Careers in Banking and Financial Markets 2022/2023

The definitive guide to working in banking and finance

Contents

Contents

Introduction

Hello and welcome to our new guide to careers in financial services, written for the 2022-2023 recruiting season.

Students who embark on careers in finance this year are entering the industry at an interesting time. As the world is rocked by the post-pandemic supply chain crisis and by repercussions of war in Ukraine, inflation is on the rise. The low interest rate environment of the past two decades may be ending, and quantitative easing may be ceding to quantitative tightening, with implications for markets. However, central banks need to tread carefully for fear of tipping economies into recessions. The financial services industry is at the nexus of these adjustments, and if you come into the industry now you will have ringside seat to what transpires.

This guide is intended to provide you with a detailed introduction to the range of jobs on offer in wholesale financial services. This is the part of the banking system that doesn't deal directly with the public and that can – and did – go unnoticed until things went wrong. Unlike retail banking, wholesale financial services jobs don't deal with retail customers (the public) but with other banks and with investors managing pools of capital. They don't just include jobs on the trading floor or in M&A and we don't just cover these better-known roles. This guide will tell you about all the other jobs too: jobs you may not have known existed, but for which banks and asset managers hire thousands of students each year.

Financial services is an industry where the careers that can be very lucrative but the hours can also be long. It's an industry that stands at the nexus of the global economy, and that for this reason can offer stimulating careers that aren't simply about making as much money as possible. – The financial services industry can also be a key lever in fighting climate change and directing funding away from fossil fuels. By working in finance, a new generation of socially and environmentally conscious students can help build a better future.

We've updated this year's guide with some perspectives on what it's actually like to do the different jobs in financial services by people working in those roles at top institutions like Goldman Sachs, Citadel and Blackstone. We've also added some new sections on careers in crypto and in global custody.

We hope you find this guide interesting. And if you do, we hope you visit eFinancialCareers regularly. We're committed to democratizing the financial services industry, and to encouraging people from all backgrounds to apply for jobs that are both intellectually and financially rewarding. We're always looking for feedback at editor@efinancialcareers.com, so feel free to get in touch. And good luck with your careers!

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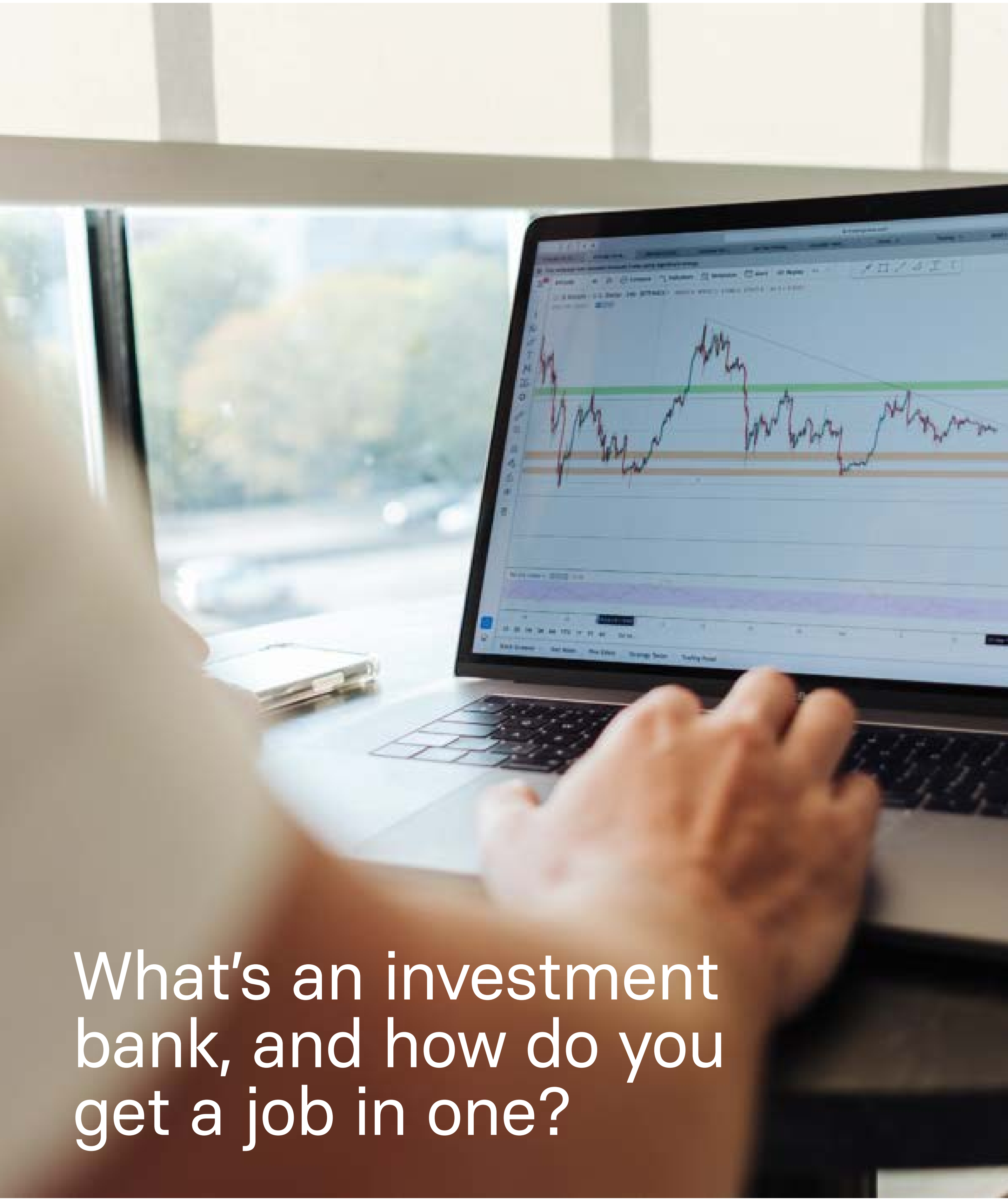

What’s an investment bank, and how do you get a job in one?

What do investment banks do exactly?

First things first. What exactly is an investment bank? It's not the kind of thing you can discern simply from looking at the outside of a shiny tower. Nor is entirely clear if you take a stroll through a few corridors internally. That's because an investment bank is a system containing different entities (**divisions**) that work together for the whole; to understand the entirety you need to understand the components that come together to make it up.

Unlike standard banks that take money from the public in the form of deposits and make loans to the public in the form of mortgages or money for cars or holidays, investment banks deal with companies (which they call corporates), other banks (which they call **institutions**), with governments, and with funds (eg. hedge funds, pension investors or private equity funds).

So-called **pure investment banks** only have a few lines of business. They operate an **investment banking division (IBD)** which offers advice on M&A deals or on **financing** and helps with raising money by issuing equity or debt in the public markets (**equity capital markets** and **debt capital markets** respectively). And they operate a **markets division** containing salespeople and traders who buy and sell **securities** (eg, equity and debt) already issued. They might also have an **asset management** division tagged on that manages pools of assets in an attempt to increase their value over time.


Mark Higham/Unsplash

That's the slimmed down version of an investment bank. Today, however, very few banks are like this. There are a few, like **Jefferies** that follow this traditional model, but since the financial crisis most investment banks have diversified and now have all kinds of new divisions. **Goldman Sachs**, for example, now has an investment banking division, a markets division and an asset management division, as well as a retail banking operation (called Marcus) and a wealth management operation (to manage the wealth of rich people with a lot of money to invest. Similarly, **Morgan Stanley**, which was another pure investment bank in the past, derived 41% of its revenues from wealth management in the first half of 2022. And **Merrill Lynch** merged with **Bank of America** after the financial crisis and has now been integrated into Bank of America's much broader range of businesses.

In the past, banks that did everything from retail banking to investment banking to asset management and wealth management were called **Universal Banks**. Today, universal banks are much more common. Goldman Sachs is a kind of universal bank now. There are also big U.S. banks like Bank of America and Citi, European banks like **Deutsche Bank, Barclays, BNP Paribas,** and **Société Générale**, or Japanese banks like **Nomura**. Many universal banks only take retail deposits in their home markets, but operate their investment banking operations internationally.

Investment banks as a whole are said to be on the **sell-side**: they are often to be found selling things (eg. Selling the equity and debt that they help clients to raise). By comparison, asset management firms (including private equity funds and hedge funds) are known as the **buy-side**: they buy the financial products created by banks and hope that they'll increase in value. In many cases, people begin their careers on the sell-side and then move to the buy-side (which employs fewer people) once they have some experience.

Finally, and as we note later in this guide, there are also standalone entities that specialize in offering M&A advice. These are known as **boutiques**. Some of the biggest ones include names like **Evercore, Greenhill, PJT Partners, Centerview Partners, Moelis & Co**, and **Perella Weinberg Partners**.

Fintechs and the broader financial services ecosystem

The financial services industry today is fragmenting; some of the functions historically performed by investment banks are disappearing into new entities and subsectors. For example, electronic trading operators like **Citadel Securities, Jane Street** or **Tradeweb** account for an increasingly large proportion of trading in highly **liquid** (easy to trade) products like **cash equities. Fintech** firms like **Capital Markets Gateway** or **Primary Portal** are trying to revolutionize the process by which new shares are issued. Coupled with growth of **blockchain and crypto currencies**, this means the investment banking industry is in the middle of dramatic change. However, in many cases these new fintech companies are run by ex-bankers and funded by banks themselves. As technology transforms the industry, a growing proportion of jobs are technology-related.

If you're thinking of a career in finance, you may well be dissuaded by the thought that careers in the industry lack meaning, particularly in the context of big global issues like climate change and inequality. However, finance can be an ethical industry if staffed by ethical individuals working within **environmental, social and governance (ESG)** parameters. As Goldman Sachs' former CFO said five years ago: investment banks are all about managing risk. And in an increasingly risky world, managing risk is something that's more important than ever.

If you want to keep up with information about investment banks and with news about the financial services industry and its jobs, visit eFinancialCareers and sign-up for our newsletters. ■

What's the back office and the front office?

Author: Sarah Butcher

If you're thinking of applying for a graduate job in an investment bank, you might have heard of the 'front office', 'middle office' and 'back office' as descriptors for the kinds of jobs banks have to offer. You may even have heard 'back office' jobs referred to pejoratively. Should you care?

The front office

Front office investment banking jobs have traditionally been the easiest to define. "Historically, front office jobs in investment banks were those trading on behalf of the bank, or directly working with clients or creating products, research or analysis for them," says John Craven, a former director of structured products and capital markets at Bank of America Merrill Lynch who now runs upReach, a social mobility charity.

Another ex-senior banker agrees. He says front office jobs were always any that involved, "direct interaction with the client and customer - be that an individual or a corporate client."

Which jobs were those exactly? Well, M&A jobs were usually considered to be in the front office - even though you spend most of your analyst and associate years working all day and all night on spreadsheets and will probably only see clients in the context of carrying bags for senior bankers. Capital markets jobs where you help client companies raise money are client-facing too. So were sales, trading and research jobs.

The middle office

As per its name, the middle office of an investment bank is situated in the middle: somewhere between the front office and the back office.

"The middle office is comprised of all the people in the business divisions that directly support the front office," says one senior banker. "They're directly supporting the people who are interfacing with clients." The emphasis here (ours) is on the word 'directly.' - According to the traditional definition of the middle office, the people here support the front office in the interaction with clients. They don't help with the downstream effects that result from those interactions.

Risk management jobs are usually considered to be in the middle office. So are compliance jobs. So are finance and accounting jobs (for example product controllers which work out traders' profits and losses). And so are technology jobs - although you might have technology jobs which support the back rather than the office, so it's a bit confusing.

"It's perfectly possible for a risk person to be either in the middle office or the back office," says one senior banker. "You might get a risk professional sitting on the trading floor, in which case he or she would be a middle office person. And then you might get a risk professional miles away in the corporate centre, in which case they'd be in the back office."

The back office

Traditionally you also had the back office in an investment bank. This referred to all the functions behind the scenes (and which are now offshored to places like Bangalore, far from trading floors in London and New York). Back office professionals work in settlements, making sure that payments for trades are processed. They work in human resources, making sure bankers get paid, or hired, or fired. They work in technology, making sure that banks' central systems are running correctly.

Back office jobs in investment banks are often considered uninteresting and undesirable. Banks do their best to make these roles sound interesting, but there might be something in their historic lack of appeal. "I worked in trade support covering settlements for a French bank in London," says one operations analyst. "It was all very static and process driven - I spent all day analyzing exception queues from various systems and analyzing trades to make sure they were settled properly. It was a repetitive job with very slow career progression." It doesn't sound great, but the boring bits are increasingly being automated and what remains is more interesting.

How the back, middle and front offices are changing

What's outlined above, is how things used to be with the back, middle and front offices in investment banks. These days, however, things are changing. And technology is to blame.

As banks try to automate as much as they can, and as trading takes place electronically using computer algorithms, human beings are becoming far less plentiful

The distinctions are eroding as technology takes over

in the front office. Engineers are building computer systems which are taking over the jobs formerly occupied by traders and salespeople and risk professionals and compliance experts.

Goldman Sachs' Marquee system is a case in point. Marquee is a digital store front where Goldman's clients can come and access the bank's pricing and risk information directly, instead of talking to a Goldman trader or sales trader who acted as an intermediary. Traders and sales traders are less important and the people programming Marquee are closer to the top of the pile.

Confusingly, too, some trading jobs at all banks might not be front office at all. What about quantitative traders on central risk desks for example? They aggregate risks for the whole bank and hedge against them. Are they front office? Not really because they don't interface with clients, but they're very important even so.

"The front, middle and back office are a dated concept, and if you're thinking in those terms you work for a bank with cultural issues," says one senior banker. "Nowadays, you're all in it together to drive performance."

Ryoji Iwata/Unsplash

The graduate recruitment timeline in investment banks

If you think you're interested in working for an investment bank or financial services firm, you can't wait until just before you graduate to apply. Banks line up student recruits years in advance and if you only focus on getting in during the year before you graduate, you'll be too late.

You need to start thinking about your banking job **as soon as you arrive** at university. The way to get a banking job – any banking job – is to get into the campus recruitment pipeline. This means you start by getting internships, and you use those internships to get more internships and to get a job offer for when you graduate.

What to do as a first year (sophomore) student

The moment you arrive in your first year, you'll need to start creating your CV and online profile. Visit banks' careers websites and look at the campus sections for information on jobs for students. Check banks' websites for their spring (in EMEA) and sophomore (in the U.S.) internship application deadlines. Submit applications to these internships. If you can achieve a place on a spring week or a sophomore internship and banks like you, they should fast-track you for an internship in your second year.

Join university clubs and societies relevant to the career you're interested in. Attend as many events – online and on campus as possible. During vacation time look for work-shadowing placements or do voluntary work if you're in a position to do so financially. This is the time to add experiences to your résumé.

What to do as a second year student

The start of your second year is the key moment for

Making it through the recruitment maze

Luemen Rutkowski/Unsplash

securing a banking job when you graduate. Immediately you arrive in September you need to update your resume with the previous summer's work experience. Check banks' careers sites for deadline dates for summer internships (known as summer analyst programs in banking). Some U.S. banks open their summer analyst applications even before September – so you may even want to start checking whether these applications are open in **July or August** (in the U.S, some banks have been known to close intern applications in July) while you're still on vacation.

Don't wait until your final year to apply

You need to apply like crazy. Deadlines for internship applications are typically in mid to late November (although they can stay open through to December for harder to fill roles), but banks often hire on a first come first served basis, so don't hang around. You can and should apply to multiple banks at one.

If your applications are successful, you can expect the first semester of your second year to be filled with digital interviews and online tests, which banks use to screen applicants before interviewing human to human.

Ideally, you'll get a place on 10 or 12 week summer analyst program (internship) in the summer of your second year. And if you do well on this program, the bank will offer you a place to join fulltime when you graduate.

What to do as third year student

In the perfect scenario you arrive in your third year at university with a full time graduate job lined up after your summer internship. If this isn't the case, you now need to apply for as many graduate jobs as you can.

Check all the banks' sites for their deadlines for full time places on graduate training programs. Typically, banks try to fill their graduate programs with interns from the previous summer, so competition for the remaining positions is intense. Some banks will open their graduate recruitment processes in July or earlier – so keep a very keen on eye on banks' careers sites throughout the summer. In the U.S. banks' deadlines for full time applications are typically October; in Europe, they can be November.

The alternatives

Not everyone will get a place on a graduate recruitment program at a big bank, and not everyone will follow this perfect timeline. If you don't, it's not the end of the world. It's becoming increasingly common for people to intern in investment banks after they've graduated (it can help if you intern and go on to study a relevant Masters, although this is another big expense). Many banks also run "off cycle" internships with different application deadlines.

If you don't get a job at a big bank you can always try smaller firms with a more flexible approach.

What to expect when you apply for a job in an investment bank?

We've said this before, but we'll say it again: getting into an investment bank is not easy. Popular divisions like M&A and sales and trading receive hundreds of applicants per role.

Upload your CV and complete an application form
Uploading your CV and completing an application form is the first thing you'll be expected to do. Sometimes (eg at Goldman Sachs) the application will include an invitation to write a short statement on why you want the job. Craft this carefully (we have some tips on how to do this here). Your application form and CV will typically be screened by an **applicant tracking system (ATS)** which will screen it for the right grades and key words.

Psychometric tests, games, coding challenges
If the ATS system passes your application you can expect to move to the next stage of the process, in which you'll probably asked to play some games and take some tests. The Pymetrics games are popular with banks like JPMorgan, while banks like Morgan Stanley run psychometric tests that look at how you react in certain situations, plus your numerical and verbal reasoning ability.

> Getting a job in a bank is a multistage process. Many people fall at each hurdle

If you apply for a technology job in a bank you will almost certainly come across a HackerRank or similar timed coding test. You should spend some time preparing for these coding tests as they're not easy. You can typically


vm/istock

choose to code in a language of your choice.

Digital interviews

If you make it past the ATS system and the tests, you'll usually be invited to a digital interview. These are often run by a company called Hirevue and will typically involve you answering some generic questions about situations in which you resolved challenging situations in the past, the kind of person you are, and why you want that job. We have a list of typical Hirevue questions here.

Make sure you know what you're likely to come against and practice by filming yourself answering some trial questions before the real thing. Digital interviews can feel very high-pressured (you don't always get an opportunity to try again if you make a mistake), so it helps to be as relaxed as possible about the format. Be sure to think through some scenarios that will allow you to answer the questions using examples from your own experience, and use the STAR technique to structure your responses.

Actual interviews and assessment days

If you respond well to the digital interviews then congratulations – you should finally meet a human being! At this stage, banks will typically invite you to their offices for an in-person interview and maybe an assessment centre or superday (if you're in America).

We have advice on dealing with banking interviews here, and a long list of all the questions you're likely to encounter here. If you make it to an assessment centre/super day you can expect to encounter multiple interviews, plus a group exercise (where you'll be expected to solve a problem with a group of other applicants, and will be judged on your ability to work as a part of a team) and a presentation based on a case study. We'll soon be posting extra information on how to make it through these stages on the eFinancialCareers site! ■

How to write a CV or résumé that will get you a job in an investment bank

Author: Daniel Davies and Sarah Butcher

It's not easy getting a job in an investment bank. Graduate recruiters get thousands of applications for a few hundred jobs. If you're going to get in, your CV will need to be very special.

Grades

Grades matter a lot in banking, but they matter more for some jobs than others. If you're going for the most competitive jobs like sales and trading or M&A and you're in the UK you're going to need at least a 2.1 degree (preferably a First) and a stack of A grades at A Level (the average investment banking summer intern has 530 UCAS points, equivalent to 3 A* grades and one A). In the U.S., it means you'll need a GPA of 3.5+ to be sure of your resume getting through.

There can be more flexibility on grades for jobs in the back and middle office – but you'll still need to be towards the top of your class.

Even if you have excellent grades, it will help if you can differentiate yourself by pointing to scholarships and academic prizes.

Format

Make use of bullet points and use a clean and concise format. One page is standard for banking resumes in the U.S., although you may just about be able to get away with two pages in London. In Germany, CVs are often a lot longer.

Matan Feldman, a former J.P. Morgan associate who founded the firm Wall Street Prep, says you need to take care that your resume is easy to read. “We see a lot of strange fonts, extra-long CVs and non-standard formatting. - Especially among international applicants.”

Keep it short, be specific about your achievements, showcase your grades.

Keywords

You can’t be sure that the first look at your CV will be taken by a human being these days. Applicant Tracking Systems (ATS) are being used more and more.
These days, applicant tracking systems are becoming more advanced. - Instead of simply looking for particular words, they often use so-called ‘semantic matching’ technology to look for whole phrases and related words. For example, if a job requires Java programming skills and you mention SQL, you could still get picked by the machine on the grounds that people with SQL often have an aptitude for Java. For this reason, it makes sense to mention as many skills as possible (assuming that you have them) and to include skills that occur in clusters for the jobs you’re applying to.

Achievements

When you’re referring to past work experience, speak in terms of personal achievements rather than generalities. The head of graduate recruiting at Goldman Sachs Asset Management summed it up a few years ago: “For every work experience you’ve had and for every organization you’re involved in, be prepared to go beyond what’s on your resume and speak to specific projects you worked on or efforts you spearheaded. Provide details on what your responsibilities were, what skills you applied and what learnings you took away from the experience. Then quantify the results.”

Personality

Finance types can be boring. Banks want to hire people who are “interesting and have a background of intellectual curiosity.” One senior banker said he puts candidates through the so-called ‘airport test’: how much fun would they be if you were stuck in an airport with them for 100 hours.

Banks also like to hire people whose CVs evidence interesting and unusual forms of extra-curricular activity. Being a member of a finance society at university will help, but not that much – you need to hold a position of responsibility in one of these societies, rather than just showing up for the free drinks.

Internships

If you’re applying for an entry-level job in a bank, you’ll need to prove that you really, really want it. During your first year at university, this means you need to apply for every banking-related event going: think insight days and spring internships in Europe, or sophomore internships on Wall Street. Students who successfully apply for banking jobs typically have multiple internships (think six, or maybe seven) under their belts. ■

Jeffrey Blum/Unsplash

The sectors

M&A advisory jobs

Author: David Rothnie

- M&A jobs are about working with clients on deals to buy and sell companies.
- M&A juniors – 'analysts' – work on Excel models to help value companies involved in deals.
- M&A juniors put together 'pitchbooks' in PowerPoint to help senior bankers win a role advising on deals.
- M&A jobs are well paid: $100k+ salaries in year one are the new normal.
- M&A jobs can involve gruelling hours. M&A juniors complain of 100 hour weeks.
- Two years in M&A can leave you well-positioned for the future, with opportunities available in private equity, hedge funds and elsewhere.

What do M&A advisory jobs involve?

A job working in mergers and acquisitions (M&A) is one of the most sought-after and high-profile roles in investment banking. Senior M&A bankers travel the world and advise on the world's biggest and most complex "deals", re-shaping entire industries. The COVID 19 pandemic might have brought a temporary halt to the globe-trotting, but the M&A market has since rebounded to near record levels of activity.

M&A bankers are professional advisors. They operate at the highest levels, working with large global companies (**corporates** as they're known in banking), advising chief executives how best to position their organizations for the future. Unlike management consultants, who help companies determine and implement the best strategy without necessarily changing the company's component parts, M&A bankers drive strategy through structural change. They encourage the companies they're working with (**clients**) to join together with other companies as

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equals (a **merger**), to buy and control a smaller company or part of a company (an **acquisition**), or to sell part of their own operations (a **disposal**).

Mergers, acquisitions and disposals happen for different strategic reasons. For example, a client may decide to merge with a rival operating in the same business area in order to increase its market share. This is known as a **horizontal merger**. Alternatively, a client may decide to acquire one of the companies that supplies the components necessary to fabricate its product. This is a **vertical merger**. There are also **conglomerate mergers**, when a company merges with or acquires a firm operating in a totally different market. And there are **congeneric mergers**, which take place when companies are in the same industry but offer different products. Conglomerate mergers have the advantage of allowing clients to enter completely different markets. Congeneric mergers bring advantages like established distribution channels, or whole new product lines.

Globally, the top three banks in M&A are Goldman Sachs, JPMorgan and Morgan Stanley, as shown in the chart below. These are the banks that work on the biggest and the most complex deals, often involving buyers and sellers in different countries. But there are a number of other big U.S. and European banks that are also active in M&A, and many also lend the money to finance the deals.

Top M&A advisors globally, first six months of 2022

Global M&A Revenue by Bank – H1 2022

Rank	Bank	Rev. $m	%Share	H1 2021
1	Goldman Sachs	2,118	11.9	1
2	JPMorgan	1,434	8.0	2
3	Morgan Stanley	1,327	7.5	3
4	BofA Securities	919	5.2	4
5	Citi	678	3.8	5
6	Barclays	563	3.2	7
7	Jefferies	557	3.1	6
8	Lazard	523	2.9	12
9	Evercore	478	2.7	10
10	Rothschild & Co	474	2.7	9
	Total	**17,787**	**100.0**	

Source: Dealogic. Jan-October 2021

While the biggest, multi-billion dollar deals grab the headlines, the majority of deals are below $500m in size, and there are a number of so-called **mid-market** M&A firms which earn good money advising on these deals. There is also a large number of so-called **boutiques**, which are independent, privately-owned firms run by a small number of senior M&A bankers who've left big banks to set up on their own. Boutiques are typically **pure advisory** houses – unlike banks, they don't actually provide the financing for deals themselves. The best known ones include Centerview Partners, Moelis & Co, Greenhill, Evercore and Perella Weinberg, and Robey Warshaw, but there are hundreds out there.

Top M&A bankers are known as **rainmakers** for their ability to land big deals, but beneath the glamour the hours are long and junior bankers have to spend years learning their trade before they can generate their own deals.

75+ hours' work a week are still the norm.

What does an M&A analyst actually do?

M&A analysts are the lowest rung in the banking hierarchy. Working as an analyst in a M&A division means being flexible because you can work on multiple projects at any point in time. You will be working on live deals and pitching new for ones. When you're working on a live deal, you'll be involved in deal **execution** or helping a client buy or sell an asset, called **buy-side** or **sell-side** mandates. When you're **pitching** you'll be preparing documents for more senior bankers to pitch to clients as they try to persuade clients to do new deals.

Typically, an M&A Analyst be responsible for the financial analysis that underpins an M&A deal. This includes building a financial model, running the valuation and financial impact analysis, and preparing materials to present this analysis to the client. Very occasionally, an M&A Analyst will also be asked to present this analysis to the client. Sometimes they will also be the point of contact for any questions or requests from the client relating to the analysis.

"Day-to-day life as an M&A analyst largely depends on the deals you are working on," says Joe Hannon, head of UK mergers and acquisitions at Credit Suisse. "Broadly speaking, mornings and early afternoons involve client interaction, status and/or diligence calls and discussions to agree on the workstreams the deal team should focus on as well as next steps. By the afternoon or evening, meetings are less frequent, and you can focus on progressing on the deliverables, which can range from excel modelling to preparation of marketing materials."

A sense of humor is essential, but won't be enough on its own.

How hard do you work in an M&A job?

In the past few years, the arduous nature of work in some M&A teams has become apparent. As deals boomed after the COVID pandemic, some junior bankers at Goldman Sachs complained that they were working more than 100 hours a week and on the verge of collapse. M&A analysts at other banks voiced similar complaints and the banking industry responded by increasing junior bankers' salaries and making sure juniors get some time off at weekends. In 2022, the pace of M&A work has dropped off, but long working hours (75+ a week) are still the norm.

Why do junior M&A bankers work so hard? One reason for this is that M&A is a fast-paced, ever-changing work environment and the intensity of the job will depend on the type of project you are working on – deal execution tends to be unpredictable by nature as it's a live situation, whereas business development / pitching tends to be more predictable.

M&A is also a client-driven activity. As an M&A banker you'll be more at the beck and call of clients. Hours are especially long when deals reach a crunch point, or when you are working on multiple transactions. "Working full weekends and very late nights may occasionally happen around a particular deal, but these hours are not the norm," says Hannon.

There are upsides. One Morgan Stanley banker told us that "M&A Analysts have the opportunity to manage their own time and as long as the work gets delivered to a high standard you have the freedom to fit the job around your personal commitments."

What's your career path in M&A?

One of the benefits of a career in M&A is that there's regular and steady progression and a clear promotion path from Analyst to Associate to Vice President (VP) to Director to Managing Director (MD) (although the titles vary at different banks). The time it takes to reach the top rung varies, but as a rule of thumb it's around 15 years.

"Meritocracy is key to this path and we are passionate about giving our people the career opportunities to best realise their potential," says Hannon.

As your M&A career develops, your job becomes increasingly client-facing. The role evolves from being technical and analysis-driven to becoming strategic and advice-driven.

M&A jobs offer a wide variety of exit options. Many graduates stay at banks for the two year M&A training program and then leave (if not even sooner) for jobs in private equity, hedge funds, corporate development teams in large companies, or even consulting firms.

Which skills do you need for a career in M&A?

If you want to work in M&A, you will need to be able to work autonomously. A member of the global M&A team at Morgan Stanley said: "M&A Analysts are expected to get up the curve in terms of financial analysis and technical skills in a short period of time, and the role also requires a degree of independent and proactive work (for example reading broker notes) to stay current on the market environment."

Alongside independence, proactivity and having a desire to learn, M&A Analysts need to be confident with numbers and have a quantitative mindset. They also need to have good people skills and to be able to communicate and interact with people confidently. Ultimately this is a client-facing job and clients look to M&A bankers to provide judgement and advice.

Hannon says good analytical skills are essential along with a strong work ethic, a and a good attitude "A good banker needs to be committed to the job and the deals they are working on," says Hannon who also says a good attitude is vital. "It is essential to maintain a positive attitude as you are constantly interacting with others; a bad attitude could be detrimental to the whole team." Hannon also says a sense of humour is also essential, although that probably won't be enough on its own.

Salaries and bonuses in M&A

M&A jobs pay large salaries and bonuses. Following complaints about working conditions now offering first year analysts a base salary of $100k (£72k), before bonuses. Basic pay increases as you rise through the ranks, with first year associates typically earning around $175k, while directors can earn a basic salary of $250k. Managing directors can command a salary of $500k, depending on the firm.

When you work in M&A, your pay isn't just about your salary. Your total compensation ("comp") also includes a bonus. For M&A bankers the size of the bonus depends on fees paid to the bank when a corporate it is advising completes a M&A transaction. Fees vary depending on the size and complexity of the deal, but a rule of thumb is that fees equate to between 0.5% and 1% of the value of the transaction. Then the proportion of the fee allocated to the bonus pool is shared among the team that worked on the deal, with the managing director or MD who originated or won the deal earning the most. Bonuses at most banks are paid predominantly in shares, with a smaller cash element. Bonuses can be 80% of your salary as an analyst, and are even greater than your salary as you become more senior.

The eFinancialCareers salary and bonus survey suggests that after three years to four years as an M&A banker in London, you can expect to earn as much £200k ($270k) as a first year associate. In America, some first year associates are paid salaries alone of $200k, plus bonuses

Pay is typically highest in the most prestigious M&A boutiques like Evercore, PJT Partners and Centerview. ■

What are sales and trading jobs in an investment bank?

Author: Daniel Davies

- Sales and trading jobs are very results-focused: good or bad performance is immediately obvious.
- You'll need energy, concentration and coding and math skills.
- Jobs are well paid, but job security is limited.
- Entry to the best trading desks is super competitive.
- Banks tend to hire a lot of juniors and promote the ones who perform best.
- The best salespeople and traders go on to work for hedge funds or family offices. If you're not in this top echelon, your next move can be less clear.

What do sales and trading jobs in banking and finance involve?

If you go into the Sales & Trading division of an investment bank, then what you'll fundamentally be doing is **market making**. This is the term banks use for **making markets** – or, to put it more simply, buying and selling. Sales and trading is also often referred to as **global markets**. It's the part of an investment bank which connects investors with speculators, buyers with sellers and which sometimes stands in the middle to take a piece of the action for itself.

What will you buy and sell in a sales and trading job? The answer is more or less any kind of financial product. Some banks will even have **physical commodities** operations where actual metals, hydrocarbons and shipping services are traded as if they were stocks and bonds. But the three main categories of tradeable securities are **equities** (shares, which represent part ownership of companies), **fixed income** (any sort of tradeable debt, like bonds) and **derivatives** (securities where nobody literally owns anything but the two sides agree a contract to make payments to one another based on a predetermined formula).

Sales and trading jobs are iconic: they're where you'll see people shouting on trading floors during market meltdowns. Sarah Thomas, a Vice President at Deutsche Bank, says that "When people think of investment banking, they tend to imagine the trading floor. Although sales, trading and structuring is just one part of a bank's work, it is where a lot of its commercial activities take place."

Before the financial crisis of 2008, banks traded a lot on their own accounts and tried to earn profits for themselves in the process. These days, they mostly trade on behalf of **clients**. Who are these clients? They

Deutsche Bank trading floor

tend to be big investors – pension funds, specialised investment companies and organisations representing very wealthy individuals. The clients may want to invest cash in securities, raise cash by selling securities or alter the risk profile of their investment portfolio. In order to do this, they need to find someone to buy what they're selling or to sell what they want to buy. Investors don't usually have the scale or resources to have their own seat on the stock exchange. Nor do they want to take the time and trouble to search the world for the best deal, they use middlemen. The salespeople and traders in banks are these middlemen; they will either facilitate a deal between two investors, or make the deal themselves and then look for somebody to move it on to.

What's the difference between sales jobs, trading jobs and sales trading jobs?

When you watch the prices scrolling across the bottom of the screen on CNBC or Bloomberg News, or see them reported in the newspaper the next day, it's not obvious how those prices are reached. Each one of them, however, is the result of a specific bargain agreed at a specific time and price between an investment bank and a client. The job of making that bargain happen has two parts to it. First, there's the person who makes contact with the client, who tells them what deals are available and takes the order (the **sales**) and then there's person who goes out into the market and **executes** the transaction at the best price possible (the **trader**).

Generally, sales jobs in investment banks are slightly more strategic than trading jobs. In sales, you have to understand the big picture and to maintain relationships with your clients. The better you understand the big economic drivers and market trends, the more likely you are to be able to anticipate the investors' needs and to give them useful advice. "You need to be a trained psychologist ... everyone needs constant advice and affirmation as well as investment knowledge", according to Colin Hector, an experienced equities salesperson who's worked for banks like UBS, Deutsche Bank and Credit Suisse.

Trading jobs are more focused and intense. To be a trader, you'll need to understand the structure of supply and demand at any given moment in time; some of the best traders actively avoid information about longer timeframes as a distraction from what they can see happening on the screen in front of them.

Some people fuse both roles and are **sales traders**.

Sales traders work with clients who want to make a lot of transactions quickly. They are generally salespeople who deal with very active clients, often making dozens of phone calls a day while also keeping a similar number of chat windows open. Sales traders usually operate in **liquid markets**, meaning those where there is a high constant level of **order flow**. Examples of this kind of market might be in US Treasury bonds, blue-chip equities or options on the biggest stock market indices.

> "When people think of investment banking, they tend to imagine the trading floor."

What's the difference between trading equities, fixed income products or derivatives?

The broad categories of equities, fixed income and derivatives cover a wide and ever-growing variety of financial markets, each with its own specialist jobs. Often, derivatives sales and trading will be divided up between the Equities and Fixed Income divisions, with derivatives traders and salespeople working alongside colleagues who deal in the actual markets that the derivatives contracts are linked to (the "cash" markets).

It's easiest to illustrate with an example.

Some investors might just want to buy and sell shares. Simple shares are known as **cash equities**. But sometimes, a hedge fund might want to buy a contract that gives them positive exposure if the whole stock market goes up, but which also pays a premium for insurance against the market falling. Because it has payouts linked to another event, this is an **equity derivative** – it's an index option.

Products like that would usually be the responsibility of a specific equity derivatives desk with its own salespeople and traders (and sales traders). But in most banks, the derivatives desk is physically located next to the cash equities sales and traders because although it's a separate market, it's not a completely separate market – there's value in making it easy for people from the two trading desks to talk to each other and people sometimes switch jobs from one to the other.

On the **fixed income** side, the variety of products is much greater, but the same principles apply. Government bond trading is all about anticipating movements in interest rates, so government bond traders tend to work together with economists and with people who trade interest rate derivatives (**swaps**). The interest rate derivatives sales and traders will often be expected to cover more than one currency, so they will be located near to the foreign exchange sales and traders. Commodities and commodity derivatives are more of their own little world, so they are often managed separately.

Sales and trading of debt issued by companies (**corporate bonds**) is a very different business to debt issued by governments. Unlike equities and government bonds, corporate bonds often don't trade very often – a big pension fund or insurance company will buy the bonds when they are issued, and then hold on to them for years at a time, only selling when they need to raise cash or if the issuing company gets into financial trouble. That means that corporate bond salespeople and traders need to be able to go out and look for buyers and sellers in order to make transactions happen, rather than just looking at a screen where thousands of orders are placed every minute.

There's a similar distinction in the world of derivatives trading – between **flow products** where things are pretty standardised and orders can generally be matched quickly and **structured products** where the bank designs a contract specifically for one client's needs. As Sarah Thomas at Deutsche Bank says, "Structuring teams provide products that are tailored to clients' specialised needs. They might help an institutional investor achieve a required risk profile, or a corporate looking to acquire new equipment through financing."

Some financial products are more susceptible to **electronic trading (electronification)** than others. The chart below, from a 2021 report on the state of the banking market by JPMorgan, shows the percentage of trades that take place electronically for different financial asset classes.

Share of electronification in different FICC asset classes (%)

	Estimated Market electronification
Global Interest Rate Swap Market	25%
US Treasury Trading	60-65%
High Grade Credit Trading	35-40%
High Yield Credit Trading	20-25%
Single name CDS	45%
CDX Index	80%
FX spot	70%
FX forwards	60%
FX Swaps	50%

Source: J.P. Morgan estimates.

What's electronic trading? And how is it changing sales and trading jobs?

In a lot of financial products – particularly cash equities, short dated government bonds and flow derivatives of all kinds – trading is carried out electronically. This means that rather than having a human being looking at a screen and matching orders, the investors are able to send a message from their computer system directly to the bank, which then uses its own system to query the stock exchange or other investors and buys or sells the product automatically within a few milliseconds. These electronic trading platforms are expensive to build but cheap to run and banks are doing their best to encourage clients to use them. Deutsche Bank's 'Autobahn' electronic trading platform can, for example, be accessed via an iPad app.

> "You need to be a trained psychologist ... everyone needs constant advice and affirmation as well as investment knowledge."

Electronic trading systems work on **algorithms**. The algorithms built into electronic trading systems are usually meant to break up a large order into a lot of smaller ones, and to then use advanced statistical analyses to determine the best way to place those orders in order to complete the overall transaction at the best possible price. Rupak Ghose, an electronic trading executive for ICAP plc, calls them "the robots that took over the industry ... things were completely different when clients had to talk to the banks and pay commissions of 0.2% - now they send messages directly through the system and pay less than a tenth of that!".

This doesn't mean that there is no role for human beings in trading; even in very high-volume flow products, clients often want to speak to someone who can give them **market color** and advice on how to manage their orders to get the best price. However, the rise of electronic trading platforms does mean there are fewer opportunities for humans than there used to be (famously, Goldman Sachs' cash equities trading desk used to employ around 600 people in New York in 2000, but was down to less than five by 2017 after electronic systems took over). It also accounts for the fact that many traders these days have taken on sales responsibilities.

The biggest banks are pouring money into electronic trading platforms that let clients get direct access to their systems – and this may end up diminishing the role of specialist flow traders even further. Colin Hector puts it this way – "as a salesman, you can't beat the computers when it comes to knowing what orders are out in the market. You have to be able to guess what orders are going to be placed next." However, it's interesting to note that when markets get really volatile, as they did in the early stages of the COVID-19 pandemic in 2020, clients still seem to want to get on the phone and talk to a human being. During that period of market volatility, human traders seemed to do much better than automated systems in dealing with market conditions that had never been experienced before….

The rise of electronic trading platforms driven by algorithms has affected the kinds of jobs that are on offer in sales and trading. Traders in particular are now being encouraged by banks like JPMorgan to learn how to code in languages like **Python** in order to be able to specify the details of complicated derivatives products and the steps needed in order to trade them. **Algorithmic traders** have come into existence. They are technology specialists and **quantitative finance professionals** with trading knowledge who write algorithms that can get orders executed at the best prices, and who develop better statistical models to choose the most efficient way to place orders.

Which skills will you need for a career in sales and trading?

It's no good going into sales and trading if you're not a morning person. Markets open early every day, and you need to be in the office even earlier. Rain or shine, summer or winter, the market is no respecter of hangovers and duvet days; at any given minute something could suddenly turn into a crisis. Sales and trading jobs don't tend to require the punishingly long hours that are associated with investment banking, but the hours can still be very intense. "It's the kind of job that many people imagine they'd enjoy, but the reality mightn't suit everyone", cautions Sarah Thomas.

Sales in particular is a noisy, people-focused job which is more suitable for extroverts than introverts. Even when markets are dominated by computers, the people making the decisions are human beings and successful salespeople need to be able to form relationships with them on a human level. That doesn't necessarily just mean dinner and drinks and meeting the clients' families – some investors are strictly business. But it does mean that you need to be able to talk to people and listen to them to understand what they want. As Colin Hector puts it, "you need to have something to say, every single hour of the day … if there's nothing happening, you have to be able to use your imagination".

Sales and trading jobs need concentration and attention to detail. Some structured products and algorithmic roles also need advanced quantitative skills. In all products and markets, it's vital to get things right. There's not much room for "big picture" types in sales and trading; everything is either a profit or a loss, worked out to the last fraction of a cent.

Salaries and bonuses in sales and trading jobs

Sales and trading jobs are some of the best paid in banking. If you're good and you generate a good level of profits (known as pnl) for the bank, you'll get paid a lot of money within a comparatively short period of time.

The chart below shows figures from eFinancialCareers salary and bonus survey for people working in sales and trading jobs in London. Promotions in sales and trading can happen more quickly than in other areas, but it's usually safe to assume that it takes around four or five years to make vice president (VP) level. Pay in New York can be even higher. ■

Job title	Average base salary ($)	Average bonus ($)	Average total compensation ($)
Managing Director	626,644	845,542	1,472,186
Director	307,192	326,503	633,695
VP	193,838	146,782	340,620
Associate	153,342	62,585	215,927
Analyst	79,226	28,555	107,781

Day in the life
Citadel Securities: A day in the life of a trader in NYC

Patrick Chi is a trader at Citadel Securities. He joined the firm in August 2020 after graduating from Columbia University with a degree in applied mathematics.

6:45am. I wake up and check my messages on Slack and look at Bloomberg just to see how markets did overnight.

I'm a trader on the American Depositary Receipt (ADR) desk. We make markets in more than 3,000 ADRs, which means we provide our clients with liquidity in the form of a bid and offer on all of those names. ADRs are US listings of international securities. They give US investors an opportunity to invest in foreign companies. We think of the ADR as a derivative of the local market security, which trades when the US market is closed. Therefore, when I wake up, I look to see how our largest take-home risks performed in local markets overnight. This generally takes about 10 minutes or so.

If all is well, I might then snatch another 20 minutes of sleep or go for a run. Either way, I get to the office around 8am. If I haven't been for a run, I'll walk to work; the office is about 30 minutes from my apartment.

8:00am. When I arrive at the office, I conduct a more detailed appraisal of how the overnight trades went. We build up overnight reports and look at the prices we expected the ADRs to trade at and the prices they actually traded at (this is known as the slippage) and evaluate our performance.

8:30am. I catch up with some of our people in Asia; they share news about what happened there overnight. I also do my own read-through of the overnight news, catch up with our analysts who provide additional market color, and chat with our European team members on Slack. The desk I'm on trades 23 hours a day, five days a week; we trade ADRs during US hours and local listings overnight, so we have to be vigilant about monitoring news during that entire timeframe. We're expanding our global team and expect to have even more colleagues in Asia soon.

9:00am. I have a meeting with the other members of the

trading team. This usually involves my manager, who's the head of the ADR desk, plus two other juniors. We go over what happened yesterday and what strategies we could improve upon. We develop a game plan for the trading day ahead and summarize key macro events that are approaching, plus earnings events and corporate actions that are coming up. This is a brief but important meeting that sets the tone for the day.

9:30am. The markets open. Immediately, I'm in a different mindset and the adrenaline is flowing.

My team and I aren't watching every single ADR that we cover, but we're focused instead on how our system is trading in terms of the liquidity it's providing for investors and the prices it's quoting for the securities. My job is mostly about watching trades take place electronically and recalibrating where necessary. If I see executions that could be improved, I make adjustments.

10:30am. I have a quick chat with the quantitative researchers (QRs). The QRs provide us with the models that calculate the fair value of the securities and, as traders, we're trying to monetize these models. We're always bouncing ideas off of each other.

11:00am. A client comes to me with a request for quote (RFQ). In an RFQ, a client goes to a bunch of market makers and the market maker with the fastest and most competitive quote wins the RFQ. We respond to these throughout the day, and when we win the quote we provide liquidity to the client. A lot of RFQ clients trade in the latter half of the day, which is when it gets pretty busy for me.

11:30am. European markets close and there's usually a lull. We're busy into the European close but then things start to quiet down a bit until the US market gets more active later in the day.

11:45am. I eat lunch around this time. Lunch is provided by the firm, so I usually just go to the kitchen on my floor but I sometimes order Uber Eats or Seamless with my coworkers.

12:15pm. Since US trade flows typically develop throughout the day, it's during the afternoon when we typically start to see some dislocations from our models. The real monetization of ADRs comes from the discrepancy between US liquidity and foreign liquidity, and as US liquidity develops, markets start to move. As this happens, we start building much larger positions and we get much bigger liquidity events.

1:30pm. There's another quick meeting with the quantitative researchers. We have a lot of these throughout the day. We also meet with the technologists who convert the models into code. A few days a week, I attend these meetings. Other days, another member of the trading team does. Usually, just one of us is needed and the others stay focused on working with clients and keeping an eye on the markets.

2:00pm. I'm back to trading and responding to RFQs. This part of the day is fast-paced and exciting.

4:00pm. Markets close. At this point, my colleagues on the trading team and I move into the end-of-day process. This used to be fairly time-consuming, but it's recently been streamlined. At Citadel Securities, we are always looking for ways to improve and make everything we do more efficient. During this process we look at the risks we see developing overnight and discuss what we want to send to Asia and Europe for what we call the "overnight unwind." These are the trades we want to unwind overnight in the US. We come up with a list of names we can send to our traders in the local markets.

5:00pm. At this point, I usually shift to project work. As traders, we have projects focused on determining whether there's a pattern to trades that do well or underperform.

6:30pm. I chat with another QR and we discuss the results of the analysis project I am working on.

7:00pm. I send the list of overnight trades to our traders in Europe and Asia. Our Asian traders don't arrive in the office until 6.30pm to 7pm, and one member of our team stays behind to send the list to them. If it's complicated, we'll call them up and discuss what needs to be done.

7:30pm. I leave the office. I'll often schedule dinner with friends for around 8pm or so. When I get home, I'll watch some TV.

Midnight: I go to bed! I'm trying to get to sleep earlier, but somehow it never happens!

Day in the life
Sophia Mastrell, equity derivatives trading, Goldman Sachs, Paris

Sophia Mastrell is an equity derivatives trader on the convertible bonds desk at Goldman Sachs in Paris. She joined in 2021 after graduating from Copenhagen Business School with a degree in International Business. Sophia participated in the women's trader academy at Goldman, an initiative for young women who are interested in learning more about a career in trading, before completing a summer internship and then joining full time after graduating.

7:15am. I wake up and get out of bed. I'm not a huge morning person, so I don't get up much earlier than this! I still have time to get ready; I head into the office and grab some breakfast on the go.

8:15am. I arrive in the Paris office. We've just moved into a new office with a great view of the Arc De Triomphe and the Eiffel Tower from our rooftop. I get some coffee and I start going through my prices.

I make markets on convertible bonds. These are over the counter (OTC) products, which means they're not traded on an exchange. I send the prices out to clients via the Bloomberg terminal.

8:45am. We have a morning meeting every day before the markets open at 9am. During this time, we usually discuss the trading flow over the past few days and look at any live issues, including what we plan to do with the bonds already on our book. The meetings are an opportunity for salespeople and traders to discuss the coming day. Salespeople are the main point of contact for clients: they pitch trade ideas, and when trades go ahead it's the traders who make the prices, place the trade and manage the risk on the book. The book is our current portfolio of convertible bonds and any hedges.

9am. Markets open and the trading day starts. I communicate a lot with the salespeople as orders come in. We discuss trading flow and share our observations of the market.

Convertible bonds are an interesting product to work with as they have both an embedded call option and a bond component. In order to arrive at a valuation, we therefore need to look at both the credit risk and the factors influencing options pricing.

9:30am. This is one of my most active times of the day. My team covers mostly European clients, and we trade convertibles issued in Europe. Clients are particularly active when the market first opens.

I spend the morning making markets for clients. We get the requests through from sales. I make a bid and an offer to indicate where I would buy and sell a given convertible, and then manage the risk after the trade has taken place.

12pm. I go for lunch. I normally go outside for a walk with a colleague and we look for a nearby café or salad bar. We're right in the centre of Paris, so there are lots of options.

12:45pm. I'm back at the desk and am continuing to make markets. Right now, I mostly trade healthcare and pharmaceutical companies and support my team members who cover the rest of the European convertible bonds universe.

2:30pm. The afternoons can be a bit quieter, so I have time to get on with project work. At the moment I'm working on valuation screeners. I look at valuations across our convertible bonds universe and send out risk reports to the team. In most cases we build the screeners ourselves and work collectively to create supporting models for the credit and volatility components of convertible bonds.

3:30pm. I'm making markets!

5:30pm. Just after markets close, we have another team meeting. Depending upon the day, this will either be with the bigger equity derivatives team or just with the smaller convertible bond trading team.

5:45pm. I'm the junior on the team, so when markets close, I work on some of the trade admin and checking our risk is reflected correctly.

6pm. I do a bit more project work involving fundamental company analysis. My manager has been super supportive of this – I went to the London office for two weeks recently and sat with the team that does fundamental analysis for the credit traders, the Fundamental Strategies Group, to help build my knowledge base. Fundamental analysis means I go through a company's statements and use them to make forecasts. Right now, I mostly look at high yield/ distressed credit companies.

6:30pm. This is when I usually leave the office. My team are very respectful of free time. They don't stay late unnecessarily. Sometimes we have client meetings after work, but if not, I will usually go and see friends or play tennis with colleagues (in summertime). Otherwise, I walk home to the 8th arrondissement and then call my parents or friends, relax and play guitar.

When I started at Goldman I had a choice to live in London or Paris. I chose Paris and have no regrets. Paris is quite small, so it's very easy to explore the city. The architecture here is beautiful and I live very centrally, next to a small park, which I walk through on the way to and from work. And I get to brush up my French!

Capital markets/corporate finance jobs in investment banks

Author: Daniel Davies

- Capital markets jobs are part of the investment banking division (IBD).
- Capital markets bankers help clients raise money through public markets.
- Capital markets bankers usually specialize in equity or debt. They're known as **Equity Capital Markets (ECM)** bankers and **Debt Capital Markets (DCM)** bankers.
- Capital markets jobs are well paid. The highest pay goes to people originating deals and bringing in new clients.
- Entry to the best capital markets teams is highly competitive.
- You need to be good with people and have a strong eye for detail.
- You also need to be prepared to work long hours.

What do capital markets jobs in investment banks involve?

When companies want to make investments and expand, they need to raise money. Sometimes they just take out a bank loan, but if you want to raise a lot of money at the best rates possible – or if your financial needs are a little bit more complicated than the average lending officer can accommodate – then you will go to the global capital markets and sell debt or equity to investors. If you do that, it's the capital markets divisions of an investment bank you'll be talking to.

Investment bankers working in capital markets are also called corporate finance professionals. They provide advice to companies (corporates) on capital raising (financing) and find investors who provide the money. To do this, they act as a kind of go-between. – On one hand they talk to the client-facing advisory bankers to understand corporate clients' (ie. companies') capital raising requirements. On the other, they talk to the sales and trading division of the bank to understand what investors are prepared to buy. As they move between the two, capital markets bankers are responsible for managing the money-raising process, including hiring lawyers, getting the documentation put together and ensuring that everything complies with all of the regulations that cover the act of issuing securities to the public.

As Virginia Draper, graduate recruitment manager at Deutsche Bank says, corporate finance roles can also be split between origination teams who identify new business opportunities for the bank and work with clients to understand their needs, and product teams who, "develop and execute specialist solutions within capital markets or by providing advice they may require."

What's a debt capital markets banker? What's an equity capital markets banker?

Because they depend on investors to be able to deliver the cash to the corporations, capital markets teams are usually split into Debt Capital Markets (DCM) and Equity Capital Markets (ECM), specialising in either bond or equity issuance. The two areas are quite different from each other, because companies tend to issue bonds much more regularly and as an everyday part of their financial management, while equity issuance is a much rarer and more strategic decision.

Banks expect their DCM analysts to be highly numerate, and to have an understanding of the technicalities of company financing. "DCM brings a unique combination of corporate finance (a profound knowledge of how our clients' business operates and how to advise on their financial needs), fixed-income markets exposure, and mastering of complex financial products," says Demetrio Salorio, UK Head of Global Banking and Advisory at Societe Generale Corporate and Investment Banking.

The high-volume nature of debt issuance means DCM bankers must also be able to develop relationships with clients over time and to provide them with relevant market information at regular intervals. Salorio says success depends on having a "strong capacity to develop a relationship based on mutual confidence with the issuer clients".

ECM bankers, on the other hand, need to go out and make deals happen. "A typical day begins by understanding the market complexities for that day and week," says one co-head of EMEA capital markets at a European bank. "We do this by reading newspapers, listening to the research briefings, and participating in team meetings." A good equity capital markets team will anticipate their clients' needs –maybe there's an opportunity to take advantage of good news to issue shares at a higher price. As the opportunities are identified, the team moves into "pitch" mode.

As soon as a pitching process opens up, it's the senior ECM bankers that will hop on a plane (COVID-permitting) and try and sell the investment bank's services to a potential client. This is the origination stage of the deal, but although it's the directors and managing directors who are expected to be the face of the bank, junior employees are engaged in preparing the marketing material required to convince a client to go with a particular bank. If they're successful, the team involved moves on to the execution stage of the deal.

"Origination could include preparing or conducting client pitches. Executing would include drafting or structuring work with clients, lawyers and/or accountants or distribution efforts involving syndicate, sales, and investors," says a senior banker at a boutique investment bank. "**Syndicate**", in this context, refers to a specialist team that sits (in organizational terms, but usually also physically) between the equity capital markets division and the sales and trading floor. If you work in syndicate your job will be liaising with the sales and traders and keeping track of investor interest in the products being

keenan-constance/pexels

"A good capital markets team will anticipate their clients' needs – maybe there's an opportunity to take advantage of good news to issue shares at a higher price."

issued. During a deal, syndicate is responsible for preparing feedback from the market about how well received the offering is going to be.

Equity capital markets jobs are typically divided into three separate areas. Firstly, there will be the **industry group** or sector that you're focused on – such as healthcare, technology media and communications or financial institutions. Then there's the geographical area you're covering and then there's the product type you specialize in.

That's not to say that you'll be focused purely on, say, **initial public offerings (IPOs)**. ECM bankers work in teams are divided by 'common' equity products that includes first issuance, follow-ons, secondary offerings and the like, then convertibles are separated out (and tend to sit in both ECM and debt capital markets teams). There are also teams that focus on more complex derivative products. In some banks, there are teams of bankers who focus solely on private placements.

Debt capital markets (DCM) jobs have a similar split into geographical and sectoral teams, but the financial institutions team DCM team is generally the biggest of the lot. This is because financial clients (eg. banks) themselves account for nearly half of all bond issuance. There are also a number of special types of bonds only issued by banks and insurance companies to meet regulatory requirements and DCM bankers working in this space need to have very detailed knowledge of the ever-changing world of regulation. DCM teams will tend to have more emphasis on private placements, as these are more common in the bond market than in the equity market. DCM bankers will also work closely with experts in interest rate and foreign exchange derivatives, so that clients can borrow efficiently even when the investors want a bond denominated in a currency other than the one which the client wants the proceeds.

As a junior capital markets banker, you'll be doing a lot of spreadsheet work, making financial models of client companies. For a DCM role, you'll need to understand the how credit rating agencies model the impact of new bond issuance on a company's credit rating; you also need to be able to create detailed profiles of interest payments and debt maturities in order to track how a client's financial structure develops. If you have a job in ECM, the modelling is a little less nitty-gritty and more devoted to the creation of **pitchbooks**. Pitchbooks are the great big PowerPoint decks that bankers pore over in order to sell clients on the merits of a new transaction, and to promote their own skills as the best bank to execute it.

When they're not doing pitchbooks, junior bankers are heavily involved in the execution of deals, something which can require a considerable amount of multitasking. During busy periods, particularly in DCM, you might have as many as half a dozen transactions, all at different stages, with a lot of hard deadlines for things to be completed by. One of the key skills for a capital markets banker is to be able to keep track of things and prioritise. At the vice president (VP) and director level, this makes up most of the job, marshalling a small army of analysts and associates to keep everything moving through the pipeline.

In the senior ranks, managing directors (MDs) will tend to be either "originators" – the people who bring the deals in and maintain client relationships – or "structurers", the technical experts who give advice on the right kind of transaction for every client. As your career develops in capital markets, you might find that you are drawn to one side of this divide or the other, although there is some overlap as structurers are intimately involved in the pitching and origination process while originators have to understand the deal structures relevant to their clients at any given moment.

The charts on the next page show the banks that worked on the most ECM and DCM deals in the first six months of 2022. This has been a challenging year for ECM and DCM bankers as deals have been postponed in the light of uncertainty caused by the Ukraine war. As a result,

Global ECM rankings, first half 2022

Rank	Bank	Rev. $m	%Share	H1 2021
1	JPMorgan	331	5.8	3
2	CITIC Securities	270	4.7	12
3	Citi	253	4.4	5
4	Goldman Sachs	248	4.3	1
5	China Securities	246	4.3	27
6	BofA Securities	225	3.9	4
7	Morgan Stanley	223	3.9	2
8	China International Capital Corp	200	3.5	15
9	Guotai Junan Securities	145	2.5	32
10	Huatai Securities	129	2.2	20
	Total	**5,746**	**100.0**	

Global DCM rankings, first half 2022

Rank	Bank	Rev. $m	%Share
1	JPMorgan	1,579	9.1
2	BofA Securities	1,395	8.0
3	Citi	855	4.9
4	Goldman Sachs	840	4.8
5	Barclays	779	4.5
6	Morgan Stanley	671	3.9
7	Wells Fargo Securities	612	3.5
8	Deutsche Bank	537	3.1
9	Credit Suisse	528	3.0
10	BNP Paribas	478	2.8
	Total	**17,385**	**100**

*Includes bonds and loans

Source: Dealogic

'Any tiny mistake in a pitchbook or model will tend to undermine the overall branding.'

league tables – which are usually dominated by big US banks – have been upended and Chinese banks in particular have risen to the top in ECM. This is because deals have continued to happen in China, but have faltered elsewhere

Which skills will you need for a career in capital markets/corporate finance?

Because the corporate finance division sits between advisory bankers in areas like M&A and people working in sales and trading, you'll need some of both skillsets. You'll also need stamina: this is a job in which long hours are constant. If you aren't rushed off your feet with deals to execute, you're expected to fill in the gaps by working on pitches.

Capital markets bankers are famous for their attention to detail. Banks competing for deals try to differentiate themselves by reassuring the client that they will be able to make the transaction go without a hitch, so any tiny mistake in a pitchbook or model undermines the overall branding. Getting a font or colour wrong can be the occasion for long recrimination sessions and angry managing directors, so beware!

Because of the way that the corporate finance division works, people in these jobs also need to be good at teamwork. Demetrio Salorio says leadership and collaboration skills are key in DCM because you need to forge relationships with colleagues across the firm in order "to attract advisory resources from other units of the bank to present the client with ad-hoc, high-quality strategic financing advice". It's the same in equity capital markets (ECM). "Senior capital markets bankers need to have broad internal and external contacts, as well as strong interpersonal skills, marketing capabilities and strong project management skills to balance interests of complex stakeholders," says one of Asia's top ECM bankers.

Finally, if you have a capital markets job you'll also be required to multitask. Even a relatively simple capital markets transaction will call for many different skillsets as it moves through the pipeline, from pitching to modelling to legal and compliance to project management. An ECM or DCM banker is expected to stay with the transaction and to liaise with the clients all through the process, and to retain grace under pressure.

Virginia Andrews at Deutsche sums up the skills you'll need for capital markets jobs as follows:

Ambition: In a profession that attracts high achievers, you'll need plenty of ambition and determination.

Numeracy: Being able to do quick calculations in your head under pressure will give you the edge when you're deciding on a course of action.

Hunger: Although you'll come to specialise in a particular field, you'll need to keep building your knowledge all the way through your career. It's quite the learning curve.

People skills: Some of your time will be spent meeting clients, and you'll need to be able to bring together diverse groups of people and get them to deliver work.

Attention to detail: You'll need to be the first person to spot areas of concern for your clients, and to understand how global events can affect your work.

Salaries and bonuses in corporate finance/capital markets

Capital markets jobs are some of the best paid in investment banks. The eFinancialCareers salary and bonus survey puts entry-level salaries for new graduates in capital markets jobs in London at around £60k, plus a bonus that might be as high as £30k. Three years into a career in capital markets (as a third year analyst), your salary is more likely to be £70k and your bonus £70k on top of that.

In New York, our survey says first year analysts receive salaries of $90k plus a bonus (although many banks are now paying $100k salaries). After three years, you can easily be on $250k or more.

If you stick with jobs in corporate finance, your pay will increase very quickly. Vice presidents (who typically have over five years' experience) are on salaries of $200k or more and bonuses are often the same again.

In the salary pages at the start of this guide, we've grouped capital markets pay together with M&A pay to show pay for the investment banking division (IBD) as a whole. Managing directors in this area of banking make millions. ■

Day in the life
Senior associate, Rothschild, New York

Omotara Solomon is a Senior Associate in the Equity Advisory team at Rothschild & Co. She joined the Rothschild & Co graduate program in 2017, working in the London office before being seconded to New York in 2021. Prior to joining, she completed a Masters Degree in International Management at ESADE Business School in Spain and co-founded a residential property company. This is what an average day in her life looks like.

7:00am. I wake up and start getting ready for the day, often spending some personal time reading or meditating. Thriller and suspense novels are a favourite, especially by Black, female authors.

7:30-8:00am. While I'm getting ready I check any emails that have come in overnight. Our clients are global, so I will respond quickly to any emails where a different time zone means it's late in someone else's day.

9:00am. By nine I am in the office in New York. As a senior associate, a lot of my work revolves around working with clients with the support of my Managing Directors. I have found the senior bankers to be very accessible – from early on, we are given direct exposure to a high deal flow, allowing us to see the bankers' approach to many different situations.

10:00am. I have a weekly morning meeting with the whole Equity Advisory team. We discuss our upcoming meetings for the week, as well as live project updates and notable events that unfolded the week prior. It's really important to be commercially aware, especially in Equity Advisory, as well as have the ability to develop relationships with people at all levels and across the broader Global Advisory division.

10:30am. After the all-team meeting, there is another Equity Advisory meeting for juniors on the team. We'll ask questions and discuss analysis we're working on.

11:00am. Then I'm back to my desk. Generally, 40% of my time is spent communicating (on calls and over email) and the other 60% is spent doing the tasks and analysis that we provide to clients. The morning is more about planning, working out what needs doing and co-ordinating how the day is going to evolve. The afternoons are more focussed on doing my core work and getting deliverables done.

12:00pm. I generally take lunch between twelve and one, but it can depend on when I get a break in my day. I'll have a lunch meeting two or three times a month with a client or other advisers. Otherwise, in New York we get lunch brought in every day. In the London office, there is a staff café, but I always enjoyed picking something up from one of the many places near the office.

1:00pm. In the afternoon I'll mainly be leading certain workstreams within projects where there will often be various advisors such as lawyers and syndicate banks which will have to be coordinated effectively. In addition, I will often work with our analysts in PowerPoint and Excel, sometimes using data providers such as FactSet and Bloomberg to pull and analyse company and market information. At a really simple level, we are analysing data – combined with our knowledge and expertise in the markets – to provide independent solutions to our clients as well as effectively and efficiently assist them through different types of public market processes. I help our analysts in putting analysis into presentations and make sure the key messages are coming across before my Managing Director reviews it. Recently, I helped a company and its shareholders who had completed an IPO analyse potential methods and timing windows to monetise (i.e. sell) the remaining shareholding in the company. So, I was spending time thinking about, analysing and presenting what they could reasonably expect could happen, for example, if their shareholders sold a certain percentage of their stock and when would be the appropriate time to do so.

3:00pm. I will usually have regular project calls for different ongoing projects I'm working on. Now that IPO markets are a bit quieter, we're spending more time in the background, helping clients with Pre-IPO fundraising, early IPO readiness and broader pitching.

4:00pm. When I worked in London, I was part of the Access Project, tutoring GCSE students once a week as they prepared for their exams. The students would come to the office. I'm also part of Rothschild & Co's EMbrace Network for our Black and other Minority ethnic group employees at the firm.

6:00pm. When the day is nearing its end, I'll take stock of what needs to be done short-term and worked on in the evening. I work with several junior analysts, and I'll make sure everyone is clear on what needs doing. I'll also look ahead in the calendar and keep thinking about what needs prioritising over the next few days.

7:00pm. On an average day I'll leave between seven and eight. I have a good work life balance. There are, of course, peaks and troughs in terms of workload, and sometimes a flexible approach is required, particularly when working on complex deals or cross-border transactions with different time zones.

8:00pm. I'll often do a workout class in the evening. I love to cook on the occasions that I can, but I'll also order in food or meet up with friends for dinner in the city whenever possible.

9:00pm. My core workday has already ended, but if anything urgent comes through I'll make sure to respond by email, especially when it's a client or co-worker in a different time zone who won't be working when I get into the New York office the following morning. Generally, it's quick email responses that I might have to do in the evening, not the core analysis and research work that I spend the bulk of my afternoons on.

Day in the life
Carmen Bereincua, debt capital markets syndicate, Citi

Carmen Bereincua graduated from King's College London with a degree in business management. She joined Citi's debt capital markets team after graduating in 2014 and is now based in Madrid, working on the bond syndicate desk.

07:00 GMT (08:00 in Madrid). One of the advantages of being based in Madrid rather than London is that I get to sleep in late. I still work UK hours, and Madrid is an hour ahead, so here I have another hour in bed!

I wake up at 8.00am Madrid time and am out of the door within 15-20 minutes. The office is a seven-minute walk away. I grab a Starbucks and a coffee, get to the second floor and login.

07:30 GMT. I like to have 30 minutes to familiarize myself with what's happened in the markets overnight. I look at how the US closed, how Asia is going and how the client companies on our book are affected.

I work on primary bond deals: we bring bonds to the market. I focus on emerging market bonds; we also have desks that specialize in European corporates, European financials, high yield issuers and sovereign and supranational issuers.

The early morning is when we decide whether the deals that we're working on should go ahead. It's a decision that's very much based on markets, which is why I first need to understand the factors that will influence the go or no-go call. In some cases, I'll talk to our Asian syndicate team to see how their deals went overnight. I'll also buzz our traders on the desk intercom and get some market colour from them. If the market is selling, it's clearly not a good time to announce anything but if the market is quiet, we are more likely to advise issuers to go ahead. It can be a grey area and is partly about judgement.

08:00am. This is when my calls begin. The early morning calls with issuers are when we help them to decide whether to go live with a deal. When we have multiple deals, we might have several of these calls with issuers back-to-back, but this year is a lot quieter than usual.

When we get the green light from the bond issuer to announce a deal on Bloomberg then we will inform our salesforce who will make investors aware that the issuer intends to issue a bond.

In most cases, several different banks are mandated on a single bond issue, and they will each play a different role. Sometimes we will oversee logistics (setting up meetings with investors, most of which are now on Zoom), sometimes we'll be in charge of documentation, or of billing and delivery. Other times we'll be on "screens", which means drafting all the information on the issue that goes out on Bloomberg.

09:00am. What I do next therefore depends upon the role we're taking. When I work on logistics, I spend the next few hours setting out the schedule for the issue and putting the investor presentation together. We need to amass all the information on the health and financials of the issuing company so that investors can make a well-informed decision on whether to invest.

Working in syndicate can seem quite administrative, but there's also an important strategic element. Clients come to us and say they want to raise money through a bond issue and our job is to advise them about how best to go about it. – Depending on market conditions, it might make sense to raise multiple small amounts and to split their funding needs throughout the year. In other circumstances, we advise them to raise as much money as possible now if we think the market will deteriorate later.

11:00am. Once a deal has gone live, it's necessary to build a book of orders and to firm up the price. When a deal is announced, the price isn't fixed. We will announce the intended price of the bonds being issued, but will try to tighten that throughout the day until the price is fixed – usually later in the afternoon.

We tighten the price during our conversations with investors, and a lot of my day involves these calls. I you start with a very high coupon, a lot of investors will be interested and you'll get a massive order book that can't be fulfilled. It's a question of reducing the coupon until you get to an equilibrium. You don't want to cut the coupon too much though, or investors won't be interested in the next bond issue.

12:30pm. I usually have lunch now, which is late in Spain as it's 1:30 CET. I don't have many options for takeaway lunch in Madrid as most people here like to sit down and eat. When we are in live execution mode and are pricing deals it can be difficult to leave the desk even for five minutes. In this case I usually let my boss know and he will cover for me and talk to clients while I go downstairs and get a sandwich.

13:00pm. During a live deal, I have back-to-back calls in the afternoons. The early afternoon is spent continuing to build the book and continuing to tighten the price. When New York opens, we usually get a good idea of the level of demand and might tighten the price further and release a second official price to the market.

14:30pm. By now we usually have all the orders in, and we have an idea of the final price. We take stock of the orders in the book and talk to investors to see if we can tighten any further. We will then talk again to the issuer and present our recommendation for the final price. When this recommendation has been accepted, we will tell the market the final terms of the deal. This is usually done between 2.30pm and 3pm London time.

15:00pm. We now run through the allocations. We may have $500m of bonds to allocate and insufficient bonds to go around. It's therefore necessary to decide how much to allocate to each investor. If we're the B&D (billing and delivery bank) we'll usually do the first draft of this. Then we'll get onto a call with the other banks in the syndicate and will go through the allocations line-by-line.

When we're making the allocations, we consider how the bond will trade. – We want it to trade well and we will therefore allocate it to investors who are long-only (likely to buy and hold) as a priority. We want to incentivize loyal investors. There are strict guidelines in Europe laid out by MiFID, so we are careful to ensure we operate in compliance with all the appropriate regulations. It's a question of justifying each allocation individually.

17:00pm. By 5pm, the allocations are usually finished. We now send the book to the issuer for them to agree the allocations we've made. Some issuers will sign in 20 minutes, but I've also waited for three hours for issuers to agree allocations.

In many cases, there'll be discussion again with the issuer on the allocations and they may ask for changes to be made. Sometimes we'll caution against these changes and advise that an investor will simply sell the next morning if they receive the amount the issuer wants to allocate. Ultimately, though, it's the issuer's decision. The process can take a long time and the B&D bank is in charge of the discussion.

18:00pm. If everything has gone smoothly, I will usually leave the office now. But on a day when there are long discussions with issuers about the allocations I can be in the office until 9pm, or sometimes even 10.30pm if we have multiple live deals. This is unusual though.

On a day that I don't have deals I leave at 7pm CET, or 6pm UK time. I love cardio exercise and when it's not too hot I try to go to the gym for spinning. I'll then go and eat outside at 10pm. I moved to Madrid in 2020 and have a better social life here than in London - there's more going on in the evenings and I spend less time travelling to and from work. ■

What are research jobs in investment banks?

Author: Daniel Davies

- Researchers make predictions about traded securities. These could be either equity or debt (fixed income).
- Researchers understand businesses and economic issues in detail.
- People who succeed in research jobs are good communicators and creative thinkers. They can also write engaging reports.
- Top performers in research often go into other roles in fund management or investment banking.
- Researchers are a resource for the rest of the bank to consult; there are always opportunities to impress senior bankers.

What do research jobs in banking involve?

The research department of an investment bank is not the most glamorous division because the people who work there don't directly generate revenue. Furthermore, it's a bit of an unhappy coincidence that the name of the most junior career title in investment banking ("**analyst**") is also the generic name given to the employees who research and analyse companies. In research you can get "analysts" who are also Managing Directors.

However, banks employ lots of research analysts, and they do it for a reason. A research analyst's job is to understand the reason for the valuation of financial instruments, and a large part of the business of investment banking is to understand what the fair price for something is. This is important if you're buying and selling bonds and equities in the hope of making money from price changes, but research analysts also help capital markets and advisory bankers to understand their clients' business and make better pitches.

In general, research analysts are attached to the sales and trading business line, where they comment on price movements and issue **buy and sell (or overweight/ underweight)** recommendations to investor clients. Because of this, research analysts will usually specialise either in **equities** or in **debt**. Some banks have specialist cross asset research teams working across both, and sometimes there will be a separate economics research team serving both sides of sales and trading, but it is just as common to see both debt and equity divisions employing their own economic researchers focused on the economic implications for their specific markets; researchers of this kind are often referred to as **strategists**.

What do fixed income analysis jobs involve?

Fixed income analysis is a job that deals with all areas of interest rate markets and issuers that connect the central bank to sovereign and corporate borrowers. Moyeen Islam of Barclays describes the fixed income strategist's role as "to translate the economists' view on the likely policy path of the central bank into a market view."

Fixed income analysts tend to have a much greater number of companies to cover than equity research analysts, but unlike equity researchers they don't generally publish earnings forecasts and make fewer trading recommendations. Consequently, their results notes tend to be shorter and they publish fewer updates. Fixed income researchers also need to be aware of the credit ratings of bonds under their coverage, and to anticipate ratings changes.

Like equity analysts, fixed income (also known as **bond research**) teams tend to be split by sector and by geography, although fixed income research departments tend to have larger teams covering financials than any other sector, reflecting the fact that the financial sector itself is the largest issuer. Darren Sharma, who runs teams of fixed income researchers at Frontline Analysts, says that "you're basically running a small, very specialised news service with a particular beat to cover, and a readership of a few dozen – maybe a few hundred – extremely well informed people. Within that little area, you've got to be the Wall Street Journal, the Economist and the BBC World Service".

"You're writing for a few dozen – maybe a few hundred – extremely well-informed people."

What do equity research analysis jobs involve?

Equity research analysts are divided into teams. These will generally be sector-based and follow the same sectoral classifications as the stock market indices – **consumer goods, technology, financials, oil & gas** and so on. Geographically, the teams will be divided according to the investor base, so there are usually Europe/EMEA, North America, Asia and emerging markets analyst teams in every sector, who communicate with one another to establish a reasonably consistent global view. Equity analysts typically cover around ten stocks each, and will be expected to write notes on every set of quarterly results for each of the companies they cover, along with regular **thematic** notes on the industry as a whole and **updates** when they change their view on valuation or their recommendation. They also maintain spreadsheet models of each of their companies, and publish earnings forecasts.

What do deal research jobs involve?

As well as supporting the sales and trading business by making recommendations to clients and warning the trading desk of upcoming events, research analysts have to write "deal research". This happens when the bank is involved in an issue of new securities, arranging by the capital markets team (**Equity Capital Markets or Debt Capital Markets**). Deal research does not contain any investment recommendations: it's meant to give a summary to investors of the key facts relating to the issuer, a set of earnings forecasts and a range of valuations.

jilartsy/pexels

Deal research is also known as **primary research**, supporting primary deals. By comparison, everyday trading recommendations are known as **secondary research** because they refer to securities which have already been issued. Writing primary research is a relatively rare event for equity analysts, as it is associated with IPOs and rights issues. For bond analysts, however, it is the main part of the job, as fixed income securities tend to trade less but require constant new issuance as bonds mature.

“Read voraciously, be curious, try to be early on a big theme.”

Which skills are required for equity and fixed income research jobs?

Research analysts are often looked on as the nerds of the sales and trading department. To do well in equity or debt research, you need to be comfortable with doing a lot of reading of company accounts and economic data and absorbing much more detailed information than in some other investment banking specialities. Your job is to be the expert that others consult.

However, research is also a job in which there’s surprising scope for creativity. The currency analysts work in is **ideas**. The best analysts can take a sideways view and see something that others have missed is what really makes an analyst stand out. Huw van Steenis, who won numerous Institutional Investor awards before moving to a strategy role at UBS, says that analysts need to “Read voraciously, analyse the what-ifs and tails and build a mosaic. There is no one way to develop your edge, but being curious, try to be early on a big theme and insisting on catalysts all help”.

Analysts aren’t confined to the back rooms of the research department. They are expected to make phone calls and presentations to investors and market their ideas and research, and to build relationships with companies in order to understand them and make forecasts. So, although the ability to build an accurate spreadsheet model is important, the ability to communicate and relate to other people is absolutely vital. At the highest levels of the research department, **superstar analysts** and strategists might find themselves spending nearly all of their time out meeting clients and companies, with a team of juniors back in the office to do the background work and come up with the numbers and facts to support their views.

These attributes are general across the research department. However, there are also a few differences between the skills needed of equity and fixed income (debt researchers).

In general, because of the way that the underlying securities work and the risk to the downside, debt analysis has a greater need of skills like precision and attention to detail. By comparison, equity analysts are expected to publish earnings forecasts and price targets, and an equity analyst can sometimes get away with a few minor errors if their big picture understanding of broad trends is really good.

In both equity and debt research, there is often room for analysts to move on to other areas of the banking industry; because you build up a visible track record of successful and unsuccessful recommendations, analysts are often recruited by hedge funds and the **buy side**. Alternatively, analysts who have strong relationships and understanding of the companies they cover will sometimes find themselves gravitating toward roles in corporate finance/ capital markets or M&A advisory.

Salaries and bonuses in research

Research jobs are well paid. The table below shows data from the eFinancialCareers salary and bonus survey for research pay at investment banks in London (given in American dollars). Analysts are the most junior and managing directors are the most senior. In years one to three of a research job you can expect to earn a salary of $74k (£55k) and a bonus of $10k (£7k). However, this rises quickly. Managing directors average $500k and superstar researchers can earn millions. ■

Job title	Average salary ($)	Average bonus ($)	Average total compensation ($)
Managing Director	255,300	247,880	503,180
Director	249,930	152,068	401,998
VP	175,088	37,583	212,670
Associate	122,513	29,655	152,169
Analyst	73,929	10,166	84,095

Jobs in private equity

Author: David Rothnie

- Private equity jobs are some of the most desirable in finance.
- Private equity funds invest in large companies that are not yet listed on public markets.
- Senior private equity professionals are paid salaries, bonuses and carried interest –a proportion of the profits made when an investment is sold. Carried interest can be huge.
- Competition for private equity jobs is intense.

What do private equity jobs involve?

Private equity is a vast industry covering a range of investment firms from global companies like Blackstone and KKR Group to hundreds of smaller players that specialise by geography or sector such as Vitruvian Partners, Sovereign Capital or Bridgepoint. The biggest firms tend to operate beyond just private equity and to invest in asset classes like real estate and credit as well.

Fundamentally, private equity firms, also known as general partners (GPs), raise money or equity from investors, which are known as limited partners (LPs). These limited partners include big pension funds, or the offices of wealthy families or individuals. The private equity firms invest the money they raise in buying private (unlisted) companies. Private equity firms then operate these companies along with the existing management team, known as a management buyout.

How do private equity firms make their money? Having acquired a company, they improve the way it operates before either floating it via the stock market or selling it to another private equity firm or a big corporation. At this point (the exit), they return the limited partners' original investment, plus the additional return they've made, after keeping some of the extra for themselves. This extra is paid to senior staff as carried interest, which receives favorable tax treatment.

Private equity firms also make money by maximising the amount of debt (or leverage) on a deal. Leveraged buy-outs (LBOs) refer to deals where a private equity firm targets mature and stable companies using a little of their own cash (or equity) and a lot of money they've borrowed from other sources, including bank loans.

A good way of understanding how PE firm make money using the right proportion of debt and equity is to compare what they do to what happens when you buy a house. In a market where house prices are rising, the more debt a homeowner can borrow, the greater the return they can make when they sell the house. For example, you may buy a $300k house with $30k equity and $270k debt. If you sell the house for $600k, once you've paid the $270k of debt back to the bank, the remaining $330k of equity is yours. It's the same with PE firms and the companies they buy. The more debt a private equity firm can borrow, the greater the leverage and (in theory), the bigger the return.

However, this only works out when your income meets the monthly mortgage payments. It's the same with private equity: the revenues generated by the business will need to service the debt.

Why do people want to work in private equity?

Private equity (PE) jobs are highly desirable. This is partly because unlike investment bankers you are doing the deals rather than just advising on them. Job security in private equity is also typically much higher than in a bank, and as you become more senior you are paid carried interest – which can be very lucrative.

Working in private equity is all about analysing good business investments, and then beating the competition to acquiring an asset. This might be through direct negotiation with a company that a PE firm has identified as a good target to purchase, or through a formal auction process run by an investment bank that's selling a business to a group of competing buyers.

There are similarities to working in private equity and working in M&A (and this is why junior M&A bankers often move into private equity). However, there's also an important difference. When you're working in the M&A division of a bank, you'll be the advisor, while the private equity firm that's buying a company as an investment will often be your client. As the advisor, you'll provide advice on deals and financing. As the private equity professional, you'll be the one instructing the bank and the person actually doing the deal.

Both jobs can involve an intense workload. But when a deal is live, it's the M&A bankers that pick up most of the slack. "If anyone will be working all weekend, it will be the adviser, not the private equity person," says Gail McManus, chief executive of Private Equity Recruitment. "You're calling the shots and the advisers are doing the delivery."

What are the career paths in private equity?

Historically, most private equity firms like to recruit junior talent from investment banks. This is because banking juniors have completed a two-year training programme and have a good grounding in the fundamental aspects of financial modelling, pricing companies, and mergers and acquisitions (M&A).

It's not easy to get a job in private equity. The vast majority of private equity firms employ less than a hundred people and prefer to hire talent that has already learned the ropes. However, things are slowly changing. As competition between private equity firms for top banking juniors increases (and especially for juniors with diverse backgrounds), some have started training their own graduates in-house. Big funds like Blackstone now run their own training programs but getting a place can be hard in 2020, Blackstone had 25,000 applications for just 100 graduate roles.

For this reason, a first job in an investment bank is still the

andrea-natali/Unsplash

best launchpad for a private equity career. "Graduates wanting a career in private equity must get into an investment bank and get into the right team," says McManus. Working in M&A or leveraged finance secures the best chance of getting on the shortlist for a job in private equity. "If you find yourself in equity or debt capital markets it will be much harder," she adds.

Another way into private equity is by training in transactions services with a Big Four accountancy firm or by doing private equity commercial due diligence in a strategy consultancy.

Moving from analyst to associate to principal in private equity

Once inside a private equity firm, you'll typically start as an analyst or associate. Analysts and associates own the models. That means they'll be able to see the cashflows and analyze what needs to be done to make a business perform better. Owning the models provides an essential grounding for taking more senior roles in PE. From there you will get hands-on deal experience depending on where you work. "If you work for a big global firm which work on the multibillion complex leveraged buyouts, you'll look after a tiny part of a big deal. But if you're working for a mid-market firm with a £1bn fund, then you'll be more involved," says McManus.

Some big U.S. firms expect associates to complete an MBA after a couple of years, but broadly speaking, if you're a good fit then you can forge a very successful career at a single private equity firm.

Associates typically have five years' industry experience and you'll spend another couple of years as a senior associate before making it to director or principal. If you want to make it to managing director or principal, it will take a minimum of 10 to 15 years. Managing directors are the people who originate deals.

Fund investment jobs and venture capital jobs

As well as working as a deal professional in a private equity firm, you can also work for an LP as a fund investor. Here you'll work for a pension fund or the family office of a wealthy individual, and decide where to invest. These roles are a lot less competitive and more suited to people with analytical minds who aren't necessarily extroverts or highly-competitive. LPs are increasingly investing alongside the funds they invest in on big deals. For example in February 2021, Bill Gates' family investment vehicle Cascade Investment, teamed up with private equity firms and pension funds to acquire Signature Aviation, a UK aviation services company.

> "You're the buyer, not the adviser, so if anyone will be working all weekend, it will be the adviser, not the private equity person."

You could also consider a career in **venture capital (VC)**, a growing area of the market. Unlike big LBO houses which seek ownership of already mature large companies, venture capital funds take smaller stakes in companies and help them reach their potential. VCs are big investors in technology where start-ups are looking to disrupt established players across industry groups. They also invest in companies pursuing zero carbon emissions as environment, social and governance factors play a prominent role in investment decisions. To gain entry into a venture capital fund, you'll still need a grounding at an investment bank, but more likely working in a specialist sector team such as technology, media and telecommunications.

Which skills will you need for a career in private equity?

Private equity firms recruit from investment banks, so candidates will already have a basic grounding in finance, reading balance sheets and understanding how companies are valued. Strong analytical skills are essential. But private equity firms are also looking for ultimate all-rounders: people with insightful thinking and the ability to build relationships.

"Private equity professionals need to be confident and persuasive but also hard-edged when it comes to negotiating. They sell with their eyes and mouths and buy with their brains," says McManus. Private equity funds are looking for "Action Man or Action Woman," says McManus. You need to make things happen, to be "ultra-competitive, not let things stand in your way." You need relationship skills as well: "It's all about winning the deal."

Alongside this, you'll need to be interested in how businesses work, rather than simply sitting behind a desk and looking at numbers, although there is an element of that as well.

People work in private equity for the carried interest.

When assessing candidates for a career in private equity, McManus asks the **coffee shop question**. "If you're thinking of buying a coffee shop, what's the first thing you'd do?" If your answer is you'd go and visit your local shop to see if the toilets are clean, how many people there are, how many staff are on a shift and whether they look happy, then a career in private equity is probably for you. If your instinct is to go and find an analyst report on the subject, then you're probably better off working at an investment bank.

If you want to work in private equity, it's important to speak up and have an opinion on a particular deal. Being a private equity professional means being able to argue for or against a particular investment opportunity or sector, so a passion for understanding the inner workings of business is essential.

What's the pay like in private equity?

When it comes to salaries and bonuses, private equity firms usually pay slightly below or on a par with investment banks. Investment banks have recently increased their pay for junior staff, and private equity firms are expected to boost their salaries soon in response.

For analysts and associates in private equity, starting salaries in the UK range from £50k to 55k at the smaller firms to £65 to £85k at the big firms. In the U.S, Apollo Global Management recently set a new record by paying its first year associates salaries plus bonuses of $550k, including a one-off $200k retention bonuses if they stick around for more than three years.

Private equity pay also comes with another big attraction. Once you become reasonably senior – usually at principal level, you'll be paid carried interest or "carry" on top of your salary and your bonus. "Carry" is derived from the profits that are made on the LP's original investment and is typically 20% of the returns (once a predetermined hurdle rate has been met). For example, if an LP invests $1bn and the private equity firm's carry might be $200m, which it then distributes to the deal team. In this way, working in private equity can be very, very lucrative (especially as carried interest is typically taxed as a capital gain). – But carry is only paid when deals are exited, so you'll typically need to wait around five years. ■

Private equity pay by fund size (U.S)

Job title	Less than $500m	$500m to $999m	$1bn to $1.99bn	$2bn to $3.99bn	$4bn to $5.99bn	$6bn to $9.99bn	$10bn to $19.99bn	$20bn to $39.99bn	$40bn or more
Associate/ Senior associate	177	203	211	249	260	284	262	299	336
Vice president	266	304	249	410	409	457	497	510	568
Principal	471	461	500	608	609	752	741	895	873
Partner/ managing director	592	845	885	998	1392	1642	1660	1474	1334
Managing partner	1907	915	2455	2669	3086	null	3300	null	null

Source: Heidrick & Struggles

Day in the life
Senior associate at Blackstone

Adis Asfaw is a Senior Associate at Blackstone Private Equity in New York City. She joined the firm in August 2021 after completing an MBA at Harvard Business School. Prior to that, she was an investment associate at TPG Growth / Satya Capital and an associate on Credit Suisse's M&A team in London. She completed her undergraduate degree at the Wharton School.

7:30am. My morning routine is to listen to podcasts like the Daily or FT as I make a latte and get ready for the day. I check my emails first thing in the morning and anything quick I try to respond to before heading into the office. We're officially back in-person and one of my favorite times of day is my 15-minute walk to the office.

9:00am-9:30am. I typically get to the office around this time, but could be earlier depending on how meetings are scheduled for the day. As a Senior Associate, I'm a generalist and evaluate investments across many different sectors. We usually start specializing from Principal onwards, although we do have flexibility to focus on our particular areas of interest.

My work is very project based. We might be working on our existing portfolio companies, on early-stage analysis (where we assess public or private companies for potential investment), or on a later stage investment (where we are in execution mode and have retained advisors). Often, I'll have several projects running at once.

9:30am. To get organized for the day I usually make a to-do list with the things that need to get done that day and more medium-term items. Throughout the day I will turn to this list to add new things and re-prioritize as needed.

10:00am. I begin reviewing materials on a company we are exploring for potential investment. Typically, we start

by reviewing a management presentation, some operating metrics, and sell-side industry reports.

11:00am. I do an expert call in a niche space within technology we are trying to learn about. Expert calls are a great way to speak with senior professionals in the industry and get up to speed quickly. Following the call, I'll typically share some quick highlights from the meeting with my principal and/or managing director.

12:15pm. We have lunch delivered to the office which is very convenient! If it is a slower day, I will typically join a few others for lunch at the dining booths we have on our floor.

1:00pm. I review a draft of the model and materials for 'office hours' from an associate on another project and share any comments. Office hours here are our early-stage committees where we have a more informal discussion on the merits and risks of moving forward with an investment. We are planning to submit our memo to committee in a few days, so we are aiming to send a draft to our managing director this evening.

2:00pm. I have quick sit-down with an analyst. One of our portfolio companies has updated their management plan and we need to ensure this is incorporated into our internal valuation workstreams.

3:00pm. I turn back to preparing the office hours memo. I am pulling together a draft of the cover text which has high level topics such as the company history, financials, why we are excited about the deal and where we would focus our diligence if we were to proceed.

4:00pm. I do a technical interview for a potential associate on our team. We recruit analysts from undergraduate programs, associates are typically lateral from investment banks and senior associates are from MBA programs. Our interviews are usually split into behavioral, technical and business intuition interviews. Our culture at Blackstone is unique with an emphasis on being nice, intellectually curious and collaborative. I find that investment professionals here get very involved in recruiting because we all really care about maintaining the culture.

5:00pm. I hop on a Zoom call with another deal team to discuss a new case for one of our models. By now, meetings for the day are winding down so I can catch up on some work.

6:00pm. I pull together a high priority list of due diligence items for the company I was reviewing in the morning. I share the list with our team in case anyone wants to add anything else before we share with management.

7:00pm. I'll take a look at the revised financial plan the analyst shared for our portfolio company, and we will hop on a call with the principal to make sure we are all aligned before sharing the case more broadly.

Sometimes I have dinner in the office or depending on deliverables for the night I will make other plans. I've found that these office dinners are a great way to build lifelong friendships early in your career.

7:30pm. I typically try to get a workout in. I'll either use my peloton, a neighborhood yoga studio or now that the weather's nicer go for a run outside.

9:00pm. Depending on the day, I sometimes log back in to wrap up any other deliverables remaining for the day.

Midnight. I try to read before bed. I started a challenge with a friend to read a book from every country over COVID as a way to "travel" and I have found it is a nice way to end the day. ■

Day in the life
Serena, Real Estate Management Associate at Blackstone, London

Serena graduated from Cambridge University with a degree in Land Economy. Having completed an internship in the investment banking division of UBS in her penultimate year, she joined Blackstone's London office as an off-cycle intern in 2018. She became a full-time analyst in 2019 and was promoted to associate in 2021.

7:30am. My alarm goes off and I start my morning routine. I'll check what emails have come in overnight and whether there's anything I need to respond to urgently. I usually run to work with a rucksack of my clothes and shower in the office.

9:15am. I'm at my desk, checking email and seeing what's planned for the day ahead. I'll respond to overnight inbounds and check any relevant real estate news. Generally, that means reading the FT and React News. We often get requests from the acquisitions team to help provide property data for their Investment Committee materials so I'll be speaking with the analyst on the acquisitions team. I'm in the asset management team which looks after properties once they have been acquired by the acquisitions team and is also responsible for the disposal (sale) of any assets.

10:00am. I have a weekly call with our operating company on the ground in the Netherlands. We cover several different topics but start with the development of an office building. We're in the "permitting" phase for an asset, in this case waiting for local government approval having received internal approval on the model and development plan several weeks ago. We also discuss the leasing plan for a unit that will soon become vacant. We cover what brokers we should use to market the asset and what the appropriate rental rates and incentives might be, especially in the current macro environment. We also discuss how this might impact the returns we are forecasting on our investment. We're visiting Amsterdam next week to see how the developments are progressing and have a meeting with the local lawyers and banks so we also discuss the itinerary. Other than offices in the Netherlands, I cover logistics assets in the U.K.

11:00am. My other deal team has an internal meeting where we're discussing our output for the week ahead. This includes working with the company on materials for an upcoming board meeting that they will present to senior employees in the London offices (the New York team often join via zoom and the meeting is sometimes done remotely if the company is based further afield).

12:00am. I'll take 30 minutes to reply to any emails that have come in, sending out some quick responses and flagging anything that needs a more thorough response for later.

12:30pm. Usually, I'll go out and grab something to eat from a nearby café. Depending on the weather, I'll eat outside in Berkeley Square or in the office kitchen. If it's a busy day, I'll eat at my desk.

1:00pm. Twice a quarter we have a division-wide valuations meeting. We present our deals to senior team members in New York and have a Q&A based discussion on the proposed valuations of the assets we manage, this often touches on the macro and market environment.

3:30pm. I'll have a coffee break and maybe catch up with my mentor to discuss how my work is going and longer-term career plans or questions I might have.

4:00pm. I have an "all parties" call with the external lawyers and banks on a live deal. My job involves a lot of interaction with other companies and I'm often on the phone or in communications with high-level players in the industry.

5:00pm. The meetings taper off and I'll get back to my main analysis work. I would say it's 80% in Excel and 20% in PowerPoint. During this time, I'll be working on models but I might also be catching up on emails or sometimes calling the teams responsible for managing the properties to check certain pieces of information.

6:00pm. The office orders food in from a range of restaurants in London. Most juniors eat in the office with colleagues and chat, it's a pretty sociable event.

9:00pm. Usually I'll finish up my work and get a taxi home paid for by the company. How busy I am is driven by deal flow and when work picks up around periods of reporting. ■

Hedge fund jobs

Author: David Rothnie

- Hedge fund jobs can be some of the most lucrative in finance.
- Hedge funds are asset management firms, but with the freedom to follow more creative investment strategies.
- Hedge funds used to be scrappy outsiders but have become far more institutional.
- Large hedge funds are increasingly running their own graduate recruitment schemes.

What do hedge fund jobs involve?

Hedge funds used to be the Wild West of banking but have now become far more institutionalized. They're typically based in different locations to investment banks. In London, Mayfair is hedge fund territory. In the U.S., it's Chicago or Connecticut, or – increasingly – Miami.

Hedge funds invest money for clients. Their clients used to be wealthy individuals, but are now far more likely to include large pension funds too. Unlike so-called "long only" asset management funds (which we cover elsewhere in this guide), which make money by investing in products that are rising in price, the term "hedge fund," comes from the fact that hedge funds try to 'hedge' their bets. – They try to ensure that they can make good returns in any market. This means they seek to make money by investing in things that are falling in price as well as things that are rising.

So, how do hedge funds make money in a falling market? By "short selling."

Short selling, or "going short" involves first borrowing shares (or some other security) and then selling them into the market before buying them back again at some point in the future. When hedge fund goes short, it's betting that the price of the shares will drop before it buys them back again. The profit is the difference between the price it sells the shares at after it borrows them, and the (hopefully) lower price it pays when it buys them back before handing the shares back to organisations it borrowed them from.

By using short selling and other techniques to hedge their investments, hedge funds aim to generate super-charged returns for their investors. Long only funds rarely achieve returns of more than 10% when investing in 'safe' products like European equities, but top performing hedge funds can achieve returns of 47% (sometimes more!) in a short period of time.

> "Hedge funds make money by capitalizing on market inefficiencies, which are always fleeting opportunities."

Given that hedge funds have traditionally charged investors a 2% management fee (2% of the funds they invest) and a 20% performance fee (20% of the profits they earn), this can make working for a successful hedge fund very lucrative indeed. Everything is geared towards chasing "alpha" (returns that are above and beyond the "beta" generated by a rising market), so when you work for a hedge fund you are laser-focused on investment performance.

To some extent, all hedge funds are on the look out for the same thing. – Financial products that are incorrectly priced. "Hedge funds make money by capitalizing on market inefficiencies, which are always fleeting opportunities," says Dominique Mielle, a former partner at Canyon Capital, a hedge fund with $25bn in assets under management, writing in her memoir 'Damsel in Distressed.' Colin Lancaster, at hedge fund Schonfeld Strategic Advisors, who's written a novel on his time in the industry, says the Holy Grail for hedge funds is "finding an imbalance" and then profiting from it.

What are the different types of hedge fund?

While all hedge funds are chasing imbalances, the imbalances you find will depend on the kind of strategy the hedge fund you work for is pursuing. Some of the main hedge fund strategies are:

Long/short: Long/short hedge fund managers go long some of the time. And they go short some of the time. They go long when they expect the price of a product to rise. And they go short when they expect the price of a product to fall.

Global macro: Global macro funds can go either long or short. They invest to benefit from global macroeconomic trends. Lancaster says global macro hedge fund managers look for imbalances between countries in things like economic growth, interest rates and central bank reactions. They then profit from the moves in that country's interest rates, or from moves in its foreign exchange, equity, or credit markets.

Arbitrage: Arbitrage-focused hedge funds seek to make the most of price differentials between related securities products. At their simplest, so-called 'statistical arbitrage' (Stat Arb) funds put stocks into related pairs. If one pair does well and outperforms the other, it will be sold short (in the expectation that its price will then fall again). The underperforming stock will be bought (in the expectation that its price will rise to meet its pair). Arbitrage funds are often quantitative – they use complicated computer programs to determine what to buy and sell.

Event driven: Event driven hedge funds try to profit from one-off events. For example, when one company decides to buy another, it will usually pay more than the current price for the shares and event driven funds will seek to benefit from this.

Jacob Vizek/Unsplash

Systematic/quantitative: Increasingly, hedge funds are "systematic:" they use high speed computer algorithms to unearth market inefficiencies and to place trades in the brief time period when there's money to be made before the inefficiency is discovered by other funds in the market. Systematic hedge funds an operate across different market strategies.

"A widespread misconception about the hedge fund profession is that you must be either a math geek or a sleazy dealmaker to succeed."

Multi-strategy hedge funds: A lot of the biggest hedge funds (like Citadel, Millennium, Balyasny or Point72) are multi-strategy hedge funds: they pursue all the above strategies and more.

Hedge funds also vary by the vast range of products they invest in. For example, there are credit hedge funds (investing in credit), distressed hedge funds (investing in credit which might never be repaid), and emerging markets hedge funds (investing in emerging markets)...

Hedge fund jobs are less sexy than they used to be

To the uninitiated, hedge funds have a reputation for being at the edgier end of financial services but over the last two decades they've become increasingly like banks, and the biggest ones are the global multi-strategy funds.

These top hedge funds have billions and billions under management - much of it from the pension funds and other institutional investors that like nice safe returns instead of risky mavericks. As Mielle points out, the sheer size of hedge funds, combined with new technology (allowing financial statements to be accessible online), regulations (requiring the same disclosure to all investors), and competition, have eroded many of the market inefficiencies that hedge funds formerly thrived upon.

"In the beginning, hedge funds had a rebellious aspect to them, an anti-establishment mentality, and a certain scrappiness. We wanted to do things differently, discover new investing ways. We wanted to be original, innovators, inventors, explorers. It was about thinking creatively, outside the box," writes Mielle. "In the industrialization age, we started mutating into the big, stodgy guys ourselves."

Career paths in hedge funds

If you want to work for a hedge fund, you probably envisage yourself as a trader or portfolio manager. However, like investment banks hedge funds have teams of support staff working in areas like risk, compliance, technology and operations.

Some of the key jobs in hedge funds include:

Hedge fund analysts and researchers: Analysts spend their days poring over the financials of the companies and financial products hedge funds invest in. They help determine the fund's investment strategy.

Hedge fund traders: You might think being a trader in a hedge fund is the most exciting job there is. You may well be wrong. Traders in hedge funds are often 'execution traders'. Execution traders simply push the button, or 'execute' trades. They don't get a chance to devise their own trading strategies, they don't get a chance to take their own positions on the market. What they do get a chance to become experts in is, 'market timing'. Execution traders watch the market closely and know when's the best time to place their trades.

Hedge fund portfolio managers: Portfolio managers are at the top of the hedge fund tree. They listen to what analysts say and decide how to allocate investors' money to achieve the highest returns. They are in charge of the whole investment portfolio (hence the name). Everyone wants to be a portfolio manager. They also make the most money.

Hedge fund sales and marketing professionals: Hedge fund sales and marketing professionals liaise with investors. They help sell the merits of the fund and persuade investors to hand over their money to be invested. Investor relations professionals fall into this category.

Hedge fund quants: Hedge funds also employ quantitative specialists - all the more so if they're pursuing a quantitative strategy. These quants develop complex mathematical equations (algorithms) which tell the fund when to trade in order to make the most money using its chosen strategy. Quants who build algorithms work with quant developers - technologists who translate the algorithm into computer software which can implement the algorithm's strategy.

Hedge fund risk managers and compliance, legal, technology, operations professionals: As hedge funds have become bigger (and more boring), so they have accumulated the sort of support structures only previously seen in investment banks. Hedge funds now have risk management, compliance and operations professionals. These jobs will be similar to banks - except you'll probably have to be more of a 'jack of all trades.' It's normal for compliance and legal roles to be blended in hedge funds, for example.

What skills will you need for a job in a hedge fund?

The good news is that big hedge funds have become more institutional, they've started running their own campus recruitment programs and training graduates of their own. - In the past, they tended only to recruit people who had first trained at an investment bank.

As with investment banking jobs, it helps to start off as an intern. But be warned: winning a place on a hedge fund graduate program or internship is exceptionally tough. Hedge funds hire a lot less people than banks.
The hedge funds that hire graduates and interns include:

Citadel, one of the world's largest hedge funds. Citadel offers full time positions and internships, across trading, quantitative research, operations, and software engineering. Openings are available in in a range of locations, most notably in London, Chicago, New York, Paris, Singapore and Hong Kong.

Point72 Asset Management runs internships and full-time graduate programs at the Point72 Academy. The academy hires students in the U.S., Asia-Pacific, or Europe. The summer internship is an eight-week program offering training by academy staff, coached by investment professionals and mentored by academy graduates. The summer internships provides a 'gateway' to the firm's full-time academy associate program.

Millennium Management offers an internship programme for those looking to work in infrastructure (designing and developing the operating system) and technology, and a full-time research analyst programme for anyone looking to work in its investment teams. Millennium's graduate scheme involves a year embedded within the equity research analyst training programme, after which graduates will return to Millennium as a research analyst on one of its investment teams.

DE Shaw & Co, which is 20% owned by Google's Eric Schmidt, runs a 10-12 week internship programme for undergraduates. Rival quantitative fund **Two Sigma** offers internships across software engineering, quantitative research, business development, strategy, human resources, and its legal teams in New York.

Bluebay Asset Management and **Bridgewater Associates** also offer internships. **AQR Capital Management** runs a 10 week internship for undergraduate, graduate and doctoral students in London and New York. Interns are given a project to work on during the summer and are taught at the fund's Qanta Academy.

Balyasny Asset Management offers graduate programs and internships across investment and trading, technology and engineering, quant, risk and big data and business and operations. Balyasny's internships are eight to 12 weeks long and the fund asks applicants to apply to specific divisions rather than generalist positions.

Which skills will you need for a hedge fund career?

If you want a hedge fund job, you'll typically need to have an excellent academic record and – if you want to be an analyst or a portfolio manager – you'll need to be no stranger to very hard work.

"The game has gotten much harder," says Colin Lancaster. He categories the best people in hedge funds as "exceptional decision markets" who spend hours researching the markets. Mielle says analysts in hedge funds need conviction about their investment ideas – and to be willing to defend them when other analysts or portfolio managers question their validity.

While most hedge funds like people with mathematical and data skills, these aren't enough on their own. "A widespread misconception about the hedge fund profession is that you must be either a math geek or a sleazy dealmaker to succeed," says Mielle. In fact, she says being a successful portfolio manager or analyst is also about being able to communicate complex investment ideas, innovative thinking, generating new ideas and having flashes of intuition that can join up the dots. This might be why Citadel says it looks for candidates with sound judgement, good communication skills and "a whatever it takes attitude," or why Two Sigma says it wants people who are "creative" and have, "intellectually curious minds."

Not all hedge funds demand a specialist degree discipline, but for quantitative positions, applicants will need a degree in a quantitative-related field.

While DE Shaw is known for its recruitment of quantitative PhDs and coding talent, it also hires 'generalist interns' who've graduated in areas like social studies.

Salaries and bonuses in hedge funds

The amount that you earn in a hedge fund will depend upon things like the role you're doing, the size of the fund you're working for (its "assets under management") and the fund's performance – or the performance of your unit within the fund. Most hedge funds skew pay heavily towards bonuses instead of salaries, meaning that pay can vary considerably by role.

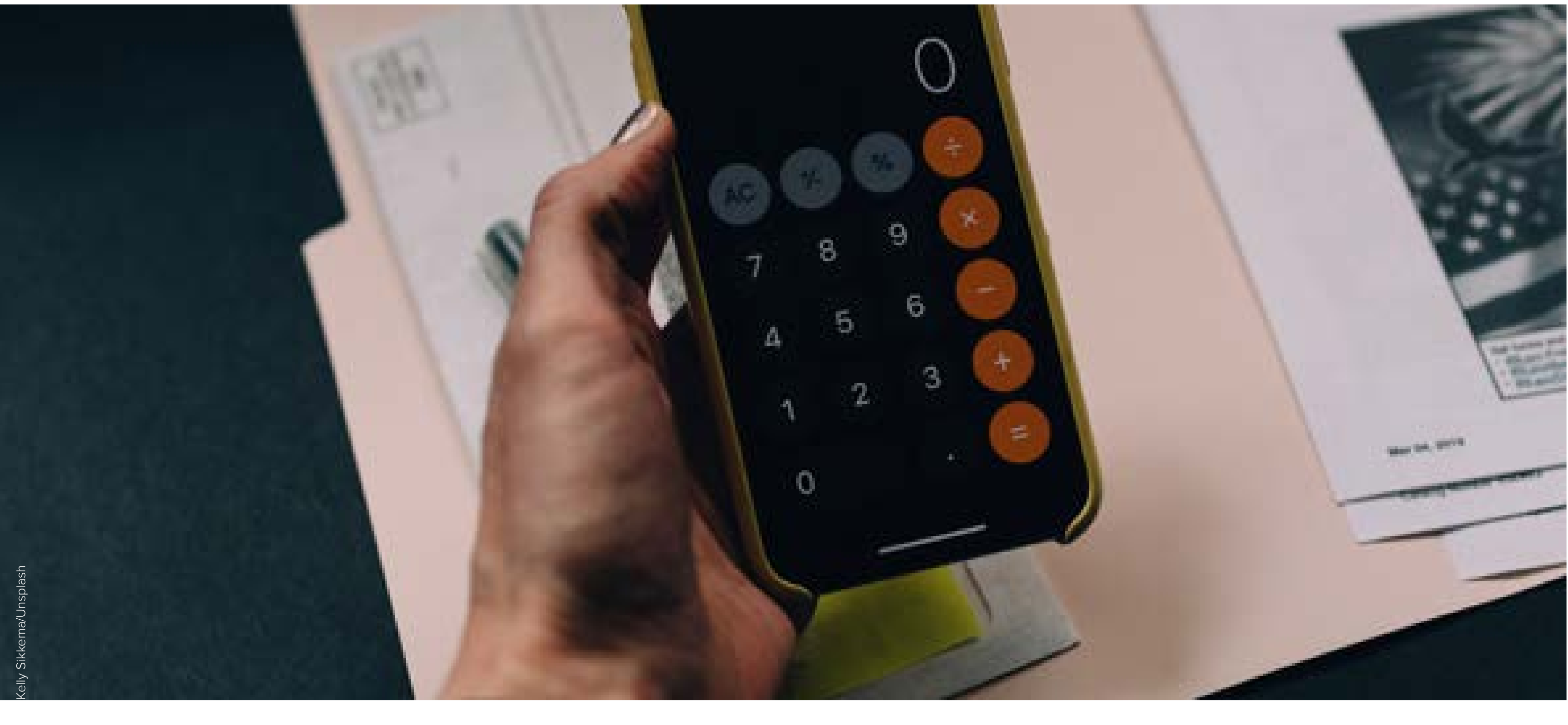
If everything works out, you'll be paid a lot. The eFinancialCareers salary and bonus survey indicates that hedge fund jobs are some of the best paid in the financial services industry. Juniors working in analyst/research roles in London can easily make £200k ($270k) in salary and bonus. Pay is comparable in New York.

Partners are at the top of the pay pile in hedge funds: they get a share of the profits made by the fund in each year. Funds don't divulge how much partners are paid globally but Citadel's London partners received an average of $2.2m each in 2020. ■

Salaries and total compensation in hedge funds

Job title	Average base salary ($)	Average bonus ($)	Average total compensation ($)
Analyst/ Researcher	141,338	283,806	1,472,186
Portfolio Manager	237,931	767,572	633,695
Support Staff	121,200	208,860	340,620
Technologist	191,934	318,428	215,927
Trader	150,341	375,435	107,781

Source: eFinancialCareers



Kelly Sikkema/Unsplash

Day in the life
Pam Chang, analyst,
Citadel Global Equities, Chicago

Pam Chang is an equities analyst at hedge fund firm Citadel, where she covers US and Canadian Banks. She joined Citadel in Chicago in 2017 after working as an associate at an asset management firm in Boston. Pam graduated from Harvard University with a BA in statistics and computer science.

6:30am CT. I wake up and check my phone to go through the news and see what happened overnight in the markets and with the stocks I cover. I also have a quick look at Bloomberg chats and sell-side research to see if I have any communications from my colleagues in our global offices, or whether any new viewpoints on my stocks have emerged while I was sleeping.

7:30am. I'm usually in the office. I live downtown and am about a 15-minute subway ride away. When I arrive, I continue running through any new information on the companies I cover. I'm looking for things like corporate announcements or news of mergers and acquisitions. This can be the best and worst time of my work day – best because you never know what the market will throw at you, and it can be very exciting to interpret implications from news of the day or macro themes. I say it's the worst because sometimes you have to rip up your daily schedule and reprioritize depending on what's taking place.

As a small and mid-cap financials analyst who mostly covers banks in the US and Canada, I am deep in the weeds in roughly 40 different stocks and provide back-up coverage on another 20. I have quite a sizable number of shares to follow, but after five years I know the stocks in my universe very well.

7:45am. We have our morning meeting with the whole financials team. The financials trader will give us some color on how the stocks are trading, and on some days of the week our macro economist attends too and give us

some extra color on the broader economic situation.
8.30am. The market opens in Chicago and I monitor how shares react to any news. I have become disciplined to not stare at my monitor watching shares trade or our team P&L. Instead, I start working on my investment ideas. As an analyst for a hedge fund my primary responsibility is providing investment ideas for our portfolio. I am our internal specialist on the stocks in my sector and my role entails generating ideas for financials investments. This means I need to be aware of all the research that's issued and of discussions with company management. I synthesize this to create actionable ideas for our portfolio managers (PMs).

Generally, my mornings are focused on research activity around the trades we want to get in.

9:30am. I have a call with the PM and another analyst on the team. We have a three-way chat and bounce ideas off each other. Our collaborative approach is helpful for understanding industry dynamics and learning from my team. The way we work is distinct from the way equity analysts typically work in banks. Here, it's ongoing research and interaction rather than about the production of a discrete piece of writing. Most of the time, my role is to bring these investment ideas proactively. Sometimes the PM will come to us with some of his own thematic ideas – he might be worried about big themes like credit or funding, and I will look at the impact on individual stocks and then present back to him.

10.30am. On some mornings we have special calls hosted by banks on the mortgage sector or the rates outlook. I also get a lot of calls about research notes that have been published by analysts at banks in the mornings – it can be good to chat to sell-side analysts about their thoughts.

11am. I'm a bit of an early bird luncher. We have a cafeteria on every floor and the pantry opens at 11, so I tend to go right then. They serve different food every day, so it's easy to have a balanced diet.

12pm. Once a week at noon we have a cross-team financials call. All the other teams in Global Equities get together on a Zoom meeting over lunch (they are still eating theirs!) for a big picture review of what's going on across the market. Citadel puts a big emphasis on collaboration and there can be a lot of interconnectivity between subsectors – real estate has a lot of overlap with banks, for example, so these meetings are always interesting.

1pm. I spend a few hours working through some ideas and update our models.

3pm. I prepare for a meeting with the management team at one of the banks I cover later in the week. This is an important aspect of my job. I have the primary responsibility for building the relationship with these teams. I'll often meet them in person at industry events, but sometimes we arrange specific catch-ups. I know most of the management teams well – we've been working together for several years and it's one of the interpersonal aspects of the job that I really enjoy. Most quarters I will travel for a few weeks to meet people face to face.

4pm. On some afternoons I am active in interviewing associates. I started here as an associate myself, and I am often asked to interview more junior candidates. The PM likes to have input from across the team.

5pm. I work on my investment ideas. I put a concise thesis together on my conclusions and send it to the PM. Aligning different data points into an actionable investment thesis is one of my favorite parts of my current role, and my goal is to become a PM at Citadel. In that position, the focus is more about team building and overall portfolio risk and portfolio construction. Over half of PM's in Global Equities have been Analysts at Citadel, including my PM.

6pm. I usually try to stop working around this time and go to the gym for an hour or so. There's a gym in my building, but recently it's been pretty nice outside, so I go for a run.

Sometimes in the evenings we have events and engagements. For example, this week we have a financials team from New York coming to Chicago and they've scheduled a dinner with me and some peers from other funds. It's work – we talk about markets and the industry – but it's pretty informal. We also can have Citadel team-building events, either within Global Equities or for the Chicago office.

7pm. I usually try to allocate some personal time for myself in the evenings. I decompress and make dinner with my partner. Usually I log on to work again for another hour or so just to tie up any loose ends from the day and review my schedule for tomorrow. It makes the following morning a little less busy.

10.30pm. I try to go to bed at 10.30pm every night. Usually it's more like 11pm because I've been reading or staying up. It's become a bit of a bad habit! ■

Asset management jobs

Authors: Sarah Butcher and David Rothnie

- Asset management firms manage money for pension investors around the world. – They enable people to retire.
- Most people want to become a "portfolio manager" and manage a pool of funds on behalf of clients.
- You don't necessarily need to be highly mathematical for these roles – unless you work for a "quant fund." You do need investment ideas and opinions on the market.

What do asset management jobs in banking and finance involve?

Large asset management firms are the backbone of the financial services industry. Part of the "buy-side," they manage huge sums of money on behalf of their clients, which include large pension funds, sovereign wealth funds and retail investors. Asset management firms aim to increase the value of clients' investments over time, and they receive a fee for their services. Unlike hedge funds, which "hedge" investments and try to make money even when markets fall, asset management firms typically "go long" – they invest in products in the hope that their prices will rise. For this reason, they are also known as "long only investors." They can also be called "institutional asset managers" – they manage money for institutions.

The scale of the asset management industry is huge. Figures from the OECD show that retirement savings in pension funds, pension insurance contracts and in other vehicles were $35 trillion at the end of 2020 (the most recent year for which figures are available). The biggest pools of retirement funds are located in Canada and the United States, the Netherlands, Switzerland and the

United Kingdom, and in Australia and Japan.

If you work in asset management (AKA fund management), you'll be helping to manage these enormous pools of money and helping today's working population save for the future. Increasingly, you'll also be helping to invest to mitigate climate change and build a better world: environmental, social and governance (ESG) issues are increasingly important when funds decide where to invest.

The experience you have will depend on the kind of fund you work for.

Broadly speaking, there are two basic kinds of fund within the asset management industry:

Passive: Also called 'index-trackers', passive funds mirror the performance of large financial indices like the S&P 500 or the FTSE 100. The money going into an index tracker is put into stocks or bonds in the same proportion as the in the relevant index. The advantage for investors is that the fees are low, the risks of human error are minimal and turnover in the portfolio is also lower.
As well as passive mutual funds run by huge institutional investors like Vanguard, exchange-traded funds (ETFs) are a good example of passive investment. They track an index, or a 'basket' of assets, but are also a tradable security, so their value goes up and down like a stock on a stock exchange.

Active: This is where human skill and experience comes into the fund management industry. A team of portfolio managers, analysts and researchers use their expertise and a plethora of research, quantitative analysis, forecasts and judgement to make a decision on what assets to invest in with the aim of beating the market.

A fund is judged on how far above or below it is on a particular index – in equity markets this could be, say, the Dow Jones Industrial average, but funds also compete in bond markets and a host of other asset classes. It can be hard to beat the index, but this is the measure of a good portfolio manager.

Active vs passive management is only one great divide in the fund management industry. Another is top down versus bottom up investment. Top down investors are concerned with a big picture view of a particular sector, asset class or geography first, before delving into the finer financial details. Bottom up investors are more interested in the financials of a particular company than broad macro themes. This assumes that gems can be found even in industries that are generally not doing well.

Many funds today use quantitative methods to analyze markets and determine where to invest their money, and therefore rely less on humans to make decisions. These are the so-called "quant funds.

> Portfolio managers, or "fund managers" are the kings and queens of the asset management world.

Career paths in asset management

When people think of asset management, they think of portfolio managers. Portfolio managers, or "fund managers" are the kings and queens of the asset management world. They run funds on behalf of their clients based on a range of investment experience and expertise. However, you won't be a portfolio manager from the outset. This is the pinnacle of an investment career, and you'll need to work your way up.

These are the jobs you can do in the asset management industry:

Investment jobs: This is where you find the portfolio managers who run the investment strategies. They tend to specialise in one asset class, whether that's equities, fixed income or property and manage the day-to-day investment decisions across the funds they look after.
In big fund management firm there are tens of money managers with various areas of expertise including multi-asset funds, which decide on which 'blend' of financial investments to include in a portfolio. However, portfolio managers don't work in isolation.

Supporting the portfolio managers are teams of buy-side research analysts. Their role is all about generating investment ideas for portfolio management teams to act upon.

“It doesn’t matter what you studied at university.”

Research analysts spend their days poring through company reports and industry insights in order to gain in-depth knowledge about particular sectors or asset classes, which will give the portfolio management team an edge over the competition.

Distribution: While investment teams deal with the money management side of the business, distribution teams are all about bringing client money into the fund.

Sales, or business development professionals deal with large institutional investors, find out what their investment needs are and try to recommend the products of their employer. Sales professionals also spend a lot of time developing and maintaining relationships with clients in an attempt to increase loyalty. One of the biggest challenge any fund manager faces is maintaining assets under management, particularly if performance dips.

Traders in asset management firms execute (place) the trades required to maintain the portfolio as required by the portfolio managers. Working as a trader in asset management is about market timing and breaking large trades into manageable chunks. Algorithms are increasingly used to do this instead of human beings.

Product development/management roles ensure that a fund manager is present in all the markets and asset classes it should be, has the right funds available to investors in the right markets and that there are no obvious gaps. Product developers also work with the risk and compliance teams to ensure any new products will keep regulators happy, that a fund’s pricing structure is correct and that a firm isn’t falling behind competitors in any areas.

Marketing professionals make sure that the right messages about the products reach potential and existing clients. Marketing professionals today spend less time wining and dining clients and more ensuring that the fund manager is well-represented online and on social media. Business operations: Fund managers employ risk and compliance professionals, investment operations professionals performing back office functions as well as IT, HR and accounting positions. If you’re a graduate starting out in fund management and you’re on the portfolio management track, you’ll start out as an analyst.

Analysts in fund management learn the trade. They study the financial results of companies, consume huge amounts of information and news on the companies and sectors they cover, and – when they’re good enough - make investment recommendations.

Some people choose to remain as analysts throughout their careers. Others move across to becoming a junior portfolio manager and eventually work your way up to a portfolio management position.

Which skills will you need for a career in asset management?

Working as a portfolio manager at an asset management firm is a specialist role, but you can get into the industry with a generalist degree. Some regard asset management more as an art than a science, and humanities subjects can often be just as good a way of acquiring critical thinking skills.

Graduates don’t necessarily need a degree in mathematics, economics or computer science to get a job in asset management. They do need to show critical thinking, and a genuine deep curiosity about how companies work and what drives human behavior.

During your formative years, it’s likely that you’ll be studying for your chartered financial analyst (CFA) designation. This is an industry standard.

“It’s important for graduates to understand it’s not all about numbers! Many investors and employees today want a three-dimensional view of their investments, one of risk, return, and impact.,” said Margaret Franklin, CFA, president and CEO of CFA Institute.

Asset managers have historically recruited from the same elite band of schools as investment banks. In the U.S., the University of Pennsylvania, Harvard, Columbia, University of Chicago and New York University are usually the top five schools for fund management employees, while in the U.K. Oxford, Cambridge and the London School of Economics typically dominate. However, like much of the finance industry, asset management firms are trying to diversity their intakes – and this means recruiting from a broader range of schools than in the past.

Alex Torrens, investment manager and co-head of research, at Walter Scott & Partners, an equity portfolio management firm, says: “With a team-based approach, it is critical that the team functions effectively, and that demands diversity. For that reason, we don’t rule anyone in, or out, based on the subject studied or the university. Instead, we look for people who are inquisitive and curious in nature, and who have a strong interest in how businesses work.”

Torrens says asset managers value cognitive diversity. “Our job is to seek to invest in some of the best companies around the world, companies that will lead their markets over the next 10 or 20 years. In analyzing companies and making those decisions, it doesn’t matter what subject you studied at university, but you do need to have a passion for finding and understanding those companies.”

Good people skills are important. For example, if you work in a distribution role you need to be able to build relationships with investors. Communication skills are needed too: portfolio managers need to be able to understand a client’s needs, and to explain their investment decisions.

“Employers today are looking for a broader range of skills from their staff in order to deliver for their clients,” says Franklin. “While technical skills will always a play a role in an employee’s ability to perform a financial role, the growth of soft skills and T-shaped skills – such as the ability to make connections and foster lateral thinking – will be increasingly important.”

Asset managers must also be aware of a whole range of factors that drive growth and performance, particularly big trends such as environmental, social and governance (ESG) factors. “Employees also must be educated and prepared to respond to client’s investing objectives, this includes considerations like ESG analysis to underline the impact of their investments,” Franklin adds.

Salaries and bonuses in asset management

Asset management jobs can be very well paid. The eFinancialCareers salary and bonus survey suggests that you’ll earn the most money as either a portfolio manager or a trader. On average, analysts and researchers earn the least, but this is simply because they are often more junior than the rest.

Our data suggests that entry level roles in asset management pay salaries of between £45k to £60k ($61k to $80k), plus (within a few years) bonuses of anything from £5k to £50k. The amount you’re paid will depend upon the size of the fund you work for, and its performance. ■

Job title	Average salary ($)	Average bonus ($)	Average total compensation ($)
Trader	141,701	114,063	255,764
Portfolio Manager	157,015	80,821	237,836
Support Staff	120,355	64,171	184,526
Analyst/ Researcher	111,818	55,378	167,196
Technologist	131,080	35,327	166,408

Source: eFinancialCareers

Day in the life
Aneta McCoy, global voting policy lead, State Street

Aneta McCoy is an assistant vice president in the EMEA asset stewardship team at State Street Global Advisors in Poland. As global voting policy lead, Aneta engages directly with the companies that State Street invests in – often at board level – about their corporate strategies, and determines whether voting proposals put forward at shareholder meetings are in line with State Street's own policies, which she helps to set. Much of her job has an environmental, social and governance (ESG) focus, for example discussing a company's climate transition plan or its approach to plastic waste, human capital management, executive remuneration, or board diversity.

6:30am. I get up, and if it's good weather I go walking in a big national park next to my house. I come back, make breakfast and take my son to school. But if it's proxy season – from about April to June – I start work early to prepare for voting at various company shareholder meetings. I set time aside to review the voting proposals again ahead of voting deadlines.

8:30am. I check emails. My team gets lots of engagement requests from our portfolio companies and we have to keep track of them to maintain strong relationships.

9:30am. In proxy season, I spend much of the morning voting. I log into my voting platform, look at my voting queue for the day, and keep an eye on it because new shareholder meetings can be added during the day. For high-profile companies, I review the agenda of a shareholder meeting one or two weeks in advance to determine if there's a reason to engage with them before voting.

I also look through materials for shareholder meetings to identify contentious resolutions – for example, around executive remuneration – and evaluate how to vote. Proposals to approve climate transition plans have also recently become more common, and we pay particular

attention to them.

12:00pm. I prepare for engagement meetings with portfolio companies. I usually have at least one or two, lasting for about 45 minutes to an hour each. These are with senior people, and they might ask me what State Street's policy is in a particular area, so I have to come very well prepared. If you're talking to a chief executive about ESG, you need to walk the talk.

1:00pm. I have an engagement with a board member, legal counsel, corporate secretary, or CEO. If it's proxy season, it probably relates to the voting agenda. In the off-season, I do more general meetings on topics like board accountability, CEO succession planning, the company's ESG strategy, or its lobbying on something climate related. For example, I recently spoke with the chairman of a major multinational about his firm's sustainability initiatives.

This is the highlight of my day – I ask questions and then inhale in the information because I'm often speaking to someone who's been in the industry for 30-plus years and they have a lot to say, not just about their company, but about the wider ESG arena.

1:45pm. We record all engagements, and during the engagement I also take notes, which I then load onto our platform, so other analysts can get up to speed quickly when they talk to the same company. Sometimes we work with a company to encourage a positive change in an ESG context over several years, so good record keeping is vital.

2:00pm. I eat lunch at my desk. I don't take much of a break, and I also use this time to read the news – the Financial Times, Wall Street Journal, Guardian – because I need to know about what's impacting the corporate world. If there's been negative press about a portfolio company, I need to react swiftly. But it could be a more general development – for example, news around the European Green Deal or what the SEC is doing about disclosure on climate change. I also look for interesting research reports on, say, board diversity or deforestation.

2:30pm. I have a team meeting about three times a week with EMEA, APAC and North America. We set up the day for the Boston office, summarise the day for APAC, and discuss the more contentious voting proposals and engagements. It's important to inform the team of what's happening, so if somebody else encounters a similar issue, they approach it or vote on it the same way. I lead our policy process globally, so I might also take calls at other times from team members asking me what our policy is on something. I get pulled in many interesting directions.

3:00pm. I usually concentrate on policy research work. State Street puts out a lot of thought leadership on ESG and other topics. I'm currently working on two pieces – one about plastic waste and one about 'just transition', how companies can help local communities and other stakeholders as they adapt their businesses to mitigate the impact of climate change. My research might include speaking to an NGO. Everything we vote on is based on our policies, and it's a very rigid process, which I lead. Our policies are reviewed annually, but it's an ongoing process, so when I hear something new in the market, I'll see if our policy on it needs improving.

A lot of my afternoon is spent on policy, especially in the off-season, although I still do some in proxy season. But my work is unpredictable, so I need to be flexible – for example I might jump on an urgent engagement or there might be afternoon voting.

5:00pm. I pick up my five-year-old before his preschool closes, and sometimes I spend time with him in the playground or fit in some shopping.

6:30pm. I log in again to check emails and ensure there are no last-minute issues.

7:00pm. I enjoy spending my evening with my husband and son. In summer, after dinner, we might play badminton or go cycling. At 8.30pm I start putting my son to bed – this ends in us reading books together. It's a busy day, both professionally and personally, but very interesting too – lots of variety!

Quantitative careers in finance

Author: Paul Bilokon

- Quant finance jobs combine mathematical and engineering skills
- Quants in finance look for mathematical relationships between underlying assets, or create derivatives based on those assets
- Quants in finance also (increasingly) work in areas like risk
- You make the most money in quant finance when you're closely associated with the profit and loss made by traders or portfolio managers.

What do quantitative finance jobs involve?

If you want to understand quantitative finance as a discipline, you should look at the winners of the Nobel Prize for Economics.

For much of the last century, financial decision making was based on heuristic principals, but in 1990 the prize went to Harry M. Markowitz, Merton H. Miller, and William F. Sharpe, in recognition of their mathematical approach to the study of financial markets and investment decision-making. In 1997, the award went to Robert C. Merton and Myron S. Scholes for their method for determining the value of stock options and other derivatives.

The 1990 award helped establish the so-called P-measure subfield, which was primarily concerned with the behaviour of the underlying assets – stocks, bonds, currencies, etc. The 1997 award formalized the creation of the Q-measure subfield, concerned with derivatives on those assets, such as options.

Quantitative finance (or quant finance) was born. It's been evolving ever since.
Quantitative finance is a broad church. Before the financial crisis of 2007-2008, the most lucrative jobs in quantitative finance were found in the creation of the ever-more complex derivative products. Since the crisis, the emphasis has shifted to risk and complexity management, regulation, and robustness.

Today, quantitative finance is a catch-all term that covers numerous different subfields. If you have a quantitative finance job, you might be working in any of the following areas:

Computational Finance: Computational methods, including Monte Carlo, PDE, lattice, and other numerical methods with applications to financial modelling.

Economics: Including micro- and macroeconomics, international economics, theory of the firm, labour economics, and other economic topics outside finance.

General Finance: The development of general quantitative methodologies with applications in finance.

Mathematical Finance. Mathematical and analytical methods of finance, including stochastic, probabilistic, and functional analysis, algebraic, geometric, and other methods.

Portfolio Management: Selecting and optimizing securities, capital allocation, investment strategies, and performance measurement.

Pricing of Securities: The valuation and hedging of financial securities, their derivatives, and structured products.

Risk Management: The measurement and management of financial risks in trading, banking, insurance, corporate and other applications.

Statistical Finance: Statistical, econometric analysis with applications to financial markets and economic data.

Trading and Market Microstructure: Looking at market microstructure, liquidity, exchange, and auction design, automated trading, agent-based modelling and market-making.

As a quant, these are some of the specific jobs you could do:

Quant jobs creating derivative pricing models

Derivatives trading, especially exotic derivatives trading, exploded in the run up to the global financial crisis (GFC) and, after a few years of uncertainty that ensued, has started to grow again. According to the WFE Derivatives Report 2020, over the last ten years, global derivatives trading volumes have increased by 40.4%, largely driven by an increase in equity derivatives trading in the last three years.

Whereas before the GFC the emphasis was on increasing complexity, e.g., the creation of exotic derivatives, after the GFC the focus has shifted to taming complexity and increasing the realism and robustness of pricing models. (See https://sites.google.com/site/roughvol/home/risks-1 for a list of articles on this subject).

The quants who work on **derivatives pricing models** are referred to as derivatives pricing quants or simply **pricing quants**. They may also be called **Q-measure quants** because they work under the risk neutral (Q) measure.

Quant jobs applying existing derivative pricing models

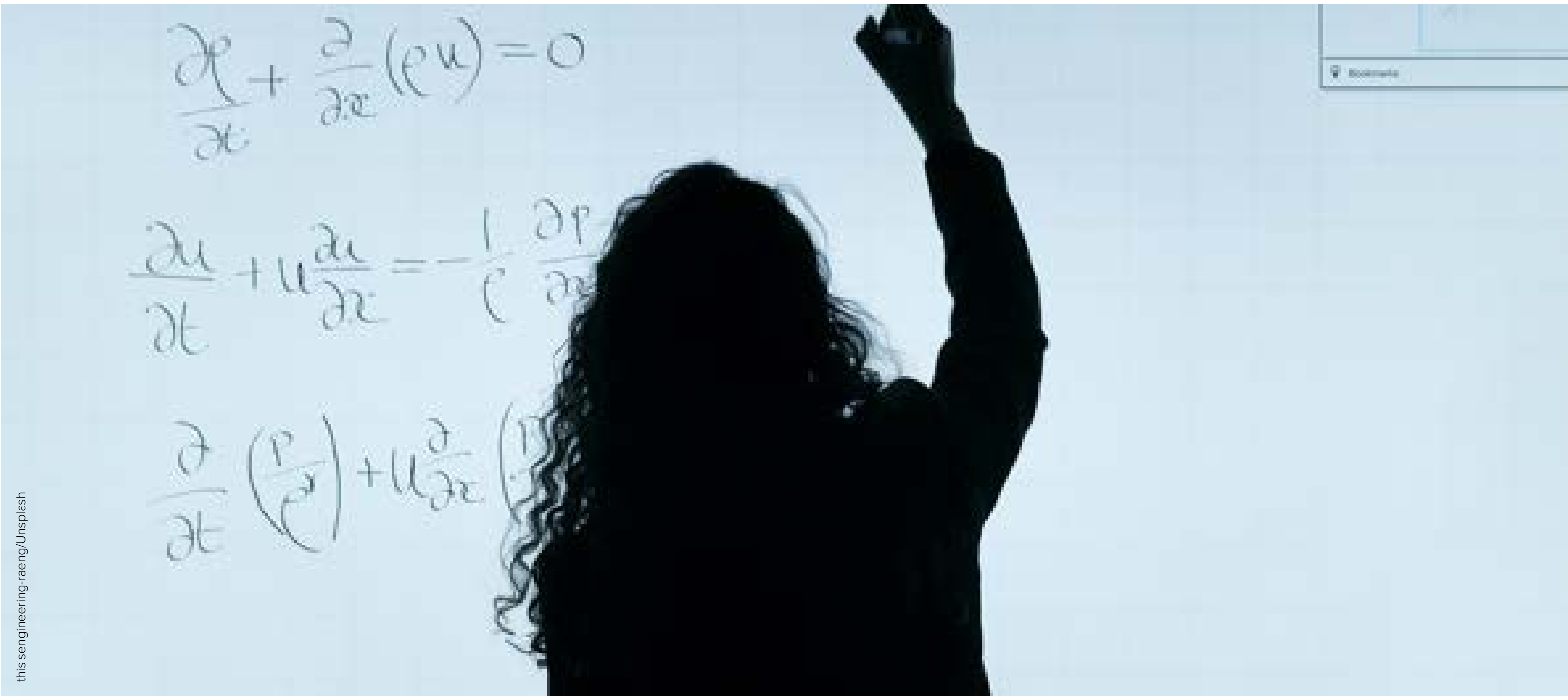
Not all Q-measure quants have the opportunity to contribute new derivatives pricing models. Risk aversion also dictates that instead of developing something new, one should go for the tried and tested solutions. Therefore, most quants simply implement and customize models that have been created by someone else.

This doesn't mean there's no room for innovation. You can engineer custom solutions around existing models. This is why the term **financial engineering** is often used in preference to **quantitative finance** to describe this kind of work. Financial services firms are prepared to pay handsomely for both these activities.

Quant jobs creating new products

Financial engineering and, more broadly, **financial innovation** often take the form of the creation of new financial products. Even though there is a large array of classical exotics (digital options, barrier options, look-back options, Asian options, options on baskets, forward-start options, compound options, etc.)..., there is still scope for new ideas and occasionally we see some radically new and useful products.

Nowadays though, instead of creating new exotic products, financial services firms often manufacture the so-called **structured products**. These are pre-packaged financial products for facilitating customized risk-return objectives



thisisengineering-raeng/Unsplash

based on the returns from certain investible assets. Structured products can offer the exposure for specific market views and desired risk profiles under the constraints of financial budgets and legal frameworks for investment.

The experts that work on structured products are usually referred to as structurers rather than quants, although the work of a quant and that of a structurer has a significant overlap.

Quant jobs creating trading strategies

Whereas the pricing of derivatives usually takes places under the risk-neutral (Q) measure, the design and development of trading strategies is a P-measure activity. This is why those who engage in it are usually called **P-measure quants**. Their skillset is often different from that of derivatives pricers: derivatives pricing relies on applied mathematics, such as the solution of partial differential equations and stochastic analysis, whereas P-measure work relies on different kinds of mathematics – such as those described in the book **The Elements of Statistical Learning** (statistics and, increasingly, machine learning).

On the surface, statistics appears easier than applied mathematics. It doesn't involve such deeply nested formalisms (e.g. one doesn't rely as much on measure theory in statistical work). However, the successful application of statistical methods to derive trading strategies with high Sharpe ratios is a highly challenging endeavour.

P-measure quants vary dramatically in outlook and skillsets. There are a few successful quants that have developed (or adopted) one or two profitable trading strategies and have built their careers around them. However, this is rare, since individual strategies are subject to alpha decay and what works today may fail to work tomorrow. Therefore, many quants invest their time and efforts in the development of sufficiently general methodologies and frameworks (be it scientific or software) that enable them to quickly generate new trading strategies and adapt the existing ones. Many trading firms have taken this activity to an industrial level; they constitute "factories" for the mass production of trading strategies. Others provide services to these trading firms, e.g. in the form of software, connectivity, data, etc.

Much of the time of a P-measure quant is spent on **backtesting** trading strategies and ideas (testing predictive models on historical data).

When you're creating trading strategies, the nature of your job as a quant varies dramatically by trading frequency / holding period and asset class. Quants working for high-frequency trading firms, for example, build their strategies on tick data which arrives every millisecond, microsecond, or nanosecond, whereas quants working for longer-term asset managers (more on them later) look at hourly or daily returns.

> Applying statistical methods to derive trading strategies with high Sharpe ratios is a highly challenging endeavor."

Quant jobs validating existing pricing models and trading strategies

Since the financial crisis, pricing models and strategies have been subjected to increasing scrutiny. Trading disasters, such as the 2012 Knight Capital stock trading disruption and the flash crashes, which happen every couple of years in different asset classes, have also contributed to the regulatory attention. Regulatory frameworks, such as MiFID II in Europe, require that the nature of the trading strategies be disclosed to the regulators and stipulate requirements for an audit trail.
Regulatory attention alone is not the only reason why pricing models and trading strategies should be carefully validated. Trading firms themselves are naturally interested in their validation. Trading strategies and, especially, derivatives pricing models are often very complex and nontrivial. Experts other than their creators (and not subject to the same conflicts of interests) are therefore requested to validate them.

This need has given rise to a different quant speciality – **model validation quants**.

On the one hand model validation quant jobs are less "glamorous" than that of the originators of new models and strategies. They suit the more detail-oriented people who don't like to work under the pressures of the front office. Model validators work to less stringent deadlines and they have the opportunity to thoroughly test the ideas of others (and learn from them). As a by-product of their activities, they are often responsible for writing the documentation.

Quant jobs on the trading floor

The closer you are to the profit and loss (pnl) made from trading, the more money you'll typically be paid as a quant. Most quants don't own the pnl. Instead, the trading (short-term) and investment (long-term) decisions are made by others – traders and asset managers.

However, the boundary between the two roles can be quite blurry. For example, in algorithmic trading businesses the quants are responsible for developing the trading strategies. The role of a trader – in this context called the book runner – is more formal and less creative than that of a quant. Since the trading decisions have already been made by the quant's software, the book runner's role amounts to vetting or validating these decisions after the fact. In practice the quant and the book runner must work closely together for the trading endeavour to be successful.

By comparison if you're a quant pricing derivatives and writing derivatives pricing software, you'll often lack hands-on trading and hedging expertise, and you won't have client relationships. You'll know in more detail than the trader how the products are priced, but it's the trader who owns the dynamic hedging know-how – and it's the trader who is usually compensated for it.

Many options traders themselves come from quantitative backgrounds and have previously worked as pricing or desk quants (see below).

Quants who are closer to the money (to the PnL) usually get a larger share of the profits. However, with this proximity comes the increased responsibility: who will lose their jobs first if the trading strategies don't perform as well as expected?

Quant jobs in asset management firms (the buy-side)

Usually the word "trading" is used to describe shorter-term, tactical decision making, whereas "investing" is reserved for longer-term, more strategic decision making. Professional investors tend to be called **asset managers or portfolio managers** (see our section on asset management jobs).

Portfolio management jobs are PnL-owning; portfolio managers are responsible for the bottom line. If their methodology is systematic (quantitative), rather than discretionary, they may also describe themselves as quants. Or they may be working with quants, who perform the analysis for them, but who don't own the decisions and therefore don't own the PnL. (See the description of a desk quant below.)

> "The closer you are to the profit and loss (pnl) made from trading, the more you'll be paid."

Desk quant jobs

A desk quant supplements the trader/portfolio manager on a trading desk. Desk quants usually sit on the trading desk with the traders (whereas derivatives trading and model validation quants, along with technologists, often sit separately and may work in cubicles rather than on trading desks.) Different trading desks pay different levels of respect to their desk quants. Some desk quants are regarded as quantitative gurus; others simply perform the number crunching required by the traders and aren't as important.

In each case the role of a desk quant is usually based on tighter schedules than that of a pricing quant and is seen as part of the front office.

Quant jobs in risk management

People with quantitative finance expertise often serve not only as risk calculators but also as **risk managers**. Since the financial crisis, risk calculation has grown in importance relative to trading; it is seen as a critical supporting, non-revenue generating function.

Risk calculation involves not only quantitative talent, but also technologists, who build risk systems. The robustness of these systems plays an important role in the bank's success (or otherwise) as a business.

Risk numbers used to take the form of VaR, CVaR and related metrics, which are heavily relied on to this day. After the global financial crisis these metrics have been supplemented by various "valuation adjustments" that banks must make when assessing the value of derivative contracts that they have entered into. These are collectively known as **X-value adjustments or XVA**. The purpose of these is twofold: primarily to hedge for possible losses due to other parties' failures to pay amounts due on the derivative contracts; but also to determine (and hedge) the amount of capital required under the bank capital adequacy rules.

The emergence of XVA has led to the creation of specialized desks in many banking institutions that manage the XVA exposures. These are regarded as separate from the traditional risk function.

Quantitative developer jobs

Quants in financial services jobs produce vast amounts of code. This code may be in tactical (e.g. Jupyter notebooks needed to create and debug a model) or strategic (e.g. a derivatives pricing library). Depending on how strategic the code is, it must be written to different software engineering standards. Those who write code that will be run in production must be accomplished software engineers. Often, quants themselves have this skillset. Some of the best quants are often also some of the best coders. At other times, the less software-minded quants may rely on the help of quantitative developers, whose job it is to create (and debug) code rather than come up with new quantitative models.

What's the difference between a strat and a quant?

The importance of quants in finance has been underlined by the renaming of quants to strats, which took place at several financial institutions. The word **strat** is an abbreviation for **strategic analyst**. The emphasis has shifted from the nature of the work (quantitative analysis) to its strategic role within the organization.

If you want to be a quant, however, you're advised to look not at the title of a role but at its deeper nature. There are many quant jobs, differently named, with different strategic importance (and corresponding compensation).

Career paths for quants in finance

If you start working as a quant in a bank or fund, you don't have to stay in that niche. You have other options.
For example, you could move into the **financial technology (FinTech)** industry. Fintech refers to the technology and innovation aiming to compete with traditional financial methods in the delivery of financial services. Some larger FinTechs are competing with established banks and hedge funds for quantitative talent. In particular this applies to non-bank liquidity providers.

You could also move to **FAANG** (Facebook, Amazon, Apple, Netflix, and Alphabet - formerly known as Google). Many FAANG firms hire quants to work on machine learning and artificial intelligence systems.

Not all quants are employed by banks, hedge funds, and other financial firms; some work in the academia. The pay is lower in academia, but the problems can be a lot more

> "Often quants came from relativity and string theory and fluid dynamics backgrounds."

interesting. As you get more senior it can be possible to sit in both worlds, and to hold an academic job while working in a bank or fund at the same time.

For quants who want to publish research, there can also be opportunities to work on research desks, or for non-bank organizations that publis blue skies quantitative research. For example, Bloomberg has a sizeable research division, although they are not a trading firm.

Skills you'll need for a quant job in finance

Traditionally, quants have had a background in applied mathematics of various flavours. Sometimes they come from the physics rather than mathematics, departments at universities. More recently, with the development of specialized quantitative finance education, pricing quants started to come from dedicated quantitative and computational finance programmes (such as the MSc in Mathematics and Finance at Imperial College, London, where I teach).

The mathematics you'll need for quant jobs

Traditional Q-measure quant roles consisted in the (often numerical) solution of partial differential equations (PDEs) and stochastic calculus/analysis – the classical applied mathematics.

Such mathematics used to be taught at mathematics and physics departments of leading universities. Often quants came from relativity and string theory and fluid dynamics backgrounds – those areas where PDEs and stochastics abound.

After the GFC, P-measure jobs became more numerous. Such jobs relied more on statistics than on PDEs and stochastics. Accordingly, more people were hired with statistical rather than applied mathematics background.

Best degrees for quant jobs

In more recent years, dedicated mathematical finance programmes have been created at most leading universities. In addition to such programmes, which are usually delivered at the Masters level, it is nowadays possible to obtain a PhD degree in mathematical finance and/or complete a certification course, such as CQF.

The recent ML/AI revolution has further shifted the focus towards subjects traditionally regarded as computer science – the ML and AI. Dedicated programmes, such as Imperial College's MSc in Artificial Intelligence, have been created in response to rising demand. Imperial's MSc in Mathematics and Finance also includes a significant ML/AI component – a dedicated track. There are also certification programmes, such as the MLI.

Programming skills for quant jobs

Programming is as important to many quants as mathematics. Quants who oversee quantitative libraries need to be well-versed in software architecture.

As well as writing code, quants spend their time debugging and speeding up existing code, creating quantitative infrastructure (eg. the way that different systems use to talk to each other, objects are persisted and stored, and interaction between the quantitative libraries and the underlying databases), automating tasks and – most recently – applying machine learning. Some leading financial institutions have dedicated machine learning teams. At others machine learning research or artificial intelligence implementation is conducted by regular quants. Banks, hedge funds, and trading firms are beginning to adopt new methods, such as deep pricing and deep hedging.

Which coding language do you need to learn if you want to become a quant? Modern coding languages have each their respective "ecological niches":

- Python for prototyping and research;
- C++ for high-performance production systems;
- Java and C# for production systems where software engineering is somewhat more important than performance (although in some areas these languages compete with C++ for performance; see, for example, Azul);
- Julia attempts to combine the advantages of C++/Java/C# with those of Python;
- Kdb+/q and shakti for big and high-frequency data;
- CUDA for programming GPUs in high-performance computing (HPC) applications.

Soft skills for quant jobs

Quants don't work in isolation. They collaborate (and sometimes compete and coopete) with traders, structurers, sales, technologists, risk analysts, and other quants. For this reason, the so-called "soft" skills are just as important as quantitative skills.

Senior quants often end up managing people and projects. People and project management expertise increases in importance as the quant's career progresses, unless they choose to focus purely on the technical side of things, which is rarely possible.

Quants at various levels of seniority also have the task of convincing others of the usefulness and importance of the work that they do. As usual, there are many sceptics around, particularly when it comes to the latest approaches and technologies.

Pay for quantitative finance jobs

Given the huge variety of jobs on offer in quantitative finance, it's hardly surprising that pay varies enormously. The eFinancialCareers salary and bonus survey shows that entry level salaries and bonuses for quants at banks in London are typically around £65k ($88k) plus bonuses of anything from £3.5k to £15k. However, you'll earn a lot more as a quant in a hedge fund. The chart below (based on figures from recruitment firm Selby Jennings) shows how much hedge fund quants earn in salaries and bonuses in New York City.

Job title	Basic salary	Total compensation
Quantitative Researcher (2-5 years)	$150,000 - 200,000	$250,000 - 500,000
Quantitative Researcher (5-10 years)	$175,000 - 250,000	$400,000 - 750,000
Senior Quantitative Researcher (10+ years)	$250,000 - 350,000	$750,000 - 1,200,000
Senior Quantitative Researcher (10+ years)	$200,000 - 300,000	10 - 20% of PnL
Quant Trader (prop	$150,000 - 200,000	30 - 50% of PnL

Day in the life
Ruizhou Ding, quantitative research team, Citadel Securities

Ruizhou Ding is a quantitative researcher (QR) at Citadel Securities. He joined in February 2020 after completing a PhD in machine learning at Carnegie Mellon University following a bachelor's degree in electrical and information engineering at Peking University.

7:30am. I usually wake up between 7:30am and 8am and start the day by listening to financial news via Alexa. I'm based in Chicago and if I walk to the office it takes me about 15 minutes. I try to walk to work to get some exercise, but I usually take the bus in the winter.

8:30am. I arrive in the office and review the results of the experiments we ran overnight. Our models are complicated and we're dealing with large amounts of data—at the order of terabytes—so our experiments take a long time.

The experiments I'm currently working on cover the execution element of trades. I'm focused on determining the most efficient and least risky way of executing trades. This includes the best time of the day to trade and the volumes we should trade for each stock.

9:00am. My mornings are dictated both by the results of the experiments and by market events. If there's news coming in that changes the risk profile of the market, then we'll make some immediate changes to our models. I work with our systematic traders, and in most cases our trading strategies can handle market news and don't need manual intervention, but there are some instances where we need to make immediate tweaks. When this happens, we'll

have a meeting with the software engineers who provide the technical support, data and infrastructure for the traders, and with the traders who monitor the market and are reacting to the changes in real time. Though we play different roles, we're all focused on the same objective and I usually leave these meetings feeling pretty energized.

10:00am. When we're not responding to market events, I spend the morning working on my model. My job requires a lot of creativity – I'm trying to build a model that trades as efficiently as possible and this means I need to try a lot of different ideas. Many of the ideas won't work, but when I find something interesting, we use it to upgrade the model. It's definitely a job for people who like to think and ponder different possibilities!

12:00pm. I have lunch and meet with other QRs. We discuss the news, share the problems we're seeing and think about possible solutions. Citadel Securities provides us with lunch, which changes every day, so I never get bored of what's on offer!

12:30pm. I spend the first part of the afternoon working on my model. This involves collecting data, building a research framework, testing it, and analyzing the results. When the results don't align with my expectations, I'll delve deeper into the data to determine my next course of action. This is a really fun process and sometimes I feel a bit like a detective trying to solving a case.

2:00pm. I have a meeting with some of the other QRs to discuss the model I am working on. They often have helpful suggestions and provide fresh inspiration.

2.30pm: I incorporate some of my teammates' suggested changes into my model. We are a highly collaborative team and are constantly learning from each other.

3:00pm. This is when the market closes in Chicago. The pace of work changes after the markets close – I have more time for research and for internal meetings. I often read academic research papers that cover problems similar to those I'm trying to solve.

4:00pm. I have a meeting with my manager to discuss how my work is progressing.

5:00pm. It's time for the changes I've made to the model throughout the day to go into effect, which is exciting and a little nerve-wracking. These changes are intended to improve the prediction accuracy of the stock prices, the real-time speed of the models, or the resilience of the trading system. After that, I start to prepare the overnight experiments for the next day.

6:30pm. I usually finish work between 6.30pm and 7pm and I'm home by 7.30pm. I call my parents in China in the evening, as it's morning over there. If the weather is good, I go biking around Lake Michigan. Weather wise, Chicago is very similar to my hometown in China – summers are very warm and winters are very cold. It's a beautiful place to live. In addition to the scenery, Chicago has some great restaurants, and I enjoy exploring those in my spare time.

12:00pm. I'm usually in bed by midnight, which is pretty late compared to most people. It's a bad habit I got into while I was studying for my PhD! ■

Risk management jobs in investment banks and financial services firms

Author: Ken Abbott

- Risk managers try to prevent banks from taking the kinds of unreasonable risks that can create large losses and threaten the integrity of the institution.
- Risk jobs vary a lot depending upon the area of risk you work in.
- Some risk managers need to be highly mathematical and able to create models that can calculate potential losses given a set of circumstances.

What do risk management jobs in financial services involve?

If you work in risk in the financial services industry, your role will be to help prevent your employer from becoming unstuck by virtue of any of the things that could cause a shock to the institution.

There are four broad kinds of risk you need to be aware of: market risk, credit risk, operational risk, and liquidity risk.

Market risk jobs

Market risk reflects the risk of loss from changes in market prices, yields, and volatilities and correlations. At its heart, market risk provides a gauge of sensitivity of P&L, and ultimately capital, to changes in market conditions. Its core responsibility is to identify, measure, monitor, and control exposure to these risks in accordance with a bank's size, risk capacity, and overall risk appetite, and to report on these exposures to senior management and the board.[1] The fundamental role of market risk management is to ensure that management is fully informed about the risk profile of the bank and to protect the bank against unacceptably large losses resulting from the concentration of risk.

Credit risk jobs

Credit risk is the potential that a borrower or counterparty – a person or entity that owes money - will fail to meet their payment obligations. The goal of the credit risk management function is to keep a company's credit risk exposure within predefined credit limits. These are usually calculated at the issuer, currency, industry, country, and regional levels. About half of all bank assets in the US consist of loans, making them the largest single source of credit risk, but banks also incur credit risk in their investment portfolios. This is usually in the form of bonds and in their trading books, but also through counterparty and settlement risk (ie. the risk that a trade doesn't settle properly). In addition, banks also take credit risk via guaranties and letters of credit.[2]

> "Operational risk professionals are expanding into cyber risk management, environmental/climate risk management."

Operational risk jobs

The Bank of International Settlements defines operational risk as the risk of loss resulting from inadequate or failed internal processes, people, and systems, or the risk of loss from external events. Operational risk typically includes legal risk but excludes strategic and reputational risk. Some of these risks result in actual financial losses, while others lead to inefficiencies, lost opportunities, and other indirect costs. In essence, operational risk captures those direct and indirect risks not captured in market or credit risk. If you work in operational risk, your role will be focused on the maintenance of an effective control environment within a firm.[3]

Liquidity risk jobs

Liquidity risk is a different type of risk altogether and is one which has come under increasing regulatory scrutiny since the 2008 financial crisis. Liquidity risk gauges an organization's ability to meet its immediate cash obligations to its creditors. It sounds simple, but it's not. Ready cash in a financial institution comes from bank balances, the capacity to borrow, and the ability to sell (or "liquidate") assets without suffering severe losses. Meanwhile, obligations incurred include loan and bond interest and principal, contractual obligations to lend, and derivative securities commitments. Failure to meet any of these obligations can have severe repercussions, up to and including bankruptcy. The liquidity risk function in a bank measures and monitors sources of uses of cash, including both those of a fixed nature and those driven by markets and client behavior.

Career paths in risk

How your career evolves in risk management will depend upon the area of risk you go into.

For example, career paths in market risk often start out in desk coverage or in the reporting function. The reporting function conveys to management and the board the risks associated with trading activity, decomposing them into their core equity, commodity, interest rate, foreign exchange, and volatility components. They aggregate

risks by type and compare them with the firm's risk limits, ensuring that risk-taking is within management's risk appetite. They also calculate statistical measure of risk, including Value-at-Risk (VaR) and run stress tests to ensure capital adequacy. This reporting is done on both a regularly scheduled and ad-hoc basis Market risk professionals with quantitative backgrounds also move into model risk and quantitative audit roles.

"Process at the heart of everything that takes place in risk management."

Once you've done your time in reporting, you might move into desk coverage. This is the process by which teams of risk management staff are assigned to cover specific trading desks. These teams are co-located with the trading desks and are actively involved in the new products process, model implementation, regulatory and management reporting, and limits monitoring. Staff in these areas are expected to monitor market conditions closely and be able to articulate clearly what the risks are in any particular area. They are also expected to understand and leverage IT infrastructure to get information.

Credit risk analysts usually start out by doing financial statement analysis in the case of issuer credit risk. For counterparty credit risk, new analysts focus on how expected exposure is measured, aggregated, and reported.

Many credit risk professionals stay in the credit risk function for extended periods in their careers. They often manage groups of credit analysts and become specialists in particular industry areas like media, energy, or hospitality. This specialization requires them to become experts in their fields both with respect to the balance sheets of the companies involved and in the fundamentals of the business itself. From there, some move on to manage credit exposure in hedge funds, pension funds and mutual funds. Others can apply their knowledge of how cash moves through a business in the private equity business, where financial statement analysis is a core competency.

Operational risk as a career path has only really existed since the early 2000s. The people engaged in operational risk since it became a Basel focal point are thus career trailblazers, establishing new career paths. Currently, many op risk professionals are expanding into cyber risk management and environmental/climate risk management. In these new areas of interest, the skills associated with event risk identification and event reporting are highly valued, as is the development of risk appetite frameworks.

Liquidity risk management as a discipline is also relatively new, although banks have been managing liquidity for years. New analysts here tend to focus on particular areas within liquidity risk like balance sheet management and analysis, repo/reverse markets, or regulatory reporting. There is frequent movement in both directions between the bank treasury and liquidity risk management areas as the skill sets required are fungible. Liquidity risk management skills are also readily applicable in both nonbank financial institutions and in corporations, where cash management is just as important.

Which skills will you need for a risk management career?

If you want to work in risk you'll need an inherent interest in the way markets and companies work, an appreciation of the importance of process, and a core level of quantitative competency.

While many are attracted to the financial rewards of a career on finance, the primary requirement is a curiosity about companies, products and markets. You really need to look at the markets and companies the way an entomologist studies and anthill or a beehive. People drawn only to the financial rewards often burn out. At a minimum, they are often less willing to devote the time and effort required for success. If you are not naturally drawn to the markets, this may not be for you.

Process at the heart of everything that takes place in risk management. In order for risk to maintain its key role – to keep senior management aware of the risk profile of the firm and to prevent unacceptable concentrations of risk – business activities need to be carried out in a regular, orderly fashion in a way to which everyone involved agrees. This is obviously easier in small organizations, but is absolutely crucial in large ones.

Quantitative competence is also a must in all areas of risk management. While there are certainly many subjective elements to risk management, its essence lies in the analysis of numbers. Both market risk and liquidity risk are heavily dependent upon econometrics, statistics, and of course finance. There is a great deal of on-the-job training, but having a basic background in these areas is very helpful. Since rates of change are often of interest, calculus is also important. Counterparty credit risk is dependent on market conditions and therefore it helps to understand markets. Issuer credit risk is more focused on financial statement analysis because these statements reflect a company's financial health. Therefore, here, an understanding of basic accounting is essential. An understanding of corporate finance and how firms manage their capital structure is also helpful.

Salaries and bonuses in risk management

Outside of jobs in the investment banking division (M&A and capital markets) and sales and trading, risk jobs are some of the best paid in banking. Again, however, you won't be making over $100k for a few years here. The eFinancialCareers salary and bonus survey puts salaries and bonuses for risk management professionals in London at the levels below. As a junior, you'll be an analyst. It usually takes over a decade to become a managing director.

In the American market, pay can be higher: eFinancialCareers data suggests some U.S directors are on up to $320k. In Asia, pay is comparable to London.

Job title	Average salary ($)	Average bonus ($)	Average total compensation ($)
Managing Director	345,000	211,000	556,000
Director	195,270	71,610	266,880
VP	153,771	27,326	181,097
Associate	91,277	27,568	118,845
Analyst	72,220	4,693	76,913

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Day in the life
Sebastian Dark, credit risk, Mizuho

Sebastian Dark is a counterparty credit risk associate at Mizuho in London. He joined the firm in September 2020 after completing a degree in economics at Exeter University.

7:00am. I wake up, catch up with the main news from the night before, and then try to do some exercise. I like to spend 20 minutes on the rowing machine or the bike and if the weather's good I'll then walk into the office. We're back in the office two or three days a week now. I live next to Lambeth Palace and the Mizuho office is next to the Old Bailey , so it's a pleasant 45-minute walk along the Thames. I often listen to a podcast and relax during the journey.

8:30am. I arrive in the office and prioritize reading everything necessary to keep up with the risks I monitor. My main focus is counterparty credit risk from the hedge funds we have exposure to through our trading business. This means that I need to understand whether the hedge funds that Mizuho works with will be able to meet the commitments they've made in the process of trading products like derivatives and repos with us. I need to understand their strategies and geographic exposure, to read their due diligence questionnaires and to get a feel for how they go about their business.

I usually start by reading any reports from ratings agencies like Moody's and Fitch before scanning the FT. My awareness of events needs to be quite broad: I need to understand the macroeconomic picture as well as funds' strategies at a micro level to the extent that geopolitical and macroeconomic events can impact funds' profits.

9:30am. I update some of our net asset valuation (NAV) figures for the funds we cover, and continue monitoring news on the funds we cover. Much of my mornings are spent on monitoring work.

10:30am. A colleague and I have a brief call with a fund to query some elements of their strategy – we reach out sometimes when things aren't clear from the written materials.

11:00am. We are asked to look at a new client. This happens throughout the day. When a new client wants to trade with Mizuho, we are asked to perform necessary due diligence. This means accumulating all the relevant information and presenting it in a digestible manner to the directors in our credit risk team along with the ratings we've assigned the prospective client and suggested risk limits. Some days are busier with this than others, and the amount of work that's required also depends upon the type of client: cash clients can be onboarded quickly, but derivatives clients can be hard work as the risk to the bank is so much greater.

12:30pm. I go out to get some lunch. This usually means a nice Italian sandwich place near the office.

1:15pm. We have more new client requests. The requests don't always entail entirely new clients - sometimes sales simply want to offer more products to existing clients and it's a question of judging the extent to which we want to increase current risk limits.

2:00pm. I'm monitoring again. Every credit analyst has a number of clients they're expected to monitor, and I ensure I cover a certain every month. It means making sure our information on the clients is up to date. I sometimes input data into Excel, but my role is generally more about written information than statistical data.

3:00pm. I have a chat with the salespeople again about a client and then give the client a call to clarify something. My job is quite interactive, and it's one of the elements that I enjoy.

4:00pm. Another new client comes in. Again, I complete a report on my appraisal of the risk they entail to the bank.

5:00pm. I have another call with one of the funds we cover. I ask them about the things that can't be deduced from their reports. Hedge funds can be quite private and aren't always willing to divulge information on things like their investor base unless you ask them directly. I'm usually in touch with them every two weeks or so.

6:00pm. I usually leave the office around this time, although it can depend on what's come in during the day. I often play five-a-side football with friends in the evenings. I am big into football and it's where a lot of my evenings are spent. I play in Battersea, the Oval and Vauxhall - I'm a member of too many teams!

10:00pm. I try to get into bed early. I'm usually asleep by 10.30pm. ■

Technology jobs in banking and finance

Author: Sarah Butcher, industry insiders

- Banks spend huge amounts of money on technology and employ thousands of people to keep their systems running.
- The nature of your technology job will depend upon the area of the bank you support.
- You probably need to know two coding languages – Python, and one other, depending upon the area you want to work in.

What do technology jobs in banking and finance involve?

So you want to be a developer in an investment bank or financial services firm? Congratulations. The industry doesn't always have a great reputation, it's a worthwhile career.

Before you embark on a technology job in a bank, it's worth considering that your experience will vary hugely, depending upon which area you work in.

Front office technology jobs in banks

A lot of people want to work in this space when they first start out. Front office technology is sexy. If you're a front office technologist, you're going to be allied to a line of business. Think commodities, equity derivatives, rates, portfolio managers in asset management or a maybe even a banking team.

As a front office technologist, you'll be developing tools like trade and position blotters or creating pricing engines in partnership with quantitative research (see our section on quant careers!) and market data teams.

Sounds great? Well....The bad news is that front office technology teams often run very lean. They can have arduous support rotas and a lack of investment in adopting strategic frameworks and renewing tech stacks. The most important work is given to trusted individuals, and work tends to be very atomized. Front office technology can be both stressful and boring.

Core technology jobs in investment banks

Core technology teams are where the long-term strategic work is done. This is about long-term strategy rather than day to day functioning. A core team might embark on a technical strategy for a user interface and develop a framework that starts to be used by business-aligned teams. If you're someone who mostly wants to interact with other developers and be able to keep up with industry trends, then core teams are the way to go.

> "It will almost always help to know Python, but choose your second language based upon the role you want."

Middle and back office technology jobs in banks

If you work in the middle or back office, you'll find a whole host of teams doing different types of work. There are compliance and regulatory technology teams who often have to work to externally mandated deadlines. You also have market risk, payments and settlements, valuation control and capital management.

If you work on middle or back office technology requirements, your clients will be teams in operations, in financial control, in compliance, or in any other non-revenue generating team. Things tend to be a bit more relaxed than front office, and you'll be more likely to use industry standard tools and languages. Some of the roles in compliance ('Reg tech') can be interesting and involve the use of natural language processing and AI.

Infrastructure technology jobs in banks

Infrastructure technologists work on the technological framework that underpins the bank. This includes cybersecurity and cloud computing.

If you work in infrastructure technology, your clients are other developers. There will typically be highly skilled specialists hired in this area – with 'fellows' or 'distinguished engineers' more common than elsewhere in banks' technology teams.

Business analyst jobs in investment banks

Business analysts are the people who intermediate between the business and developers. This is a role that's going out of fashion. Banks want 'T-Shaped' developers. What they mean by this is that they want to cut costs and have developers talk to the business directly – pretending that complexity and interaction over multiple silos doesn't exist. There are fewer people working in business analysis now than before: graduate tracks for business analysis no longer exist at some banks.

Project manager jobs at investment banks

Project managers are some of the most infuriating people for the average developer to deal with - they put meetings into developers' calendars to talk about project timelines, why things are late, and delivery milestones. Project managers are often used to arbitrate between different teams for complex projects. To a large degree


Markus Spiske/Unsplash

they are little more than secretaries, but the senior ones are paid like technical architects. If you're a developer this can be particularly infuriating.

Data science jobs in banking and finance

Data science jobs arguably need an entire section of their own in this guide because as data proliferates banks and funds are building armies of data specialists. Hedge funds especially are increasingly trying to get an edge by looking at "alt data" sources, like information on footfall to shopping malls, or sentiment on social media.

Data jobs in finance fall into various categories, and your role and skills will vary with each. For example, if you're a data engineer you'll need to take the raw data, clean it, move it into a database, tag it and make it easily accessible. If you're a data analyst, you'll develop visualisations to interpret the data. If you're a data scientist, you'll work with the business and with data engineers to develop machine learning algorithms that are trained on the data and can make suggestions relevant to the business.

Coding languages you'll need for technology jobs in finance

Python is the number one language used in finance. It's used for data analytics and for data investigations and interrogation. Python is also the language of machine learning and AI, and as AI becomes more widely used in finance, so does Python.

Java is also widely used, including for the broad decision-making within algorithmic trading code. C++ is used for the high speed elements of trading systems. Java derivatives like Scala are used for data ingestion and languages like R and MATLAB are used in bespoke research scenarios, but are losing ground.

The languages you choose to learn should therefore depend upon the sort of banking technology job you aspire to. It will almost always help to know Python, but choose your second language based upon the role you want. If you want to work on trading execution algorithms, learn Java. If you want to work on derivative pricing, learn C++. If you want to work on user interfaces (UIs), you could also learn Javascript. If you want to work on tick-data level work, there's Kdb/Q...

Salaries and bonuses in technology jobs in banks

If you work in a technology job in an investment bank, you won't get paid as much as if you work in sales and trading or M&A and corporate finance, but you will still get *very well paid*. The eFinancialCareers salary and bonus survey puts average compensation for financial technologists globally at $193k (including salary and bonus), which works out at £142k in pounds sterling.

In London, our survey indicates that starting salaries for technologists in banking are around £50k and bonuses are around £5k. In the second year you might get £60k and a £10k bonus. By the time you're a vice president (VP), however (typically around five years later), your salary will typically be over £100k and your bonus could easily be another £20k on top.

In New York City, our survey revealed vice presidents in technology at major banks earning from $155k to over $300k in salary, plus anything from $40k to $150k as a bonus. ■

Day in the life
Fiona Wharton, executive director, domain architect, UBS

Fiona Wharton is a domain architect at UBS in the firm's Chief Digital and Information Office. Based in London, she is responsible for the technology architecture for the investment bank's financing business. She has worked for UBS for 17 years after a 15-year career as a consultant at Accenture.

6:00am. I wake up early and focus on getting myself ready before trying to get my teenager out of bed at 7am. If he's not downstairs by 7.30am, I start calling for him as I don't want him to be late. When he appears, we have breakfast together before he heads off to school on time, thus avoiding detention. I live in Hackney, and the London office is around 4km away. I'm there three days a week and I usually run, bike, or walk in – I try to build as much exercise into my daily routine as possible to avoid the need to go to the gym.

8:15am. Clear communication is important to my job. That means I usually start the day prioritizing urgent emails. Most emails are from my UBS colleagues, but I do receive external emails, particularly when I've been at a conference, from vendors and others sharing information they think I'll be interested in.

9:00am. My meetings begin! Teamwork is essential. It's also half the fun: managing people and complexity. As a domain architect for the Investment Bank's financing business, my role is to design a blueprint of the IT systems, working with the business to ensure they have the right technology in place to help be successful in their roles. If we get the tech right, everything else in this highly complex business can work smoothly. As a business function, Financing serves hedge funds, investment managers, sovereign wealth funds, and global family offices, providing prime brokerage, equity swaps, clearing (listed and OTC products) and stock borrow lending activities. Collateral services are also supported. In much the same way that an architect will design a new building, I work closely with the Financing business to help them make the best decisions on application structure and style (eg, microservices and layered) combined with architecture characteristics that include availability, reliability and scalability.

I also ensure there's adequate governance and that the architecture we're implementing is fit for purpose and cost effective. My role is about the technology landscape and I'm responsible for around 150 apps where we control the code base. That requires a lot of coordination and a lot of meetings!

10:00am. I have a meeting with a project manager about moving applications to the cloud to review the challenges faced by impacted teams and discuss solutions to address these. Cloud migration is critical component of our overall IT strategy, which will yield significant benefits including increased agility and speed to market, IT innovation, cost transparency and better infrastructure utilization.

11:00am. I have a meeting on governance with another member of the team. This is to confirm that the changes we're implementing are in line with established principles and approved architecture patterns.

12:00pm. I take time to have lunch and I deliberately use this time to engage in personal activities – a little "me time." Once a week I sing with the UBS choral society, another day I volunteer at a local primary school and play games with the children to help them learn their times tables. On Fridays, I work from home and play tennis! Other times I either have lunch with a colleague or grab something to eat at my desk

1:00pm. There's a meeting to discuss the implementation of a new system and discuss how we align this with the business's priorities. This meeting focuses on content architecture and design: using technology to get from A to B. They're often refined brainstorming sessions and a place where we can be quite creative. I love that part.

1:30pm. The US comes online and, as we're a global team, this can be a busy time interacting with members of the team in the Americas.

2:30pm. I have a meeting with one of my direct reports where we focus on reviewing the architecture for a new cloud hosted application and discuss progress on the target architecture for that domain. I'm also a chapter lead at UBS, which means that I look after the careers and skills of employees that want to be architects like me.

It takes years to become an architect – that's what makes it so exciting. You need to have experience in diverse technologies, frameworks and platforms and you need to have knowledge of the business. There are different routes you can take to become an architect – some people start out as an engineer and go down a technical path first; others go down a systems development path and learn about individual systems before understanding how the systems come together to create a broader architecture. I went down the systems path – I have a finance and business background and then taught myself to code and took a job where I worked on the full system development lifecycle. When I had enough experience, I specialised.

3:00pm. Staying up to date on new developments is essential in my role. I attend a fintech presentation on new technologies, since part of my job is to understand how technology evolves and ensure we are constantly thinking outside of the box.

4:00pm. I have a meeting on data. Our emphasis right now is on building a data mesh for the investment bank. This is an innovative approach that has considerable advantages over how we approached data in the past.

5:00pm. I have a design authority meeting with the US team where we review the architecture options and recommendation for a new application

5:30pm. There's a daily wrap meeting towards the end of the London working day. I don't attend every day, since this meeting is focused on individuals with production responsibility for each of our apps, but I will attend if we have had any resilience issues. Resilience and uptime are of paramount importance to us, and we are working proactively to ensure there are no production incidents.

6:00pm. My meetings usually end, and I have an hour to go through my emails. I usually leave at 7pm and I try to avoid logging on again until the next morning. I used to logon in the evenings, but I've found it's not often necessary because when you're an architect, you don't face emergency requests – although I can always be contacted if necessary.

I usually spend the evenings exercising or chilling out. I try to be in bed by 10pm, which is much earlier than it used to be. I have focused much more on my health as I've gotten older! At the weekend I play tennis, both days if I can, go for dinner/theatre or both, meet friends and chill out. ■

Day in the life
Geraint Harcombe, technology team, Citadel Securities, London

Geraint Harcombe is a software engineer on the fixed income market making platform at Citadel Securities. He joined in September 2020 while working toward a PhD in Physics at Cambridge University.

7:00am. I wake up at 7am and whenever possible I like to jog to the London office. I live about five miles away. The office is right in the City, near Moorgate Station, which is a cool place to be.

8:00am. I arrive at the office, head to the showers that the firm provides for those who run or cycle to work, and have breakfast, which the firm provides every day. I respond to any emails and Slack messages that have come in overnight. My job involves working on the platform that supports Citadel Securities' institutional market making activities across swaps and bonds. The platform enables all human and algorithmic trading, strategy research, position and risk management and post-trade reporting, so I work on a wide range of projects. We mostly code in C++ and Python, and our team moves very quickly, releasing new code every few weeks.

8:30am. Mornings are usually quieter for me. Much of our team is in the US and we have team meetings when they come online in the afternoon. The morning hours are generally when I'm most productive in terms of writing new code.

I've been here for 18 months and have experienced a range of different delivery timelines – anything from two weeks to six months. I've also worked on different types of projects, including projects on my own and those where I've been part of a team, and they've spanned the whole lifecycle of a trade. Though the deliverables and team differ from project to project, they have all had a direct impact on the business. I really enjoy seeing my work in action.

Right now, I'm developing a new quoter. This is a program that connects to an exchange and places orders according to a given trading strategy. I've previously worked on book management tools (tools that the middle office uses to manage our swaps portfolio) and reporting tools. All of the projects, whether for the front office or the middle office, help move the business forward. For example, if we want to trade a new product, we can't do anything until the reporting systems are built. The diversity of the work and the impact it has makes it interesting.

10:30am. I have a break for a coffee. There are lots of really good coffee shops near the office and we usually go as a team. It's a part of the day that I find really enjoyable. Sometimes we talk about work, sometimes we just talk about the weekend. It's a social part of the day.

11:00am. I'm back working on my current project. I did a lot of coding in my PhD program, but this is very different. As a PhD student, I wrote a lot of code alone, but it's the opposite when you are part of a larger firm. Here, there's a lot of skills transfer and a lot of training, with lectures, coding and bootcamps on an ongoing basis. We have a great culture of code review, and while I often code on my own in the mornings, the afternoons are much more collaborative and I really appreciate the input I receive from my colleagues, who are at the top of the field.

1:00pm. I grab some lunch from the kitchen to eat at my desk. The teams in New York are coming online and I usually have conversations with them over Slack while I'm having lunch.

1:30pm. After lunch I typically make a pull request and participate in code reviews. The pull request is when I ask other members of the team to share their opinions on the code I've created in the morning. It often leads to opportunities for me to make changes and improvements and has been a great source of learning. I ask senior developers for their opinions on my code on a daily basis and they are very generous with their time. I review code myself too. Everyone here, regardless of tenure or title, is encouraged to review each other's code, and it's one of the key ways we learn from one another.

2:30pm. I have a meeting to discuss the status of my current project. The technology team I'm part of is based in London and New York and we have a lot of cross-team collaboration. We also work with other technology teams within Citadel Securities, such as equities, options or shared infrastructure. I typically meet with other technologists and with the project manager and team lead. We assess which tasks are left, and how we'll divide them between us.

3:00pm. I have a meeting concerning a project that's coming up. The head of our team is very good at communicating what's in our book of work for the coming six months and we meet regularly on a one-on-one basis to discuss what I could work on next. I also meet up with the product managers and the product users to discuss what their ongoing requirements are. The principal users of our products are quantitative researchers and traders, and we work very closely with them.

3:30pm. Comments have come through on the pull request I made. I have a whiteboard session with other technologists and discuss which changes need to be made before I finish the code. If there are small tweaks to be made, I try to implement them while they're still fresh in my mind.

4:30pm. I have some interviews with prospective candidates. The technical bar is very high here: we're a small team of self-starters and we look for people who really enjoy a challenge. We have quite a few interview stages – I conduct some of the initial phone interviews and if those go well, candidates are invited in for a day of interviews with four or five other people. During these interviews, we usually run through a challenging problem together and I answer their questions about Citadel Securities and what it's like to work here.

6:00pm. I usually wrap-up around 6pm and head home, though sometimes I work later or have weekend work. I generally set my own schedule in that regard and am driven by a desire to deliver for my team. When I wrap up for the day, I don't run home – I'm more of a morning person! It's fun to be a young person in London, so I often meet friends at the gym or cook for them at home.

10:30pm. I'm in bed by 10.30pm or 11pm. I'm not the sort of person who can survive on five hours of sleep a night – I need a lot of sleep! At Citadel Securities we work hard, but there's also a lot of attention to well-being: the firm is investing in you for the long run and trusts you to manage your time and your workload. There's never a shortage of interesting and meaningful work to be done, and I know there's more in store for tomorrow.

Compliance jobs in banking and finance

Author: Ken Abbott

- Compliance managers are like the police in investment banks
- They government regulations are enforced
- They also create a "culture of compliance," where sticking to the regulations is the norm
- If you work in compliance you need to be a person of utmost integrity.
- You might also need to know how to code: some aspects of compliance (eg. Monitoring) are being taken over by computers

What do compliance jobs in banking and finance involve?

In financial services, the compliance function serves two key purposes. Firstly, it ensures that the institution operates within all applicable laws, rules, regulations and standards. Secondly, it creates and maintains a "compliance culture.

The compliance ensures that an institution operates within the rules and regulations applicable to its specific lines of business. You could say that compliance operates as an internal police force, monitoring behavior and tracking adherence to specific rules and regulations. Laws are typically created by government bodies and administered and enforced by government agencies. These agencies create rules that firms must obey. The interpretation of these rules requires both a thorough understanding of the law and an appreciation of the practicalities of the businesses affected. The compliance function provides this interpretation.

Compliance is also responsible for the establishment and maintenance of an appropriate compliance culture within a firm. That involves not only line-by-line review of the rules and regulation, but also the education process as well as the creation, along with senior management and the Board of Directors of a compliance program for the entire company. This notion of a "compliance culture" goes well beyond the employee training. It's about influencing behavior and setting expectations so that adherence to rules and regulations becomes second nature.
The importance and influence of the compliance function within financial institutions has grown dramatically since the financial crisis of 2008. While compliance has always been important, the explosive growth of regulation as a result of the weaknesses exposed by the crisis has brought compliance needs into sharp focus.

The specific duties of compliance officers vary by institution, but core compliance jobs can roughly be categorized in four key areas.[1]

Anti- Money Laundering (AML) and Know Your customer (KYC) jobs

KYC due diligence is conducted for both new and existing clients and investors. It's an ongoing process: the origins of investors' funds can change over short periods of time. There are two key objectives of each due diligence exercise: a) the identification and verification of investor's identity and b) determining the ultimate purpose of the investment.

Anti-money laundering (AML) programs are a key to compliance. AML staff review the details about new and existing clients in terms of their locations, their relationships with others, and the laws applicable to them. The key elements of AML include training staff to spot money laundering issues, client due diligence, the designation of an AML officer, independent testing and governance documentation (policies and procedures)

Compliance Risk Management jobs

Financial institutions of all kinds require governance processes to be carried out and monitored to reduce the risk that regulations are infringed. Compliance risk managers look at everything from the compliance reporting, to roles and responsibilities within the compliance function, the disclosure of information about transactions, insider trading prevention, secrecy and privacy, recordkeeping of transactions and complaints, and potential conflicts of interest.
[

Business Conduct jobs

These jobs are about embedding a firm's culture of compliance and code of ethics into specific business practices. Adherence to the specified requirements is constantly reviewed.

Compliance monitoring, documentation, and reporting jobs

Information flow is a key part of the compliance process. If you work in monitoring, documentation and onboarding, you job will involve keeping an eye on how clients are being on-boarded, on transaction flow and on policies and procedures to maintain an effective control environment. Technology has made these roles much easier: compliance monitoring professionals now have easy access to data about trades, clients, conflicts, and market practice. Their role is to aggregate, report and interpret this data. They also manage the information flow to the board of directors and senior managers, ensuring that they're fully aware of the compliance risk profile at the heart of the bank.

Career paths in compliance

There's no specified background for a career in compliance, but it's also not uncommon for people with a background in law, business, accounting, or finance to move into compliance jobs. If you have a legal background, for example, you might find it possible to immediately apply your knowledge of relevant securities laws and regulations.

If you're not coming from a legal position and are looking for an entry-level compliance job, you might find that you start out in the "control room". The control room is responsible for the maintenance of the information "wall" between the public side of the institution dealing directly with investors and the private side which has access to non-public, confidential information.[2]

> "In a small institution like a start-up hedge fund, a compliance officer could wear several hats."

Other entry-level compliance jobs include screening clients for criminal activity [KYC], ensuring that anti-fraud checks are carried out; performing due diligence on payments to make sure funds aren't being used to finance illicit activities [AML]; or providing information to regulators and law enforcement agencies. Ultimately, these functions are all managed by senior compliance managers, but there are plenty of junior opportunities too. The nature of your job in compliance will depend partly on the kind of firm you work for. For example, in a small institution like a start-up hedge fund, a compliance officer could wear several hats including customer and payment screening, managing people and writing policies. If you have a compliance job in a big bank, your work is likely to be much more specialized.[3]

Ken Weiller, a veteran compliance and operating professional with experience in both banks and the hedge fund industry says compliance professionals in hedge funds have become more prominent in recent years. "The compliance staff interacts regularly with the rest of the firm on multiple levels; by setting policies and being the point person for their implementations," says Weiller. He says that compliance professionals in hedge funds have responsibilities spanning everything from approving and regulating employees' personal trades to participating in decisions about the allocation of expenses to investors.

"At many firms, Compliance personnel are involved in daily trading/research meetings as well as being members of firmwide committees dealing with areas such as valuations and conflicts of Interest," Weiller adds.
If you want to get ahead in compliance, there are various professional certifications for compliance officers that can differentiate you. The American Bankers Association offers one in the U.S., for example, as does the Independent Community Bankers Association (if you want to work for a community bank). In the UK, compliance qualifications are offered by The Chartered Institute for Securities and Investment and International Compliance Association.

Which skills will you need for a career in compliance?

If you want a job in compliance, it will help if you have the following skills.

Legal and regulatory skills

More than anything else, you'll need an understanding of the legal and regulatory framework surrounding both the business you cover and the overall financial services industry. The regulatory environment is constantly changing. You'll also need to be acutely aware of the changes and the implications for the way business is done. Failure to do so may have severe financial and reputational costs.

Communication skills

Good compliance people have excellent communication skills. While this requirement is not unique to compliance, it is particularly important given that a major component of the job involves the explanation of often-complex rules and regulations. Compliance is often called to provide interpretations of complicated rules that must be understood by everyone form new hires to senior management.

Problem solving and critical thinking skills

You'll need to be a good problem-solver. The rules are not static. Compliance officers are charged both with addressing current issues and anticipating potential new ones. They must have a good sense for the direction of business practice and the evolution of the laws and regulations.

People skills

Compliance issues affect everyone in an organization and staff must be able to establish good relationships from the top to the bottom. This requires an ability to "read" individuals and to develop relationships that span the organization. This can be tricky; compliance sometimes has to say "no."

Business acumen

Compliance people need to understand the functions they cover. They must be seen as promoting the interests of their internal clients and not labelled as the "business prevention department." Being called "commercial" is one of the highest compliments a compliance officer can receive.

Technical knowledge

Technology is changing rapidly in financial services. Compliance professionals need to understand technology infrastructure. The rise of crowdfunding, use of cryptocurrency, growth of digital banking, and increased reliance on cloud storage mean that today's compliance professionals increasingly need technical expertise. Compliance is increasingly about the way that data is collected, aggregated, processed, and stored.

Personal integrity

Compliance officers are often called upon to make difficult decisions. They need a keen sense of right and wrong. Banks rely on compliance to define the often-vague restrictions written into laws. Compliance professionals need to be "above the fray", and capable of making the right call even when it may be unpopular.[4]

Salaries and bonuses in compliance

Compliance jobs are not the best paid in financial services, but they won't pay you badly either. If you work in compliance you probably won't get a bonus that's many times bigger than your salary, but you'll still get a bonus that's a lot bigger than those on offer in many other industries.

The eFinancialCareers salary survey suggests that starting salaries for graduates taking compliance jobs in London are close to £40k ($51k), plus a £2k bonus. Five or six years into your career in London, you could expect to make £70k, plus a £5k bonus. However, more experienced compliance professionals – working on Wall Street and with around nine years' experience are on salaries of $173k plus bonuses of $49k – so compliance isn't badly paid either! ■

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Accounting and finance jobs in banking

Author: Ken Abbott

- Accounting and finance professionals in banks prepare financial reports on the performance of the bank for management, investors, and regulators.
- They manage the bank's liquidity position, and make sure it has enough cash to pay its liabilities.
- They manage the overall capital position of the bank in terms of both its debt and its equity.
- They provide valuations for trading, investing, and lending portfolios.
- They manage investor relations (ie. Communications with investors).ç

What do finance and accounting jobs in investment banks involve?

The finance and accounting teams in banks fulfill four discrete purposes. They are:

i) **Commentators:** Commentators explain the numbers. They describe what took place during an accounting period and why.
ii) **Business partners:** Business partners work closely with the business on value creation and the planning process. The also ensure the completeness and accuracy of transaction reporting and the accuracy of P&L (profit and loss reporting).
iii) **Scorekeepers:** Scorekeepers maintain the firm's books and records for investors and regulators. In this way, they provide investors and other external people a method by which to assess the bank's performance.
iv) **Custodians:** Custodians are about governance. They ensure that policies, procedures and regulations are strictly adhered to with respect to financial reporting.

These are the broad functions. If you're joining as a trainee, you'll likely get an opportunity to rotate between different jobs in accounting and finance, but it's good to have an idea of what might suit you best from the outset.

> A company's books and records are the primary vehicle through which it presents itself to the public – accuracy is paramount.

Financial control jobs

It's the financial controllers who are responsible for the accounting processes within a firm. They produce financial reports and maintain official books and records. They establish controls to reduce risk and enhance the accuracy of reported financials. They make sure the bank complies with accounting regulations like GAAP. The duties of a controller involve ensuring the business operates efficiently and records its transactions accurately. FC responsibilities often also include reporting and payments to taxing authorities.

Financial reporting jobs

The financial reporting function is responsible for the disclosure of financial information to stakeholders (eg.

Shareholders) about the financial performance and overall financial position of the firm. The reporting function provides regular information about the firm's position and performance to a broad array of users. It provides information to management for the purpose of planning, benchmarking and decision making. It provides information to investors, and to creditors about the financial condition of the company. And it provides information to shareholders and the public.

Product control jobs

Product Control is responsible for keeping track of daily profit and loss (P&L), along with its explanation and attribution for a particular area. Product controllers monitor transactions to ensure they are within specified size and risk limits. They are also responsible for ensuring that traders in investment banks mark their trading books to fair value prices. If you have a job in product control, you can therefore expect to produce, analyze, explain and validate daily P&L for trading books. You will also need to ensure appropriate the establishment, classification, and maintenance of books according to GAAP and regulatory requirements.

Business planning and analysis jobs

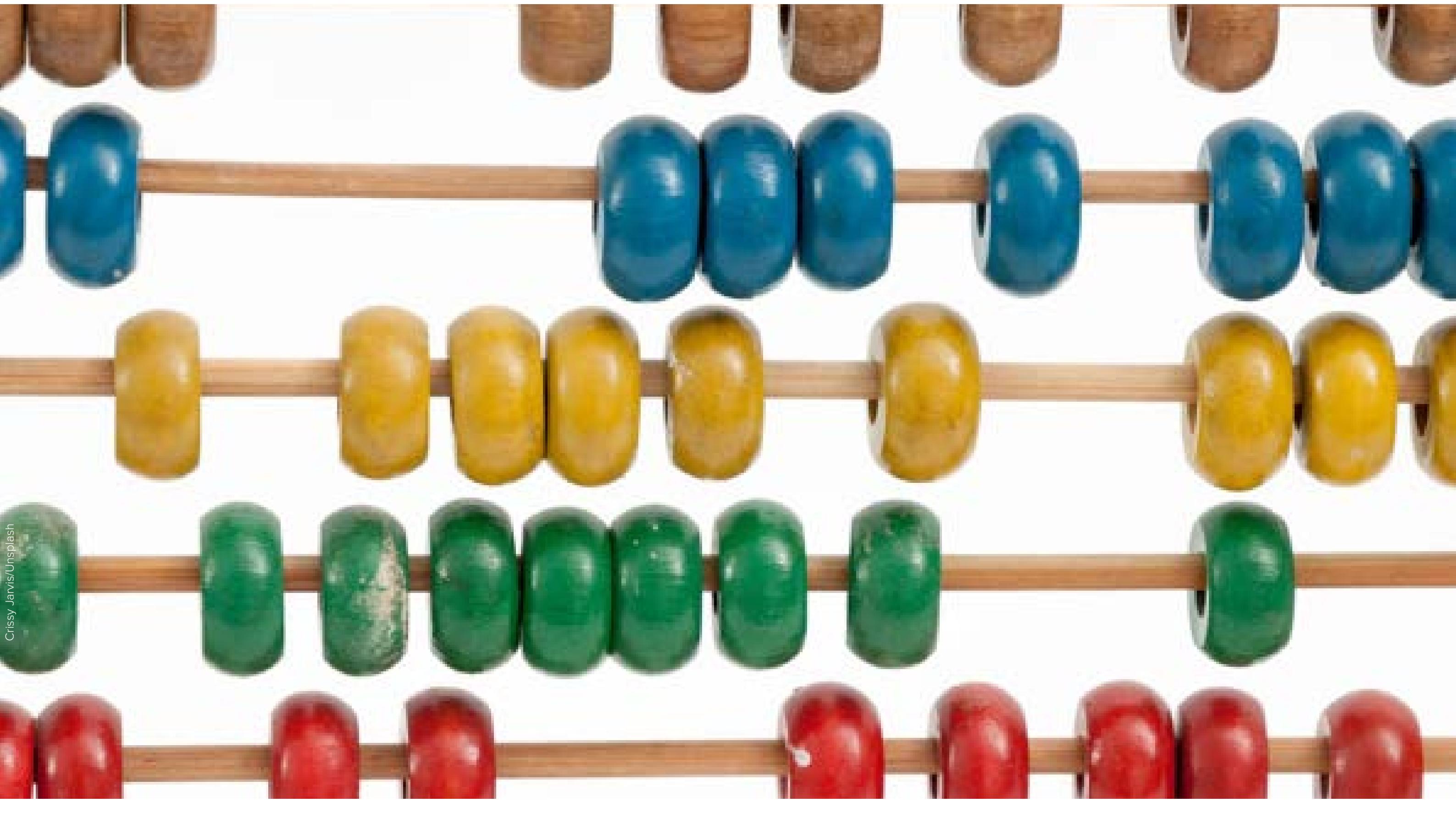
BP&A develops and implements business plans. These are strategic jobs within the accounting and finance division: you'll be defining business strategy to meet performance objectives. The people in BP&A identify and propose solutions for business needs, analyze complex risk and mitigation procedures, and keep an eye out for potential issues for which they develop solutions.

Tax jobs in banks

The people in the tax department are responsible for ensuring that tax returns and financial records are prepared and reported in compliance with tax law. Their job is to minimize tax liabilities within the rules established by tax authorities. They consult with the business on structuring issues as well as maintain a tax-efficient booking model.

Accounting policy jobs

The accounting policy team is responsible for maintaining the principles, rules and procedures that are chosen and followed by management in creating and reporting financial statements. They look at issues



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like the consolidation of accounts, impairment, revenue recognition, depreciation methods, goodwill, fair value principles, disclosure and pricing,

Investor relations jobs

Investor relations are for multi-talented people. They require knowledge of finance plus communication, marketing and compliance. Investor relations is all about enabling clear and effective communication between a company, its shareholders and the investing community.

IR coordinates meetings for shareholders and the press, releases financial information, and providing financial briefings

Office of the Chief Financial Officer (CFO) jobs

The office of the CFO develops financial strategies at the enterprise level (ie. the level of the whole bank) by combining financial and accounting information with analysis to manage the strategic direction of the firm. The CFO advises management on issues regarding performance, forecasting and budgeting, headcount and compensation levels, balance sheet management, and profitability.

Treasury jobs

The primary purpose of the treasury team is ensuring the prudent management of cash in line with board-approved directives and strategies, plus managing the bank's regulatory capital position. The treasury function spans asset/liability management (ensuring that liabilities can be paid-off with assets) and capital management (overseeing the issuance of debt and equity to maintain an appropriate capital position).

Which skills will you need for a career in accounting and finance in a bank?

It goes without saying that finance professionals need strong accounting backgrounds. While not all have qualifications like a CPA (in America) or an ACA (in the UK), many do. People in accounting and finance roles tend to be very analytical, process-oriented and inclined to pay great attention to detail. A company's books and records are the primary vehicle through which it presents itself to the public – accuracy is paramount. Regulatory authorities are stringent about the accuracy of corporate disclosure; there's little room for mistakes.

If you work in accounting and finance, you'll also need to be intrigued by the management of process and inclined towards problem solving. There are often many ways of addressing complex pricing and accounting issues, from which product controllers much choose. This must be done carefully and with an eye towards accuracy and transparency. Most of all, though, you'll need to care a very great deal about detail.

Salaries and bonuses in accounting and finance jobs

Accounting and finance jobs in banks are the middle office and don't command the huge pay packages associated with front office sales and trading jobs – but they're not badly paid either. The chart below, based on eFinancialCareers' own pay data, provided by our users, shows average salaries and bonuses for the finance function in banks, provided in dollars. This isn't a job where you'll be earning over £100k or even $100k within a few years. But if you stick around for a decade or so to become a managing director, you'll be very well paid indeed. ■

Job title	Average salary ($)	Average bonus ($)	Average total compensation ($)
Managing Director	400,000	1,400,000	1,800,000
Director	198,125	68,750	266,875
VP	153,333	39,000	192,333
Associate	123,000	14,000	137,000
Analyst	74,200	6,400	80,600

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Day in the life
Hywel James, Business Auditor (ACA Trainee), Societe Generale, London

Hywel James is a Business Auditor on the ACA Trainee Program at Societe Generale. Prior to joining Societe Generale in 2022, Hywel studied economics at the University of York followed by a Masters in International Relations at the University of Bristol. This is what an average day in his life looks like.

7:00am. If I'm going into the office, I wake up at seven, have a bit of breakfast and a coffee, catch up on the football news (I'm a Cardiff fan) and am out of the house by quarter-to-eight.

9:00am. By nine I'm in the office. We work using a hybrid model (a combination of office and working from home) so, depending on meetings, I'm generally in the office three days per week on average. Our state-of-the-art office is in Canary Wharf and we have a hot desk system, so I book a desk prior to coming in. There are around 40 people in my department with varied years of experience and expertise. I am one of nine staff selected to complete a 3-year training programme to become a chartered accountant. The programme gives me study support and an opportunity to develop industry knowledge and work experience as part of audit missions.

9:15am. I might grab another coffee on the way to my desk, then the first ten minutes I'll spend catching up with my team. No day's the same, so I'll start the morning looking at my calendar to see what the day ahead looks like.

10:00am. My work involves understanding business processes, analysing data, and assessing risks and controls effectiveness. There are a lot of acronyms in the audit business, but you learn fast. Our work environment is very collaborative and open so I'm constantly communicating with my team and asking questions. I'm enrolled in a python coding course in data analytics alongside my accounting exams, so I'm constantly learning.

12:30pm. Lunch time. Depending on the weather, I'll either grab food from the cafeteria in the building or head out to one of the street food markets in Canary Wharf. The office cafeteria has a selection of salad bars, sandwiches etc. but also rotating options like pizza. I usually grab lunch with my team, so there's a nice social aspect to this part of the day.

1:30pm. Back at the desk and I've got a call with one of the Head of Functions that we catch up with periodically. These calls mean as a junior I get to see what's happening in many different areas of the business and get a broad understanding of what's going on across the bank as a whole. A very useful opportunity and one which you get when part of an audit function.

2:30pm. In the afternoon I'll probably be preparing for upcoming meetings relating to audit work, if not attending meetings themselves. Prior to the calls, we'll be preparing questions to ask, listing the information we want to request for review, drafting tests and analysing raw data for trends and defects. Then, during the calls, we'll be given a view on business processes, and we discuss various aspects such as process design and governance, and the related risk and control environment etc. You end up talking to a lot of senior individuals, but you never feel like you're asking silly questions.

4:30pm. Towards the end of the day, I try and write up quick minutes for any meetings so that me and my team know where we are on various ongoing tasks. I like to leave anything I'm currently working on at a good stage and I want to know what's going on tomorrow, so as I finish up, I'll chat with my manager on what stage we're at on various deliverables.

5:30pm. On average I leave the office at 5:30PM and will be back at home by 6:30PM. I live with two friends from university, so we'll often cook a meal together. I'm working towards various exams as part of the ACA qualification, so I'll likely commit to a two-hour block of study in the evening. Once or twice a month, when it's not exam season, the group of ACA trainees at Societe Generale get together. We'll do a classic mini golf or shuffleboard social and it's good to get together outside the office. ■

Operations jobs in banking and finance

Author: Ken Abbott

- The operations division deals with the core “plumbing” systems of banks and financial institutions.
- Operations is about the efficiency and the accuracy of each element of a transaction.

What do compliance jobs in banking and finance involve?

Operations jobs have traditionally been seen as less prestigious than the “front office” client-facing jobs like M&A or sales and trading. However, this is an increasingly outdated way of thinking about how banks work.

Rodney Sunada-Wong, a former chief risk officer at Morgan Stanley’s broker dealer business, says banks are like a human organism. In Sunada-Wong’s schema, senior management, risk and finance are the brain. Salespeople, traders and investment bankers are the muscles. Technology is the skeleton and bones. Treasury is the lungs. And the operations division is the heart and circulatory system. “All the parts have to work together,” says Wong. “The better and more efficient your operations, the more profitable, and efficient your bank will be.” Banks increasingly recognize this, and getting operations right is increasingly important for profitability.

The nature of your job in operations will depend upon

Samuel Sianipar/Unsplash

the area of the banking business that you support. For example, if you work in securities operations and support the trading floor your role will involve the settlement, clearance, and reconciliation (checking that buyers' and sellers' documentation matches up) processes associated with all the traded instruments (eg. equities or bonds). But, if you work in loan operations, you'll be involved with all the administrative processes associated with the lending business from the time loan proceeds are dispersed to the borrower until the loan is repaid.

"Operations is the heart and circulatory system."

Similarly, investment banking operations jobs help with the running of the M&A and capital markets functions. Retail banking operations jobs are concerned with transactions involving individuals and are usually carried out at bank branches.

Operations jobs can also be known as "back office jobs." In other words, you won't be dealing with clients directly.

Operations jobs in securities businesses

If you work in an operations job in a securities business, you'll be supporting the trading floor.

You might be working on:

- **Clearance:** Updating accounts of trading counterparties, matching buys and sells, and arranging for settlement (ie. payment).
- **Settlement:** Exchanging money and securities between the seller and the buyer on the trade settlement date.
- **Trade confirmations:** Documenting the specific commercial terms of a transaction to which the parties agreed, including pricing.

Reconciliation: Ensuring that the buys match the sells. Resolving errors, checking the validity of transactions.

Operations jobs in banks are about monitoring existing processes and procedures. They're also about creating improvements and increasing efficiency. In the U.S., most are sponsored by their companies to sit for the Series 7 and Series 63 securities exams.

For a long time, securities operations jobs were the most numerous in investment banks. – There were far more people processing transactions on the trading floor than actually working in sales and trading. These days, much of what happens in the operations division is now controlled by technology, but human beings are still needed to help with exceptions when processes don't run smoothly. Those humans might not be in London or New York. - Securities operations jobs are typically located away from large Western financial cities, where premises and people are usually less costly.

If you have a job in commodities operations you'll carry out many of the same processes as in securities operations – but you'll also have to deal with the idiosyncrasies of the commodities markets. People with jobs in physical commodities operations need an understanding of what's involved in buying or selling an actual barrel of oil, for example.

Loan operations jobs

Loan operations jobs ensure the accurate and timely operations of a bank's loan process. This includes: booking loans on the loan system, maintaining loan documents, verifying and auditing key data elements (including financial, tax, and business information, assembling and maintaining credit files on borrowers) managing loan collateral, exception resolution, and performing regulatory reporting. The loan operations function also performs loan research to resolve problems associated with borrowers or transaction, and processes loan payoffs.

Loan operations managers design and administer procedures and systems. They also ensure that each stage of the loan process is carried out in accordance with federal, state, and local laws and regulations, particularly in consumer loans where errors can be very costly.

Investment banking operations jobs

Investment banking operations jobs are all about helping the front-office complete M&A and underwriting transactions. If you work in investment banking operations, you might be involved in the due diligence surrounding a deal or working on the graphics of a pitchbook.

IIn capital markets operations, your job will involve supporting the debt capital markets and equity capital markets units as they underwrite the launch of new securities. You'll assist in data analysis, data presentation, documentation and due diligence and will ensure that the transaction proceeds smoothly. In many ways, your job will be similar to that of securities operations professionals. – You'll work on client onboarding, trade capture, settlement and clearance, and general client support.

"Securities operations jobs are typically located away from large Western financial cities, where premises and people are usually less costly."

Skills you'll need for operations jobs in banks

Operations people need strong product and industry knowledge to facilitate transactions and address any processing problems.

You'll also need to be a strong communicator. Operations professionals deal with everyone from traders to auditors to investment bankers and need to describe complex processes in simple terms. They also deal extensively with other control functions, including compliance, credit, risk, and technology.

Technical skills are also a critical part of the operations skillset: operational processes are now controlled by complex technology systems and even if you're not coding these systems yourself, you'll need to understand them.

Operations careers can progress along several different paths. Many operations professionals find that they are called upon to broaden the scope of their activities as they progress. Others become specialists in a particular aspect of the operations process like settlement, clearance or project management. Some move into the front office in areas like sales and trading (although this can be a tough move to make, so don't count on it happening).

Salaries and bonuses in operations

Operations jobs are not the best paid in banking. If you work in operations you will not be earning $100k in year one – or even, probably in year four. Nor will you get a big bonus. However, if you stick with operations for more than five years, your pay will start rising and you will end up earning six figures very comfortably.

The chart below shows the average salaries in operations by job title. Analysts are the most junior in the table, directors are the most senior. It will typically take eight years or more to become a director.

Job title	Average salary ($)	Average bonus ($)	Average total compensation ($)
Director	199,065	76,329	275,394
VP	124,307	17,492	141,799
Associate	83,594	9,172	92,765
Analyst	46,575	338	46,913

Source: eFinancialCareers

The author acknowledges the following sources:
Acknowledgements:
https://jobtech.co
https://thismatter.com/money/stocks/settlement-and-clearing.htm

Custody jobs

Author: David Rothnie

- Custodians are like giant digital filing cabinets for financial assets.
- Custody jobs used to be about admin, but now they're more about data.
- As custodians offer new services like compliance and risk to clients, they have more client-facing roles.
- Technology and data jobs are increasingly important in the custody sector.

A global custodian is a financial institution responsible for the safekeeping and reporting of their clients' domestic and global financial assets. Historically this meant the actual physical protection of stock and bond certificates. But today, the physical certificates have largely been replaced by electronic records. These electronic records need continuous management to ensure all dividend and interest payments are received.

Both the client base and the range of assets that custodians deal with have also evolved in recent years.

The client base has broadened from being traditional fund managers and the trading arms of investment banks to encompass hedge funds, alternative asset management firms and the family offices of high-net-worth individuals.

The assets custodians look after have also expanded range from cash and shares to derivatives, real estate and digital assets such as crypto-currencies.

The services provided by big global custodians – State

Tim Evans/Unsplash

Street, Northern Trust, BNY Mellon, JPMorgan, Citi and others – have evolved with the changing needs of their clients. As the custodian industry moves to a more digital footing, the big custodians are trying to provide extra services to clients beyond the core business of simply settling trades.

Which extra services? Custodians were traditionally seen as providers of ‘back office’ solutions and while that’s still the case they have also moved towards the’ middle office’, offering services that go beyond settlement of transactions and into areas like regulatory performance measurement or compliance and risk monitoring.

The result is that jobs in custody today vary between data-driven processing and administration role and more client-facing roles where you will deal with the needs of clients.

Brian Allis, Senior Vice President at State Street, says: “At its heart, securities services is a client facing industry. Client facing roles in custody go beyond traditional sales, relationship management and client service. Roles in product, operations, network management and technology are often client facing. The traditional role of custody provider has transformed over the last three decades from focusing on safekeeping to covering the entire investment life cycle.”

Which are the jobs you’ll do in custody?

When you work in custody you’ll be fundamentally be working in operations, the engine room for processing client activities. Operations is also known as the back office. Junior jobs in global custody have historically been very process-driven but that is changing with the most repetitive tasks becoming automated.

“The main job of the custodian is to take away all of the administration and processing work that their fund management clients don’t want to do,” says James Manders, managing director of CassonX, a leading recruitment firm for middle and back office operations jobs

Custody covers a broad range of activities but jobs fall into three categories – trade life cycles, fund accounting and administration and distribution processing.

Trade life cycle jobs

These are the classic bread-and-butter roles in custody. They include jobs in trade settlement and confirmation, transaction reporting and asset servicing. Asset servicing covers corporate actions, which includes proxy processing, securities borrowing and lending and the transfer of shares related to corporate spin-offs or acquisitions.

Jobs in fund accounting and administration

In key global custody centres such as Ireland and Luxembourg, the core of the global custody jobs focuses on the accounting and administration of client funds. The custodian will ensure all income is received into the fund and that the net asset value (NAV) is correctly computed with the appropriate frequency, often daily. Global custodians may also be responsible for ensuring the smooth delivery of additional securities added to the fund and for reconciliations, making sure there are no discrepancies in trading.

Distribution processing jobs

Distribution processing covers client servicing, performance production and client reporting. This area is the most client-facing of all custody roles as it involves dealing with the day-to-day information needs of clients. With custodians now looking after the entire life cycle of an asset, State Street’s Allis says client service roles have expanded to match this increased solution set. “Staff in these functions now have an unprecedented opportunity to be involved in every stage of the investment life cycle throughout their career, if they have a curious mindset and an appetite for a steep learning curve. Once they have built their knowledge, they become a critical interface between the client and the provider.”

For most large custodians, prime services will make up a significant proportion of the business. Prime services involves providing advice and assistance to hedge fund clients. Within prime services there will be business analysts, assisting the client and introducing appropriate securities services, all with the ultimate aim of improving profitability for the hedge fund.

Technology jobs are taking over custody

Another way of thinking about the jobs you can do in custody is consider them by functional area rather than high level job categories. These functional areas include client relationship management and sales (eg. Helping to prepare requests for proposal (RFP) for prospective clients), product development, delivery, and technology.

What's common across each of these areas are data and technology. Allis says: "Data collection, storage and analysis will become the basis for all future service offerings and business models. Technology is changing to support this paradigm shift, as a result investment service providers are increasingly becoming their clients' Investment data custodian. This requires client service staff to become familiar with the processes to source, curate and analysis data across the entire investment cycle, including custody, for the benefit of their clients seeking operational alpha."

This is having a big impact on custody jobs and the skillsets custodians require. Allis says: "The digitisation of custody is enabling a far more focused view on value add and differentiated services that are dependent on people to execute. Staff need to be engaged in the end-to-end business process and move away from the traditional functionalized view of custody."

Melíosa O'Caoimh, head of Northern Trust in Ireland, explains: "Custody has continued to evolve into a technology-first business. As a result, our hiring practices and the talent we recruit has changed to keep pace with innovation. That innovation also requires us to consider graduates and talent from different backgrounds and offer career paths through the organisation that may cross through a number of different related areas and even include an exchange programme – for example to our India business, and vice versa."

O'Caoimh says that innovation in areas like cryptocurrency and blockchain, along with the automation and digitization of custody processes is changing the landscape. "This creates different career paths and opportunities for people across our organisation – whether they are looking to expand a range of skills or specialise in a particular area. I don't think there's ever been a more exciting time to be part of a custodian and fund administrator – the pace of change has been accelerated through the pandemic and we continue to see evolutions in AI and machine learning enabling us to expand roles in other advancing areas."

Data has become the tool by which custodians can offer higher value services to their clients and that is redefining many jobs in the sector. Allis explains: "Roles are becoming increasing dependent on solution engineering and data analytics, being able to understand how to translate a clients operating model to a target state operating model and articulating the benefit of the transition is now at the heart of what we do. "

What to expect in custody when you start as a graduate

If you start your career in custody as a graduate trainee, you may find yourself on a 'rotational training programme.' These allow graduates to gain experience in a number of different areas over a four or five year period and then specialise later on.

Bryan Murphy, Global Head of Banks Sales, Securities Services, at Citi, says: We've run a successful graduate program on a global basis for a number of years and graduates are given the opportunity to work alongside industry specialists to gain first-hand experience in the different areas of our global securities services business.

Candidates with technical skills and experience in global custody are highly sought after as are those with subject material expertise (SME) in individual products such as derivatives.

When it comes to industry-recognised qualifications, Manders recommends the Investment Management Certificate (IMC) an entry-level qualification that provides a strong foundation for a career in the investment industry.

Citi's Murphy says: "Successful candidates typically have a broad understanding of global capital markets. They also need to demonstrate the ability to apply this knowledge to join the dots between the broader macro and operating environment and client requirements and solutions."

Meanwhile, Northern Trust recruits candidates from a wide variety of backgrounds, including business and accounting, but also areas such as engineering, hospitality or retail. "Successful candidates are usually positive, resilient, with attention to detail who are open to continuing their professional development with Northern Trust through the various in-house training and support networks provided," adds O'Caoimh.

In Europe, the Middle East and Africa, Northern Trust primarily conducts graduate level hiring in its operations in Limerick, Ireland where it draws from a pool of business graduates from the University of Limerick and the Limerick Institute of Technology. The Kemmy Business School in the University of Limerick is the largest business school in Ireland with more than 2,000+ students currently enrolled; and annually approximately 350 business graduates enter the marketplace. Northern Trust sponsors the Kemmy Business School / Northern Trust Outstanding Scholar Awards.

Career progression in the custody industry

Like banks, global custodians often use the job titles of analyst, associate, vice president (VP) and managing director (MD) to signify different levels in the hierarchy. You'll start out as an analyst looking at ways of creating solutions for products "from a technical perspective." As an associate, you'll have a broader remit and will look at the solution in terms of market practice and servicing the client with roles such as a client operations specialist. As a vice president, you'll work across different products and will prioritize each one based on client requirements. And as a managing director you'll be responsible for making sure a solution gets implemented by working with all different parts of the business to coordinate the product's development and launch.

Pay in global custody jobs

Jobs in custody aren't as well paid as so-called front office jobs such as trading and investment banking, which pay higher bonuses related to performance, but they offer greater job security and fixed hours. "It's very structured, very corporate and safe as houses," says Manders. "If you're looking for more variety and want to provide a bespoke service to clients, there are a growing number of small and medium-sized custodians outside of the global heavyweight."

Big banks have outsourced their custody businesses to cheaper regional hubs outside of big cities, and salaries can vary considerably depending on location. As a typical rule of thumb, a graduate in London can earn between £25k ($30k) and £35k if they work in a trade life cycle or fund administration role, while in distribution that could rise to between £30k and £40k. Outside London, salaries will be lower.

Bonuses are typically around 10% of salary and are fixed for two years into the future because custodians have visibility over their earnings over the life span of a client contract.

A vice president with 10 years of experience working as a reporting lead, a head of department overseeing client distribution will earn between £110k ($133k) and £130k. ■

Day in the life
Karl Maguire, Settlements, State Street

Karl Maguire works in the Investment Settlements Services team at State Street. He joined the firm's Dublin office at associate II level earlier this year, having previously been an intern in the same team while studying for a Bachelor of Business Administration degree at Maynooth University. He has almost completed a MSc in Finance at Dublin City University.

6:30am. I wake up. If I'm not heading into the office, I hit the gym or go for a swim. On office days I take the 7.30am bus into Dublin city centre.

8:15am. I arrive in the office and grab breakfast in the staff canteen. As a relatively new joiner, this is a good time to introduce myself and get to know new people in other teams over a coffee.

8:40am. I log in slightly early and check emails. I also review handover notes from our Toronto and Hong Kong settlements teams to get a good understanding of the day's work when work officially starts at 9am.

9:00am. This is a period for pure organisation for my team, working closely with our State Street Syntel operations unit in Mumbai. They run analytics to help plan our day, and inform us what trades need to be settled and when. If we have a load of euro and US dollar trades, we prioritise the euro ones first as they have an earlier currency cut-off time. As settlements agents, my team helps in the final step for our clients to receive or make payments. These trades all need to happen before the currency cut-offs, otherwise they can't be executed on the same day.
9.30am. I have a few meetings, often with other teams, in which we discuss how to settle complex transactions involving our more high-profile clients. This is the most enjoyable part of the day because interesting new challenges always crop up and I get to talk to senior management across the firm.

11:00am. My team helps clients receive their money, transactions, and investments in the time they request. If anything arrives late – after the cut-off – interest rates and bank charges can be high, so the client won't be happy. That's why I spend this hour planning: getting on top of interest rates and making sure there won't be any unnecessary charges to the clients I oversee. This can be complex as State Street has many clients across many countries and currencies, and we also deal with different banks charging different interest rates.

12:00pm. I take lunch, usually for an hour if I'm at home. I took up cooking as a hobby during lockdown, so I rustle up something from scratch, which also helps me to recharge and refocus for a busy afternoon ahead. When in the office, I enjoy the social side, so I go for lunch with my team in the canteen or in the city centre.

1:00pm. This is my busiest time as I move from planning to actually executing settlements. With cut-offs approaching, my priority is settling money-market trades, especially in euros, but also in other currencies like GBP. We have clients who need transactions done by 3pm, and different banks and currencies have different cut-offs. We handle transactions worth millions of euros, so if any issues crop up (for example, the client hasn't confirmed the exact payment amount) I get on the phone to other State Street teams to resolve them ASAP. Once each trade is settled, I analyse it to make sure it's gone through ok, and then I move on to the next client.

3:30pm. Now that some of the important cut-offs have past, I liaise with our team in Luxembourg about the trading needs of one high-profile client of mine.

4:00pm: It's US-dollar time for American clients. Sometimes I get requests for payment, but the client hasn't funded the account yet because it's still fairly early in New York. I ask colleagues to remind the client, but if the funds don't arrive within Dublin working hours, things will be handed over to our Toronto settlements team.

5:00pm. My team in Dublin has a meeting with the Mumbai team to do end-of-day checks. We confirm the success of the transactions we've done and identify any issues within a hand-over report for Toronto, so they can start their day smoothly.

5:30pm. The work day usually ends for me, unless there are late requests from the US. While my job can be pressurised at times, my days fly by as I've got such a supportive team. I put on my headphones and listen to a podcast on the way home.

6:30pm. Some evenings I have Gaelic football training. The sport requires a lot of dedication, so it keeps me fit, off the sofa, and ready for the next day! ■

Fintech and crypto jobs

- Fintech and crypto are fast-paced innovative sectors
- Companies can be small and may not run official graduate recruitment programs
- Big banks often have in-house fintech firms and innovation teams and these can be a good place to start your career

If you're looking for a first job in finance, you don't have to apply to the big established banks. A whole new infrastructure of other companies has evolved in the fintech and the crypto space.

What's a fintech? As the word itself suggests, it's a financial company that uses technology to deliver its services. Most established banks use technology nowadays, so there are some significant overlaps, but fintech firms are "technology-first" – they evolved around technology rather than around bricks and mortar.

What's a crypto firm? Crypto refers to 'cryptography' or the process by which digital assets are secured so that only authorized entities are able to access them. Crypto assets might be digital currencies (eg. Bitcoin or Ether) or they might be digital tokens (eg. NFTs). They exist on blockchains, which are long chains of information linking blocks of data together cryptographically via nodes on distributed ledgers contained on computer systems. While traditional methods of record-keeping in the financial services industry are performed by large central bodies, record-keeping on a blockchain is completely different. It's performed by a whole array of anonymous and self-interested validators, and the records on the chain are publicly observable to participants - although no one knows


Jeremy Bezanger/Unsplash

much about anyone else's true identity.

Both fintech firms and crypto firms have less evolved graduate hiring programs than big banks, but as they grow, they're looking for graduates too. Many are introducing campus programs or their own, or are open to students approaching them on an ad hoc basis.

What are the different types of fintech firms?

Fintech is an enormous area with an equally enormous array of jobs on offer. If you think you want to work in fintech, it will help if you first have an idea of the fintech landscape.

One of the best descriptions of this landscape is provided by Credit Suisse's equities analysts in their recent giant report on the fintech sector in EMEA (Europe, the Middle East and Africa). Fintech means a multitude of different things, note the analysts: it might be payments systems, it might be banking infrastructure providers, it might be companies offering digital lending services or remittances of money abroad, or it can be neobanks (defined by Credit Suisse as "a technology platform that offers financial services, built upon a foundation of a checking account and affiliated debit card). Some of the names, like Stripe, Robinhood, Revolut or Klarna are quite well known. Others are really not.

What are the different crypto firms?

The crypto universe is equally enormous and we're not going to attempt a detailed explanation of its components in the limited space available to us here. For that, we suggest you look at resources like the Bank of International Settlements' recent excellent report on the future of the monetary system, or the amazing list of free crypto training resources listed here by Christopher Newhouse, who set up the blockchain club at Georgia Institute of Technology.

The crypto ecosystem is like a parallel world with its own financial institutions performing functions recognizable from the traditional financial ("Trad Fi") world. In crypto, you can find exchanges like Coinbase, Gemini and Kraken, where people exchange digital assets and have trades settled centrally. You can find companies like B2C2, Wintermute and GSR that make markets electronically for large institutional clients who want to trade digital assets. You can find crypto custody firms (Galaxy Digital, Copper). You can find decentralized crypto exchanges with peer to peer trading (Uniswap, Sushiswap). You can even find crypto lending firms (eg. Compound) and crypto insurers (eg. Coincover). The crypto industry is full of evangelists who claim to be building a better and alternative financial system away from the traditional providers.

What are the different types of fintech and crypto jobs?

A lot of the jobs in fintech and in crypto are for developers, but you don't have to be a developer to work in fintech or crypto. Both types of company also offer the standard of array of jobs found in any large company.

Alongside engineering (developer jobs), the Centre for Finance, Technology and Entrepreneurship (CFTE) says there are various other "job families" in the fintech sector. These include: business development, core business, customer support, data science, design, finance, HR and operations, legal, marking and communications, risk and compliance.

In crypto, you might also work in areas like trading jobs and quantitative jobs – depending upon the sort of crypto firm you go into.

So, what's wrong with fintech and crypto jobs?

In 2021, crypto especially was all the rage. But in 2022, there's been another "crypto winter" (the first and second ones having been in 2014 and 2018); suddenly crypto isn't quite as appealing.

One sign of this winter is what's happened to the price of Bitcoin, the original and most revered crypto currency. In November 2021, the price of one Bitcoin peaked at over $65,000. By April 2022, it was down to $42,000. By July, it was down to $20,000. Other popular currencies, like Ether (the currency for the Ethereum blockchain) are down by a similar amount.

For an asset class that presents itself as an uncorrelated alternative to other financial products, and a long-term hedge against inflation, this has raised some questions about the place of crypto in the financial ecosystem. More damaging, though, was the very public meltdown of TerraUSD, an algorithmic stable coin that was supposed to be worth one US$, but which plummeted in value in early May and was trading at around $0.05 by July. Luna, a token also owned by Terra, and part of the algorithm that was supposed to maintain Terra's dollar value, also became worth almost nothing despite having been worth $40bn at one point. A lot of people lost a lot of money.

As the crypto industry has unraveled some of the industry's darlings have been cutting jobs. Crypto exchanges like Coinbase and Gemini have been laying off staff, sometimes just months after hiring them (and in the case of Coinbase, job offers have been rescinded). It's not a good look.

Things haven't been so bad in the broader fintech space, but there have been layoffs here too. As technology stocks collapsed in 2022, enthusiasm for investing in fintechs waned, sucking money out of the sector. Companies like Robinhood have been cutting jobs after expanding rapidly. It's not a fintech winter, but it's not really a fintech summer either.

And what's right?

Despite the travails of crypto and fintech firms, there are still reasons to think embers will rise from the crypto ashes and that fintechs will be a part of the financial ecosystem for the foreseeable future. Sometimes it's a good thing to start your career in an industry at a cyclical low point before a period of expansion. And crypto true believers point out that even though Bitcoin has fallen since 2021, it's still up 120% since the end of 2018.

One of the arguments in favour of crypto is the notion that all kinds of assets can be replaced by "tokens" that are added to blockchains. JPMorgan, for example, has plans to "Tokenize" US treasury bonds and money market funds so that they can be used as collateral for crypto trading. By attaching tokens to real assets (like cars, bridges, or even residential houses) and placing them on blockchains, the argument is that it will be easier to gain fractional ownership of things, and to trade products that would otherwise be illiquid. "The market will mature, you will see growing institutional adoption and eventually I really do believe that crypto will take over big chunks of traditional finance," says Kyle Downey, a former Morgan Stanley managing director who now runs Cloudwall, a NYC- and Singapore-based fintech dedicated to connecting institutional investors to the emerging blockchain economy.

Similarly, even as funding to the fintech sector is squeezed, fintechs are still an important source of innovation for the banking industry as a whole and many large established banks are now reliant on fintech firms as innovation drivers. Many big banks are partnering with fintechs and eager to hire people with the experience of working a fast-paced and innovative environment as they try to build in-house fintech businesses of their own (eg. Chase UK at JPMorgan or Marcus at Goldman Sachs).

How do you get a graduate job in fintech and crypto, and what skills do you need?

Because fintech and crypto firms are smaller than banks, they don't always have proper graduate hiring programs. You might need to approach them speculatively. However, the big and well-established firms (eg. Stripe, B2C2, PayPal) do have specific graduate jobs you can apply to.

If you want to work in fintech and crypto, you'll need to show that you have the aptitude for the particular job you're applying to. If you're a developer applying to crypto, for example, it will help if you can code in languages like Solidity and Rust), but you'll also need to show that you're innovative and a good cultural fit with what might be a small team.

"We recruit for mindset. Crypto needs trailblazing problem solvers with drive and an entrepreneurial mindset. This is an evolving sector, and we don't know what it will look like in a few years time," says Blair Halliday, head of UK at crypto exchange Gemini. To work in crypto, you need to be agile and adaptive, he adds.

"Crypto is a space that's evolving quickly. It's dynamic and involves brainstorming and problem-solving; you're not only using a tech and quant skillset, but spending your days working on problems and coming up with innovative solutions," says Nicola White, president of crypto market maker B2C2 in the US.

Big banks often have inhouse innovation, fintech or crypto teams and in some cases it can make sense to start your career here and then move into a smaller start-up environment later. "If you're working for a major bank [and you want to move to a fintech], it makes sense to get as close as you can to emerging products within the financial institution," says Jonathan Pomeranz, New York-based head of the fintech practice and co-head of financial services at True Search. ■

Day in the life
What it's really like to work in crypto market making

Fenni Kang is an options quantitative trader at crypto liquidity provider B2C2. She started her finance career at Barclays in Singapore and in London before moving to B2C2 in September 2021. This is what an average day in her life looks like.

6:30am. I wake up and check my emails and the market news before I get out of bed. Depending on how the markets are doing, this can take me up to 30 minutes. When that's done, I get out of bed and get ready for the day.

7:30am-8:00am. If I'm working from home, I start earlier, after a quick breakfast before connecting to the VPN. If I'm going into the office, it doesn't take me long to get there since I live nearby. My team is global – they're working everywhere from America and Japan to Scotland. First thing in the morning, I usually talk to our traders in Japan.

8:00am. My first task of the day is to review all the systems and make adjustments to parameters as required. I'm an options quant trader: I focus on systematic trading strategies and my role involves working with algorithmic trading models and strategies that provide liquidity to other players in the market including exchanges. We create automated trading tools that trade according to the targets we set. We monitor the trades that have been taking place and adjust the targets based on performance.

9:30am. I have a series of meetings with the team, including traders and quant strategists. Some of the traders work over the counter (OTC), meaning that they talk to and trade directly with clients, others trade systematically like me, conducting quant research, implementing our algorithms and trading with the algorithms. The quant strategists create the pricing

models and risk analytics that underpin the algos.

It's always helpful for me to talk to the other traders as they have a good perspective on the market. Crypto trading never stops, so we have traders who work on a shift basis from our offices in London, Tokyo and Jersey City. I communicate with them every day to make sure we're aligned on the work that's coming up.

I then talk to our head of electronic trading about what we want to do today in terms of our trading strategy.

11:00am. I spend time working on our options trading algorithms, such as trading signals, arbitrage opportunities, automated trading on exchanges. I'm responsible for the whole lifecycle of our options systematic trading strategy, from idea generation to implementation through programming to back-testing, and then live trading.

I enjoy this breadth of approach. Some places have quant research split out from execution, but it's more fun to cover the whole lifecycle of systematic trading. I come up with my own ideas, and I'm also inspired by my colleagues.

12:30pm. I have lunch at my desk. It's normally very simple - a sandwich or a salad.

1:00pm. In the afternoon, we have our daily stand-up. This involves the whole options team, including the traders, quants and the back-end and front-end developers. It's another brief catch-up to discuss what we're planning for the next few hours.

1:30pm. I continue working on my trading algorithms. My main delivery time is between 9am and 3pm. Either side of that, I am typically trading, in meetings discussing the options market, trading strategies and the business, or dealing with more managerial issues and business related cases.

3:00pm. I hop on quick calls with colleagues from different functions, for example the data team to discuss our data feeds. Successful systematic trading strategies rely on good data, so it's important to make sure we have data that will differentiate us from our peers. I also meet with the finance team to discuss our PnL and risk.

3:30pm. I'm back to working on my trading algorithms and monitoring their performance.

5:00pm. I have a meeting with our US traders to discuss the market and our book.

7:00pm. I usually stop work. My time is quite flexible – there are days that I start early or finish late. On a good day, I usually finish around 7pm although 6pm finishes aren't unheard of when I have something planned. Once in a while, I work later – sometimes until 10pm or midnight.

My work is very interesting, so I always feel the day goes quickly. I enjoy working at a major global trading firm, developing the cryptocurrency options market. The team at B2C2 provides excellent support to help me succeed. My past working experience on foreign exchange and fixed income options has proved very useful in this role – my FX background in particular, due to the similarities in market conventions to crypto - have made it a smooth and natural move for me. The systematic strategies in TradFi are transferable to crypto, although there are some crypto-specific issues to take into account, for example the high volatility and vol of vol, the lack of liquidity in comparison to the TradFi options market, and the impact of DeFi products on the market such as DOVs – Defi Options Vaults.

8pm. I exercise quite a bit in the evenings. I used to do the tango but am now into traditional Chinese dance. I'm part of a troupe that recently gave a performance in Abu Dhabi. ■

Pay and working hours in banking and finance

If you want a job in banking and finance, it probably hasn't escaped your attention that the industry pays well.

As we've highlighted at the bottom of our descriptions of jobs in different sectors in this guide, finance is an industry where you can start on a salary of over $100k (£73k) and where you can earn over $250k within a few years. However, salaries are not the only element of pay in financial services: you can also expect a bonus. In combination, your salary and bonus are known as total compensation. As your pay increases, some of your bonus will typically be paid in the bank's stock and deferred over a few years.

The best paid jobs in banking and finance are in the front office and include people working in sales and trading and in the investment banking division (M&A and corporate finance). Jobs in the middle office (risk, compliance, accounting and technology) typically pay less. So do jobs in the back office (operations).

Banking jobs pay well, but some of the highest paid jobs also involve crazy hours.

The chart overleaf shows some of the best paid jobs in banking based on the eFinancialCareers salary and bonus survey. As you can see, the difference between the median and mean averages for our sample is greatest in sales and trading and the investment banking division; this is because bonuses in these divisions are skewed towards high performers.

Average total compensation (salary and bonus) by sector in banking

Sector	Mean average of Total Compensation ($US)	Median average of Total Compensation ($US)
Sales and Trading	406,847	280,400
IBD *	273,028	194,799
Risk	197,352	189,300
Technology	196,796	195,000
Research	195,219	165,200
Finance	180,282	126,143
Compliance	169,950	121,125
Operations	130,347	110,054

*Investment Banking division (M&A, ECM, DCM)

Source: eFinancialCareers

However, while you can expect to earn good money in front office finance jobs, you can also expect to work extremely hard for the privilege. In early 2021, a group of Goldman Sachs investment banking division (IBD) analysts famously complained about their inhuman working conditions and 100 hour+ working weeks.

The resulting media storm has prompted most banks to look at limiting the hours that their junior bankers work, and to increase salaries even higher than before. While 100 hour+ weeks may be less common in future, however, it's unlikely that junior bankers will ever work a standard 50 or even 60 hour week. – Long hours and demanding clients are part of the territory, so if you want to work in M&A and corporate finance, you need to expect 70-80 hour working weeks as a norm early in your career.

This doesn't mean that all areas of banking involve long hours though. The chart below, also based on the eFinancialCareers salary and bonus survey, shows that away from the investment banking division and the trading floor, the hours are more manageable. You're probably never going to work 40 hours a week in a banking and finance job – but you won't always have to work over 60 hours a week either. If you want to maximize your hourly pay as opposed to your overall pay in banking, jobs in technology and compliance look like a good bet.

Average working hours by sector in banking

Sector	Average working hours
IBD *	72
Accounting	60
Research	58
Sales and trading	55
Operations	51
Quant	50
Risk	50
Finance	49
Compliance	47
Technology	47

*Investment Banking division (M&A, ECM, DCM)

Source: eFinancialCareers

Average pay per hour by sector in banking

Sector	Average pay** per hour (US$)
Sales and Trading	162
IBD*	86
Technology	71
Risk	61
Operations	57
Finance	47

*Investment Banking division (M&A, ECM, DCM)
** Total compensation (salary plus bonus)

Source: eFinancialCareers

Once you've done your time in an investment bank, you can move to the buy-side (to a hedge fund or a private equity fund). As the chart below shows, hourly pay in these jobs is on a par with the best paid jobs in banks.

	Average total compensation per hour ($ '000)
Hedge Fund	145
Private Equity	84

Source: eFinancialCareers

The eFinancialCareers financial services glossary: 50 words you need to know

However good your resume and research, you won't necessarily do well at a banking interview unless you know how to talk like a banker. The investment banking world is full of jargon, technical terms and slang, and not understanding the language is a real giveaway. When you're asked a question, you don't want to be asking someone what they mean, or even worse, guessing. Here is our glossary of more than fifty of the words and phrases which occasionally trip up outsiders.

Advisory: Part of the Investment Banking Division. Similar to M&A, but with slightly more emphasis on providing advice and less on providing finance. Often the main or only business line of specialised boutiques.

Analyst: The most junior rank in banking, corresponding to the graduate training scheme. Analyst programmes last for two or three years.

Associate: The second most junior rank. Associates are either promoted from the Analyst programme or recruited from business schools with MBA qualifications.

Back office: Refers to staff who are responsible for settlement, administrative tasks and maintaining IT systems. Some back office jobs, particularly in IT development, can be very well paid, but in general they do not earn as much as the front office.

Bank: A financial corporation that operates with borrowed money and organises the provision of capital to other companies. Most jobs in banking will be with actual banks – holders of a banking licence who are allowed to take deposits from the public and which have access to central bank funding. But there are some investment banks

(particularly corporate finance boutiques) which use the name but which are technically brokerages or advisory practices.

Bloomberg: The Bloomberg news service provides the terminals which are the industry standard for news and price data.

Bonds: A bond is a loan which has been issued on standardised terms so that it can be split up and traded. The interest payments are called coupons. Bonds can be issued by governments, banks or industrial companies; they can also be created by bundling up small retail loans (in which case they are called "securitisations"). Bond issuance is the main job of Debt Capital Markets, and trading them takes place either on Rates or Credit desks, depending on the issuer.

Boutique: A small investment bank, usually concentrating on M&A advisory.

Brokerage: A company which matches buyers and sellers of securities, making money either out of charging a percentage commission, or out of the spread.

Buy side: People who work at hedge funds, mutual funds or in private equity. These are the clients of the investment banks, with the exception that someone working for a corporate client of IBD would not usually be called "buy side".

Capital markets: The part of Investment Banking Division which is responsible for helping corporate clients to raise money from the bond and equity markets. Capital markets bankers need to gather feedback from investors, decide on the pricing of securities and liaise with Sales & Trading to get the securities sold.

Cash market: As opposed to "derivatives market", the market in which "underlying" securities are bought and sold rather than derivative claims on them. Not to be confused with "money market".

Compliance: The middle office team who are responsible for ensuring that other parts of the bank comply with all relevant laws and regulations. Compliance officers are responsible for arranging training, monitoring activity and providing advice to employees.

Corporate finance: Another name for Capital Markets, with more emphasis on strategic advice on capital raising rather than execution and underwriting.

Coverage: A team crossing both advisory and capital markets specialisations, aiming to service the requirements of a particular client or sector.

Credit: In FICC divisions, "credit" refers to fixed income products other than government bonds and money market instruments, where the credit risk of the issuer is a major driver of the value of the security.

DCM: Debt capital markets.

Derivatives: Contracts between two parties which agree to exchange amounts of money based on something else. Most often, the "something else" (known as "the underlying") is a securities price, so you have "equity derivatives" based on share prices and "rates derivatives" based on interest rates. This isn't necessarily the case, though; there are "weather derivatives" which pay out based on average temperature or rainfall, and "credit derivatives" which pay out when a company defaults.

Director: The rank between Vice President and Managing Director. Directors will generally have significant management responsibility or be expected to look after clients of their own.

Distribution: The final stage of a capital markets transaction, coming after underwriting. This is the stage in which the securities are sold to investors.

ECM: Equity capital markets.

Equities: Shares; securities which represent part ownership in a company. In an investment bank, the word on its own refers to part of the Sales & Trading division, which will generally trade equity derivatives as well as cash equities, and may include the Research and Prime Brokerage operations as well.

Execution: The activity of actually making a transaction happen, once it has been agreed with the client. In Sales & Trading, this means finding a buyer to match the seller (or vice versa) at the best price possible. In IBD, it means carrying out the legal and administrative work to make the deal happen, and potentially conducting meetings to ensure that it has support from investors.

FICC: Fixed Income, Currencies and Commodities, one of the two main parts of a Sales & Trading division. Responsible for trading all instruments which aren't equities or equity derivatives.

FIG: Financial Institutions Group, usually one of the largest teams within Investment Banking. FIG teams concentrate on providing capital markets and advisory services to other banks and insurance companies.

Front office: Refers to banking staff who either make decisions on applying the firm's capital or have direct contact with clients. Front office jobs are usually (but not always) best paid, and often require regulatory authorization.

Hedge Fund: An investment fund marketed only to other institutional investors and very rich individuals. Hedge funds typically charge higher fees than retail mutual funds and have fewer restrictions on their investment strategies.

Institutional investor: A pension fund, mutual fund, hedge fund or sovereign wealth fund, investing in securities. The normal client of a Sales & Trading desk.

Investment Banking Division: Also known as IBD, this is one of the two main divisions in an investment bank. As opposed to Sales & Trading, IBD is concerned with providing financial solutions to issuers of securities rather than to investors. It is often further divided into Capital Markets versus M&A Advisory. Note that "investment banking" is also often used as a generic term including Sales & Trading, so it's important to understand which sense someone is using.

IPO: An Initial Public Offering. The sale for the first time of a company's shares to the general public on a stock exchange. IPOs are run by the Equity Capital Markets team in an investment bank and they can be extremely profitable transactions.

M&A: Mergers and Acquisitions. Bankers working in Investment Banking Division who provide advice to companies on taking over and buying other companies, either on an agreed or a hostile basis. This includes strategic advice on the actual deal, advice on the valuation of targets and arranging financing.

MD: Managing Director, the most senior rank in investment banking. MDs are generally expected to be able to originate deals and generate revenue.

Middle office: Generally refers to better-paid and more senior back office roles. Compliance and Risk Management staff would be considered middle-office, as would senior prime brokerage staff who had contact with clients as well as managing admin tasks.

Money market: The market for short term fixed income securities, used by banks and industrial companies to smooth out differences in the timing of their incoming and outgoing payments.

Origination: In investment banking generally and particularly in capital markets, the process of persuading a client to carry out a transaction with your bank.

Primary / Secondary: The first time securities are sold to the public, this is the "primary" market. Trading in them afterwards is "secondary". The distinction roughly matches that between Capital Markets and Sales & Trading internally within banks. If a company sells shares without raising new capital (for example, because the founder wants to reduce their stake) this is also called a "secondary" issue.

Prime brokerage: Not to be confused with "Brokerage". Prime brokerage teams provide services to hedge funds, such as looking after their settlement and back office functions and providing financing to them.

Private equity: Investment funds which buy whole companies or large ownership stakes in specifically negotiated deals rather than shares quoted on a stock exchange. The term includes "venture capital (VC)", which is focused on new companies and startups) and "financial sponsors" or "leveraged buyout firms (LBO)", which is focused on taking over existing companies to be sold later on for a profit.

Quant: Short for "quantitative analyst", this refers to a specialist in applied mathematics working on securities practices. There are "front office quants", who aim to design profitable trading systems, "middle office quants" who design systems for efficient execution of trades and "risk management quants" who measure probabilities of loss.

Rates: In FICC divisions, "rates" is the opposite of "credit" – it refers to bonds and derivatives where the value is driven by expectations about interest rates and credit risk can largely be ignored.

Research: The teams in Sales & Trading which are responsible for valuing securities and issuing recommendations to investors as to whether to buy or sell them. As well as company experts, research divisions will usually employ economic forecasters and "strategists" who attempt to forecast bond and equity markets as a whole.

Risk Management: The division responsible for measuring the bank's exposure to risks based on the securities it holds and the loans it has extended, and setting limits on them.

Sales and Trading: One side of the most important divide in an investment bank. S&T divisions, sometimes called "Global Markets", deal with brokerage activities. Research divisions are generally within Sales & Trading, as is prime brokerage. Sales & Trading is generally further divided into Equities and FICC.

Securities: Tradeable claims on future payments. Shares (equities), bonds ("Fixed income") or derivatives.

Securitisation: The process of buying a large number of smaller loans (mortgages or credit card debts, for example) and bundling them into a Special Purpose Vehicle which then issues bonds to the public, effectively transforming the loans into securities

Sell side: People who work at investment banks, speaking to clients on the buy side.

Settlement: The activity of making sure that records are updated and payments are sent to the right place after a securities transaction has been executed.

SPAC: A Special Purpose Acquisition Company – an SPV company which carries out an IPO despite having no actual business, to raise cash in order to acquire an existing company. A technique often used by financial sponsors as a way to get a stock market quotation, SPAC teams cross the boundary between Capital Markets and M&A.

Special Purpose Vehicle (SPV): A "brass plate" company formed by a bank in order to be the legal owner of some assets. An SPV generally has no staff or operations of its own. SPVs are a key building block in Structuring and in Securitisation.

Spread: The difference between the price quoted by a brokerage to buy securities (the bid) and the price quoted to sell the same securities (the ask). Buying at the bid and selling at the ask is how brokerages make money. The word "spread" can also refer to the difference between two interest rates.

Structuring: Designing complex securities (usually involving derivatives) to achieve particular goals for either the investor or the issuer – these can include specific tax treatment, particular mixtures of risk and reward, or the bundling up of small loans into a larger security which can be publicly traded. This activity crosses the divide between Investment Banking and Sales & Trading and might be found on either side depending on how a bank is organised.

Syndicate: A specialist team within Capital Markets which handles communication and relationships with other banks in transactions which involve a large number of investment banks.

Underwriting: The practice of buying securities from the issuer, then distributing them to the public. During an underwriting, the bank is at risk because it is holding the securities and so is exposed to movements in their value; it takes a fee to compensate for this. Underwriting is one of the activities managed by Capital Markets teams.

VP: Vice President, the rank above Associate and below Director. VPs usually have five to seven years' experience and are the most junior of the management roles.

Directory

Banks

Asian Infrastructure Investment Bank	https://www.aiib.org/en/opportunities/career/job-vacancies/internship/index.html
Banco Santander S.A. Filiale Frankfurt	https://www.santander.com/en/careers
Bank of America	https://campus.bankofamerica.com/opportunities.html
Barclays	https://search.jobs.barclays/graduates
BNP Paribas	https://careers.bnpparibas.co.uk/early-careers/graduates/
Centerview Partners	https://www.centerviewpartners.com/careers.aspx
Citigroup	https://careers.citigroup.com/students-and-graduates/
Credit Agricole	https://uk.gradconnection.com/employers/credit-agricole-hk/
Credit Suisse	https://www.credit-suisse.com/careers/en/students.html
DBS	https://www.dbs.com/careers/internships/university
Deutsche Bank	https://careers.db.com/students-graduates/#/graduate/
Evercore	https://evercore.tal.net/vx/lang-en-GB/mobile-0/appcentre-ext/brand-6/xf-ab0edeedcfb2/candidate/jobboard/vacancy/2/adv/
Goldman Sachs	https://www.goldmansachs.com/careers/students/
Greenhill & Co	https://www.greenhill.com/en/careers/analysts
Guggenheim	https://www.guggenheimpartners.com/firm/careers/internship-career-opportunities
HSBC	https://www.hsbc.com/careers/students-and-graduates/graduate-opportunities
ING	https://www.ing.jobs/luxembourg-en/graduates-programme.htm
JP Morgan	https://careers.jpmorgan.com/us/en/students?search=&tags=location__EuropeMiddleEastandAfrica__UnitedKingdom
Macquarie	https://www.macquarie.com/uk/en/careers/graduates-and-interns.html
Moelis & Co	https://moelis.wd1.myworkdayjobs.com/University-Hires
Morgan Stanley	https://www.morganstanley.com/people-opportunities/students-graduates
Perella Weinberg Partner	https://pwpartners.com/careers/intern-graduate-recruitment/
PJT Partners	https://pjtpartners.wd1.myworkdayjobs.com/en-US/Students
Reichmuth & Co. Privatbankiers	https://www.reichmuthco.ch/en/private-clients/reichmuth-co/career/
RW Baird	https://bairdcareers.com/
Societe Generale	https://careers.societegenerale.com/en/students-graduates/graduate-programmes
Standard Chartered	https://www.sc.com/en/global-careers/early-careers/
UBS	https://www.ubs.com/global/en/careers/recent-graduates.html
Wells Fargo	https://www.wellsfargojobs.com/internationalearlycareers

Directory

Hedge Funds

AQR	https://www.aqr.com/About-Us/For-Students
BAM	https://www.bamfunds.com/careers/campus-recruiting
Brevan Howard	https://www.brevanhoward.com/careers/
Citadel	https://www.citadel.com/careers/open-positions/positions-for-students/
DE Shaw	https://www.deshaw.com/careers/internships
Farallon	https://www.faralloncapital.com/careers
Man Group	https://www.man.com/students-and-graduates
Marshall Wace	https://www.mwam.com/join-us/graduates/
Millennium Management	https://www.mlp.com/careers/students/
Point72	https://careers.point72.com/#
The Children's Investment Fund Management	https://careers.ciff.org/
Two Sigma	https://www.twosigma.com/careers/internships/

Private Equity

3i Group	https://www.3i.com/careers/graduates/
Abris Capital Partners	https://abris-capital.com/summer-internship/
Advent International	https://www.adventinternational.com/global-reach/talent/
Alpha Group	https://www.alphape.com/contact
Altor Equity Partners	https://careers.altor.com/pages/altor-internship-program
Apax Partners	https://www.apax.com/people/careers/
Ardian	https://www.ardian.com/join-us
Astorg	https://www.astorg.com/contact
Bain Capital	https://www.baincapital.com/news
BC Partners	https://www.bcpartners.com/contact
Bowmark Capital	https://www.bowmark.com/contact
Bridgepoint	https://www.bridgepoint.eu/careers/internships
Capvis	https://www.capvis.com/files/redakteur/downloads/Job%20Profile_Private%20equity%20internship%20at%20Capvis%20Baar_Frankfurt_Search%202023.pdf
Castik Capital	https://www.castik.com/career
CEE Equity Partners	http://cee-equity.com/contact/
Cinven	https://www.cinven.com/media/media-contacts/
CVC Capital Partners	https://www.cvc.com/about/working-at-cvc/
Deutsche Beteiligungs AG	https://www.dbag.de/karriere/karriere
Enterprise Investors	https://www.ei.com.pl/en/contact/

Directory

Epiris	https://www.epiris.co.uk/team/careers/
EQT Partners	https://eqtgroup.com/about/life-at-eqt/eqt-academy
Equistone Partners Europe	https://www.equistonepe.com/contact/london
Exponent Private Equity	https://www.exponentpe.com/contact-us
F2i Sgr	https://www.f2isgr.it/en/contatti.html
HG Capital	https://hgcapital.com/job/investment-interns/
Hitecvision	https://www.hitecvision.com/career/graduates-internships
IK Investment Partners	https://ikpartners.com/contact/
Intermediate Capital Group	https://www.icgam.com/people-and-careers/careers/early-careers/
Investindustrial	https://www.investindustrial.com/our-contacts/offices.html
KKR & Co. Inc.	https://boards.greenhouse.io/kkr
LDC Private Equity	https://ldc.co.uk/contact/#footer-form
Livingbridge	https://www.livingbridge.com/get-in-touch/
Lone Star Funds	https://www.lonestarfunds.com/contact-us/
MCI Group	https://mci.pl/en/formularz_rejestracyjny
Mid Europa Partners	https://mideuropa.com/recruitment/
Montagu Private Equity	https://montagu.com/contact/
Neuberger Berman Group LLC	https://nb.wd1.myworkdayjobs.com/nbcareers?q=intern
Nordic Capital	https://career.nordiccapital.com/jobs/1750112-internship-stockholm-spring-2023
PAI Partners	https://www.paipartners.com/contact-us/
Partners Group	https://jobs.partnersgroup.com/content/Internship-Programs/?locale=en_GB
Permira	https://www.permira.com/contact-us
TDR Capital	https://www.tdrcapital.com/contact/
The Blackstone Group Inc.	https://www.blackstone.com/careers/students/
The Carlyle Group Inc.	https://www.carlyle.com/careers
Thoma Bravo	https://www.thomabravo.com/people-culture
TPG Capital	https://www.tpg.com/contact-us/
Triton Partners	https://www.triton-partners.com/careers/#internshipfrankfurt
Vista Equity Partners	https://www.vistaequitypartners.com/careers/open-positions/
Vitruvian Partners	https://www.vitruvianpartners.com/contact
Warburg Pincus LLC	https://warburgpincus.com/careers/

Asset Management

Aegon	https://www.aegon.co.uk/careers.html
Affiliated Managers Group	https://www.amg.com/contact-us/

Directory

AllianceBernstein	https://www.alliancebernstein.com/corporate/en/careers/students.html
ARDIAN Germany GmbH	https://www.ardian.com/join-us
Artemis	https://www.artemisfunds.com/en/about-artemis/careers
Ashmore	https://www.ashmoregroup.com/en-gb/self-certify?dest=/en-gb/contact-us
Avaloq	https://www.avaloq.com/careers
Aviva Investors	https://careers.avivainvestors.com/starting-your-career/
Baillie Gifford	https://earlycareers.bailliegifford.com/graduate-programmes/
Barings	https://www.barings.com/en-gb/guest/about/careers
Blue Tree Group (IB)	https://bluetreegroup.de/news/
BlueBay Asset Management	https://www.bluebay.com/en-gb/institutional/who-we-are/about-us/
Charles Schwab Corporation	https://jobs.schwabjobs.com/internship-academy
Colchester Global Investors	https://colchesterglobal.com/united-kingdom/contact-colchester-global/
Columbia Threadneedle Investments	https://www.columbiathreadneedle.com/en/about-us/?attested&country=global&language=en&investorType=all
Dimensional Fund Advisors	https://careers.dimensional.com/
Dodge & Cox	https://www.dodgeandcox.com/financial-professional/gb/en/about-us/dei.html
Eaton Vance	https://global.eatonvance.com/contact.php?RP=contact&asp_role=Investment+Professional&asp_token=723600
Edward Jones Investments	https://careers.edwardjones.com/career-areas/students-and-recent-grads/
Fidelity Investments	https://fidelityinternational.tal.net/vx/lang-en-GB/mobile-0/brand-5/candidate/jobboard/vacancy/1/adv/
Franklin Templeton Investments	https://www.franklintempletoncareers.com/
Genesis Investment Management	https://www.giml.co.uk/contact/
Geode Capital Management	https://www.geodecapital.com/careers
Guggenheim Partners	https://www.guggenheimpartners.com/firm/careers
Insight Investment	https://www.insightinvestment.com/uk/careers/graduates/
Intermediate Capital Group	https://www.icgam.com/people-and-careers/careers/early-careers/
Invesco Ltd	https://careers.invesco.com/emea/
Investec	https://www.investec.com/en_gb/welcome-to-investec/Careers/graduates.html
J.O. Hambro Capital Management	https://www.johcm.com/uk/contact-us/sales
Janus Henderson	https://www.janushenderson.com/careers/
Jupiter Asset Management	https://www.jupiteram.com/careers/opportunities/
KKR & Co. Inc.	https://boards.greenhouse.io/kkr
Lazard	https://www.lazard.com/careers/students/

Directory

Legal & General	https://www.legalandgeneral.com/careers/future-talent/
Loomis, Sayles & Company	https://www.loomissayles.com/website/about-us/working-at-loomis?scrollto=internships
Lord Abbett	https://www.lordabbett.com/content/lordabbett/captivate/en-us/financial-advisor/index/about-us/careers/careers.html
Majedie Asset Management	https://www.liontrust.co.uk/contact-us
MassMutual	https://www.massmutual.com/about-us/careers/early-careers
MetLife Investment Management	https://jobs.metlife.com/content/Intern/?locale=en_US
MFS Investment Management	https://www.mfs.com/en-us/individual-investor/about-mfs/careers.html?tabname=inPageNavigation-tab2
Mondrian Investment Partners	https://www.mondrian.com/graduate-program/
New York Life Investments	https://jobs.newyorklife.com/go/Investment-Jobs/4451800/
Newton Investment Management	https://www.newtonim.com/global/careers/vocational-trainee-programme/
Ninety One	https://ninetyone.com/en/united-kingdom/careers?ipnl=Graduates+and+interns&subTab=Graduates+%26+interns
Nuveen	https://careers.tiaa.org/nuveen/global/en/home
Pantheon Ventures	https://www.pantheon.com/careers/
Record Currency Management	https://recordfg.com/careers/
Rothesay Life plc	https://www.rothesay.com/about-us/careers/graduate-programme/
Royal London Asset Management	https://www.rlam.com/uk/contact-us/
Russell Investments	https://russellinvestments.com/uk/careers
Savills Investment Management	https://careers.savillsim.com/
Schroders	https://www.schroders.com/en/about-us/careers/graduates/
SEI Investments	https://careers.seic.com/global/en/c/students-entry-level-jobs
Standard Life Aberdeen	https://www.abrdn.com/corporate/careers/early-careers
Swiss Life Asset Managers	https://www.swisslife-am.com/en/home/careers/young-talents.html
T. Rowe Price	https://www.troweprice.com/corporate/uk/en/careers.html
TCW Group	https://www.tcw.com/Our-Firm/Careers/Internship-Recruitment
The Vanguard Group	https://www.vanguardjobs.com/job/9702085/talent-community---interns--students---graduates-london-england/
Veritas Asset Management	https://www.vamllp.com/contact/
Voya Investments Management	https://www.voya.com/page/internships
Walter Scott	https://www.walterscott.com/careers/

Directory

Western Asset Management Company	https://careers.westernasset.com/students
Winton Group	https://www.winton.com/working-at-winton

Cryptocurrency

Anchorage Digital	https://www.anchorage.com/careers/
B2C2	https://www.b2c2.com/team/careers
Binance	https://www.binance.com/en/careers/department?name=Internships
BlickFills	https://www.blockfills.com/contact/
Bluesky Capital	https://www.blueskycapitalmanagement.com/careers/
Chainanlysis	https://boards.greenhouse.io/chainalysis
Ciphertrace	https://ciphertrace.com/jobs/
Coinbase	https://www.coinbase.com/careers
Copper	https://copper.co/careers
Elliptic	https://apply.workable.com/elliptic/
Elwood	https://boards.greenhouse.io/elwoodtechnologies
Eventus	https://www.eventus.com/company/#Careers
Fidelity Digital Assets	https://www.fidelitydigitalassets.com/careers
Fireblocks	https://www.fireblocks.com/careers/current-openings/
Galaxy Digital	https://boards.greenhouse.io/galaxydigitalservices
Gemini	https://www.gemini.com/internships
GSR	https://www.gsr.io/careers/
Inca Digital	https://inca.digital/careers/
Kraken	https://www.kraken.com/en-gb/careers
NYDIG	https://nydig.com/careers
Solidus Labs	https://www.soliduslabs.com/careers
Tagomi	https://client.tagomi.com/login
Talos	https://talos.com/join-talos/
TRM Labs	https://www.trmlabs.com/careers
TSImagine	https://tsimagine.com/about/careers/

Big Four

Deloitte	https://www2.deloitte.com/uk/en/careers/programmes.html?icid=top_programmes
EY	https://careers.ey.com/ey/search/?q=Switzerland
KPMG	https://home.kpmg/xx/en/home/careers/graduates.html
PWC	https://www.pwc.co.uk/careers/student-careers.html