

Configuration Manual

MSc Research Project
Programme Name

Harigovindan Mohanakshan Geetha
Student ID: 23312033

School of Computing
National College of Ireland

Supervisor: Shubham Subhnil

National College of Ireland
MSc Project Submission Sheet
School of Computing



Student Name: Harigovindan Mohanakshan Geetha

Student ID: 23312033

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Lecturer: Shubham Subhnil

Submission

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Date: 27 January 2026

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Configuration Manual

Harigovindan Mohanakshan Geetha
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1 Introduction

This configuration guide will give all the technical instructions needed to install, configure and run the analytical system that was developed in this research project. The system combines the heterogeneous datasets such as EU trade statistics and global stock market indices and runs data cleaning, data harmonization, visual analytics, correlation testing and Granger causality modelling.

This manual is meant to make sure that any examiner, researcher or a future student can replicate the entire analytical pipeline, rerun the visualizations, re-run the econometric tests and replicate the results reported in the dissertation. Software requirements, directory setup, environment setup, installation in batch-files, and step-by-step execution is included in this document.

2 System Requirements

The analytical system is completely written in Python, which runs inside a Jupyter Notebook. Every process, such as ingesting and transforming data and statistical modelling and visualization is open-source based on scientific libraries to ensure reproducibility and transparency.

The system was made and tried on the following hardware/software combination:

- Operating System: Windows 11 Home
- Version: 10.0.26200 Build 26200
- Processor: 13th Gen Intel(R) Core (TM) i5-13420H
- Memory: 16 GB
- Development Environment: Visual Studio Code.

This environment is sufficient for performing all required statistical procedures, including quarterly data alignment, resampling, correlation testing, and Granger causality analysis.

All analysis was created using **Python 3.12**, and the following core libraries:

Data Processing

- pandas
- numpy

Visualization

- matplotlib
- seaborn

Financial Data Acquisition

- yfinance

Econometric & Statistical Modelling

- statsmodels
- scipy

Supporting Tools

- warnings
- os / pathlib for file handling

These packages are automatically installed through a **batch file** (code\install_packages.bat) created for this research project. This ensures that no dependency conflicts occur and that all users reproduce the environment correctly.

3 Dataset

3.1 Trade Datasets

- **UN-Comtrade:** EU–Middle East & Türkiye (MET) trade, 2009–2024
- **WITS:** EU trade with
 - China
 - North America
 - South Asia
 covering 2008–2022

All the datasets are available in “code\”. All of them should be available in the same location of the code.

3.2 Stock Market Datasets

Retrieved automatically using **yfinance**:

- Europe: STOXX50E, STOXX600, GDAXI
- China/HK: ^HSI, 000001.SS
- North America: ^GSPC, ^IXIC, ^GSPTSE
- South Asia: ^NSEI, ^BSESN
- MET: ADX, QSI

4 Code Execution

Step 1: Install the “install_packages.bat”.

Step 2: Make sure the packages are installed properly.

Step 3: Run the cells sequentially.

Step 4: The visualizations will be present in the notebook.

Step 5: The Granger causality results will be present in the notebook.

References