ON BECOMING A QUANT

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1. What does a quant do?

A quant designs and implements mathematical models for the pricing of derivatives, assessment of risk, or predicting market movements.

2. What sorts of quant are there?

(1) Front office/desk quant
(2) Model validating quant
(3) Research quant
(4) Quant developer
(5) Statistical arbitrage quant
(6) Capital quant

A desk quant implements pricing models directly used by traders. Main plusses close to the money and opportunities to move into trading. Minuses can be stressful and depending on the outfit may not involve much research.

A model validation quant independently implements pricing models in order to check that front office models are correct. Plusses more relaxed, less stressful. Minusses model validation teams can be uninspired and far from the money.

Research quant tries to invent new pricing approaches and sometimes carries out blue-sky research. Plusses it's interesting and you learn a lot more. Minusses sometimes hard to justify your existence.

Quant developer – a glorified programmer but well-paid and easier to find a job. This sort of job can vary a lot. It could be coding scripts quickly all the time, or working on a large system debugging someone else's code.

Statistical arbitrage quant, works on finding patterns in data to suggest automated trades. The techniques are quite different from those in

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derivatives pricing. This sort of job is most commonly found in hedge funds. The return on this type of position is highly volatile!

A capital quant works on modelling the bank's credit exposures and capital requirements. This is less sexy than derivatives pricing but is becoming more and more important with the advent of the Basel II banking accord. You can expect decent (but not great) pay, less stress and more sensible hours. There is currently a drive to mathematically model the chance of operational losses through fraud etc, with mixed degrees of success.

People do banking for the money, and you tend to get paid more the closer you are to where the money is being made. This translates into a sort of snobbery where those close to the money look down on those who aren't. As a general rule, moving away from the money is easy, moving towards it is hard.

3. Areas of derivatives

- FX
- Equities
- Fixed income
- Credit derivatives
- Commodities
- Hybrids

FX is short for foreign exchange. Contracts tend to be short-dated with high volume and simple specifications. Emphasis is therefore on speed and smile modelling.

Equities means options on stocks and indices. Techniques tend to be PDE based with the local vol model being popular. A typical contract is a note paying some function of the stock price path. Not a particularly big market.

Fixed income means interest rate derivatives. This is probably the biggest area by value. The maths is more complex because the underlying is multi-dimensional. Martingale techniques are used a lot. It's well paid.

Credit derivatives are derivatives that pay-off according to the defaults of corporate entities. This was a big growth area with lots of demand translating into very high pay. It displayed some bubble-like characteristics, however, and the bubble has now burst.

Commodities, this is also a big growth area with the general rally in commodity prices in recent years. This is the area that seems to be holding up best in the current job market.

Hybrids are derivatives that pay off according to behaviours in more than one market – this is typically interest rates plus something else. The main advantage of working on such products is ability to learn multiple areas.

4. Sorts of employers

We can roughly divide employers into

- Commercial banks, e.g., RBS, HSBC
- Investment banks, e.g., Goldman Sachs, Lehman Brothers
- Hedge funds, e.g., the Citadel Group
- Accountancy firms
- Software companies

Commercial banks ask less of you, and pay less. Better job security.

Investment banks tend to demand long hours but pay well. Not so good job security.

Hedge funds tend to demand a lot of work. They are very volatile and a big growth industry currently. There is the potential to make a huge amount of money, but also the potential to be unemployed after a few months.

In general, American banks pay better but demand longer hours than European banks.

The big accountancy firms have quant teams for consulting. Some places, particularly D-fine, send their employees on the Oxford Masters course. The main disadvantage is that you are far from the action, and high quality individuals tend to work in banks so it may be hard to find someone to learn from.

There is becoming more of a tendency to outsource quant modelling and buy in software models. One option is therefore to work for the software company instead. The issues are similar to those with working for accountancy firms.

5. Study

What should one learn? There is by now a huge number of books available. Standard books are

- Hull - Options future and other derivatives – this is sometimes called the "bible book." Main downside is that it is oriented towards MBAs rather than quantitative PhDs.
- Baxter and Rennie – accessible introduction to martingale approach but oriented towards theory rather than practicalitues
- Wilmott (Derivatives) – good on the PDE approach but not so good on other approaches.

Like any author I recommend my own books:

- The concepts and practice of mathematical finance, CUP 2003, my objective here was to cover what a good quant ought to know. It includes programming projects that I strongly advise you to do before applying for jobs.
- C++ design patterns and derivatives, CUP 2004, this is a second book on C++, the objective was to teach the reader how to use the language properly.
- Quant job interview questions and answers. We self-published this one. I spent 8 years gathering questions from live quant job interviews; here they are with answers and possible follow up questions. This is currently available only from amazon.com.

I am also working on the sequel to "concepts" which is called "More mathematical finance."

Stochastic calculus is useful, but not as important as it at first appears. It is hard to find the time to pick it up on the job so it's worth learning in advance. It's also worth spending some time going over basic probability theory – eg Chung's books. Some books on stochastic calculus and martingales which I like are

- Williams, Probability with martingales, a remarkably easy to read rigorous account of discrete time martingale theory. (You need to know the discrete time stuff to learn the continuous case.)
- Rogers and Williams, particularly Volume 1.
- Chung and Williams, you need to know continuous time martingales first, but if you do it is a nice read.

I keep a much more detailed list at

http://www.markjoshi.com/RecommendedBooks.html

6. Forum

I am now running a book and careers forum to discuss books and getting a first job in quant which you can access from

http://www.markjoshi.com

Please ask me questions via this forum rather than by e-mail. (Please only e-mail me if there is some confidential aspect to your query.)

It also now has an experimental job-wanted section. Post your profile but not personal details and see if anyone's interested...

7. How much do I need to know?

The amount you must study before getting a job varies a lot from place to place. It goes up every year as it becomes more standard to do financial mathematics degrees. At the time of writing, I would advise knowing the contents of both my books well. A lot of candidates go wrong by reading books instead of studying them. Pick a couple of books and pretend that you have to do an exam on them (this is essentially what happens in an interview,) if you aren't confident that you'd get an A in that sort of exam, don't apply for jobs.

Interviewers tend to care more about understanding the basics well than on knowing a lot. It's also important to demonstrate genuine interest in the field. Read the Economist and the FT or Wall Street Journal comprehensively. It's not unusual to ask basic calculus or analysis questions e.g. what is the integral of log x. Asking for a derivation of the Black-Scholes equation is very common too. They always ask you to explain your thesis so be prepared to be able to do this. Have a prepared 60 second speech on every phrase on your cv.

The interview is also a chance for you to judge them. What are they like as people? (You will be spending most of your waking life with them so this is important.) What do they care about, as evidenced by what they ask you? If most of the questions are about the minutae of C++ syntax then be wary unless that's the sort of job you want.

Generally, a PhD (or almost a PhD) is a necessity to get a quant job. I would advise against starting before it's awarded as it tends to be hard to get it done whilst doing a busy job.

Having a masters degree in Financial mathematics but no PhD tends to lead into jobs in banking in risk or trading support but not straight quant jobs. Banking is becoming progressively more mathematical so the knowledge is useful in many areas in banks. Some people then manage to move into quant later on.

In the US, it seems to be becoming more and more common to do a masters after a PhD. This still seems to be less the case in the UK. There is a general move towards more routine work and less research in banks making the job less interesting. This seems to be particularly the case in the US. One head quant told me that he regards research as something "to be contracted out to universities."

8. The current job market

With the global financial crisis, it has become much harder to find a job. The problems are particularly acute at entry level. What does this translate into in terms of behaviour as a job seeker?

First, you must really know your stuff. The days hiring on the basis of potential are gone, now make sure that you have done your preparation and can cope with any reasonable question. This means learning the books, being able to reproduce them and drilling interview questions at great length. It also means spending a lot of time implementing the models in C++ so you can demonstrate your ability to contribute from day one.

Second, you can't assume that you'll have a lot of chances. In the past, many candidates honed their skills by going to lots of interviews and having their gaps discovered for them. This is not an option when only a few places are hiring: they won't reinterview you just because you have done a bit more preparation. Doing your preparation also means finding out about the company and the area.

Third, don't be picky regarding area. You may well want to work with exotic interest rate derivatives, but if all the jobs are in commodities then accept that and plan a shift when the market does.

Fourth, don't get focussed on the salary. The money is down; the important thing is to get some useful experience for when the market turns around.

Fifth, do you really need to graduate this year? Spending a little longer at university is not a bad way to sit out the crisis. You can always spend the time broadening your knowledge and maybe even get a financial maths research project going.

9. For pure mathematicians

The main challenge for a pure mathematician is to be able to get one's hands dirty and learning to be more focussed on getting numeric results than on fancy theories. The main way to do this is to implement pricing models for practice. If this doesn't appeal you aren't suited to being a quant. There are quite a few ex-pure mathematicians working in the city so it can certainly be done but there is some prejudice in favour of applied maths and physics people. Generally, people tend to hire people who are like them so if you can find anyone with a similar background working in the city, apply to them.

I sometimes get asked by people whether they should do a pure maths PhD or a financial maths one. If you are absolutely sure you want to do derivatives pricing then you should do it in financial maths. (Yes, I am taking PhD students but have no capacity at the moment.) If you aren't sure then don't. A good compromise is to do stochastic calculus, this is a hard area which will give plenty of intellectual stimulation and leave you very well placed for working in derivatives if you ever want to make the switch.

10. Coding

All forms of quants spend a large amount (i.e. more than half) their time programming. However, implementing new models can be interesting in itself. The standard programming approach is object-oriented C++. A wannabe quant must learn C++. [1] Some places use MatLab and that is also a useful skill, but less important. VBA is also used a lot, but there is a general attitude that you can pick it up on the job.

11. Applying for a job

All of the finance forums have their own jobs advertising boards. A lot of adverts are from recruitment consultants rather than from

[1] I have no opinion on whether this should be the correct language for implementing; it is merely the correct language for getting a job.

banks. It is important to realize that the job may not even exist – the consultant wants to get decent candidates that he can then try to place them in banks. The consultant gets a commission from the bank if he can place you. They tend to have short attention spans; [2] if you do well at the first couple of interviews then they will work hard to get you a good job but if you don't they will quickly lose interest. Also, be aware their agenda is to get a good commission rather than to help you so they will push you at jobs on that basis. (A typical cut is 25% of your first year's package so whether you say "yes" to a job makes a difference of ten thousand pounds to them.) If you want to understand them, think of estate agents.

In fact, going via a recruitment consultant is the standard way to get a job. Quants are generally not hired as a part of the on campus recruitment process but instead hired as they are needed by the team. That said it is worthwhile to go to presentations and to meet the people, and get their contact details for later. Because of this it is not a great idea to start applying a long time before you want to start. Banks tend not to be into paying expenses for interviews. One therefore needs to go to London or New York and attempt to get as many interviews as possible as quickly as possible.

If you have personal contacts, you should use them. Employers prefer not to use headhunters if they can avoid it. If you are finishing a maths or physics PhD from a top university you will be a hot property. Employers will be keen to get you before someone else grabs you so make use of this.

Recruitment agencies vary tremendously and are discussed at great length on all the online forums. Two which seem to know what they are doing more than most, and which have their own much more extensive guides are Michael Page and paulanddominic.

If you get offered a job that is not in your ideal area do not be too worried. It is the first job that is hard to get. You can move on. The main thing is not to spend more than a couple of years in an area where you do not want to be. Quants are most employable with 18 months to 2 years experience. With more than that they tend to be too well paid and get pigeon-holed.

From time to time, I hear of someone being offered a job and being told they must accept immediately or within 24 hours. This is unreasonable and you should question why they are doing this, and do

[2]To any headhunters reading this, sorry but it's true.

you want to work with someone who treats you this way? Possible responses are

- "Why?"
- Does that mean the offer will go away if I don't accept immediately?
- "Oh I get it, you are testing my naivety" and laugh.
- Mark Joshi's guide says never to accept an offer made under such circumstances.

If you are interviewing with other places, call them first and tell them the circumstances, they will find this less annoying than you telling them you accepted a job under pressure.

12. Pay

How much does a quant earn? A quant with no experience will generally get between 35 and 50k pounds. The lowest I have heard of is 25k and the highest is 60 plus a signing on bonus. If the pay is outside the standard range, you should ask yourself why? Pay will generally go up fairly rapidly. Bonuses are generally a large component of total salary, and should be taken into account when negotiating pay. E.g. you may be able to get a guaranteed bonus if the base is lower.

Do not get too focussed on what the starting salary is. Instead examine what the job opportunities will be, and what the learning experience is likely to be. How much turnover is there in the team? and where do the people go?

13. Hours

How hard does a quant work? This varies a lot. At RBS we got in between 8.30 and 9 and went home around 6pm. The pressure varied. Some of the American banks expect much longer hours. Wall St tends to be more demanding than the City. In London 5 to 6 weeks holidays is standard. In the US 2 to 3 is standard.

14. Interviewing

Here are some do's and don'ts that will reduce your chance of messing up unnecessarily.

- Don't be late.

- Don't be early; this annoys the interviewer. Get there early, go to a cafe and have a lemonade and turn up dead on time.
- Do eat a good meal beforehand; sugar lows destroy thinking power.
- Don't argue with the interviewer about why they've asked you something. They've asked you it because they want to know whether you can do it.
- Do appear enthusiastic.
- Do wear a suit.
- Do be eager to please. They want someone who'll do what they want, you must give the appearance of being obliging rather than difficult.
- Don't be too relaxed; they may well conclude that you aren't hungry enough for success to work hard.
- Don't tell them they shouldn't use C++ because *my niche language* is better.
- Do demonstrate an interest in financial news.
- Do be able to talk about everything on your cv (resume in American). Have a prepared 2 minute response on every phrase on it.
- Do bring copies of your CV.
- Don't expect the interviewer to be familiar with your CV.
- Don't say you've read a book unless you can discuss its contents; particularly, if they've written it.
- Do be polite.
- Do ask for feedback and don't argue about it. Even if it's wrong try to understand what made the interviewer think that.
- Don't say you want to work in banking for the money; of course, you do but it's bad form to say so.
- Do say you want to work closely with other people rather than solo.
- Don't say that you think that bankers are reasonable people – they aren't.
- Do take a break from interviewing and do more prep if more than a couple of interviews go badly.
- Don't use a mobile for a phone interview.
- Do be able to explain your thesis – work out explanations for different sorts of people in advance.
- Don't expect banks in the UK to pay for interview expenses. If they do agree to pay, make sure they are willing to pay what your ticket will cost. eg don't get an expensive ticket if they say they'll pay for a cheapo airline.

- Do ask about the group, you'll be working in. e.g. turnover, where people go when they leave, how many, when can you meet the rest of the group (only if an offer appears imminent), how old the group is, what's the team's raison d'etre, is it expanding or contracting. What would a typical working day be?
- Don't get on to the topic of money early in the process.

A general comment is that quant has the reputation of being a hard area to get into, but if you talk to any hiring manager they'll tell you that they interview lots of candidates and most are terrible. It's rare to be forced to choose between two good candidates; it's much more common to be relieved that you've finally found one who's good enough. The moral is that most candidates are failing to reach the required level. If you are good at maths and do your preparation, you can be at that level and get a job.

15. The CQF

I get more e-mails on this topic than any other. I have little direct experience of it. However, here's my impressions from others.

First, the CQF stands for "the Certificate in Quantitative Finance" and is run by 7City training. This organization was created by quant author Paul Wilmott of wilmott.com. Wilmott also created the diploma in Mathematical Finance at the University of Oxford before parting company with that organization.

The CQF is a six-month part-time course which is available by distance learning. Its aim is to teach the attendee how to be a quant.

Here some comments from a recent satisfied customer who was already working in banking:

The CQF is an excellent course, that is like a condensed accelerated MSc in Mathematical Finance. The CQF covers the basics plus a lot of practical stuff like C++, Excel VBA and advanced topics like uncertain parameters and stochastic volatility. It has definitely opened a lot of doors for me that were previously closed, and it is becoming more and more recognised within the industry. The whole thing takes 6 months, with a module per month. Each module consists of 4 or 5 sections with homework set at the end of each one. There is an exam at the end of each module, where you need to score 60% or above to progress to the next module. If anyone fails a module, they are given a reading list and encouraged to join the course at the same point six months later - i.e.

with enough will no-one fails. The final exam is a programming project where you're given a Monte Carlo and FDM scenario to code up. The content of the course is heavily mathematical with no holes barred - Stochastic Calculus, derivation of Black Scholes, BS with dividends, BS with discrete hedging, stochastic vol, jump diffusion, calibration, interest rates models, credit models, etc etc. Foundational mathematics is given prior to the start of the course if required, and new entrants are required to sit a small exam to test out their ability to do the course (basic calculus, linear algebra and probability type questions). All exams are done at home, except for a final one at the very end of the course, after the module exams, which is optional and determines if you get a distinction. A distinction is basically an asterisk by your name in the FT

Another recent attendee says that it inevitably covers less than an MSc since it is part time over six months, versus one year full-time or two-years part time for an MSc. He also thought it was well-suited to those already with day jobs, and valuable for career development for those wanting to move into more quantitative areas.

A general impression seems to be that it is easy to pass the course, but getting a distinction requires some real work and ability.

A head-hunter suggests that it is more useful for those already working in banking to change areas rather than to move into banking.

Some comments made my "Urnash" on nuclearphynance (where you can find further discussion.)

I was looking for 1) a way to learn those parts of quantitative finance that every quant should know, but that I haven't learned so far (because they are not used at my current job) and 2) something that can be done in less than a year full-time (for personal reasons). Since this ruled out every program for a Master in Financial Engineering, I chose the CQF.

Of course, I could have simply bought a couple of books and work through them myself. However, I learn much better if I know that I have to read something this weekend, since I will have to answer some questions about it before Monday, and that I'll have an exam on it in two weeks time.

What do you learn? Certainly not everything which is mentioned in the many books that one receive (all published by Wiley, surprise, surprise). Not even everything which is written in the 2nd edition of Paul's book. The span of the course is much wider. So you do not only

work with PDEs, you also get quite a bit about the Martingale approach, quite a bit on Credit derivatives, a lecture on portfolio optimisation, a lecture by Ayache (ITO33) on Convertible bonds, Jaeckel on Monte Carlo, etc. However, note that the program changes continuously, so I do not know what the current program is.

Before giving a list of what I liked and disliked about the CQF, you should know the following: I took the distance course since I do not live in London. This means that I took it through the internet. You can see the presenter and what he writes, and you can ask questions either through IM or a microphone.

Furthermore I already knew approximately 50-60% of what was taught in the CQF. So I do not know what happens if you start the CQF without any knowledge about quantitative finance. My idea is that it would be quite hard. My advice would be to browse for a short period in either Paul's book or in Hull (I have no experience with Neftci's books so I cannot comment on them, and as much as I like mj's book, I wouldn't recommend that book as the first that an aspiring quant should read (but you certainly should read it after a while)). And you should already be proficient in a programming language (either VBA, or C(++)) before starting.

Oh, and do not plan anything on the weekend before the end of the module; the exams that you have to make after every module are not hard, but they are quite long. The answers that I sent were usually, per module, approximately 8-15 pages, not including the excel sheets that were required. But I must admit that I usually used a large font.

But now, my verdict. Things I liked about the CQF:

- *Comprehensive, giving a nice overview of the derivatives market.*
- *Sebastian Lleo, one of the presenters, answered my questions extremely quickly.*
- *Good that most of the course was given using the same symbols. I have seen plenty of other resources where the different symbols were used in different chapters to denote the same thing.*
- *The CQF is not just what was written in the 3 volumes of Paul's book. There was also quite a lot about credit derivatives and a bit about martingales.*
- *Paul can actually teach. He manages sometimes (not always) to explain things very clearly and succinctly.*

- *When the connection worked it was nice that one could ask questions as a distance delegate, while the lecture was given.*
- *I like that fact that the courses are kept online indefinitely, and that videos of new lectures are added to it.*

Things I did not like:

- *I followed the course through the internet. On multiple occasions I had such problems with the live connection that I had to abort the lecture and watch it later on a different date. It was not clear who caused this (7city, Webex or my ISP). The contact with the Webex helpdesk did not solve the problem at all.*
- *For some reason the optional exam for extra credit only covered Paul's book. As far as I remember there were no questions in it about CDOs or Martingales.*
- *Some of the test exams that were given every week were returned quite late. Thus it was not possible to use them while learning for the module exams.*
- *While the explanation about the grading of most of exams was succinct, but clear enough, the explanation of the grading of Module 6 was, with all due respect, laughable. All I got is a single line of comment. And this as a reply for a bounded 15-page booklet with a CD-ROM that I had to send to the CQF organisers by priority mail!*
- *There is a helpdesk on the CQF website which one can use to ask the organisers questions. Since e-mails tend nowadays to get lost in a spam filter, I used it a lot. While some of my queries were answered quickly, others were not answered at all. After a long mail to the CQF organisers they told me that while the helpdesk is there for the delegates it is still better to contact the presenters directly. If this is the case, why does the helpdesk exist?*

While the list of things I have not liked is longer that the list of what I did like, this does not mean that I did not like the course. However, the problems with the connection and the fact that some helpdesk questions were not answered at all made it a bit hard for those, like me, who take the distance learning course, to receive the same amount of tutoring as those who took the course in the classroom. And tutoring through e-mail and the web is what should make an internet course different form a set of taped lectures on a DVD.

A general complaint is that it's expensive for what it is.

Paul Wilmott is someone who arouses strong emotions in the quantitative finance community, and certainly some people are against the qualification for that reason.

The bottom line seems to be: worth doing if you want to move areas within banking and your employer is willing to pay, but not the way to get your first quant job after university.

16. Other resources

There are by now a large number of online forums where these sort of questions are discussed to death. I keep an up to date list on www.markjoshi.com . I also running a forum on www.markjoshi.com for discussing books and career issues.

17. Exams

There has been a shift towards the use of written exams to sift entry-level candidates. There is a certain degree of fairness in this approach. The main issue tends to be that the question are fitted very much to the setters' prejudices but this is true in all interviews in any case.

Along with this is the shift to associates programmes specifically for entry-level quants instead of hiring them as needed. For example, Barcap has a "quantitative associates" program that only has intake at specific times.

`http://www.barcap.com/campusrecruitment`

18. The view from Milan

Here are some comments made by Italian quant.

18.1. **Sorts of employers in Italy.** In Italy the employers can be divided into:

- Investment Banks, e.g. Banca Caboto
- Commercial Banks, e.g. IntesaSanpaolo
- Asset Management, Private Banking, Alternative Investments, e.g. Eurizon Capital.

- Consultancy firms, e.g. Accenture, Deloitte.
- Software companies, e.g. Statpro, FMR.

Better job security can be found in Investment Banks, Commercial Banks and Investment Management. Typically, financial institutions don't fire you unless you try to commit fraud. Investment Banks, Commercial Banks and Investment Management also pay better then Consultancy firms and Software companies. More over they offer a contract which includes several benefits (e.g. health insurance) which aren't usually comprised in other companies' standard contracts and which can make the difference, expecially when at entry level and earning a low base salary. I think it's useful to consider that in period strongly characterized by merge between big Italian financial institutions, the demand for employees in Banks and Asset Management usually decreases for a couple of years while jobs opportunities in Consultancy firms increase.

18.2. **Applying for a job in Italy.** If you're looking for your first job, headhunters won't help you that much. Italian headhunters tend to pay attention to candidates who already have some years of professional experience. Nowadays you're in the right track to get your first job when you:

- Activate your personal contacts
- Send your cv to the human resources department of the companies you're interested in and propose yourself for an internship
- Take part to the recruitment events organized by main institutions (e.g. University)

When you're looking for your first job, it's really important to be employable for an internship. I'd like to stress this point because starting as a stageur is a good way to become an employee in few months. Internship can be as long as four months up to one year. During this period a project will be assigned to you and a tutor will train you. Detailed information on the rules governing internship in Italy can be found here:

`http://www.sportellostage.it/aziende/normativa.htm.`

As a stageur you have the opportunity to learn and understand if you like that job, Most important if you reach the goals implied in your assignments, you will become very precious for your tutor who

has invested time in training you and therefore he/she is interested in hiring you at the end of the internship's period.

When applying for an entry level role be prepared to face the following selection's stages:

(1) written aptitude tests and quantitative tests
(2) interview with human resources department's people
(3) technical interview/s with one or more members of the team which you will join if you succeed the selection process
(4) interview with a person from HR to discuss the terms of your contract

These steps are common to a great number of firms. It's rhetoric but I think it's worthwhile: remember that there's no second chance at making a good first impression.

19. The view from Japan

Here are some comments from an Australian who did his PhD in pure mathematics in Japan, and then went looking for a quant job.

I applied to banks in Japan through their standard new grad recruitment programme (undergrads and postgrads together; note this seems to be different to how a potential PhD applies in the UK). After many info seminars and early-stage interviews, I got a much better idea of people and roles in a bank. In fact I decided to go for trader/structurer roles instead of quant.

The rates hybrids desk at an international bank said if I really wanted to start immediately in trading then they'd let me (at this stage I had the leverage of another firm's structurer offer in my pocket), but they'd like me to work as a quant for two years first. They said the best traders know their models inside-out. I liked all the people there and I trusted what they said, so I accepted their offer.

20. Management consultancy

I have heard the following from a few quants with science PhDs. The following happens

- They decide to try management consultancy.
- They get nowhere applying.

- They conclude that consultancies are not interested in people like them.
- They become quants.

Not knowing many management consultants, I can't judge how many people with science PhDs are successful at getting into management consultancy (some certainly are,) but there is a definite theme that consultancies do not value science skills or personalities. (Any management consultant reading this who wishes to give a contrary view, please feel free to contact me.)

21. War stories

I would like to make this guide more dynamic by including the latest gossip and stories of job applicants. So send me, mark@markjoshi.com, your experiences, including info such as

- how many different firms?
- how many interviews per firm?
- what you thought of headhunters.
- how you got the job you took?
- which books were helpful?
- what you wish someone had told you before you started.

22. Interview questions

We recently finished a book of quant job interview questions. We would like to keep it up to date. So please send me lists of questions: ones that are particularly tricky or interesting are especially good. Boring questions are good too, however, in that it gives me a feel for what is happening in the marketplace. A fair number of questions are also posted on the forum on www.markjoshi.com.

23. Courses

Once you've got that job, the firm will generally be willing to send you on at least one training course. Please consider attending one of mine. My next course will be in London in June 2010 and will cover the LIBOR market model and its QuantLib implementation. I also keep a list on www.markjoshi.com

24. Advertising

Various recruitment agencies and courses have asked for plugs. If you would like to advertise in this guide, e-mail mark@markjoshi.com .

25. Reproduction

Please don't copy this guide on to your web-site. I am happy for you to include extracts and a deep-link to it, however, and I will not move the guide's web location. The reason for this is that I update the guide regularly and I do not want there to be lots of versions floating around which I then have to police.