

The Economics of Bank Insolvency, Restructuring and Recapitalization

Joint Research Workshop of the OeNB and the Max Planck Institute for Research on Collective Goods

Bank insolvency law, bank restructuring and the recapitalization of banks are not only legal or administrative issues but are of preeminent economic importance. To highlight the economic perspective, the OeNB hosted a two-day workshop on September 16 and 17, 2010, that was organized jointly by the OeNB's Economic Studies Division and the Bonn-based Max Planck Institute for Research on Collective Goods. Controversial and intense discussions proved that there are many innovative ideas to tackle the problems but that there is also a great need for economic policy discussion.

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The topics bank insolvency, bank restructuring and bank recapitalization have generally been seen as falling into the realm of specialized legal experts and high-level crisis managers at central banks and ministries of finance. Why these topics crop up on economic researchers' agendas, and what economists have to contribute to such topics at all was discussed in the workshop entitled "The Economics of Bank Insolvency, Restructuring and Recapitalization."

Insolvency law determines what happens when a bank fails and who is entitled to its assets.² The quality of the legal framework is key to whether these assets are largely preserved or destroyed, and whether investors have the right risk-taking incentives. Obviously, the features of insolvency law are of substantial economic importance. The protracted economic difficulties Japan experienced after the banking crisis of the late 1980s are generally attributed to a failed restructuring of the banking system.³

Not only insolvent banks but also undercapitalized banks create economic

problems. An undercapitalized banking system may cause a credit crunch and may thus significantly exacerbate the economic consequences of a financial crisis. The organizers of the workshop, Martin Hellwig (Max Planck Institute) and Martin Summer (OeNB), invited participants from universities, economic policymakers and practitioners to come to Vienna to discuss these topics.

Executive Director Andreas Ittner, who is in charge of financial stability, banking supervision and statistics at the OeNB, opened the workshop with a brief overview of the current debate on how to deal with financial institutions that are considered too big to fail. He stressed that the implicit or explicit acknowledgement that there are banks and financial institutions which must not fail is incompatible with a financial system organized along market principles. Ittner called for mechanisms and institutions that make it possible to restructure failed banks at the lowest possible economic cost, if necessary, instead of simply using tax money to bail them out.

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² Insolvency law refers to all provisions potentially applicable to an insolvency. Bankruptcy (failure) is one of the possible outcomes of insolvency.

³ Hoshi, T. and A. Kashyap. 1999. *The Japanese Banking Crisis: Where Did It Come From and How Will It End?* NBER Working Paper 7250.

Ittner provided a short review of the various proposals for solutions offered in the recent economic debate, classifying them according to whether they address the “too big” (size) or the “to fail” (ex ante prevention of failure) aspect.

Direct and indirect limits on bank size on the basis of restrictions on total assets or taxation models appear problematic because they involve numerous measurement issues that make it difficult to find a sensible and feasible solution. Interfering in banks’ business models by announcing that regulatory protection would only cover narrowly defined business models does not work because it would not be credible. Automatic recapitalization mechanisms that rely on price signals and the obligation to issue equity under particular pre-defined circumstances face the problem that these measures depend on precisely those institutions and markets whose operation is impaired during a crisis. Insurance-based solutions simply shift problems from the banking sector to the insurance sector, in particular during a systemic crisis. Ittner explicitly identified the banking insolvency law as a further opportunity to dispel the too-big-to-fail problem. This solution involves a special challenge, though: As a rule, those involved have just a single weekend to establish legal certainty in an insolvency or restructuring situation.

The workshop featured contributions on all of the above-mentioned aspects. The following speakers made presentations during the two-day sessions: Oliver Hart (Harvard University), Anat Admati (Stanford Graduate School of Business), Jean-Charles Rochet (University of Zurich), Beatrice Weder di Mauro (Johannes Gutenberg University Mainz and the German Council of Economic Experts), Peter Brierley (Bank of England), Viral Acharya (New

York University), Philipp Schnabl (New York University), Peter Englund (Stockholm School of Economics), and Rama Cont (Columbia University and Centre national de la recherche scientifique). Renowned economics and legal experts acted as discussants for each contribution. The general discussion during both days was very lively – the issue of what to do with failed banks and of how to defuse the too-big-to-fail issue is obviously highly controversial.

Ex-Ante Solutions for the Too-Big-to-Fail Problem

Along the classification of the different solutions in Andreas Ittner’s opening address, Oliver Hart started the workshop with the presentation “A New Capital Regulation for Large Financial Institutions,” which was based on a working paper written jointly with Luigi Zingales (Booth School of Business, University of Chicago). The proposal may be seen as an example of an ex-ante solution to the too-big-to-fail problem.

Hart and Zingales propose a mechanism that differentiates between systemically relevant and systemically irrelevant. The first category includes bank deposits, short-term interbank borrowing and derivative contracts; these obligations must be protected during a crisis. Conversely, the second category (i.e. junior long-term financial debt) faces the risk of default. If the value of a bank’s assets decreases to an extent that puts junior financial debt at risk, the regulator has to intervene. The price of a credit default swap (CDS) on long-term debt serves as a trigger mechanism. If this price exceeds a predefined threshold for a certain period of time, the regulator intervenes and subjects the financial institution to a stress test. If this test shows that long-term debt is not at risk, the regulator declares the bank adequately capitalized and, to

prove the validity of this assessment, injects tax money in the form of debt that is *pari passu* with respect to existing financial debt. If, however, the regulator determines that the debt is in fact at risk, the shareholders' rights are wiped out and the CEO is replaced with a receiver, who eliminates the existing nonsystemic debt, sells the financial institution and distributes the proceeds from the sale. Creditors are not fully repaid even if it would be possible. This haircut guarantees that the CDS price reflects the market perception of the probability of default and is not distorted by the expectation that the bank will be bailed out. The proposed mechanism of regulatory takeover is similar to a milder form of bankruptcy; it prevents inefficient liquidation of the financial institution while at the same time imposing discipline *ex ante*.

Discussant Josef Zechner (Vienna University of Economics and Business) emphasized that the proposal of Hart and Zingales is based on the highly controversial role of debt as a means to exercise discipline. If debt does not have the effect of increasing efficiency, the problem may also be solved by imposing higher capital requirements. In addition, the model assumes that stress tests very rapidly reveal the true state of a bank's financial health. If this is the case, the regulator could also guarantee bank solvency by means of regular stress tests that are not dependent on CDS prices.

In the model proposed by Hart and Zingales, the regulator does not pursue any selfish objectives, but acts exclusively in the interest of taxpayers. Zechner observed that if this were not entirely

so, it might well happen that negative stress test results are covered up so as not to tarnish the regulator's reputation (in the short run).

Anat Admati (Stanford Graduate School of Business) proposed another *ex ante* solution to the too-big-to-fail problem in her presentation "Improving Capital Regulation of Large Financial Institutions." The fragility of banks and the high social costs that can result from their failure are a consequence of a capital structure with a very high level of debt. Debt is a form of financing that – unlike equity – establishes payment obligations that have to be met irrespective of the development of the bank's assets. When the financial crisis broke out, some institutions' (not risk-weighted) equity came to only 1% to 3% of total assets. Even a small loss is enough to create difficulties for banks with such a small capital base. The deleveraging multipliers in case of a forced sell-off of assets are huge.⁴ So why are banks not required to hold more equity? The off-the-shelf answer is that equity financing is expensive compared to debt financing. Admati pointed out that many of the arguments put forward in favor of debt financing are fallacies and are often diametrically opposed to the theoretical and empirical results of corporate finance. Some of these arguments are simply wrong,⁵ whereas others are based on a confusion of the private cost of (equity) capital and the social costs of a fragile banking system. The tax advantage of debt financing and the system of implicit guarantees in the event of a crisis are in fact tantamount to subsidizing debt financing. As a result of this distortion a higher equity ratio is more

⁴ The multiplier for a bank with 2% equity (not risk-weighted) is 50 whereas it is only 4 for a bank with 25% equity.

⁵ For example, an increase in the equity ratio does not necessarily lead to a reduction in lending.

expensive for banks privately, but it is an advantage for the economy as a whole. A third class of arguments is based on incorrectly applied theories about the incentive effect of debt financing. According to Admati, the economic advantages of banks having a high equity ratio are obvious, and the costs are low. Consequently, she sees a fairly simple solution to the too-big-to-fail problem: If the (unweighted) equity share in bank assets is raised markedly (to up to 25% to 30% of total assets), some problems on the workshop agenda will simply disappear.

Discussant Urs Birchler (University of Zurich) agreed to the arguments in the paper by Admati, DeMarzo, Hellwig and Pfleiderer. He saw the paper as an important contribution to the discussion of whether equity was expensive for banks or not. He emphasized that the distortionary effect that makes the costs of equity appear high from the viewpoint of bankers has its roots in the tax advantages of debt financing and, in the case of the large banks, the implicit guarantee of this debt by the state. However, Birchler did not see this de facto subsidy changing in the next few years. In his opinion, there would be no way to enforce a capital ratio increase to 25% to 30%. Although Birchler fully agreed with Admati in substance, he considered a solution based on convertible bonds to be more promising.

Jean-Charles Rochet (University of Zurich) presented another *ex ante* solution, which he and his coauthor Xavier Freixas (Pompeu Fabra University) developed. Their theoretical paper “Taming Systemically Important Financial Institutions” explores whether a combination of supervisory measures, insurance elements and incentive schemes for bank managers could solve the moral hazard problem that arises when a financial institution that has a

bailout guarantee takes on excessive risks. The proposal of Freixas and Rochet combines a systemic banking tax whose proceeds are used to fund the cost of resolutions in future systemic crises and the establishment of a supervisory authority endowed with special resolution powers and the power to control bank managers’ compensation during crisis periods.

Discussant Rafael Repullo (Center for Monetary and Financial Studies – CEMFI) criticized the casual use of terminology, such as “market discipline,” “bailout” and “systemically important,” in Freixas’ and Rochet’s work. According to Repullo, the model framework was not suited to analyzing the regulation of large financial institutions.

Concrete Proposals for a Bank Restructuring Regime

During the afternoon of the first day of the workshop, two practical proposals for dealing with the too-big-to-fail problem were presented. The proposal of the German Council of Economic Experts presented by Beatrice Weder di Mauro has the status of a recommendation, whereas the British Banking Act presented by one of the key officials involved in its drafting, Peter Brierley (Bank of England), is a proper legal framework that was drafted and passed by Parliament within a year of the insolvency of Northern Rock.

In its expertise, the German Council of Economic Experts recommends combining a systemic risk levy and a systemic risk fund for financial institutions. Under this proposal, the tax is levied only on systemically relevant institutions, which are identified with an indicator comprising size, complexity and interconnectedness measures. The tax proceeds feed into the systemic risk fund that is endowed with comprehensive intervention, disciplining and

restructuring powers. If the systemic risk fund exceeds a certain volume threshold, the surplus is allocated to government.

Discussant Horst Eidenmüller (Ludwig-Maximilians-Universität Munich) focused on the systemic risk tax in his comment. In his view, it is difficult to assess a bank's systemic relevance. The lesson of the problems with IKB and Hypo Real Estate in Germany is that even medium-sized banks can have a major impact on the stability of the sector. For this reason, among taxation models, Eidenmüller prefers to tax all financial intermediaries according to their risk score. He expressed deep skepticism about instituting a systemic risk fund as an authority in its own right. In his view, central banks and supervisory authorities have both the expertise and the data to manage such a fund as is, and an additional institution would merely raise coordination costs.

Peter Brierley (Bank of England) presented the special resolution regime for failing banks that has been effective in the U.K. since 2009. Before the new law was enacted, the British prudential regulator had drawn on general (corporate) insolvency law. But for many reasons, this framework proved to be inadequate during the Northern Rock crisis: Banks are highly dependent on confidence in the system, and financial stability hinges directly on the stability of this trust. However, as financial stability is not an explicit objective of the general insolvency regime, a conventional insolvency may exacerbate an already existing banking crisis. Best-practice regimes should also allow pre-emptive intervention, i.e. intervention before an insolvency actually happens. Moreover, general (corporate) insolvency law is often in conflict with the continuity of key

banking functions during insolvency procedures. Finally, general insolvency law does not recognize the special position of bank depositors.

The special resolution regime for banks attempts to address these drawbacks by putting into the hands of the banking supervisor the right to initiate and conduct the process of restructuring. During the procedure, the supervisor is endowed with the power “to carry out an orderly bank resolution in a manner protecting the public interest and financial stability,” which overrides all other claims on the bank. The supervisor has a broad set of tools to resolve failing banks, and is obligated to pursue the objective of preserving financial stability. These tools include the power to (1) transfer the failing bank's business to a private sector purchaser, (2) take control of a failing bank's business through a bridge bank, (3) place a failing bank into temporary public ownership, (4) close and liquidate a bank or else recapitalize it. The resolution procedure involves the Financial Services Authority, the Bank of England, the Treasury and the Financial Services Compensation Scheme.

The next steps planned for the special resolution regime are improving its effectiveness in an international context, expanding its scope to other financial institutions, implementing recovery and resolution plans (“living wills”) and introducing bail-in options, i.e. imposing losses on creditors.

Gérard Hertig (Swiss Federal Institute of Technology – ETH Zurich) expressed skepticism about the need to transfer insolvency procedures from courts to supervisory authorities. He considers improving the governance and organization of supervisory authorities a more pressing problem. According to Hertig, the biggest advantage of

having a particular bank insolvency procedure is that it gives governments a better negotiating position vis-à-vis banks. The fact that large international banks cannot be subjected to the special resolution regime due to the lack of international agreements took up much of the open discussion. Experience with UBS in Switzerland and Fortis in Belgium and the Netherlands has shown that a legal framework for multinational banks is urgently needed.

Recapitalization in Theory and Practice

The second day of the workshop was dedicated to the issue of bank recapitalization. Viral Acharya (New York University, Stern School of Business) addressed the links between bank bailouts and sovereign credit risk in his lecture “A Pyrrhic Victory? – The Ultimate Cost of Bank Bailouts.” The speaker analyzed these links in a theoretical model and then tested their implications empirically in a next step.

Immediately prior to the implementation of rescue packages, CDS prices for bank bonds increased dramatically whereas they remained nearly constant for government bonds. When the rescue packages were concluded, CDS prices rose markedly for government bonds but fell for bank bonds. Soon after that, both sovereign and financial sector spreads started moving in tandem. This means that government intervention not only created long-term incentive problems but also caused government refinancing conditions to deteriorate substantially. The way Acharya sees it, it is wrong to neglect these short-term costs in assessing the cost of bailouts.

Discussant Isabel Schnabel (University of Mainz, Max Planck Institute for Research on Collective Goods, Bonn, and Centre for Economic Policy Research) agreed with Acharya on this

last issue, but criticized that the links between financial sector risk and sovereign risk are much more complex than presented in the empirical analysis. She sees the increase in sovereign CDS prices as stemming partly from fiscal measures that are not connected to the rescue packages, and the method applied in the paper does not take the causality problem into account. If sovereign risk increases, financial sector solvency is affected in two ways. On the one hand, the value of their government bonds declines; on the other hand, higher sovereign risk makes a future bailout by government less likely. Consequently, the CDS prices of bank bonds will rise. Conversely, problems in the financial sector raise sovereign risk if investors consider it very likely that the government will implement a rescue package. Furthermore, Schnabel commented that a more precise analysis of international aspects would be useful.

When many governments were putting together rescue packages in fall 2008, they were under great time pressure and had to improvise. But if one could devise a basic design for recapitalization policy, what would it look like? This question might appear purely hypothetical now that all rescue packages have been passed. But it makes sense to think through this problem from various angles if similar crises arise in the future. Philipp Schnabl (New York University, Stern School of Business) presented the results of such a research project in his lecture “Efficient Recapitalization,” which is based on a paper written jointly with Thomas Philippon (New York University, Stern School of Business).

In the wake of a financial crisis, the economy may be facing a debt overhang problem. In such a situation, it is not possible for banks to finance valuable new projects because the payment obli-

gations from existing debt are so high that they cannot actually profit from financing those projects. This means that socially valuable projects that should be carried out for reasons of efficiency would not be realized because of a conflict of interests between investors. This situation is referred to as a debt overhang. How can the public sector best solve the debt overhang problem? And how should recapitalization policy be designed?

The key findings of the authors are: If banks are required to participate in the recapitalization program, the form of intervention is irrelevant – the government can make direct equity injections in banks, buy up risky assets or guarantee the banks' debts. All three measures involve the same costs. If, on the other hand, participation in the program is voluntary and the private sector is better informed about the quality of the assets, then a direct equity investment is preferable, as the public sector faces a self-selection problem (the banks with the lowest-quality assets will take part in the program). In this situation, a tradeoff exists between the benefits of financing desirable new projects and the adverse selection of banks with especially low asset quality. Schnabl concluded that under asymmetric information, direct equity investment and compulsory participation resolve this tradeoff more effectively than debt guarantees or the purchase of risky assets.

Discussant Arnoud W. A. Boot (University of Amsterdam and Centre for Economic Policy Research) emphasized that the authors succeeded in developing a model framework that allows making a consistent assessment of the effectiveness of restructuring measures. He suggested that the authors analyze in more depth the link between the information problem – banks are better put

to judging the quality of their portfolios than the state – and the question of voluntary or compulsory participation in restructuring programs.

In his lecture “Managing a Banking Crisis – The Swedish Way,” Peter Englund (Stockholm School of Economics) gave insights into the resolution of the Swedish banking crisis of 1992, when he was a member of the committee established by government to resolve the banking crisis.

The precrisis period was characterized by a phase of deregulation and capital market liberalization followed by a credit bubble and its bursting in 1992. At the time, there was neither a regulatory framework in place to deal with banking crises, nor were any particular strategies available. At the beginning of the crisis, some banks were recapitalized by government or were nationalized, but when the crisis reached its peak, government shifted to a policy of blanket guarantees followed by severe and efficient restructuring measures in a next stage. The main features of restructuring were: resolution by an independent agency, stringent market assessment of assets and the establishment of bad banks to which the impaired assets were transferred. Englund strongly emphasized the idiosyncratic nature of the Swedish case. In summarizing, he underscored that the authorities in charge gave top priority to the rapid implementation of restructuring measures that fully recognized losses; they accepted the short-term negative cyclical consequences of such a policy.

Discussant Goetz von Peter (BIS) compared the resolution of the Nordic banking crisis with that of the current crisis. According to von Peter's assessment, the Nordic banks had been treated much more strictly than those during the current crisis, in which

governments give higher priority to supporting aggregate demand.

A recurrent topic during the workshop was the poorly defined concept of “systemically important” financial institutions. Experts frequently postulate that the degree of a bank’s interconnectedness plays an important role in determining its systemic importance. In his contribution “Measuring Systemic Risk: A Network Perspective,” Rama Cont (Columbia University and Centre national de la recherche scientifique) presented a network model with which he constructed an index of the systemic importance of banks using data from Brazil.

Discussant Helmut Elsinger (OeNB) focused on the problem of network models being well suited to identifying systemically relevant banks at a particular point in time, but (because they are static) being unsuitable for forecasts. The impact on the network cannot be predicted if the regulatory framework changes.

Lessons from the Workshop: Is there a Need for Reform in Austria?

The workshop contributions highlighted two main points. The academic literature mainly focused on finding ex ante solutions to the too-big-to-fail problem by proposing procedures that minimize the probability of default. The costs and benefits of all of these mechanisms are controversial. The only thing that all experts agree on is that in a market economy, banks that are too big to fail represent an anomaly that must be remedied.

Even if problems can be largely eliminated ex ante, however, there is still a need for a suitable mechanism that provides for an economically sensible way of restructuring financial institutions without requiring taxpayers to bail them out a priori. A legal framework such as the special resolution regime for banks in the U.K. could certainly serve as such a model. The current legal situation in Austria could certainly be improved.⁶

The workshop contributions suggest a reform that would allow recapitalization measures, restructuring measures and bank insolvencies to be handled within a single, uniform framework.

To begin with, regulators would have to be endowed with rights similar to the “prompt corrective action” mandate in the U.S. that would give them the option of converting debt, making margin calls and temporarily prohibiting dividend payments.

A reform of insolvency procedures should be consistent with the principles of value maximization, incentive compatibility and the preservation of the priority of claims. Such a procedure has to solve the allocation problem by canceling the debt of the insolvent bank, making the creditors the new owners and shifting the decision of what is to happen to the assets of the insolvent bank to the new owner. A procedure that accommodates these elements allows for banks to fail without triggering a bank run, a domino effect or a debt overhang. The workshop showed that economic research holds in store numerous useful ideas that are well suited to supporting a proper reform process.

⁶ *The option of receivership has hardly been invoked in the past decades. Banks that had run into difficulties were liquidated rather than recapitalized. As a rule, bankruptcy proceedings take over ten years.*