# FINTECH

RISK
MANAGEMENT

www.fintech-ho2020.eu

# Overview and results

## FIN-TECH HO2020 European project

October 31, 2019

- 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, Robot advisors and Blockchain payments are examples of Financial Technologies, enabled by Big data analytics, Artificial intelligence and Blockchain technologies.

# FINTECH - HO2020: Motivation

- ▶ Fintech services bring opportunities: e.g. competitive prices, better financial inclusion, improved user experience. They may also bring risks: e.g. contagion risks, cyber risks, fraud risks.
- ▶ There is a strong commitment to improve the competitiveness of the European fintech sector, introducing a common fintech risk management framework.

# FINTECH - HO2020: Aim

- ▶ Development of a European fintech risk management framework that can encourage innovations while protecting consumers and investors.
- ▶ A framework that can close the gap between technical and regulatory expertise, providing risk management procedures common to Regtech and Suptech, and uniform across countries.

# FINTECH - HO2020: Deliverables and Dissemination

Production and dissemination of use cases, that describe new fintech risk management methods, obtained through the partners' research activity and the received feedback in four types of events:

- ▶ Six research workshops, targeted to academics and international regulators;
- ▶ Twenty nine suptech (training) sessions, of 48 hours each, targeted to the national supervisors in 29 European countries.
- ▶ Six regtech (coding) sessions, targeted to European fintechs; Two regtech (coding) sessions targeted to European banks.
- ▶ Continuous time access to the project web platform https://www.fintech-ho2020.eu, where use cases are replicable anytime by means of open-access data, code and papers.
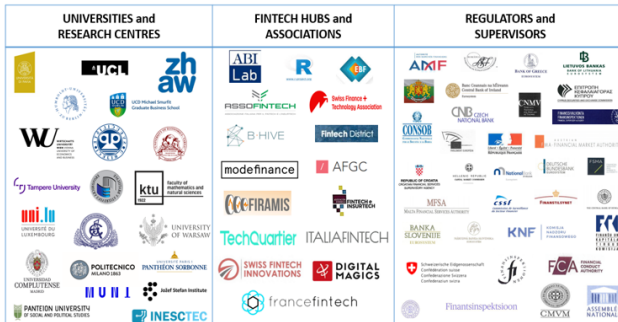
# FINTECH - HO2020: Project network



Figure 1: The FINTECH-HO2020 Consortium and its stakeholders

# FINTECH - HO2020: Methodology

- ▶ Most fintech services are delivered through a platform which, akin to social networks, generates interdependence and contagion among users.
- ▶ We use network models, which are eXplainable AI methods, to explain the contagion effects 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 measure contagion between asset returns, and include it in portfolio allocation algorithms that reduce financial risks.
- ▶ In blockchain payments operational risk, we employ textual network models that improve the measurement of cyber and fraud risks, improving their control.
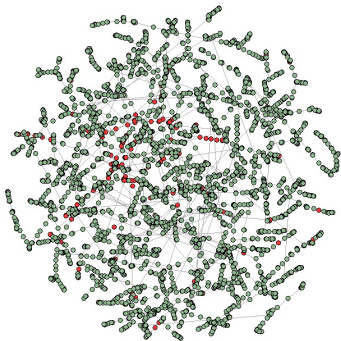
Figure 2: Estimated network of SME borrowers. In red: defaulted companies. Predictive accuracy of the model: 81% vs 79% AUROC with a standard logistic model.
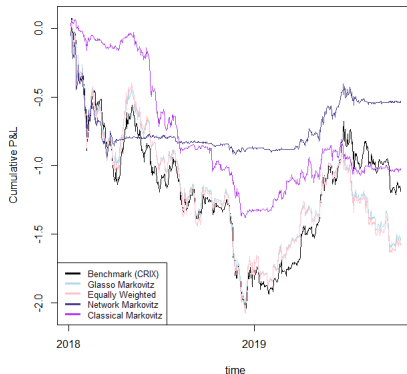
# FINTECH - HO2020: Results from part II



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

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.