

Jozef BARUNÍK

VITAE 2019 (APRIL)

ACADEMIC EXPERIENCE

- 2017/4 – CURRENT Associate Professor (habilitation) at CHARLES UNIVERSITY in Prague,
Institute of Economic Studies
Department of Macroeconomics and Econometrics, Researcher, Lecturer (Advanced Econometrics, Econometrics II, Quantitative Finance I, Quantitative Finance II, Applied Econometrics)
- 2011/10 – 2017/3 Assistant Professor at CHARLES UNIVERSITY in Prague,
Institute of Economic Studies
Department of Macroeconomics and Econometrics, Researcher, Lecturer (Advanced Econometrics, Econometrics II, Quantitative Finance I, Quantitative Finance II, Applied Econometrics)
- 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

CITATIONS (GOOGLE SCHOLAR): 1316, H-INDEX (GOOGLE SCHOLAR): 17
RESEARCHERID: G-7617-2014

SELECTED RESEARCH PUBLICATIONS

1. Forecasting dynamic return distributions based on ordered binary choice (with S.Anatolyev) *International Journal of Forecasting*, 35(3), pp.823-835 (2019) [DOWNLOAD](#)
2. Quantile Coherency: A General Measure for Dependence between Cyclical Economic Variables (with T.Kley) *The Econometrics Journal*, forthcoming (2019) [DOWNLOAD](#)
3. Measuring the Frequency Dynamics of Financial Connectedness and Systemic Risk (with T.Krehlik) *Journal of Financial Econometrics*, 16 (2), pp. 271-296 (2018) [DOWNLOAD](#)
4. Do co-jumps impact correlations in currency markets? (with L.Vacha) *Journal of Financial Markets*, 37, pp.97-119 (2018) [DOWNLOAD](#)
5. Modeling and Forecasting Persistent Financial Durations (with F.Zikes and N.Shenai) *Econometric Reviews*, 36:10, 1081-1110 (2017) [DOWNLOAD](#)
6. 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](#)
7. Semiparametric Conditional Quantile Models for Financial Returns and Realized Volatility, (with F.Zikes) *Journal of Financial Econometrics*, 14 (1), 185–226, (2016). [DOWNLOAD](#)
8. Estimation of Financial Agent-Based Models with Simulated Maximum Likelihood (with J.Kukacka) *Journal of Economic Dynamics and Control* (forthcoming) [DOWNLOAD](#)
9. Asymmetric volatility connectedness on forex markets (with E. Kocenda and L.Vacha) *Journal of International Money and Finance*, 77C, pp. 39-56, (2017). [DOWNLOAD](#)
10. Cyclical properties of supply-side and demand-side shocks in oil-based commodity markets (with T. Krehlik) *Energy Economics*, 65:208-218 (2017) [DOWNLOAD](#)
11. 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](#)
12. 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](#)
13. 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](#)
14. Realized wavelet-based estimation of integrated variance and jumps in the presence of noise, (with L. Vacha) *Quantitative Finance* 15 (8), pp. 1347-1364, (2015) [DOWNLOAD](#)
15. Realizing stock market crashes: stochastic cusp catastrophe model of returns under the time-varying volatility, (with J. Kukacka) *Quantitative Finance* 15 (6), pp. 959–973, (2015) [DOWNLOAD](#)
16. 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](#)

17. 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](#)
18. Comovement of energy commodities revisited: Evidence from wavelet coherence analysis, (with L. Vacha) *Energy Economics*, 34(1), pp. 241–247, (2012) [DOWNLOAD](#)
19. 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](#)

SUBMISSIONS / IN PREPARATION

20. Asymmetric Connectedness of Fears in the U.S. Financial Sector (with M.Bevilacqua and R.Tunaru) (SUBMITTED [DOWNLOAD](#))
21. Tail Risks, Asset prices, and Investment Horizons (with M.Nevrla) (SUBMITTED [DOWNLOAD](#))
22. Measurement of Common Risk Factors: A Panel Quantile Regression Model for Returns (with F.Cech) (SUBMITTED [DOWNLOAD](#))

OTHER RESEARCH PUBLICATIONS (INCLUDING CZECH REFEREED JOURNALS)

23. On the modelling and forecasting multivariate realized volatility: Generalized Heterogeneous Autoregressive (GHAR) model (with F.Cech) *Journal of Forecasting*, 36, pp.181–206 (2017) [DOWNLOAD](#)
24. Estimation of Long Memory in Volatility Using Wavelets (with L.Kraicova) *Studies in Nonlinear Dynamics & Econometrics* (forthcoming) [DOWNLOAD](#)
25. A semiparametric nonlinear quantile regression model for financial returns (with K.Avdulaj), *Studies in Nonlinear Dynamics & Econometrics*, 21(1), pp. 81–97 (2017)
26. Combining high frequency data with non-linear models for forecasting energy market volatility (with T.Krehlik) *Expert Systems with Applications*, 55, pp. 222–242 (2016) [DOWNLOAD](#)
27. Revisiting the long memory dynamics of the implied-realized volatility relationship: New evidence from the wavelet regression (with M.Hlinkova) *Economic Modelling*, 54, pp.503–514 (2016) [DOWNLOAD](#)
28. Gold, Oil, and Stocks: Dynamic Correlations (with E. Kocenda, and L. Vacha) *International Review of Economics and Finance* 42, pp. 186–201 (2016) ([DOWNLOAD](#))
29. An Empirical Model Of Fractionally Cointegrated Daily High And Low Stock Market Prices (with S.Dvorakova) *Economic Modelling*, 45, pp. 193–206, (2015)
30. Can we still benefit from international diversification? The case of the Czech and German stock markets (with K.Avdulaj) *Czech Journal of Economics and Finance*, 63(5):425–442 (2013) ([DOWNLOAD](#))
31. Contagion among Central and Eastern European stock markets during the financial crisis (with L.Vacha) *Czech Journal of Economics and Finance*, 63(5):443–453 (2013) ([DOWNLOAD](#))
32. How do skilled traders change the structure of the market (with L. Vacha, and M. Vosvrda) *International Review of Financial Analysis*, 23, pp. 66–71, (2012) ([DOWNLOAD](#))
33. Neural Networks as Semiparametric Option Pricing Tool (with M. Barunikova) *Bulletin of the Czech Econometric Society, Czech Econometric Society*, 18(28), pp. 66–83 (2011) ([DOWNLOAD](#))

34. Tail Behavior of the Central European Stock Markets During the Financial Crisis (with L. Vacha, and M. Vosvrda) *AUCO Czech Economic Review* 3 4(3) pp. 281-294 (2010) ([DOWNLOAD](#))
35. Vplyv roznych foriem vlastnictva na efektivitu Ceskych a Slovenskych bank: Pristup analyzy stochastickych hranic (with B. Sotak) *Politicka Ekonomie* 2, pp. 207-224
36. Smart Predictors in the Heterogeneous Agent Model (with L. Vacha, and M. Vosvrda) *Journal of Economic Interaction and Coordination*, vol. 4(2), pp. 163-172, (2009) Springer ([DOWNLOAD](#))
37. Sentiment Patterns in the Heterogeneous Agent Model (with L. Vacha, and M. Vosvrda) *Prague Economic Papers* 3, pp. 209-219 (2009) ([DOWNLOAD](#))
38. How Do Neural Networks Enhance the Predictability of Central European Stock Returns? , *Finance a uver-Czech Journal of Economics and Finance* 58, pp. 359-376 (2008) ([DOWNLOAD](#))
39. Modelovani Krachu na kapitalovych trzich: Aplikace teorie stochastickych katastrof (with M. Vosvrda) *Politicka ekonomie* 6, pp. 759-771 (2008)

MULTIDISCIPLINARY RESEARCH PUBLICATIONS

40. Forecasting the term structure of crude oil futures prices with neural networks, (with B.Malinska) *Applied Energy*, 164, pp.366 -379, (2016) ([DOWNLOAD](#))
41. Behavioural breaks in the heterogeneous agent model: the impact of herding, overconfidence, and market sentiment, (with J.Kukacka) *Physica A*, 392 (23), pp. 5920–5938, (2013) ([DOWNLOAD](#))
42. Understanding the source of multifractality in financial markets (with T. Aste, T. Di Matteo and R. Liu) *Physica A* 391 (17), pp. 4234–4251, (2012) ([DOWNLOAD](#))
43. On Hurst exponent estimation under heavy-tailed distributions (with L. Kristoufek) *Physica A* 389 (18), pp. 3844-3855, (2010) ([DOWNLOAD](#))
44. Monte Carlo-based tail exponent estimator (with L. Vacha) *Physica A* 389 (21), pp. 4863-4874 (2010) ([DOWNLOAD](#))

CHAPTER IN BOOK

45. Wavelet-Based Correlation Analysis of the Key Traded Assets (with E. Kocenda, and L. Vacha) in *Wavelet Applications in Economics and Finance*. Springer International Publishing, pp. 157-183, (2014) ([DOWNLOAD](#))
46. Volatility spillovers on oil and forex markets (with E. Kocenda) in *Routledge Handbook of Energy Economics*. Taylor & Francis, (forthcoming 2019)

GRANT SUPPORT (*main researcher only*)

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| 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 |
| 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 – <i>Lectures</i>	(Masters)
2011 – 2013	ECONOMETRICS II – <i>Lectures</i>	(Bachelors)
2007 – CURRENT	APPLIED ECONOMETRICS – <i>Lectures / Seminars</i>	(Masters)
2007 – CURRENT	QUANTITATIVE FINANCE I – <i>Lectures / Seminars</i>	(Masters)
2007 – CURRENT	QUANTITATIVE FINANCE II – <i>Lectures / Seminars</i>	(Masters)
2007 – 2011	ADVANCED ECONOMETRICS – <i>Seminars</i>	(Masters)

My lectures and seminars consecutively rank among “BEST COURSES TAUGHT AT THE IES”
in years 2010 – 2018, see [AWARDS](#) section for details.

THESES SUPERVISION

CURRENT PHD STUDENTS	M.Hronec, J.Kurka, M.Nevrla, F.Cech, L.Kraicova, B.Malinska
PHD STUDENTS (FINISHED)	T.Krehlik (Sept 2017), K.Avdulaj (Feb 2016), J.Kukacka (April 2016)
EXTERNAL EXAMINER	PhD Dissertation of N.Nava, ULC, London, UK.
MASTER THESES	52 supervised (20 awarded)
BACHELOR THESES	4 supervised

RESEARCH VISITS

MARCH 2019	Humboldt-Universität zu Berlin, School of Business and Economic, C.A.S.E.
SEPT 2018	Humboldt-Universität zu Berlin, School of Business and Economic, C.A.S.E.
JULY 2017	Humboldt-Universität zu Berlin, School of Business and Economic, C.A.S.E.
FEBRUARY 2015	Ruhr-Universität 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

PRESIDENT Czech Econometric Society
EDITORIAL BOARD Journal of Economic Interaction and Coordination
EDITORIAL BOARD Czech Journal of Economics and Finance
EDITORIAL BOARD Digital Finance

PAST

COMMITTEES Grant Agency of the Czech Republic, Evaluation Committee (Member)
REFEREEING (frequently for several journals) Selected list of journals: Energy Economics,
International Journal of Forecasting, Journal of Econometrics, Journal of
Business & Economic Statistics, Journal of Economic Behavior & Organi-
zation, Journal of Economic Dynamics and Control, Journal of Financial
Markets, Journal of International Money and Finance, The Energy Journal
EDITOR The Czech Economic Review
EDITOR Bulletin of the Czech Econometric Society

SELECTED PRESENTATIONS BY INVITATION

- International Conference on Computational and Financial Econometrics 2018, Pisa (INVITED TO ORGANIZE SESSION)
- Text, Herding and Sentiment, 2017, Cambridge (INVITED TALK)
- Haindorf Seminar 2017, Hejnice (INVITED TALK)
- International Conference on Computational and Financial Econometrics 2017, London UK (INVITED TO ORGANIZE SESSION)
- International Conference on Computational and Financial Econometrics 2016, Sevilla (INVITED TO ORGANIZE SESSION)
- International Conference on Computational and Financial Econometrics 2015, London UK (INVITED TALK)
- Technische Universitat Dortmund, Faculty of Statistics, 2015 (INVITED SEMINAR TALK)
- Non- and Semiparametric Volatility and Correlation Models, Paderborn 2014, Germany (INVITED TALK)
- Econophysics Colloquium 2015, Prague (INVITED TALK)
- International Conference on Computational and Financial Econometrics 2012, London UK (INVITED TALK)
- ECARES - Solvay Brussels School of Economics and Management, Universit libre de Bruxelles, 2013 (INVITED SEMINAR TALK)
- ECARES - Solvay Brussels School of Economics and Management, Universit libre de Bruxelles, 2012 (INVITED SEMINAR TALK)
- International Scientific Conference, European Integration of S.E.E. Countries 2011, Eqrem abej University of Gjirokastra, Albania (INVITED TALK)

AWARDS

- 2018 “GOLDEN COURSE TAUGHT AT THE FSV” for Applied Econometrics Lectures
- 2018 “BEST COURSES TAUGHT AT THE IES” for Advanced Econometrics and Quantitative Finance I Lectures
- 2017 “GOLDEN COURSE TAUGHT AT THE FSV” for Quantitative Finance I Lectures
- 2016 “GOLDEN COURSE TAUGHT AT THE FSV” for Quantitative Finance I Lectures
- 2016 “BEST COURSES TAUGHT AT THE IES” for Quantitative Finance I Lectures
- 2015 “ENERGY ECONOMICS CONTEST AWARD” 1st place (joint work with B.Malinska)
- 2015 “GOLDEN COURSE TAUGHT AT THE FSV” for Quantitative Finance I Lectures
- 2015 “BEST COURSES TAUGHT AT THE IES” for Advanced Econometrics and QF I Lectures
- 2014 “BEST COURSES TAUGHT AT THE IES” for Applied Econometrics Lectures
- 2014 “ECONOMIC RESEARCH AWARD” (CZECH NATIONAL BANK)
- 2014 “BEST COURSES TAUGHT AT THE IES” for Advanced Econometrics Lectures
- 2013 “ENERGY ECONOMICS CONTEST AWARD” 1st place (joint work with K.Avdulaj)
- 2013 “BEST COURSES TAUGHT AT THE IES” for Quantitative Finance I Lectures
- 2012 “GOLDEN COURSE TAUGHT AT THE FSV” for Applied Econometrics Lectures
- 2012 “OTTO WICHTERLE AWARD BY THE ACADEMY OF SCIENCES OF THE CZECH REPUBLIC”
- 2012 “ČEZ CORPORATE CHAIR HOLDER (2012+) ”
- 2012 “BEST COURSES TAUGHT AT THE IES” for Quantitative Finance I Lectures
- 2011 “ENERGY ECONOMICS CONTEST AWARD” 1st place (joint work with L.Vacha)
- 2011 “CZECH ECONOMETRIC SOCIETY AWARD” 1st place (Best Student Paper)
- 2011 “BEST COURSES TAUGHT AT THE IES” for Advanced Econometrics and QF I Lectures
- 2010 “BEST COURSES TAUGHT AT THE IES” for Applied Econometrics and QF I Lectures
- 2010 “CZECH ECONOMETRIC SOCIETY AWARD” 3rd place (Best Student Paper)

LANGUAGES

- SLOVAK Mothers tongue
- CZECH Mothers tongue
- ENGLISH: Fluent (English Language State Certificate, 2000)
- ITALIAN: Basics
- GERMAN: Basics

COMPUTER SKILLS

- Basic Knowledge: E-views, C++, HTML, PHP, MySQL
- Intermediate Knowledge: \LaTeX , Mathematica, MATLAB, R, Ox, Excel, Word, PowerPoint

INTERESTS AND ACTIVITIES

Technology, Programming, Econometrics
Road Cycling, Swimming, Cross-country Skiing, Jazz, Food, and Wine