README

Project Title

Replication of "Corporate Debt Booms, Financial Constraints, and the Investment Nexus"

Overview

This project replicates the key findings of the original paper by Albuquerque and Mao (2023), analyzing the impact of corporate debt booms on firm-level investment while focusing on financial vulnerability and congestion effects. The study uses firm- and industry-level data, applies local projection (LP) methodology, and incorporates an instrumental variable approach to address endogeneity issues.

Files Description

1. **data_cleaning_code.py**:

   This Python script cleans and processes the raw dataset (updated_firm_data.dta) to prepare it for analysis.

   - **Key Steps**:
     - Identifies industry classifications (IT Services, Telecom, Electronics).
     - Calculates financial metrics such as debt ratio, Tobin's Q, and ROA.
     - Flags vulnerable and unconstrained firms based on debt and liquidity thresholds.
     - Calculates industry debt ratios and the share of vulnerable firms in an industry per quarter.

        - Incorporates a dummy variable for the Global Financial Crisis (2008 and after).
        - Generates cleaned datasets for six time horizons (1, 4, 8, 12, 16, and 20 quarters).
    - **Outputs**:
        - h1_clean_data.dta
        - h4_clean_data.dta
        - h8_clean_data.dta
        - h12_clean_data.dta
        - h16_clean_data.dta
        - h20_clean_data.dta

2. **project_replication.do**:

   A Stata .do file containing the main analysis, based on the cleaned datasets created by the Python script.

    - **Key Steps**:
        - Conducts local projection analysis to examine the impact of debt booms across six time horizons.
        - Estimates the effects of financial vulnerability on firm-level metrics like capital expenditure, liquidity, and revenue.
        - Employs an instrumental variable approach to handle endogeneity issues.
        - Analyzes congestion effects caused by vulnerable firms within industries.

3. **Report**:

   A detailed document describing the methodology, outputs, and conclusions of the analysis,

aligning with the original study while extending insights to a broader dataset and timeframe.

How to Run

1. **Data Cleaning**:
    - Install Python and the required libraries (e.g., pandas).
    - Ensure the raw dataset (updated_firm_data.dta) is in the same directory as data_cleaning_code.py.
    - Run the Python script to generate cleaned datasets for analysis.
2. **Analysis**:
    - Open Stata and load the project_replication.do file.
    - Ensure the cleaned datasets (h1_clean_data.dta through h20_clean_data.dta) are in the working directory.
    - Execute the .do file step-by-step or all at once to produce the results.

Main Outputs

- **Effect of Vulnerability**:

  Examines how being financially vulnerable affects balance sheet items and key financial indicators.
- **Impact of Debt Booms on Investment**:

  Investigates the causal relationship between debt booms and firm-level capital expenditure.

- **Congestion Effects**:

  Explores how vulnerable firms influence the performance of unconstrained firms within the same industry.

Policy Implications

The findings provide actionable insights for policymakers, emphasizing the need to monitor corporate debt levels and address financial vulnerabilities to ensure economic stability and reduce adverse industry-level effects.