Dr. Lukas Hoesch

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EMPLOYMENT

2021 - present   **Assistant Professor – Vrije Universiteit Amsterdam**
Department of Econometrics and Data Science

- Candidate Fellow at the Tinbergen Institute Amsterdam since November 2021.
- Academic Visitor at the Department of Economics at Oxford University in the academic year 2022/23 and 2023/24.

EDUCATION

2017 - 2021   **Ph.D. in Economics**
Universitat Pompeu Fabra, Spain

Programme in Economics, Finance and Management
Advisor: Prof. Barbara Rossi
Grade: *Excellent with Cum Laude*

2016 - 2017   **Master of Research in Economics, Finance and Management**
Universitat Pompeu Fabra, Spain

2015 - 2016   **Master of Science in Economics and Finance**
Barcelona Graduate School of Economics, Spain

2014 - 2015   **Visiting Student, Bachelor of Science in Economics**
Stockholm University, Sweden

2012 - 2015   **Bachelor of Science in Economics**
University of Mannheim, Germany

RESEARCH FIELDS

Time Series Econometrics, Forecasting, Machine Learning, and Macroeconometrics

PUBLICATIONS

Robust Inference in Structural VAR Models identified by Non-Gaussianity
with Adam Lee and Geert Mesters

Forthcoming, Quantitative Economics

Abstract: All parameters in structural vector autoregressive (SVAR) models are locally identified when the structural shocks are independent and follow non-Gaussian distributions. Unfortunately, standard inference methods that exploit such features of the data for identification fail to yield correct coverage for structural functions of the model parameters

when deviations from Gaussianity are small. To this extent, we propose a robust semi-parametric approach to conduct hypothesis tests and construct confidence sets for structural functions in SVAR models. The methodology fully exploits non-Gaussianity when it is present, but yields correct size / coverage regardless of the distance to the Gaussian distribution. Empirically we revisit two macroeconomic SVAR studies where we document mixed results. For the oil price model of Kilian and Murphy (2012) we find that non-Gaussianity can robustly identify reasonable confidence sets, whereas for the labour supply-demand model of Baumeister and Hamilton (2015) this is not the case. Moreover, these exercises highlight the importance of using weak identification robust methods to assess estimation uncertainty when using non-Gaussianity for identification.

Has the Information Channel of Monetary Policy Disappeared? Revisiting the Empirical Evidence, *with Barbara Rossi and Tatevik Sekhposyan*

American Economic Journal: Macroeconomics, Vol. 15, No. 3, July 2023 (pp. 355-87)

Abstract: Does the Federal Reserve have an "information advantage" in forecasting macroeconomic variables beyond what is known to private sector forecasters? And are market participants reacting only to monetary policy shocks or also to information on the future state of the economy that the Federal Reserve communicates in its announcements via an "information channel"? This paper investigates the evolution of both the information advantage and information channel over time. Although they appear to be important historically, we find substantially weaker empirical evidence of their presence in recent years once instabilities are accounted for.

RESEARCH IN PROGRESS

Specification Tests Robust to Multiple Instabilities

Preparing for submission.

Abstract: I develop a hypothesis test for model evaluation which is robust to time-variation in parameters. The proposed method can be applied in-sample and out-of-sample to any economic model based on moment conditions. In-sample, the test selects between two nested model specifications in the presence of parameter instabilities. Out-of-sample, the test can be used to evaluate the performance of model or judgmental forecasts robust to time-variation. The key feature of the proposed test is that it is particularly powerful in the presence of multiple shifts in parameters without imposing a specific form of time-variation. Further, the test statistic provides narrative evidence on which parts of the sample drive the rejection of the null hypothesis. Simulations show that the test is accurately sized in finite samples and is more powerful than tests assuming constant coefficients or a single break if the data-generating process exhibits multiple shifts in parameters. Using the proposed test, I document the presence of short-horizon predictability in the U.S. equity premium during the postwar period. I find evidence of predictability for a large set of variables once time- variation is taken into account. The test further provides evidence of heterogeneity in the location of predictability episodes across variables. The findings explain why traditional tests often fail to uncover predictability in the full sample and why studies that split the sample at different dates often arrive at conflicting results regarding the predictive ability of a wide class of variables. *The paper has been awarded the 7th UniCredit Foundation Economics Job Market Best Paper Award.*

Multi-period Growth-at-Risk Forecasting with Sequence-to-Sequence Neural Networks
with Julia Schaumburg and Sicco Kooiker

Research project in progress.

TEACHING EXPERIENCE

2021 - present	**Course Coordinator & Lecturer**, Vrije Universiteit Amsterdam

- *Data Structures and Algorithms, Course Coordinator & Lecturer*
  B.Sc. Econometrics and Operations Research

- *Numerical Methods, Course Coordinator & Lecturer*
  B.Sc. Econometrics and Operations Research

- *Data Science Project, Course Coordinator & Lecturer*
  B.Sc. Econometrics and Operations Research

- *Data Science, Lecturer*
  MBA in International Business, Executive Education

- *Data Science for Executives, Lecturer*
  Executive MBA: Leading with Purpose, Executive Eucation

2022 - 2023	**Course Coordinator & Lecturer**, Tinbergen Institute Amsterdam

- *Foundations of Machine Learning with Applications in Python*
  Summer School, Business Data Science Graduate Program

2016 - 2021	**Teaching Assistant**, Universitat Pompeu Fabra

- *Advanced Techniques in Macroeconomics II (Ph.D.-level course)*
- *Advanced Macroeconomics*
- *Econometrics I (taught in Spanish)*
- *Econometrics II*
- *Data Analysis (taught in Spanish)*
- *Introduction to Game Theory*
- *Competition Policy*

2017 - 2020	**Teaching Assistant**, Barcelona Graduate School of Economics

- *Introduction to MATLAB (M.Sc. Econ, M.Sc. ITFD)*
- *Brush-Up in Probability & Statistics (M.Sc. Econ)*

PROFESSIONAL ACTIVITIES

Refereeing	Journal of Applied Econometrics, Journal of Business & Economic Statistics, International Journal of Forecasting, Econometrics and Statistics, Studies in Nonlinear Dynamics & Econometrics, Macroeconomic Dynamics
Organization	Organizer of the Departmental Brownbag Seminar at Vrije Universiteit Amsterdam

Presentations	University of Oxford (2023), 3rd Catalan Economic Society Conference (2023), Nuffield College Oxford (2023), University of Cologne (2023), Tilburg University (2022), 42nd International Symposium on Forecasting (2022), 15th NESG Meeting (2022), 27th International Conference on Computing in Economics and Finance (2021), Vrije Universiteit Amsterdam (2021), CEMFI (2021), Queen Mary University of London (2021), University of Mannheim (2021), University of Vienna (2021), Norges Bank (2021), Nova School of Business and Economics (2021), European Winter Meetings of the Econometric Society (2020), Spanish Economic Association SAEe Meeting (2020), 40th International Symposium on Forecasting (2020), Barcelona GSE PhD Jamboree (2020), SIdE Workshop for students in Econometrics and Empirical Economics (2020), 6th Barcelona GSE Summer Forum (2018)

IT SKILLS

Certifications	• AWS Certified Solutions Architect - Associate (SAA-C03, February 2023)
Cloud Architecture	• Experience developing (hybrid) cloud architectures for scientific applications. • Experience with cloud application security (AWS Identity & Access Management, Application Load Balancer, Organizations & Shield) and DevSecOps solutions (SonarQube, AWS CloudWatch & Secrets Manager). • Experience with CI/CD pipelines (AWS Code Pipeline, Github Actions & Jenkins) and Infrastructure-as-code (AWS CloudFormation & Ansible). • Experience with Content-Delivery-Networks (AWS CloudFront), serverless computing (AWS Lambda) and edge computing (Lambda@Edge). • Experience developing IoT solutions using AWS IoT including development of IoT sensors (ESP32 with Embedded C & MicroPython).
Software Engineering	• 10+ years of software engineering experience using C#, C++, Golang, Python, Visual Basic, ASP.NET, PHP, HTML and JavaScript. • Experience with SQL & NoSQL on-premise and cloud database solutions (MySQL, MS SQL, PostgreSQL, MongoDB, Prometheus, AWS RDS & DynamoDB). • Experience with Virtual Machines (VMware Workstation, VirtualBox and Parallels) and containerization (Docker, Kubernetes and AWS ECS/EKS). • Experience with Agile software development (Scrum), DevOps and DevSecOps.
Data Analytics	• Extensive experience developing and implementing algorithms for data analytics using R, C++, Python, Julia, MATLAB and STATA. • Experience developing KPI dashboards and interactive data visualizations (Grafana, Shiny & React). • Experience developing and training machine-learning models (TensorFlow & Keras, PyTorch, Scikit-Learn, Jupyter Notebooks, AWS SageMaker).
Support Tools	• Extensive experience with Office 365, including programming of VBA macros. • Experience with version control (Git & Subversion), development environments (MS Visual Studio, VS Code) and database management software (MS Access).

AWARDS & SCHOLARSHIPS

2020	7th Economics Job Market Best Paper Award by UniCredit Foundation and the European Economic Association.
2020	"Best Student Presentation Award in recognition of an inspiring, effective and professional Student Speaker at the 40th International Symposium on Forecasting", awarded by the International Institute of Forecasters and sponsored by Amazon.
2013 - 2017	Scholar of the German National Academic Foundation (Studienstiftung des deutschen Volkes), Germany's largest, and most prestigious scholarship foundation.

OTHER RESEARCH EXPERIENCE

2017 - 2021	Research Assistant, Universitat Pompeu Fabra, Spain
2014 - 2015	Research Assistant, Mannheim University, Germany
2013 - 2014	Research Assistant, ZEW Mannheim, Germany

PERSONAL INFORMATION

Citizenship	German
Languages	German (native), English (fluent), Spanish (fluent), Dutch (intermediate), French (basic)

REFERENCES

Available upon request.