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## **A Conference on Post-Crisis Banking**

Thorsten Beck\*, Jakob de Haan\*\* and Robert DeYoung \*\*\*

**Abstract:** This essay provides an introduction to the special issue. We focus on four themes which are important for policymakers and researchers alike in view of the experiences of the global financial crisis of 2007-2009 and the ensuing sovereign debt crisis in the euro area: the relevance of the banking sector for the real economy; the future structure and regulation of the banking sector; the efficacy of past and current regulatory reforms; and the impact of cross-border banking on economic stability and financial development.

**Keywords:** Bank performance, bank regulation, global financial crisis

**JEL Codes:** E44; E52; F6; G2; O16;

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## 1. Introduction

The global financial crisis of 2007-2009 and the ensuing sovereign debt crisis in the euro area have provided us with a new lens through which to assess the role of banks in modern market economies. This special issue of the *Journal of Money, Credit and Banking* peers through that lens. These pages present the proceedings of a conference on Post-Crisis Banking, held in Amsterdam on June 28-29 2011. The conference was sponsored by the De Nederlandsche Bank, the European Banking Center at Tilburg University, and the Center for Banking Excellence at the University of Kansas.

The financial crisis has led the profession to rethink previous research findings and shift the emphasis of their research agendas. Most importantly, researchers are re-examining the link between financial crises and their subsequent recessions. Research suggests that recessions which coincide with severe financial crises last longer, cause steeper declines in GDP, and hence result in larger cumulative losses of aggregate income than do ‘ordinary’ recessions or recessions coinciding with less severe financial crises.

There is also an increased effort to better understand the relationship between the financial sector and the real sector, both within domestic economies and across borders. More attention is being paid to how bank lending influences the speed of recovery from recessions. There is renewed emphasis on reducing the value of implicit and explicit public guarantees to banks and to ‘re-privatize’ banks’ risk-taking. New and proposed regulatory reforms include higher capital requirements, new liquidity requirements, limits on bank size, restrictions on bank executive compensation contracts, and re-introducing limits on commercial banks’ financial powers and activities.

The crisis of 2007-2009 affected banks in different regions in the world asymmetrically, which provided some opportunities for learning. The U.S. banking sector appears to have benefitted from immediate intervention to preserve liquidity in financial markets, forthright

resolution of insolvent banks (including both bank closures and bank bailouts), and new legislation that partially re-regulated the banking system. Perhaps as a result, the U.S. banking sector is now relatively healthy and its macro-economy is slowly recovering. In contrast, the euro area moved more slowly to resolve weaknesses in its banking sector, hindered by the political and practical obstacles in forging a banking union to complement its currency union. As a result, many of its national economies remain in crisis. While the economic performance in developing countries varies widely, some are experiencing substantial financial innovation, financial deepening, and rapid expansion of their banking systems both domestically and internationally. As European banks temporarily retrench, financial institutions from the developing world will likely gain a growing share of cross-border banking.

The research articles, discussant remarks, panelist commentaries and keynote address published here provide theoretical and empirical analysis of the issues most relevant for the future of banking in the wake of the global financial crisis. In this introductory essay, we place these documents into context—both with each other and with the global financial crisis itself—and emphasize their individual and collective contributions toward avoiding a repeat of the recent unpleasantness.

## **2. Banking and the real economy**

The global financial crisis cast doubt on the generality of the finance-growth paradigm, which argues that financial deepening can only be good for economic growth. This view is based on an extensive literature documenting a positive relationship between available finance and real economic growth. But more recent research points not only to important non-linearities in the relationship between finance and growth, but also shows a negative relationship between finance and growth at very high levels of financial depth. This is in line with warning signs

leading up to the global crisis that an overextension of the financial system might result in higher fragility and systemic distress.

Vitaly Bord and João Santos (this issue) provide evidence for the critical role of banks in modern market economies. But while most of the literature has focused on the role of banks as credit providers, Bord and Santos focus on banks' role as providers of liquidity to corporations. Using the liquidity shock banks experienced with the collapse of the asset-backed security market in fall 2007 to identify supply and demand, the authors link banks' liquidity condition to their ability to provide liquidity to their clients. They find that banks that borrowed more from a Federal Home Loan Bank or the Federal Reserve's discount window passed on a larger portion of their borrowing costs to corporations seeking access to liquidity. Moreover, this pricing effect was stronger for bank-dependent borrowers and for corporations whose credit lines posed higher liquidity risk for banks.

Unlike previous papers that link bank failures and systemic banking crises to higher cost and/or reduced access to bank credit, Bord and Santos empirically link financial stress at banks to higher cost of liquidity for their customers. In his discussion, John Wilson points to a number of methodological challenges facing this type of study, and in doing so identifies some areas of future research focus—for example, whether these findings will prove to be robust during other time periods, during other liquidity shock episodes, or for non-public firms too small to be included in this study—but concludes that this study makes a significant contribution to our understanding of how banks' own liquidity conditions affect their abilities to provide liquidity on demand to their corporate clients.

Andrea Presbitero, Gregory Udell and Alberto Zazzaro (this issue) also provide new evidence on how the credit crunch impact real economic conditions. The authors gauge the effect of the credit crunch on firms in Italy, using the September 2008 failure of Lehman Brothers and exogenous differences among banks to disentangle credit demand and credit

supply effects. Based upon detailed information from loan applications and lending decisions, they show that the credit crunch was harsher in provinces dominated by branches of distantly managed national banks. This result implies that when stressed, non-local bank lending relationships are more difficult to maintain than local bank lending relationships. Moreover, their results are stronger for larger, financially healthy borrowers—not, perhaps as expected, for smaller and financially weak firms—which offers support for a home-bias hypothesis as opposed to a flight-to-quality hypothesis.

Steven Ongena finds the Presbitero, Udell and Zazzaro study thought provoking, because the evidence is consistent with a home bias effect in bank lending within a single country. Ongena offers another (non-mutually exclusive) explanation: the results may be picking up the ‘limits of hard information’ during a crisis: bankers may start doubting some of the hard information that they have collected. This observation calls for further research on the value of hard versus soft information across time and space.

The crisis also revealed the harmful interdependency of banks and their governments. Both have financial exposure to the national economy (tax revenue in the case of governments, loan performance in the case of banks) and banks are large investors in debt issued by the government. Ultimately, a deep recession can result in a negative feedback loop: governments issue guarantees to distressed banks in order to preserve a source of demand for growing sovereign debt; the credit ratings of both governments and banks spiral downward; banks’ capacity to provide private credit shrinks; and the decline in real economic growth continues. Ricardo Correa, Kuan-Hui Lee, Horacio Saprizo and Gustavo Suarez (this issue) explore the joint effect of expected government support to banks and changes in sovereign credit ratings on bank stock returns using data for banks in 37 countries between 1995 and 2011. They find that sovereign credit rating downgrades have a substantial negative effect on bank stock returns for banks consider more likely to receive government support. Interestingly, the result is not

explained by banks' holdings of government bonds, but rather by the deterioration of their loan portfolios and the resulting increased need for recapitalization, which becomes less possible as the government's own credit rating falls. These results suggest that stock market investors are recognizing and hence pricing one of the core problems in the euro area: that the robustness of sovereigns, domestic banks and the domestic economy are intertwined through a home bias in sovereign bond holdings and the expectation that sovereigns will support troubled banks.

Reint Gropp points out that Correa, Lee, Sapriza and Suarez provide evidence in support of recent regulatory policy initiatives in Europe—e.g., the Single Supervisory Mechanism and the Bank Resolution and Recovery Directive—that are aimed at breaking the self-re-enforcing cycle of fragile banks and fragile fiscal balances. Once the Single Supervisor is operational, the Directive enables the European Stability Mechanism to recapitalize banks directly, rather than providing budgetary support to the government.

### **3. The future structure and regulation of banking**

The crisis gave many informed observers pause to rethink the role of market discipline in the banking sector, the activities that banks should be allowed to take on, and the optimum perimeter for banking regulation. The reform proposals discussed (and partly implemented) over the past five years are aimed at making the financial sector safer for society. But these reforms will necessarily have to change both the structure of the financial system and the regulatory perimeter. Conference panelists Stephen Cecchetti and Arnoud Boot, as well as conference keynote speaker Eric Rosengren, focused their remarks on these issues.

In the decade leading up to the global financial crisis, innovations in information technology and unusually accommodative monetary policy combined to reduce transactions costs and increase liquidity in financial markets. As entire classes of financial assets created by banks became marketable and/or securitizable, a large portion of bank lenders shifted from the

traditional originate-and-hold business model to an originate-and-distribute model—with the latter model requiring much closer inter-linkages between financial institutions and financial markets. While these inter-linkages made it possible for banks to sell beneficial risk management tools to their clients, they also reduced the incentives for banks to invest in relationships with their clients.

Boot argues that the increased marketability and liquidity of financial assets has resulted in “excessive changeability”: herding by large banks toward a transactions-based banking mindset, diminished market discipline, and an underpricing of risk. This trend poses brand new challenges for regulators. Policymakers must now track the interdependencies between banks with joint exposures to the same markets (not just banks with similar activities or lending profiles) and by extension must now think in a macro-prudential way. Logically, this shift in regulatory focus might also necessitate restrictions on banks’ other activities that expose them to fluctuations in financial markets (e.g., proprietary trading). Regulators must rely less on market discipline, which might effectively police outlying risk behavior by individual banks but cannot protect society against general system-wide risk outcomes.

Cecchetti asks what we should want the banking system to look like in 30 years, and offers three desirable characteristics: First, the financial system should be safer, simpler and smaller. Second, all financial institutions should be able to fail without imposing costs on others. And third, all financial institutions should be transparent enough that authorities, managers and investors can understand them relatively easily. But even if these three structural characteristics do come to pass, the banking sector will continue to be populated by diverse banking enterprises—some may consist of a few large banks while others will contain many small banks, some banks may choose to be universal banks while other will limit their scope to traditional intermediation activities, and internal governance and funding strategies will vary



broadly. Innovation is not likely to slow down, so regulators will continue to face on-going and perhaps increasing challenges.

However the industry restructures in response to the new regulatory regime, bank regulators will likely be paying closer attention to financial institutions and financial dealings operating close to the new regulatory perimeter. During the run-up to the crisis, movements of financial assets and activities from banks to financial markets were viewed optimistically as ‘risk transfers’ that re-allocated risk to agents best able to bear it and left banks better diversified; in the aftermath of the crisis, we are more likely to view such activities as ‘risk arbitrage’ by banks seeking to avoid regulatory costs and restrictions. Reliance on the shadow banking system has more than once led to systemic distress—for example, the 1997 East Asian crisis was preceded by overinvestment in Thailand funded by hot international loans, and the global financial crisis was preceded by subprime credit extended by U.S. mortgage brokers. In his conference keynote address, Eric Rosengren (this issue) focuses on prime money market funds and broker dealer short-term financing as shadow banking arrangements that contributed to systemic distress during the global financial crisis, and makes recommendations for efficiently bringing such arrangements under the regulatory umbrella.

This question about bringing shadow banking activities inside the regulatory perimeter has a mirror image: should certain financial products and services be moved outside the perimeter of permissible activities for commercial banks? While the pre-crisis trend was toward universal banking, best symbolized by the effective repeal of the Glass-Steagall Act in the U.S., the post-crisis pendulum has swung toward greater restrictions on banks’ activities. The Volcker rule, included in the Dodd-Frank Act (2010), in principle will prohibit proprietary trading at U.S. commercial banks. The Vickers Commission in the UK recommends a ring-fence to isolate core banking activities vital to the payments system and basic saver-borrower intermediation (e.g., household deposits and overdrafts, credit to small and medium sized

enterprises), with other banking activities located in separately capitalized subsidiaries without government solvency support. The Liikanen report commissioned by the European Commission recommends a mandatory separation of banks' trading activities from banks' deposit-taking if these activities amount to a significant share of a bank's business.

While implementing the activities restrictions in the Volker rule and the Vickers and Liikanen reports would reduce the likelihood of bank failures, the underlying objective is to make failed banks easier and less costly to resolve—and by doing so, bring to an end the systemic, macro-economic necessity of bailing out large failed banks. Achieving a credible policy framework for resolving failed systemically important financial institutions—without bailing out stockholders, junior creditors, or senior management—is the chief challenge facing financial regulators and policymakers going forward, and this challenge was touched upon by most of the authors and commentators during the conference.

In the U.S., the Federal Deposit Insurance Corporation (FDIC) has long held the power to seize and resolve small and mid-sized depository institutions outside of corporate bankruptcy proceedings. However, the FDIC has historically lacked the legal authority to resolve non-depository institutions; during the crisis, U.S. authorities had to extend special measures (capital injections, creditor guarantees) to bailout or stabilize bank holding companies, investment banks, insurance companies, money market funds and other non-depositaries. Under the Dodd-Frank Act, the FDIC now has broad “orderly liquidation authority” to seize and reorganize any financial firm deemed to be systemically important (SIFIs). These new powers are augmented by other provisions in Dodd-Frank requiring large banks to file and maintain resolution plans (so-called “living wills”) and instructing regulators to study how required contingent capital and bail-in-able debt might help facilitate the resolution of failed SIFIs. Processes are less well-developed in Europe, where most countries have never had bank resolution frameworks in place, forcing regulators to either bailout banks or liquidate them

through regular corporate bankruptcy. The European Union is currently making progress toward an FDIC-like resolution framework, albeit slow progress given the political differences and financial imbalances across its member nations.

#### **4. Specific regulatory reforms**

The response of regulators, politicians and researchers to the global financial crisis has been both rich and profound. Innumerable regulatory reforms have been debated: some proposals have been approved, a subset of those has been implemented, and others are still under discussion. Perhaps the most salient of these reforms is the increase in required equity capital for banks—as we witnessed, neither the quantity nor the quality of capital held by banks going into the crisis was sufficient to protect the banking sector. The Basel III regulatory agreement reached in 2010 and 2011 introduced a stricter definition of equity capital, higher minimum levels of risk-adjusted capital, a minimum leverage ratio, and two dynamic capital buffers to cushion the impact of the business cycle on the financial soundness of banks. Even after these new capital standards will have been fully implemented in 2015, other questions will remain: Will higher capital requirements have adverse repercussions for private sector lending? Will continued reliance on a risk-weighted asset approach result in greater regulatory arbitrage? Or, as Stephen Ceccetti asks, do we have sufficient data to properly determine these risk-weights, especially with respect to lower-tail modeling?

Perhaps because regulatory capital rules have historically been stated in terms of accounting (book) equity ratios, little attention has been given to the importance of market equity ratios in determining the solvency of a bank. In his panel contribution, Mark Flannery (the issue) argues that a number of the large bank failures that occurred during the crisis could have been avoided if supervisors had mandated minimum levels of market value rather than book value equity capital. Studying the largest 25 U.S. bank holding companies between 1987

and 2011, Flannery computes the market equity value that would have been necessary to reduce each of these BHCs' annual probability of default to the Basel standard of 0.1%. The actual market value equity capital shortfalls below these estimated thresholds provide a measure of the (presumed) government guarantee for each bank in each year. On average during the 2007-2011 crisis period, this shortfall averaged about 30% of the actual market value for these banks. Flannery concludes that market-value capital standards are not a panacea—had this policy been implemented in the U.S. during the financial crisis, it would have prevented some but not all of the large bank failures—and recommends that systemically important financial institutions also be required to issue contingent capital instruments in order to provide a “going-concern type of deleveraging, which avoids bankruptcy or resolution process” when these firms approach insolvency.

Traditionally, banking regulation has had a micro-prudential focus: safeguarding the financial health of individual financial institutions via periodic on-site examinations plus frequent off-site monitoring of required capital ratios and other key accounting measures. One of the important lessons of the financial crisis is that this traditional bank-by-bank approach is no longer sufficient, because increasing bank interconnectedness now makes the entire system jointly sensitive to shocks in asset markets, credit markets and liquidity markets. Macro-prudential regulation provides a new set of tools to dampen the resulting systemic risks, e.g., countercyclical bank capital requirements, macro-economic stress testing, super-normal capital and/or liquidity requirements for systemically important institutions, and stricter loan-to-value and loan-to-income ratios for residential mortgages. An important question is whether the implementation of macro-prudential policies will create unexpected economic feedback. Shekhar Aiyar, Charles Calomiris and Tomasz Wieladek (this issue) test whether the time-varying, bank-specific minimum capital requirements policy implemented in the UK between 1998 and 2007 made regulatory policy outcomes less powerful or predictable. The authors find

that banks subject to these macro-prudential policies (those within the regulatory perimeter) reduce lending in response to tighter capital requirements, while resident foreign branches that are not subject to these policies (those outside the regulatory perimeter) respond by increasing their supply of loans. Moreover, this ‘leakage’ is substantial, amounting to about one-third of the initial impulse from the regulatory change.

The Aiyar, Calomiris and Wieladek study provides a cautionary tale regarding the effectiveness of macro-prudential policies. In his discussion, Joe Peek points out that the authors may even be underestimating the leakage, because other shadow intermediaries likely joined foreign branches in providing substitute credit. Peek also cautions that a full diagnosis of the leakage associated with the UK’s bank capital rules will require these tests to be repeated during a capital loosening regime. And he also doubts whether the term “macro-prudential” actually applies to this study, given that the policies being tested were applied to individual banks.

Bank size is another important post-crisis policy concern. Large banks were more likely to be bailed out or receive financial assistance than small banks during the crisis, especially in the U.S. The moral hazard incentives associated with this too-big-to-fail (TBTF) advantage have arguably led large banks to take more business risk, employ higher financial leverage, and hence operate with an increased probability of insolvency with its attendant deleterious systemic effects. From the purely objective standpoint of social welfare, these costs may be worth suffering if large banks can operate with substantially lower production costs—and indeed, multiple recent studies conclude that substantial scale economies exist even at the largest commercial banks. Richard Davies and Belinda Tracey (this issue) test whether there is a connection between the TBTF phenomenon and the estimates of cost scale economies found in the recent literature. The authors begin by estimating a standard bank cost function model for a set of large international banks and find evidence of scale economies consistent with those

found in previous studies. They then re-estimate the model after measuring and removing the implicit TBTF subsidy from banks' debt funding costs, and find constant returns to scale for these banks. If robust, these results imply that the mergers which left the world with trillion-dollar banks were driven by a quest for safety net subsidies rather than private scale economies.

Are prior estimates of large bank scale economies really a mirage? Robert DeYoung finds the result intriguing, but reminds us of the Lucas critique. The output and input data used by the authors to estimate their model reflect large bank decisions in response to existing market prices, including the artificially low (TBTF subsidized) market price of debt. If the safety net no longer existed for large insolvent banks—imagine that the FDIC uses its new orderly liquidation authority to resolve a large insolvent bank, and in doing so imposes losses on bond holders—then large banks would choose their outputs and inputs in response to a new vector of relative input prices that no longer includes the TBTF subsidy. Because we cannot observe that counterfactual, we do not know whether those re-configured large banks would exhibit scale economies. DeYoung concludes that more studies are needed, using different methodological approaches, to confirm or reject this interesting new finding.

Another driver of bank risk taking is the structure of bank managers' compensation contracts. Studies of both U.S. and European banks have shown that high shares of variable compensation (bonuses, stock grants, stock option grants) as opposed to fixed compensation (salary) encourage managers to focus on current bank earnings, which can result in aggressive risk-taking in the short term and/or neglecting long-term risk implications. Regulators have recognized this phenomenon and introduced restrictions of manager pay. In the U.S. these restrictions were temporary and applied only to banks that had accepted government capital injections. The EU has adopted a more permanent rule that restricts the amount of bonus pay to be no higher than the amount of fixed salary. (This restriction on bonuses can be loosened

to two-times fixed salary, however, should a 66% majority of shareholders representing at least 50% of shares vote in favor.)

Hendrik Hakenes and Isabel Schnabel (this issue) evaluate the theoretical impact of regulatory bonus caps in a model in which bonus contracts arise endogenously in response to agency problems within banks. Bailout expectations by shareholders lead to steeper bonus schemes and more risk-taking, resulting in a strong case for regulators imposing caps. Thus, EU limits on bonus pay can reduce bank risk-taking, but at a cost: because bonus caps flatten compensation schemes, they may also result in inefficiently low managerial effort. The policy implications of this model are relatively rich: because it is shareholder bailout expectations that create the risk-taking incentives in the first place, improvements in failed bank resolution policy that credibly reduce the chance of failed bank bailouts would also reduce the need for regulatory compensation restrictions. In his discussion, Fabio Castiglionesi points out that the policy implications of the model are clearly important, but that implementing the optimal policy will be difficult as it crucially depends on non-measurable parameters. He also suggests some extensions of the model, such as endogenizing bank capital structure and introducing convertible debt.

## **5. Cross-border banking**

Cross-border banking has existed for centuries, but over the past two decades has become an increasingly important part of the international financial landscape. One challenge for researchers of cross-border banks has been data availability—especially data that accurately and completely describes the ownership structure of these banking systems. Stijn Claessens and Neeltje van Horen (this issue) provide some help with a new database that reports the home country owner (among other information) of 5,324 foreign-owned banks operating in 137 countries between 1995 and 2009. The authors have made this database publicly available on

the *JMCB* website at <http://jmcb.osu.edu/claessens-and-van-horen>. The authors document large increases in foreign bank presence in many countries during the period covered by their data, with substantial variation across countries and regions. While OECD countries are still home to most cross-border banks, the share of cross-border banks from emerging and developing markets has increased: in 2009, 28 percent of all foreign banks were owned by a bank from an emerging or developing country. They also show that cross-border banks seek out host countries that are relatively similar in income levels to their home markets. There is also regional concentration, with the largest share of foreign banks that operate in each of four regions (the Americas, Africa and Middle East, Asia, and Europe) coming from within the region.

There has been a contentious debate among researchers and policymakers about the impact of cross-border banking on financial deepening and growth. Advocates of ‘pen borders’ for banks point to scale economies and efficiency gains, increases in competition, and stability gains. Skeptics point to cherry-picking and cream skimming of the best customers by foreign banks, ultimately resulting in more shallow markets as well as contagion risks from cross-border banks. Claessens and van Horen conclude that there is no unambiguous relationship between financial deepening and foreign bank presence; rather, the relationship depends on the bank and country characteristics. Specifically, foreign banks seem to have a negative impact on credit in low-income countries, in countries where they have a limited market share, where enforcing contracts is costly and where credit information sharing is limited, and when they come from more distant home countries. In his discussion, David Marques-Ibanez applauds the construction of this new global database, and encourages the authors to extend the database beyond 2009 and to include information on foreign bank branches. He also identifies several questions for future research that these data will make possible—for one example, whether and



how the funding mix of multi-national banks affect their ability to withstand shocks abroad or at home.

The effect of cross-border banking on financial stability is similarly controversial. On the one hand, cross-border banking can provide risk diversification benefits for both financial institutions and local economies. Evidence suggests that foreign banks can help mitigate local shocks and reduce the real sector impact of local banking distress. Similarly, cross-border banking reduces output co-movement across countries or states after asymmetric real sector shocks. But research has also shown that foreign banks have exacerbated the impact of financial shocks, effectively exporting home country financial fragility into the host countries. Ralph de Haas and Iman van Lelyveld (this issue) generate new evidence consistent with the latter findings. The authors compare the lending patterns of 199 foreign subsidiaries of multinational banking groups to the lending patterns of 202 domestic benchmark banks in 2008 and 2009. Although they do not rule out the possibility that multinational banks can contribute to financial stability during *local* crisis episodes, they conclude that multinational banking systems increase the chances of importing instability from abroad. Their data indicate that foreign bank subsidiaries slowed their lending almost three times as much as did domestic banks during the *global* financial crisis.

Hans Degryse points out that the de Haas and van Lelyveld findings would be more complete and hence more useful if information on bank-firm relationships could be introduced to the analysis. For instance, it is possible that domestic banks and subsidiaries of foreign banks cater to different clientele, with different impacts on domestic income and growth. Ultimately what matters is the identification of the real effects of changes in bank lending, which requires not only detailed data on bank-firm relationships but also firm accounting and investment data.

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