Jozef BARUNÍK

VITAE 2023 (OCTOBER)

Personal webpage: https://barunik.github.io/

RESEARCH PROFILE

Fundamental and applied research in financial econometrics, statistical methods for economists, and econometrics. The main interest of research is in fields of asset pricing, high- frequency data, dynamic networks, machine learning, high-dimensional data sets.

ACADEMIC EXPERIENCE

2017/4 – CURRENT	Associate Professor (habilitation) at CHARLES UNIVERSITY in Prague, *Institute of Economic Studies* Department of Macroeconomics and Econometrics, Master in Finance and Data Analytics program director, Researcher, Lecturer
2011/10 – 2017/3	Assistant Professor at CHARLES UNIVERSITY in Prague, *Institute of Economic Studies* Department of Macroeconomics and Econometrics, Researcher, Lecturer
2013 – CURRENT	Research Fellow (Deputy Head of the Department from 2014, Head of the Department from 2018) at ACADEMY OF SCIENCES OF THE CR *Institute of Information Theory and Automation* Department of Econometrics
2011 – 2012	PostDoc at ACADEMY OF SCIENCES OF THE CR *Institute of Information Theory and Automation* Department of Econometrics
2007 – 2011	Research Assistant at ACADEMY OF SCIENCES OF THE CR *Institute of Information Theory and Automation* Department of Econometrics

EDUCATION

2007/9 – 2011/9	PhD in Economics, CHARLES UNIVERSITY, Prague Institute of Economic Studies
2004 – 2006	Mgr. (MSc. equivalent) in Economics, PhDr., CHARLES UNIVERSITY, Prague Institute of Economic Studies
2001 – 2004	Bc. (BSc. equivalent) in Economics, CHARLES UNIVERSITY, Prague Institute of Economic Studies

Publications

Submissions / In Preparation

1. Common Idiosyncratic Quantile Risk (with M.Nevrla) (preprint 2023 Download), RR in *Review of Finance*

2. Deep Learning, Predictability, and Optimal Portfolio Returns (with M.Babiak) (preprint 2020 Download), RR in *Journal of Banking and Finance*

3. Currency Network Risk (with M.Babiak) (preprint 2023 Download), Presented at at 2023 WFA (San Francisco), 2023 SGF Conference (Zurich), 2023 EEA-ESEM (Barcelona)

4. Dynamic industry uncertainty networks and the business cycle (with M.Bevilacqua and R.Faff) (preprint 2021 Download) 2nd RR *Journal of Economic Dynamics and Control*

5. Persistence in Economic Networks (with M.Ellington) (preprint 2021 Download) 2nd RR *European Journal of Operational Research*

Selected Research Publications

6. Asymmetric Network Connectedness of Fears (with M.Bevilacqua, and R.Tunaru), *The Review of Economics and Statistics* , 104(6): 1-13 (2022) Download

7. Quantile Spectral Beta: A Tale of Tail Risks, Investment Horizons, and Asset Prices (with M.Nevrla), *Journal of Financial Econometrics*, 1-57 (2022) Download

8. Measurement of common risks in tails: A panel quantile regression model for financial returns (with F.Cech) *Journal of Financial Markets*, 52 (2021) Download

9. Forecasting dynamic return distributions based on ordered binary choice (with S.Anatolyev) *International Journal of Forecasting*, 35(3), pp.823-835 (2019) Download

10. Quantile Coherency: A General Measure for Dependence between Cyclical Economic Variables (with T.Kley) *The Econometrics Journal* (2019), 22(2), pp. 131-152 Download

11. Measuring the Frequency Dynamics of Financial Connectedness and Systemic Risk (with T.Krehlik) *Journal of Financial Econometrics*, 16 (2), pp. 271 296 (2018) Download

12. Do co-jumps impact correlations in currency markets? (with L.Vacha) *Journal of Financial Markets*, 37, pp.97-119 (2018) Download

13. Modeling and Forecasting Persistent Financial Durations (with F.Zikes and N.Shenai) *Econometric Reviews*, 36:10, 1081-1110 (2017) Download

14. Asymmetric connectedness of stocks: How does bad and good volatility spill over the U.S. stock market? (with E. Kocenda and L.Vacha) *Journal of Financial Markets*, 27, 55–78, (2016). Download

15. Semiparametric Conditional Quantile Models for Financial Returns and Realized Volatility, (with F.Zikes) *Journal of Financial Econometrics*, 14 (1), 185–226, (2016). Download

16. Estimation of Financial Agent-Based Models with Simulated Maximum Likelihood (with J.Kukacka) *Journal of Economic Dynamics and Control*, 85, pp. 21-45 (2017) Download

17. Asymmetric volatility connectedness on forex markets (with E. Kocenda and L.Vacha) *Journal of International Money and Finance*, 77C, pp. 39-56, (2017). Download

18. Cyclical properties of supply-side and demand-side shocks in oil-based commodity markets (with T. Krehlik) *Energy Economics*, 65:208-218 (2017) Download

19. Good volatility, bad volatility: Which drives the asymmetric connectedness of Australian electricity markets? (with N.Apergis and M.C.Lau) *Energy Economics*, 66:108-115 (2017) Download

20. Modeling and forecasting exchange rate volatility in time-frequency domain, (with T.Krehlik and L.Vacha) *European Journal of Operational Research*, 251 (1), pp. 329 -340, (2016) Download

21. How does bad and good volatility spill over across petroleum markets? (with E. Kocenda, and L. Vacha) *The Energy Journal*, 36 (3), 309–329, (2015) Download

22. Are benefits from oil – stocks diversification gone? A new evidence from a dynamic copulas and high frequency data, (with K. Avdulaj) *Energy Economics* , 51, pp. 31–44, (2015) Download

23. Are Bayesian Fan Charts Useful for Central Banks? Uncertainty, Forecasting and Financial Stability Stress Tests, (with M. Franta, R. Horvath, K. Smidkova) *International Journal of Central Banking* 10 (1), pp.159–187 (2014) Download

24. Comovement of energy commodities revisited: Evidence from wavelet coherence analysis, (with L. Vacha) *Energy Economics*, 34(1), pp. 241–247, (2012) Download

25. Can a stochastic cusp catastrophe model explain stock market crashes? (with M.Vosvrda) *Journal of Economic Dynamics and Control* 33, pp. 1824–1836 (2009) Download

Major Academic Collaborations *(last 5 years)*

- E.Gerba, London School of Economics, Bank of England, UK
- C.Canon, Bank of England, UK
- R.Tunaru   University of Sussex, UK
- M.Ellington   University of Liverpool, UK
- M.Bevilacqua   London School of Economics, University of Liverpool, UK
- T.Kley   London School of Economics, UK
- M.Babiak   Lancester University, UK
- W.K.Haerdle, Humboldt Universitat, DE

Selected Invited Talks *(last 5 years)*

- Western Finance Association, San Francisco 2023
- Bank of England, London 2023
- International Finance and Banking Society, Oxford 2023 (invited talk)
- Swiss Society for Financial Market Research, Zurich, 2023
- European Finance Association, Barcelona 2022 (invited talk)
- International Symposium on Forecasting, Oxford, 2022 (invited talk)
- London School of Economics (Systemic Risk Centre) March 2020
- Humboldt-Universitat zu Berlin, School of Business and Economic, C.A.S.E. (July 2017, September 2018, March 2019)
- Danmarks Nationalbank, Copenhagen 2019

Grant Support *(main researcher only)*

2019 – 2023	*(Principal Investigator, joint with W.K.Haerdle from MFF UK and HU Berlin)* Grant Agency of the Czech Republic (GA CR EXPRO) Dynamic Models for the Digital Finance
2020 - 2025	*(Local Coordinator)* of the collaborative EU Grant COST ACTIONS 2020 2025 project Fintech and Artificial Intelligence in Finance - Towards a transparent financial industry
2016 – 2018	*(Principal Investigator)* Grant Agency of the Czech Republic (GA CR) New measures of dependence between economic variables
2016 – 2018	*(Investigator, joint with L.Vacha)* Grant Agency of the Czech Republic (GA CR) Measurement of frequency-dependent financial risk factors
2014 – 2016	*(Local Coordinator)* of the collaborative project under the 7th FP for EU research Financial Distortions and Macroeconomic Performance: Expectations, Constraints and Interaction of Agents
2014 – 2016	*(Principal Investigator, (joint with E.Kočenda from CERGE-EI)* Grant Agency of the Czech Republic (GA CR) Dynamic correlations and financial market risk
2013 – 2015	*(Principal Investigator)* Grant Agency of the Czech Republic (GA CR) Multivariate spectral analysis of financial markets
2013 – 2015	*(Investigator, joint with L.Vacha)* Grant Agency of the Czech Republic (GA CR) Wavelet analysis of nonstationary and long memory economic time series.
2008 – 2010	*(Principal Investigator)* Grant Agency of Charles University (GA UK) New Nonlinear Capital Markets Theories: Fractal, Bifurcational & Behavioral Approach

Teaching Experience

Institute of Economic Studies, Charles University in Prague

2013 – current	Advanced Econometrics – *Lectures*	(Masters)
2011 – 2013	Econometrics II – *Lectures*	(Bachelors)
2007 – current	Applied Econometrics – *Lectures / Seminars*	(Masters)
2007 – current	Quantitative Finance I – *Lectures / Seminars*	(Masters)
2007 – current	Quantitative Finance II – *Lectures / Seminars*	(Masters)
2007 – 2011	Advanced Econometrics – *Seminars*	(Masters)

My lectures and seminars consecutively rank among "Best courses taught at the IES" in years 2010 – 2023.

Theses Supervision

Current PhD students	A.Sarkany, L.Nechvatalova, M.Hronec, J.Kurka, M.Nevrla, L.Janasek
PhD students (finished)	B.Malinska (Oct 2022), F.Cech (June 2019) T.Krehlik (Sept 2017), K.Avdulaj (Feb 2016), J.Kukacka (April 2016)
External Examiner	PhD Dissertation of N.Nava, ULC, London, UK.
Master Theses	78 supervised
Bachelor Theses	4 supervised

Research Visits

Sept 2023	Bank of England
march 2020	London School of Economics (Systemic Risk Centre)
march 2019	Humboldt-Universitat zu Berlin, School of Business and Economic, C.A.S.E.
sept 2018	Humboldt-Universitat zu Berlin, School of Business and Economic, C.A.S.E.
july 2017	Humboldt-Universitat zu Berlin, School of Business and Economic, C.A.S.E.
may 2016	London School of Economics
february 2015	Ruhr-Universitaet Bochum, Department of Mathematics, Institute of Statistics
february 2012	(Invited) ECARES - Solvay Brussels School of Economics and Management,
september 2013	Université libre de Bruxelles (prof. D.Veredas)
april 2009	CeNDEF - Center for Nonlinear Dynamics in Economics and Finance, Department of Quantitative Economics, University of Amsterdam (prof. C. Hommes)

Professional services

Current

Editorial Board	Journal of Economic Interaction and Coordination
Editorial Board	Czech Journal of Economics and Finance
Editorial Board	Digital Finance
Editorial Board	Kybernetika

Past

Consultant	(external) Market Intelligence division, Bank of England
Committees	Grant Agency of the Czech Republic, Evaluation Committee (Member)
President	Czech Econometric Society
refereeing	(frequently for several journals) Selected list of journals: The Review of Asset Pricing Studies, Journal of Financial Econometrics, International Journal of Forecasting, Journal of Econometrics, Journal of Business & Economic Statistics , Journal of Banking and Finance, Journal of Economic Behavior & Organization, Journal of Money, Credit and Banking, Journal of Economic Dynamics and Control, Journal of Financial Markets, Journal of International Money and Finance, The Energy Journal, Energy Economics
Editor	The Czech Economic Review
Editor	Bulletin of the Czech Econometric Society

Awards

2015	"Energy Economics Contest Award" 1st place (joint work with B.Malinska)
2014	"Economic Research Award" (Czech National Bank)
2013	"Energy Economics Contest Award" 1st place (joint work with K.Avdulaj)
2012	"Otto Wichterle award by the Academy of Sciences of the Czech Republic"
2012	"ČEZ Corporate Chair holder (2012+) "
2011	"Energy Economics Contest Award" 1st place (joint work with L.Vacha)
2011	"Czech Econometric Society Award" 1st place (Best Student Paper)
2010	"Czech Econometric Society Award" 3rd place (Best Student Paper)

Languages

Slovak	Mothertongue
Czech	Mothertongue
English:	Fluent (English Language State Certificate, 2000)
Italian:	Basics
German:	Basics

Computer Skills

Basic Knowledge:	C++, html, php, mysql
Intermediate Knowledge:	Julia, LaTeX, Python, Mathematica, MATLAB, R, Ox

Interests and Activities

- Family

- Road Cycling, Running, Cross-country Skiing

- Jazz, Food, and Wine

- Technology, Programming, Artificial Intelligence