1. **Basic information**
2. **EDHEC Scientific Beta**

* Established by EDHEC – Risk Institute, Scientific Beta aims to be the first provider of a smart beta platform to help investors understand and invest in advanced beta equity strategies. It has 3 principles:
  + **Choice:** A multitude of strategies are available allowing users to build their own benchmark among the wide range of indices available on the platform, choosing the risk which they wish to be exposed.
  + **Transparency**
  + **Clarity:** Explanations and methodologies are provided, as well as detailed performance and risk analytics.
* As of 30 June 2018, USD 34 billion of institutional assets tracking Scientific Beta indices, including over USD 14 billion replicating indices integrating Environmental, Social and Governance (ESG) concerns. Total 52 employees.
* **Investment Philosophy:**
  + Offering exposure to long-term rewarded risk factors
  + Ensuring a good reward for these factors through good diversification of unrewarded risk
  + Guaranteeing sound risk management of the investment by implementing risk allocation
* **Products:**
  + **Scientific Beta Indices:** Smart Beta indices that aim to be the reference for the investment and analysis of alternative beta strategies.
  + **Scientific Beta Analytics:** Allow investors to evaluate advanced beta strategies in terms of risk and performance.
  + **Customized benchmarks and solutions:** Offers the possibility of determining specific combinations of factors, considering optimal combinations of smart beta strategies, defining a stock universe specific to the investor and taking account of specific risk constraints during the benchmark construction process.

1. **Job Requirements – Financial Analyst (Responsible Investment)**
   * Perform quantitative and fundamental analysis to support research and development in responsible investing
   * Contribute to reports and develop materials on the integration of responsibility and sustainability criteria into passive and factor investment
   * Collaborate closely with data vendors/providers to acquire knowledge about data and address quality issues
   * Perform secondary data research using company filings and disclosures and other public sources
   * Develop and implement processes to ensure the quality and integrity of financial and ESG data at the input and output stages
2. **General Knowledge**

* **Traditional cap-weighted indices:** Exposed to risk factors that are unrewarded and poorly diversified.
* Factor model postulates different factors, such as earnings growth rates, interest rate etc. can affect the excess return of a stock. Models can be single factor or multi-factor:
  + **Capital Asset Pricing CAPM:** Single factor model which models the expected return as a function of beta, i.e. systematic risk. For example, when we talk about the beta of a security, we are saying how many units of risk are in this security with respect to changes in the overall market.
  + **Multi-factor models:** Macroeconomic factors, such as inflation, interest rates and GDP, might affect the behaviours of different securities, so it is not fair to lump everything under one single systematic risk. Remember: The goal is to diversify all possible risks, so that we can better predict the expected return. Multi-factor strategies are superior in that they diversify the risk of a single factor underperforming by investing into several different factors with different characteristics.
  + Well-known single factor indices: Value, quality and low volatility 🡪 These single factor indices, when blended together, they were not getting equal amount of risk exposures coming from each of these indices
  + Fama French 3-Factor model: Market, Size (Small cap stocks outperform big-cap stocks), Value (Value stocks, i.e. High price-to-book ratios, outperform growth stocks).

1. **Interview questions**
2. ***Tell me more about yourself***

My bachelor degree was from NUS, where I majored in Accountancy. That was between 2009 and 2013.

Between 2013 and 2016, I was a manager with the Central Provident Fund (CPF) Board, where I was involved in:

* Analysing raw data to (1) ensure that they are accurate for government scheme payouts and (2) identify prevalent trends and provide relevant recommendations to support government policy reviews
* Working directly with my IT colleagues on various new implementations (i.e. develop new systems) and system enhancements/automations (i.e. on existing user interfaces), where I have to come up with the project requirements, test plan and scenarios, and thereafter test the new/enhanced system to ensure everything checks out according to the requirements.

Thereafter in 2016, I went on to pursue my joint Master studies in Quantitative Finance with SMU and City University, which is based in London.

After my graduation from my Master’s studies in Aug 2017, I began my new career with Mizuho Bank, where I was involved in working with various stakeholders to develop robust financial tools using programming languages and conduct research on latest Fintech developments and solutions.

1. ***Describe your trading experience***

Personally, I do not have much experience in market trading.

Prior to my stint with Mizuho Bank, I held some stocks for passive trading [If asked: Biomedical/Agricultural technology sector: Trendlines, Manufacturing: Innovalues (delisted and taken over by private equity firm, Telcos: Singtel and Starhub)].

During my time with SMU, I was also involved in several trading-related coursework. One of them was the technical analysis of quantitative trading strategies, where I was involved in back-testing 2 trading strategies:

* DeMark’s 9-day moving average strategy (mean reversion strategy: Buy if Pt < Pt-4 for 9 consecutive times and Sell if Pt > Pt-4 for 9 consecutive times
* Multi-asset dollar-neutral factor strategy (mainly value factor, i.e. high minus low, and momentum factor, i.e. based on one-month returns)

These trading strategies were back-tested against portfolios of 20 largest US technology stocks and 20 largest healthcare stocks using MATLAB and Python. Thereafter, we evaluated each strategy’s performance by measuring average P&Ls, volatilities and trading Sharpe ratios:

* DeMark’s 9-day moving average strategy works well for stocks with low volatility
* Multi-asset dollar-neutral factor strategy, in this case a bottom-up approach was used, works well for stocks with lower frequency price and slower rebalancing periods (e.g. monthly)

1. ***Workfare details***

Just a brief introduction on Workfare, which was the government scheme that I was working on. Workfare is a government scheme that encourages eligible lower wage workers to stay employed by supplementing their monthly incomes and retirement savings with monthly payouts. It also encourages them to up-skill by providing separate funding support for their training purposes.

Before 2017, one of the qualifying criteria is that the worker must be earning a gross monthly income of not more than $1,900.

During the Workfare policy review for 2017’s implementation, one of the goals was to ensure that Workfare will continue to be targeted at the bottom 30th income percentile of workers. From the income data residing in our database, we were able to identify that the nominal gross income of the bottom 30th percentile has increased from $1,900 in 2012 to $2,000 in 2015. Thus, we proposed to our Minister to peg the new income ceiling to $2,000 instead for 2017’s implementation.

1. ***Why do you want to work in EDHEC Scientific Beta?***

I feel that scientific Beta presents itself as an ideal organization, where individuals can learn the most advanced techniques in factor investing and portfolio construction. It is also one of the few companies out there where sound product design and rigorous academic evidence matter more than short-term sales objectives.

1. ***Why do you want to pursue a Financial Analyst?***

Personally, I am someone who enjoys working in an environment where it allows me to make full use of my financial knowledge and analysis skillsets. Secondly, I am interested to learn more about factor investing and portfolio construction. This Financial Analyst role, which Scientific Beta is offering, is a close fit to what I am looking out because firstly I could pursue my interests and secondly I can make use of my skillsets to perform quantitative analysis to support research and development in responsible investment so as to create long-last changes to the company and investors.

1. ***Why do you want to leave your current job?***

My current job focuses more on the IT programming aspects, where I use programming languages and automation software to design financial tools to meet end users’ requirements. While my job may appeal to some, I am the kind of person who would derive more job satisfaction where I can make full use of my financial knowledge and existing skillsets to tackle bigger challenges and make a long-lasting impact to all relevant stakeholders.

1. ***Where do you see yourself in 5 years’ time?***

My current motivation is to find a position at a company where I can grow and take on new challenges over time. Ultimately, I would like to be involved in projects that would hone my modelling/analysis skillsets. But most importantly, I want to work for an organization where I can build a long-term career.

1. ***Why do you want to leave your previous job at CPF Board? Why the sudden decision to further your studies? And why Quantitative Finance?***

First, I believe in the process of lifelong learning. Since knowledge and technology are changing with time, I feel that it is important to keep up with current environment by acquiring relevant skillsets that I did not have previously, such as programming.

Second, I always have an interest in financial data analysis. With the abundance of data in this time and age, there are ample opportunities where we can use data to derive useful insights to improve business processes and decision making. These 2 reasons propelled me to pursue a Master’s degree in Quantitative Finance.

1. ***Share your strengths and weaknesses***

Strengths: Data research and analysis, business analysis, project management, stakeholder management

Weaknesses: I feel that I am a persistent perfectionist, where I will devote my time to deliver every piece of work in the best way possible. As I soon realised, this persistence can be very tiring. In order to remain sustainable in the long-run, I have learnt to choose the battles that I wish to fight in.

1. ***What is the riskiest thing that you have done?***

The riskiest thing I have done was revising for my GMAT test 3 days prior to the test date. That was in 2016. Back then, I was busy rolling out a major time-critical project for CPF Board. There was hardly enough time for revision as I had to work occasionally on weekends. When I finally had the time for revision, I spent half a day designing a study plan and setting daily goals. The daily goals involved familiarizing myself with tonnes of vocabulary that I had not seen in my life and reviewing the sample GMAT papers. This was necessary for me as it had been 3 years since I left formal education and I did not receive any formal GMAT training prior to the test.

During those 3 days, I stuck closely to my study plan and ensured that the daily goals were met at the end of each day. While this was a risky move, I believed that my self-discipline and ability to cope with high pressure time-critical situations would see me through this difficult time. Because of these characteristics, I managed to pass the GMAT test.

1. ***What is your biggest mistake?***

During my stint with CPF Board, part of my job involved dealing with large amounts of data to ensure that they are accurate for government payouts. In that incident, I overlooked on some data anomalies and this resulted in erroneous payments made to the public. When I realized what I had done wrong, I immediately took responsibility and devised a recovery action plan to inform the affected individuals about the erroneous payments. As the affected number was less than 10, I called up each of them to apologize, and explained to them how the erroneous payments came about.

It was a painful lesson, but it was when I realized I learnt to be more sensitive when handling data, e.g. anticipate different scenarios where things may go wrong, and take pro-active steps to prevent such events from happening.

1. ***Describe one major time-critical project that you took part in and describe how you handled it?***

One of the major time-critical projects that I handled was during my current stint with Mizuho Bank, where I had to invent a new tool to automate the matching and booking of Non-Deliverable Forward (NDF) trades between front-end and back-end systems within the short time span of 2 weeks.

It was an intensive process because I had to work with inherent system constraints/differences and think of innovative ways to match and book the NDF trades accurately and automatically in both front and back office systems, without changing the existing front and back office system designs. In the end, I resolved all these issues with the use of Excel VBA and Robotic Process Automation (which was a new and untested technology for the Bank). As a result of this automation tool, a total of 2 man-hours was saved on a daily basis for both front and back offices.

1. ***Do you have any questions for us?***

* What is the career progression like?
* What are the performance expectations of this position over the first 6 months?