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# RESEARCH NEWSLETTER

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## Editorial

By definition, a ‘credit crunch’, also known as a ‘credit squeeze’, ‘financial crunch’ or even ‘credit crisis’, is a reduction in the general availability of loans (credit) or a sudden tightening of the conditions required to obtain a loan from the banks or, more generally, from financial institutions. Consequently, a credit crunch generally involves a reduction in the availability of credit independent of a rise in interest rates. This, in turn, implies that in such situations the relationship between credit availability and interest rates has, perhaps for reasons unknown, changed so that either credit becomes less available at given official interest rates or a clear relationship between interest rates and credit availability vanishes. The latter possibility essentially reflects credit rationing.

Since the onset of the financial crisis more than a year ago, ‘credit crunch’ has been one of the key terms in the popular lexicon. The media keeps opining on the topic almost daily. A credit crunch is one of those rare economic events that have a profound ripple effect on economic agents all over the world, including, and in particular, institutions and policymakers. While policymakers have, understandably, worked and are still working actively to respond to the credit crunch and its aftershocks, economists and researchers are digging deeper to gain a more thorough understanding of key elements that give rise to the phenomenon. The significance for the macroeconomy and the dynamic macroeconomic effects of a credit crunch are relatively well understood, but its genesis is less well understood and much more research is needed to fill the gaps in our knowledge in this respect. Thoughtful policy in this area will flow from a solid grasp of the evolution of the phenomenon and current trends in

global financial and capital markets, as well as from an understanding of the factors driving financial innovation and the nature of the new products that result from the innovation process.

It is by no means easy, even through careful and well-conducted empirical analysis, to ascertain the existence of a credit crunch and quantify its contribution to eg the current (globalized) economic recession. Changes in credit market equilibrium are the key here. As a credit crunch is more often than not followed by a recession, one difficulty relates to the problems in disentangling shocks to credit supply from those to credit demand: not only do we believe that the aggregate supply of credit shifts adversely to reduce the availability of credit along the dynamic evolution of a credit-related recession, but also that demand for credit itself falls. Not all problems are empirical, however, and perhaps a reasonable theory would refine the notion that an adverse financial shock initially hits the supply of credit and thereafter, once the incipient macroeconomic effects of the credit crunch are being observed, it is the falling demand for credit that underlies credit market dynamics.

More research is clearly needed in this area and, more generally, on issues related to finance and the macroeconomy. To further this objective, the 10th joint Bank of Finland and CEPR conference, *Credit Crunch and the Macroeconomy*, co-organized this time by the Cass Business School (London), was held in Helsinki on 15–16 October. The conference, lasting for a day and a half, focused on the interrelationships between financial markets, aggregate fluctuations and crises, with the more specific aim of getting a firmer grip on the conditions giving rise to a credit crunch. In addition, the organizers wanted to provide

a platform for economists to learn more about and to debate where new and relevant research stands on these issues at the present moment, and to provide further impetus for future research. In addition to the eight papers that were presented and discussed, the conference programme included a panel discussion led by three international experts on the main policy and research implications of the current crisis. This research newsletter provides a short summary of the presentations at the conference.

Jouko Vilmunen

## Financial factors and aggregate fluctuations

The current crisis will most likely put additional pressure on future macroeconomic research to actively seek ways to incorporate financial frictions and financial market imperfections into mainstream macroeconomic models. To contribute to these research efforts and, at the same time, take stock of the new literature on financial factors and aggregate fluctuations, particularly those contributions that work on issues related to credit crunches, the 10th joint annual BoF-CEPR conference, *Credit Crunch and the Macroeconomy*, co-organized this time by Cass School (London), focused on these timely questions. The one and a half day conference brought together researchers from many countries and institutions to discuss and debate the topic. Below, we present a summary of the papers presented and also of the panel that ended the conference.

Exploiting the Japanese banking crisis as a laboratory, **Mariassunta Giannetti** (Stockholm School of Economics) and **Andrei Simonov** (Michigan State University) argue in their empirical paper, *On the Real Effects of Bank Bailouts: Micro-Evidence from Japan*, that government recapitalizations of weak banks result in significantly positive abnormal returns for those banks' clients. Furthermore,

after recapitalizations, banks extend larger loans to their existing borrowers and some firms related to recapitalized banks increase investment, but they do not create more jobs than comparable firms. Most importantly, recapitalizations allow banks to extend larger loans to low and high quality firms alike, and low quality firms experience higher abnormal returns than other firms upon the announcement of their lending banks' recapitalizations.

In their paper, *Deposit Insurance and Money Market Freezes*, **Max Bruche** (CEMFI) and **Javier Suarez** (CEMFI) develop a tractable general equilibrium model in which money markets facilitate the reallocation of funds across banks from different regions. They show that, in the presence of deposit insurance, a rise in counterparty risk may cause a freeze in interbank money markets. Counterparty risk creates an asymmetry between banks in savings-rich regions, which remain marginally financed by the abundant regionally insured deposits, and in savings-poor regions, which have to pay large spreads in money markets. This asymmetry distorts the aggregate allocation of credit and, in the presence of demand externalities, can cause large output losses.

The paper also contributes to the literature on the causes and consequences of financial market freezes. The existing literature has considered causes like maturity mismatches, deposit or market lender runs, adverse selection effects, fire-sales and margin calls, while Bruche and Suarez point to the distortions associated with deposit insurance. Their results suggest, in particular, that these distortions might be both conceptually and quantitatively relevant. They also suggest that policies that imply a subsidized absorption of the risk of bank default by the government or the central bank, as some of the policies seen during the 2007–2009 financial crisis, might improve the allocation of capital by effectively reducing the asymmetries across banks with and without access to abundant deposit funding.

Andrew Rose (University of California) and **Mark Spiegel** (Federal Reserve Bank of San Francisco) have produced an interesting paper, *Cross-Country Causes and Consequences of the 2008 Crisis: Early Warning*, on using the Multiple Indicator Multiple Cause (MIMIC) approach to model the causes of the 2008 financial crisis together with its manifestations. Their analysis focuses on national causes and consequences of the crisis, ignoring cross-country ‘contagion’ effects. Their model of the incidence of the crisis combines 2008 changes in real GDP, the stock market, country credit ratings and the exchange rate, and they explore the linkages between these manifestations of the crisis and a number of its possible causes from 2006 and earlier. They include over sixty potential causes of the crisis, such as financial system policies and conditions; asset price appreciation, international imbalances, macroeconomic policies and institutional and geographic features. Their main conclusion is negative, in that they are unable to link most of the commonly cited causes of the crisis to its incidence across countries. On the basis of their results the authors feel sceptical of the accuracy of ‘early warning’ systems of potential crises, which must also predict their timing.

In their paper, *Monetary Policy and the Financing of Firms*, Fiorella De Fiore (ECB), Pedro Teles (BdP) and **Oreste Tristani** (ECB) ask how monetary policy should respond to changes in financial conditions. They construct a simple model where firms are subject to idiosyncratic shocks that may force them to default on their debt. The model also assumes that firms’ assets and liabilities are denominated in nominal terms and predetermined when shocks occur. Consequently, monetary policy can affect the real value of funds used to finance production and also loan and deposit rates. The authors find that maintaining price stability at all times is not optimal. More specifically, the optimal response to adverse financial shocks is to engineer a short period of inflation, if

policy rates are at the zero bound and cannot be lowered further. Furthermore, interest rate rules like the Taylor rule may implement allocations that have opposite cyclical properties to the fully optimal rules.

**Yunus Aksoy** (Birkbeck College), Henrique Basso (Uppsala University) and Javier Goto-Martinez (City University of London) present in their paper, *Lending Relationships and Monetary Policy*, a simple framework that introduces lending relationships into a dynamic stochastic general equilibrium model with staggered prices and cost channels. Their findings are novel and interesting. Firstly, banking spreads move counter-cyclically, generating amplified output responses. Secondly, spread movements are important for monetary policymaking even when a standard Taylor rule is employed by the central bank. Also, modifying the policy rule to include a banking spread adjustment improves stabilization of shocks and increases welfare when compared with rules that only respond to output gap and inflation. Finally, the presence of strong lending relationships in the banking sector can lead to equilibrium indeterminacy, making it necessary for the central bank to react to spread movements.

In their empirical analysis, *Unnatural Selection At Work: An Analysis of Bank-Firm Relationships in Italy After Lehman*, **Ugo Albertazzi** (BdI) and Domenico Marchetti (BdI) analyse, using highly detailed data on bank-firm relationships, how the financial crisis has influenced credit supply in Italy since the Lehman bankruptcy. They find evidence of a credit crunch, where the contraction of credit supply is associated with low bank capitalization. More importantly, the authors conclude that under-capitalized banks may have an incentive to allocate credit to adversely affected borrowers in order to avoid the realization of losses on their balance sheets. This result, they argue, provides evidence of unnatural selection in credit allocation, which explains the title of the paper. They also find evidence of

‘evergreening’ behaviour, which proves to be very robust across identification methods and model specifications. This type of evidence is virtually unique in existing data with the exception of the Japanese experience of the nineties.

In their empirical paper using micro-data, *Firm Default and Aggregate Fluctuations*, **Tor Jacobson** (Riksbank), Rikard Kindell (Svenska Handelsbanken), Jesper Lindé (Federal Reserve Board) and Kasper Roszbach (Riksbank) study the relation between macroeconomic fluctuations and corporate defaults. The authors find strong evidence for a substantial and stable impact of aggregate fluctuations on corporate defaults. The authors also argue that the estimated macro-effects differ across industries in an economically intuitive way. Furthermore, out-of-sample comparisons clearly suggest that the paper’s approach is superior to both models that exclude macro information and best fitting naive forecasting models. The authors conclude that while firm-specific factors are useful in ranking firms’ relative riskiness, macroeconomic factors capture fluctuations in the absolute risk level.

In their theoretical paper, *Liquidity Constraints and Non-market Clearing: A Recipe for Recessions?*, **John Driffill** (Birkbeck College) and Marcus Miller (University of Warwick) extend the model of money and liquidity under flexible prices by Kiyotaki and Moore (2008)<sup>1</sup> to show that, if prices are not flexible enough to ensure continuous market clearing, a credit crunch may cause a recession. In particular, by switching from flex-price to fix-price goods and labour markets, they find that demand failures can emerge after a liquidity shock. In short, a framework that combines elements of intertemporal optimization of the type used in Real Business Cycle literature with Keynesian fix-price assumption implies that financial factors can affect demand as well as supply.

<sup>1</sup> Kiyotaki, N & Moore, J, Liquidity, Business Cycles, and Monetary Policy, working paper, April (2008).

The conference ended in a panel discussion, where the three panellists, Laura Kodres (IMF), Alistair Milne (Cass School) and Javier Suarez (CEMFI) were asked to give their opinion on the main lessons to be drawn from the most recent financial crisis, which has also had severe consequences on global trade and growth in many countries. Laura Kodres argued that the challenge is to mitigate the systemic risks without damaging innovation and risk-transfer: regulatory systems should be incentive-based, where the financial institutions need to internalize externalities. Alistair Milne focused on securitization, which he thought has more to do with funding than risk-transfer. He also pointed out the complexity of some of the new financial products. Javier Suarez, on the other hand, noted that prior to the crisis, the dominant view of the financial markets emphasized the efficient market hypothesis and benefits of risk diversification. Modern banking theory, which puts great emphasis on market imperfections and informational frictions, got far too little attention. Consequently, the originate-and-distribute model was accepted too uncritically. He also wanted to draw participants’ attention to the potentially destabilizing role of deposit insurance systems on international interbank markets during a crisis.

*Jouko Vilmunen*

## Monetary policy rules in emerging economies

In emerging economies, implementation of monetary policy does not always seem to be in line with the officially announced monetary policy strategy. There may be simple reasons for this: the central bank may have limited independence with respect to monetary policy, there may be a limited number of instruments available or the money markets may be underdeveloped. We can, however, use empirical research to identify central banks’ implicit responses to developments in the

economy. Many emerging markets have substantially improved their institutions since the crises of the 1990s. This makes it interesting to examine whether the rules employed in analysing developed economies' monetary policies can also be applied to analysing the monetary policies pursued in emerging economies.

Currently, a BOFIT study on monetary policy behaviour in emerging economies is being carried out by Aaron Mehrotra (BOFIT) and José R. Sánchez-Fung (Kingston University, London). They are working on estimates of monetary policy rules for twenty countries with a broad and varied geographical spread, encompassing economies in Europe, Latin America, Asia and Africa. The monetary policy strategies reported by these countries have also varied. The majority have adopted a strategy based on an inflation target, but some have set targets for the money supply or the exchange rate. The study presents in detail the countries' monetary policy institutions (including operative instruments and inflation targets) and uses these details to select the monetary policy rules to be estimated.

In addition to the traditional Taylor rule, the study also estimates McCallum's monetary-policy rule as well as variants of these two reaction functions. In the Taylor rule, nominal interest rates respond to inflation and output gaps. In the McCallum rule, the central bank uses the monetary base as an instrument that it regulates according to changes in the nominal income gap. The study also examines the applicability of the nominal feedback rule to emerging markets. Real-economy variables are not needed in estimating a nominal feedback rule that includes an implicit central bank inflation target. This may be an advantage in economies where real-economy statistics are only available after a long time lag or where the quality of statistics is poor. All the rules analysed in the study also allow for the

central bank's response to changes in the exchange rate, which may be particularly important considering the economies are primarily small, open economies.

The results of the study show that a hybrid McCallum-Taylor rule, where the interest rate instrument reacts to the nominal income gap, is better suited to describing the monetary policy of countries using an inflation target than the benchmark Taylor rule. In countries where a McCallum monetary policy rule is used, monetary policy is sometimes found to lean against the wind, ie monetary policy is stabilising. However, the outcome of McCallum-type rules depends on the way in which the nominal income gap is defined. Instrument smoothing is important for both Taylor and McCallum rules, ie lagged values of the policy instrument are significant determinants of the level of the instrument in the current period. For countries where the nominal feedback rule is estimated, the results primarily imply monetary policy behaviour that is leaning with the wind, where policy adapts to changes in actual inflation. The results are robust irrespective of different estimation methods.

*Aaron Mehrotra*

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- McCallum, Bennett T. (1988) Robustness properties of a rule for monetary policy, Carnegie-Rochester Conference Series on Public Policy, 29, 53–84.
- Taylor, John B. (1993) Discretion versus policy rules in practice, Carnegie Rochester Conference Series on Public Policy, 39, 195–214.

## Seminars

### Bank of Finland Research Seminars

Thursday, 5 Nov 2009, 13.30–15.00.

Prof. Kjell Nyborg.

University of Zurich, Swiss Banking Institute  
Money and liquidity in financial markets.

Thursday, 3 Dec 2009, 13.30–15.00.

Academy Research Fellow Pauli Murto.

Helsinki School of Economics. Exit Options  
and Dividend Policy under Liquidity  
Constraints.

Please register in advance via Marjut Salovuori at seminars@bof.fi. For further information visit the seminar site at <http://www.bof.fi/en/tutkimus/konferenssit/tutkimusseminaarit/>.

### BOFIT seminars

Tuesday, 3 Nov 2009. 10.30.

Jan Hanousek (CERGE-EI) and Pavel Dvořák (EBRD).

Paying for banking services: What determines the fees?

Tuesday, 19 Nov 2009, 14.00.

Alexander Popov.

European Central Bank

Cross-border banking and the international transmission of financial distress.

For further information please visit the seminar site [http://www.bof.fi/bofit\\_en/tutkimus/seminaarit/tiistai](http://www.bof.fi/bofit_en/tutkimus/seminaarit/tiistai). Please register in advance via Liisa Mannila (firstname.lastname@bof.fi, + 358 10 8312268).

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Esa Jokivuolle – Matti Viren – Oskari Vähämaa: Transmission of macro shocks to loan losses in a deep crisis: the case of Finland, BOF DP 26/2009.

Alistair Milne – Mario Onorato: Risk-adjusted measures of value creation in financial institutions, BOF DP 25/2009.

George W Evans – Seppo Honkapohja: Expectations, deflation traps and macroeconomic policy, BOF DP 24/2009.

Esa Jokivuolle – Ilkka Kiema – Timo Vesala: Credit allocation, capital requirements and procyclicality, BOF DP 23/2009.

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Efrem Castelnuovo: Testing the structural interpretation of the price puzzle with a cost channel model, BOF DP 20/2009.

Juha-Pekka Niinimäki: Screening in the credit market when the collateral value is stochastic, BOF DP 19/2009.

Markku Lanne – Pentti Saikkonen: Noncausal vector autoregression, BOF DP 18/2009.

David G Mayes: Early intervention and prompt corrective action in Europe, BOF DP 17/2009.

### BOFIT Discussion Papers

Chun-Yu Ho: Market Structure, Welfare, and Banking Reform in China, BOFIT DP 19/2009.

Aaron Mehrotra – Tomáš Šládek: Evaluating inflation determinants with a money supply rule in four Central and Eastern European EU member states, BOFIT DP 18/2009.

Julan Du – Yi Lu – Zhigang Tao: China as a regulatory state, BOFIT DP 17/2009.

Simo Leppänen – Mikael Linden – Laura Solanko: Firm behavior under production uncertainty: Evidence from Russia, BOFIT DP 16/2009.

Jenni Pääkkönen: Are there industrial and agricultural convergence clubs in China? BOFIT DP 15/2009.

Michael Funke – Michael Paetz – Ernest Pytlarczyk: Stock market wealth effects in an estimated DSGE model for Hong Kong, BOFIT DP 14/2009.

Iikka Korhonen – Maria Ritola: Renminbi misaligned – Results from meta-regressions, BOFIT DP 13/2009.

Zuzana Fungáčová – Laurent Weill: How market power influences bank failures: Evidence from Russia, BOFIT DP 12/2009.

Jarko Fidrmuc – Iikka Korhonen: The impact of the global financial crisis on business cycles in Asian emerging economies, BOFIT DP 11/2009.

Michael Funke – Hao Yu: Economic growth across Chinese provinces: in search of innovation-driven gains, BOFIT DP 10/2009.

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