IRP 8 : Individual Research Project

Topic

Detecting anomalies and dependence structures in high dimensional, high frequency financial data

Involvement

- IRP belongs to WP1 (Financial Data Space)
- WP Leader: BBU (Cluj)
- Two supervisors from secondments: DBA, and ROY

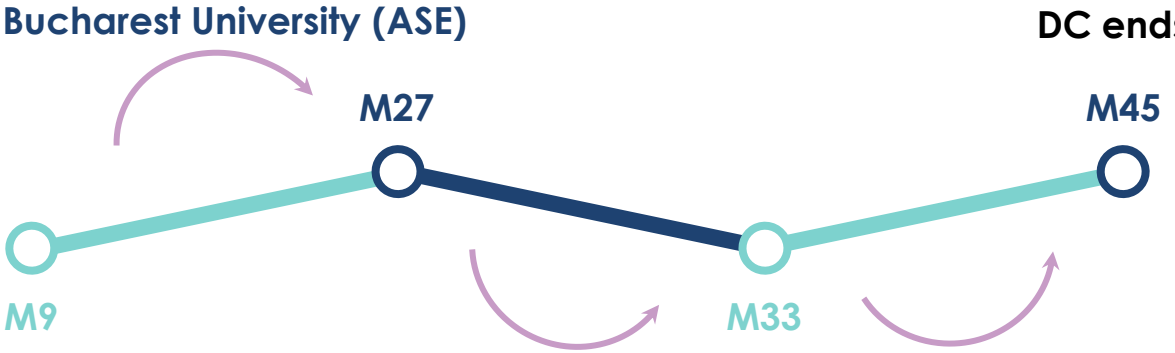
Objectives

Herding, a well-known financial anomaly, is thought to cause high volatility, volatile prices, and low liquidity (Bikhchandani and Sharma, 2000). Greed and herd behaviour caused the seventeenth-century tulip mania, the 1995–2000 Internet bubble, and the 2015 Chinese stock market crash. This project studies **high-dimensional sentiment networks and herd behaviour on the stock market**. To better fit investor sentiment, the project will **calibrate the option pricing model, Stochastic Volatility and Correlated Jump (SVCJ)**.

Deliverables

The project will **detect anomalies like herd behaviour and dependence structures in high-dimensional, high-frequency financial data**. We plan to create a tail event-driven network that graphs or matrices the interconnections of a large panel to **understand sentiment network mechanics.** That will inform our herd behaviour detection and option pricing model calibration. Results will be disseminated through publications in prestigious journals available via public repositories, presentations at prestigious conferences, and knowledge exchange.

IRP 8 TIMELINE



DeutscheBank

Contribute datasets, expertise on applications of AI and anomaly detection and early warning systems, as well as expertise on predictive analytics, semantic analysis and risk management.

Royalton Partners

Training in portfolio optimization of ETFs

DIGITAL