Monday 7 October

8:45-9:15 Registration (Room: San Felice Church)

9:15-9:30 Welcome Address (Room: San Felice Church)
Prof. Franco Bruni (Bocconi University) - Chairman of the Scientific Committee of UniCredit & Universities Foundation

9:30 - 11.00
Parallel Session 1 – Room: San Felice Church

Zero Lower Bound

Credit Spreads and the Zero Bound on Interest Rates
Isabel Correia (Banco de Portugal, Universidade Catolica Portuguesa), Fiorella De Fiore (ECB), Pedro Teles (Banco de Portugal, Universidade Catolica Portuguesa), and Oreste Tristani (ECB)

Abstract
How should monetary and fiscal policy react to adverse financial shocks? If monetary policy is constrained by the zero lower bound on the nominal interest rate, subsidising the interest rate on loans is the optimal policy. The subsidies can mimic movements in the interest rate and can therefore overcome the zero bound restriction. Credit subsidies are optimal irrespective of how they are financed. If debt is not state contingent, they result in a permanent increase in the level of public debt, in a permanent increase in future taxes and in a permanent reduction in output.

Targeting Nominal GDP or Prices: Expectation Dynamics and the Interest Rate Lower Bound
Seppo Honkapohja (Bank of Finland), Kaushik Mitra (University of Saint Andrews)

Abstract
We examine global dynamics under infinite-horizon learning in New Keynesian models where monetary policy practices either price-level or nominal GDP targeting and compare these regimes to inflation
targeting. These interest-rate rules are subject to the zero lower bound. Robustness of the three rules in learning adjustment are compared using criteria for volatility of inflation and output, sensitivity to the speed of learning parameter and, most importantly, domain of attraction of the targeted steady state. Performance of price-level and nominal GDP targeting significantly improve if the additional guidance in these regimes is incorporated in agents’ learning.

**Parallel Session 2 – Council Room (1st Floor)**

**Banking**

**Large banks and monetary policy**

**Vincenzo Cuciniello** *(Bank of Italy)*, **Federico M. Signoretti** *(Bank of Italy)*

Abstract

Despite the financial sector in many advanced economies is dominated by a few big intermediaries, general equilibrium models with banking — even the latest generation flourished after the financial crisis — have typically assumed the presence of atomistic banks, thereby neglecting potential interactions between policy and banking decisions. This paper studies the implications of introducing large monopolistic banks that can affect macroeconomic outcomes and so the response of monetary policy to inflation in a model with collateral constraints that links the borrowers’ credit capacity to the value of their durable assets. First, we find that the optimal loan markup is positively related to the level of entrepreneurs’ leverage and to the degree of inflation aversion of the central bank in the long run. Second, in the short run large banks generate endogenous countercyclical movements of the bank loan markup, which amplify the impact of monetary and technology shocks on the real economy. This type of financial accelerator adds-up to the standard one — due to the presence of borrowing constraints — and is crucially related to the existence of non-atomistic banks. Moreover, this new financial accelerator is increasing in the central bank’s aggressiveness in stabilizing inflation.

**Open Market Operations, Interbank Market and Over-collateralization**

**Giuseppe Ferrero** *(Bank of Italy)*, **Michele Loberto** *(Bank of Italy)*, **Marcello Miccoli** *(Bank of Italy)*

Abstract

This paper provides a micro-founded general equilibrium description of interbank markets and analyzes positive implications of the effect of central bank's open market operations on prices and quantities exchanged on the interbank market. First a model with only nominal and risk-free government bonds is presented: in this setup open market operations that alter the composition of the central bank's balance sheet can affect quantities exchanged on the interbank market even if the economy is in a liquidity trap equilibrium. Then a real asset is introduced in order to determine the effects on prices and quantities of different unconventional monetary policies that alter the dimension of the central bank's balance sheet: a swap of real asset for money and a swap of real asset for bonds. Finally, the effect of volatility shocks on the efficacy of Central Bank's unconventional monetary policies is discussed and some preliminary evidence is provided on the empirical validity of the model.

**11:00 - 11:30 Coffee break**

**11:30 - 12:45** **Keynote Speaker: Frank Smets** *(ECB and KU Leuven)*

**Booms and systemic bank crises**

*with Frederic Boissay (ECB), Fabrice Collard (University of Bern)*

**12:45 - 14:00 Lunch**

**14:00 - 15:30**

**Parallel Session 1 - Room: San Felice Church**

**House Prices**

**Household levering and deleveraging**

**Alejandro Justiniano** *(Federal Reserve Bank of Chicago)*, **Giorgio E. Primiceri** *(Northwestern University)*, **Andrea Tambalotti** *(FRBNY)*
Abstract

U.S. households’ debt skyrocketed between 2000 and 2007, and has been falling since. This leveraging (and deleveraging) cycle cannot be accounted for by the liberalization, and subsequent tightening, of credit standards in mortgage markets observed during the same period. We base this conclusion on a quantitative dynamic general equilibrium model calibrated using macroeconomic aggregates and microeconomic data from the Survey of Consumer Finances. From the perspective of the model, the credit cycle is more likely due to factors that impacted house prices more directly, thus affecting the availability of credit through a collateral channel. In either case, the macroeconomic consequences of leveraging and deleveraging are relatively minor, because the responses of borrowers and lenders roughly wash out in the aggregate.

Financial Intermediation, House Prices, and the Distributive Effects of the U:S: Great Recession

Dominik Menno (EUI and RWTH Aachen University), Tommaso Oliviero (EUI)

Abstract

This paper quantifies the effects of credit spread and income shocks on aggregate house prices and households’ welfare. We address this issue within a stochastic dynamic general equilibrium model with heterogeneous households and occasionally binding collateral constraints. Credit spread shocks arise as innovations to the financial intermediation technology of stylized banks. We calibrate the model to the U.S. economy and simulate the Great Recession as a contemporaneous negative shock to financial intermediation and aggregate income. We find that (i) in the Great recession constrained agents (borrowers) lose more than unconstrained agents (savers) from the aggregate house prices drop; (ii) credit spread shocks have, by their nature, re-distributive effects and - when coupled with a negative income shock as in the Great Recession - give rise to larger (smaller) welfare losses for borrowers (savers); (iii) imposing an always binding collateral constraint, the non-linearity coming from the combination of the two shocks vanishes, and the re-distributive effects between agents’ types are smaller.

Parallel Session 2 - Council Room (1st Floor)
Financial Frictions and Firms Dynamics

Firm Entry and Employment Dynamics in the Great Recession

Michael Siemer (Boston University)

Abstract

The recession of 2007-2009 has been characterized by: (1) a large drop in employment concentrated in small and young firms, (2) an unprecedented decline in the number of firms driven by a decline in firm entry, and (3) a slow recovery. This paper develops a heterogeneous firm model with labor adjustment cost, endogenous firm entry, and financial constraints that generates these key facts. The model predicts that a large financial shock results in a long-lasting recession due to limited firm entry. Using confidential firm-level employment data from the Bureau of Labor Statistics, I find support for the model mechanism. In the period of 2007-2009, small and young firms in sectors with high external finance dependence exhibited lower employment growth than those in low external finance dependent sectors. The effect of external finance dependence on employment growth in small and young firms is primarily driven by firm entry and exit.

Financial Shocks, Endogenous Firms Dynamics and Banking

Carla La Croce (University of Pavia), Lorenza Rossi (University of Pavia)

Abstract

We consider a DSGE model with flexible prices and sticky interest rates, allowing for endogenous firms.exit and entry decision together with a monopolistic competitive banking sector. The paper aims at investigating the relationship between firms dynamics and the dynamics of banking sector. We find the following results: i) in response to both real and financial shocks, economies characterized by endogenous firms dynamics present higher volatilities of both real and financial variables than those implied by a standard DSGE model with a fixed number of firms; ii) the extensive margin of the good market implies a slower recovery in the aftermath of a financial crisis; iii) the model with firms endogenous entry and endogenous exit shows countercyclical exit, in line with the empirical evidence; iv) economies featuring firms endogenous entry and exit decisions imply a quicker recovery than the economy with exogenous exit, when the macroprudential authority implements countercyclical capital requirements (Basel III). The latter requirements are more stabilizing than those required by Basel II. Overall, we show that theoretical models cannot disregard the role played by endogenous firms dynamics since they will underestimate the effects of both real and financial shocks.
Parallel Session 1 - Room: San Felice Church

DSGE and binding constraints

Changing Credit Limits, Changing Business Cycles

Henrik Jensen (University of Copenhagen), Soren Hove Ravn (Danmarks Nationalbank), Emiliano Santoro (Catholic University of Milan and University of Copenhagen)

Fiscal Multipliers in a Nonlinear World

Jesper Linde (Federal Reserve Board), Mathias Trabandt (Federal Reserve Board)

Abstract

Previous work has shown that, in a liquidity trap, aggressive government spending cuts can be self-defeating in the short-run due to a higher-than-normal multiplier. A potentially serious drawback of the existing literature is the use of linearized models. Recently, Braun, Koerber and Waki (2012) and others claim that in a liquidity trap, a model can behave qualitatively different depending on whether it has been linearized or not. We examine their claim with a focus on whether fiscal austerity can be self-defeating - i.e. austerity causes government debt to rise due to adverse effects on aggregate demand. Specifically, we compare the government debt and output effects due to fiscal spending in linearized and nonlinear general equilibrium models. We start with a variant of the simple benchmark model in Woodford (2003), which allows us to carefully parse out the differences between the linear and nonlinear solutions. Finally, we examine the robustness of our results in the work-horse model of Smets and Wouters (2007).

Parallel Session 2 - Council Room (1st Floor)

Sovereign Debt in EU

Eurobonds

Juan Carlos Hatchondo (Indiana University and Fed of Richmond), Leonardo Martinez (IMF), Yasin Kursat Onder (Central Bank of Turkey)

Abstract

We evaluate recent proposals of introducing common euro area sovereign securities (Eurobonds). We focus on proposals that include the introduction of guarantees with the objective of reducing the risk of default for Eurobonds, making them virtually default-free. If these proposals were implemented, Eurobonds would be a new source of financing for European governments in addition to traditional defaultable bonds. Proposals differ on the amount of financing a government could access through Eurobonds and on the circumstances in which these bonds could be issued. We evaluate these proposals using a model of equilibrium sovereign default augmented to allow for both defaultable and non-defaultable debt. Preliminary simulation results indicate that introducing Eurobonds may reduce the spread on defaultable sovereign bonds significantly. However, without restrictions to defaultable debt issuances, this spread reduction is only temporal. The government first uses the newly available Eurobond financing to reduce the level of its defaultable debt. But after exhausting its new source of financing, the government increases the level of defaultable debt. In the long-run, Eurobonds do not change significantly the government’s willingness to issue defaultable debt and face default risk.

Macroeconomic effects of sovereign restructuring in a monetary union: a model-based approach

Lorenzo Forni (IMF and University of Padova), Massimiliano Pisani (Bank of Italy)

Abstract

We assess the macroeconomic effects of a sovereign restructuring in a small economy belonging to a monetary union by simulating a dynamic general equilibrium model. In line with the empirical evidence, we make the following three
assumptions. First, sovereign debt is held by domestic agents and by agents in the rest of the monetary union. Second, after the restructuring the sovereign borrowing rate increases and its increase is fully transmitted to the borrowing rate paid by domestic households. Third, the government cannot discriminate between domestic and foreign agents when restructuring. We also assume that the small economy does not exit from the monetary union after the restructuring and that the restructuring does not have systemic effects on the rest of the union. We show the macroeconomic effects of the restructuring depend on: (a) the share of sovereign bonds held by residents of the country as compared to that held by foreign residents, (b) the increase in spreads and (c) the net foreign asset position at the moment of the restructuring. Our results suggest that the restructuring implies a persistent reduction of output, that can be large if the share of public debt held domestically is large, the private foreign debt is high and the spread paid by the government and the households does increase.

20:00 Conference dinner

Tuesday 8 October

9:30 – 11:00
Parallel Session 1 - Room: San Felice Church
Financial Frictions and Risk-taking

Optimal Monetary and Prudential Policies
Fabrice Collard (University of Bern), Harris Dellas (University of Bern), Behzad Diba (Georgetown University), Olivier Loisel (CREST, ENSAE)

Abstract
The recent financial crisis has highlighted the interconnectedness between macroeconomic and financial stability, and has raised the question of whether and how to combine monetary and prudential policies. This paper offers a characterization of the jointly optimal monetary and prudential policies, setting the interest rate and bank-capital requirements. The source of financial fragility is the socially excessive risk-taking by banks due to limited liability and deposit insurance. We characterize the conditions under which locally optimal (Ramsey) policy dedicates the prudential instrument to preventing inefficient risk-taking by banks; and the monetary instrument to dealing with the business cycle, with the two instruments co-varying negatively. Our analysis thus identifies circumstances that can validate the prevailing view among central bankers that standard interest-rate policy cannot serve as the first line of defense against financial instability. In addition, we provide conditions under which the two instruments might optimally co-move positively and counter-cyclically.

Risky Investments with Limited Commitment
Thomas Cooley (New York University), Ramon Marimon (EUI and Universitat Pompeu Fabra), Vincenzo Quadrini (University of Southern California)

Abstract
Over the last three decades there has been a dramatic increase in the size of the financial sector and in the compensation of financial executives. This increase has been associated with greater risk-taking with the use of more complex financial instruments. Parallel to this trend, the organizational structure of the financial sector has changed with the traditional partnership replaced by public companies. The organizational change has increased the competition for managerial talent but also weakened the commitment between investors and managers. We show that the increased competition and the weaker commitment has raised the managerial incentives to undertake risky investment. In the general equilibrium, this change results in a larger financial sector, higher risk-taking and greater income inequality.

Parallel Session 2 - Council Room (1st Floor)
International

House Price Booms, Current Account Deficits, and Low Interest Rates
Andrea Ferrero (University of Oxford)

Abstract
Financial deregulation can help rationalize the negative correlation between house prices and current account balance observed in the United States and in several other countries that have experienced the highest degree of turmoil during
the recent financial crisis. Lower collateral requirements facilitate access to external funding and increase the demand for consumption and housing. As a consequence, house prices increase and the current account turns negative because households borrow on net from the rest of the world. At the same time, however, the world real interest rate counterfactually raises. Expansionary monetary policy shocks in the United States, amplified by exchange rate pegs to the dollar in emerging economies, keep the world real interest rate low but play virtually no role for house prices and the current account.

**Optimal Exchange Rate Policy Under Collateral Constraints and Wage Rigidity**

**Pablo Ottonello** (Columbia University)

**Abstract**

Existing literature on small open economies has studied separately two opposite effects of currency depreciation during crises: in the presence of nominal wage rigidity, exchange rate depreciation reduces unemployment; in the presence of collateral constraints that link external debt to the value of income, exchange rate depreciation tightens the collateral constraint and leads to higher consumption adjustment. This paper shows that in a model that includes both frictions, exchange rate policy faces a “credit access unemployment trade-off”, i.e., a trade-off between reducing involuntary unemployment and relaxing the external credit limit. A quantitative study of this model shows that during financial crisis episodes, optimal policy features large nominal and real exchange rate depreciation. This is because, while containing real exchange rate depreciation can have welfare gains related to second moments (lower consumption volatility) its costs are related to first-moments (higher average unemployment rate). The optimal policy implies a lower currency depreciation than that necessary to achieve full employment, which is consistent with “managed floating” exchange rate policy, typically observed during financial crises in emerging economies. Sudden Stops (or large current account adjustments) are part of the endogenous response under the optimal exchange rate policy to large negative shocks.

11:00 - 11:30 Coffee break

11:30 - 12:45 **Keynote Speaker: Jordi Galí** (CREI, Universitat Pompeu Fabra)

**Understanding the Gains from Wage Flexibility: The Exchange Rate Connection**

*With Tommaso Monacelli* (Bocconi University)

12:45 - 14:00 Lunch

14:00 - 15:30 **Parallel Session 1 - Room: San Felice Church Empirics**

**Financial Stress and Economic Dynamics: the transmission of crises**

*Kirstin Hubrich* (ECB), **Robert J. Tetlow** (Federal Reserve Board)

**Abstract**

The recent financial crisis and the associated decline in economic activity have raised some important questions about economic activity and its links to the financial sector. This paper introduces an index of financial stress. an index that was used in real time by the staff of the Federal Reserve Board to monitor the crisis and shows how stress interacts with real activity, inflation and monetary policy. We define what we call a stress event. a period affected by stress in both shock variances and model coefficients. and describe how financial stress affects macroeconomic dynamics. We also examine what constitutes a useful and credible measure of stress and the role of monetary policy. We address these questions using a richly parameterized Markov-switching VAR model, estimated using Bayesian methods. Our results show that allowing for time variation is important: the constant-parameter, constant-shock-variance model is a poor characterization of the data. We find that periods of high stress coefficients in general, and stress events in particular, line up well with financial events in recent U.S. history. We find that a shift to a stress event is highly detrimental to the outlook for the real economy, and that conventional monetary policy is relatively weak during such periods. Finally, we argue that our findings have implications for DSGE modelling of financial events insofar as researchers wish to capture phenomena more consequential than garden-variety business cycle fluctuations, pointing away from linearized DSGE models toward either MS-DSGE models or fully nonlinear models solved with global methods.
The Macroeconomic Implications of Financial and Uncertainty Shocks

Dario Caldara (Federal Reserve Board), Cristina Fuentes-Albero (Rutgers University), Simon Gilchrist (Boston University), Egon Zakrajsek (Federal Reserve Board)

Abstract

There is a consensus about the increasing exposure to disruptions in the financial system and economic uncertainty over the recent years. Despite their different implications for policy, discriminating empirically between these two sources of economic fluctuations is not an easy task because their available empirical proxies are strongly correlated. We aim at making progress in discriminating financial and uncertainty shocks by means of a statistical approach to identification following the penalty function described by Uhlig (2003). We conclude that while the uncertainty channel plays a negligible role in the transmission of financial shocks; the financial channel is key in the transmission of uncertainty shocks. Financial shocks generate slowly-building and economically significant recessions followed by slow recoveries. Uncertainty shocks generate similar adverse effects if transmitted through the financial channel; otherwise, they have significantly smaller effects in economic activity.

Parallel Session 2 - Council Room (1st Floor)

Financial Frictions and Unemployment

Financial Shocks and Labor Market Fluctuations

Francesco Zanetti (University of Oxford)

Abstract

This paper investigates the effect of financial shocks using an estimated general equilibrium model that links the firm’s flows of financing with labor market variables. The results show that financial shocks have sizeable effects on financial variables, vacancy posting, unemployment and wages. Shocks to the job destruction rate are important in describing fluctuations in output and unemployment. The analysis also investigates the underlying driving forces of some key comovements in the data.

Parallel Session 1 - Room: San Felice Church

Structural Policies for EU and US

Labor and Finance: Mortensen and Pissarides meet Holmstrom and Tirole

Tito Boeri (Bocconi University), Pietro Garibaldi (University of Torino, Collegio Carlo Alberto), Espen R. Moen (Norwegian School of Management)

Abstract

In real life labor markets firms hold at all times a variety of liquid assets not invested in their core business. Such external use of funds acts as an insurance against future adverse financial shocks, and typically varies across firms and sectors. As a result, different firms use different degrees of financial leverage. This paper investigates the consequence of firms' use of funds on their hiring and firing policy. Using a standard matching model of unemployment, the paper finds an equilibrium interplay between labor market imperfections and financial market imperfections. We show that financial market imperfections—such as the probability of refinancing or firms' share of their pledgeable income—affect equilibrium unemployment. In addition, we show that as labor market frictions vanishes, firms do not hold liquid asset in equilibrium, suggesting a fundamental complementarity between labor market frictions and holding of liquid assets by firms. In this sense, the paper brings together the work on liquidity by Holmstrom anf Tirole (2011) with the traditional Mortensen Pissarides (2004) model of equilibrium unemployment. The model implies also that at times of adverse financial shocks, firms that are more leveraged are more likely to liquidate their assets and destroy jobs. Empirically, we test whether there is a causal link between firms leverage and job destruction at times of adverse financial shocks. We draw on firm-level data on employment adjustment matched with balance sheet records throughout the Great Recession and find that highly leveraged firms destroy more jobs during a financial crisis.

15:30 - 16:00 Coffee break

16:00 – 17:30 Parallel Session 1 - Room: San Felice Church

Structural Policies for EU and US
Make it in America? Manufacturing Subsidies and Job Creation in the Great Recession

Alessandro Galesi (CEMFI), Claudio Michelacci (CEMFI)

Abstract
In recent US business cycle episodes the correlation between manufacturing and service employment has increased, and more so in recessions and US states where households are highly indebted. We argue that this indicates the existence of an externality from manufacturing to service employment that arises when households are financially constrained. While manufacturing produces tradable goods whose demand is determined internationally, most services are non-tradable with their demand set just by local economic conditions. When firms destroy jobs in manufacturing, households disposable income falls which, due to the binding financial constraint, leads to a contraction in aggregate demand. But as economic activity falls, households become even more constrained, which further contracts aggregate demand and job creation in services. Since manufacturing firms fail to fully internalize that their higher activity makes households less constrained, subsidizing manufacturing is welfare improving. We estimate a DSGE version of the model, which exploits time variation across US states over the Great Recession. We use the model to evaluate the effects of ‘Make it in America’ government policies aimed at subsidizing manufacturing in certain states to promote job creation in the economy.

Can Structural Reforms Help Europe?

Gauti Eggertsson (Brown University), Andrea Ferrero (University of Oxford), Andrea Raffo (Federal Reserve Board)

Abstract
Structural reforms that reduce product and labor market markups in peripheral Europe by 10 percentage points can improve competitiveness in that region and boost union-wide output by almost 5%. If implemented during a crisis that takes the nominal interest rate to its lower bound, however, these reforms have short-run contractionary effects of more than 1% on impact, thus deepening the recession. Absent the appropriate monetary stimulus, reforms fuel expectations of prolonged deflation, increase the real interest rate, and depress aggregate demand. Our findings have implications for the current debate on the design of reforms in Europe.

Parallel Session 2 - Council Room (1st Floor)

Sovereign Debt and Banking

Debt Habits, Private Lending and Sovereign Risk

Roberto Pancrazi (University of Warwick), Hernan D. Seoane (Universidad Carlos III de Madrid), Marija Vukotic (University of Warwick)

Abstract
This paper documents that the sovereign risk premium and the private sector interest rates are highly correlated during times of crisis but uncorrelated during normal times. This fact implies that the interaction between sovereign and private sector funding rates depends on the macroeconomic and financial conditions. We develop a model of endogenous sovereign and private interest rates that is able to rationalize these facts. In our model, the country experiences “debt habit”, i.e. when it changes its level of debt, it faces an adjustment cost in financial markets that affects private sector interest rates and the correlations between sovereign and private interest rates. The model matches business-cycle facts and default statistics of European economies. We use this setup to study the implications of private interest rate ceiling and bank bailout. This policy creates a trade-off between the resource cost of bailouts and a more stable financial environment.

****late change*** Financial Markets, Corporate Governance and Growth

Maurizio Iacopetta (SKEMA), Raoul Minetti (Michigan State University), Pietro F. Perotto (Duke University)

Abstract
We study the impact of financial market imperfections, in the form of corporate governance frictions, in an economy where growth is driven both by the creation of new product varieties (the foundation of new firms) and by the improvement in the quality of existing product varieties. In the economy, managers in charge of improving existing varieties can engage in moral hazard at the expense of firms’ shareholders. Firms founders can monitor managers on behalf of all shareholders. However, they can also engage in moral hazard at the expense of minority shareholders, shirking on their monitoring activity. We characterize the effects of the moral hazards of managers and large shareholders on both the entry of new firms and on the rate of quality improvement, as well as the interactions between the governance frictions on the extensive and intensive margins of growth.