

# Semyon Malamud

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## Personal

Born in Ukraine, May 12, 1980.

Swiss Citizen.

Married, three children.

## Education

- *Ph.D. in Mathematics*, Swiss Federal Institute of Technology, Zurich, Switzerland, May 2006.
- *Diploma in Mathematics*, Donetsk National University, Donetsk, Ukraine, July 2001.

## Employment

- *Visiting Professor*, UBC Sauder School of Business, January-June 2020
- *Senior Chair*, Swiss Finance Institute, October 2015-
- *Associate Professor of Finance (with tenure)*, Ecole Polytechnique Fédérale de Lausanne, October 2015- .
- *Assistant Professor of Finance*, Ecole Polytechnique Fédérale de Lausanne, August 2009-September 2015.
- *Junior Chair*, Swiss Finance Institute, August 2010-
- *Visiting Assistant Professor*, McCombs School of Business, University of Texas at Austin, January - June 2009.
- *Assistant Professor of Quantitative Risk Management*, ETH Zürich, August 2007 - August 2009

- *Postdoctoral Researcher*, ETH Zürich, Switzerland, November 2006 - July 2007
- *Quantitative Analyst*, Alinpa AG, Wollerau, Switzerland, August – October 2006.
- *Teaching Assistant*, ETH Zürich, Switzerland, October 2001 - July 2006

## Professional Activities

- Associate Editor, The Journal of Finance
- Associate Editor, Journal of Financial Econometrics
- Associate Editor, Journal of Behavioral and Experimental Finance
- Research Fellow, Bank for International Settlements
- Lamfalussy Fellow of the European Central Bank (2015)
- CEPR Research Fellow
- Member of the Program Committee: The Rothschild Caesarea Center Annual Conference; EFA; WFA; Vienna Conference on Foreign Exchange; China International Conference in Finance
- Ad-hoc referee for American Economic Review, American Economic Journal (Microeconomics), B.E. Journal of Theoretical Economics, Econometrica, Finance and Stochastics, Journal of Economic Theory, Journal of Finance, Journal of Financial Economics, Journal of Mathematical Economics, Mathematical Finance, Review of Economic Studies, Review of Finance, Review of Financial Studies

## Teaching Experience

- *Asset Pricing*, Ecole Polytechnique Fédérale de Lausanne, 2019-
- *Quantitative Risk Management*, Ecole Polytechnique Fédérale de Lausanne, 2018-
- *Asset Pricing Under Asymmetric Information*, Ecole Polytechnique Fédérale de Lausanne, 2016-
- *Dynamic Corporate Finance*, Dublin City University, May 2012
- *Stochastic Calculus*, Ecole Polytechnique Fédérale de Lausanne, 2010-
- *Derivatives*, Spring Semester 2010, Ecole Polytechnique Fédérale de Lausanne
- *Mathematics for Financial Economics*, Ecole Polytechnique Fédérale de Lausanne, 2009-
- *Equilibrium Asset Pricing*, Spring Semester 2009, University of Texas at Austin
- *Foundations of Financial Economics*, Fall Semester 2007, ETH Zürich

- *Perturbation Methods in Modern Financial Economics*, Fall Semester 2007, University of St.Gallen
- *Unspanned Stochastic Volatility*, Spring Semester 2008, University of St.Gallen
- *Term Structure and Credit Risk Models*, Fall Semester 2008, ETH Zürich

### **IT skills**

Matlab, C, R, Python

### **Languages**

English, French, German, Russian.

### **Current Research Interests**

- Big Data
- Machine Learning
- Liquidity and Market Frictions
- International Finance
- Information Economics
- Equilibrium Asset Pricing
- Over-the-Counter Markets
- Network Economics
- Corporate Finance
- Optimal Contracting and Security Design
- Macroeconomics

### **Grants and Awards**

- INQUIRE Europe Research Grant, 2022
- Lamfalussy Fellow of the European Central Bank, 2015
- Joint INQUIRE Europe-INQUIRE UK prize, 2015
- CEPR Research Fellow, 2015-
- ETF Academy Award, 2015
- Europlace Institute of Finance Award, 2015
- Swiss National Science Foundation Starting Grant, CHF 1m, for 5 years

- Dauphine Amundi Prize in Asset Management, 2014
- INQUIRE Europe Research Grant, 2014
- Dauphine Amundi Prize in Asset Management, 2013
- INQUIRE Europe Research Grant, 2013
- Swiss Finance Institute Research Grant, 2013-2015
- Swiss National Science Foundation Grant, 2013-2014.
- NET Institute Summer Grant, August 2012

## Working Papers

1. A Simple Algorithm for Scaling Up Kernel Methods, with Bryan Kelly and Andrea Xu
2. Signaling with Debt Currency Choice, with Egemen Eren and Haonan Zhou
3. Money Market Funds and the Pricing of Near-Money Assets, with Sebastian Doerr and Egemen Eren
4. Complexity in Factor Pricing Models, with Antoine Didisheim, Barry Ke, and Bryan Kelly
5. Machine Learning and the Implementable Efficient Frontier, with Theis Jensen, Bryan Kelly, and Lasse Pedersen. **R&R in the Review of Financial Studies**
6. The Virtue of Complexity Everywhere, with Bryan Kelly and Kangying Zhou
7. Benign Autoencoders, joint with Andreas Schrimpf, Teng Andrea Xu, Giuseppe Matera, Antoine Didisheim
8. Deep Regression Ensembles, with Antoine Didisheim and Bryan Kelly
9. Persuasion by Dimension Reduction, with Andreas Schrimpf
10. Learning (Not) to Trade: Lindy's Law in Retail Traders, with Teodor Godina, Serge Kassibrakis, Alberto Teguia, and Jiahua Xu
11. Dealer Heterogeneity and Exchange Rates, with Florent Gallien, Sergei Glebkin, Serge Kassibrakis, and Alberto Teguia, **R&R at the Journal of Finance**
12. An Intermediation-Based Model of Exchange Rates, with Andreas Schrimpf and Yuan Zhang, **R&R in the Review of Financial Studies**

## Publications in Financial Economics

13. The Virtue of Complexity for Return Prediction, with Bryan Kelly and Kangying Zhou, **forthcoming in the Journal of Finance**

14. Illiquidity and Higher Cumulants, with Sergej Glebkin and Alberto Teguia, **forthcoming in the Review of Financial Studies**
15. Principal Portfolios, joint with Bryan Kelly and Lasse Pedersen, **forthcoming in the Journal of Finance**
16. Dominant Currency Debt, with Egemen Eren, **Journal of Financial Economics**, 2022, 144 (2), 571-589.
17. Liquidity, Innovation, and Endogenous Growth, with Francesca Zucchi, **Journal of Financial Economics**, 2019, 132 (2), 519-541.
18. Non-Myopic Betas, with Grigory Vilkov, **Journal of Financial Economics**, 2018, 129(2), 357-381
19. Decentralized Exchange, with Marzena Rostek, **American Economic Review**, 2017, 107(11), 3320-3362
20. Credit Market Frictions and Capital Structure Dynamics, with Julien Hugonnier and Erwan Morellec, **Journal of Economic Theory**, 2015, 157, 1130-1158
21. Capital Supply Uncertainty, Cash Holdings, and Investment, with Julien Hugonnier and Erwan Morellec, **Review of Financial Studies**, 2015, 28(2), 391-445.
22. Information Percolation in Segmented Markets, with Darrell Duffie and Gustavo Manso, **Journal of Economic Theory**, 2014, **153**, 1-32
23. Optimal Incentives and Securitization of Defaultable Assets, with Huaxia Rui and Andrew Whinston, **Journal of Financial Economics**, 2013, **107(1)**, 111-135.
24. Endogenous Completeness of Diffusion Driven Equilibrium Markets, with Julien Hugonnier and Eugene Trubowitz, **Econometrica**, 2012, **80**, 1249-1270.
25. Financial Markets Equilibrium with Heterogenous Agents, with Jaksa Cvitanic, Elyes Jouini and Clotilde Napp, **Review of Finance**, 2012, **16(1)**, 285-321.
26. Price Impact and Portfolio Impact, with Jaksa Cvitanic, **Journal of Financial Economics**, 2011, **100(1)**, 201-225.
27. The Relative Contributions of Private Information Sharing and Public Information Releases to Information Aggregation, with Darrell Duffie and Gustavo Manso, **Journal of Economic Theory**, 2010, **145(4)**, 1574-1601.
28. Information Percolation with Equilibrium Search Dynamics, with Darrell Duffie and Gustavo Manso, **Econometrica**, 2009, **77**, 1513-1574.

## **Publications in Mathematical Finance**

29. Optimal Reinsurance with Multiple Tranches, with Semyon Malamud and Andrew Whinston, **Journal of Mathematical Economics**, Volume 65, 71-82, 2016

30. Convexity Bounds for BSDE Solutions, with Applications to Indifference Valuation, with Christoph Frei and Martin Schweizer, **Probability Theory and Related Fields**, 2011, **150**, 219-255.
31. Relative Extinction of Heterogeneous Agents, with Jaksa Cvitanic, **B. E. Journal of Theoretical Economics**, 2010, **10(1)**.
32. Market Consistent Pricing of Insurance Products, with E. Trubowitz and M. Wüthrich, **Astin Bulletin**, 2008, **38(2)**, 483-526.
33. Universal Bounds for Asset Prices in Heterogeneous Economies, **Finance and Stochastics**, 2008, **12(3)**, 411-422.
34. Long Run Forward Rates and Long Yields of Bonds and Options in Heterogeneous Equilibria, **Finance and Stochastics**, 2008, **12(2)**, 245-264.
35. The Structure of Optimal Consumption Streams in General Incomplete Markets, with E. Trubowitz, **Mathematics and Financial Economics**, 2007, **1(2)**, 129-161.

### **Publications in Pure Mathematics**

36. On a Class of Multiparameter Perturbations of Positive-Definite Operators with Fixed Bounds on Their Spectrum, **Linear Algebra and Applications**, 1998, **274**, 239-257.
37. Some Complements to the Jensen and Chebyshev Inequalities and a Problem of W. Walter, **Proc. Amer. Math. Soc.**, 2001, **129(9)**, 2671-2678.
38. A Converse to the Jensen Inequality, Its Matrix Extensions and Inequalities for Minors and Eigenvalues, **Linear Algebra and Applications**, 2001, **322**, 19-41.
39. Operator Inequalities, Converse to the Jensen Inequality, **Mathematical Notes**, 2001, **69(4)**, 633-637.
40. On the Spectral Theory of Operator Measures, with M. Malamud, **Funct. Anal. and Appl.**, 2002, **36(2)**, 78-84.
41. Some Remarks on Completely Bounded Maps, **Methods of Functional Analysis and Topology**, 2002, **8(2)**, 69-87.
42. Analog of the Poincare Interlacing Theorem for Normal Matrices and the Gauss-Lukas theorem, **Funct. Anal. and Appl.**, 2003, **37(3)** 72-76.
43. Spectral Theory of Operator-Valued Measures in Hilbert Space, with M. Malamud, **St. Petersburg Math. Journal**, 2004, **15**, 323-373.
44. Inverse Spectral Problem for Normal Matrices and the Gauss-Lucas Theorem, **Trans. Amer. Math. Soc.**, 2005, **357**, 4043-4064.