

Ahmet Göncü, PhD

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Research Interests

Machine learning in finance and economics, commodity markets, futures and equity markets, mathematical modeling

Education

Ph.D. Financial Mathematics, Florida State University, USA, 2006-2009

M.S. Financial Mathematics, Florida State University, USA, 2004-2006

M.A. Economics, Bogazici University, Turkey, 2002-2004

B.A. Economics, Bogazici University, Turkey, 1997-2002

Work Experience

Major Roles:

Assistant Professor of Finance, Department of Management Engineering, Istanbul Technical University, Türkiye, Jan 2023 – present

Senior Associate Professor, Department of Finance, International Business School Suzhou (IBSS), Xi'an Jiaotong-Liverpool University, China, Jul 2021 – Sep 2022

Head of Department, Department of Financial Mathematics, Xi'an Jiaotong-Liverpool University, China, Sep 2020 – Jul 2021

Senior Associate Professor, Department of Financial Mathematics, Xi'an Jiaotong-Liverpool University, China, 2016 –Aug 2021

Associate Professor, Department of Mathematical Sciences, Xi'an Jiaotong-Liverpool University, China, 2014 – 2016

Director of the Research Institute of Quantitative Finance, Xi'an Jiaotong-Liverpool University, China, 2014 – 2020

Group Head of Research and Postgraduate Studies, Department of Mathematical Sciences, Xi'an Jiaotong-Liverpool University, 2016 Aug – 2018 Sep

Lecturer, Department of Mathematical Sciences, Xi'an Jiaotong-Liverpool University, China, 2011 – 2014

Assistant Professor, Center for Economic Research, Shandong University, China, 2009 – 2011

Affiliations:

Research associate at the China Hedge Fund Research Center, Shanghai Advanced Institute of Finance (SAIF), Shanghai Jiaotong University, 2017 Aug – 2020 Mar

Research associate, Center for Economics and Econometrics, Bogazici University, Turkey, 2009 – present

Visiting:

Visiting Scholar, Department of Mathematics, Florida State University, USA, 2012 Summer

Teaching Experience

Graduate level: Computational Finance, Machine Learning, Financial Economics, Financial Derivatives, Financial Time Series

Undergraduate level: Introduction to Statistics, Linear Statistical Models, Financial Mathematics, Macroeconomics, Econometrics

Journal Publications

33. Statistical Arbitrage: A factor investing approach, *OR Spectrum: Quantitative Approaches in Management (Q1)*, Springer Verlag, (with E. Akyildirim, A. Hekimoglu, D. K. Nguyen, A. Sensoy) [paper link](#) (DOI: 10.1007/s00291-023-00733-z)
32. Statistical arbitrage in jump-diffusion models with compound Poisson processes (2022), **Annals of Operations Research** (SSCI), Vol. 313, Pages 1357–1371 (with E. Akyildirim, A. Sensoy, F. Fabozzi). [paper link](#) (ABS: 3 – ABDC: A) <https://link.springer.com/article/10.1007/s10479-021-03965-w>
31. Prediction of Cryptocurrency Returns using Machine Learning (2021) **Annals of Operations Research** (SSCI), Vol. 297, Pages 3 – 36 (with E. Akyildirim and A. Sensoy). [paper link](#) (ABS: 3 – ABDC: A)
30. Anatomy of Chinese Futures Markets (2019), **Journal of Finance and Investment**, Vol. 8(2), Pages 69–110 (with Y. Yang) [paper link](#)
29. Forecasting Daily Residential Natural Gas Consumption: A Dynamic Temperature Modeling Approach (2019), **Bogazici Journal: Review of Social, Economic and Administrative Studies**, Vol. 33(1), 1–22 (with M.O. Karahan, T.U.Kuzubas)
28. Momentum and Reversal Strategies in Chinese Commodity Futures Market (2018) **International Review of Financial Analysis** (SSCI), Vol. 60, Pages 177–196 (with Y. Yang and A. Pantelous) [paper link](#) (ABS: 3 – ABDC: A)
27. Statistical Arbitrage in the Multi-Asset Black-Scholes Economy (2017) **Annals of Financial Economics**, Vol. 12(1) (with E. Akyildirim) [paper link](#)
26. Pairs Trading with Commodity Futures: Evidence from the Chinese market (2017), **China Finance Review International**, Vol. 7(3), Pages 274–294 (with A. Pantelous and Y. Yang) [paper link](#) (ABS: 1 – ABDC: C)
25. A Stochastic Model for Commodity Pairs Trading (2016) **Quantitative Finance** (SSCI), Pages 1–15, (with E. Akyildirim) DOI:10.1080/14697688.2016.1211793 [paper link](#) (ABS: 3 – ABDC: A)
24. Variance-Gamma and Normal-Inverse Gaussian Models: Goodness-of-fit to Chinese high-frequency index returns (2016) **North American Journal of Economics and Finance** (SSCI) Vol. 36, Pages 279–292 (with H. Yang) [paper link](#) (ABS: 2 – ABDC: B)

23. Statistical Arbitrage with Pairs Trading (2016) **International Review of Finance** (SSCI), Vol. 16(2), Pages 307–319.
DOI: 10.1111/irfi.12074 (with E. Akyildirim) [paper link](#) (ABS: 3 – ABDC: A)
22. A Comparative Goodness-of-fit Analysis of Distributions of Some Levy Processes and Heston Model to Stock Index Returns (2016) **North American Journal of Economics and Finance** (SSCI), Vol. 36(April), Pages 69–83. [paper link](#) (with T.U. Kuzubas and O. Karahan) (ABS: 2 – ABDC: B)
21. Uncertainty and Robustness in Weather Derivative Models (2015) **Proceedings of the MCQMC 2014 (Springer)** [paper link](#) (with Y. Liu, G. Okten and Y. Hussaini)
20. Estimating Sensitivities of Temperature-Based Weather Derivatives (2015) **Applied Economics** (SSCI), Vol. 47(19), Pages 1942-1955 (with G. Okten and W. Yuan) [paper link](#) (ABS: 3 – ABDC: A)
19. Statistical Arbitrage in the Black-Scholes Framework (2015) **Quantitative Finance** (SSCI), 15(9):1489–1499. [paper link](#) (ABS: 3 – ABDC: A)
18. Modeling Long-term Seasonality and Spikes of the Spot Electricity Prices in Turkey (2014) **Bogazici Journal: Review of Social, Economic and Administrative Studies**, Vol. 28(2), [paper link](#) (with E. Akyildirim and A. Altarovici).
17. Fitting the Heston Stochastic Volatility Model to Chinese Stocks (2014) **International Finance and Banking**, Vol. 1(1), Pages 74-85 [paper link](#) (with H. Yang).
16. Pricing Portfolios of Contracts on Cumulative Temperature with Risk Premium Determination (2014) **Risk and Decision Analysis**, Vol. 5(1), Pages 75-98, 2014 (with S. Stojanovic) [paper link](#)
15. Fitting the Variance-Gamma Model: A goodness-of-fit check for emerging markets (2014), **Bogazici Journal: Review of Social, Economic and Administrative Studies**, Vol. 27(2), Pages 1-18 [paper link](#) (with T.U. Kuzubas and M.O. Karahan)
14. Uniform point sets and the collision test (2014), **Journal of Computational and Applied Mathematics** (SCI), Vol. 259, Part B, 798-804 (with G. Okten) [paper link](#)
13. Efficient simulation of a multi-factor stochastic volatility model (2013), **Journal of Computational and Applied Mathematics** (SCI), Vol. 259, Part B, 329-335 (with G. Okten) [paper link](#)
12. A New Interpretation of the Logistic Model in Estimating Seasonal and Yearly Natural Gas Consumption (2013), **Research in Applied Economics**, Vol. 5(4), 97-106 [paper link](#)
11. A stochastic model for natural gas consumption: an application for Turkey (2013), **Iktisat Isletme ve Finans** (SSCI), Vol. 28(332), Pages 33-56 [paper link](#) (with M.O. Karahan and T. U. Kuzubas)
10. Pricing Futures and Options on a Basket of Temperature Indices (2013), **Review of Futures Markets**, Vol. 21(2) (with Zong Lu) [paper link](#)
9. Comparison of temperature models using heating and cooling degree days futures (2013) **Journal of Risk Finance**, Vol.14(2), 159-178. [paper link](#) (ABS: 1 – ABDC: B)
8. Modelling Temperatures in Shanghai using Fractional Brownian Motion (2012) **Far East Journal of Mathematical Sciences**, Vol. 70(2), 251-260
7. An analysis of the extreme returns distribution: the case of the Istanbul Stock Exchange (2012) **Applied Financial Economics** (SSCI), Vol. 22(9), 723-732 (with A. Karaman Akgul, O. Imamoglu, M. Tiryakioglu and M. Tiryakioglu) [paper link](#) (ABS: 3 – ABDC: A)

6. Modeling and pricing precipitation-based weather derivatives (2011) **Financial Mathematics and Applications**, Vol. 1(1), 1-10
5. Pricing temperature-based weather derivatives in China (2011) **Journal of Risk Finance**, Vol. 13(1), 32-44 [paper link](#) (ABS: 1 – ABDC: B)
4. Pricing temperature-based weather contracts: an application to China (2011) **Applied Economics Letters** (SSCI), Vol. 18(14), 1349-1354 [paper link](#) (ABS: 1 – ABDC: B)
3. Generating low-discrepancy sequences from the normal distribution: Box Muller or inverse transform? (2011) **Mathematical and Computer Modelling** (SCI), Vol. 53, 1268-1281 (with G. Okten) [paper link](#)
2. Pricing of Temperature-based Weather Options for Turkey (2011) **Iktisat Isletme ve Finans** (SSCI), Vol. 26(309), 33-50 (with T. U. Kuzubas and M. O. Karahan) [paper link](#)
1. On pricing discrete barrier options using conditional expectation and importance sampling Monte Carlo (2008) **Mathematical and Computer Modelling** (SCI), Vol. 47(3-4), 484-494, (with G. Okten and E. Salta) [paper link](#)

PhD Supervision

1. **Completed (April 2018)**: Supervised Dr. Yurun Yang at Xi'an Jiaotong Liverpool University. Title: Essays in Quantitative Investments.
2. **Completed (July 2015)**: Supervised Dr. Zong Lu at Xi'an Jiaotong Liverpool University. Title: Temperature-based weather derivatives modeling and contract design in Mainland China.
3. **Completed (December 2019)**: Supervisor of Ms. Juan Du at Xi'an Jiaotong Liverpool University. Title: Algorithmic Trading with Machine Learning, joint project with CITIC Securities China.
4. **Ongoing**: Supervisor of Ms. Zizhu Wang at Xi'an Jiaotong Liverpool University. Title: Prediction of Chinese Stocks and Futures with Machine Learning.
5. **Ongoing**: Co-Supervisor of Ms. Pei Wan at Xi'an Jiaotong Liverpool University with Dr. Zong Lu.
6. **Completed (2017)**: Co-supervision of Fei Liu, from the University of Liverpool, with Prof. Athanasios Pantelous.

Financial Industry Projects and Consulting

1. Industry training on Monte Carlo Methods (2010) at the Central Bank of China, Xi'an Branch Research Department.
2. Developing trading strategies for the Chinese commodity futures markets for the hedge fund **JinYiBao Co Ltd.** Suzhou (2016–2018)
3. FinTech Expo in Suzhou, May 15th, 2019. Organizational work as the Research Institute of Quantitative Finance representing Xi'an Jiaotong-Liverpool University.
4. Chinese macro-economic, demographic, socio-economic database development project with web-scraping in python for a private equity consulting business in China.

External Research Grants

1. Jiangsu Province Natural Science Research Programme, “Stochastic modeling of natural gas consumption” (32,000 RMB) 2013-2015
2. National Science Foundation of China (NSFC), “Monte Carlo simulation of Multi-factor Stochastic Volatility Models” International Young Scientists Grant (200,000 RMB) 2011-2012
3. Shandong University Research Grant, “Monte Carlo methods in weather derivatives” (30,000 RMB) 2010-2011
4. Suzhou Industrial Park-XJTLU joint funding, Research Institute of Quantitative Finance (200,000 RMB)

* **Grant total of external grants as PI: 462,000 RMB**

Internal Research Grants

1. PI: “Machine Learning in Stock and Futures Markets” (2019-2023) PhD studentship, Xi’an Jiaotong-Liverpool University
2. PI: “Theory and applications of statistical arbitrage” (2016-19) PhD studentship and 27,000 RMB grant (RDF), Xi’an Jiaotong-Liverpool University
3. PI for establishing the Research Institute of Quantitative Finance (230,000 RMB), Xi’an Jiaotong-Liverpool University.
4. PI: “Sensitivity Analysis in Financial Engineering Problems” (12,000 RMB, 2013-2014) Xi’an Jiaotong-Liverpool University
5. PI: “Modeling and pricing weather derivatives” (36,000 RMB, 2012-2013) Xi’an Jiaotong-Liverpool University
6. Co-PI: “Risk Quantification with Quasi-Monte Carlo” (80,000 RMB, 2014-2016) Xi’an Jiaotong-Liverpool University

* **Grant total of internal grants (excluding PhD fundings) as PI: 305,000 RMB**

Awards

Highly Commended Article Award by Emerald, Journal of Risk Finance, for the article entitled “Pricing temperature-based weather derivatives in China” 2013

Florida State University, Dissertation Research Award (750\$USD), 2009

Florida State University, Teaching Assistantship and Stipend (2004-2009)

International Conferences

Existence of Statistical Arbitrage Portfolios in the Black-Scholes Framework, 8th Congress on Industrial and Applied Mathematics, ICIAM 2015 Beijing, China.

Uncertainty and Robustness in Weather Derivative Models, MCQMC 2014, April 2014 Belgium KU Leuven

Pricing temperature-based weather derivatives in China, Hong Kong Polytechnic University on December 16-18, 2010.

Prediction of exchange rates with machine learning, Proceedings of the International Conference on Artificial Intelligence, Information Processing and Cloud Computing, December 2019.

An ARMA model for natural gas consumption, 2013 3rd International Conference on Energy and Environmental Science.

Editorial Work

Guest editor for the special issue: “Modern Aspects of Financial Engineering”, published by *China Finance Review International (Emerald Publishing)*, the Quantitative Finance and Risk Analysis (QFRA) 2017 symposium in Kofu, Greece.

Administrative/Organizational Work

Director of the financial mathematics programme and Chair of the Departmental Financial Mathematics Sub-Committee, Xi’an Jiaotong-Liverpool University, 2013 to 2016.

Director of the Research Institute of Quantitative Finance, Xi’an Jiaotong-Liverpool University, 2014 to 2020.

Chair of the departmental learning and teaching committee, Xi’an Jiaotong-Liverpool University, 2012 to 2015

Session organized on “computational finance” in ICIAM Beijing, August 11, 2015.

Organized the workshop on “Statistical arbitrage and high frequency trading”, Research Institute of Quantitative Finance, Xi’an Jiaotong-Liverpool University, June 13, 2015.

Organized the workshop on “Quantitative finance”, Research Institute of Quantitative Finance, Xi’an Jiaotong Liverpool University, May 28th, 2016.

Member of the Research Funding Sub-committee, Xi’an Jiaotong-Liverpool University, 2019 Fall to present.

Member of the organizational committee: Quantitative Finance and Risk Analysis (QFRA) June 11-12, 2015, Santorini Island, Greece.

Member of the organizational committee: Quantitative Finance and Risk Analysis (QFRA) June 9-10 2016, Rhodes Island, Greece.

Member of the organizational committee: First China Derivatives Markets Conference (CDMC) 2016, May 19-20, 2016 (Co-sponsored by the Research Institute of Quantitative Finance).

Session Chair: Trading, portfolio and hedge fund strategies, First China Derivatives Markets Conference (CDMC), May 19-20, 2016.

FinTech Expo Suzhou Industrial Park, May 15th, 2019. Member of the organizing committee, Research Institute of Quantitative Finance & Keynote Talk: Machine Learning in Trading Strategies.

Skills

Computer Skills: MATLAB, Python, R programming.

Language Skills: English (fluent), Chinese (advanced), Turkish (native).

Last updated: September 6, 2023