to be somebody else people will see through it and you will get the boot.

• If at all possible, try to have some fun with your interview.
How to Hit the Ground Running
Once you Land your Finance Job

• Congratulations you have just enrolled in the School of Hard Knocks!

• Establishing a steep trajectory will pay dividends in the long run

• Master the product, master the process, become the go-to person

• Find or cultivate a mentor

• Demonstrate stability by staying in the position at least two years before moving on
Some Reflections on Lessons Learned

• Keep in mind that you will spend more time with your work colleagues than with your family

• My golden triangle: Fair Remuneration, Respect, Something Interesting to Do. Make sure you get all that you require from your job.

• Sharpe Ratio idea can be applied to jobs

• Learn to save your ammunition for the battles that really matter

• It is better to get paid for working smart than working hard