Market Researcher Case Study

Bond Investment Strategy

TankX Hiring Team

Introduction

As a market researcher, your daily routine involves both quantitative and qualitative research and analysis. One of your primary responsibilities will be to utilize the Bloomberg Terminal and its data feed effectively to support decision-making and form investment opinions.

Therefore, this practice test has been designed to offer a concise sample of an authentic use case that aligns with the skills required for the position. The case will assess your proficiency in data analysis, interpretation skills, and your ability to support investment decisions through quantitative methods.

The choice of technologies and data interpretation approaches is at your discretion. However, we strongly recommend using Python to handle the data provided in both documents, bonds.xlsx and cds_by_countries.xlsx, because Bloomberg's embedded data manipulation tools utilize the Python interpreter and interface.

You can submit your solution by emailing the files, sharing a public GitHub project, or using any other suitable method. It is preferred that your code and/or analysis files are clear, and easy to read. You will also make a presentation for your findings. The format is up to you, but we encourage clear and concise presentations focusing on key insights, as we will have **30 minutes** to discuss all the topics.

You will have **7 days** to submit your response after receiving the email.

Bond Investment Strategy – The Case

The TankX investment team has chosen to hold $10 million worth of government bonds, considering the escalating global political uncertainty and the current outlook that gives a sign to shift towards more hawkish to dovish policies by central banks worldwide. As the sole portfolio quant analyst in the company, your responsibility is to analyze bond data exported from Bloomberg to form an investment decision.

The team's goal is to diversify its bond portfolio by investing in both high-yield (junk) bonds to enhance profitability and high-grade bonds to mitigate default risks. Additionally, the team aims to identify potential mispricing in the global bond market, which may result from rapidly changing daily demands or market shocks since there is a possibility of non-permanent mispricing or CDS (Credit Default Swaps)/yield arbitrage in the bond market.

Therefore, the management team has requested an analysis and your approach to construct a portfolio with a $10 million investment in bonds. Provide a detailed explanation for your investment recommendation, clearly outlining your approach and expected return. It's important to note that there is no single approach or solution for the case.

The team envisions an ideal investment period of one year. Although they have the option to maintain this position for up to 5 years, it is crucial to have the ability to liquidate whenever they wish to reallocate more funds to other trading operations, such as HFT trading, during the 1 to 5 years period.

There are two data files retrieved on 24 November. Concentrate on analyzing market data and conducting financial analysis using two datasets, the Bonds file, encompassing government bonds data, and the CDS file, comprising 2, 5, and 10-year CDS data for various countries.

Your assignment is to present a long-term investment strategy (laddering, barbell, global diversification etc., or a mix of them), demonstrating your proficiency in financial analysis. If necessary, please clean the provided data. Provide a brief explanation of whether you can mitigate interest rate risk, inflation risk, credit risk, and liquidity risk in your portfolio or not. Analyze how changes in interests, inflation, and credit risks impact your portfolio's performance: Conduct a scenario analysis to assess the associated risks.

We anticipate receiving two or three files from you: Potentially a code file (preferably in Python), a presentation file (ppt/pdf), and any supplementary document if needed.

We value your insights and encourage you to submit your proposals, regardless of their complexity. Our goal is to understand your approach and thinking process, even if the solution is not fully developed.

Additional Note:

Utilize CDS to assess the creditworthiness of public institutions and organizations in any given country. In cases where a country's government lacks a CDS, consider employing the CDS of public institutions within that country, treating them as representative of the overall credit risk. You can eliminate CDS matching if an institution has issued only one bond.

Best of luck!