**Internship with JPM’s ALM Research & Strategy - Application**

**Who We Are: Team Overview**

J.P. Morgan’s Treasury/ Chief Investment Office (TCIO) is responsible for Asset & Liability Management (ALM) of the firm’s balance sheet. While a comparatively small group (~1000 people globally), we oversee one of the largest commercial bank balance sheets in the world. In accordance with our ALM mandate, we directly manage ~$600B cash holdings, ~$600B investment portfolio and ~$500B funding and capital position. In addition, we indirectly manage the rest of ~$3.8T balance sheet by influencing the activities of JPM’s lines of business through an internal transfer pricing mechanism.

TCIO sits within the Office of the Chief Financial Officer, and spans a variety of functions, including investment portfolio management, funding, capital & liquidity management, internal transfer pricing, risk management, finance, and operations. The ALM Research and Strategy (ALM R&S) team works with each of TCIO’s functions to develop best-in-class quantitative analytics, models, and frameworks to inform the strategic decisions of JPM’s senior management.

Specifically, ALM R&S:

* Leads the Firm’s interest rate risk management framework;
* Publishes sophisticated research on deposits and money flow;
* Develops TCIO’s investment portfolio strategy;
* Heads the Firm’s balance sheet optimization efforts; and
* Surveys ALM trends across the banking industry.

**Intern Role Description**

In ALM R&S, we aim to provide a steep learning curve to our interns by maximizing their exposure to a wide set of business activities under TCIO’s umbrella. A typical summer internship will include one or two major projects, as well as multiple ad-hoc exercises. Examples of prior years’ projects include:

* Building an automated framework that predicts the evolution of the Firm’s interest rate risk position in a set of hypothetical market scenarios
* Designing an analytical approach to infer qualitative characteristics of industry-wide deposit flows to help predict the potential impact of industry trends on the size and composition of the Firm’s liabilities
* Measuring risk-adjusted performance of asset allocation within the Firm’s investment portfolio
* Optimizing the Firm’s capital buyback activities
* Analysing market share evolution dynamics for major lending markets

In addition to work assignments, we provide a wide set of training courses and opportunities to network with the industry’s top professionals in the field.

**Qualifications: What We Expect**

* Strong academic background:
  1. Master’s degree or above in Physics, Mathematics, Computer science, Engineering, or related disciplines and strong interest in Finance and Banking, and / or
  2. Master’s degree or above in Finance, Economics or related disciplines plus demonstrated excellent quantitative skills
* Proficiency in Python
* Enthusiasm for working with large datasets and automating operations
* Business intuition on financial industry and bank balance sheet management
* Ability to effectively perform in a team environment, strong communication skills

**Application Requirements**

All applicants must complete both the below Quantitative and Qualitative questions by Monday, November 21, 2022 (11:59PM ET). Please respond to this [email address](mailto:tcio.recruiting@jpmorgan.com) to **submit your answers, source code and any other attachments in one zip file**.

**Quantitative Assignment**

For the Quantitative Assignment, you must use Python 3 for the implementation, and you must use the FRED API to query and retrieve data. Write a brief 2-page (PDF) summary of your model, modeling choices, and conclusions. A few suggested points to keep in mind while building the model and writing the summary:

* Did you have to apply any transformations to the variables?
* How did you test the stability of your results?

Step 1: Query and retrieve the following data series from online macroeconomic database FRED using their API ([https://fred.stlouisfed.org/](https://secureweb.jpmchase.net/readonly/https:/fred.stlouisfed.org/)):

|  |  |  |
| --- | --- | --- |
| **#** | **Data series** | **FRED Ticker** |
| 1 | US 1Y Treasury | GS1 |
| 2 | US 2Y Treasury | GS2 |
| 3 | US 3Y Treasury | GS3 |
| 4 | US 5Y Treasury | GS5 |
| 5 | US 7Y Treasury | GS7 |
| 6 | US 10Y Treasury | GS10 |

Step 2: Consider the dataset of monthly changes of the 6 series above. Can you reduce the dimensions of this new dataset, while still explaining “most” of the variation in it? How would you interpret these “reduced” dimensions? Are they stable over time?

**Qualitative Assignment**

Please answer the following questions:

1. What interests you about the opportunity to intern with ALM R&S? How does this fit within your long-term career interest?
2. Tell us one thing about yourself we would not otherwise know from your resume.
3. Describe a situation when you had to multi-task under challenging timelines. What would you do differently if you had to do this again?