Abstracts

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Conference participants

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Conference secretary Martina Oswald
Swiss National Bank, P.O. Box
CH-8022 Zurich, Switzerland
Phone: +41 44 631 3918
Fax: +41 44 631 3901

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Money and the natural rate of interest: Structural estimates for the UK, the US, and the euro area

Javier Andres, Universidad de Valencia
David Lopez-Salido, Bank of Spain
Ed Nelson, Federal Reserve Bank of St. Louis
Discussant: Andreas Schabert, Universiteit van Amsterdam

In this paper, we look at the role of money in a general framework that encompasses three competing environments: the New Keynesian model with separable utility and static money demand; the non-separable utility variant with habit formation; and the New Keynesian model modified to allow for adjustment costs for holding real balances. The last two models imply a forward-looking character of real money balances that conveys on money an important role as a monetary policy indicator. We distinguish between these alternative specifications by conducting a structural econometric analysis for the US, the euro area, and the UK FIML estimates confirm the forward-looking character of money demand. Using these estimates we find that, in response to preferences and technology shocks, money incorporates useful information regarding future variations in the natural interest rate.

Money and the great disinflation

Samuel Reynard, Swiss National Bank
Discussant: Luca Benati, Bank of England

Empirical studies that include the post-1980 period tend to reject a proportional (or any significant) influence of money growth on inflation. This paper argues that these results come from not accounting for changes in equilibrium velocity due to interest rates adjustments to different steady-state inflation rates. I first present consistent results for US and euro area money demand estimates, with a unitary income elasticity, and show why different money demand specifications have resulted from empirical studies which include the disinflation period of the 1980s. I then present evidence of a significant and proportional influence of money growth on inflation when money demand adjustments to equilibrium changes in interest rates are accounted for.

Recovering market expectations of FOMC rate changes with options on FF futures

John B. Carlson, Federal Reserve Bank of Cleveland
Ben R. Craig, Federal Reserve Bank of Cleveland
William R. Melick, Kenyon College
Discussant: Angelo Ranaldo, Swiss National Bank

This paper demonstrates how options on federal funds futures, which began trading in March 2003, can be used to recover the implied probability density function (PDF) for future Federal Open Market Committee (FOMC) interest rate outcomes. The discrete nature of the choices made by the FOMC allows for a very straightforward recovery of the implied PDF using ordinary least squares (OLS) estimation. This simple recovery method stands in contrast to the relatively complicated PDF recovery techniques developed for options written on assets such as equities, foreign exchange, or commodity futures where the underlying prices are most appropriately modeled as being drawn from continuous distributions. The OLS estimation is used to recover PDFs for single FOMC meetings as well as PDFs for joint estimation of multiple FOMC meetings, and allows for the imposition of restrictions on the recovered probabilities, both within and across FOMC meetings. Finally, recovered probabilities are used to assess the impact of data releases and Fed communication on the perceived likelihood of actual policy outcomes.

Bank finance versus bond finance: What explains the differences between US and Europe?

Fiorella De Fiore, European Central Bank
Harald Uhlig, Humboldt Universität zu Berlin
Discussant: Cesaire Meh, Bank of Canada

We present a dynamic general equilibrium model with agency costs, where heterogeneous firms choose among two alternative instruments of external finance – corporate bonds and bank loans. We characterize the financing choice of firms and the endogenous financial structure of the economy. The calibrated model is used to address questions such as: What explains differences in the financial structure of the US and the euro area? What are the implications of these differences for allocations? We find that a higher share of bank finance in the euro area relative to the US is due to lower availability of public information about firms' credit worthiness and to higher efficiency of banks in acquiring this information. We also quantify the effect of differences in the financial structure on per-capita GDP.

DSGE models in a data-rich environment

Jean Boivin, Columbia University
Marc P. Giannoni, Columbia University
Discussant: Francisco Ruge-Murcia, Université de Montréal

Standard practice for the estimation of DSGE models maintains the assumption that economic variables are properly measured by a single indicator, and that all relevant information for the estimation is adequately summarized by a small number of data series, whether or not measurement error is allowed for. However, recent empirical research on factor models has shown that information contained in large data sets is relevant for the evolution of important macroeconomic series. This suggests that conventional model estimates and inference based on estimated DSGE models are likely to be distorted. In this paper, we propose an empirical framework for the estimation of DSGE models that exploits the relevant information from a data-rich environment. This framework provides an interpretation of all information contained in a large

data set through the lenses of a DSGE model. The estimation involves Bayesian Markov-Chain Monte-Carlo (MCMC) methods extended so that the estimates can, in some cases, inherit the properties of classical maximum likelihood estimation. We apply this estimation approach to a state-of-the-art DSGE monetary model. Treating theoretical concepts of the model – such as output, inflation and employment – as partially observed, we show that the information from a large set of macroeconomic indicators is important for accurate estimation of the model. It also allows us to improve the forecasts of important economic variables.

Optimal stabilization policy with flexible prices

Aleksander Berentsen, University of Basel
Christopher Waller, University of Notre Dame
Discussant: Ed Nosal, Federal Reserve Bank of Cleveland

We construct a DSGE model to study optimal monetary stabilization policy. Unlike existing New Keynesian models prices are fully flexible and money is essential for trade. Our main result is that if the central bank commits to a long-run price path, it can successfully stabilize short-run aggregate shocks to the economy and improve welfare. The optimal policy involves smoothing nominal interest rates which effectively smoothes consumption across states. If it cannot commit to such a path, any stabilization attempts are ineffective.

Assessing structural VARs

Lawrence J. Christiano, Northwestern University
Martin Eichenbaum, Northwestern University
Robert Vigfusson, Federal Reserve Board of Governors

We use artificial data generated from variants of a simple RBC model to evaluate the ability of structural VARs to estimate the dynamic response of the economy to shocks. All the variants of the model economies considered in this paper imply that VAR-based methods that use short-run restrictions are remarkably accurate. We also consider the performance of standard VAR-based estimators when long-run identifying restrictions are used. The parameterization of our model that is estimated by maximum likelihood implies that these methods also work well, in terms of bias and standard estimators of the degree of sampling variation. When we consider the models in Chari, Kehoe, and McGrattan (2005), we confirm their finding that estimated impulse response functions based on long-run restrictions are distorted. We diagnose the reasons for the distortions, and build on our diagnosis to develop an improved estimator of impulse response functions based on long-run restrictions. It is not clear, however, whether the problems identified by CKM are of concern in practice. The CKM models are rejected overwhelmingly by the data.

Household sector financial frictions in a small open economy

Mohamed Gammoudi, Bank of Canada
Rhys Mendes, Bank of Canada
Discussant: Yvan Lengwiler, University of Basel

We formulate a small open economy model with a financial accelerator in the household sector. In an attempt to match aggregate dynamics, the model includes several real and nominal frictions. We find that the financial frictions play an important role in allowing the model to match several key stylized facts. Furthermore, we find that a more aggressive monetary policy response to house prices could potentially reduce inflation volatility substantially.

Firm-specific production factors in a DSGE model with Taylor price-setting

Gregory de Walque, National Bank of Belgium
Frank Smets, European Central Bank
Raf Wouters, National Bank of Belgium
Discussant: Steven Ambler, Université du Québec à Montréal

This paper compares the Calvo model with a Taylor contracting model in the context of the Smets-Wouters (2003) DSGE model. In the Taylor price setting model, we introduce firm-specific production factors and discuss how this assumption can help to reduce the estimated nominal price stickiness. Furthermore, we show that a Taylor contracting model with firm-specific capital and sticky wage and with a relatively short price contract length of four quarters is able to outperform, in terms of empirical fit, the standard Calvo model with homogeneous production factors and high nominal price stickiness. In order to obtain this result, we need very large real rigidities either in the form of a huge (constant) elasticity of substitution between goods or in the form of an elasticity of substitution that is endogenous and very sensitive to the relative price.

Business cycles and firm dynamics

Florin Bilbiie, University of Oxford
Fabio Ghironi, Boston College
Marc Melitz, Harvard University
Discussant: Oleksiy Kryvtsov, Bank of Canada

This paper builds a framework for the analysis of macroeconomic business cycles that incorporates the endogenous determination of the number of producers over the business cycle. Economic expansions induce higher entry rates by prospective entrants subject to irreversible investment costs. The sluggish response of the number of producers (due to the sunk entry costs) generates a new and potentially important endogenous propagation mechanism for real business cycle models (which typically rely on the accumulation of physical capital by a fixed number of producers). Consistent with the data, our framework predicts a procyclical number of producers, and procyclical profits. We use the same modeling framework to analyze how endogenous entry affects the efficiency properties of business cycle models. We show that the market equilibrium of our model is efficient, even with prices above marginal costs, if labor supply is inelastic. When labor supply is endogenous, efficiency is restored by taxing leisure at a rate equal to the net markup in the market for consumption goods.