# Lukas Hoesch

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**Marta Araque**, *Graduate Coordinator* marta.araque@upf.edu, +34 93 542 2226

## EDUCATION

*2017 - present* **Ph.D. Candidate in Economics**
*Universitat Pompeu Fabra*

Programme in Economics, Finance and Management.
Advisor: Prof. Barbara Rossi
Expected completion date: May 2021.

*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 in Economics**
*Stockholm University, Sweden*

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

## RESEARCH FIELDS

Econometrics, Time Series Econometrics, Forecasting, Empirical Macroeconomics, Empirical Finance

## RESEARCH PAPERS AND WORK IN PROGRESS

1. **Specification Tests Robust to Multiple Instabilities**

   **Job Market Paper**

   *Winner of the 7th UniCredit Foundation Economics Job Market Best Paper Award.*
   *Winner of the Best Student Presentation Award at the 40th Int. Symposium on Forecasting.*

   *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.

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

   **Revise & Resubmit, American Economic Journal: Macroeconomics**

3. **Robust tests in structural VAR models identified by non-Gaussianity**
   *with Adam Lee and Geert Mesters*

4. **A lab in the cloud - A serverless framework for conducting online experiments**
   *with Katharina Janezic*

## RESEARCH EXPERIENCE

*2020 - present* **Research Assistant** **Universitat Pompeu Fabra, Spain**

Supporting the principal investigator Prof. Barbara Rossi in conducting Monte Carlo simulations and statistical data analysis for projects within an ERC grant on *"New Methods and Applications for Forecast Evaluation"*.

*2017/18* **Research Assistant** **Universitat Pompeu Fabra, Spain**

Supporting the principal investigator Prof. Barbara Rossi and research team members Prof. Geert Mesters, Prof. Majid Al-Sadoon and Prof. Christian Brownlees on their respective lines of research developed within the Fundación BBVA project grant on *"Analysis of Big Data in Economics and Empirical Applications"*.

*2015/16* **Research Assistant** **Mannheim University, Germany**

Supporting Prof. Stephen Kastoryano in his research by implementing algorithms for dynamic treatment evaluation in R, STATA/MATA and OxMetrics for projects on *"Identification and Estimation of Dynamic Treatment Effects'*.

*2013/14* **Research Assistant** **ZEW Mannheim, Germany**

Supporting the research groups "Growth and Business Cycles" and "International Finance and Financial Management" on various projects. Supporting group members on their respective lines of research developed within the project *"Estimating the impact of the Eurozone Crisis on potential output"*.

## TEACHING EXPERIENCE

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| *2019/20* | **Introduction to MATLAB***, Barcelona GSE for Prof. G. Mesters.<br>**Econometrics II**, U. Pompeu Fabra for Prof. G. Mesters & Prof. K. Evdokimov.<br>**Introduction to Game Theory**, U. Pompeu Fabra for F. Klijn & M. Mdaghri Alaoui. |
| *2018/19* | **Introduction to MATLAB***, Barcelona GSE for Prof. G. Mesters.<br>**Econometrics I (ESP)**, U. Pompeu Fabra for Prof. J. Garcia-Villar, Prof. M. Cervini.<br>**Data Analysis (ESP)**, U. Pompeu Fabra for Prof. C. Sanguinetti. |
| *2017/18* | **Brush-Up in Probability & Statistics***, Barcelona GSE for Prof. C. Brownlees. |
| *2016/17* | **Advanced Macroeconomics**, U. Pompeu Fabra for Prof. A. Caggese.<br>**Competition Policy**, U. Pompeu Fabra, for C. García. |

* denotes graduate teaching, ESP denotes teaching in Spanish.

## IT SKILLS

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| *Data Analysis* | Extensive experience developing and implementing algorithms for statistical data analysis in R, C++ (Armadillo, GSL, Boost) including parallel programming with OpenMP, MATLAB, Python, Ox, Julia and STATA/MATA. |
| *Cloud Computing* | Extensive experience developing cloud architectures using AWS microservices: Lambda functions (C++, Golang, Python), EC2, S3, SQS, SNS, DynamoDB, RDS, CloudFormation, CloudFront and AWS IoT. Experience using Docker, Kubernetes and various databases (MySQL, PostgreSQL, MongoDB). Familiarity with DevOps, DevSecOps and Agile software development (Scrum). Experience developing KPI dashboards and data visualizations using Shiny, React and ReactNative (mobile applications). Programming of IoT Devices (ESP32) using Embedded C with PlatformIO. |
| *Machine Learning* | Experience developing and training machine-learning models using TensorFlow, MXNet, PyTorch and Scikit-Learn. |

## AWARDS & SCHOLARSHIPS

*2020* "7th Economics Job Market Best Paper Award" (UniCredit Foundation).

*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.

## PROFESSIONAL ACTIVITIES & VOLUNTEERING

*Presentations* 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)
** denotes an upcoming presentation.*

*Organization* Organizer of the UPF Economics PhD Student Research seminar (2017 - 2020), Organizer of the UPF Internal Econometrics PhD presentations (2018 - 2020)

*Volunteering* "Weltwärts" volunteer in *Bogotá D.C., Colombia* (Full-time, September 2011 to August 2012). Constructing prefabricated housing modules in economically disadvantaged communities of Colombia with *Fundación Catalina Muñoz* and teaching students from economically underprivileged families at *Compañía Filarmónica de los Andes.*

## PERSONAL INFORMATION

*Citizenship* German

*Languages* German (fluent), English (fluent), Spanish (fluent), Dutch (intermediate), Swedish (basic)

## REFERENCES

**Prof. Barbara Rossi**
*Universitat Pompeu Fabra*
*Barcelona GSE & CREI*
barbara.rossi@upf.edu

**Prof. Tatevik Sekhposyan**
*Texas A&M University*
*San Francisco Fed*
tsekhposyan@tamu.edu

**Prof. Geert Mesters**
*Universitat Pompeu Fabra*
*Barcelona GSE & VU Amsterdam*
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