

PERSONAL INFORMATION

Gender: Male
Citizenship: Dutch

CONTACT INFORMATION

Bank of Canada
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REFERENCES

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Dr. Andreas Uthemann
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Prof. Jean-Pierre Zigrand
The London School of Economics
Department of Finance
Houghton Street
London WC2A 2AE, UK
Email: j.p.zigrand@lse.ac.uk
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POSITIONS

Senior Economist, Bank of Canada, 2017 -

RESEARCH INTERESTS

Asset Pricing, Over-The-Counter Markets, Financial Stability, Market Liquidity, Extreme Value Theory

EDUCATION

PhD in Finance, University of Rotterdam (Tinbergen Institute), December 2015

MPhil in Finance, Tinbergen Institute, May 2011

MSc in Economics, VU University Amsterdam, August 2009

MSc in Finance (Cum Laude), VU University Amsterdam, January 2008

FELLOWSHIPS & AWARDS

ESEM Award 2017 at the 70th European Meeting of the Econometric Society. *Information Aggregation in OTC Derivatives Markets: Evidence from Consensus Prices*

Mozaiek Ph.D. Grant by the Netherlands organization for scientific research (NWO) (180.000 Euro)

Master thesis award by the Dutch Ministry of Finance for *Investing in Art: A Comprehensive Approach* (3.000 Euro)

PUBLICATIONS

Ergun, L. M. **Extreme Downside Risk in the Cross-Section of Asset Returns**. International Review of Financial Analysis 90 (2023): 102840.

Ergun, M.L., A. Molchanov, and P. Stork. **Technical Trading Rules, Loss Avoidance, and the Business Cycle**. Pacific-Basin Finance Journal 82 (2023): 102172.

BOOK PUBLICATIONS

Rethinking Valuation and Pricing models: Lessons Learned from the Crisis and Future Challenges. Chapter 31 - **Tail Risk Reduction Strategies**. Elsevier publication 2012 (with P. Stork). Editors: Carsten Wehn, Christian Hoppe and Greg Gregoriou.

REVISE AND
RESUBMIT

Information Aggregation in OTC Derivatives Markets: Evidence from Consensus Prices (with A. Uthemann) (*Journal of Finance*)

WORKING PAPERS

Tail Index Estimation: Quantile Driven Threshold Selection (with J. Danielsson and C. G. de Vries)(*BoC wps*)

Worst-Case Analysis (with J. Danielsson and C. G. de Vries) (*BoC wps*)

Covariates Hiding in the Tails (with M. Bachem and C. G. de Vries)(*BoC wps*)

Under review at Quantitative Economics

The Impact Term Structure of Central Bank Crisis Interventions (with M. Bevilacqua, J. Danielsson, A. Uthemann and J.P Zigrand)

Under review at Journal of Money, Credit and Banking

WORK IN PROGRESS

Discontinuous Aversion to Large Losses: What Can Options Tell Us (with B. Feunou Kamkui)

The tendency of investors to weigh potential losses more heavily than gains plays an important role in asset pricing. We develop a GARCH option model which allows for disappointment aversion. In the pricing kernel we introduce a discontinuity in the left side of the return distribution. This approach allows us to decompose the pricing kernel into a continuous exponential component and a loss aversion component. Additionally, we allow for time varying importance of the loss aversion component and show how it affects the higher moments of the conditional risk-neutral distribution. The loss-aversion pricing kernel outperforms its standard counterpart by approximately 20%.

Extending the Tails: A Quantum Computing Approach (with N. Noorani, V. Skavysh and V. Astuti)

Generative AI is a subset of AI dealing with the creation of new and original data coming from a given statistical distribution. Generative modeling is an unsupervised machine learning task involving automatic discovery and learning the regularities in input data in such a way that the model can be used to generate new examples that could have been drawn from the original dataset. In this paper we explore the value of restricted Boltzmann machines (classical or quantum) generating infrequently observed tail observations. Generating tail observations enables a more precise study of rare and impactful events. We apply the Boltzmann machine to evaluate the accuracy of GDP-at-risk calculations and to better assess the tail risk associated with young firms.

The ARCH Tail Scale Parameter: An Indirect Inference Approach (With M. Bachem and C.G. de Vries) For the ARCH stochastic process, the first and second-order tail indices of the distribution's stationary solution are known, as well as the second-order scale parameter. However, the first-order scale parameter remains more elusive. In cases where the implied first-order tail index is an integer, Goldie (1991) provides a method to obtain explicit expressions for the first-order scale parameter. In this paper we retrieve the scale parameter for non-integer values via indirect inference. We utilize a Brownian representation of the tail process as the semi-parametric model to fit to the empirical distribution. By varying the first-order scale parameter in the brownian representation, we elicit the ARCH process's scale parameter.

Limits to Arbitrage in the Market for Collateral (with A. Walton, S. Zhang and A. Uthemann)

We study the interaction between the repo and securities lending market. While the repo market's impact is well-studied, the securities lending market remains underexplored beyond its short-selling and market-making functions. Using transaction-level data on Canadian Treasury securities, we analyze the spread between securities lending and repo rates for equivalent transactions, linking this spread to arbitrageurs' risk-taking capacities. We find that their rates closely follow each other. However, deviations are persistent and correlate with the level of the VIX.

POLICY PROJECTS

Uncertainty measures for Canadian equity and bond markets

Impact of the Canadian crisis facilities on financial market fear

Public information flowing from crisis liquidity facilities

Measuring the Canadian equity risk premium using options

Interconnectedness between the Canadian repo, securities lending and cash market

The impact of hedge funds on the GOC futures market and the cash-future basis trade

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| ACADEMIC POSITIONS | <p>Research Officer, Systemic Risk Centre, LSE, 2014 - 2017 Visiting Scholar, LSE Systemic Risk Centre, 2013 Visiting Scholar, NYU Stern, 2012</p> |
| ACADEMIC PRESENTATIONS | <p>FMA European Meeting (Aalborg, 2023), IEAA Meeting (Oslo, 2023), Econometric Society Asia Meeting (Tokyo Japan, 2022), CFE Meeting (London, 2021), BIS-BoE-ECB-IMF Conference (Frankfurt, 2021), Economic Society World Congress (Milan, 2020), European Economic Association (Rotterdam, 2020), Southwestern Finance Association Annual Meeting (San Antonio, 2020), LSE Systemic Risk Centre (London, 2020), NBER-NSF Conference (Palo Alto, 2018), Econometric Society North American Summer Meeting (Davis, 2018), IAAE General Assembly (Montreal, 2018), CEPR Spring Meeting in Financial Economics (London, 2018), 26th Finance Forum (Santander, 2018), Paris December Finance Meeting (Paris, 2018), Asia-Pacific Conference on Economics & Finance (Singapore, 2016), Asia Meeting of the Econometric Society (Kyoto, 2016), 10th RFSB Seminar Banco Central do Brasil (Sao Paulo, 2015), Extreme Value Theory Workshop (Rotterdam, 2013)</p> |
| TEACHING EXPERIENCE | <p>Lecturer, Quantitative Methods in Finance (Two week pre-Master course), Duisenberg School of Finance Teaching Assistant, Derivatives (LSE Summer school), Advanced Econometrics (M. Sc. - LSE), Economics of Risk (M. Sc. - DSF), Macroeconomics (B.Sc. - EUR), Quantitative Macro Economics (B.Sc. - EUR), Business Research Methods (B.Sc. - VU)</p> |
| PROFESSIONAL SERVICES | <p>Refereeing - Review of Financial Studies, Journal of Quantitative Financial Analysis, Journal of Empirical Finance, Journal of Banking and Finance, Journal of Statistical Theory and Practice and BoC working paper series. PhD student supervision - Milian Bachem (University of Rotterdam) Conference organization - FSRC Macro-Finance conference 2024, Bank of Canada - The financial markets' response to Covid-19 policy interventions, LSE, 2020 - Session organizer, Canadian Economic Association 2019, Banff - Systemic Risk in Over-The-Counter Markets, LSE, 2015 - Extreme value theory workshop 2013, Rotterdam. Discussant - North American Finance Association (Toronto, 2023), SFA (San Antonio, 2020), Bank of Canada - Capital flows workshop (Ottawa, 2018), Paris finance winter meeting (Paris, 2018), 26th Finance Forum - AEFIN (Santander, 2018). Commissions - BoC work environment committee, Job market search committee, BoC-FSRC editor, BoC graduate student paper award committee.</p> |
| LANGUAGES | <p>Dutch (Native), Aramaic (Native), English (Fluent), German (Advanced), French (Beginner) R, Matlab, SQL, Python, Slurm, HTML</p> |