

# Research Update

Economic Analysis and Research Department

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[www.hfcs.at](http://www.hfcs.at)



## Editorial

by Doris Ritzberger-Gr unwald  
Director of the Economic Analysis and Research Department  
**Micro, Macro, or Both?**

This autumn, the OeNB's Economic Analysis and Research Department organized an impressive number of workshops: as many as three events. While addressing a broad range of topics,\* these workshops also had one important element in common: they all related to microdata analysis.

This common feature of the workshops obviously reflects the fact that more and more microdata about households, firms and banks have become available over the past few years. And experts typically focused on macroeconomic analysis are taking a heavy interest for manifold reasons: Microdata provide valuable information on portfolio and investment decisions; they focus on economic units and therefore uncover heterogeneities that cannot be detected with macroeconomic data; and last but not least, microdata can help to separate and to identify demand from supply effects. In addition, microdata stemming from surveys can provide information which is otherwise not available – for example on individuals' expectations, risk attitudes, beliefs, trust, knowledge, or financial sophistication.

Given these benefits, it is not surprising that a huge literature using these data has emerged. This literature has deepened the economic policy debate, in particular with regard to monetary policy and financial stability. At the same time, the use of microdata is also subject to some controversy. After all, many people are quite hesitant to reveal their personal financial situation, or their personal financial preferences. Yet we all know that statistical methods are applied to check the results for plausibility and robustness, and – in addition – the development of macrodata gives at least a good benchmark.

One of the concluding panels, which I had the pleasure to chair, invited participants to vote on the question "Micro, Macro, or Both?" The outcome of the vote showed a continuing preference for "Macro," but many panelists underlined that microdata, in particular survey data, are a complementary rather than a competing method that will enrich economics in the future.

Doris Ritzberger-Gr unwald

\*) see page 4: "A Tale of three workshops"

## Residential Property Prices in Vienna Are Rising More Slowly but Are Still Overvalued

### Results of the OeNB Fundamental Residential Property Price Indicator for the Second Quarter of 2014

Prices of residential property in Austria have recently exhibited opposite trends, depending on where the real estate is located. While the increase in residential property prices slowed down in Vienna (to 5.8% in the second quarter of 2014), price rises in the provinces accelerated during the first half of 2014 (to 4.3% in the second quarter). The fundamental residential property price indicator compiled by the Oesterreichische Nationalbank (OeNB) points to a continued overvaluation of residential property prices in Vienna (by 23% in the second quarter of 2014). For Austria as a whole, this indicator shows that prices are justified by fundamental factors. Households have again started to take out more housing loans.

#### Prices Develop Differently for Condominiums, Detached Single-Family Homes and Building Lots

In Vienna, price increases have been moderating in all real estate market segments except for the building lot segment. The upward pressure on prices in the largest segment – resale condominiums – has been waning, but prices still rose by a hefty 7.5% year on year in the second quarter (first quarter of 2014: 10.8%). By contrast, prices for new condominiums have been falling slightly. The clear surge in condominium prices has not spilled over to detached single-family homes, whose prices have dropped noticeably since the beginning of 2014 (first quarter: -4.9% year on year; second quarter: -5.6%). The prices of building lots have been trending upward, however, augmenting by 17.0% year on year in the second quarter of 2014.

In the provinces, the real estate market segments have recently been developing along similar lines as those in Vienna. The price inflation of resale condominiums has stabilized, and the prices of new condominiums have started to fall perceptibly. In the key segment of detached single-family homes, prices have, in contrast, begun to rise again. Building lot prices have surged not only in Vienna, but also throughout Austria.

#### Housing Demand Is Driven by Demographic Change and Investment Motives

Since 2011, population growth in Austria has continuously been picking up speed, and so has demand for residential property, making higher demand one of the key determinants of price developments in the residential property market. In fact, the increase in population tripled in 2013 (+27,800 persons) from the average annual growth recorded between 2008 and 2010 (+9,900 persons). Apart from demographics, investors' heightened propensity to choose real estate over other assets also seems to play an important role in increased demand. With the interest rate level slumping in the wake of the recent financial and economic crisis, real property has become an ever more attractive investment

alternative. The real estate market tends to react to stepped-up demand with a certain time lag. Having developed at a subdued pace over the past years, residential construction activity saw an upturn in the course of 2013.

#### Residential Real Estate in Vienna Remains Overvalued

According to the OeNB's fundamental residential property price indicator, residential real estate in Vienna continued to be overvalued, i.e. by 23% in the second quarter of 2014 (after 22% in the first quarter and 21% in the fourth quarter of 2013). In the second quarter of 2014, prices rose less than in the previous quarters, but their increase nevertheless exceeded that of fundamental factors, such as household income and consumer prices. For Austria as a whole, the indicator shows that prices are to a great extent justified by fundamental factors. Price increases as well as a methodical revision (i.e. an adjustment of the regional weighting scheme) have brought about this change in the indicator since it was first published in January 2014, when an undervaluation of 8% was posted for the fourth quarter of 2013.

#### Households Increasingly Take Out Housing Loans

Financing conditions for housing loans remain favorable. In the first half of 2014, the average interest rate charged on euro-denominated housing loans to households edged down another 7 basis points to 2.31%. From December 2013 to July 2014, the growth of housing loans to households accelerated from 2.4% to 3.4%. Nevertheless, overall lending to households augmented only modestly (July 2014: +1.3%) because the volume of consumer credit and other loans declined during the first half of 2014. Austrian households' total debt has been contracting and is low by international standards. At 23.6% in July 2014, the share of foreign currency-denominated debt was some 16 percentage points below the record high registered in October 2008. The share of variable rate loans (with fixation periods of up to one year) mounted by 0.5 percentage points year on year in July to reach 83.4%. [Pressearchiv – in german only](#)

## OeNB Summer School 2014: “Applications of multilevel models,”

taught by Paul S. Lambert

The 12th OeNB Summer School was dedicated to multilevel models. From August 25–29, 2014, Prof. Paul S. Lambert, Professor of Sociology at the University of Stirling (UK), shared his knowledge with economists from the OeNB, other ESCB central banks (BG, CZ, EZB, HR, IE, LU, and LV), the European Commission and universities. In sum, 28 economists participated in the course, which was held at the Joint Vienna Institute.

Prof. Paul S. Lambert teaches courses on research methods and on social stratification. Since 2010 he teaches an annual course “Introduction to Multilevel Models with Applications” to the Essex Summer School in Social Science Data Analysis. His research and publications cover methodological topics in social survey data analysis and data management.

The course provided useful insights into the quickly emerging research field of multilevel models. The main focus of the course was a review and evaluation of the main types of linear and non-linear multilevel models,

including selected extension issues and common complications in social research applications, like for example modelling more than two levels, cross-classification designs, or multiple membership structures. Furthermore, special application areas of the multilevel models were covered, like longitudinal analysis (panel data and duration data), multivariate outcome models, or missing data models. Finally, reflections on analytical alternatives and ongoing debates were presented. Theoretical lectures were complemented by applications from the frontier of research, including examples of clustering in households, firms, or countries.

The participants clearly appreciated the meaningful and intuitive presentation of complex material and the stimulating discussions with the lecturer, and they strongly agreed that the knowledge provided by the course would certainly add value to their professional work.

## Event Wrap Ups

### Second Economic History Symposium

Together with the Centre for Economic Policy Research (CEPR) the OeNB held on September 25 and 26 this year’s CEPR Economic History Symposium. CEPR is a network of European economists striving to improve the quality of economic policy-making within Europe and beyond. Within CEPR the Economic History programme promotes comparative and pan-European economic history, moving away from disjointed national narratives. It seeks to improve the statistical knowledge of the European past and foster economic history which is “presentist”, using the past to illuminate current debates on macroeconomic policy, economic growth, globalization, and other pressing policy issues.

The two-day conference gathered about 25 economic historians as well as members of the OeNB staff to discuss issues of economic development, human capital formation, monetary policy and the structure of financial markets. In his introductory remarks Director Peter Mooslechner emphasized the importance of history to evaluate economic theories and concepts and to inform current policy decisions. Topics in the academic sessions included, among others, central bank financial strength and the efficiency of monetary policy, risk aversion during

extreme events, commodity market integration, Keynes’ (lack of) success as currency speculator, regional variation in European urbanization, determinants of numeracy and the role of human capital in economic development.

The keynote lecture entitled “Euro Bonds and the Politics of Market Liquidity: Lessons from the Colonial Era” was held by Marc Flandreau from the Graduate Institute, Geneva. The lecture pointed to the role of market liquidity in addition to credit risk in the determination of government bond yields and the role of designs of government debt instruments. The lecture looked at late 19th century proposals in England to create “forerunners” of today’s Eurobonds, in the shape of so called “colonial consols”. These government debt instruments would have pooled together the borrowing capacities of sets of British colonies just like Eurobonds would pool the borrowing of countries in the Euro area today. Supporters of such schemes argued that such bonds would address serious liquidity issues that were plaguing portions of the government debt markets, especially the market for colonial bonds. Opponents worried that this may encourage moral hazard. Based on a new set of indicators for credit risk and market liquidity, the lecture

discussed the political economy of “making” safe and liquid securities.

Last but not least, one session was devoted to the preparations for the bicentenary of the OeNB in 2016. OeNB staff presented the data sets on the OeNB balance sheet and income statement, MFI balance sheets

and income statements and financial market prices and yields as well as the project of a short history of monetary policy in Austria since 1816.

For the conference program see [www.cepr.org/20003](http://www.cepr.org/20003).

## The Importance of Microdata for Central Banks. A Tale of Three Workshops.

In September and October 2014 the OeNB organized three workshops that analyzed the relevance of microdata for economic research and in particular for topics that are important for central banks.

The first workshop, “Using Survey Data for Economic Policy – A Focus on CESEE” (September 12, 2014) - also the **76th East Jour Fixe of the OeNB** - focused on survey data. A starting point of this workshop was the “OeNB Euro Survey” which concentrates on household financial behavior in ten CESEE countries. The data from this and other international surveys in CESEE (e.g. the “Life in Transition Survey” and the “Business Environment and Enterprise Performance Survey” by the EBRD and the World Bank, “The Global Financial Inclusion Database” by the World Bank) allow the study of a broad range of highly relevant topics such as euroization and monetary policy, borrowing and lending behavior, institutional aspects and attitudes towards transition, financial inclusion and financial literacy. From these and several other surveys, an exciting literature has emerged that has enriched the economic policy debate, in particular with regard to monetary policy and financial stability.

The workshop brought together researchers from different universities and institutions that presented research papers that showed how survey data can be utilized to answer important and policy-relevant questions. The presenters included Martin Brown (University of St. Gallen), Dorothe Singer (World Bank), Karolin Kirschenmann (Aalto University School of Business), Helena Schweiger (EBRD), Ralph De Haas (EBRD and Tilburg University) and Alexander Popov (ECB). The workshop was concluded by a panel discussion where leading economist from the central banks of Albania, Austria, the Czech Republic, Hungary, Romania and Slovenia discussed and evaluated the use of surveys and survey data in CESEE Central Banks.

Survey data, however, are only one type of microdata that can be highly useful for central banks. A second workshop, “Using Microdata for Macroprudential Policy Data, Methods, Applications” (September 18 and 19, 2014) focused on different microdata and on different policy question. In particular, the workshop examined the different types of microdata necessary to support macroprudential policy for financial stability and discussed the relevant data, methods and applications used. Furthermore and of particular importance for the Austrian situation, the workshop also scrutinized the requirements for data gathering and management that are critical to improving financial stability analyses. A particular challenge in this respect is the fact that available microdata underlying corresponding aggregates often lack sufficient quality, as they are gathered for purposes other than microanalyses, are derived from a large number of sources and based on a wide range of data-gathering techniques and formats.

Representatives from various central banks (ECB, Bundesbank, Canada, Czech Republic, France, Italy, the Netherlands, Norway) in addition to academic researchers (from Denmark, Italy, Norway and the UK) presented research using central bank micro-data and methods. The paper presentations and discussions centered around three topics: household vulnerability; banking, systemic risks and shock transmission; linking households and banks to model financial stability. A highly interesting presentation was given by Ulf van Kalckreuth (Bundesbank) who described the project IMIDIAS (integrated microdata-based information and analysis system). This project aims at the re-organization of micro data access for internal and external research at the Bundesbank. The goal is to establish an integrated interdepartmental information system for analytical and research purposes based on microdata for various user groups (financial stability, research, monetary policy, supervision). It defines governance and roles, develops a

research data and service centre (RDSC) and a microdatabase ("House of Microdata).

The workshop was again concluded by a panel discussion on the present and future role of microdata for macro-prudential policy with a particular focus on Austria. The panel included Ulf van Kalkreuth (Bundesbank), Vanessa Redak, Günther Sedlacek and Ernest Gnan from the OeNB and Konrad Pesendorfer from Statistics Austria.

**“Are House Prices Endangering Financial Stability? If so, how Can We Counteract This?”** A third workshop's objective was to discuss and assess the implications of most recent price increases in European housing markets.

Housing markets in Europe have seen substantial price fluctuations over the last decade. In a number of cases, bursting house price bubbles have seriously damaged macroeconomic and financial stability. More recently, there have been strong house price increases in Germany, Switzerland and Austria.

This last workshop, held on October 9 and 10, 2014, aimed to bring together international experts in the field for an exchange of views. The workshop consisted of

four sessions, which covered a broad range of relevant topics:

- House price measurement: a prerequisite for assessing upcoming bubbles
- Which factors drive house prices?
- How can we identify house price bubbles before they occur?
- Which instruments are available to contain an upcoming bubble?

The workshop contributions demonstrated the variety of the activities related with assessing house price developments and the implementation of all policy measures. One of the main policy conclusions was that collecting data on individual loan characteristics is a key priority for monitoring developments on housing and mortgage housing markets, which again brought us to the importance of Microdata for Central Banks.

[Papers and presentations](#)

## Upcoming:

### Global Economy Lecture 2014 “Monetary Policy and International Capital Flows”

Jointly organized by OeNB and wiiw



**Monday, December 1, 2014, 4:00 p.m.,** OeNB auditorium, ground floor  
**Hélène Rey**, Professor of Economics, London Business School

This year's Global Economy Lecture will be given by Hélène Rey, Professor of Economics at London Business School, Research Fellow at the Centre for Economic Policy Research and Research Associate at the National Bureau of Economic Research.

In her presentation Professor Rey will talk about financial integration in the world economy and monetary policy independence, addressing some of the following questions: Are the financing conditions in the main world financing centers setting the tone for the rest of the world, regardless of the exchange rate regime? Is there a global financial cycle and, if so, what are its determinants? The picture emerging is that of a world with powerful global financial cycles characterized by large common movements in asset prices, gross flows and leverage. As credit cycles and capital flows obey global factors, they may be inappropriate for the cyclical conditions of many economies.

Further, credit flows are particularly procyclical and volatile. But even if capital flows, especially credit flows, are largely driven by a global factor, they might still bring important benefits to the world economy. A brief review of the empirical evidence and the quantification of standard growth models, however, show how elusive welfare gains to capital flows appear to be though it could just be that they are hard to measure.





## Conference on European Economic Integration (CEEI) 2014 “The Rebalancing Challenge in Europe – Perspectives for CESEE”

Organized by the Oesterreichische Nationalbank (OeNB)

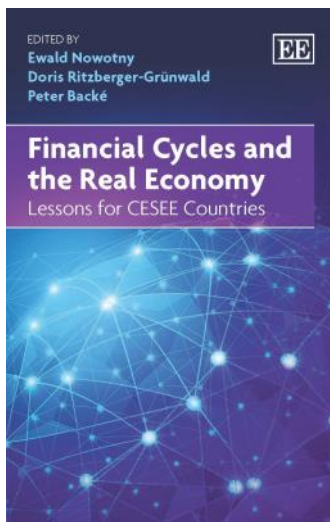
November 24 and 25, 2014 Vienna

*By invitation only*

We are pleased to announce that a number of prominent speakers from central banks, international organizations, academic institutions and the banking industry have agreed to contribute to the CEEI 2014. President Sir Suma Chakrabarti (European Bank for Reconstruction and Development), Professor Lars E. O. Svensson (Stockholm School of Economics), Vice-Governor Nikola Fabris (Central Bank of Montenegro), Deputy Governor Raimondas Kuodis (Lietuvos bankas), Governor Miroslav Singer (Česká národní banka), President Marek Belka (Narodowy Bank Polski), Professor Lucrezia Reichlin (London Business School), Michael Kumhof (International Monetary Fund), Isabel Vansteenkiste (European Central Bank), Richard Koo (Nomura Research Institute), Mario Holzner (wiiw), Professor Thorsten Beck (City University of London) Adrian Blundell-Wignall (OECD), among others, have accepted our invitation to act as speakers or panelists at this year's CEEI.

### Conference Aspects

The CEEI 2014 will examine the multiple challenges and potentially conflicting objectives of sectoral rebalancing in Europe, with a special focus on Central, Eastern and Southeastern Europe (CESEE). While significant progress has been made with the repair of banks' balance sheets, issues like private sector deleveraging, the considerable costs involved, slow economic growth as well as the difficulty of rebalancing simultaneously across countries and sectors still remain unsolved. Against this background, economic policy requires careful decisions on the type and sequencing of rebalancing exercises and prudent coordination across a wide range of stakeholders. The CEEI 2014 will analyze internal and external adjustments in Europe, discuss historical examples and thereby attempt to clarify the role of macroeconomic policy in large-scale rebalancing episodes.



## Financial Cycles And The Real Economy Lessons for CESEE Countries

Ewald Nowotny, Doris Ritzberger-Grünwald and Peter Backé, (2014),

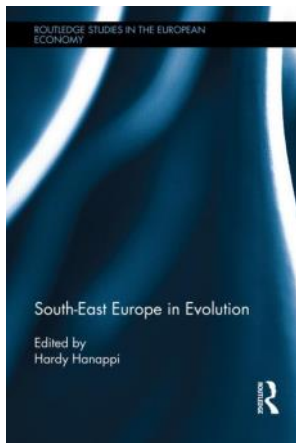
Edward Elgar Publishing

**NEW**

What is the link between the financial cycle – financial booms, followed by busts – and the real economy? What is the direction of this link and how salient is this connection? This unique book examines these fundamental questions and offers a paramount contribution to the debate surrounding the recent financial and economic crisis.

With contributions from eminent academics and policy makers, this multi-disciplinary collection ascertains the policy challenges perpetuated by financial cycles in the real economy. Prominent macroeconomic models are challenged as experts question the nexus between financial deepening and growth, and assess the contribution of real estate bubbles to financial crises. Focusing on Europe, and in particular on Central, Eastern and South-Eastern Europe, the collection provides country-specific accounts, suggesting policy initiatives for dealing with financial cycles. The book concludes that financial cycles are leading indicators for financial crises and calls for economists to integrate financial factors into macroeconomic modelling.

[http://www.e-elgar.co.uk/bookentry\\_main.lasso?id=15914](http://www.e-elgar.co.uk/bookentry_main.lasso?id=15914)



## Structural evolution of agents: South-eastern Europe - two decades of economic achievements and challenges ahead,

Doris Ritzberger-Grünwald and Mariya Hake (2012) in:

Hardy Hanappi (ed.), *South-East Europe in Evolution*, Routledge Pub., pp. 13-44.

This chapter of the book familiarizes readers with the countries in South-eastern Europe (SEE) and intends to cover the last twenty years of the post-communist economic transformation and the catching-up process. Although the analysis contains an overview of the current economic situation, its objective is to enhance the convergence process. A comprehensive approach describes the various driving forces, i.e. political, institutional, and economic forces of convergence.

<http://www.routledge.com/books/>

## Research Stay at the OeNB's Foreign Research Division

Iulia Siedschlag (ESRI, Trinity College Dublin and Institute for Prospective Technological Studies, European Commission)

From August 25 to September 10, Iulia Siedschlag, Associate Research Professor at Trinity College Dublin and Head of the Centre for Internationalisation and Competitiveness at the Economic and Social Research Institute (ESRI) in Dublin, visited the Foreign Research Division of the OeNB as a guest researcher. The visit took place under the OeNB's Visiting Research Program. During her stay, Iulia completed research on access to external financing and firm growth, taking account of firm heterogeneity. She shared first findings of this research, which will be published within the European Commission's Competitiveness Report 2014, in an internal OeNB seminar. The novelty of the approach lies in the consideration of financial imperfections related to both, supply- and demand-side factors by using a unified econometric framework to analyze the effects of financing constraints on investment, employment, productivity and exporting over and above demand and cyclical factors across different types of enterprises and industries. In order to do so, the research draws on a range of databases, including two sur-

veys (SAFE and FIGE) and balance sheet data provided by Bureau van Dijk. While at OeNB, Iulia also started to work on a new research project which focuses explicitly on the impact of financing constraints on international production and innovation networks. In other words, the new focus will be on the role of financing constraints on the choice of internationalization strategy (exporting, FDI, outsourcing and combinations thereof) making the heterogeneity between individual firms explicit.

Iulia Siedschlag is currently also Senior Scientist in the Knowledge for Growth Unit at the Institute for Prospective Technological Studies of the European Commission's Directorate General Joint Research Centre and she has been appointed to numerous international Expert Groups and provided policy advice to international organizations (currently to an Advisory Expert Group on Growth to advise the European Commission on new sources of economic growth).

[List of all Publications since 2001](#) (by staff of the Economic Analysis and Research Section)



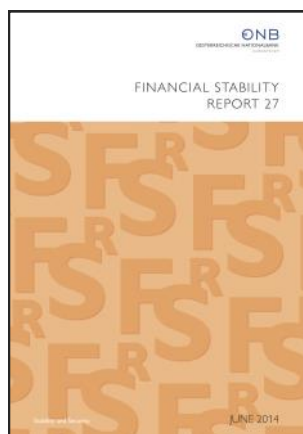
### Focus on European Economic Integration Q3/14

Using a Threshold Approach to Flag Vulnerabilities in CESEE Economies  
(Martin Feldkircher, Thomas Gruber, Isabella Moder)

Assessing the Full Extent of Trade Integration between the EU and Russia –  
A Global Value Chain Perspective  
(Konstantīns Beņkovskis, Jūlija Pastušenko, Julia Wörz)

Macrofinancial Developments and Systemic Change in CIS Central Asia from  
2009 to 2014 (Stephan Barisitz)

To What Extent Can Czech Exporters Cushion Exchange Rate Shocks  
through Imported Inputs? (Peter Tóth) [See more](#)



### Financial Stability Report 27

The Priorities of Deleveraging in the Euro Area and Austria and Its Implications for  
CESEE (Judith Eidenberger, Stefan W. Schmitz, Katharina Steiner)

Macrofinancial Developments in Ukraine, Russia and Turkey from an Austrian Financial Sta-  
bility Perspective (T. Wittenberger, D. Widhalm, M. Lahnsteiner, S. Barisitz)

Capital market development in CESEE countries (Jäger-Gyovai)

Macroprudential Supervision: A Key Lesson from the Financial Crisis (J. Eidenberger,  
D. Liebeg, S. Schmitz, R. Seliger, M. Sigmund, K. Steiner, P. Strobl, E. Ubl)

Risk-Bearing Capacity of Households – Linking Micro-Level Data to the Macroprudential  
Toolkit (N. Albacete, J. Eidenberger, G. Krenn, P. Lindner, M. Sigmund) [See more](#)

### External Publications by Staff Members

**“One money, one cycle? The EMU experience.”, Martin Gächter and Aleksandra Riedl**  
*Journal of Macroeconomics* (2014) Vol 42, pp. 141-55.

We examine whether the introduction of the euro had a significant impact on the synchronization of business cycles among members of Economic and Monetary Union (EMU). Empirical evidence on this relationship is rare so far and suffers from methodical weaknesses, such as the absence of time variability, which is crucial for addressing this issue. Using a synchronization index that is constructed on a year-by-year basis (1993–2011), we uncover a strong and robust empirical finding: the adoption of the euro has significantly increased the correlation of member countries' business cycles above and beyond the effect of higher trade integration. Thus, our results substantially strengthen the conclusion by Frankel and Rose (1998), i.e. a country is more likely to satisfy the criteria for entry into a currency union ex post rather than ex ante. Remarkably, however, this reasoning is even verified when controlling for the effect of increased trade linkages implied by entering a currency union.

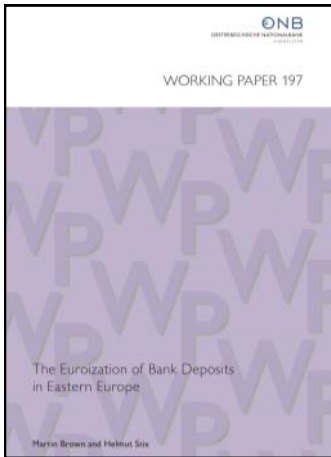
**„Credit Risk in General Equilibrium“, Jürgen Eichberger, Klaus Rheinberger and Martin Summer, (2014) Economic Theory , DOI: 10.1007/s00199-014-0822-2.**

This paper contributes to the literature on default in general equilibrium. Borrowing and lending takes place via a clearing house (bank) which monitors agents and enforces contracts. Our model develops a concept of bankruptcy equilibrium that is a direct generalization of the standard general equilibrium model with financial markets. Borrowers may default in equilibrium and returns on loans are determined endogenously. Restricted to a special form of mean variance preferences, we derive a version of the Capital Asset Pricing Model with bankruptcy. In this case we can characterize equilibrium prices and allocations and discuss implications for credit risk modelling.



## OeNB Working Papers

<http://www.oenb.at/en/Publications/Economics/Working-Papers.html>



### The Euroization of Bank Deposits in Eastern Europe

Martin Brown, Helmut Stix (Working Paper 197)

Based on survey data covering 16,375 households in ten countries in 2011 and 2012, we provide the first household-level analysis of deposit euroization in Eastern Europe. We examine how households' preferences for and holding of foreign currency deposits are related to individual expectations about monetary conditions and network effects. We also examine to what extent monetary expectations, network effects and deposit euroization are the legacy of past financial crises or the outflow of current policies and institutions in the region.

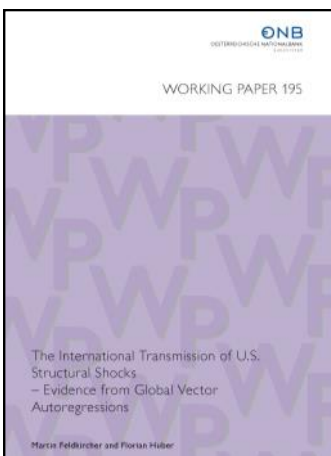
Our findings suggest that deposit euroization in Eastern Europe can be partly tackled by prudent monetary and economic decisions by today's policymakers. The preferences of households for Euro deposits are partly driven by their distrust in the stability of their domestic currency, which in turn is related to their assessment of current policies and institutions.



### The Role of Card Acceptance in the Transaction Demand for Money

Kim P. Huynh, Philipp Schmidt-Dengler, Helmut Stix (Working Paper 196)

The use of payment cards, either debit or credit, is becoming more and more widespread in developed economies. Nevertheless, the use of cash remains significant. We hypothesize that the lack of card acceptance at the point of sale is a key reason why cash continues to play an important role. We formulate a simple inventory model that predicts that the level of cash demand falls with an increase in card acceptance. We use detailed payment diary data from Austrian and Canadian consumers to test this model while accounting for the endogeneity of acceptance. Our results confirm that card acceptance exerts a substantial impact on the demand for cash. The estimate of the consumption elasticity (0.23 and 0.11 for Austria and Canada, respectively) is smaller than that predicted by the classic Baumol-Tobin inventory model (0.5). We conduct counterfactual experiments and quantify the effect of increased card acceptance on the demand for cash. Acceptance reduces the level of cash demand as well as its consumption elasticity.



### The International Transmission of U.S. Structural Shocks – Evidence from Global Vector Autoregressions

Martin Feldkircher, Florian Huber (Working Paper 195)

In this paper we analyze the impact of three U.S. structural shocks on, and its transmission to, the world economy. For that purpose we use a Bayesian version of the global vector autoregressive (GVAR) model coupled with a prior specification that explicitly treats uncertainty regarding variable choice in the estimation stage of the model. Based on sign restrictions, we identify positive U.S. aggregate demand and supply shocks and a contractionary U.S. monetary policy shock. Our results are three-fold: First, we find significant spillovers of U.S. based shocks on the global economy. Responses of international output to a U.S. monetary policy shock are most pronounced, while those related to aggregate demand and supply shocks are more modest. Second, the dynamics of the receiving countries' responses depend on the structural interpretation of the respective shock. More specifically, whereas responses to the U.S. demand shock are rather short-lived, the remaining shocks produce spillovers that impact permanently

on domestic output. Third, U.S. shocks tend to spread globally through interest rates which resembles the pivotal role of the economy in shaping international financial markets. Co-movements in output and indirect effects via the oil price are additional important channels through which U.S. shocks feed into the domestic economy.

## Upcoming and Recent Events

The following events are organized by the OeNB. Please note that attendance is by invitation only. If you are interested in participating in one or more of the events, please send an e-mail to [OeNB.ResearchUpdate@oenb.at](mailto:OeNB.ResearchUpdate@oenb.at) or take a look at <http://www.oenb.at/en/Calendar.html>

### Upcoming

November 21, 2014	"Lessons from the Financial Crisis", OeNB workshop jointly with the FIW
November 24-25, 2014	Conference on European Economic Integration (CEEI): The Rebalancing Challenge in Europe – Perspectives for CESEE
November 28, 2014	Friday Seminar, IMF/JVI, Default Premium, (Luis Catão)
December 1, 2014	Global Economy Lecture (GEL) with H�el�ene Rey (London Business School)
December 12, 2014	Friday Seminar, Sovereign risk, interbank freezes, and aggregate fluctuations, (Philipp Engler)
December 19, 2014	Friday Seminar (Claudia Steinwender), TBA
January 9, 2015	Friday Seminar, General Equilibrium and The New Neoclassical Synthesis (Jean Jaques Hering)
January 23, 2015	Friday Seminar, Money In Modern Macro Models: A Review of the Arguments (Franz Seitz)
March 12, 2015	The Western Balkans: 15 Years of Economic Transition (Conference jointly with the IMF)

### Recent

October 28, 2014	Cash Management in Village Thailand: Positive and Normative Implications*
October 27, 2014	Household and SME Financial Surveys: The Townsend Thai project, Comparisons, and Ideas for the Next Generation of Integrated Surveys*
October 24, 2014	Financial System Design: Joint Use of Economic Models and Data to Evaluate the Contemporary Situation and to Formulate Policy*
October 17, 2014	Friday Seminar, Do Oil Price Increases Cause Higher Food Prices? (Lutz Kilian, University of Michigan)
October 9-10, 2014	Are house prices endangering financial stability and what to do about this? Workshop

\* all lectures held by Prof. Robert M. Townsend (MIT)

## OeNB Courses at the Joint Vienna Institute (JVI)

For further details see: [www.jvi.org](http://www.jvi.org)

November 17-21, 2014	Monetary and Financial Statistics Collected and Compiled by the ESCB
December 1-2, 2014	Financial Education in Central Banks: Initiatives and Activities

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