Emanuele Guidotti

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EDUCATION

PhD Finance - Empirical Asset Pricing, **University of Neuchâtel**   2019 — June 2023
Supervisor: T.A. Kroencke   (expected)

MSc Finance - Quantitative Finance, **University of Milan**   2015 — 2017
Final evaluation: *summa cum laude.* Supervisor: S.M. Iacus

BSc Physics - General Physics, **University of Milan**   2012 — 2015
Final evaluation: *summa cum laude.* Supervisor: S.M. Iacus and A. Vicini

DOCTORAL STUDIES

DOCTORAL STUDENTS PROGRAM (ECONOMETRICS), **Study Center Gerzensee**   2019 — 2020
Final evaluation: 6.0/6.0. Teachers: M. Watson and B. Honoré

EMPIRICAL ASSET PRICING, **École Polytechnique Fédérale de Lausanne**   2019 — 2020
Final evaluation: 6.0/6.0. Teacher: M. Rockinger

MACHINE LEARNING IN FINANCE, **Politecnico di Milano**   2019 — 2020
Teachers: M. Restelli and R. Baviera

ACADEMIC VISITS

VISITING SCHOLAR, **HEC Montréal**, Department of Decision Sciences   May 2022
Host: D. Ardia

VISITING SCHOLAR, **University of Tokyo**, Mathematical Sciences   Non-consecutive 4 months
Host: N. Yoshida   period between 2017 — 2018

WORKING PAPERS

"A Theory of Price Formation in Financial Markets"

> This paper presents a theory where prices are formed in a purely mechanical manner through trading. The theory consists of three fundamental propositions. First, the quantity exchanged in a trade equals the integrated density of the book between zero and the peak impact. Second, the peak impact relaxes to the permanent impact such that makers and takers earn zero profits in the transaction. Third, the asset price is determined by the accumulation of price impacts. The model is simple yet capable of replicating various patterns observed in financial data and reconciling disparate theoretical and empirical research strands.

"Liquidity Premia and Bid-Ask Spreads: Evidence from 94 Years in the U.S. Stock Market"
With D. Ardia and T.A. Kroencke

> This paper examines liquidity premia where liquidity is measured by effective bid-ask spreads. We find that the liquidity premium accounts for 20% of the total equity premium, and the price of illiquidity has remained stable over almost one century. Liquidity is more strongly priced in January but also significant in non-January months. Our results suggest that liquidity is priced across all stocks, although samples restricted to larger stocks may lack power and achieve lower statistical significance. Stocks with higher spreads are associated with lower prices of illiquidity and higher liquidity premia. Finally, we link bid-ask spreads to Amihud's illiquidity measure.

"Efficient Estimation of Bid-Ask Spreads from Open, High, Low, and Close Prices"
With <u>D. Ardia</u> and <u>T.A. Kroencke</u> (under review)

> This paper formally derives an efficient estimator of the bid-ask spread from open, high, low, and close prices. The estimator is asymptotically unbiased and optimally combines the full set of price data to minimize the estimation variance. In absence of quote data, it delivers the most accurate estimates of bid-ask spreads theoretically, numerically, and empirically. The estimator is easy to calculate and has a broad applicability in empirical finance.

Seminars and Conferences: Annual Meeting of the European Finance Association (EFA 2022), Annual Meeting of the Financial Management Association (FMA 2022), International Conference on Quantitative Finance and Financial Econometrics (QFFE 2022), HEC Montréal, INSEAD Paris*, Goethe University Frankfurt*, New Zealand Finance Meeting (NZFM 2021), Annual Financial Market Liquidity Conference (AFML 2021), Annual Meeting of the German Finance Association (DGF 2021), International Risk Management Conference (IRMC 2021).

* denotes presentation by co-author

PUBLISHED PAPERS

"Text Classification with Born's Rule"
With <u>A. Ferrara</u>
(forthcoming in **Neural Information Processing Systems**, 2022) [<u>link</u>]

"calculus: High Dimensional Numerical and Symbolic Calculus in R"
Journal of Statistical Software, vol. 104(5), pag. 1-37, 2022. [<u>link</u>]

"A worldwide epidemiological database for COVID-19 at fine-grained spatial resolution"
Scientific Data, vol. 9(1), pag. 1-7. Nature Publishing Group, 2022. [<u>link</u>]

"COVID-19 Data Hub"
With <u>D. Ardia</u>
Journal of Open Source Software, vol. 5(51), pag. 2376, 2020. [<u>link</u>]

"Are official confirmed cases and fatalities counts good enough to study the COVID–19 pandemic dynamics? A critical assessment through the case of Italy"
With <u>K. Bartoszek</u>, <u>S. Iacus</u>, <u>M. Okrój</u>.
Nonlinear Dynamics, vol. 101(3), pag. 1951-1979. Springer, 2020. [<u>link</u>]

RESEARCH SOFTWARE

"COVID-19 Data Hub"
Total downloads: 196,000+. Data downloads: 5,690,000+. Links: [<u>GitHub</u>] [<u>CRAN</u>] [<u>PyPI</u>]

"bidask: Efficient Estimation of Bid-Ask Spreads from Open, High, Low, and Close Prices"
Total downloads: 7,000+. Links: [<u>GitHub</u>] [<u>CRAN</u>] [<u>PyPI</u>]

"calculus: High Dimensional Numerical and Symbolic Calculus in R"
Total downloads: 33,000+. Links: [<u>GitHub</u>] [<u>CRAN</u>]

"RblDataLicense: R Interface to Bloomberg Data License"
Total downloads: 33,000+. Links [<u>GitHub</u>] [<u>CRAN</u>]

"yuimaGUI: A Graphical User Interface for the yuima Package"
Total downloads: 24,000+. Links: [<u>CRAN</u>]

"stc: Supervised Classification with Born's Rule"
Total downloads: 11,000+. Links [PyPI]

TEACHING

Asset Pricing (TA), Portfolio Management (TA), Quantitative Methods for Finance (TA), Research in Financial Analysis (TA) - *Master* in Finance, University of Neuchâtel	2020 — 2023
Hackathon: Data Acquisition, Management, and Visualization (Teaching) - *Master* in Data Science for Economics, University of Milan	2021 — 2022
Coding for Data Science and Data Management (Co-Teaching), Text Mining and Sentiment Analysis (Co-Teaching) - *Master* in Data Science for Economics, University of Milan	2019 — 2020

RESEARCH INTERESTS

Financial markets, Data science.

GRANTS AND AWARDS

2022 — Neural Information Processing Systems (NeurIPS) Scholar Award
2022 — Mobility Scholarship, University of Neuchâtel
2022 — Fonds Gold Open Access, University of Neuchâtel
2021 — Google Cloud Research Credits
2020 — R Consortium ISC Grant Program
2020 — Institute for Data Valorization IVADO Research Grant

ACADEMIC SERVICE

Referee: Scientific Data, Nature Publishing Group (2022).

Discussant: Annual Meeting of the German Finance Association (2021).

OTHER EMPLOYMENT AND ADDITIONAL AFFILIATIONS

Partner at Algo Finance Sagl	2018 — present
Japan Science and Technology Agency CREST	2017 — present