The Evolving Quant Finance Curriculum: Think in Code, Young Risk Analyst!

The new generation of quants are placing greater emphasis on software, data analysis and information technology, and these young analysts have the skills to address today's most important risk management challenges.

More than 150 years ago, to advise young adults to seek their fortunes and adventures in the newer territories of the United States, a New York journalist famously wrote, "Go west, young man!" Was it good advice? Well, history tells us that "the west was won," so perhaps it was.

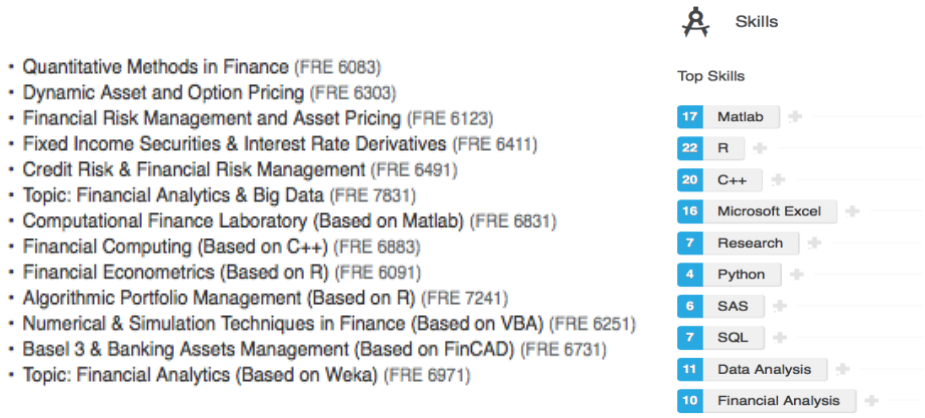
For many years in the financial world, we have had universities teaching "quantitative finance" – also known as "financial engineering" – as specific Master's degree programs distinct from MBAs. There are now well-developed employment channels and professional communities of "quant finance" people. These professionals pervade the buy-side, sell-side, risk management groups and trading floors.

A Changing Curriculum Heavy in Code Languages

Now, however, we sense a constructive evolution of the quant finance curriculum. Recent graduates have stronger backgrounds in writing code and broader information technology than their predecessors of past years. Instead of focus on the mathematical methods of derivatives, say, there's more exposure to databases, statistical methods and "serious" languages such as C++, C# and Python.

See below, for example, portions of a biographical profile of a recent contact of mine now graduating from a top-tier quant finance program:

Joe Pimbley



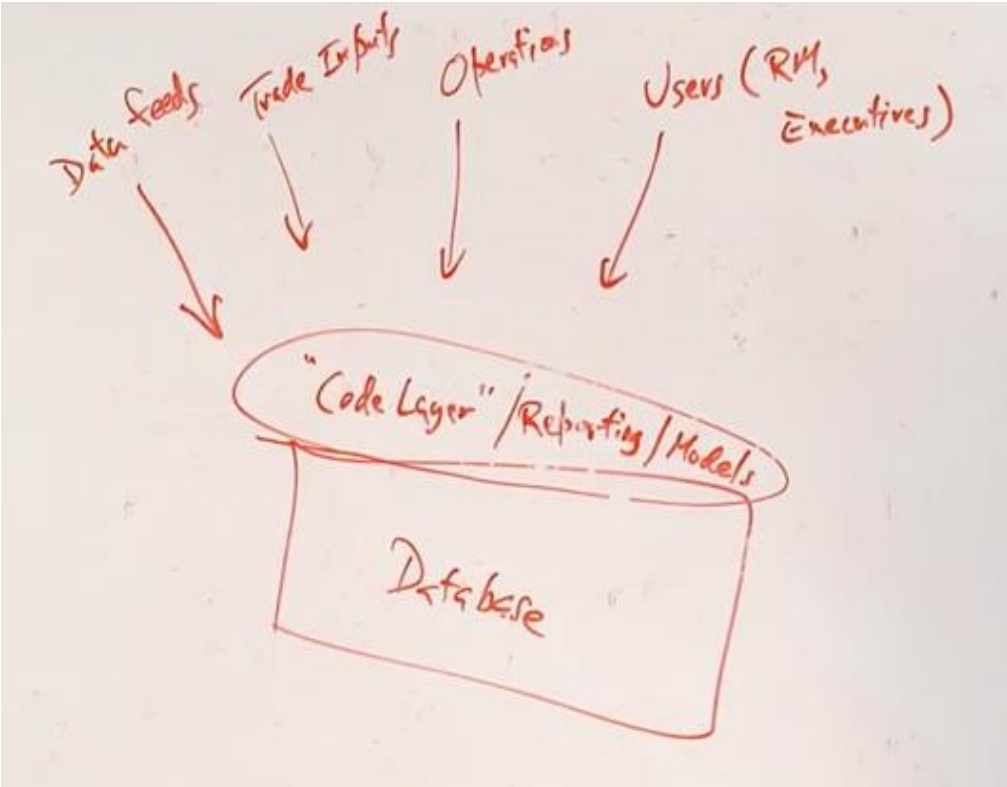
The skills this young person lists are almost entirely software, data analysis and information technology.

Data and Discipline are the Greatest Risk Management Needs

The two greatest needs of the financial risk manager are (1) creating a single-platform database for all risk positions of the firm that provides immediate, usable and intuitive information; and (2) an effective procedure to foster immaculate data quality of the risk information.

While there's more to risk management than these two needs, we cannot manage risk without these requirements. The platform and the data quality take precedence.

For an extended discussion on this topic, click here (https://www.youtube.com/watch?v=n75ajThLDHE&feature=youtu.be) or on the image below to watch an interesting GARP-Maxwell video:



Young Analysts are Well Suited for "FinTech"

The single-platform database and the goal of "immaculate data quality" are both solvable with financial technology. The technology is not the hardest part. Rather, it's the management of people within the organization and the implementation of disciplined data procedures that are the primary challenges.

Still, the financial technology component is central to this effort. Our sense is that the new generation of code- and IT-savvy professionals will provide the direct expertise and be the right "people within the organization" for vast improvements in risk management.

When our community speaks of "fintech," the first thoughts are topics such as blockchain, "big data" and the latest and most demanding derivative or econometric simulations. But, really, we've got to solve the data integrity problem first. (See *Before #BigData, Let's Confront #BadData*.)

Think, for example, of blockchain, where the idea is to create a publicly viewable and immutable storage of past transactions (*i.e.*, of past data). It

would be a disaster to succeed first with blockchain before assuring immaculate data. We'd be creating immutable, but inaccurate, data records!

One of my criticisms of quantitative finance of past years is the over-emphasis on mathematical idealization at the expense of awareness of how the markets actually function. The latter must inform the former. Yet my observation is that academic programs prefer to teach math rather than markets. But the evolution in quant finance education to code, data, and IT is healthy. We create young graduates with the tools to solve immediate data quality and aggregation challenges.

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