Office

### Personal Details

### Education

# University of California, San Diego, USA

Ph.D. in Economics (2005)

Dissertation Title: "Essays on Financial Econometrics"

Committee: Prof. Robert F. Engle (Chair), Prof. Graham Elliott, Prof. Allan Timmermann, Prof.

Bruce N. Lehmann, Prof. Dimitris Politis

# St. Anna School of Advanced Studies (Pisa, Italy)

Doctoral Degree in Economics (2003)

Dissertation Title: "Three Essays in Applied Econometrics"

Supervisors: Prof. Carlo Bianchi, Prof. Giampiero M. Gallo, and Prof. M. Lippi

University of Pisa (Pisa, Italy)

"Laurea" in Economics: 110/110 Summa cum laude (1997)

Supervisor: Prof. Carlo Bianchi Subject: Financial Econometrics Title of the Graduation Thesis: "The short-term interest rates and GARCH models: theory with application to the Italian case"

### Fields of Interest

Big Data, Forecasting, Time Series Analysis, Financial Econometrics, Applied Econometrics

Forecasting with Big Data, Forecast Evaluation, Forecasting with nonlinear time series, Volatility Modeling and Forecasting, Predictability of Returns, Pure Variance Common Features models, Nonlinear panel data models.

### **Current Positions**

### Bank of Italy

Economist

Rome, Italy

Jul. 2007 – Present

Economist at the Research Department (Financial Markets Division) and Coordinator of the Bank of Italy's internal working group on Big Data

## Academic Activities

- Visiting Scholar at the Universitat Pompeu Fabra, Spain (Feb. 2015 Jun. 2015 / Sep Oct. 2015)
- Visiting Scholar at the University of California, San Diego, La Jolla, USA (Jan. 2013 Apr. 2013)
- Lecturer at the *University of Rome "Tor Vergata"*, Italy. M.Sc.-Ph.D. course on 'Volatility' (Mar. 2010 Apr. 2010) (in English)
- Lecturer at the Department of Statistics of the University of Bologna, Italy. Full responsibility for the upper division course in Advanced Macroeconomics (Oct. 2003 Sept. 2004)
- Teaching Assistant at the Department of Economics, (UCSD), for the following upper division courses: Econometrics, Business and Financial Forecasting (Forecasting in Economics and Finance, Time Series Analysis), Macroeconomics (Sept. 2000 Jan. 2003)

## Research Activities

## University of California, San Diego

Research Assistant

La Jolla, USA

Jun. 2002 - Jul. 2002

Research Assistant to Prof. Robert F. Engle. "Common features: An Overview of Theory and Applications in Macroeconomics and Finance"

# Sant'Anna School of Advanced Studies

Young Researchers Project

Pisa, Italy

Jun. 2000 - Sept. 2001

"The analysis and forecasting of volatility with Regime-Switching ARCH and the consequences on option evaluation"  ${\bf r}$ 

# Publications in refereed journals

- 1. "The Predictive Power of Google Searches in Forecasting US Unemployment", with Francesco D'Amuri, International Journal of Forecasting, 2017, 33, 801–816.
- 2. "Comparing forecast accuracy: a Monte Carlo investigation", with Fabio Busetti, International Journal of Forecasting, 2013, 29, 13–27.
- 3. "Are Moving Average Trading Rules Profitable? Evidence from the European Stock Markets", with Massoud Metghalchi and Yung-Ho Chang, Applied Economics, 2012, 44(12), 1539–1559.
- 4. "Asymmetric Effects of the Business Cycle on Bank Credit Risk", with Mario Quagliariello, Journal of Banking and Finance, September 2009, 33(9), 1624–1635.
- "Is the Swedish Stock Market Efficient? Evidence from some simple trading rules", with Massoud Metghalchi and Yung-Ho Chang, International Review of Financial Analysis, 2008, 17(3), 475–490.
- "Is Bank Portfolio Riskiness Procyclical? Evidence from Italy using a Vector Autoregression", with Mario Quagliariello, Journal of International Financial Markets, Institutions & Money, February 2008, 18(1), 46-63.
- "Revisiting the Empirical Evidence on Firms' Money Demand", with Francesca Lotti, Journal of Economics and Business, January-February 2007, 59(1), 51–73.
- 8. "A Long Run Pure Variance Common Features Model for the Common Volatilities of the Dow Jones", with Robert F. Engle, May 2006, Journal of Econometrics, 132(1), 7–42.
- "Forecasting Stock Market Volatility with Regime-Switching GARCH Models", 2005, Studies in Nonlinear Dynamics and Econometrics, Vol. 9, Issue 4, Art. 6.

### Other Publications

- "Stress Testing Credit Risk: Experience from the Italian FSAP", with Sebastiano Laviola and Mario Quagliariello, BNL Quarterly Review, September 2006, Vol. LIX, n. 238, 269–291
- "La domanda di liquidità delle imprese statunitensi: una analisi panel" (Corporate Liquidity Demand in the US: Evidence from Panel Data), with Francesca Lotti, L'Industria, April-June 2004, n. 2, 403–418

# Working Papers & Work in Progress

- "News and Consumer Card Payments", with Guerino Ardizzi, Simone Emiliozzi e Libero Monteforte.
- "Can We Measure Inflation Expectation Using Twitter?", with Cristina Angelico, Marcello Miccoli and Filippo Quarta.
- "Twitter Sentiment and Banks' Financial Ratios: Is There A Causal Link?", with Giuseppe Bruno, Paola Cerchiello, and Giancarlo Nicola.
- "The Portfolio Balance Channel: Evidence from Italian Mutual Funds", with Gabriele Zinna.
- "Predicting the Italian Unemployment Rate with Google and Twitter", with Francesco D'Amuri.
- "Female Entrepreneurs in Trouble: Do Their Bad Loans Last Longer?", Questioni di Economia e Finanza (Occasional Papers) 185, Bank of Italy, 2013, with Paolo E. Mistrulli.
- "Forecasting US Birth Rates Using Google Trends", with Francesco Billari and Francesco D'Amuri.

# Old Working Papers

- "The Treatment of Small and Medium Enterprises Under Basel Rules: So Right, So Wrong?.", 2013, with Gaetano Chionsini and Mario Quagliariello.
- "Google it! Forecasting the US unemployment rate with a Google job search index", 2009, with Francesco D'Amuri, ISER Working Paper, 2009-32, November.
- "Credit risk and business cycle over different regimes", 2008, with Mario Quagliariello, Bank of Italy, Working paper n. 670.
- "Are common factors useful in forecasting international stock market realized variances?", paper presented at the Conference on "Factor Structures for Panel and Multivariate Time Series Data", Maastricht University (2008).
- "A Threshold model for firms' investment over the business cycle", with Francesca Lotti, paper presented at the 13<sup>th</sup> Panel Data Conference, the 62<sup>nd</sup> European Meeting of the Econometric Society, 1<sup>st</sup> International Conference in Memory of Carlo Giannini and at the Department of Economics at Harvard University.

## Refereing Activities

American Economic Review, The Review of Economics and Statistics, Journal of Applied Econometrics, International Journal of Forecasting, Studies in Nonlinear Dynamics & Econometrics, Journal of Economic Dynamics & Control, Journal of Forecasting, Journal of Banking and Finance, Journal of Financial Markets, Journal of Empirical Finance, Empirical Economics, Computational Statistics and Data Analysis, Statistical Methods and Applications, International Journal of Central Banking, International Review of Economics and Finance, Quantitative Finance, Emerging Markets Finance and Trade, Bulletin of Economic Research, Contemporary Economic Policy, Rivista di Politica Economica (in Italian), Cambridge University Press

# Awards and Scholarships

- Best Graduate Student Paper: 11<sup>th</sup> Symposium of the Society for Nonlinear Dynamics and Econometrics, held in Florence, March 13-15, 2003: "Forecasting Stock Market Volatility with Regime-Switching GARCH Models"
- Research Fellow at the Ente per gli Studi Monetari, Bancari e Finanziari 'Luigi Einaudi', Rome, Italy, Feb. 2003 Jan. 2004
- One-year competitive full time scholarship to study abroad from CESIFIN Cassa di Risparmio di Firenze S.p.A. (Center for Financial Studies of the Saving Bank of Florence, Italy), Aug. 2000 Aug. 2001

## Memberships

 $Econometric \ Society, Society \ for \ Financial \ Econometrics, \ American \ Statistical \ Association, \ American \ Economic \ Association$ 

#### Conferences

Bank of Italy and BIS Workshop on "Computing Platforms for Big Data and Machine Learning" at the Bank of Italy (January 2019), 29th (EC)2 Conference on "Big Data Econometrics and Applications" (December 2018), STATALK on "New Challenges in Official Statistics" (November 2018), 2018 SITE Workshop on "Macroeconomics of Uncertainty and Volatility" at Stanford University (August 2018), CARMA 2018 Conference in Valencia (July 2018 - "Advanced Research Methods and Analytics"), Workshop on "Big Data: New Approaches to Forecasting" in Berlin (Nov. 2017 - Federal Ministry for Economic Affairs and Energy), Bank of England Workshop on "Big Data Empirics and Policy Analysis" in London (Nov. 2017), Italian Banking Association (ABI) workshop on Big Data for banking and finance (Oct 2017), Workshop on "Text, Herding and Sentiment" at Institute for New Economic Thinking of the University of Cambridge (Sep. 2017), 10th SOFIE Conference (June 2017), 2016 CFE Seville (Dec. 2016), Italian Banking Association (ABI) workshop on Big Data for banking and finance (Oct. 2016), Workshop in honor of Giorgio Calzolari on 'Computational methods for econometrics' (Oct. 2016), 2015 MFA Annual Meeting, 6th Italian Congress of Econometrics and Empirical Economics (2015), 2014 Workshop on "Measuring and Modeling Financial Risk with High Frequency Data" (2014), 32nd Annual Symposium on Forecasting (2012), 4th Italian Congress of Econometrics and Empirical Economics (2011), 3<sup>rd</sup> International Conference on Computing and Statistics (ERCIM, 2010), 45th Scientific Meeting of the Italian Statistical Society (invited in Specialized Session) (2010), "XVIII SNDE Conference" (2010), CEPR/EBC Conference on "Procyclicality and Financial Regulation" (2010), "Time Series Econometrics and Macroeconomic Forecasting in a Policy Environment" - 2nd International Conference in Memory of Carlo Giannini (2010), CEBS Open Seminar "Assessing the Impact of Financial Regulations" (2009), "XVII SNDE Conference" (2009), 7th IIOC Conference (2009), 1st IFO-INSEE-ISAE Macroeconomic Forecasting Conference (2009), 3rd Italian Congress of Econometrics and Empirical Economics (2009), CEMMAP Conference on "Unobserved Factor Models" (2008), Conference on "Factor Structures for Panel and Multivariate Time Series Data" (2008), "XVI SNDE Conference" (2008), "Recent Developments in Econometric Methodology" - 1st International Conference in Memory of Carlo Giannini (2008), 5th ECB Workshop on Forecasting Techniques (2007), 62nd European Meeting of the Econometric Society (2007), North American Summer Meeting of the Econometric Society (2007), FDIC-Basel Committee Workshop on Banking, Risk and Regulation (2007), 2nd Italian Congress of Econometrics and Empirical Economics (2007), Workshop on Nonlinear Dynamical methods and time series (2006), 13th Panel Data Conference (2006), Journal of Applied Econometrics Conference on "Changing Structures in International and Financial Markets and the Effects on Financial Decision Making" (2005), 1st Italian Congress of Econometrics and Empirical Economics (2005), Common Features in London (2004), Common Features in Maastricht (2003), Giornate di Studio della Società Italiana di Economia, Demografia e Statistica (SIEDS) "Statistica per l'Analisi Economica" (2003), XXVII Convegno Nazionale di Economia e Politica Industriale, "L'Industria Europea tra Stati Uniti e Nuovi Orienti" (2003), 30<sup>th</sup> Annual Conference of the European Association for Research in Industrial Economics (EARIE) (2003), 10<sup>th</sup> International Conference on "Forecasting Financial Markets" (2003), 11th Symposium of the Society for Nonlinear Dynamics and Econometrics (SNDE) (2003), Common Features in Rio (2002).

#### Seminars

Ente "Luigi Einaudi" (2003), Bank of Italy (2004, 2005), University of Maastricht (2005), Bank of Italy (2006), University of Rome Tor Vergata (2006), Bank of Italy (2007), Cass Business School (2007), University of Rome Tor Vergata (2008), University of Salerno (2008), Federal Reserve Bank of Boston (2008), Harvard University (2008), Bank of Italy (2009, 2010), LUISS University (2010), University of California, San Diego (2013), University of California, Irvine (2013), Universitat Pompeu Fabra (2015), IMT, Lucca (2016), University of Rome Tor Vergata (2016), Bank of Spain (2018), Bank of Korea (2018).

# Professional Experience

- Co-organizer of the Bank of Italy and BIS Workshop on "Computing Platforms for Big Data and Machine Learning", Rome, Italy (January 15, 2019).
- Co-organizer of the 29<sup>th</sup> (EC)2 Conference on "Big Data Econometrics and Applications", Rome, Italy (December 13-14, 2018).
- Guest editor of the Special Issue of "Econometrics" on "Using Big Data in Economics and Finance"
- Co-organizer of the Bank of Italy workshop on "Harnessing Big Data and Machine Learning Technology for Central Banks" at the Bank of Italy (March 26-27, 2018).
- Guest editor of the Special Issue of the "International Journal of Forecasting" on "Using Big Data for forecasting and statistics"
- Co-organizer 5<sup>th</sup> SIDE-IEA Workshop for PhD Students in Econometrics and Empirical Economics, Perugia, Aug. 31 Sep. 1, 2017.
- Organizer and Director of the 2017 SIdE Summer School of Econometrics on "Non-Parametric Bayesian Models for Big Data and Macro/Finance" (July 10 14, 2017) and "High-Dimensional Econometrics" (July 17 21, 2017).
- Coordinator of the Bank of Italy's internal working group on Big Data
- Bank of Italy's member of the ISTAT Committee on Big Data for Statistics
- Co-organizer 4<sup>th</sup> SIDE-IEA Workshop for PhD Students in Econometrics and Empirical Economics, Perugia, Sep. 1-2, 2016.
- Organizer and Director of the 2016 SIdE Summer School of Econometrics on "Big Data Econometrics and Machine Learning" (July 4 8, 2016) and "Methods for Evaluating Social Programs and for Duration Data Analysis" (July 11-15, 2016).
- Co-organizer 3<sup>rd</sup> SIDE-IEA Workshop for PhD Students in Econometrics and Empirical Economics, Perugia, Aug. 27-28, 2015.
- Organizer and Director of the 2015 CIdE Summer School of Econometrics on "Big Data and High-Dimensional Econometric Models" (June 29 July 3, 2015).
- Organizer and Director of the 2014 CIdE Summer School of Econometrics on "The Econometrics of Systemic Risk and Tail Correlations" (July 14-18, 2014).
- Co-organizer of the 11<sup>th</sup> International Institute of Forecasters (IIF) workshop on "Using Big Data for forecasting and statistics" at European Central Bank (April 7-8, 2014).

## **Previous Positions**

## Federal Reserve Bank of Boston

Economist

Boston, USA

Mar. 2008 - Sep. 2008

Visiting scholar at the Research Department

Bank of Italy

Economist

Rome, Italy

Oct. 2006 - Jun. 2007

Economist at the Research Department (Short-Term Forecasting Division)

Duties: developed short-term forecasting models

Bank of Italy

Economist

Rome, Italy

Jun. 2004 - Sept. 2006

Economist at the Banking and Financial Supervision Research Unit Duties: developed models for stress testing and credit risk

## Qualifications

Associate Professor qualification (ASN 2012) for sectors:

13/A1 (Economics), 13/A5 (Econometrics), 13/D2 (Statistics)

Operative Systems: Ms-Dos, Windows, Unix, Open VMS Programming Languages: C, C++, Matlab, Gauss, Fortran

Software: Eviews, Stata, Rats, Sas, PcGive, Excel

Word Processing: Word, Scientific Word

SGML: LaTeX, Html

Expert Systems: Bloomberg, Datastream

Language Skills: Italian (mother tongue); English (Written Fluent, Oral Fluent); French (Written

Fair, Oral Fair); Spanish (Basic Knowledge)

## References

Professor Badi Baltagi (Syracuse University, USA), bbaltagi@maxwell.syr.edu
Professor Graham Elliott (University of California, San Diego, USA), gelliott@weber.ucsd.edu
Professor Robert F. Engle (UCSD and Stern School of Business - NYU, USA), rengle@stern.nyu.edu
Professor Giampiero M. Gallo (University of Florence, Italy), gallog@ds.unifi.it
Professor Allan Timmermann (University of California, San Diego, USA), atimmerm@ucsd.edu

January 31, 2019

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