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<https://scholar.google.com/citations?user=EEZ4D2sAAAAJ&hl=ru>

Current Positions

Professor of Finance and Econometrics, Imperial College Business School, London, United Kingdom, September 2012 – Present;

Academic Advisor, Centre for Econometrics and Business Analytics, Saint Petersburg University, Saint Petersburg, Russian Federation, ceba-lab.org, June 2016-Present;

Visiting Professor, New Economic School, Moscow, Russian Federation, November 2023 – Present;

Visiting Professor/Course Instructor - Advanced Statistical and Econometric Methods, Innopolis University, Innopolis, Russian Federation, June 2023 – Present.

Previous Positions

Associate Professor, Department of Economics, Harvard University, July 2009 -August 2012;

Assistant Professor, Department of Economics, Harvard University, July 2005 - July 2009.

Research Interests

Econometrics, Finance, Insurance, Risk Management, Economic Theory, Statistics and Probability

Education

Ph.D., Economics, Yale University, 2005; Dissertation: “New Majorization Theory in Economics and Martingale Convergence Results in Econometrics”;

M. Phil., Economics, Yale University, 2003;

M. A., Economics, Central Michigan University, 2000;

Ph.D. (Kandidat Nauk), Mathematics, Institute of Mathematics of Uzbek Academy of Sciences, 1997, Dissertation: “Estimates for Moments of Symmetric Statistics”;

M.S., Mathematics, Tashkent State University, Tashkent, 1996, Graduated with Distinction.

Grants & Awards

British Academy/Leverhulme research grant (reference SG2122\211040), “New Robust Inference in Economics and Finance: Crises, Market (Non-)Efficiency, Volatility Clustering, Structural Breaks, Contagion and Predictability”, 2022-2024;

Australian Research Council grant DP200103549 “Diversification failures and improved measures of uncertainty” (with Artem Prokhorov, the University of Sydney Business School, and Stan Uryasev, Stony Brook University), 2020-Present;

Russian Science Foundation grant 22-18-00588 “Robust methods in econometrics, economics and finance: From the measurement and the analysis of economic policy efficiency analysis of crises, structural shocks and financial contagion to inequality robust inference in finance and economics”, 2022-2024;

Russian Foundation for Basic Research grant 20-010-00960 “New robust methods for the analysis of emerging asset markets: Market efficiency, volatility clustering, nonlinear dependence and predictability”, 2020-2022;

Russian Science Foundation grant 16-18-10432 “Modern methods of robust inference in finance and economics, with applications to the study of crises and their propagation in financial and economic markets”, 2016-2018, 2019-2020 (extension);

US NSF grant SES-0820124 “Correlation and heterogeneity robust inference using conservativeness of test statistics”, 2008-2012;

Multa Scripsit Award, *Econometric Theory*, 2009;

Global Development Network Southeast Europe and Commonwealth of Independent States (GDN-SEE and CIS)

Research Competition Grant, “Measuring inequality in CIS countries: Theory and Empirical Studies”, 2009-2010 (with M. Ibragimov and R. Khamidov);

Harvard Academy Junior Faculty Development Grant, 2007-

2009; Warburg Research Funds, Harvard University, 2007-

2009; Clark/Cooke Fund, Harvard University, 2005, 2007-2009;

University of California at Berkeley-National University of Singapore Risk Management Institute Research Grant (with J. Walden), 2007-2008;

Annual Cowles Prize, Yale University, 2004;

C.A. Anderson Fellowship, Yale University, 2003-2004;
Dissertation Fellowship, Yale University, 2003-2004;
Cowles Foundation Summer Prize, Yale University, 2000-2004; University
Fellowship, Yale University, 2000-2005;
E. Muskie Fellow in Applied Econometrics and Mathematical Economics, 1998-2000; National
Ulugbek Award for the Support of Talented Youth, Uzbekistan, 1996.

Courses Taught

MSc Mathematical Statistics (New Economic School);
BSc Advanced Statistical and Econometric Methods (Innopolis University);
MSc Financial Econometrics in R/Python; MSc Advanced Financial Statistics; MSc Risk Management and
Valuation; MRes Econometrics I (Imperial College Business School);
Ph.D. Financial Econometrics; Ph.D. Time Series Econometrics, Ph.D. Econometrics 2 - Panel Data Econometrics (Imperial
College Business School);
Undergraduate course Introduction to Econometrics (Department of Economics, Harvard University);
Ph.D. courses on Topics in Financial Econometrics, Time Series Analysis, and Introductory Probability and Statistics for
Economists (Department of Economics, Harvard University);
Mini-courses on Crises and Contagion Modelling, Heavy-Tailed and Dependent Models and Robust Inference in Finance
and Economics (CEBA and the Laboratory of Stochastic Analysis and its Applications, Higher School of Economics,
2019-2022);
Master courses on Statistical Analysis of Big Data and Decision Making Under Uncertainty (Innopolis University, 2014-2015);
MPhil course on Time Series Analysis (Oxford University, Fall 2012);
Mini-course on Financial Markets and Their Modelling (Tashkent State University of Economics, Tashkent, Uzbekistan, March-
April, 2009);
Mini-course Introduction to Econometrics (Center for Economic Research of the Republic of Uzbekistan,
Tashkent, Uzbekistan, September 2008);
Lectures on Heavy-Tailedness and Dependence: Implications for Economic Decisions, Risk Management and Financial
Markets, Harvard Statistics Summer Course on Modern Perspectives on Quantitative Financial Modeling (Department of
Economics, Harvard University, June 2007);
Lectures on Copulas and Their Applications in Risk Management and Finance, Harvard Statistics Summer Course on Recent
Advances in Computational Finance: Statistical Methods in Credit Risk Modeling and Risk Management (Department of
Statistics, Harvard University, June 2006);
Undergraduate and Graduate courses in Economics, Probability and Statistics (Teaching Assistant, Yale University,
2002-2005); Math & Science Tutor, Yale College, 2003-2005);
Undergraduate course Introduction to Statistics; Graduate course on Mathematical Statistics II (Department of Mathematics,
Central Michigan University, 1999-2000);
Undergraduate course on Mathematics for Economists (International Business School at Tashkent State Economics University,
Tashkent, Uzbekistan, 1996 -1997).

Publications

Books

“Heavy-tailed distributions and robustness in economics and finance” (with M. Ibragimov and J. Walden), Lecture Notes in
Statistics **214**, Springer, 2015;
“Heavy Tails and Copulas: Topics in Dependence Modelling in Economics and Finance” (with A. Prokhorov), World
Scientific 2017;
“Inequalities and Extremal Problems in Probability and Statistics: Selected Topics” (with I. Pinelis, V. de la Peña,
A. Osękowski and I. Shevtsova), Academic Press, 2017.

Overview Articles

“Heavy-tailed densities”. *The New Palgrave Dictionary of Economics Online*. Eds. S. N. Durlauf and L. E. Blume. Palgrave
Macmillan, 2009;
“Measurement of economic progress” (with M. Ibragimov). *International Encyclopedia of Statistical Science*, 1st Ed. (M.
Lovric, Ed.), Springer, 2011.

Econometrics and Statistics

“New robust inference for predictive regressions” (with J. Kim and A. Skrobotov). *Econometric Theory* (2023),
<https://doi.org/10.1017/S0266466623000117>;
“New approaches to robust inference on market (non-)efficiency, volatility clustering and nonlinear dependence” (with R.
S. Pedersen and A. Skrobotov), *Journal of Financial Econometrics* (2023), <https://doi.org/10.1093/jjfinec/nbad020>
“Sign tests for dependent observations” (with D. Brown). *Econometrics and Statistics* **10** (2019), 1-8;
“Copulas and Long Memory” (with G. Lentzas). *Probability Surveys* **14** (2017), 289-327;
“Inference with Few Heterogeneous Clusters” (with U. K. Müller). *Review of Economics and Statistics* **98** (2016),
83-96;

- “*t*-statistic based correlation and heterogeneity robust inference” (with U. K. Müller). *Journal of Business and Economic Statistics* **28** (2010), 453-468;
- “*RANK*–1/2: A simple way to improve the OLS estimation of tail exponents” (with X. Gabaix). *Journal of Business and Economic Statistics* **29** (2011), 24-39;
- “Efficiency of linear estimators under heavy-tailedness: Convolutions of α -symmetric distributions”. *Econometric Theory* **23** (2007), 501-517;
- “On the robustness of location estimators in models of firm growth under heavy-tailedness”. *Journal of Econometrics* **181** (2014), 25-33;
- “Copula-based dependence characterizations for higher-order Markov processes”. *Econometric Theory* **25** (2009), 819-846;
- “Regression asymptotics using martingale convergence methods” (with P. C. B. Phillips). *Econometric Theory* **28** (2008), 1-60;
- “Copula estimation” (with B. Choros and E. Permiakova). *Workshop on Copula Theory and Its Applications. Lecture Notes in Statistics - Proceedings*. Springer, 2010 (F. Durante, W. Haerdle, P. Jaworski, and T. Rychlik, eds.), 77-92;
- “Characterizations of joint distributions, copulas, information, dependence and decoupling, with applications to time series” (with V. H. de la Peña and S. Sharakhmetov). *2nd Erich L. Lehmann Symposium - Optimality*, IMS Lecture Notes -- Monograph Series 49 (J. Rojo, Ed.), 183-209, 2006.
- AI in Finance and Economics: Multi-Agent Systems; Machine Learning and Deep Learning Methods**
- “Impact of self-learning based high-frequency traders on the stock market” (with K. Mansurov, A. Semenov, D. Grigoriev and A. Rodionov), *Expert Systems with Applications* **232** (2023), <https://doi.org/10.1016/j.eswa.2023.120567>
- “Cryptocurrency exchange simulation” (with K. Mansurov, A. Semenov, D. Grigoriev and A. Rodionov), Forthcoming in *Computational Economics*.
- Finance, Insurance & Risk Management**
- “COVID-19: Tail risk and predictive regressions” (with W. Distaso, A. Semenov and A. Skrobotov), *PLOS One* **17**(12): e0275516 (2022), <https://doi.org/10.1371/journal.pone.0275516>
- “Equity returns and sentiment” (with Zibin Huang), *Dependence Modeling* **10**, 159-176 (2022).
- “Equilibrium with monoline and multiline structures” (with Dwight Jaffee and Johan Walden), *Review of Finance* **22** (2018), 595-63;
- “Heavy tails and copulas: Limits of diversification revisited” (with A. Prokhorov). *Economics Letters* **149** (2016), 102-107;
- “Bounds for path-dependent options” (with Donald Brown and Johan Walden), *Annals of Finance* **11** (2015), 433-451;
- “Diversification disasters” (with D. Jaffee and J. Walden). *Journal of Financial Economics* **99** (2011), 333-348;
- “Nondiversification traps in markets for catastrophic risk” (with D. Jaffee and J. Walden). *Review of Financial Studies* **22** (2009), 959-993.
- “Emerging markets and heavy tails” (with M. Ibragimov and P. Kattuman). *Journal of Banking and Finance* **37**, 2546-2559.
- “Pricing and capital allocation for multiline insurance firms” (with D. Jaffee and J. Walden). *Journal of Risk and Insurance* **77** (2010), 551-578;
- “Portfolio diversification and value at risk under thick-tailedness”. *Quantitative Finance* **9** (2009), 565-580;
- “The limits of diversification when losses may be large” (with J. Walden). *Journal of Banking and Finance* **31** (2007), 2551-2569;
- “Portfolio diversification under local, moderate and global deviations from power laws” (with J. Walden). *Insurance: Mathematics and Economics* **42** (2008), 594-599;
- “Value at risk under dependence and heavy-tailedness: Models with common shocks” (with J. Walden). *Annals of Finance* **7** (2011) 285-318;
- “Option bounds” (with V. H. de la Peña and S. Jordan). *Journal of Applied Probability* **41A** (2004), 145-156.
- Emerging and Cryptocurrency Markets**
- “A market crash or tail risk? Heavy tails and asymmetry of returns in the Chinese stock market” (with Zeyu Xing), *Advances in Econometrics* (2023), <https://doi.org/10.1108/S0731-90532023000045B009>
- “Predictability of cryptocurrency returns: Evidence from robust tests” (with Siyun He), *Dependence Modeling* **10** (2022), 191-206.
- “One country, two Systems? The heavy-tailedness of Chinese A- and H- share markets” (with Z. Chen). *Emerging Markets Review* **38** (2019), 115-141;
- “The “Cubic Law of Stock Returns” in Emerging Markets” (with Z. Gu). *Journal of Empirical Finance* **46** (2018), 182-190;
- “Heavy tails and upper-tail inequality: The case of Russia” (with M. Ibragimov), *Empirical Economics* **54** (2018), 823-837;
- “Unemployment and output dynamics in CIS countries: Okun’s law revisited” (with M. Ibragimov), *Applied Economics* **49** (2017), 3453-3479;
- “Heavy tails and asymmetry of returns in the Russian stock market” (with A. Ankudinov and O. Lebedev), *Emerging Markets Review* **32** (2017), 200-219;
- “Sanctions and the Russian stock market” (with A. Ankudinov and O. Lebedev), *Research in International Business and Finance* **40** (2017), 150-162.

Statistics, Probability and Applied Probability

- “On extremal distributions and sharp L_p -bounds for sums of multilinear forms” (with V. H. de la Peña and S. Sharakhmetov). *Annals of Probability* **31** (2003), 630-675;
- “A characterization of joint distribution of two-valued random variables and its applications” (with S. Sharakhmetov). *Journal of Multivariate Analysis* **83** (2002), 389-408;
- “On sharp Burkholder-Rosenthal-type inequalities for infinite-degree U -statistics” (with V. H. de la Peña and S. Sharakhmetov). *Annales de l'Institut H. Poincaré-Probabilités et Statistiques* **38** (2002), 973-990;
- “Optimal constants in the Rosenthal inequality for random variables with zero odd moments” (with M. Ibragimov). *Statistics and Probability Letters* **78** (2008), 186-189;
- “Thou shalt not diversify: Why 'two of every sort'?” *Journal of Applied Probability* **44** (2007), 58-70;
- “A tale of two tails: peakedness properties in inheritance models of evolutionary theory”. *Journal of Evolutionary Economics* **18** (2008), 597-613;
- “Heavy-tailedness and threshold sex determination”. *Statistics and Probability Letters* **78**, 2804-2810;
- “Bounds on moments of symmetric statistics” (with S. Sharakhmetov). *Studia Scientiarum Mathematicarum Hungarica* **39** (2002), 251-275;
- “The exact constant in the Rosenthal inequality for random variables with mean zero” (with S. Sharakhmetov). *Theory of Probability and Its Applications* **46** (2002), 127-131;
- “On extremal problems and best constants in moment inequalities” (with S. Sharakhmetov). *Sankhya Ser. A* **64** (2002), 42-56;
- “Exact estimates for moments of random bilinear forms” (with S. Sharakhmetov and A. Cecen). *Journal of Theoretical Probability* **14** (2001), 21-37;
- “The best constant in the Rosenthal inequality for nonnegative random variables” (with S. Sharakhmetov). *Statistics and Probability Letters* **55** (2001), 367-376;
- “Analogues of Khintchine, Marcinkiewicz-Zygmund and Rosenthal inequalities for symmetric statistics” (with S. Sharakhmetov). *Scandinavian Journal of Statistics* **26** (1999), 621-633;
- “On an exact constant for the Rosenthal inequality” (with S. Sharakhmetov). *Theory of Probability and Its Applications* **42** (1997), 294-302.

Economic Theory

- “Income inequality and price elasticity of market demand: the case of crossing Lorenz curves” (with M. Ibragimov, P. Kattuman and J. Ma). *Economic Theory* **65** (2018), 729-750;
- “Optimal bundling strategies under heavy-tailed valuations” (with J. Walden). *Management Science* **56** (2010), 1963-1976;
- “Market demand elasticity and income inequality” (with M. Ibragimov). *Economic Theory* **32** (2007), 579-587.

Work in progress

- “Improved MAB via New Probabilistic Bounds” (with A. Prokhorov and A. Semenov);
- “Improved MAB with Copula-Dependent Arms” (with A. Prokhorov and A. Semenov);
- “Robust Inference on Income Inequality: t -Statistic Based Approaches” (with P. Kattuman and A. Skrobotov). R&R, *Econometric Reviews* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3844088;
- “Optimal bundling strategies for complements and substitutes with heavy-tailed valuations” (with A. Prokhorov and J. Walden). Under submission.

Professional Activities

Associate Editor, *Econometric Theory* (2010-Present); *Econometric Reviews* (2022-Present), *Journal of Empirical Finance* (2020-Present); *Journal of Banking and Finance* (2013-2018); *Journal of Statistical Planning and Inference* (2012-2017); Editorial Counsel, *Quantile* - International econometric journal in Russian language (2006-Present).