
FINTECH
RISK
MANAGEMENT
www.fintech-ho2020.eu

HIgh level overview

FIN-TECH HO2020 European project

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FINTECH - HO2020: Introduction

- Financial Technology (FinTech) are "technologically enabled financial innovations that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and on the provision of financial services" (FSB, 2017)
- Peer to peer lending, Robo-adviced asset management and Blockchain payments are examples of Financial Technologies, enabled by Big data analytics, Artificial intelligence and Blockchain technologies.

FINTECH - HO2020: Context

- Fintech services bring opportunities: e.g. competitive prices, better financial inclusion, improved user experience. They may also bring risks: e.g. credit risks (P2P lending) , market risks (Roboadvice), cyber risks (Blockchain payments), all amplified by the interconnectdness of fintech platforms.
- The European Commission Horizon2020 programme launched in 2018 a competitive call to "bring together a group of regulatory or supervisory bodies to investigate new approaches for piloting innovative Fintech solutions, anticipating risks, and facilitating the operations of Fintech firms that want to grow and scale-up across Europe"
- We were selected, and received 2.5M funding from the EC to build a fintech risk management framework for both Regtech and Suptech purposes, from January 2019 to December 2020.

FINTECH - HO2020: Aim

- Development of a European fintech risk management framework that can encourage innovations while protecting consumers, investors and institutions.
- A framework which can provide benchmark risk management procedures, common to Regtech and Suptech, and uniform across countries.
- A framework which could eventually be adopted by European regulators and supervisors.

FINTECH - HO2020: Project network

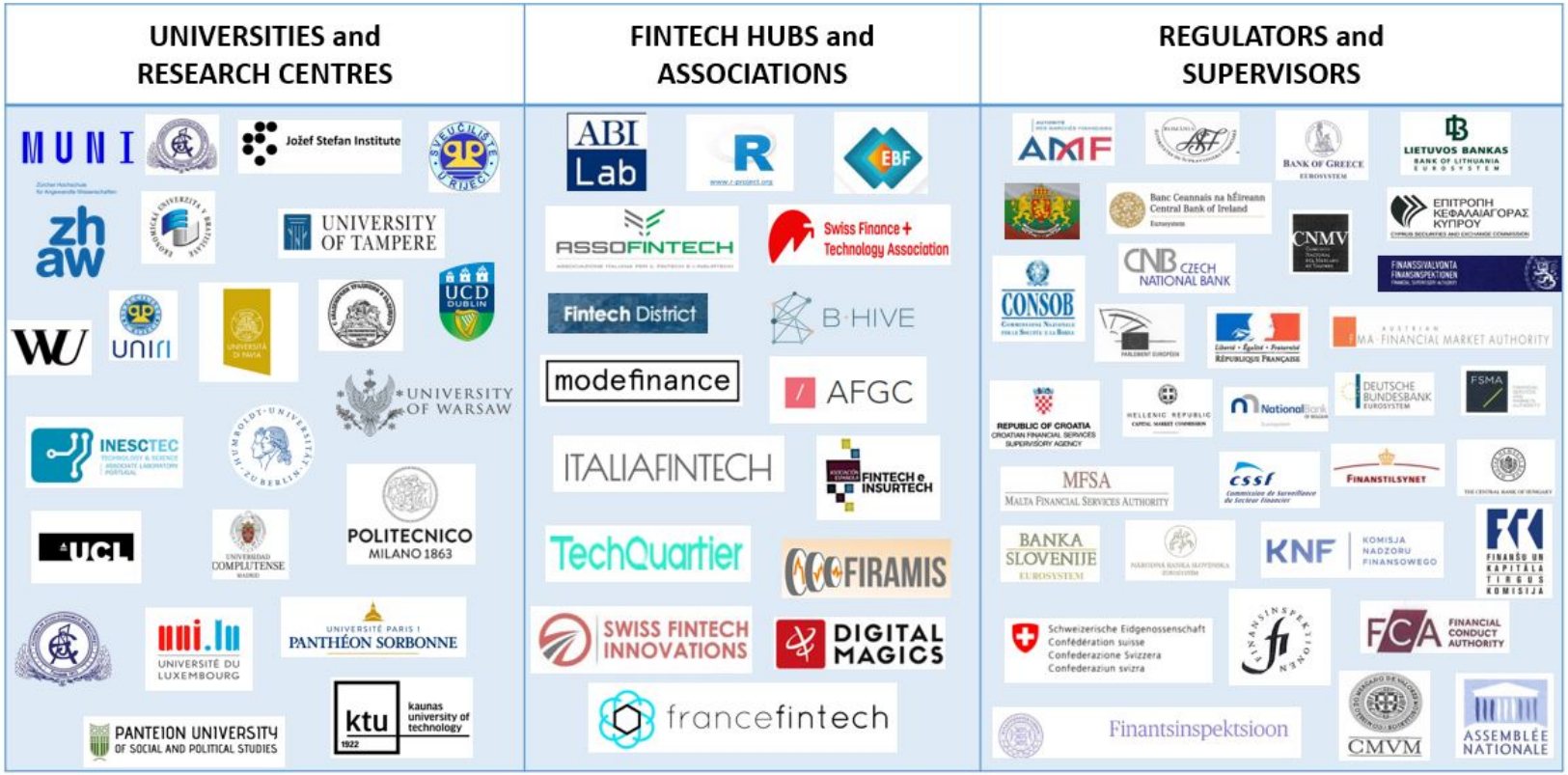

Figure 1: The FINTECH-HO2020 Consortium and its stakeholders

FINTECH - HO2020: Project process

The partners produce research papers, from which ten use cases are selected.
The papers are shared during horizontal research workshops. They are improved during suptech and regtech workshops. Use cases are chosen during vertical research workshops, based on the received feedback.
Dissemination is enabled through 99 events:

- 6 research workshops, targeted to academics, international regulators and advisors;
- 29*3 suptech (training) sessions, of 16 hours each, targeted to the national supervisors in 29 different European countries;
- 6 regtech (coding) sessions, for European fintechs and banks;
- and the platform (https://www.fintech-ho2020.eu) where use cases are reproducible through open data, code and papers.

FINTECH - HO2020: Research ideas

- Most fintech services are delivered through a platform which, akin to social networks, generates interdependence and contagion among users.
- We propose network models and eXplainable AI methods to measure and interpret the risks generated by fintech platforms
- In P2P credit risk management, we employ network models to measure and explain contagion between borrowers, improving credit default prediction.
- In robot advisory market risk, we employ network models to explain interdependence between asset returns, and include it in portfolio allocation algorithms that reduce financial risks.
- In blockchain payments operational risk, we employ text analysis and network models to explain cyber and fraud risks, improving their control.

FINTECH - HO2020: BDA use case example

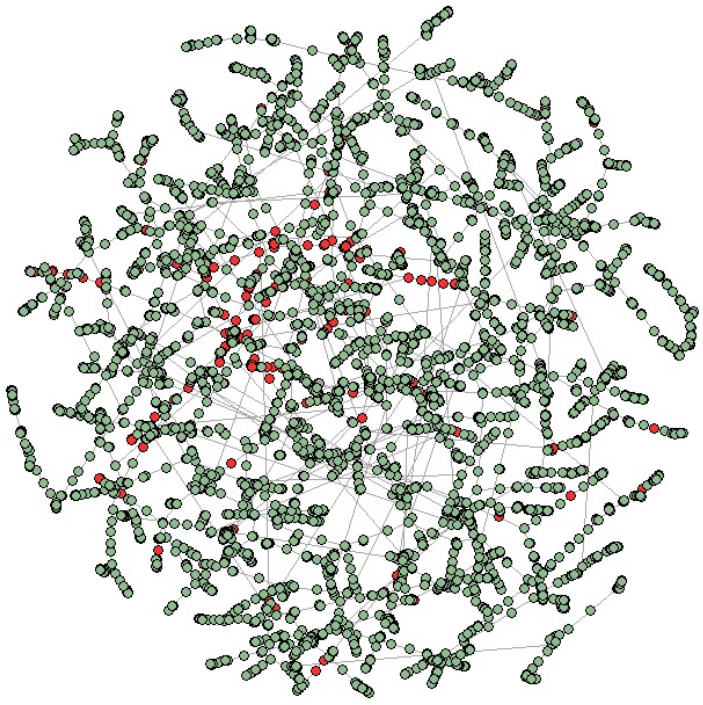

Figure 2: Estimated network of SME borrowers. In red: defaulted companies. Predictive accuracy of the model: 81% vs 79% AUROC with a standard logistic model.

FINTECH - HO2020: AI use case example

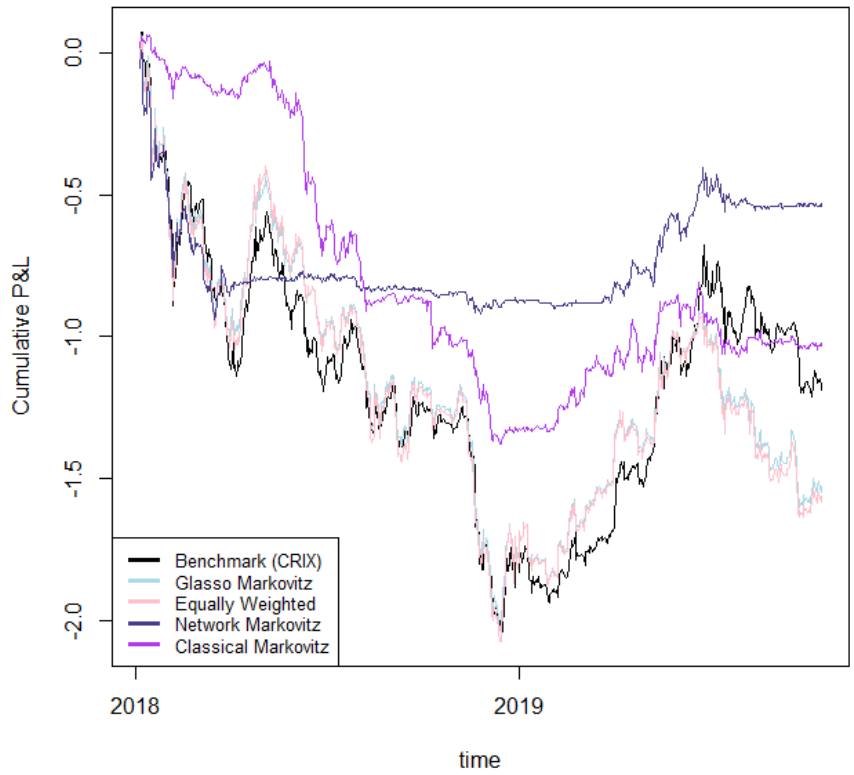

Figure 3: Estimated network of Crypto assets. Predictive performance: -0.54% cumulative loss of network-based portfolio vs -1.022% of classical Markowitz' portfolio

FINTECH - HO2020: Blockchain use case example

Figure 4: Estimated networks of words employed in Telegrams' discussions: for failed (left), scam (center) and successfull (right) Initial Coin Offerings. Accuracy of the model, using about 200 ICOs: 63% vs 52% Adjusted R^2 with a standard logistic model.