

A FINancial supervision and TECHnology compliance training programme: WP 2

Wolfgang K Härdle
Alla Petukhina
Rui REN

Ladislaus von Bortkiewicz Professor of Statistics

Humboldt-Universität zu Berlin

BRC Blockchain Research Center

lvb.wiwi.hu-berlin.de

Charles University, WISE XMU, NCTU 玉山学者



Outline

- UBER activity in the FINTECH Network
- WP2 Objectives and Tasks
 - ▶ BDA research activity of the Consortium
 - ▶ BDA Research Papers' Repository
 - ▶ BDA Use cases
 - ▶ BDA validation workshop (together with ZHAW)
- Summary

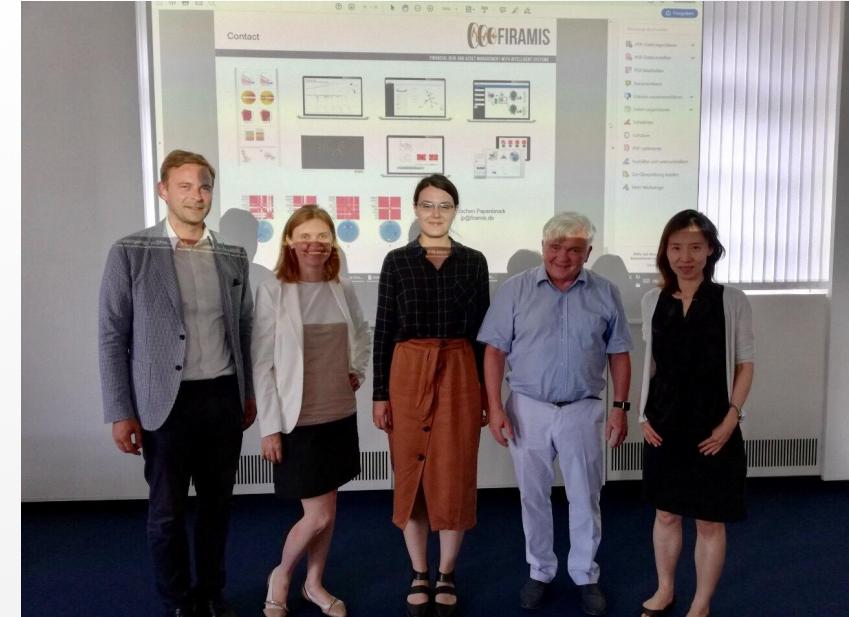
UBER Cooperation within the FIN-TECH network

- Suptech Germany
- WP2 (BDA) Leader since April 2019
- Project Technical Committee member
- Final Research Workshop (June 18, 2021) in Berlin
- Collaboration with the FIN-TECH Network:
 - ▶ Firamis (Suptech Denmark, Risk tools: FRM, CRIX, Suptech Frankfurt)
 - ▶ ZHAW (BDA validation workshop, research projects)
 - ▶ University of Warsaw (Research stay)
 - ▶ University of Rjeka (Suptech Germany, Conference, research projects)
 - ▶ Bucharest University of Economic Studies (Summer school, research projects, ICBE
“Data science and digital society”)
 - ▶ INESC-TEC (Research stay and Suptech preparation)
 - ▶ Panteion University (Research stay and Suptech preparation)
 - ▶ WU Vienna (Quantlet for FINTECH)

A FINancial supervision and TECHnology compliance training programme

Suptech1 Smart data analytics for finance

- Frankfurt June 26-27, 2019
- 25 participants from 15 European financial supervisors: Deutsche Bundesbank, BaFin, Nationale Bank van Belgie, National Bank of Bulgaria, Banco de Espana, Banque de France, Croatian Financial Services Supervisory Agency, Banca d'Italia, Latvijas Banka, Lietuvos Bankas, Banque nationale du Luxembourg, Central Bank of Malta, FMA Österreich, National Bank of Slovakia, European Central Bank
- 2 days, 16 hours, 567 slides, 30 Quantlets
- 4 lecturers from Humboldt University



Suptech2 AI, Market Risk in financial Robo-Advisory

- **Frankfurt February 10-11, 2020**
- **Topics:** risk management, machine learning, deep learning and explainable Artificial Intelligence (AI)
- **Use Cases:** Financial Risk Meter, eXplainable AI (XAI) in Credit Risk Management, Network Models to Enhance Automated Cryptocurrency Portfolio Management
- **2 days, 16 hours, 3 use cases, 614 slides**
- **3 lecturers from Humboldt-Universität zu Berlin**



A FINancial supervision and TECHnology compliance training programme

More

Berlin Workshop

- Venue: Heilig Geist Kapelle, Humboldt-Universität zu Berlin
- Date: 20210618
- Hotel: Albrechtshof Hotel Betriebs GmbH · Hotel Augustinenhof,
Auguststraße 82 · 10117 Berlin
- River Cruise 3h city Tour

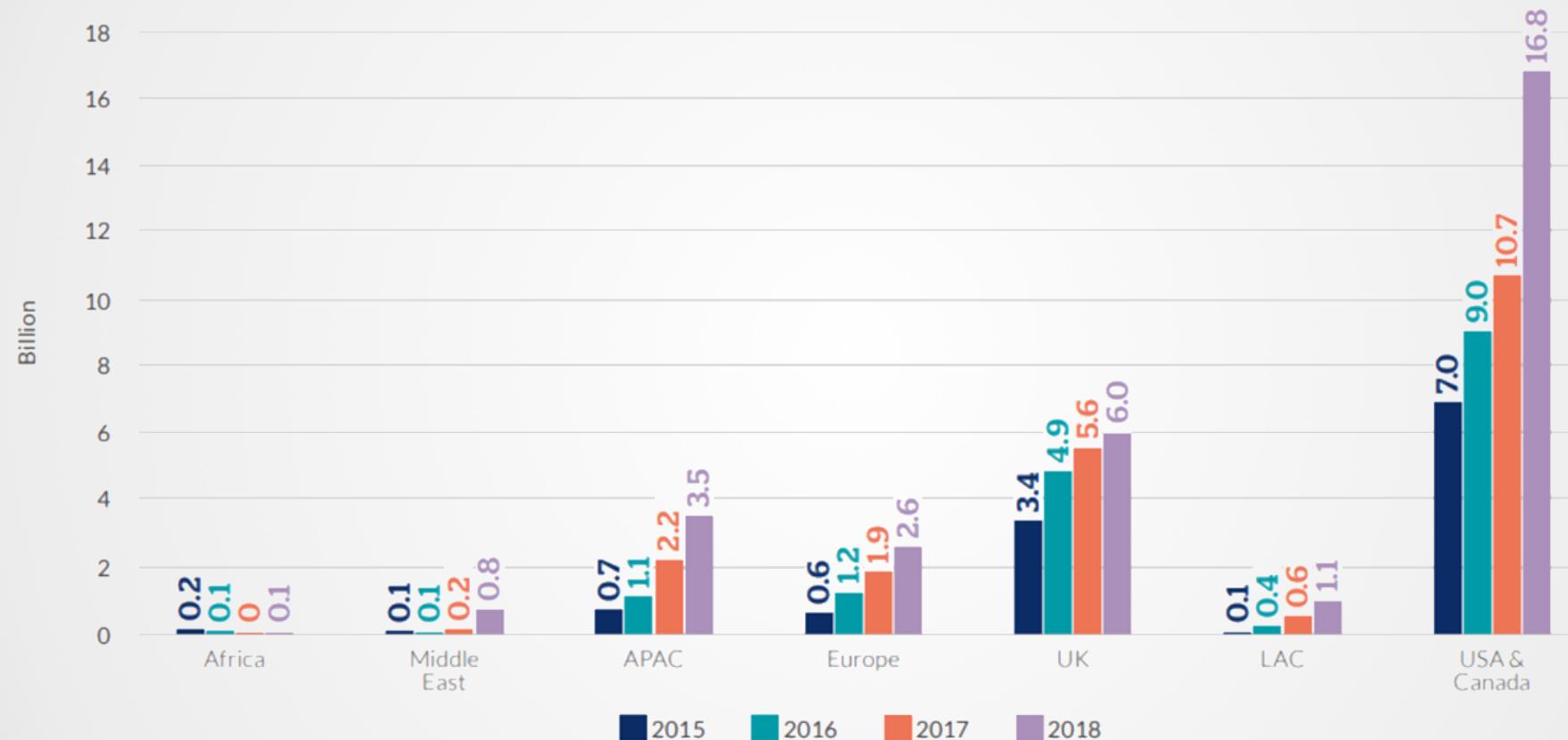


WP2 objectives

- O2.1. Establish the state of art concerning risk management models for peer to peer lending;
- O2.2. Improve standards about risk management in peer to peer lending, introducing new risk management models which will enable automatised compliance for FinTech companies and will increase the efficiency of supervisory activities.

Are these Objectives still relevant?

□ Global Alternative Finance

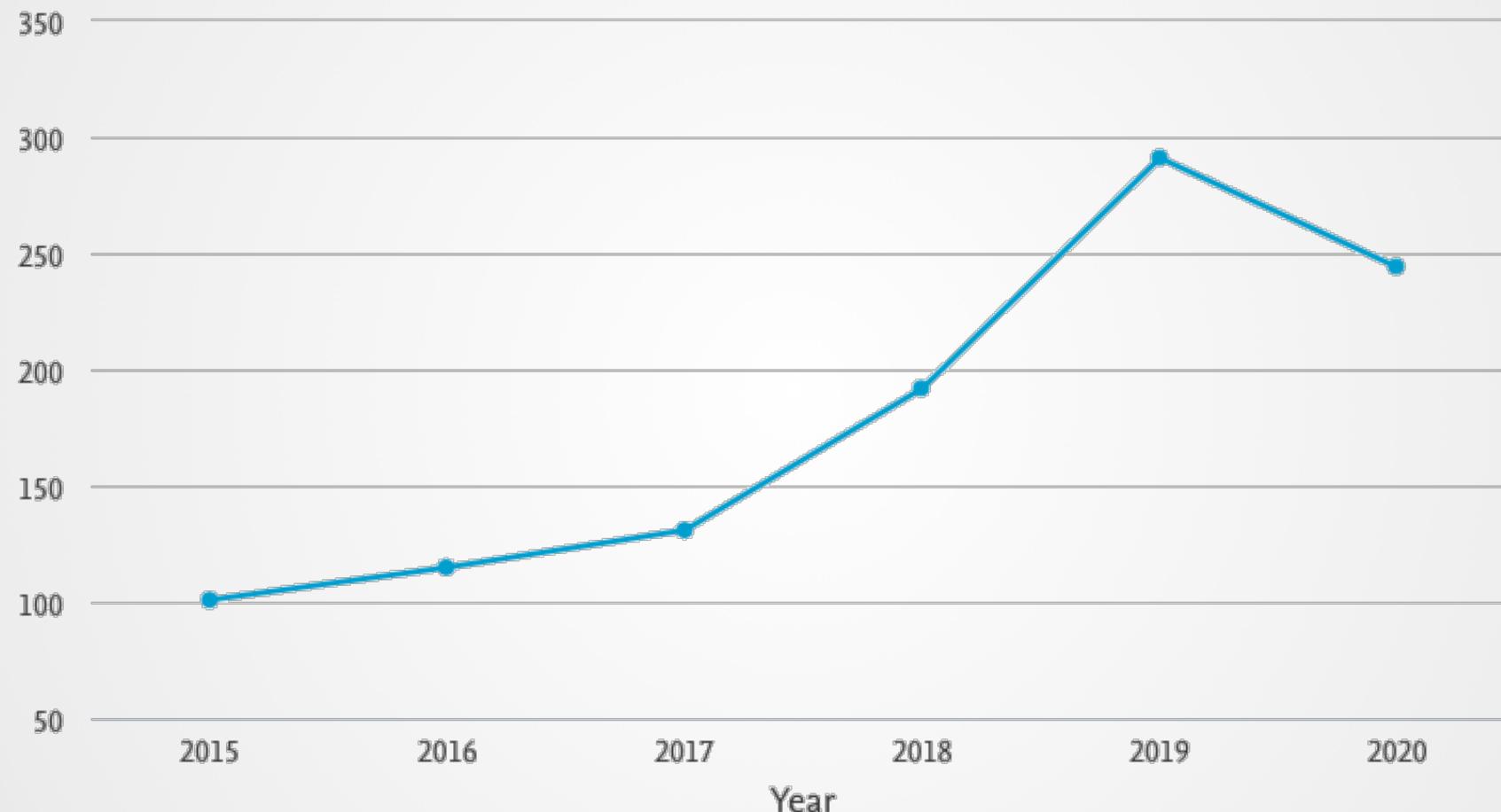


Alternative Finance Business Funding, Volumes By Region, in USD.

Source: [CCAF \(2020\)](#)

Are these Objectives still relevant?

- ☐ Papers published by year



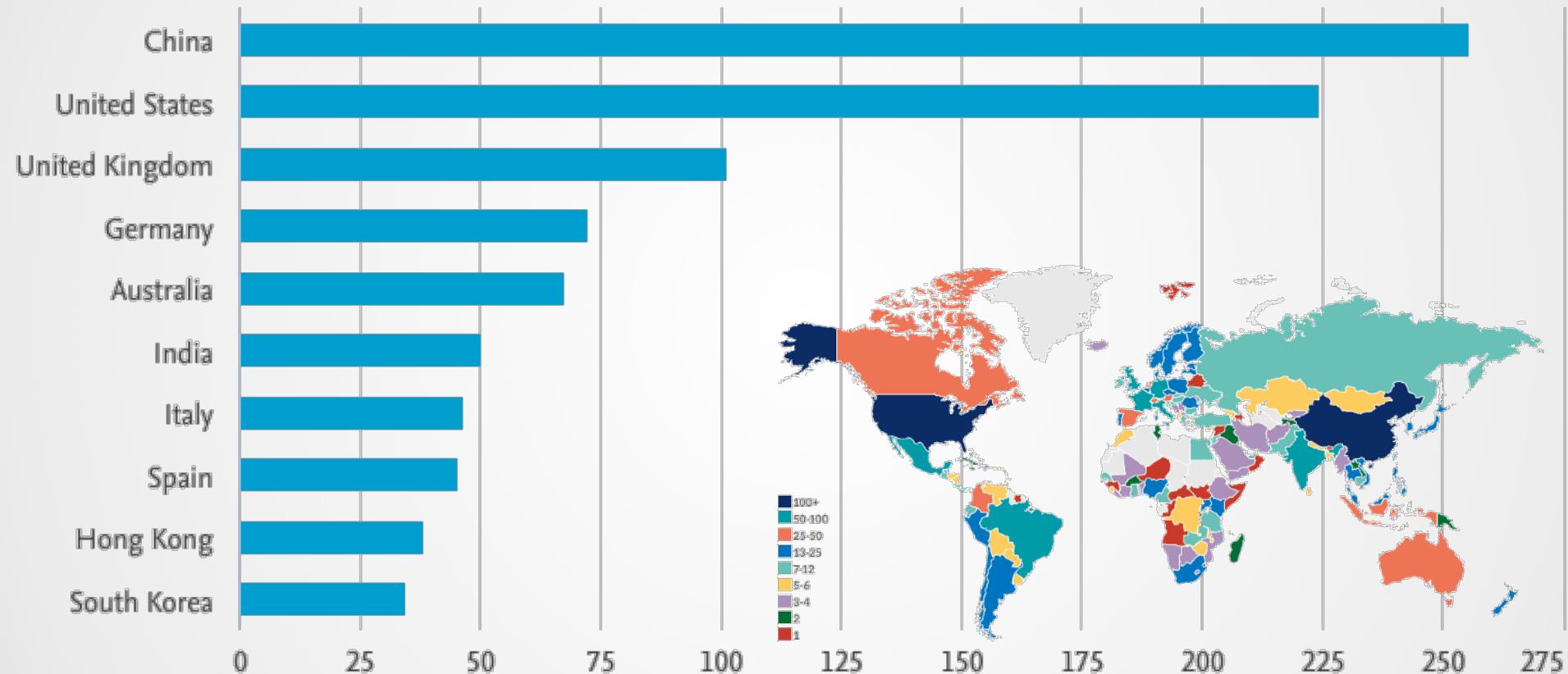
Keywords: p2p platform, p2p, p2p lending, peer to peer

Subjects: Economics, Econometrics, Finance, Business, Management and Accounting

Source: Scopus

Are these Objectives still relevant?

- Papers published by country/territory



Keywords: p2p platform, p2p, p2p lending, peer to peer

Subjects: Economics, Econometrics, Finance, Business, Management and Accounting

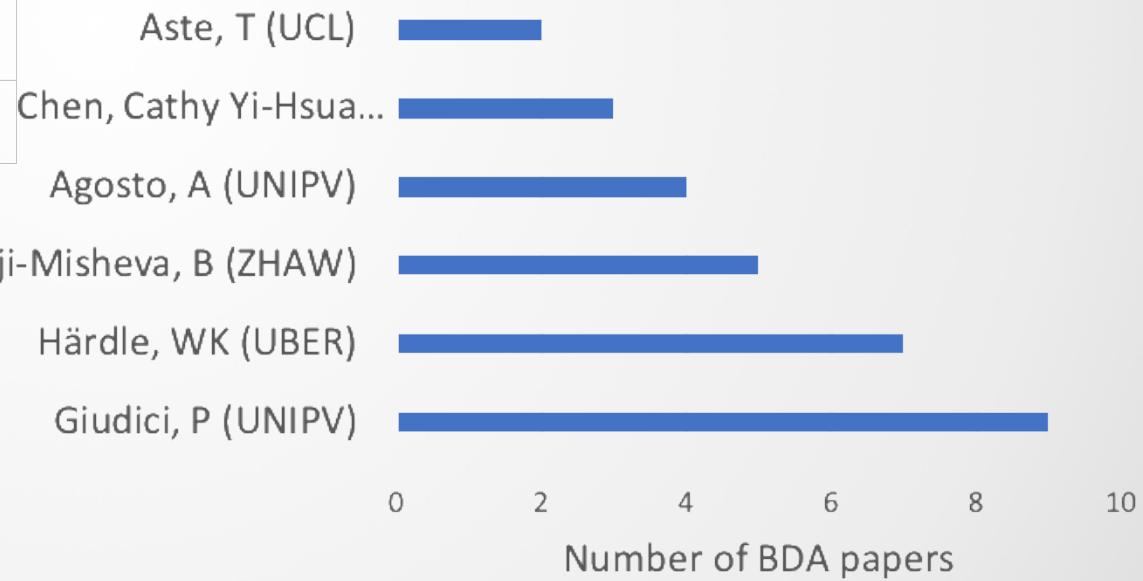
Source: Scopus

UBER as a WP2 leader

- UBER is the WP2 Leader since April 2019 (the former leader was UCL)
- Tasks of WP2 leader (GA, April 2019)
 - ▶ Task 2.1. Technical coordination (UBER). UBER as WP leader, is responsible for **monitoring the progress of the research efforts** of individual partners within the consortium. Each partner will be required to share new research (papers and **use cases**), related to the financial application of big data analytics, to UBER, which will launch and maintain **a research repository**, accessible by all.
 - ▶ Task 2.2. Technical validation (UBER). UBER will organise **a research validation workshop** where the finally developed models in BDA will be shared with the partners and the advisors of the project.
- 50K - UBER Budget for these tasks
- Deliverable 2.1 BDA Papers of partners is due to 20200630
- MS77 Completion of Research workshop on BDA model validation due to 20200930

BDA papers of FINTECH partners

Partners	Publications	Preprints	Total
UNIPV	6(10)	0	6(10)
UBER	0	7	7
UCL	0	2	2
ZHAW	5	0	5
POLIMI	1	0	1
INESC-TEC	1	0	1
Total	13(17)	9	22(26)



[the FINTECH Platform](#)

[More](#)

Top 5 cited BDA papers

Title	Citations
Ahelegbey, D., Giudici, P. and Hadji-Misheva, (2019) B. Latent factor models for credit scoring in P2P systems. Physica A: statistical mechanics and its applications, 522, 112-121.	10
Agosto, Giudici. (2020) A Poisson Autoregressive Model to Understand COVID-19 Contagion Dynamics. Risks.	9
Giudici, P. (2018). Fintech risk management: A research challenge for artificial intelligence in finance. Frontiers in Artificial Intelligence	9
Giudici, P., Hadji-Misheva, B and Spelta, (2019) Network Based Scoring Models to Improve Credit Risk Management in Peer to Peer Lending Platforms. Artificial Intelligence in Finance, Frontiers. (Use case)	9
Chao, Shih-Kang and Härdle, Wolfgang K. and Yuan, Ming, Factorisable Multitask Quantile Regression (2020). Available at SSRN	4

P2P Top 10 Authors in 2018-2020

Microsoft Academic

p2p

Sign up / Sign in

Patents
Other
Repository papers
Book chapters
Books

Top Authors

- Gregor Verbic
- Archie C. Chapman
- Jaysson Guerrero
- Xiuzhen Cheng
- Sud Sudirman
- Haseeb Ur Rahman
- A. S. Sharmin
- Branka Hadji-Misheva
- Paolo Giudici
- Lihui Sun

MORE

Block-secure: Blockchain based scheme for secure P2P cloud storage 58 citations*

2018 INFORMATION SCIENCES
Jiaxing Li, Jigang Wu, Long Chen
Guangdong University of Technology

Upload Transmission delay Enterprise information security architecture View More (7+)

Abstract With the development of Internet technology, the volume of data is increasing tremendously. To tackle with large-scale data, more and more applications choose to enlarge the storage capacity of users' terminals with the help of cloud platforms. Before storing data to an untrusted cloud se... View Full Abstract

Proactive Video Push for Optimizing Bandwidth Consumption in Hybrid CDN-P2P VoD Systems 13 citations*

2018 INTERNATIONAL CONFERENCE ON COMPUTER COMMUNICATIONS
Xuanxing Zhang¹, Chengliang Gao¹, Yangze Guo¹, Kaigui Bian¹, Xin Jin² see all 10 authors
¹ Peking University, ² Johns Hopkins University

Upload Software deployment Server View More (7+)

Decentralizing content delivery to edge devices has become a popular solution for saving the bandwidth consumption of CDN when the CDN bandwidth is expensive. One successful realization is the hybrid CDN-P2P VoD system, where a client is allowed to request video content from a number of seeds (seed ... View Full Abstract

P2P Security System for Cloud Computing Service 11 citations*

2018
Kim Jae Chun, Jin Seon A

Virtual network User information Service provider View More (7+)

Feedback

BDA Use Cases

Platform

- **Use case I-Network based scoring models to improve credit risk management in peer to peer lending platforms**
 - ▶ This work (Giudici, Hadji-Misheva and Spelta, 2019) proposes to enhance credit risk accuracy of P2P platforms by leveraging topological information embedded into similarity networks
- **Use case II-Factorial network models to improve P2P credit risk management collaboration with the FIN-TECH Network**
 - ▶ This work (Ahelegbey, Giudici and Hadji-Misheva, 2019) constructs a network of SMEs where links emerge from co-movement of latent factors, and then build a credit score model to improve predictive performance.
- **Use case III-Spatial regression models to improve P2P credit risk management**
 - ▶ This work (Agosto, Giudici and Leach, 2019) considers a spatial dependence between companies based on their business relationships and includes it into a credit scoring model, which increases the individual credit risk of each company.

More

1st Validation and Research Workshop on Big Data and Risk Management

- Winterthur (CH), September 3, 2019
- 90 participants: academics, Fintechs, national and international regulators from all over Europe
- Some speakers:
 - ▶ Regulatory change and RegTech, Dr. Philipp Hartmann, Credit Suisse
 - ▶ Building a big data and advanced analytics platform at the BIS, Dr. Rafael Schmidt, Bank for International Settlements
 - ▶ Fintech and BigTech credit: A global overview, Dr. Jon Frost, Bank for International Settlements
 - ▶ Predicting financial distress: Towards building an early-warning system, Dr. Bijan Sahamie, Deutsche Bundesbank
 - ▶ Does Fintech crowd out banks: Evidence from China, Dr. Bihong Huang, Asian Development Bank
- Advisory board: Daniel Heller (Washington DC), Simon Trimborn (NUS), Dror Kenett (Washington DC)

1st Validation and Research Workshop on Big Data and Risk Management



1st Validation and Research Workshop on Big Data and Risk Management



Summary

- 22 Preprints and Publications
- 2 Consortium authors in Top 10 in Microsoft Academic
- The Repository is launched and is available on the Platform
- 3 Use cases with the positive feedback
- Validation Workshop in September 2019, 3

FINTECH UBER Team



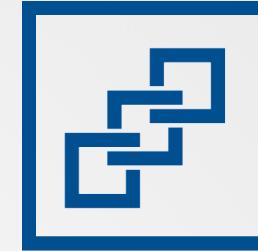
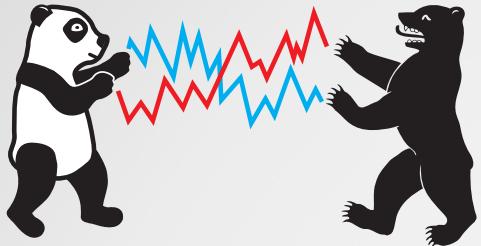
Alla Petukhina



Wolfgang K Härdle



Rui REN



A FINancial supervision and TECHnology
compliance training programme:
WP 2

Review session
20200911

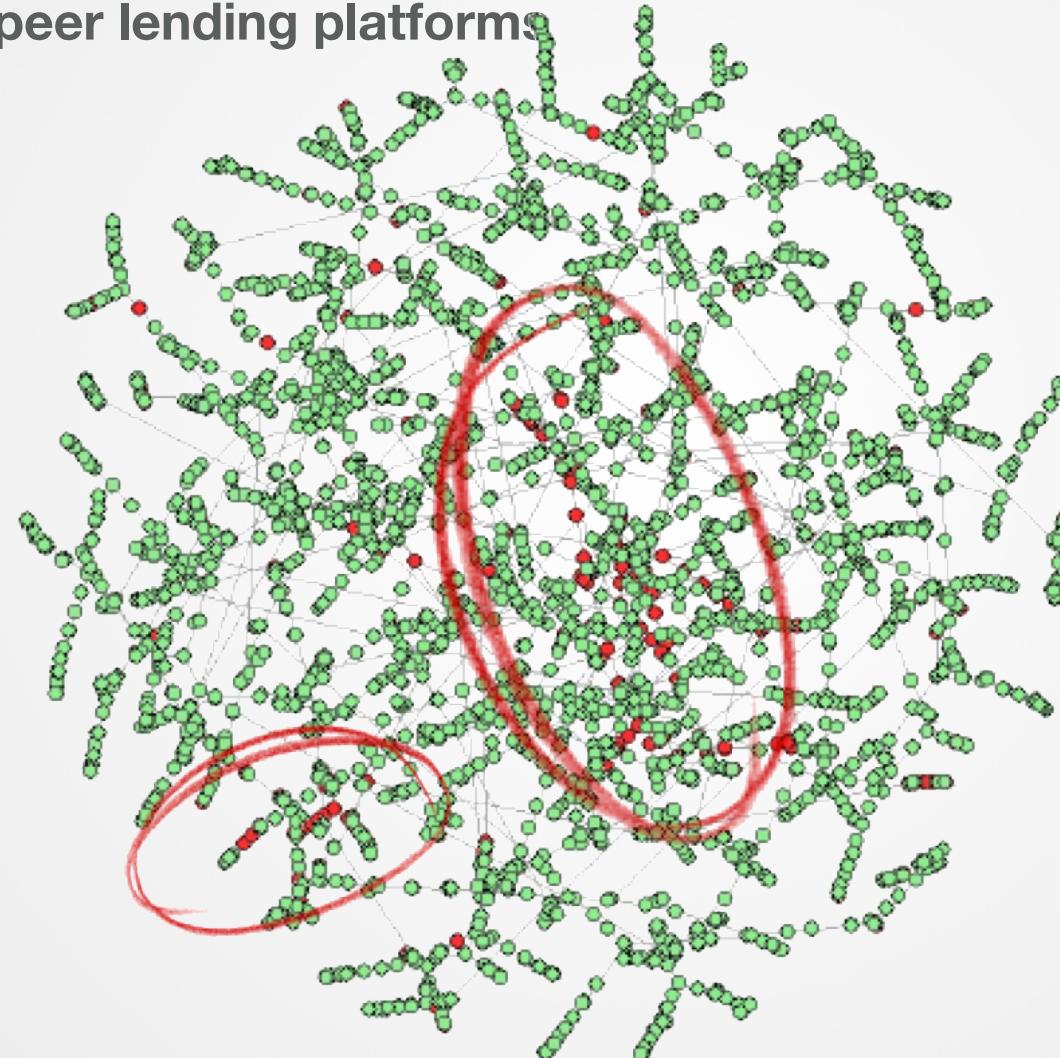
Ladislaus von Bortkiewicz Professor of Statistics
Humboldt-Universität zu Berlin
BRC Blockchain Research Center
lvb.wiwi.hu-berlin.de

Charles University, WISE XMU, NCTU 玉山学者



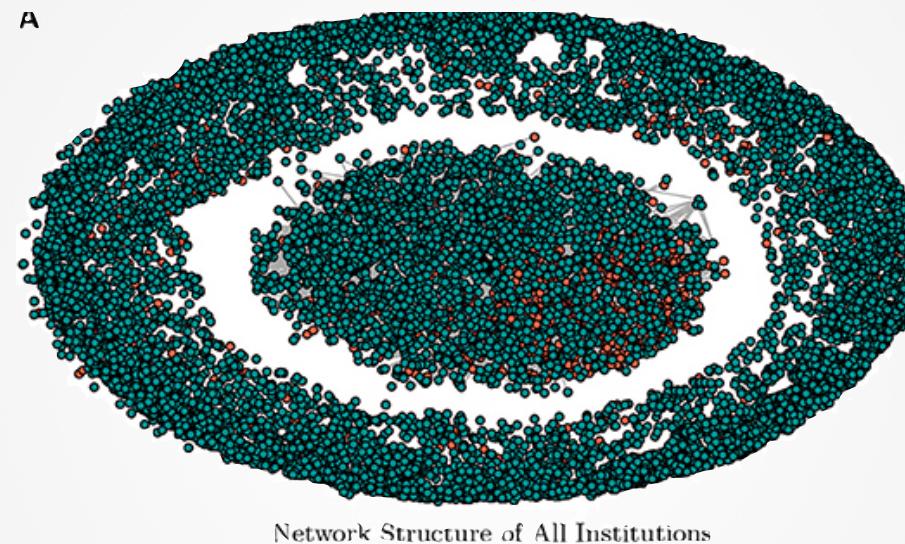
Giudici, Hadji-Misheva and Spelta, 2019

- Network based scoring models to improve credit risk management in peer to peer lending platforms



Factorial network models to improve P2P credit risk management collaboration with the FIN-TECH Network

- Factorial network models to improve P2P credit risk management collaboration with the FIN-TECH Network

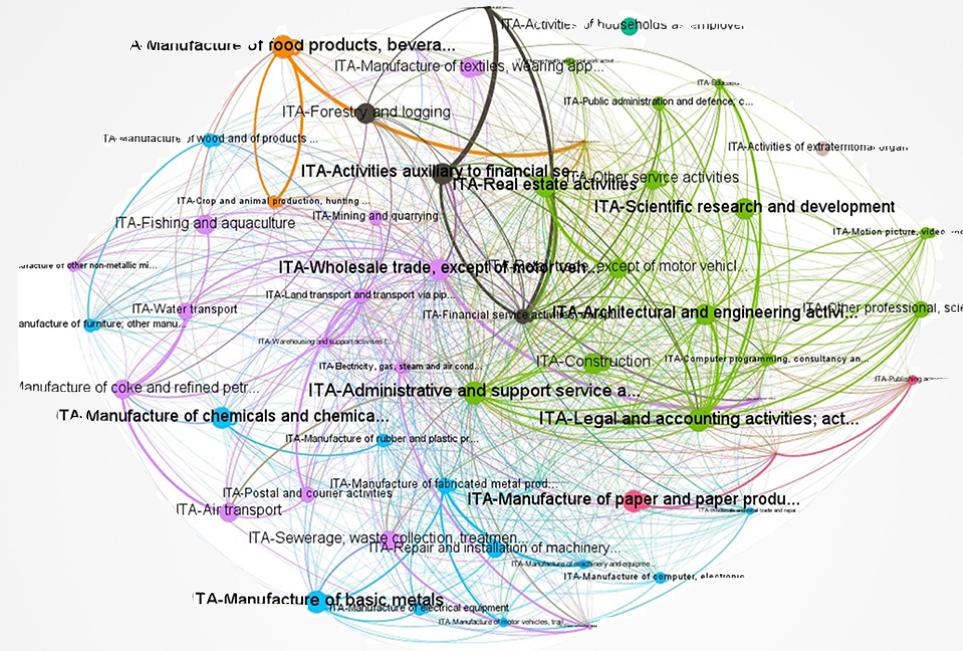


This work (Ahelegbey, Giudici and Hadji-Misheva, 2019) constructs a network of SMEs where links emerge from comovement of latent factors, which allows to segment the heterogeneous population into clusters. Then, a credit score model is built for each cluster via lasso logistic regression. The approach is compared with the conventional logistic model by analyzing the credit score of over 15,000 SMEs engaged in P2P lending services across Europe. The results reveal that credit risk modelling using network-based segmentation achieves higher predictive performance than the conventional logit model.

[Back](#)

BDA Use Case III

□ Spatial regression models to improve P2P credit risk management



- ▶ This work (Agosto, Giudici and Leach, 2019) considers a spatial dependence between companies based on their business relationships and includes it into a credit scoring model. Specifically, the authors apply a binary spatial regression model to measure contagion effects arising from corporate failures. To derive interconnectedness measures, the World Input-Output Trade (WIOT) statistics between economic sectors are used. The application to a sample of 1,185 Italian companies provides evidence of high levels of contagion risk, which increases the individual credit risk of each company.

BDA papers

□ UNIPV

1. Agosto, Giudici. (2020) A Poisson Autoregressive Model to Understand COVID-19 Contagion Dynamics. *Risks*. <https://doi.org/10.3390/risks8030077>. (open access)
2. P. Cerchiello, R. Scaramozzino (2020) On the Improvement of Default Forecast Through Textual Analysis In Front. Artif. Intell., 07 April <https://www.frontiersin.org/articles/10.3389/frai.2020.00016/full> (open access)
3. Adelfio, Agosto, Chiodi, Giudici. Financial contagion through space-time point processes. ETAS models in financial contagion. *Stat Methods Appl* (2020). <https://link.springer.com/article/10.1007/s10260-020-00538-2> (open access)
4. Agosto, A., Ahelegbey, D.F. (2020) Default count-based network models for credit contagion. *Journal of the Operational Research Society* <https://www.tandfonline.com/doi/full/10.1080/01605682.2020.1776169> . (open access)
5. Giudici, P., Hadji-Misheva, B., Spelta, (2019) A. Network-based credit risk models. *Quality Engineering*. <https://www.tandfonline.com/doi/full/10.1080/08982112.2019.1655159> (open access)
6. Ahelegbey, D., Giudici, P. and Hadji-Misheva, (2019) B. Latent factor models for credit scoring in P2P systems. *Physica A: statistical mechanics and its applications*, 522, 112-121. <https://www.sciencedirect.com/science/article/abs/pii/S0378437119301372> (not open access)
7. Ahelegbey, D., Giudici, P. and Hadji-Misheva, (2019) B. Factorial network models to improve P2P credit risk management. *Artificial Intelligence in Finance, Frontiers*. <https://www.frontiersin.org/articles/10.3389/frai.2019.00008/full> (open access)
8. Agosto, A., Giudici, P. and Leach, T. (2019) Spatial econometrics models to improve P2P credit risk management. *Artificial Intelligence in Finance, Frontiers*. <https://www.frontiersin.org/articles/10.3389/frai.2019.00006/full> (open access)
9. Giudici, P., Hadji-Misheva, B and Spelta, A. Correlation network models to improve P2P credit risk management. *Artificial Intelligence in Finance, Frontiers*. (open access)
10. Giudici, P. (2018). Fintech risk management: A research challenge for artificial intelligence in finance. *Frontiers in Artificial Intelligence*, 1, 1. <https://www.frontiersin.org/articles/10.3389/frai.2018.00001/full> (open access)

BDA papers

• UBER

1. Gschöpf, Philipp and Härdle, Wolfgang K. and Mihoci, Andrija, TERES - Tail Event Risk Expectile Based Shortfall (July 29, 2020). Available at SSRN: <https://ssrn.com/abstract=2892597> or <http://dx.doi.org/10.2139/ssrn.2892597>, 20200612 Accepted Quantitative finance
2. Melzer, Awdesch and Härdle, Wolfgang K. and Cabrera, Brenda López, An Expectile Factor Model for Day-ahead Wind Power Forecasting (March 31, 2019). Available at SSRN: <https://ssrn.com/abstract=3363164> or <http://dx.doi.org/10.2139/ssrn.3363164> (open access)
3. Chao, Shih-Kang and Härdle, Wolfgang K. and Yuan, Ming, Factorisable Multitask Quantile Regression (January 17, 2020). Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3677922 (open access)
4. Li, Xinjue and Zboňáková, Lenka and Wang, Weining and Härdle, Wolfgang K., Combining Penalization and Adaption in High Dimension with Application in Bond Risk Premia Forecasting (December 1, 2019). Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3657337 (open access)
5. Kim, Kun Ho and Chao, Shih-Kang and Härdle, Wolfgang K., Simultaneous Inference of the Partially Linear Model with a Multivariate Unknown Function (May 5, 2020). Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3656321 (open access)
6. Chen, Cathy Yi-Hsuan and Fengler, Matthias R. and Härdle, Wolfgang K. and Liu, Yanchu, Media-expressed tone, Option Characteristics, and Stock Return Predictability (June 12, 2019). Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3658099 (open access)
7. Chen, Cathy Yi-Hsuan and Härdle, Wolfgang K. and Klochkov, Yegor, SONIC: Social Network with Influencers and Communities (September 30, 2019). Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3657360 (open access)

Back

BDA papers

UCL

1. J.D. Turiel, T. Aste (2019). P2P Loan acceptance and default prediction with Artificial Intelligence. arXiv preprint arXiv:1907.01800 <https://doi.org/10.1098/rsos.191649> (open access)
2. J.D. Turiel, D. Reyes, T. Aste (2020). Wisdom of crowds detects COVID-19 severity ahead of officially available data. arXiv preprint <https://arxiv.org/abs/2004.04125> (open access)

ZHAW

1. Giudici, P., Hadji-Misheva, B., Spelta, (2019). Network based credit risk models. Quality Engineering. <https://www.tandfonline.com/doi/full/10.1080/08982112.2019.1655159> (open access)
2. Ahelegbey, D., Giudici, P. and Hadji-Misheva, B. (2019). Factorial network models to improve P2P credit risk management. Artificial Intelligence in Finance, Frontiers. <https://www.frontiersin.org/articles/10.3389/frai.2019.00008/full> (open access)
3. Giudici, P., Hadji-Misheva, B and Spelta, (2019) Network Based Scoring Models to Improve Credit Risk Management in Peer to Peer Lending Platforms. Artificial Intelligence in Finance, Frontiers. (open access)
4. Chen, Y., Giudici, P., Hadji Misheva, B., and Trimborn, S. (2020). Lead behaviour in bitcoin markets. *Risks*, 8(1), 4. <https://www.mdpi.com/2227-9091/8/1/4>
5. Ahelegbey, D.F., Giudici, P. and Hadji-Misheva, B., 2019. Latent factor models for credit scoring in P2P systems. *Physica A: Statistical Mechanics and its Applications*, 522, pp.112-121. <https://www.sciencedirect.com/science/article/abs/pii/S0378437119301372>

Back

BDA papers

□ POLIMI

- E. Barucci, T. Colozza, D. Marazzina and E.Rroji, Lapse risk in life insurance contracts. Available at: <https://re.public.polimi.it/retrieve/handle/11311/1134359/511654/PrePrint.pdf> (open access). Accepted for publication in “European Actuarial Journal”.

□ INESC-TEC

- Marques, Bernardo P. and Alves, Carlos Francisco Ferreira, Using Clustering Ensemble to Identify Banking Business Models (March 5, 2020). Intelligent Systems in Accounting, Finance and Management, Forthcoming, DOI: <https://doi.org/10.1002/isaf.1471>

Back

Suptech1 Smart data analytics for finance

Agenda



BIG DATA ANALYTICS
KNOWLEDGE EXCHANGE PLATFORM M1
Fin – Tech HO2020 project
Note: This program is subject to changes.



Dates: 26 – 27 June 2019, Frankfurt
Draft Agenda: Smart Data Analytics – Day 1

8.30 – 9.00	Registration
9.00 – 9.30	Welcome by Bundesbank Markus Grimm Opening and introduction to FinTech-HO2020 project Wolfgang Karl Härdle & Alla Petukhina, HU Berlin
9.30 – 10.30	Session 1 Basic concepts Wolfgang Karl Härdle & Cathy Chen Data Management, Structuring Data elements, „Fitting an Elephant with 4 params“
10.30 – 11.00	Coffee break
11.00 – 12.30	Session 2 Scagnostics – Scatterplot diagnostics Wolfgang Karl Härdle
12.30 – 13.30	Lunch break
13.30 – 15.00	Session 3 Network analysis Wolfgang Karl Härdle & Jochen Papenbrock
15.00 – 15.30	Coffee break
15.30 – 17.00	Session 4 Machine Learning Wolfgang Karl Härdle & Alla Petukhina ML tools, deep learning approaches, complexity in networks

Back

Suptech1 Smart data analytics for finance

Dates: 26 – 27 June 2019, Frankfurt
Draft Agenda: Smart Data Analytics – Day 2

□ Agenda

8.30 – 9.00	Getting started – technical set-up
9.00 – 10.30	Session 5 ML and Credit Risk Modelling Alla Petukhina SVM credit scoring, Boosting & random forests
10.30 – 11.00	Coffee break
11.00 – 12.30	Session 6 Introduction to P2P lending platforms Alla Petukhina Origins and current state of the art; Opportunities and threats
12.30 – 13.30	Lunch break
13.30 – 15.00	Session 7 Text Mining " Wolfgang Karl Härdle & Cathy Chen LDA Latent Dirichlet Analysis, Sentiment extraction, DTM Dynamic Topic Modeling
15.00 – 15.30	Coffee break
15.30 – 17.00	Session 8 Systemic Risk Wolfgang Karl Härdle & Cathy Chen Financial Risk Meter, Clustering Risk Structures, Adaptive weight clustering
17.00 – 17.15	Evaluation and closing remarks

Back

All examples are presented in R or Python. The Quantlets are available here:

<http://www.quantlet.de/>



Suptech1 Smart data analytics for finance

□ Feedback from Bundesbank

- ▶ The HU Berlin team provided insights into a wide spectrum of modern data analysis techniques, including codes as well as visualization methods. Moreover, machine learning and network analysis methods and use cases from the financial industry were introduced.
- ▶ The international group of participants from across Europe consisted of experts from various central banking and supervision authorities functions (micro and macro supervision, statistics, IT, etc.).
- ▶ Key insights and main take aways have been that synergies can be realized by having a collaborative, cross-institutional approach, by sharing best-practices via international teams of colleagues that are confronted with similar challenges. Rather than “re-inventing the wheel” within each respective institution, there is a benefit of having a cross-European best practice exchange of how to address the challenges related to effectively and efficiently dealing with big data. Another main take away is to apply the techniques and theory in practice and to get started by actually working with the codes.

Back

Suptech2 AI, Market Risk in financial Robo-Advisory

Agenda



BIG DATA ANALYTICS KNOWLEDGE EXCHANGE PLATFORM M1

Fin – Tech HO2020 project – AI, Market Risk and Robo Advisory

Note: This program is subject to changes.



Dates: 10 – 11 February 2020, Frankfurt
Draft Agenda: Advanced Analytics Methods
Day 1

8.30 – 9.00

Registration

9.00 – 9.30

Welcome by Bundesbank | Markus Grimm
Opening and Introduction to FinTech-HO2020
Project | Wolfgang Karl Härdle & Rui Ren, HU Berlin

9.30 – 10.30

Session 1

Basic Concepts | Wolfgang Karl Härdle
Data management, digital economy, decision
analytics, AI and its future

10.30 – 11.00

Coffee break

11.00 – 12.30

Session 2

Network analysis | Wolfgang Karl Härdle &
Jochen Papenbrock

12.30 – 13.30

Lunch break

13.30 – 15.00

Session 3

Financial Risk Meter (FRM) | Wolfgang Karl Härdle
& Rui Ren
Methodology, examples in American, European
and Asian stock market

15.00 – 15.30

Coffee break

15.30 – 17.00

Session 4

AI Use Cases | Wolfgang Karl Härdle & Rui Ren



Suptech2 AI, Market Risk in financial Robo-Advisory

Agenda

Dates: 10 – 11 February 2020, Frankfurt
Draft Agenda: Advanced Analytics Methods
Day 2

8.30 – 9.00	Getting started – technical set-up
9.00 – 10.30	Session 5 Deep Learning Glossary in Layman Language Wolfgang Karl Härdle & Stefan Lessmann Perceptron, cross-entropy, gradient descent, back propagation, Boltzman machine, auto-encoder, RNN, CNN, GANs, IML, LIME, LSTM... Multi-core computing, computing in the clouds.
10.30 – 11.00	Coffee break
11.00 – 12.30	Session 6 Interpretable Machine Learning Stefan Lessmann
12.30 – 13.30	Lunch break
13.30 – 15.00	Session 7 eXplainable AI (XAI) in Regulated Financial Services Jochen Papenbrock
15.00 – 15.30	Coffee break
15.30 – 17.00	Session 8 Recent Developments in Reject Inference Stefan Lessmann
17.00 – 17.15	Evaluation and closing remarks

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 825215 (topic ICT-35-2018, Type of action: CSA) The content reflects only the author's view and that the Commission is not responsible for any use that may be made of the information it contains.

Some examples are presented in R or Python. The Quantlets are available here:

<http://www.quantlet.de/> 

Suptech2 AI, Market Risk in financial Robo-Advisory

□ Feedback from Bundesbank

- ▶ AI models could be applied in future across various areas within central banking operations (e.g. risk management) and banking support services (e.g. statistics) as well as in micro and macro supervision functions. Explainable AI is a field to be explored in further detail in that respect.
- ▶ The provided insights in deep learning and network analysis have been received with appreciation, by a multidisciplinary group from various functions within the organization and participating authorities/institutions.
- ▶ A key take away is to address AI related matters with multidisciplinary teams and to lay a sound foundation in terms of methodology.

Back