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Education

2001 - 2007: PhD. degree, Institute of Economic Studies at the Faculty of Social Sciences, Charles University in Prague.

1998 - 2001: Mgr. degree - Institute of Economic Studies at the Faculty of Social Sciences, Charles University in Prague (Master equivalent).

1993 - 1996: Bachelor at the Czech Technical University - Faculty of Nuclear Sciences and Physical Engineering.

Employment

2013 - present: IES FSV UK, Research fellow, Lecturer, (30% contract)

2000 - present: Research fellow, Academy of Sciences of the Czech Republic – Institute of Information Theory and Automation, Department of Econometrics.

2017 - 2020, 2023 - present : Grant Agency of the Czech Republic, Evaluation Committee (panel 403).

Research Interests

Time series persistence, Locally stationary processes

Time series econometrics, Spectral analysis, Wavelets.

Estimators of Realized volatility, Application of wavelets in finance.

Machine learning, Reinforcement learning in decision making

Recent Publications

Growth cycle synchronization of the Visegrad Four and the European Union (with L. Hanus). **Empirical Economics**, 2020, vol 58, pp. 1779-1795.

Comovement and disintegration of EU sovereign bond markets during the crisis. (with F. Smolik, J. Baxa) **International Review of Economics and Finance**, 2019, vol 64, pp. 541 - 556

Do co-jumps impact correlations in currency markets? (with J. Barunik). **Journal of Financial Markets**, 2018, vol 37, pp. 97-119.

Asymmetric volatility connectedness on the forex market (with J. Barunik and E. Kocenda). **Journal of International Money and Finance**, 2017, vol 77, pp. 39-56.

Asymmetric connectedness on the U.S. stock market: Bad and good volatility spillovers (with J. Barunik and E. Kocenda). **Journal of Financial Markets**, 2016, vol 27, pp. 55-78.

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

Gold, oil, and stocks: Dynamic correlations (with J. Barunik and E. Kocenda). **International Review of Economics & Finance**, 2016, vol 42, pp. 186-201.

Other Publications

Volatility spillovers across petroleum markets (with J. Barunik and E. Kocenda). **The Energy Journal**, 2015, vol. 36(3), pp. 309-329.

Realized wavelet-based estimation of integrated variance and jumps in the presence of noise (with J. Barunik). **Quantitative Finance**, 2015, vol. 15(8), pp. 1347-1364.

Time-frequency dynamics of biofuel-fuel-food system (with Janda K., Kristoufek L., Zilberman D). **Energy Economics**, 2013, vol. 40, Pages 233-241.

Contagion among Central and Eastern European Stock Markets during the Financial Crisis (with J. Barunik). **Czech Journal of Economics and Finance (Finance a uver)**, 2013, 63(5), 443-453.

How do skilled traders change the structure of the market (with J. Barunik, M. Vosvrda). **International Review of Financial Analysis**, 2012, vol. 23, pp. 66-71.

Co-movement of energy commodities revisited: Evidence from wavelet coherence analysis (with J. Barunik). **Energy Economics**, 2012, vol. 34, pp. 241-247.

Monte Carlo-based tail exponent estimator (with J. Barunik). **Physica A**, 2010, 389 (21), pp. 4863-4874.

Smart Predictors in the Heterogeneous Agent Model (with J. Barunik, M. Vosvrda). **Journal of Economic Interaction and Coordination**, 2009, vol. 4(2), pp. 163-172, Springer.

Smart agents and sentiment in the heterogeneous agent model (with J. Barunik, M. Vosvrda). **Prague Economic Papers**, 2009, vol.18(3), pp. 209-219.

Wavelet Decomposition of the Financial Market (with M. Vosvrda). **Prague Economic Papers**, 2007, vol. 16(1), pp. 38-54.

Dynamical agents' strategies and the fractal market hypothesis (with M. Vosvrda). **Prague Economic Papers**, 2005, vol.14(2), pp. 172-179.

Heterogeneous Agent Model With Memory And Asset Price Behaviour (with M. Vosvrda). **Prague Economic Papers**, 2003, vol.12(2) pp. 209-219.

Vacha L., Barunik J., Vosvrda M. (2010): Smart Agents and Sentiment in the Heterogeneous Agent Model. **ERCIM News**, No. 81, pp. 39-40

Barunik, J., Vacha, L., Vosvrda, M. (2010): Tail Behavior of the Central European Stock Markets during the Financial Crisis. **AUCO Czech Economic Review**, 4(3), pp. 281-294.

Bibliometry

Scopus: citations 1161, h=11

Google scholar: citations 2023, h=16

Research Visits

2009: CeNDEF - Center for Nonlinear Dynamics in Economics and Finance.

2012: ECARES Universite Libre de Bruxelles

Organizing activities

Co-organizer of the conference Statistics of Machine learning, Prague 2019, 2020, 2021, 2022.

Participation on Grant Projects

Principal investigator

2016 - 2018: Frequency dependent measurement of financial risk (Grant Ga ČR No. 16-14151S)

2013 - 2015: Wavelet analysis of nonstationary and long memory economic time series (Grant Ga ČR No. 13-24313S)

2008 - 2010: Analysis of the Heterogeneous Agents Models in Finance (Grant Ga ČR No. 402/08/P207)

Team member (selected)

2019 - 2023 DyMoDiF - Dynamic Models for the Digital Finance (Grant Ga ČR EXPRO, No 19-28231X)

2016 - 2018: Jozef Barunik: Frequency dependent measurement of financial risk (Grant Ga ČR No. 16-14151S)

2015 - 2017: The 7th FP for EU research. Financial Distortions and Macroeconomic Performance: Expectations, Constraints and Interaction of Agents, No. FP7-SSH-612955 (FinMaP).

2014 - 2016: Jozef Barunik: Dynamic correlations and financial market risk The Czech Science Foundation Project No.14-2412195S.

2013 - 2015: Jozef Barunik: Multivariate spectral analysis of financial markets, The Czech Science Foundation Project No. 13-32263S.

2012 - 2018: DYME – Dynamic Models in Economics, the Czech Science Foundation Project No. P402/12/G097.

Awards

2021 Golden course award" at the IES FSV UK for Financial Econometrics I Lectures.

2018 "The best courses taught at the IES" award for Quantitative Finance I.

2017 "Best courses taught at the IES FSV UK" 2017 for Quantitative Finance I Lectures.

2011 Energy Economics Contest Award - for the best work in an area of energy economics.

2015-2017 "Golden course award" at the IES FSV UK for Quantitative Finance I.

2013-2014: Award for the best course at IES FSV UK Quantitative Finance II.

2013, "Golden course award" at the IES FSV UK for Business Cycles Theory. Award for the best course at IES FSV UK Quantitative Finance I.

2011-2012 "Golden course award" at the IES FSV UK for Business Cycles Theory.

2010 "Best courses taught at the IES FSV UK" 2010 for Quantitative Finance I Lectures.