

Output data of grant 100018E_205487: Network-based credit risk models in P2P lending markets

Responsible grantee: Osterrieder, Jörg
Period: 01.10.2022 - 31.08.2025
Budget approved (CHF): 387'836 CHF

Personal data

	Personal data	Degree	Degree thesis	Subsequent activity
Doctoral student	Baals Lennart 01.12.2022- 31.08.2025			
Doctoral student	Yiting Liu 01.11.2022- 31.08.2025			

Scientific publications

Scientific publication - peer-reviewed

Original contribution to science journal

Liu, Yiting; Baals, Lennart John; Osterrieder, Jörg; Hadji-Misheva, Branka (01.04.2024), Network centrality and credit risk: A comprehensive analysis of peer-to-peer lending dynamics, in *Finance Research Letters*, 63, 105308 - 105308

DOI: 10.1016/j.frl.2024.105308

Open Access form: Publisher (Gold Open Access)

Link / External URL of publication: <https://doi.org/10.1016/j.frl.2024.105308>

Abstract:

This letter analyzes credit risk assessment in the Peer-to-Peer (P2P) lending domain by leveraging a comprehensive dataset from Bondora, a leading European P2P platform. Through combining traditional credit features with network topological features, namely the degree centrality, we showcase the crucial role of a borrower's position and connectivity within the P2P network in determining loan default probabilities. Our findings are bolstered by robustness checks using shuffled centrality features, which further underscore the significance of integrating both financial and network attributes in credit risk evaluation. Our results shed new light on credit risk determinants in P2P lending and benefit investors in capturing inherent information from P2P loan networks.

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Original contribution to science journal

Liu, Yiting; Baals, Lennart John; Osterrieder, Jörg; Hadji-Misheva, Branka (01.10.2024), Leveraging network topology for credit risk assessment in P2P lending: A comparative study under the lens of machine learning, in Expert Systems with Applications, 252, 124100 - 124100

DOI: 10.1016/j.eswa.2024.124100

Open Access form: Publisher (Gold Open Access)

Link / External URL of publication: <https://doi.org/10.1016/j.eswa.2024.124100>

License:

Other

Original contribution to science journal

Baumöhl, Eduard; Lyócsa, Štefan; Vašaničová, Petra (01.10.2024), Macroeconomic environment and the future performance of loans: Evidence from three peer-to-peer platforms, in International Review of Financial Analysis, 95, 103416 - 103416

DOI: 10.1016/j.irfa.2024.103416

License:

Other

Dataset

Dataset

Liu Yiting, LoanData

Persistent Identifier (PID):

<https://doi.org/10.17605/OSF.IO/JNPF5>

Are the data freely accessible?: Yes

License:

Creative Commons: Public Domain (CC0)

Repository (name): Bondora_Public Reports_Loan dataset

<https://osf.io/jnps/>

Repository link (Please specify the link leading directly to the dataset on the data repository.):

Associated scientific publication:

Network centrality and credit risk: A comprehensive analysis of peer-to-peer lending dynamics

Academic events

Self-organised

COST Action FinAI: Fintech and AI in Finance – Training School, Enschede, the Netherlands, 2023, Netherlands, Enschede, 12.06.2023

Place of work of speakers: Switzerland, Other European countries

Approximate number of participants: 25

Link: <https://conference.fin-ai.eu/PhD-School-Fintech-and-AI-in-Finance/>

COST Action FinAI: Fintech and AI in Finance 8th European COST Conference on Artificial Intelligence in Finance, Switzerland, Berner Fachhochschule, Bern, 27.09.2023

Place of work of speakers: Switzerland, Other European countries, North America

Approximate number of participants: 120

Link: <https://conference.fin-ai.eu/AI-Conference-in-Finance/8th-european-cost-conference-on-artificial-intelligence-in-finance/>

COST FinAI PhD School on Fintech and AI in Finance 2024, Netherlands, University of Twente, Enschede, 10.06.2024

Place of work of speakers: Switzerland, Other European countries

Approximate number of participants: 20

COST Action FinAI meets Brussels - AI in Finance-Policy Implications, Belgium, Avenue du Boulevard 21 · Brussel, 15.05.2023

Place of work of speakers: Switzerland, Other European countries

Approximate number of participants: 40

Link: https://www.meetup.com/fintech_ai_in_finance/events/289811055/

COST FinAI Brussels, Belgium, Bruxelles, 14.05.2024	
Place of work of speakers:	Switzerland, Other European countries
Approximate number of participants:	40
Link:	https://www.digital-finance-msca.com/event-details-registration/cost-finai-brussels-may-14-15-2024
Active participation	
European Summer School in Financial Mathematics, Netherlands, Delft, 04.09.2023	
Type of contribution:	Poster
Title of article or contribution:	Network-Based Prediction of Loan Default Risk in P2P Lending: A Comparative Analysis of Logistic Regression, Random Forest, and Deep Neural Networks
Persons involved:	Osterrieder, Jörg; Yiting, Liu
16th International Conference of the ERCIM WG on Computational and Methodological Statistics and 17th International Conference on Computational and Financial Econometrics, Germany, HTW Berlin, University of Applied Sciences, Berlin, Germany, 16.12.2023	
Type of contribution:	Talk given at a conference
Title of article or contribution:	Leveraging network topology for credit risk assessment in P2P lending
Persons involved:	Osterrieder, Jörg; Baals, Lennart; Yiting, Liu
AI Finance Insights: Pioneering the Future of Fintech, Turkey, Otağı Hümayun YTÜ, Turkey, 20.05.2024	
Type of contribution:	Talk given at a conference
Title of article or contribution:	a Threshold Tuning: An Edge Pruning Approach to Network Simplification for Improved Default Prediction in P2P Lending
Persons involved:	Osterrieder, Jörg; Baals, Lennart; Yiting, Liu

Knowledge transfer events

Active participation	
Expert Day, Switzerland, FHNW Campus Brugg-Windisch Bahnhofstrasse 6, 5210 Windisch, Room 5.0A52, 19.05.2024	
Target group/potential users:	Industry / private companies
Type of contribution:	Workshop
Persons involved:	Osterrieder, Jörg; Baals, Lennart; Yiting, Liu
Link:	https://data-innovation.org/events/expert-day-3/
International Week, Shenzhen Technology University, China, Shenzhen Technology University, Shenzhen, 11.09.2023	
Target group/potential users:	Other administration / public sector
Type of contribution:	Talk
Persons involved:	Osterrieder, Jörg; Baals, Lennart; Yiting, Liu
Link:	https://www.sztu.edu.cn/

Public communication

New media (web, blogs, podcasts, news feeds etc.)

MSCA Digital Finance, Webpage, 2024	
Region / Target group:	German-speaking Switzerland, Italian-speaking Switzerland, International
Link:	https://www.digital-finance-msca.com/

Talks/events/exhibitions

Shenzhen Technology University - International Week, 2023	
Region / Target group:	International
Link:	https://www.sztu.edu.cn/
Shenzhen Technology University - International Week, 2024	
Region / Target group:	International

Collaboration

Collaboration started

Columbia University in the City of New York, United States of America

Types de collaboration:

in-depth/constructive exchanges on approaches, methods or results; Exchange of personnel

Masaryk University, Czech Republic

Types de collaboration:

in-depth/constructive exchanges on approaches, methods or results; Publication

Renmin University of China, China

Types de collaboration:

in-depth/constructive exchanges on approaches, methods or results; Exchange of personnel

University of Twente, Netherlands

Types de collaboration:

in-depth/constructive exchanges on approaches, methods or results; Research Infrastructures

Babeş-Bolyai University of Cluj-Napoca, Romania

Types de collaboration:

in-depth/constructive exchanges on approaches, methods or results

Rennes Business School, France

Types de collaboration:

in-depth/constructive exchanges on approaches, methods or results

Trinity College Dublin, Ireland

Types de collaboration:

in-depth/constructive exchanges on approaches, methods or results

Use-inspired outputs

Expert/reviewer activity

Sector:

Other administration / public sector

Commissioned by:

European Commission's " European Innovation Council

Accelerator Pilot" program

EIC Work Programme

2022

Type of activity:

Other administration / public sector

(Start) year of activity as expert/reviewer:

REA (Research Executive Agency) under the power delegated by the European Commission

Sector:

Expert reviewer for the REA (Research Executive Agency)

Commissioned by:

under the power delegated by the European Commission in the context of the EISMEA / European Innovation Council and SMEs Executive Agency programme

Type of activity:

2023

(Start) year of activity as expert/reviewer:

Other administration / public sector

Sector:

Review of papers "Forecasting Bank Default Risk with Interpretable Machine Learning: The Study of Chinese Banks" for Emerging Markets Finance and Trade

Type of activity:

2024

(Start) year of activity as expert/reviewer:

Industry / private companies

Sector:

Elsevier

Commissioned by:

Certified peer reviewer for the journal:

Type of activity:

- International Review of Financial Analysis

2022

(Start) year of activity as expert/reviewer:

<https://www.sciencedirect.com/journal/international-review-of-financial-analysis>

Link:

Sector:	Industry / private companies
Commissioned by:	Elsevier
Type of activity:	Certified reviewer for the journal:
(Start) year of activity as expert/reviewer:	- Finance Research Letters
Link:	2022 https://www.sciencedirect.com/journal/finance-research-letters

Third-party funds

Source:	Other foundations / NGOs
Name of organisation:	Leading House Asia: Consolidation Grants 2024
Amount:	25000
Year of approval:	2024
Source:	Other foundations / NGOs
Name of organisation:	i2 invest
Amount:	15000
Year of approval:	2022
Source:	Other foundations / NGOs
Name of organisation:	Marie Skłodowska-Curie Actions
Amount:	3866839
Year of approval:	2023
Source:	Other foundations / NGOs
Name of organisation:	Innosuisse Datainc
Amount:	50000
Year of approval:	2023

Follow-up projects

Leading House Asia: Consolidation Grants 2024	
Starting date:	2024
Probable duration (months):	24
Amount:	75000
Main/primary financing by:	Other foundations / NGOs
Name of organisation:	Leading House Asia
Link:	https://leadinghouseasia.ethz.ch/funding-instruments/small-grants/consolidationgrants.html
Marie Skłodowska-Curie Actions: Doctoral Networks Digital Finance	
Starting date:	2024
Probable duration (months):	48
Amount:	3866839
Main/primary financing by:	European/international research funding
Name of organisation:	Marie Skłodowska-Curie Actions
Link:	https://marie-sklodowska-curie-actions.ec.europa.eu/actions/doctoral-networks

Awards

INTERNATIONAL ADVANCED FELLOWSHIP - UBB PROGRAMME	
https://starubb.institute.ubbcluj.ro/en/international-advanced-fellowships/	
https://www.ai-in-finance.eu/The-Digital-Finance-Research-Programme/International-Advanced-Fellowship-UBB-Programme/ , 2024	
Endowment in CHF:	1430
Persons involved:	Osterrieder, Jörg
Endowment in CHF:	0
Persons involved:	

