Andrea De Polis

Personal Data

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Research Interests

Primary fields: Macroeconometrics, Financial Econometrics, Macroeconomics

Secondary fields: Bayesian Econometrics, Forecasting, Asset Pricing

Current Position

Postdoctoral Research Associate Jan 2024 -
Economic Statistics Centre of Excellence (ESCoE)
Univeristy of Strathclyde

Professional Experience

Research Visiting Jun 2025 (planned)
Central Bank of Finland

Research Economist Sept 2022 - Aug 2024
Fulcrum Asset Management

Research Visiting May 2023
Macro Research Group
Federal Reserve Bank of Chicago

Ph.D. Research Assistant Jan 2022 - Aug 2022
DG-Research
European Central Bank

Senior Economist May 2021 - Dec 2021
Now-Casting Economic, Ltd

Research intern Sept 2018 - Jan 2019
Monetary Policy and Economic Outlook Directorate
Bank of Italy

Education

Ph.D. in Finance and Econometrics 2017 - 2023
Supervisors: Prof. Ivan Petrella and Prof. Ana Galvão
Viva Committee: Prof. Andrew Patton and Prof. Anthony Garratt
Warwick Business School, The University of Warwick

MSc in Economics, Cum laude 2015 - 2017
Tor Vergata University of Rome

BSc in Economics 2012 - 2014
Roma Tre University

Research

Publications

Modeling and Forecasting Macroeconomic Downside Risk
with Davide Delle Monache (Banca d'Italia) and Ivan Petrella (Collegio Carlo Alberto).
Journal of Business & Economic Statistics, 42 (3), 1010 - 1025, 2024.
Abstract: We model permanent and transitory changes of the predictive density of U.S. GDP growth. A substantial increase in downside risk to U.S. economic growth emerges over the last 30 years, associated with the long-run growth slowdown started in the early 2000s. Conditional skewness moves procyclically, implying negatively skewed predictive densities ahead and during recessions, often anticipated by deteriorating financial conditions. Conversely, positively skewed distributions characterize expansions. The modeling framework ensures robustness to tail events, allows for both dense or sparse predictor designs, and delivers competitive out-of-sample (point, density and tail) forecasts, improving upon standard benchmarks.

Working Papers

The Taming of the Skew: Asymmetric Inflation Risk and Monetary Policy,
with Leonardo Melosi (University of Warwick, EUI) and Ivan Petrella (Collegio Carlo Alberto).

Abstract: We document that inflation risk in the U.S. varies significantly over time and is often asymmetric. An econometric model with time-varying asymmetry achieves superior forecasting accuracy over a leading symmetric model, matching professional forecasters' performance. Asymmetric inflation risk creates a gap between expected inflation and the modal forecast, which we formalize within a dynamic general equilibrium model by deriving its beliefs representation. The optimal policy requires shifting modal inflation forecasts counter to asymmetric risk. We study the empirical relevance of this policy by aligning the model's beliefs representation to reflect changes in inflation skewness estimated in real time.

Time-Varying Skewness and Momentum Crashes,
with Daniele Bianchi (Queen Mary University) and Ivan Petrella (Collegio Carlo Alberto).
Revision requested at the Review of Asset Pricing Studies.

Abstract: The return on conventional momentum portfolios exhibits a predominantly negative, time-varying skewness, which deepens during momentum "crashes". This has important implications for the portfolio risk-return trade-off: the relationship between the expected return and volatility is time-varying and depends on conditional skewness. We explore the economic underpinnings of time-varying skewness by timing the capital exposure to a momentum portfolio in response to fluctuations in risk. The results show that a dynamic skewness-adjusted maximum Sharpe ratio strategy outperforms popular volatility targeting approaches. Finally, we show that momentum skewness cannot be fully reconciled with an asymmetric exposure to upside and downside market risk.

Exchange Rate Dynamics and Unconventional Monetary Policies: it's all in the shadows,
with Mario Pietrunti (Banca d'Italia).
Abstract: In this paper we estimate an open economy New-Keynesian model to investigate the impact of unconventional monetary policies on the exchange rate, focusing on those adopted since the Global Financial Crisis in the euro area and in the United States. To this end we replace effective, short-term, interest rates with shadow rates, which provide a measure of the monetary stance when the former reach their effective lower bound. We find that since 2009 unconventional monetary policies significantly affected the dynamics of the euro-dollar exchange rate both in nominal and real terms: while the stimulus provided by the Fed prevailed between 2011 and 2014, contributing to the weakening of the dollar, in most recent years the depreciation of the euro mainly reflected the measures adopted by the ECB.

Work-in-progress

Common Risks and Common Gaps.

Abstract: The Okun's law puts forward a relation between the output and the unemployment gaps. I provide evidence of common non-linearities across the two quantities, highlighting common dynamics in higher order moments. I estimate a joint model for the dynamics of the marginal densities of the output gap and the unemployment gap, which can capture potential non-Gaussian features of the data through the time variation of the mean, variance and skewness. I postulate the Okun's relation to hold for the predictive densities by assuming common cyclical components for the moments. I document a considerable reduction in the uncertainty surrounding estimates of the natural rate of unemployment, or NAIRU, in the US, as compared to estimates based on symmetric models. Similarly, accounting for time-varying skewness of the output delivers estimates of the output gap that are less uncertain and more stable over time with respect to CBO projections.

Testing for Conditional Skewness with Epsilon-Skew-t Distributions.

Abstract: I develop a parametric test to detect the presence of instability in the third moment of time series data. The test is based on the score function of the flexible *epsilon-Skew-t* distribution, and belongs to the class of Lagrange Multiplier tests. The test presents appropriate asymptotic properties, as evaluated by means of an extensive Monte Carlo analysis. When applied to the three asset pricing anomalies of Fama and French (1993), the test points at an overwelimg evidence of conditional non-Gaussianity at the daily frequency, whereas weaker results are observed at the monthly frequency. These results should be taken as a warning of possible misspecification of asset pricing models based on symmetric likelihoods.

The Ever-Changing Challenges to Price Stability,
with Leonardo Melosi (University of Warwick, EUI) and Ivan Petrella (Collegio Carlo Alberto).

Abstract: US inflation risk is non-symmetric and varies considerably over time. Monetary and fiscal policies along with non-policy factors, such as unit labor costs, long-run interest rates, the unemployment gap, and commodity prices, are key drivers of the inflation risk. Macroeconomic predictors affect the long-run mean of inflation chiefly by influencing the shape and the skewness of the predictive distribution of long-run inflation. Inflation stabilization requires periodic revisions to the monetary and fiscal framework to counterbalance persistent shifts in the inflation risk. Failing to offset the inflation risk led to the large upside inflation risk of the 1960s and the 1970s. Our findings suggest that the Phillips curve is nonlinear and its slope is affected by policy and non-policy factors that have bearings on short-term volatility and risk of inflation.

Mixed Frequency Functional VARs for Nowcasting and Structural Analysis,
with Gary Koop (Univeristy of Strathclyde), Stuart McIntyre (Univeristy of Strathclyde) and James Mitchell (FRB Cleveand).

Abstract: We propose a functional-Vector Autoregressive model (fVAR) to nowcast the dynamics of the whole income distribution in the United Kingdom. British survey data about household income are published by the Office for National Statistics (ONS) with considerable delay, making them unappealing for policy evaluation. Our approach produces accurate predictions of past, current and future income distributions. We introduce a framework to rank the predictive ability of forecasting models when the target object is a full density, rather than a single realization. Based on this novel loss-function, we establish that out fVAR provides superior forecasting accuracy with respect to competing models. Our model further allows to carry out structural analysis on the income distribution within a traditional VAR setting.

Real-Time Forecasting with High-Frequency Seasonal Patterns,
with Ana Galvão (Bloomberg LP) and Ivan Petrella (Collegio Carlo Alberto).

Abstract: In this paper, we propose a novel, comprehensive approach to interpolate low-frequency official statistics from high-frequency data. Differently from standard mixed-frequency dynamic factor models, commonly used for nowcasting, we leverage on recent developments in nowcasting modeling to build a methodology that can easily deal with outlier detection, complex calendar patterns and temporal disaggregation. We deploy the new methodology to introduce a new weekly tracker for real activity in the United Kingdom based on the several new, high-frequency data provided by the Office for National Statistics (ONS). Results suggest that these new data sources, when properly managed via our model, introduce significant improvements in the predictive accuracy of traditional nowcasting models, generally based on lower-frequency data, in terms of both point and density forecasts.

Presentations

2024: Workshop Empirical Monetary Economics (OFCE, Paris)*, HM Treasury*, UNSW-ESCoE Conference on Economic Measurement (University of New South Wales, Sydney), The Frontier of Monitoring and Forecasting Macroeconomic and Financial Risk (SOFiE, National Bank of Belgium), 31st Annual Symposium of the Society for Nonlinear Dynamics and Economics (University of Padova), ESCoE Conference on Economic Measurement Conference (Univeristy of Manchester), University of Verona.

2023: Federal Reserve Bank of Chicago, 12th European Central Bank Conference on Forecasting Techniques, Society for Financial Econometrics (Sungkyunkwan University, Seoul), International Association for Applied Econometrics (BI Norwegian Business School), Money, Macro & Finance Network, 5th International Workshop in Financial Econometrics (Bahia, Brazil), Bank of England, Centre for Macroeconomics (LSE), 17th International Conference on Computational and Financial Econometrics (HTW Berlin).

2022: CEBRA (Pompeu Fabra University), ECB, RCEA Conference on Recent Developments in Economics, Econometrics and Finance (University of Cyprus), Fulcrum Asset Management.

2021: Warwick Business School, Economics Statistics Center of Excellence, International Association for Applied Econometrics (Erasmus School of Economics), 7th RCEA Time Series Workshop, International Symposium of Forecasters, 11th RCEA Money, Macro and Finance Conference, NBER-NSF SBIES (University of St. Louis), European Economic Association (University of Copenhagen), Örebro University.

2020: University of Warwick, 28th Annual Symposium of the Society for Nonlinear Dynamics and Econometrics (Zagreb University), University of Cyprus, Conference on Real-Time Data Analysis, Methods and Applications (FRB Philadelphia), 2nd Vienna Workshop on Economic Forecasting 2020 (IHS), EC2 confecerence (CREST & ESSEC).

2019: 13th International Conference on Computational and Financial Econometrics (University of London).

*: scheduled.

Referee activity

American Economic Review: Insights, Journal of Applied Econometrics, Journal of Economic Dynamics and Control, International Journal of Forecasting, The Manchester School, International Review of Financial Analysis

Scholarships and Honors

WBS bursary, Warwick Business School, University of Warwick	2017 - 2021
Award for Outstanding Contribution to Teaching, Warwick Business School	2020 & 2021
Particularly deserving "Giorgio Mortara" candidate, Bank of Italy	2017
C.S.R. Pettinari scholarship	2017

Teaching experience

Empirical finance (MSc), Warwick Business School 2018 - 2021
Teaching assistant for Dr. Daniele Bianchi (2018 - 2019)
Teaching assistant for Dr. Ganesh Viswanath-Natraj (2019 - 2021)

Research methods (MSc), Warwick Business School
Teaching assistant for Prof. Roman Kozhan (2018 - 2019)
Teaching assistant for Dr. Gi H. Kim (2010 - 2021)

Time series (BSc), Economics dept., University of Warwick 2018 - 2019
Teaching assistant for Dr. Alexander Karalis Isaac

Econometrics (MSc), Warwick Business School 2019 - 2020
Teaching assistant for Prof. Gianna Boero and Dr. Thomas Martin

Econometrics (MSc), Economics dept., University of Warwick 2020 - 2021
Teaching assistant for Prof. Manuel Bagues

Applied Multiple Regression Analysis (PhD), Warwick Business School 2021
Teaching assistant for Prof. Ana Galvão

Advanced training

Nowcasting & Models for Mixed Frequency Data — Jul 2021
International Institute of Forecasters, 4th annual forecasting summer school
Lecturer: M. Marcellino (Bocconi University)

Recent Development in Financial Econometrics — Jul 2018
Italian Econometric Society summer school
Lecturers: A. Patton (Duke University) and K. Sheppard (Oxford University)

Time Series Econometrics — May 2017
Lecturer: A. C. Harvey (Cambridge University)

Bayesian Methods for Macroeconomics — Apr 2017
Lecturer: G. Koop (Strathclyde University)

Bayesian Econometrics — Mar 2017
Lecturer: M. D. Weeks (Cambridge University)

Can you speak Matlab? — Mar 2017
Working with Time and Frequecy in Matlab

Can you speak Matlab? — Mar 2016
Solving optimization problems with Matlab

Computer Skills

Advanced Knowledge:	Matlab, STATA, LaTeX, Beamer, Office package
Intermediate Knowledge:	R, Phyton, Julia, Mathematica, Dynare. SQL

Languages

Italian (native), English (fluent), Spanish (intermediate), French (basic)

References

Prof. Ivan Petrella
Collegio Carlo Alberto
University of Turin
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Prof. Leonardo Melosi
Department of Economics
University of Warwick
✉ leonardo.melosi@warwick.ac.uk

Dr. James Mitchell
Vice President, Research Department
Federal Reserve Bank of Cleveland
✉ james.mitchell@clev.frb.org

Dr. Ana Beatriz Galvão
Global Modelling Team
Bloomberg Economics
✉ ana.b.galvao@pm.me