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### Education:

PhD	Business Administration and Quantitative Methods Universidad Carlos III de Madrid <i>Thesis advisors: Esther Ruiz and Antoni Espasa</i>	Expected September 2009
M.A.	Business Administration and Quantitative Methods Universidad Carlos III de Madrid	2005
B.A.	Economics Universidad Nacional de Córdoba, Argentina	2002

### Fields:

Time Series Econometrics, Forecasting, Non-linear Unobserved Component models

### Research:

-*ARIMA-GARCH and unobserved component models with GARCH disturbances: Are their prediction intervals different?* (Job Market Paper) (with E. Ruiz and A. Espasa)

We analyze the effects on prediction intervals of fitting ARIMA models to series with stochastic trends, when the underlying components are heteroscedastic. We show that ARIMA prediction intervals may be inadequate when only the transitory component is heteroscedastic. In this case, prediction intervals based on the unobserved component models tend to the homoscedastic intervals as the prediction horizon increases. However, prediction intervals based on the ARIMA model incorporate the unit root, so they diverge for ever from the homoscedastic intervals. We focus on the local level and smooth trend models. All the results are illustrated with simulated and real time series.

- *The relationship between ARIMA-GARCH and unobserved component models with GARCH disturbances (2007)*, Working Paper, UC3M. (with E. Ruiz and A. Espasa)

The objective of this paper is to analyze the consequences of fitting ARIMA-GARCH models to series generated by conditionally heteroscedastic unobserved component models. Focusing on the local level model, we show that the heteroscedasticity is weaker in the ARIMA than in the local level disturbances. In certain cases, the IMA(1,1) model could even be wrongly seen as homoscedastic. Next, with regard to forecasting performance, we show that the prediction intervals based on the ARIMA model can be inappropriate as they incorporate the unit root while the intervals of the local level model can converge to the homoscedastic intervals when the heteroscedasticity appears only in the transitory noise. All the analytical results are illustrated with simulated and real time series.

- *The equilibrium exchange rate of Argentina (2003)*, Series de Investigación, Instituto de Economía y Finanzas, UNC, Argentina (with Alejandro Gay).

An open economy model with two countries and two sectors (tradable and non tradable with sticky prices) is used to deduce the equation of the equilibrium real exchange rate, considering the maximization of the intertemporal utility function by the representative agent. Examined from a stock-flow perspective and based on the Johansen cointegration estimation methodology, the long-run behavior of the real exchange rate of Argentina in the period 1968-2002 can be explained by net foreign assets, relative sectoral productivities and terms of trade. On the basis of these fundamentals, the degree of misalignment is assessed. From the analysis of the dynamics of the model, it can be inferred that the collapse of the Convertibility fixed exchange rate was inevitable after the shocks initiated with East-Asian currency crises

**Seminar and conference presentations:**

2nd International Workshop on Computational and Financial Econometrics, Switzerland, June 2008  
62nd European Meeting of the Econometric Society, Hungary, August 2007  
Student seminar at the Department of Statistics, UC3M, March 2007  
26th International Symposium on Forecasting, Spain, June 2006

**Teaching experience:**

*Universidad Carlos III de Madrid (Spain)* Undergraduate courses  
Econometrics II TA for Profs. E. Ruiz and A. Espasa 2004/05, 2005/06 and 2006/07  
Time Series TA for Prof. D. Peña 2005/06  
Econometrics I TA for Prof. H. Veiga 2004/05

*Universidad Nacional de Córdoba (Argentina)* Undergraduate courses  
Statistics III TA for Prof. F. Ferrero 2000, 2001 and 2002  
Mathematics III TA for Prof. S. Rins 2000, 2001 and 2002  
Monetary Economics TA for Prof. E. Neder 2002 and 2003

*Universidad Carlos III de Madrid (Spain)* Master in Business Administration and Quantitative methods  
Introductory course on MatLab Sept 2006, 2007 and 2008

*Universidad de Salamanca (Spain)* Escuela de Métodos y Análisis Sociopolítico (EMAS)  
Summer course in time series TA for Prof. E. Ruiz July 2006, 2007 and 2008

*University of Skopje (Macedonia)* Master in Statistical methods for business and economics  
Introductory course on E-Views and Stat-Graphics Sept 2007

*Universidad Nacional de Córdoba (Argentina)* Master in Statistics  
Training course on financial times series using MatLab Dec 2007

**Work experience:**

Research assistant Institute of Economics and Finance 2001-2003  
Universidad Nacional de Córdoba (Argentina)

Teaching Assistant Department of Statistics 2005-  
Universidad Carlos III (Spain)

**Fellowship:**

Graduate Fellowship, Statistics Department, Universidad Carlos III de Madrid 2003-2005

**Languages:**

Fluent: Spanish (native speaker) and English  
Basic: Italian

**Computer skills:**

Software: MatLab, E-views, GiveWin, R, Stat-Graphics, Latex, Microsoft Office

**References**

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Professor Antoni Espasa Phone: +34 91624 9803 E-mail: [espasa@est-econ.uc3m.es](mailto:espasa@est-econ.uc3m.es)  
Professor Daniel Peña Phone: +34 91642 9806 E-mail: [dpena@est-econ.uc3m.es](mailto:dpena@est-econ.uc3m.es)