SPILLOVERS

BANCO DE PORTUGAL
EUROSYSTEM

Research in Economics at Banco de Portugal • no. 3 • year II • autumn 2014

Overview

Isabel H. Correia

Head of the Economics and Research Department (DEE)

This is the first issue of Spillovers since the performance appraisal made by the independent commission that, from November 2013 to May 2014, evaluated the Economics and Research Department of the Banco de Portugal.

It is difficult to overvalue this first assessment of the Department! We can say that there is a clear perception that Economic Research is embodied in the culture of the Department. But an external evaluation helps on validating that sense. Its importance to focus our future work is so great that I think it is appropriate to reprint here its main conclusion on that respect: "DEE produces analytical work up to the standards of leading peer-reviewed academic journals. Between 2000 and 2013, DEE's economists have published 172 papers in academic journals, 19 of these made it to top-ranked journals. Over time there is a clear upward trend. DEE is ranked among the top economic research institutions in Portugal. It has established a reputation for excellence in research inside the Eurosystem. The main fields of publication are unsurprisingly monetary economics and macroeconomics. A strong strand in the Department makes use of large micro datasets to investigate topics such as financial intermediation, labour markets, product markets, and international trade. This places DEE at the cutting edge of on-going research."

We should add, as released together with the summary, that: "The Board shares the commission's finding that the work undertaken by the Economics and Research Department over the last 14 years has been of high quality and pertinence." These statements are clearly reassuring that DEE is on the right track, even when we feel that there is a huge room for improvement. That is our biggest challenge.

I think however that after this external look we can embark on a more mature and clear-cut future path: we know that the value of research in Economics for the Bank comes from the sharing of insights and expertise among researchers and more policy oriented economists and policy makers. In order to guarantee the critical mass in a central bank of a small economy like Portugal, we have to build on strong interactions with the external academic community. One way to go is by organizing conferences and workshops on subjects that are of interest to the Bank, events where leading researchers present their studies and their current research is discussed. Another channel of interaction between the external community and our researchers occurs via this Spillovers publication. It is fundamental that research developed in the department be exposed to external scrutiny, so that we will not deviate from high standards. Equally essential is that central banks do not pursue research work solely for their own benefit, but that they also contribute to a better understanding of the economy in general. In short, it is part of our mission to place the Economics and Research Department as part of the international research community. We hope that this will help us organize and conduct research work with the ultimate target of providing citizens with better policy and economic outcomes.

Also in this issue

Links

Economists

Publications

Conferences

Seminars

In every issue, we ask an expert to briefly present and discuss two papers written by staff members. In this issue, the guest is Prof. Tiago Neves Sequeira.

Tiago Neves Sequeira is an associate professor (with tenure) at the Universidade da Beira Interior. He is also affiliated with the research centers CEFAGE of the Universidade de Évora and Universidade da Beira Interior, and INOVA of NOVA School of Business and Economics. Tiago works on topics such as growth, technological progress, research and development, as well as the environmental impacts of economic development. Tiago has published in journals such as Oxford Economic Papers, Macroeconomic Dynamics, Regional Studies, the Scandinavian Journal of Economics, Studies in Nonlinear Dynamics and Econometrics and the BE Journal of Macroeconomics. Tiago has a PhD in Economics from NOVA School of Business and Economics, and a Bachelor, also in Economics, Universidade da Beira Interior.

Featured published paper

Is public investment good for production? Probably not!

A review of Ercolani V. and J. Valle e Azevedo (2014)
"The Effects of Public Spending Externalities" *Journal of Economic Dynamics and Control*, vol. 46, pp: 173-199

Following the onslaught of the 2008 economic crisis, the governments of the most developed countries responded with a rise in government investment. The argument was that the multipliers of public investment would help to balance the negative cycle of private investment. However, after 2010, in light of the growing perception of sovereign risk for some of the Euro area countries, the European Commission urged governments to take measures of budget consolidation, and in some countries, financial assistance programs were put in place. Very recently, Mario Draghi, the head of the European Central Bank (ECB), intimated a major policy shift toward fiscal stimulus. The recent economic history of the world highlights the nonconsensual effects of fiscal interventions.

Valerio Ercolani and João Valle e Azevedo address this issue in a very recent article in the *Journal of Economic Dynamics and Control* – JEDC (The Effects of Public Spending Externalities, vol. 46, pp: 173-199), in which the authors considered two externalities: (1) government consumption can affect the agents' utility and (2) government investment can affect the productivity of private factors of production. The first mentioned externality acts relaxing the common assumption of separability in preferences (utility) between private and public consumption. In fact, families can decrease private education spending when public education is enhanced, meaning (in this case) that private and public education are substitutes. The second externality allows public investment to be seen as a shifter of private production. These newly considered externalities are consistent, of course, with the usual wealth effect of rising public expenditure: agents anticipate more taxes and in face of that reduce private expenditure. This article is one of the first to estimate the effects of government spending within a General Equilibrium (GE) framework and to use public spending data directly as an input to the estimation procedure. This analysis evaluates the effect of government shocks on several variables simultaneously (which were not possible in partial equilibrium analysis) taking into account the effect of public spending on current or future taxes and relaxing a number of restrictions that have been imposed in earlier research. Those restrictions consisted essentially of fixing parameters that are now freely estimated.

Using quarterly U.S. data from 1969 to 2008 on consumption, investment, wages, public consumption, and public investment the authors apply Bayesian methods to estimate the equations of the model (after standard log-linearization around the long-run equilibrium) and to determine if the externalities' parameters are relevant or not. The answer was that the externalities considered are relevant and non-redundant, *i.e.*, their effects cannot be replicated by changing other parameters. Additionally, three models are estimated: one in which the public consumption externality is eliminated; another where the public investment externality is eliminated, and another in which both externalities are estimated. Interestingly, and somewhat surprisingly, the best model is the one in which the public investment externality is nil. Even when the public investment externality is estimated, the mode for the government investment parameter is also nil (with a low positive mean)! Furthermore, government consumption does affect welfare, and a strong substitutability effect between private and public consumption is found. These results are tested against sensible changes in estimation and specification assumptions and the conclusions are maintained.

The authors presented results for the evolution of the economy following a government consumption shock and following a government investment shock. In the case of the consumption shock, the typical negative wealth effect is added to the substitution effect (of private by public consumption goods) and both imply an initial drop in consumption, which then recovers very slowly. The effect of the substitution externality on output is quite significant, implying a low positive effect that is due essentially to the (also slight) increase in labour supply. In the case of the investment shock, the initial domination of the wealth effect triggers a drop in consumption that quickly recovers due to the positive effect of public investment on productivity, the real wage, and labour supply. Output initially rises due to government investment, and then falls slightly, reflecting the negative wealth effect. As soon as the productivity effects become dominant, output tends to rise and remain persistently above the equilibrium value during more than 100 quarters. However, the ample credibility intervals of the estimations highlight the very weak evidence of the positive effects of public investment on private productivity. The net effects of public investment shock are potentially ambiguous, as the authors recognize. In particular, the initial effect on utility (which is not calculated) may well be negative due to the fall in private consumption and sharp increase in labour supply. The overall welfare effect would depend crucially on how agents relatively value present against future. However, this does not exclude other possible channels by which public investment may have a significant (and potentially positive) effect, namely through preferences, an issue that remains open for future research.

Featured bulletin article

PESSOA explains the portuguese crisis

A review of Castro G., R. Félix, P. Júlio and J. R. Maria (2014)
"Financial Frictions and Shock Transmission: the Portuguese Case", Banco de Portugal, *Economic Bulletin* - June 2014, pp: 47-60

Following the collapse of Lehman Brothers in September 2008, the world experienced a financial crisis with unprecedented effects on international trade and income. As a small open economy, Portugal was hit by a sharp decrease in foreign demand for the goods it produced. This recession exposed the frailties of some of the economies of the Euro area (including Portugal) and the perception of the sovereign risk rose dramatically, especially following the Greek government's call for international financial assistance. These two shocks (in exports and in sovereign risk) and the following adjustment characterize the evolution of the Portuguese economy since 2008.

Gabriela Castro, Ricardo Félix, Paulo Júlio, and José R. Maria illustrate this evolution using a Dynamic Stochastic General Equilibrium (DSGE) model called PESSOA (**P**ortuguese **E**conomy **S**tructural **S**mall **O**pen **A**nalytical model) applied to Portugal in a recent Banco de Portugal Bulletin article ("Financial Frictions and Shock Transmission: the Portuguese Case"). Despite being necessarily simpler than reality, PESSOA incorporates the most important features of the Portuguese economy, which makes it a very useful tool to evaluate economic policies or the effect of shocks in Portugal. In particular, it models a small open economy, such that shocks to that economy do not change the values of the rest of the world (in this case the rest of the euro area), which is also integrated in a monetary union, such that the interest rate is fixed by the European Central Bank (ECB) and the country faces a fixed exchange rate. It also includes a rule of public debt sustainability, meaning that the government debt to GDP ratio is linked to a pre-determined target. Recognizing the role of the financial system in the crisis, the authors explicitly model banks and entrepreneurs with risky activities (they can go bankrupt and default) and are able to evaluate the effect of the associated financial frictions on the evolution of the economy following the shocks. The financial market includes a mechanism called 'financial accelerator', which has a role in the propagation of shocks as time passes. A negative shock affecting aggregate demand increases the number of entrepreneurs who default and reduces the net wealth of those who survive. As borrowing becomes more difficult, entrepreneurs demand less physical capital, which lowers investment and then output.

A shock in foreign demand (calibrated to match the fall in foreign demand to Portuguese goods in 2009) causes a decrease of 7 % in exports (in the first year) that results in a drop in consumption of 0.6 % and in output of 1.4 % (both in the first year). The recession originates a loss of tax revenues, implying an increase in tax rates in order to guarantee the sustainability of public debt. The demand for intermediate tradable goods decreases, as far as exports are intensive in such goods and, as a consequence, demand for production factors decrease. This effect is particularly visible in the labour market, where both worked hours and wages decrease. The fall in wages drives a fall in the costs of production, which is transmitted to prices, decreasing the inflation rate and the real exchange rate. This real depreciation effect is particularly important because it decreases imports and the negative effect of the shock in foreign demand for exports. The contribution of the existence of financial frictions to the behavior of exports and consumption is nearly zero.

However the existence of financial frictions is very important to explain investment. Without frictions, investors would not face incentives to change the investment plans, and investment would increase marginally, being counter-cyclical. However, with financial frictions, the decrease in the assets value of entrepreneurs increases the risk premium set by banks to finance entrepreneurs and thus increases the risk of bankruptcy and decreases investment. Thus, financial frictions are essential to obtain a pro-cyclical investment, matching reality.

This effect in investment explains why the presence of financial frictions deteriorates the behavior of output following a foreign demand shock. In fact, with financial frictions, output falls by 1.6 % (nearly 0.2 % more than the effect in the absence of financial frictions), an effect that is magnified as time passes. As an example, while output almost recovers to initial levels after 7 years without financial frictions, it remains at nearly 0.3 % below the initial level even after 20 years in the presence of financial frictions. The deep recession when financial frictions are present also increases the need to further increase tax rates in order to maintain a sustainable trajectory for servicing the public debt. Higher taxes increase the recession provoked initially by the foreign demand shock.

The shock of sovereign risk premium is calibrated to fit the Portuguese reality of the beginning of 2011. The effects of this shock are markedly different from the effects of the shock on foreign demand, essentially concerning the transition path following the initial shock. The increase in the sovereign risk premium immediately translates into higher domestic interest rates. This decreases the consumption of families (1.1 % in the first year) partially due to a decrease of families' net wealth and partially due to an increase in the opportunity cost of consumption in the present. This effect is quite persistent in time and as a consequence private consumption recovers very slowly. As consumption decreases firms also decrease labour demand and wages. The reduction in the demand for intermediate goods also decreases investment, which begins to slowly recover after the second year. Inflation decreases marginally until the second year following the shock and this implies a marginal real depreciation, which explains a small increase in exports in the same period. This implies a temporary re-allocation of resources toward the tradable goods in the economy. As in the previous situation, the recession triggers a loss in fiscal revenues, urging the government to increase tax rates in order to guarantee public debt

sustainability. The effect of financial frictions is much lower than in the 'shock to foreign demand' case, representing, for example, an additional 0.2 % fall in consumption or less than 0.1 % in output (in the first year). The reduction in demand for capital by entrepreneurs could lead to a decrease of leverage. However, this effect is completely offset by the reduction in the asset value due to the increase in the domestic interest rate and the decrease in the capital price, and leverage increases.

The paper disentangles the effect of the two shocks that hit the Portuguese economy in the very recent years and most of the effects on the different macroeconomic variables seem to match what has really happened so far. However, it would also be nice to explore the joint effect of both shocks (which hit the economy in different years) and compare the evolution of the macroeconomic variables with what has really happened.

Recently published

Our economists publish in a wide range of economic and finance journals, and scholarly books.

Mathematical and Quantitative Methods

Forthcoming

Hassler, Uwe, P.M.M. Rodrigues and Antonio Rubia. 2014. "Persistence in the Banking Industry: Fractional Integration and Breaks in Memory", Journal of Empirical Finance.

Rodrigues, Paulo M.M. and Nazarii Salish. 2014. "Modeling and Forecasting Interval Time Series with Threshold Models", Advances in Data Analysis and Classification.

Macroeconomics and Monetary Economics

Ercolani, Valerio and João Valle e Azevedo. 2014. "The Effects of Public Spending Externalities", Journal of Economic Dynamics and Control, 46: 173-199.

Mendicino, Caterina and Mauricio Prado. 2014. "Heterogeneous Firms and the Impact of Government Policy on Welfare and Informality", Economic Letters, 124(1): 151–156.

Forthcoming

Christensen, Ian, Paul Corrigan, Caterina Mendicino and Shin-Ichi Nishiyama 2014. "Housing Collateral, Residential Investment and the Canadian Business Cycle", Canadian Journal of Economics.

Cuerpod, Carlos, Inês Drumond, Julia Lendvai, Peter Pontuch, Rafal Raciborski. "Private Sector Deleveraging in Europe", Economic Modelling.

Júlio, Paulo. 2014. "The Politics of Growth: Can Lobbying Raise Growth and Welfare?", Journal of Macroeconomics.

Mendicino, Caterina and Maria Teresa Punzi. 2014. "House Prices, Capital Inflows and Macroprudential Policy", Journal of Banking and Finance.

International Economics

Mion, Giordano, and Luca David Opromolla. 2014. "Managers' Mobility, Trade Performance and Wages", Journal of International Economics. 94, Issue 1, September, Pages 85-101

Forthcoming

Irarrazabal, Alfonso, Andreas Moxnes and Luca David Opromolla. 2014. "The Tip of the Iceberg: A Quantitative Framework for Estimating Trade Costs", The Review of Economics and Statistics.

Financial Economics

Forthcoming

Panetti, Ettore. 2014. "Financial Liberalization and Contagion with Unobservable Savings", International Review of Financial Analysis.

Economic History

Guimarães, Paulo and Teresa da Silva Lopes. 2014. "Trademarks and British dominance in consumer goods 1876-1914", The Economic History Review, 67, Issue 3, August 2014, pages 793-817.

New titles in the working papers series

Technical working papers intended for publication in leading finance and economics journals.
Find here the complete list of working papers.

Macroeconomics and Monetary Economics

Euro Area Structural Reforms in Times of a Global Crisis • by Sandra Gomes

This paper looks at structural reforms as a policy option of stimulus for an economy at zero lower bound (ZLB). Results show that structural reforms may have positive short run macroeconomic impact that depend on the design of reforms and, in the case of transitory reforms, on the ZLB being binding.

International Economics

Financial Integration and the Great Leveraging • by Daniel Carvalho

This paper studies how international capital flows affect domestic credit and money holdings. Cross-border banking flows display a strong comovement with credit but none with broad money and correlate with the decoupling of these two variables, a stylised fact documented for several economies.

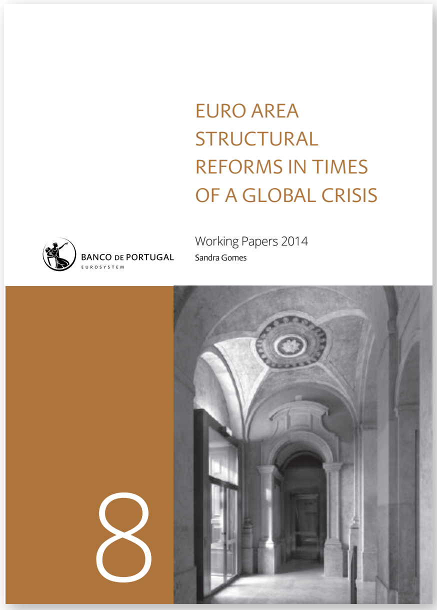
Capital Inflows and Euro Area Long-Term Interest Rates • by Daniel Carvalho, Michael Fidora

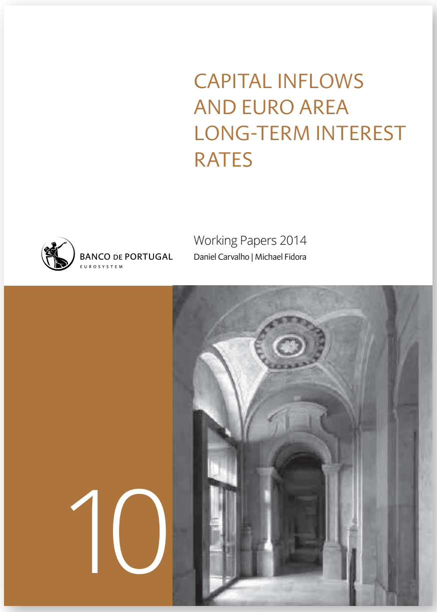
Capital flows into the euro area were particularly large in the mid-2000s and the share of foreign holdings of euro area securities increased substantially. We show that this increase is associated with a reduction of euro area long-term interest rates, in line with previous studies for the US.

Labour and Demographic Economics

Labour Demand Research: Towards a Better Match between Better Theory and Better Data • by John T. Addison, Pedro Portugal, José Varejão

In this article we provide a critical assessment of the major developments achieved in the past quarter-century in labour demand literature and identify the most promising such developments, those that we consider to be most likely to ensure the vitality of labour demand research in the years ahead.





From the *Economic Bulletin* and *Financial Stability Report*

Each issue of the *Economic Bulletin* and of the *Financial Stability Report* carries articles whose titles and abstracts are listed below.

Economic Bulletin, April 2014

Household Income Mobility in the European Union and in Portugal: an Analysis of Labor Market and Demographic Events • by Nuno Alves, Carlos Martins

The article shows that transitions in the w market and changes in the composition of households have a material impact on income mobility in Portugal and in the European Union. It is also highlighted the role of social transfers and income generation at the household level in cushioning shocks on individuals.

Portuguese Exports in the Global Value Chains • by João Amador, Robert Stehrer

The success of countries in the global economy depends on their ability to combine domestic and foreign value added in order to produce exports, which are later embodied in other products or consumed as final goods and services. This article uses standard measures to analyze the participation of the Portuguese economy in Global Value Chains in the period 1995-2011.

Capitalization and Credit Provision: Evidence from the United States • by Sudipto Karmakar

Using an unbalanced panel of around 9000 banks in the US, we find a moderate relationship between loan growth rates and capital ratios. This relationship is found to be stronger for banks with lower capital ratios and for the crisis period compared to the pre crisis period.

Early Warning Indicators of Banking Crises: Exploring new Data and Tools • by António R. Antunes, Diana Bonfim, Nuno Monteiro, Paulo M.M. Rodrigues

Forecasting rare events is a challenge. We explore the dynamic dimension of discrete choice models to improve the forecasting accuracy of early warning models of systemic banking crises. Our results show that introducing this dynamic component into the models significantly improves the quality of the results.

Economic Bulletin, June 2014

The 3D Model: a Framework to Assess Capital Regulation • by Laurent Clerc, Alexis Derviz, Caterina Mendicino, Stephane Moyen, Kalin Nikolov, Livio Stracca, Javier Suarez, Alexandro Vardulakis

The MaRS WS1 project provides a framework for the positive and normative analysis of macroprudential policies. The model features financial intermediation and three layers of default and rationalizes capital regulation as a welfare improving response to excessive risk taking by banks.

Financial Frictions and Shock Transmission: the Portuguese Case • by Gabriela Lopes de Castro, Ricardo Mourinho Félix, Paulo Júlio, José R. Maria

Using the PESSOA model, we show that a collapse in trade flows and a rise in the sovereign risk premium generate a recession, as well as a restrictive fiscal policy. Persistency increases the higher is the degree of financial frictions. The demand shock impact is magnified by these frictions.

Grade Retention during Basic Education in Portugal: Determinants and Impact on Student Achievement • by Manuel Coutinho Pereira, Hugo J. Reis

Individual, family and peer characteristics are important factors explaining grade retention during basic education in Portugal. Long-term academic performance is negatively affected by repeating at an early stage. Short-term effects of repeating at a later stage are positive and small.

Forecasting Portuguese GDP with Factor Models • by Francisco Craveiro Dias, Maximiano Pinheiro, António Rua

The relative performance of factor models to forecast GDP growth in Portugal is assessed. A large dataset for Portugal is used for nowcasting and short-term forecasting. As different publication lags result in an unbalanced dataset, we also address the real-time performance of such models.

Financial Stability Report, May 2014

A Resolution Mechanism for the Banking Union: Rationale and Configuration • by João Freitas

We discuss (i) how a banking union breaks the link between banks and sovereigns; (ii) the need to supplement the single supervisory mechanism with a single resolution mechanism, in addition to common deposit guarantee; (iii) how to maximize the effectiveness of the single resolution mechanism.

Cash Holdings Determinants in the Portuguese Economy • by Luisa Farinha, Pedro Prego

We analyze the determinants of cash holdings of Portuguese firms for the period 1990-2012. Firms are subject to liquidity constraints and under financial pressures increase cash holdings above efficient levels to protect against future shocks. The effect is particularly relevant for smaller firms.

Seminars

DEE regularly invites experts in various fields of economics to present their latest research. Banco de Portugal staff, as well as researchers from other central banks, Portuguese and foreign universities are invited to attend. The following is a list of the seminars that were organized up to mid October. See the seminars' webpage for a list of past and next seminars.

April 21th, 2014

Macroprudential Policy, Countercyclical Bank Capital Buffers and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments

Steven Ongena • University of Zurich

April 28th, 2014

Medicaid Insurance in Old Age

Eric French . University College London

May 5th, 2014

Deposits and Bank Capital Structure

Franklin Allen • University of Pennsylvania

May 7th, 2014

Market-Specific Cost Shocks and Firm Export Behavior

Meredith Crowley • University of Cambridge

May 19th, 2014

Sticky Leverage

João F. Gomes • University of Pennsylvania

May 20th, 2014

Optimal Government Debt Maturity

Ricardo Nunes • Federal Reserve Board

May 26th, 2014

The Buyer Margins of Firms' Exports

Gianmarco Ottaviano • London School of Economics

May 28th, 2014

Exorbitant Privilege and Exorbitant Duty

Pierre-Olivier Gourinchas • University of California

June 2nd, 2014

Debt Constraints and Employment

Virgiliu Midrigan • New York University

June 16th, 2014

Frugal Consumers and the Labor Market

Sérgio Rebelo • Northwestern University

June 23th, 2014

Monetary policy, interest rates and time-varying variances

Oreste Tristani • European Central Bank

July 29th, 2014

Understanding the Great Recession

Martin Eichenbaum • Northwestern University

September 11nd, 2014

The "Mystery of the Printing Press" Monetary Policy and Self-fulfilling Debt Crises

Giancarlo Corsetti • Cambridge University

September 15th, 2014

How Excessive Is Banks Maturity Transformation?

Javier Suarez • CEMFI

October 2nd, 2014

Optima in Heterogeneous-agent Monetary Economies

Neil Wallace • Pennsylvania State University

October 9nd, 2014

How the Design of a Pension System Influences Old Age Poverty and Gender Equity: A Study of Chile's Private Retirement Accounts System

Petra Todd • University of Pennsylvania

Courses

DEE regularly organizes Ph.D-level one week courses taught by experts on several topics in economics. Banco de Portugal staff, researchers from other central banks, and from Portuguese and foreign universities are invited to attend.

July 7th-11th, 2014

Sovereign Debt

Andrew Atkeson • UCLA

Lessons from a course on Sovereign Debt

By Nuno Silva, Banco de Portugal, DEE

In the second week of July, the Bank of Portugal welcomed Andrew Atkeson for a course on sovereign debt. Andrew Atkeson is the Stanley M. Zimmerman Professor of Economics and Finance at the University of California in Los Angeles (UCLA). The course covered topics such as measuring leverage in the public sector (sovereign debt, state-level debt, municipal debt), public versus private foreign debt, models for debt with multiple maturities, debt pricing models (Moody's EDF methodology and Leland's model) and the role of sovereign debt in money markets and, in particular, the repo market.

One of the issues under debate was the importance of the legal system on credit markets. According to Atkeson, weak laws and enforcement may justify the phenomenon often known as "credit evergreening", for which a good remedy would be to force the banks to hold more capital. This can be seen using Leland's model. Atkeson also emphasized the importance of law enforcement, judicial efficiency and legal uncertainty on easing firms' access to capital markets.

Andrew Atkeson discussed the lack of alternative ways to channel resources from resources-abundant families to resources-scarce businesses. The need for new ways to put these two sides of the economy in contact was stressed, especially in a context where most intermediation is done by a banking sector not fully exposed to competition or subject to weak laws in terms of the enforcement of contracts. Atkeson noted that US banks play a reduced role in lending to firms, in contrast to what is seen in Europe. Atkeson suggested new creative ways to perform this intermediation. In this vein, his position on regulation seems to be close to that of the U.K. regulators, where depositors are meant to be shielded from bank runs or other shocks depleting their savings, but investment banking and intermediation activities beyond traditional commercial banking are regulated with the efficiency of transactions in mind. The importance of the regulatory perimeter and the incentives that more regulation may have on fostering the growth of the so-called shadow banking sector were also discussed.

Other activities

Research grants

Geraldo Cerqueiro "Evergreening and the Misallocation of Credit in Portugal" (from September to December 2014).
José Albuquerque Tavares "Fiscal Adjustment, Default and Government Systems: Theory and Implications for the Euro System" (from September 2014 to February 2015)

Visiting researchers

The Economics and Research Department (DEE) regularly hosts researchers from other institutions that collaborate, exchange ideas and expertise with internal economists. So far this year we benefited from the presence of a number of distinguished visitors, including:

Corrado Andini (Universidade da Madeira), Pedro Carneiro (University College London), Daniel Dias (University of Illinois at Urbana Champaign), Fiorella di Fiore (European Central Bank), Beatriz Mariano (London School of Economics), Ramon Marimon (European University Institute), Giordano Mion (University of Surrey), Kalin Nikolov (European Central Bank), Christine Richmond (University of Illinois at Urbana Champaign), Alessandro Sforza (London School of Economics and Political Science), Javier Suarez (CEMFI), Niels Thygesen (The Institute for New Economic Thinking), Oreste Tristani (European Central Bank), Anne Villamil (University of Illinois at Urbana-Champaign).

Events

June 26th -27th
Household Finance and Consumption Network (HFCN)

On 26-27 June, Banco de Portugal organised the summer meeting of the Household Finance and Consumption Network (HFCN). The HFCN is composed of experts from the research and statistical departments of the Eurosystem NCBs, some national statistical institutes and the ECB. The aim of the HFCN is to implement the Household Finance and Consumption Survey (HFCS) which collects household-level data on households' finances and consumption. The dataset for the first wave was released in April 2013. The second wave of the HFCS is being conducted and the results for the euro area will be released by mid 2016. The Portuguese results will be released by Banco de Portugal during 2015.

The HFCN also acts as a forum for research that uses survey data on household finance. Michalis Haliassos (Goethe University Frankfurt), Tullio Jappelli (University of Naples) and Peter Tufano (Oxford University) have been acting regularly as external research consultants of the HFCN. In the June meeting, four research papers were presented: "Households vulnerability in the euro area" by Bartiloro, Rampazzi and Michelangeli (Banca d'Italia); "Determinants of household wealth and indebtedness in Slovakia" by Zavadil and Messner (Narodná banka Slovenska); "Inheritance and the wealth distribution - What can we learn from the HFCS data?" by Fessler and Schürz (OeNB); "Assessing comparability issues with generalized calibration: some preliminary results" by Neri (Banca d'Italia)". The research seminar included a special presentation: "Distribution behind the adjustment of the Portuguese economy" by Nuno Alves, deputy head of the Economics and Research Department.

September 12th-13th
Conference on Econometrics Methods for Banking and Finance

On September 12th-13th, 2014 Banco de Portugal organized the 2nd Conference on Econometrics which this year focused on methods for banking and finance. Banco de Portugal invited to the workshop four keynote speakers: Andrew Harvey (University of Cambridge), Herman K. van Dijk (Erasmus University Rotterdam and VU University Amsterdam), Eric Ghysels (University of North Carolina-Chapel Hill) and Gabriel Pérez-Quirós (Bank of Spain). All of them describe below the ideas at the core of their presentations during the conference.

Forecasting and Nowcasting with Many Models using Large Data Sets

By Herman K. van Dijk, Erasmus University Rotterdam and VU University Amsterdam (joint work with Knut Are Aastveit and Francesco Ravazzolo)

We introduce a Combined Density Nowcasting (CDN) approach to Dynamic Factor Models (DFM) that accounts for time varying uncertainty of several model and data features in order to provide more accurate and complete density nowcasts. The combination weights depend on past nowcasting performance and other learning mechanisms that are incorporated in a Bayesian Sequential Monte Carlo method which re-balances the set of nowcasted densities in every period using the updated information on the time varying weights. In this way, we are able to weight 'soft' and 'hard' data uncertainty, parameter uncertainty, model uncertainty, including model incompleteness, and uncertainty in the combination of weights in a coherent way. Using experiments with simulated data our results show that data uncertainty and model incompleteness play an important role in the beginning of data releases. Model combinations yield then improved nowcasting results. Further, soft data contain useful information for nowcasting even if the series is generated from the hard data. A careful combination of hard and soft data improves density nowcasting. For empirical analysis we use U.S. real-time data and obtain as results that our CDN approach gives more accurate nowcasts of GDP growth, provides clear signals of model incompleteness in periods of strong recession and yields more accurate prediction of NBER Business cycle turning points than other combination strategies. Finally, CDN performs particularly well, relative to other combination strategies, with respect to focusing on the tails.

Dynamic Models for Volatility and Heavy Tails: Some Recent Results

By Andrew Harvey, University of Cambridge

Financial time series are characterized by changing levels of volatility. In technical terms, the variance or scale, of asset returns and other financial variables changes over time. Financial time series are also characterized by heavy tails. In other words there is a relatively high probability of getting observations which, from the standpoint of a normal distribution, are outliers. Understanding and modelling volatility is important for managing and regulating financial markets.

My recent work has been concerned with the interactions between heavy tails and volatility in financial markets. I have been working on a new class of nonlinear time series models that are designed to extract a dynamic signal from heavy-tailed observations. These models, which I call Dynamic Conditional Score (DCS) models have excellent statistical properties and have been shown to work well in practice. Some of the theoretical findings were published in 2013 in an Econometric Society monograph. Further information on the book and related publications can be found on the website http://www.econ.cam.ac.uk/DCS.

The dynamics in a DCS model are driven by the score of the conditional distribution. Their application is not restricted to volatility modelling. They can also be used when location changes over time and, in a multivariate model, correlation or association may be dynamic.

The talk given at the conference first reviewed DCS models and showed how they provide an integrated and effective way of dealing with many issues in financial econometrics. I then described some recent work on the EGARCH-M model, which relates volatility to a risk premium, and diagnostic tests against higher-order dynamics and changing correlation between two series. The issue of changing correlation is an important one in a world where the structure of markets and the relationship between them is continually evolving.

Inflation Risk Measures and their Informational Content

By Eric Ghysels, University of North Carolina-Chapel Hill (joint work with Philippe Andrade and Julien Idier)

There is a wide consensus according to which the recent Great Recession and its aftermaths put price stability at risk. Yet, there is much less consensus on whether these risks are equally distributed around the Fed 2 % target inflation rate. Namely, are 0 % versus 4 % inflation vis-à-vis a 2 % target rate equally likely? Assessing inflation risks is central to modern central banking and central banks devote a lot of resources in measuring inflation expectations.

We propose a new approach to measuring inflation risk which allows us to investigate in a unified setup the evolution of (i) potential extreme high and low inflation realizations, and therefore (ii) inflation uncertainty, and (iii) the asymmetry of inflation risk. The new measures we introduce rely on density forecasts obtained from survey data. Our approach reveals that both the uncertainty and the asymmetry of inflation risks are time varying. We also show that changes in inflation risk have predictive power for future inflation realizations. In particular, we show that our survey-based risk measures improve the out-of-sample predictive performance of survey forecasts.

To be more specific, we introduce the notion of Inflation-at-Risk, denoted I@R, inspired by the widely used Value-at-Risk concept in risk management. The I@R measures correspond to extreme quantiles – typically the top and bottom 5 % in the subjective distribution of future inflation realizations. The measure can be estimated using the individual subjective probability distributions about future inflation provided by the Surveys of Professional Forecasters (SPF).

Beyond a quantification of tail risks, the survey-based I@R indicators provide a natural measure of perceived inflation uncertainty via the inter-quantile range, which we denote by IQR.

Using quarterly SPF data covering 1969-2012, I@R reveals time series dynamics in both the range between the right and the left tails as well as the asymmetry of the upside and downside risks. One can distinguish three main regimes of inflation risk in the US over the 1969-2012 period. A period of high inflation uncertainty and where the risks were clearly tilted toward high inflation outcomes from the 70s to the mid-80s. A period of high inflation uncertainty where the risks of relatively low inflation were dominant from the mid-80s to the early 90s. A period of low inflation uncertainty and more balanced inflation risks from the early 90s onward. Hence, higher order moments in the conditional distribution of future inflation are time varying and periods where uncertainty is high can coincide with either right or left skewed distributions.

Quite strikingly, we show that the survey-based asymmetry measures contain information about future inflation realizations which can improve the forecast performance of standard inflation forecasting models. Controlling for a set of macroeconomic determinants including measures of expected inflation, perceived upside inflation risk predicts in-sample a higher inflation up to two years ahead. The effects are economically significant.

The Failure to Predict the Great Recession. The Failure of Academic Economics? A View through the Role of Credit

By Gabriel Pérez-Quirós, Bank of Spain

Much has been written about why economists failed to predict the latest crisis. Reading the literature, it seems that this crisis was so obvious that economists must have been blind not to see it coming. We approach this failure by looking at one of the key variables in this analysis, the evolution of credit. We compare the conclusions reached in the recent literature with those that could have been drawn from an ex ante analysis. We show that the effect of credit on the business cycle cannot be exploited from a policymaker's point of view.

September 17th
Portuguese Competitiveness Workshop

On September 17th, 2014 Banco de Portugal organized the Portuguese Competitiveness Workshop. The workshop started with presentations by two keynote speakers, Juan Jimeno (Banco de España) and Pedro Pita Barros (Nova School of Business and Economics), and a discussion by Antoine Berthou (Banque de France) and Pedro Raposo (Católica Lisbon School of Business and Economics). The second part of the workshop featured a panel session with Filippo di Mauro (European Central Bank), Isabel Grilo (European Commission) and Pedro Portugal (Banco de Portugal – DEE).

João Amador (Banco de Portugal, DEE) describes below how the topics discussed during the workshop link with the research agenda of the Economics and Research Department of Banco de Portugal.

The research agenda and the debates in economic theory are frequently related to the specific challenges faced by economic policy in each moment. Within the community of European national central banks this link tends to be strong. At present, in the aftermath of the financial and economic crisis, the world economy and the euro area face significant policy challenges. The existence of macroeconomic imbalances in the EU, in a context of disturbances in the monetary policy transmission mechanism and high public debt levels in several member-states, is a major challenge. In the Portuguese case the need for deleveraging extends to all institutional sectors and must be interpreted against a background of macroeconomic imbalances that started to accumulate well before the crisis and lead to high external indebtedness.

Therefore, although the debate on the need to increase potential GDP growth is always present in the economic debate, it has gained renewed intensity in Portugal and the euro area. Therefore, repeated references to structural reforms and to the need to increase competitiveness emerged in the policy debates. Not surprisingly, the international policy-institutions are progressively devoting more resources to these topics.

In this context, on the eve of the workshop of the ESCB CompNet research network, Banco Portugal organized a workshop focusing on Portuguese competitiveness, with the presence of Portuguese academics, economists from national economic policy authorities -ranging from the Ministry of Finance to the Competition Authority – as well as economists from the research departments of the ECB and several EU national central banks. From the perspective of Banco de Portugal this interaction with external fellow economists is regarded as essential, allowing for the identification of new research questions and collection of different points of view.

This text cannot summarize the content of the rich interventions made, though several ideas are worthwhile highlighting. Different speakers acknowledged that the concept of competitiveness is illusive and broad. Juan Jimeno used this idea for the title of his talk and highlighted the need to look beyond wage developments as drivers for competitiveness, putting emphasis on productivity and its linkages with labour market performance and collective bargaining, also in a context of diversity amongst euro area countries. Pedro Pita Barros focused his talk predominantly on product market reform and the reallocation of resources towards the non-tradable sector in the Portuguese economy. In parallel, he referred the importance of management practices in the economy, mentioning that many top Portuguese managers are working in the non-tradable sector. In the panel session, Filippo di Mauro highlighted the importance of a correct reallocation of resources after the crisis, Isabel Grilo pointed out the difficulties of assessing the practical implementation of reforms and the need for adequate indicators, while Pedro Portugal stressed the linkages between labour and product market distortions and the need to bring them to the research agenda.

The two discussants – Pedro Raposo and Antoine Berthou – touched several of the points above and joined the speakers in the idea that microeconomic databases allow for clear analysis of competitiveness developments, where heterogeneity and composition effects play an important role. These concerns are at the core of the agenda of CompNet and are also present in the economic and research department of Banco de Portugal, which currently maintains active research in labour and product market reform, international trade, financial intermediation and efficiency of public policies. Here three examples of papers, written by the economists of the economic and research department (DEE) of Banco de Portugal, on product market competition, managers' mobility, and labour market:

Amador, João, Ana Cristina Soares. 2013 "Competition in the Portuguese Economy: Estimated Price-Cost Margins Under Imperfect Labour Markets." Banco de Portugal Working Paper 8/2013.

Mion, Giordano, and Luca David Opromolla. 2014. "Managers' Mobility, Trade Performance and Wages." Journal of International Economics. 94, Issue 1, September: pp. 85-101

Carneiro, Anabela, Pedro Portugal, and José Varejão "Catastrophic Job Destruction during the Portuguese Economic Crisis." Journal of Macroeconomics, 39 (Part B): pp. 444-457.

For a more complete list of papers please check the Working Papers and the Recent Publications sections in this issue, as well as the website of DEE.

September 18th-19th
10th Competitiveness Research Network (CompNet) Workshop

On September 18th and 19th Banco de Portugal hosted the 10th meeting of the Competitiveness Research Network (CompNet) of the European Central Bank. The network has participants from all EU national central banks, as well as from international organizations interested in competitiveness issues. Banco de Portugal, together with the European Central Bank, invited to the workshop two keynote speakers: Fabio Ghironi (University of Washington) and Dean Corbae (University of Wisconsin).

Both of them describe below the ideas at the core of their presentations during the workshop.

The Monetary Policy Implications of Market Reforms and Trade Integration?

By Fabio Ghironi, University of Washington

I summarize below the results of a research program with Matteo Cacciatore (HEC Montréal) and Giuseppe Fiori (North Carolina State University). We develop and apply models of aggregate and micro dynamics to classic and relatively new policy questions – from trade integration and monetary policy to market reforms in a monetary union. Data efforts such as CompNet provide an invaluable complement, as they will make it possible to address these and other topics increasingly rigorously.

The argument that trade integration strengthens incentives for monetary cooperation and exchange rate stability is traditional in policy. Academic literature backs it with evidence that more trade results in stronger business cycle correlation across countries, and therefore may lead endogenously to satisfy a classic optimum currency area criterion.

Cacciatore and I find that trade does matter for monetary policy: First, a reduction in trade barriers implies lower optimal inflation. Labor market frictions create an incentive to use inflation to boost employment, but trade integration raises average productivity. This makes job creation more valuable to firms, reducing the need to boost it with policy. Second, consistent with evidence, trade integration results in more correlated cycles. As a consequence, gains from international coordination remain small relative to optimal non-coordinated policies. Stronger comovement increases the desirability of exchange rate pegs if center country policy is optimized. Third, while gains from coordination are small relative to optimal non-coordinated policies, trade integration makes them large relative to historical policy – interest rate setting estimated in the literature –, and it reduces the desirability of a peg if the center country is following such estimated policy. Increased trade amplifies costs of inefficient demand allocation with non-optimized policy.

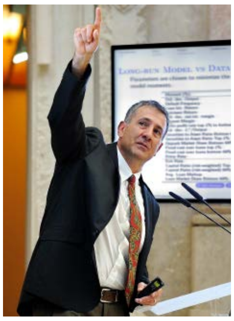
Structural reforms are a newer topic, but calls to increase flexibility of product and labour markets in weak euro countries have become a mantra in policy. The standard argument is that this would result in better performance. Literature provides support, but little work exists on the interaction of market reforms and macro policy – an issue of interest as policymakers recently took different positions on it.

In a companion paper, Cacciatore and I analyze the consequences of increased flexibility of European markets for transatlantic monetary interdependence. Some consequences of increased flexibility are akin to trade integration: Optimal policy uses departures from price stability to reduce inefficiency gaps. Lower distortions boost producer entry and employment, and reduce the need for inflation. Price stability is more desirable with increased flexibility. Importantly, reforms result in a worse external balance, and producer entry implies appreciated terms of trade, at least for some time. Many in Europe argue that reforms will improve weak external balances, but reforms that boost job creation and investment in business creation imply J-curve dynamics: The external balance is eventually positive, but it worsens initially, as it is optimal to borrow to finance investment.

The same result emerges in my study of market reforms and monetary policy in a monetary union with Cacciatore and . It is related to reforms not being deflationary when they boost producer entry and job creation rather than being modeled as simple markup cuts as in some literature. Markup cuts automatically imply depreciated terms of trade and an immediate trade surplus. This does not happen in more structural models.

Cacciatore, Fiori, and I find that, consistent with intuitions above, high market regulation implies optimal departures from price stability. Optimal policy is more expansionary than ECB historical behavior, and so is the optimal response to reforms. Even if these are inflationary, expansion facilitates the transition and front-loads gains. Price stability is more desirable in the post-reform environment. Importantly, it is beneficial to synchronize reforms across countries to avoid differences in inflation desirability that create an additional policy tradeoff.

The models used in this research lend themselves naturally to empirical exploration using CompNet data, and cross-fertilization will provide guidance for future research.



Bank Market Structure and Prudential Policy

By Dean Corbae, University of Wisconsin-Madison

Banking market structure differs considerably across countries. For instance, in 2011 the top 3 banks in (France, Germany, Japan, Mexico, UK, US) held approximately (63, 78, 44, 57, 58, 35 %) of the asset market share respectively (See http://siteresources.worldbank.org/INTRES/Resources/469232-1107449512766/FinStructure_November_2013.xlsx). With regard to policy, Federal Reserve Board Chairperson Ben Bernanke was recently quoted as saying "I want to be very, very clear: too big to fail is one of the biggest problems we face in this country, and we must take action to eliminate too big to fail." (Time, December 28, 2009 / January 4, 2010, p. 78.) Despite the importance of addressing issues like "too big to fail", there is a dearth of structural models with heterogeneity across bank size to quantitatively assess the effects of regulation on individual banks (microprudential policy) and on the financial system as a whole (macroprudential policy).

The goal of this research agenda is to integrate methods from industrial organization, finance, and macroeconomics to formulate simple quantitative dynamic structural models of the banking industry consistent with data in order to understand the relation between market structure and risk taking by financial intermediaries. The model must be consistent with the fact that there is wide heterogeneity in the bank size distribution which arises endogenously. Once the underlying technological parameters of the model are consistently estimated, we can use it to undertake policy counterfactuals or "what ifs".

For example, one pressing counterfactual asks "What are the implications for lending behavior by big and small banks and economy-wide interest rates if capital requirements are raised from the current level of 4 % to those suggested by the Basel III accord of 6 %?" Answering such a question requires understanding not only individual bank behavior (a concern for microprudential policy) but also how interest rates are determined within a banking industry which itself might change in response to the new policy change (a concern for macroprudential policy). How does the policy change affect market structure and competitiveness?

The underlying banking model is based on the static frameworks developed by Allen and Gale (2004) and Boyd and Boyd and DeNicolo (2005). This static model is embedded into a dynamic setting with aggregate and idiosyncratic shocks as well as endogenous entry and exit to generate a rich cross-sectional distribution of bank size measured by assets. For instance, if cash flows turn negative, say due to an increase in nonperforming loans, the firm may choose to exit. Given the presence of big banks which have market power and the ability to influence interest rates, we employ a solution concept developed in the industrial organization literature by Ericson and Pakes (1995). In cases like the U.S. where a large fraction of the banks are small and have no influence on prices, we add a competitive fringe as in Gowrisankaran and Holmes (2004). One important difference between conventional industrial organization models and this application in the banking industry is that in the event of exit there is a government guarantee to financers (*i.e.* deposit insurance) which creates moral hazard problems (and possible risk taking behavior) by banks. Countercyclical markups in our model also provide a novel macroeconomic amplification mechanism; in a downturn, exit weakens competition leading to higher interest rates on loans thereby amplifying the downturn.

We estimate the parameters of our model by matching simulated moments in the model to U.S. data moments drawn from the Consolidated Report of Condition and Income (known as Call Reports) that insured banks submit to the Federal Reserve each quarter from 1976-2013. Once the parameters of the model are estimated, we perform policy counterfactuals. For instance, we ask "How much does a rise in capital requirements from 4 % to 6 % (as being considered in Basel III) affect bank exit (and the ensuing cost of failure), market structure, loan rates, and other outcomes?" In preliminary research, we found that the higher capital requirements induce banks to substitute away from high return lending towards safer securities, lowering their average profitability. The lower loan supply (-8 %) raises interest rates by one half percentage point, generating higher markups (11 %) in the banking industry. Higher interest rates induce borrowers to take on more risky, higher return projects to cover their costs. This in turn induces more default/nonperforming loans (+12 %). Higher interest rates also induce less investment which leads to a drop of intermediated output (-9 %). The higher capital buffer leads to substantially less exit (-45 %) and lower taxes to cover deposit insurance. Less entry by small banks implies a more concentrated, less competitive banking system.

Meet our researchers

In every issue, we present two members of our research staff, and talk about their research agenda. The profiles and *curriculum vitae* of the other staff members are available here.

Sandra Gomes joined the Economics and Research Department of Banco de Portugal (DEE) in 1998. She has worked in the international economics unit, and she is currently heading the Monetary Policy Unit in the Monetary Policy Division. Her main research interests are DSGE modeling, both in closed and open economy settings, the estimation of these models, as well as monetary policy and international economics related topics. She holds a degree in Economics from ISEG - Technical University of Lisbon, a M.A. in Economics from NOVA School of Business and Economics and a PhD in Economics from ISEG School of Economics and Management - University of Lisbon.

Please, tell us about the research you are carrying on at DEE.

Over the last years I have worked with a team of economists from national central banks of the European System of Central Banks (ESCB) to develop a multi-country general equilibrium model of the euro area (originally published in Economic Modelling 29). This model has been used to write several papers on topics such as structural reforms, the zero lower bound or fiscal policy. The model was also used in a chapter of a book edited by DEE ("The Portuguese Economy in the Context of Economic, Financial and Monetary Integration") and to which I contributed to. We are currently working on an interesting extension of this model to incorporate financial frictions and a banking sector.

In another research project, I have been working with co-authors on papers that look at the importance of expectation driven cycles in DSGE models estimated for the US economy. We have shown the importance of news-shocks for house price dynamics and in explaining boom-bust cycles in the US housing market. We have also looked extensively at the role of a particular type of news shocks, namely monetary policy news shocks, in workhorse DSGE model.

Upcoming events and announcements

Seminars

Check our webpage for future seminars. If you are interested in attending the seminars please contact us at conferences@bportugal.pt

November 3rd, 2014

Financial Distress and Endogenous Uncertainty

François Gourio • Federal Reserve Bank of Chicago

November 10th, 2014

Bank Liabilities Channel

Vincenzo Quadrini • University of Southern California

December 3rd, 2014

Jesper Lindé • Sveriges Riksbank

December 18th, 2014

Macroeconomic Dynamics near the ZLB: A Tale of Two Countries

Frank Schorfeide • University of Pennsylvania

January 12th, 2015

Dean Corbae • Wisconsin School of Business

January 26th, 2015

David Lando • Copenhagen Business School

February 16th, 2015

Robert Kollmann • Université Libre de Bruxelles

March 16th, 2015

Fatih Guvenen • University of Minnesota

March 18th, 2015

Yoosoon Chang • Indiana University

Ettore Panetti joined the Economics and Research Department of Banco de Portugal (DEE) in 2014. He holds a BA from Bocconi University, a MSc from University College London, and a PhD from IIES-Stockholm University, all in economics. He is also a research associate at UECE-Iseg and at CRENoS-University of Sassari. His main research areas are macroeconomics and the theory of banking. He has published in the Journal of Banking and Finance, and in the International Review of Financial Analysis.

Please, tell us about the research you are carrying on at DEE.

My main research area is the economics of banking, with a focus on two topics. The first one is the analysis of the interaction between banks and markets. My motivation comes from the observation that the financial system, in the last thirty years, has become increasingly complex, as we moved from a bank-centric system to one where many different institutions provide banking services without being regulated as banks (think of investment banks, money market mutual funds, hedge funds, etc.). To account for all this, in a paper titled "Risk Sharing, Efficiency, and Stability in a Two-Period Diamond-Dybvig Economy with Hidden Trades", I develop theoretical environments where a regulated banking system and a decentralized credit market coexist, and study how the interaction between them affects the efficiency of the competitive equilibrium and its resilience to financial crises.

The macroeconomic effects of financial crises represent the second topic of my agenda. The crisis of 2007-2009 showed us once more that the financial system can have an extensive and long-lasting influence on the real economy. To analyze it in a formal way, in a paper titled "A Dynamic Quantitative Macroeconomic Model of Bank Runs" (Banco de Portugal Working Paper, forthcoming), my co-author Elena Mattana (CORE-Université Catholique de Louvain) and I have extended the standard macroeconomic framework to formally include banks. With this tool in hand, we carry a quantitative analysis of the macroeconomic consequences of bank runs. Calibrating the model to the US economy, we find that bank runs may lead to a drop in GDP of up to 5.6 percent, and to a welfare loss of up to 0.17 percent.

March 19th, 2015

Joon Park • Indiana University

Courses

November 17th - 21th, 2014

Financial Frictions in Macro

Patrick Kehoe • University of Minnesota

January 13th - 15th, 2014

Bank Industry Dynamics

Dean Corbae • University of Wisconsin

Conferences

November 4th, 2014

The Portuguese Economic Development in the European Context

The purpose of this conference is to encourage reflections on the economic development challenges faced by Portugal, both during the ongoing adjustment process and in the longer term.

Grants for visiting researchers

Banco de Portugal offers cash grants to support research projects in the field of Economics, with a view to promoting interchange between the scientific and academic communities and the Bank, and to contributing towards the improvement of theoretical and applied research in Portugal.

Correspondence to the editor

Luca David Opromolla

Economics and Research Department, Banco de Portugal

spillovers@bportugal.pt

This newsletter, as well as other online information about Economic Research at Banco de Portugal is available here.

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