Navigating Economic Links: A Web Platform for Customized Business Network Extraction

Keywords: Web-App, Python, SQL Database, Business Network, Lead-lag effect

Project description

Understanding the economic interconnections among global firms is crucial for investors, financial analysts, and policymakers. Current methods to access such a network of business relationships are limited, fragmented, or not customizable according to investor preferences.

In this project, the student will develop a web-based platform that allows users to download a global business network based on their specific requirements, such as investment period, stock universe, and firm size. The platform aims at filling the existing gap by providing a more targeted and user-friendly access to business relationship data.

The frontend of the website will be developed using either React, Angular or similar libraries. The backend will be supported by a Python API in conjunction with a SQL Database. For initial setup and testing, the student is required to establish the project locally, implementing the API using Flask and setting up the database via XAMPP.

Upon completion of the frontend, users should be able to choose their desired investment period, define a stock universe based on countries and firm size, and then download the tailored network through a single button click. The final phase of the project will involve employing this downloaded network to test the well-established lead-lag effect in financial markets (Cohen & Frazzini, 2008; Cohen, 2012; Moskowitz and Grinblatt, 1999; Müller, 2019; Parsons et al., 2020).

To complete this project successfully, the student should possess a strong background in programming, specifically in Python, along with foundational knowledge of frontend development frameworks such as React or Angular. Familiarity with SQL databases is also essential. Moreover, the student should have a deep interest in finance, economic networks, and data analysis. The student will be provided with instructions for API design and receives the necessary data to fill the database with the required data.
What we are looking for

- Strong analytical and project management skills
- Determination and passion for your areas of expertise
- Good Python programming skills
- Interest to work at the intersection of finance and IT
- 1 or 2 persons

What we offer

- Knowledge in quantitative finance, corporate finance, machine learning and textual analysis
- Kick-off session including introduction to relevant finance and/or business topics
- Experience with IDPs
- Open dialogue and support
- Access to prime capital markets databases (Bloomberg, Datastream, Thomson Reuters, etc)
- Potential for publication and/or evaluation of future use cases
- Both single and group projects are possible

Interested?

Please send an e-mail with CV, academic transcript and your preference for this project to christian.breitung@tum.de

Questions?

In case of any (e.g. topic related) questions, please contact Christian Breitung (christian.breitung@tum.de)

References


