

Crisis management in the banking union: overview and early experience

Speech by Ignazio Angeloni, Member of the Supervisory Board of the ECB, at the European University Institute “Financing Banking Resolution” Executive Seminar, Florence, 29 June 2017

1. Introduction[1]

It is a pleasure to be back at the EUI. I am also happy to support the Florence School of Banking and Finance, a valuable initiative that comes at the right time, since its central aim is developing scholars and experts in areas relevant to the European banking union.

Coming to the EUI brings back once again memories of Tommaso Padoa-Schioppa. After his untimely death in 2010, I found myself wondering at times what he would have thought, what guidance he would have given us, at key junctures – the euro crisis, the banking union, the new “quantitative” approach to monetary policy. We will never know. But the thrust of his teaching is still relevant, because what he gave us essentially is not a set of principles or concepts, but a way of working: a combination of rigorous analysis and a pragmatic approach to policy decisions, guided, of course, by his attachment to the ideal of Europe.

It may sound like a joke, and to some extent it is, but one habit I inherited from him is, when approaching a subject, to think about the literal meaning of its name. I did not resist the temptation this time either. After reading the title of this conference, I typed the word “resolution” into Webster’s online dictionary and hit the enter key. The result, once again, was intriguing. The first four definitions, followed by many others, were (I simplify a bit):

1. decision (usually taken by a vote)
2. ability to distinguish details (optical resolution)
3. courage (the trait of being resolute)
4. solution to a problem.

The remarkable thing is that banking resolution perfectly fits all four of these definitions. It is enacted by a decision, actually more than one, taken by vote. It requires a firm mastering of all details, legal and financial. It certainly involves courage in many ways, because decisions of this kind are made very quickly and with severely limited information. And, if things go well, it provides a solution to a problem that would not have been available otherwise.

The topic of this conference is interesting and timely; perhaps even more than the organisers suspected at first. A little less than three years since it assumed its supervisory duties, in the last few weeks European banking supervision, the supervisory authority of the euro area since 2014, took for the first time the decision to declare that three banks under its direct supervision were “failing or likely to fail”, meaning that their failure was imminent and inevitable. As a result, those banks passed under the competence of the Single Resolution Mechanism (SRM), the resolution authority of the euro area since 2016. The SRM then assessed whether those banks needed to be resolved, according to the rules of the Bank Recovery and Resolution Directive (BRRD), or if the problem should be approached in a different way. These first experiences of bank crisis management in the banking union, on which I will say a few words in a minute, are a source of lessons for the future.

I think, however, that to appreciate the full picture one should broaden the scope a bit. Focusing only on the financing of resolution is not sufficient. One needs to look at the whole process of crisis

management, from trigger to execution, including, of course, the financing. Accordingly, in my remarks I will first briefly discuss what we have learned from the academic literature and the best international practices on crisis management for banks. I will subsequently outline the features of the existing framework in the banking union and practical experience had so far with the handling of troubled banks. Thereafter, I will conclude with some key messages we can draw from these experience.

2. Research and international experiences

2.1 – Research results

Research on bank crisis resolution dates much further back than the recent crisis. Bank failures have been a recurring feature in history, and it has long been acknowledged that they can entail large costs for societies, directly and indirectly, immediately and over time, through several channels such as fiscal burdens, output and employment losses, disruption of the savings/investment process, and so on. If compounded by contagion, crises may spread over the whole financial system making economic and social damage much worse.

Early contributions on this topic focused on the choice a resolution authority faces. Choices are based on the costs that may be incurred. Potential choices lie between two extremes, schematically classified as bank closure (implying bail-in) or bail-outs (bank survival with public support). Theoretical models often analyse this choice in a game-theoretical framework.

The incentives for the authority can be modelled by a process of dynamic interactions.[2]

Bank behaviour (e.g. risk-taking) is influenced by the resolution framework. On the other hand, the authority takes into account the opportunity costs of closing a bank. When the costs of bank closure are high, the authority may consider deviating from its previously announced policy. However, the policy might then lose credibility, so a simple rule-based policy might not necessarily yield an optimal outcome, creating a time inconsistency problem. The authority's inability to credibly commit creates incentives for banks to increase complexity and take additional risk. The authority faces a trade-off between preserving short-run liquidity and solvency and imposing long-run discipline by averting moral-hazard.[3]

If creditors consider a bail-out unlikely ex ante, they have a greater incentive to monitor and enforce discipline. Likewise, equity holders and bank management are incentivised to avoid business failure when the resolution threat becomes more credible.[4]

After the crisis, the literature has grown further. Three strands have been developed. The first depicts the process of bank resolution as a bargaining game between the bank's shareholders and the authority, allowing for intermediate policy choices between the two extremes I have just outlined. This literature supports the view that has become mainstream in the aftermath of the recent crisis, namely that bail-in is an efficient mechanism for the resolution of significantly important banks.[5]

A second recent strand of literature distinguishes between idiosyncratic and systemic failures. When a few banks fail, they can be acquired by other banks. As the number of failures grows, the limited liquidity of surviving banks enables them to acquire failed banks only at fire-sale prices. In such

circumstances, there are “too many banks to liquidate”, and a bail-out solution (or subsidising surviving banks to acquire failed banks) can lead to an optimal solution in order to avoid allocation inefficiencies.[6]

Another aspect which has received attention recently is that of cross-border resolution. Bail-in strategies for such entities can vary depending on whether the authority follows a single or multiple point of entry strategy (SPE vs MPE). In cases of a low degree of home bias in liabilities, the MPE strategy yields better results. By contrast, SPE is more efficient for more centralised, global banks. However, this requires an efficient degree of coordination among resolution authorities across different jurisdictions.[7]

2.2 – Evolution of international standards

The recent financial crisis not only fostered new lines of academic research, but also led to a re-thinking of various priors in the international policy dimension. In this regard, I would like to highlight two key aspects.

A first lesson from the crisis was that dedicated resolution frameworks for banks were needed. In 2011, the Financial Stability Board (FSB) adopted the “Key Attributes of Effective Resolution Regimes for Financial Institutions”, which dictate international standards for resolution regimes so that these may be applied without severe systemic disruption and without exposing taxpayers to loss, while protecting vital economic functions. In the EU, this led to the Bank Recovery and Resolution Directive (BRRD, adopted May 2014), which is aligned with the FSB standards. The BRRD requires resolution authorities to be set up in all Member States, and it provides them with more comprehensive and effective tools and powers to deal with failing banks, also taking into account the cross-border dimension via group resolution plans and cooperation arrangements with third countries. I will be discussing later how this central piece of legislation helps to shape the crisis management framework in the banking union.

I have already touched on a second consequence of the crisis when describing the FSB resolution standards, namely a shift in emphasis from bail-outs to bail-ins, or in other words the tendency to shift the burden of bank failures from taxpayer to the stakeholders of the bank. This shift is eminently distributional, hence political in nature. It may also, however, have efficiency implications, if such a shift contributes to better investor awareness and incentives. The FSB standards introduced the so-called bail-in tool, which ensures that losses and recapitalisation needs in resolution are shouldered by banks’ shareholders and creditors, following a hierarchy, rather than taxpayers. Bail-in requires that banks have enough liabilities which could be mobilised (“bail-inable”) for such a purpose in resolution. At international level, this led to the adoption of the total loss-absorbing capacity (TLAC) standard for global systemically important banks (G-SIBs); the latter are asked to structure the liability side of their balance sheets so as to preserve a given share of “bail-inable” instruments. In the EU, the BRRD articulates the “bail-in” provisos foreseen by the FSB, while the minimum requirement for own funds and eligible liabilities (MREL) aims to ensure that there are enough funds readily available to both absorb losses and recapitalise banks in case of resolution. Our MREL framework is currently under review, in order to implement the FSB’s TLAC standard for G-SIBs and ensure consistency with global standards.

2.3 – The US framework for addressing bank failures

The US resolution regime underwent a major overhaul through the Dodd-Frank Act (DFA) of 2010.[8]

The DFA was meant to address a number of deficiencies in the system which the crisis had exposed. Key among these was the fact that investment banks were previously not covered by the Federal Deposit Insurance Corporation's (FDIC) resolution power, implying that either a bail-out with taxpayers' money or ordinary bankruptcy procedures were the only options for such entities if in trouble. And while publicly funded bailouts were never popular, the systemic risks inherent in ordinary bankruptcy for investment banks was further revealed by the Lehman Brothers case. The DFA thus broadened the FDIC's mandate to cover the entire bank holding company and all firms designated as systemically important financial institutions (SIFIs). The DFA also gave the FDIC the Orderly Liquidation Authority (OLA) to be appointed as receiver of all rights, titles, powers and privileges of the company and its assets, and of any stockholder, member, officer or director of the company.[9]

The FDIC is also authorised to borrow up to USD 500 billion[10]

from the Treasury's Orderly Liquidation Fund (OLF) when it applies resolution measures.

In order to unlock the resolution process under the OLA provision, the so-called "three keys" procedure applies. Based on the recommendation of the FDIC (first key) and the Federal Reserve Board (FRB) (second key), the Secretary of the Treasury (third key), in consultation with the President, has to determine: (1) that the bank is in default or in danger of default; (2) that its default would have serious adverse effects on financial stability in the United States; and (3) that there is no viable private sector alternative available to prevent the default and that the application of the bankruptcy law would not be appropriate. If the firm or its largest domestic subsidiary is a broker-dealer or an insurance company, the Securities and Exchange Commission or the Federal Insurance Office would substitute the FDIC in the "three keys" process.

The FDIC can employ the OLA power using a single point of entry strategy (SPE). The idea of this approach is that the receivership of the FDIC is applied at a single point, i.e. that of the non-operating US holding company, while the group's operating bank subsidiary continues to perform its systemically important functions under a new bridge company, to which the assets of the holding company are transferred. The FDIC has the power to terminate the claims of equity- and debt-holders or to pay them a reduced value for their stakes, according to the creditor hierarchy, while respecting the no-creditor-worse-off principle. In this way, the FDIC can apply the bail-in tool. The OLA is currently being reviewed by US lawmakers, who call for the OLA to be replaced by new provisions regarding financial company bankruptcy.[11]

3. Crisis management for banks in the euro area

3.1 – Features of the existing framework

Let me turn to examining the crisis management framework in the banking union and start by looking at some of its specific features. As I outlined earlier, the BRRD lays down a comprehensive regime for the recovery and resolution of banks both in a domestic as well as in a cross-border context. During a bank's normal course of business, the BRRD contains rules for preparing for and preventing crisis situations. Banks are required to prepare recovery plans which contain options to be taken in case of stress in order to restore their financial position. In addition, resolution authorities have to draw up resolution plans outlining the course of action in case of failure of the

bank. If the resolution authority identifies obstacles to resolvability during the course of the planning process, it requires the bank to take appropriate measures to remove such obstacles. Recovery plans for significant banks are assessed by the ECB, after consulting the Single Resolution Board (SRB), and resolution plans are prepared by the SRB after consulting the ECB.

If the bank's financial position is deteriorating, the ECB as supervisor has an expanded set of powers to intervene via so-called early intervention measures to prevent the bank from failing. These powers include, for example, the ability to dismiss the management and appoint a temporary administrator, as well as to convene a meeting of shareholders and require the bank to draw up a plan for the restructuring of debt with its creditors. Once the ECB adopts early intervention measures, the SRM is entitled to receive full information about the bank's developments and acquires additional powers to prepare for resolution. This includes the power to require the bank to contact potential purchasers or to require the relevant national resolution authority to draft a preliminary resolution scheme.[12]

Once a bank's failure is deemed to be inevitable, the BRRD requires the ECB, as supervisory authority for all significant banks, to determine that it is "failing or likely to fail" (FOLTF).[13]

If a significant bank is deemed FOLTF, the SRB has to assess whether there are any measures other than resolution which could prevent the failure of the institution in a reasonable time frame and whether resolution is in the public interest by assessing the bank's critical functions and risks to financial stability. If there are no alternative measures and resolution is found to be in the public interest, the resolution authority will apply resolution measures to the bank, which may include selling the business to another bank, setting up a temporary bridge bank to operate critical functions, separating good assets from bad assets and writing down debt or converting it to shares (bail-in). The assessment of the other resolution conditions and the resolution procedure is handled by the SRB in close cooperation with the national resolution authorities.

The interaction between the SRB and the ECB is underpinned by the SRM Regulation, which stipulates that both institutions must cooperate closely during all phases of recovery and resolution and provide each other with all information necessary for the performance of the other's tasks. The SRB and the ECB have concluded a Memorandum of Understanding (MoU) to articulate this mandatory cooperation in practical terms. This MoU covers the cooperation and the exchange of information with respect to all banks that are directly supervised by the ECB. In addition, the MoU covers all other cross-border groups under direct responsibility of the SRB insofar as the ECB is exclusively competent to carry out so-called common procedures (e.g. authorisations).

In addition to the ECB and the SRB, there is another actor which is central to the crisis management framework in the banking union, namely the Commission, given its responsibility for competition and State aid. In particular, the Commission's DG Competition is responsible for authorising cases in which State aid is involved, whether in the context of a FOLTF declaration or not.

3.2 – Bail-in, burden-sharing and safeguarding financial stability

The BRRD establishes the EU framework for managing bank failures in a way that avoids financial instability and minimises costs for taxpayers. The Directive achieves the latter purpose by stipulating that public funds may be used to support a bank's resolution only after its creditors and shareholders have endured losses equivalent to 8% of the bank's liabilities. Using resolution

financing arrangements – in the case of the banking union, the Single Resolution Fund – is also possible, but only to cover up to 5% of the bank's liabilities.

We can thus consider bail-in as the baseline case in resolution matters. However, this does not imply that it is applicable always and everywhere, since the BRRD also includes a number of provisos for deviating from this principle in specific and well-defined circumstances.

The best known among these – and certainly the one which has received most attention recently – is the option for banks to undergo a precautionary recapitalisation.[14]

As a general rule, extraordinary public financial support is among the conditions triggering FOLTF. However, precautionary recapitalisation is explicitly considered as an exception to this general rule under the BRRD in cases where financial stability needs to be preserved and a serious disturbance in the economy of a Member State needs to be remedied. There are three conditions which need to be fulfilled for banks to make use of this option.

First, precautionary recapitalisation is only available to solvent banks. The ECB, the direct supervisor for significant banks in the banking union, makes this assessment. The ECB operationalises this requirement by assessing compliance with the minimum capital (Pillar 1) requirements.

Second, precautionary recapitalisation is limited to the capital injections needed to address a capital shortfall under the adverse scenario of a stress test. For significant banks in the banking union, the ECB is asked to confirm that there is no shortfall under the baseline scenario and the extent of the capital shortfall under the adverse scenario of the most relevant (recent) stress test exercise.

Third, the BRRD stipulates that public support must be of a precautionary and temporary nature[15]

, be proportionate to remedy the consequences of the serious disturbance and not be used to offset losses that the institution has incurred or is likely to incur in the near future. These losses should be covered by private capital. Compliance with these overall conditions needs to be approved by the European Commission (DG Competition) under the Union State aid framework.[16]

While precautionary recapitalisation does not require use of the bail-in tool, the State aid rules foresee the application of burden-sharing. According to the 2013 Banking Communication, burden-sharing will normally entail, after losses are first absorbed by equity, contributions by hybrid and subordinated debtholders. A contribution by senior debtholders is not required. This represents an important difference with bail-in, where senior debt is also included. In addition, exceptions to burden-sharing can be made where the implementation of such measures would endanger financial stability or have disproportionate results.[17]

Burden-sharing ensures that the link between a bank's failure and the responsibility of shareholders and creditors is not entirely diluted. However, precautionary recapitalisation may still entail the use of a large amount of public funds. The ☐EU State aid rules aim to limit the fallout by stipulating that public funds may only be injected into a bank that is expected to be profitable in the long term. This requires the bank to undergo in-depth restructuring with the purpose of restoring long-term viability without State aid as soon as possible, based on a restructuring plan which should not last more than five years. Under precautionary recapitalisation, the restructuring plan is assessed by the

Commission and should identify the causes of the bank's difficulties and weaknesses and outline how the proposed restructuring measures remedy the bank's underlying problems. According to the Commission Restructuring Communication, "long-term viability is achieved when a bank is able to cover all its costs including depreciation and financial charges and provide an appropriate return on equity, taking into account the risk profile of the bank".[18]

In assessing this, collaboration with the supervisory authority is essential.

While protecting taxpayers' money, the State aid framework also tries to minimise the competitive distortions resulting from banks which successfully qualify for precautionary recapitalisation. This implies that the receipt of public funds needs to be balanced with proportionate remedies (for instance, by making sure that the aided banks close or sell parts of their businesses, or by ensuring that they do not use the aid to undercut their competitors). The nature and form of such measures will depend on the amount of aid and the conditions and circumstances under which it was granted, as well as on the characteristics of the market or markets in which the beneficiary bank operates.

Another proviso in the BRRD allows for an exclusion in full or in part of certain liabilities from bail-in.[19]

This is left at the discretion of resolution authorities but needs to be justified on account of either time pressure, continuity of critical functions, avoidance of widespread contagion or avoidance of destruction of value (higher losses to other creditors than if those liabilities were excluded from the bail-in). In order to tap resolution financing resources, 8% of banks' liabilities still need to be bailed-in even if some instruments are left out.

In addition, the state may inject "liquidation aid" for banks in the context of an orderly wind-down process, an option provided for in the Commission's Banking Communication.[20]

This case materialises if the SRM establishes that the conditions of resolution are not fulfilled (i.e. resolution is not in the public interest). In this case, EU Member States must submit a plan for the orderly liquidation of the bank and the Commission would need to assess the conditions for State aid. In this situation, a bail-in is not required, but the State aid rules need to be followed, notably including burden-sharing.[21]

3.3 – Crisis management in practice

Turning now to how crisis management is enacted in practice, it is useful to distinguish four different phases, namely preparation, monitoring, action and cooperation. Preparation involves all banks, regardless of their solidity, and for the ECB includes the drafting of recovery plans and their assessment. This process helps banks to think systematically about the options they could deploy in adverse circumstances, and helps the ECB to define potential early intervention measures. As already mentioned, preparation also includes the drafting of resolution plans by the SRB, a process in which the ECB is consulted.

Once preparatory arrangements are made, banks that show actual weaknesses are, as a first step, monitored more intensively. Problems typically relate to insufficient capital levels, weak profitability, drying-up of internal sources of capital, credit and other balance sheet risks, and in some more acute cases, liquidity drain. The level and intrusiveness of supervisory activity depends on the type and intensity of the crisis situation. Often situations evolve gradually over time, for example owing to a weak underlying business model or weak profitability. This gives the bank and

the supervisor the time to adopt corrective measures. However, when remedies are delayed or banks are faced by specific shocks leading to a deterioration in confidence, the time to act can become very compressed. Examples include unanticipated losses on account of litigation, accounting mistakes or malpractice leading to unforeseen de-recognition of capital, or other similar events. These cases may trigger a run on liquidity, or a loss of access to wholesale funding by the entity concerned. When a liquidity crisis is in progress, monitoring becomes daily or even intra-daily.

The ECB typically complements monitoring with remedial measures imposed on banks through increasingly intrusive supervisory engagement. Requests for capital restoration plans, intense dialogues with top managers and administrators, or imposing limitations on certain kinds of business or profit distribution are common instruments in this phase. More intrusive measures, such as the ones provided for under the early intervention framework outlined earlier, are also used. In addition to off-site supervision, the ECB also conducts on-site inspections to inform our supervisory responses. Often, on-site inspections reveal more serious issues than off-site analyses.

A bank is generally considered to be failing or likely to fail if (i) it infringes or will in the near future infringe prudential requirements in a way which would justify the withdrawal of the authorisation; (ii) its assets are or will in the near future be less than its liabilities; (iii) it is or will in the near future be unable to pay its debts as they fall due; and (iv) it requires extraordinary public financial support (subject to some exceptions such as precautionary recapitalisation, which I have described above).

Cooperation is an integral element in all phases I have described. At an early stage, the ECB engages mainly with other relevant supervisory authorities, e.g. in supervisory colleges for cross-border entities. At a more advanced stage, cooperation with the SRB becomes essential. Even before the ECB adopts early intervention measures, the SRB is kept fully informed on the situation of the bank and on the supervisory action pursued. Specific disclosure of ECB data relevant for the resolution process is authorised, as prescribed by the SSM Regulation. The Chair or other SRB members participate in meetings of the Supervisory Board. An ECB Supervisory Board member attends the meetings of the SRB as observer. Dialogue between the two institutions in the advanced phases of a banking crisis typically becomes intense. When State aid is involved or is being assessed, the cooperation includes the Commission's DG Competition.[22]

4. Conclusions

As you know, in recent weeks the crisis management procedures of the banking union have been put to the test for the first time. Let me offer a few general remarks on the experience so far.

The first and most evident observation is that the crisis management framework, from a purely operational viewpoint, has worked. The various authorities involved (ECB, SRB, Commission and national authorities at various levels) have been able to put in place effective and rapid coordination modalities that have performed well under stress. Our experience includes also the overnight resolution of a medium-sized bank. This result was not granted ex-ante: many observers had expressed concern about the fact that the complexity of the norms and the high number of actors involved would impede efficiency and create risks.

A second observation concerns the timing of the decision that a bank has reached the point of non-viability. The ECB is obliged to declare a bank to be "failing or likely to fail" if it is certain or probable that it will be unable to settle its debt or meet its obligations within a short period of time. This circumstance may arise because of a loss of solvency (capital ratios fall below the minimum

regulatory requirements) or because of a liquidity shortage linked to deposit withdrawals. Both situations have occurred recently, but the timing is normally different: very quick in the case of outflows of deposits and often slower in the case of insolvency, particularly if liquidity support is provided in the form of public guarantees for bond issuance (a type of assistance that has to be authorised by the Commission). In the latter case, it is crucial that the declaration of insolvency is timed correctly[23]

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Thirdly, it is important to note that the danger of contagion has not materialised in the cases seen thus far. Some observers had feared that the new European rules, which impose tighter constraints to bail-outs, could weaken market confidence and become an inherent source of systemic stress. What we have observed instead is that the loss of confidence of depositors and investors in the banks that were perceived as weak was accompanied by a strengthening, not a weakening, of the competitors that were perceived to be stronger. This was very clear in the deposit flows across banks, which are monitored daily in crisis situations. In the financial markets (for listed stocks, CDS spreads, AT1 and T2 instruments) the impact was selective, not generalised. The tentative evidence suggests that under the new rules the market mechanism is working, leading to the strongest institutions being identified and indirectly contributing to the strengthening of the system as a whole.

Observers are now debating the lessons that should be drawn for the European rules and for the future of the banking union itself. Questions are raised, in particular, on the modalities of the most recent operation, the national liquidation procedure chosen for the two banks in Veneto. The Commission has clearly explained that the measures taken there comply with the European rules. Nevertheless, some observers express concerns that national liquidation with state aid, applied to significant banks directly supervised by the ECB, constitutes a precedent that may facilitate circumventing the rules in the future. Such perception needs to be taken seriously; the banking union is not yet complete and is therefore vulnerable. Its completion is in everyone's interest, but also requires everyone's confidence to be accomplished. A systematic reflection of this experience by the Commission could be useful.

Thank you for your attention.

[1] I am grateful to Francisco Ramon-Ballester for preparing a first draft of this speech, and to Melanie Müller, Mario Wandsleb, Simona Dodaro, Agnes Zwölfer, Andreas Beyer, Barbara Attinger, Dimitrios Chalamandaris and Andreas Baumann for their helpful input and suggestions. I am solely responsible for the views expressed here and for any errors.

[2] See Mailath, G.J. and Mester, L.J., "A positive analysis of bank closure", *Journal of Financial Intermediation*, 3 (3), 1994, pp. 272-299.

[3] See DeYoung, R., Kowalik, M. and Reidhill, J. "A theory of failed bank resolution: technological change and political economics", *Journal of Financial Stability*, 9 (4), 2013, pp. 612–627

[4] See Ignatowski, M. and Korte, J., “Wishful thinking or effective threat? Tightening bank resolution regimes and bank risk-taking”, *Journal of Financial Stability* 15, 2014, pp. 264–281

[5] See Dewatripont, M. and Freixas, X., “Bank Resolution: Lessons from the crisis” in Dewatripont M. and Freixas, X. (eds.), *The Crisis Aftermath: New Regulatory Paradigms*, Centre For Economic Policy Research, 2012. The authors also show that in the absence of a bank-specific bankruptcy procedure, both debtholders and shareholders have strong incentives to reject any option that would be different from a complete bail-out because they know that in such cases the resolution authority has a preference for preserving financial stability. Credibility of the resolution authority is key in their model to pursue an optimal resolution strategy, requiring a robust, fast and legally certain bankruptcy procedure. In this context, the authors highlight a range of suitable resolution mechanisms that are compatible with an optimal model outcome.

[6] See Acharya, V.V. and Yorulmazer, T., “Cash-in-the-market pricing and optimal resolution of bank failures”, *Review of Financial Studies*, 21 (6), 2008, pp. 2705–2742.

[7] See Faia, E. and Weder di Mauro, B., “Cross-Border Resolution of Global Banks: Bail in under Single Point of Entry versus Multiple Points of Entry”, *CEPR Discussion Papers*, No 11171, 2016.

[8] For a recent overview of resolution frameworks in the US and Europe, see Philippon T. and A.Salord, *Bail-ins and Bank Resolution in Europe: A Progress Report*, CEPR, March 2017.

[9] Dodd-Frank Act § 210(a)(1).

[10] The FDIC can borrow up to 10% of the firm’s pre-resolution assets or 90% of assets available for repayment.

[11] See the Financial Choice Act, which passed the US House of Representatives on the 8 June 2017. In addition, US President Trump has ordered the US Treasury to review the OLA and provide a report.

[12] See Article 13 of the Single Resolution Mechanism Regulation (SRMR), “Early Intervention”. Available at <http://eur-lex.europa.eu>

[13] Alternatively, the SRB can also notify the ECB of its intention to declare FOLTF and if the ECB does not make such a determination itself within three days, the SRB can do so.

[14] See Article 32(d) of the BRRD specifying “conditions for resolution”, available at <http://eur-lex.europa.eu>

[15] State-aid rules require that the viability of the credit institution concerned can be regained within a reasonable time frame, as otherwise the failing institution should be wound down.

[16] See Communication from the Commission on the application, from 1 August 2013, of State aid rules to support measures in favour of banks in the context of the financial crisis (2013/C 216/01), known as the ‘Banking Communication’, which was adopted on the basis of Article 107(3)(b) of the Treaty on the Functioning of the European Union. Available at <http://eur-lex.europa.eu>.

[17] Paragraph 45 of the 2013 Commission Communication.

[18] See Recital 13 of the Commission Communication on the return to viability and the assessment of restructuring measures in the financial sector in the current crisis under the State aid rules (2009/C 195/04).

[19] See Article 44 (3) of the BRRD, outlining the “scope of the bail-in tool”. Available at <http://eur-lex.europa.eu>

[20] See Chapter 6 of the Commission’s Banking Communication, outlining “specific conditions in relation to liquidation aid”. Available at <http://eur-lex.europa.eu>

[21] For details and a schematic representation of the relevant cases, see http://europa.eu/rapid/press-release_MEMO-17-1792_en.htm?locale=en

[22] Cooperation does not end after the ECB declares an entity as failing or likely to fail. This is because the ECB may still need to grant supervisory authorisations for banks in resolution (e.g. authorisation of a new bridge bank) or to inform the SRB about the new supervisory requirements for the resolved entity. The ECB also needs to engage with the European Commission to ensure that the revised business plans for entities which have undergone precautionary recapitalisation are consistent with supervisory requirements envisaged for such entities going forwards.

[23] This “timing problem” links up with another crucial decision the ECB has to make: that of solvency of a bank. The ECB’s “solvency assessment” is required for granting emergency liquidity assistance and is a precondition for precautionary recapitalisation under art. 32.4 of the BRRD.