

Fin-Tech Risk Management (FTRM)

Special track of DATA ANALYTICS 2020

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Paolo Giudici is Full Professor of Statistics at the University of Pavia, where he teaches Statistics and Data Science (Department of Economics and Management).

- Coordinator of the H2020 FIN-TECH project, financed by the European Commission.
- Author of many scientific publications, about Multivariate statistics, Network models, Risk management, and their application to Finance and FINancial TECHnologies, with 3415 total citations and an h-index of 25.
- Director of the University of Pavia Fintech laboratory (formerly Data Mining laboratory) which, since 2001, carries out research, training and consulting projects for major leading institutions.
- Research fellow at the Bank for International Settlements, Basel; Research fellow at many scientific associations such as the University College London center for Blockchain technologies and Assofintech.
- Chief Editor of *Artificial Intelligence in Finance*, Frontiers; Associate Editor of *Digital Finance*, Springer.

Arianna Agosto is a post-doctoral researcher in Statistics at the Department of Economics and Management of University of Pavia, where she teaches Data Science (Department of Economics and Management).

- Member of the coordination team of the H2020 FIN-TECH project, financed by the European Commission.
- Member of the Fintech Laboratory of the University of Pavia.
- Author of several scientific publications on international journals. Main research topics: statistical and econometric models for credit risk, financial risk and contagion.
- Professional experience in bank risk management.

Fin-Tech Risk Management

Motivation

Financial Technologies bring many opportunities for business and consumers, but also new risks. In digitally innovated banking and finance also traditional financial risks may increase and/or spread more easily.

Some examples:

- The direct connection between borrowers and lenders in peer-to-peer lending platforms creates new potential credit contagion channels.
- Market risk management becomes more challenging in robot advisory asset management, where investment strategies are implemented through trading algorithms.
- Operational and cyber risks emerge in innovative payments such as blockchain.

Developing suitable models to assess the risks in the new context is a crucial need for financial stability and consumer protection.

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Approaches

- Network theory, possibly integrated with traditional econometric and statistical tools, to represent relationships between economic agents and to define the position of individuals, companies or assets in the financial system through centrality measures.
- Inclusion of soft information and sentiment data into risk models, also leveraging the large amount of data generated in the Fin-tech context.
- Use of artificial intelligence techniques to improve risk assessment.
- More objective financial stability indexes, taking interconnectedness into account.
- Development of proper methods to evaluate predictive accuracy of the models used in the Fin-Tech sectors.

- **Giribone, P.G.:** *Seasonality Modeling through LSTM Network in Inflation-Indexed Swaps.*
- Agosto, A., Giudici, P., and **Raffinetti, E.:** *A New Proposal to Improve Credit Scoring Model Predictive Accuracy.*
- **Bitetto, A.,** Cerchiello, P., Mertzanis, C., and Wit, E.: *A data-driven approach to measuring financial soundness throughout the world.*
- Cerchiello, P., Filomeni, S., Tanda, A., and **Toma, A.:** *Lost in translation: soft information, sentiment and lending decisions.*
- **Agosto, A.,** and Tanda, A.: *Unity is strength? Credit risk in Corporate Networks.*

Fin-Tech Risk Management needs **Explainable AI** models, making the functioning of artificial intelligence clear and easy to understand, thus suitable for regulated financial services.

In particular, trustworthy AI models should be:

- subject to human oversight, allowing for informed decisions;
- transparent: their decisions should be explained in a way suitable to stakeholders;
- accountable: AI systems should integrate mechanisms for responsibility, auditability, assessment of algorithms, data and design processes.