

# Bail-ins

## Issues of Credibility and Contagion

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### 1. Introduction

A fundamental problem in banking and an important source of excessive risk-taking has been the perception that banks' creditors are protected against losses as a result of bank failures. Most countries have explicit deposit insurance schemes in place but this explicit insurance is usually limited. Implicit protection of other creditors has been based on expectations that they would be bailed out by a government in case a bank fails. The bail-outs have taken the form of blanket guarantees by governments of all debts, asset purchases, asset price guarantees, access to subsidized financing, recapitalization or simply forbearance with high asset valuation. During the financial crisis 2007-2009 many

European governments issued guarantees protecting debt holders or recapitalized weak banks to avoid insolvency<sup>1</sup>. The US government used the so-called TARP program<sup>2</sup> to add equity capital to large banks.

The implicit protection of banks' creditors has been particularly strong for banks considered "too big to fail" as well as those considered "too complex." An International Monetary Fund (2014) study estimated that the implicit subsidies given just to the G-SIBs (Globally Systemically Important Banks) in 2011-2012 amounted to around \$15-\$70 billion in the United States, \$25-\$110 billion in Japan, \$20-\$110 billion in the United Kingdom, and \$90-\$300 billion in the euro area.

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<sup>1</sup> See Valverde et al, (2013).

<sup>2</sup> The Troubled Asset Relief Program (TARP) of 2008 was passed by the US Congress shortly after the Lehman Brothers bankruptcy.

Already before the financial crisis 2007-2009 it was accepted that shareholders must not be protected against losses on their investments in bank equity. Shareholders have limited liability, however, with the consequence that they cannot lose more than the amount they invested in incorporated banks. This limited liability is also the source of the incentives of shareholders to shift risk to taxpayers when governments implicitly subsidize debt financing through more or less explicit promises of bailouts.

The concept of bail-in seems to have been coined by Paul Calello and Wilson Ervin (2010) in an article in the *Economist*. Thereafter, bail-in has appeared frequently in the European debate, in particular, to capture that creditors bear a share of a bank's loss along with shareholders when the bank fails or is recapitalized by a government. If a bank fails, creditors that are not bailed out are bailed in when they must accept losses on their claims. In a recapitalization some creditors may be bailed out and others bailed in.

Bail-ins can be more or less formalized in procedures for how to allocate losses from a bank's failure or they can be completely ad hoc as part of a government led resolution in a banking crisis. In the Cyprus banking crisis in 2013 depositors that were not covered by insurance were bailed in on an ad hoc basis as a result of the pressure from the EU on Cyprus' government. In this case it was politically possible to not bailout large depositors and bondholders since they to a large extent were wealthy Russians, who wanted to keep their wealth out of reach of "grabbing governments."

Political influences on who will be bailed in or out seem to have been a factor in the recent recapitalization of the third largest Italian Bank, Banco Monte dei Paschi di Siena as well. Institutional junior bondholders had to accept a write-down of their claims on the bank while retail investors holding the same bonds did not have to take a loss.

Most countries have long had formalized procedures for allocation of losses to creditors in bankruptcy in the form of conventional corporate insolvency law. These laws have rarely been used in cases of bank failures because the resolution of claims is time consuming. Large parts of firms' and individuals' supposedly liquid claims on a failing banks would become illiquid and unavailable for use. The fear that a bank's insolvency could lead to direct losses as well as the locking in of depositors' and other creditors' claims for years could easily trigger runs on the bank as soon as rumors about a bank's demise appear. Thus, special insolvency law or administrative procedures are needed to resolve the claims on insolvent banks.

Special procedures for resolving the claims on a failing bank should achieve two major objectives to promote both efficiency and stability. From an efficiency point of view some creditors must face the risk of losses in order to promote market discipline on banks' risk-taking. From a stability point of view the risk of losses must not be a source of systemic risk as a result of a bank's size and interconnectedness, and contagion effects through financial markets. There is an obvious dilemma when specifying bail-in rules since effective market discipline requires a credible promise of bail-ins for some creditors but the same credible promise creates incentives for these creditors to quickly liquidate their claims and "run" on a distressed bank. For this reason bail-in rules may have to be accompanied by other measures that limit the possibly systemic consequences of creditors fleeing a bank. The dilemma is particularly severe for systemically important banks and in situations when a large part of a banking system is distressed.

Before the financial crisis few countries outside the USA had implemented special insolvency law or administrative procedures for banks<sup>3</sup>. Hundreds of insolvent small and medium sized banks were closed and resolved under the FDICIA procedures from 1991.<sup>4</sup>

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<sup>3</sup> In the US a special insolvency law for banks has existed since 1863. Other countries with explicit procedures for bank insolvencies before the crisis were New Zealand, Brazil and Canada. See Wihlborg (2012)

<sup>4</sup> FDICIA is an abbreviation for the Federal Deposit Insurance Corporation Improvement Act of 1991.

These procedures were not applied on the large US banks during the financial crisis for fear that the systemic consequences could not be managed. This has contributed to current concerns about banks being “too big or too complex to fail” and the “Orderly Liquidation Procedures” (OLA) for systemically important banks and financial institutions in the US.<sup>5</sup>

Although the need for special insolvency laws for banks incorporating bail-ins has been recognized for some time in Europe as well,<sup>6</sup> the impetus to implement or strengthen bank insolvency laws was generated by the public reaction to the large fiscal costs of support to banks during the financial crisis in 2008 and 2009. The euro-zone debt crisis that erupted in 2010 further increased the urgency of having effective procedures in place to break the link between banking risk and sovereign risk. A banking union for the euro area became one part of the attempts to strengthen the foundations of the currency union. One leg of the banking union is the formalization of procedures for resolving failing banks in the Single Resolution Mechanism (SRM) along with the Single Supervisory Mechanism (SSM) and a single deposit insurance scheme. The SRM that took effect on January 1, 2016 incorporates bail-in rules as well as measures to mitigate potential contagion effects of bank failures.

Section 2 describes different forms of bail-ins before important aspects of current formalized procedures for resolution of insolvent banks in Europe, in particular, are summarized in Section 3. The credibility of these mechanisms and their approaches to limit systemic consequences of bank failures are discussed in Section 4. Alternatives to resolutions affect the credibility of the procedures as well. Precautionary recapitalization as in the case of Banco Monte dei Paschi is one such alternative. Finally, Section 5 concludes with an assessment of the consequences of the bail-in procedures for efficiency and stability of the banking systems.

## 2. Forms of bail-ins

There are various ways to achieve bail-ins of creditors and these different forms may be more or less formalized ex ante within a legal or administrative structure. The most direct form of bail-in is a write down of the value of a claim. The write-down is also called a haircut. An alternative is a debt-equity swap that offers creditors a certain number of shares in a bank in exchange for relinquishing a claim. The equity price at which the swap takes place defines the magnitude of the immediate loss for the creditors. The potential benefit for a creditor of this arrangement is that there is an upward potential if the bank survives and its value recovers. From the bank’s point of view the debt-equity swap improves the bank’s ability to satisfy capital requirements and reduces the need to issue new equity. A debt-equity swap dilutes existing shareholders’ stake in the bank but that would happen with the issuance of new equity as well. From a government’s point of view the debt-equity swap has the advantage of achieving a recapitalization at a better equity price than would be obtained if the bank would have to issue equity in a market with a skeptical attitude to the bank or banks in general.

Conditional Convertible bonds or CoCos formalize either haircut or a debt equity swap in the bond contract. The contract specifies a trigger for conversion and whether the bond-owner’s loss will take the form of conversion to equity or a haircut. The trigger may be specified in terms of the bank’s capital position in market or accounting terms, or in terms of the market price of the bank’s equity.

One attraction of CoCos for banks is that these liabilities qualify for calculation of capital in capital adequacy regulation as well as in the bank’s TLAC (Total Loss-Absorbing Capacity). If the trigger is, for example, a relatively high equity price the value of the CoCos qualify as additional Tier 1 capital along

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<sup>5</sup> The OLA is one part of the Dodd-Frank Act of 2010. Barth and Wihlborg (2016) discuss alternative remedies for the “too big to fail” problem.

<sup>6</sup> See, for example, European Shadow Financial Regulatory Committee (ESFRC), Statement No 1, 1998

with preferred shares while if the trigger is a low equity price the value of the CoCos qualify as Tier 2 capital along with regular subordinated debt.

Both the trigger and the conversion ratio are important for the incentive effects of CoCos since the holders of these bonds can anticipate that they may become equity holders and risk losses before the bank becomes insolvent.<sup>7</sup> At the same time other bondholders can anticipate that the conversion of CoCos will delay insolvency.

Ultimately, the attractiveness of CoCos for a bank depends on the yield the bank must offer in the market. If markets price securities efficiently, the additional risk of CoCos relative to other forms of debt will be reflected in the yield. There is an additional advantage to CoCos relative to equity, however, in countries where interest costs on CoCos are deductible for tax purposes.

Banks also worry about possible signaling effects of conversion but it does not seem likely that a conversion signals any information that is not already incorporated in the market prices of equity and bonds if the trigger is specified in market value terms. However, if the trigger is defined in book value terms, there is less transparency about the distance to conversion and there may be scope for manipulation of relevant book values.

An additional consideration for regulators is whether they should restrict the investor groups that invest in CoCos. They are generally available only to professional investors including banks and other financial institutions. This type of regulation is motivated by consumer protection but it has the

disadvantage that contagion effects of a bank's distress may be amplified within the financial system.

Haircuts and debt-equity swaps are bail-ins that can be imposed ad hoc by a government when it manages a crisis while CoCos make the bail-in contractually determined. Greater predictability with respect to bail-ins can be achieved if they occur in accordance with legal or administrative procedures for insolvent banks.

### 3. Bail-ins in law and administrative procedures

After the financial crisis in 2008-2009 the EU has introduced the Bank Recovery and Resolution Directive<sup>8</sup> (BRRD) for the EU as a whole, as well as the Single Resolution Mechanism (SRM)<sup>9</sup> for the euro-zone laying out the procedures for closing and resolving insolvent banks. These procedures took effect on January 1, 2016. In the US the Orderly Liquidation Authority (OLA) was implemented as a part of the Dodd-Frank Act of 2010 to enable the FDIC to be able to close and resolve even the largest systemically important banks and other financial institutions.<sup>10</sup>

All the post-crisis resolution reforms incorporate bail-ins as one aspect of the “Key Attributes of Effective Resolution Regimes for Financial Institutions” as specified by the Financial Stability Board (FSB) (2014). The objective of these attributes is to allow a Resolution Authority to “resolve financial institutions in an orderly manner without taxpayer exposure to loss from solvency support, while maintaining continuity of their vital economic functions.”

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<sup>7</sup> Incentive effects of CoCos are analyzed in, for example, Flannery and Perotti (2011) and Hilsher and Raviv (2014). Both papers conclude that well-designed CoCos can reduce risk-taking incentives of banks.

<sup>8</sup> Directive 2014/59/EU of May 15, 2014 of the European Parliament and of the Council establishing a framework for the recovery and resolution of credit institutions and investment firms.

<sup>9</sup> Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014 establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund and amending Regulation (EU) No 1093/2010.

<sup>10</sup> Switzerland, as well, has implemented bank insolvency procedures to be able to manage a possible failure of one of its two large banks.

The resolution authority in each jurisdiction acts as or appoints an administrator with powers to remove and replace management and directors, terminate and enter contracts, and transfer or sell assets and liabilities. The BRRD specifies four resolution tools; the sale of business, establishment of a bridge bank, separation of performing assets and bail-in of shareholders and creditors. The purpose of the bridge bank is to temporarily take over critical functions in order to minimize the disruptions of the winding down process to the financial system. The power to bail-in shareholders and creditors reduces the need to obtain new funding for the continued operations of critical functions. Such funding should not burden taxpayers but be obtained from a privately financed resolution fund or a mechanism with ex post recovery from the financial industry.

With respect to bail-ins the resolution authority should be able to write down or convert into equity unsecured and uninsured creditor claims to the extent necessary. Equity should absorb losses first. Senior debt holders can be bailed in only after subordinated debt has been written off entirely. The bail-ins should respect the hierarchy of claims in liquidation but the resolution authority has latitude to make exceptions out of concern with financial stability. Bail-ins should also be governed by the principle that creditors should not be made worse off from bail-ins than from liquidation under general bankruptcy law.

A controversial aspect of the Key Attributes is the treatment of short term and collateralized financial contracts. They represent liquidity and play a very important role in the short term funding of banks and other financial institutions. Protecting them from being bailed in reduces the risk for those supplying liquid funds for banks and the need for fire sales of assets. On the other hand, the protection encourages short term funding in the form of, for example, repos and the protection reduces the share of liabilities available for bail-ins.<sup>11</sup>

General bankruptcy law in most countries allow many short term contracts to be “stayed” in bankruptcy with the implications that the creditors during the stay lose rights to net out positions, to apply set-offs and to claim collateral with the failing firm. The Key Attributes do not suggest an automatic stay for more than a day or two for financial institutions. During these days the resolution authority must decide whether to include the liabilities among those eligible for bail-ins. The BRRD excludes certain liabilities completely from bail-ins. Most importantly, these liabilities include secured liabilities, liabilities to other banks, investment firms and payment and settlement systems with a maturity of less than seven days, deposits covered by a deposit guarantee scheme and deposits from a natural person or small or medium-sized enterprise. To be excluded from bail-ins secured liabilities must be fully secured.<sup>12</sup> Thus, if the value of the collateral falls below the liability would be subject to bail-in. The exclusion of deposits from a natural person or small or medium-sized enterprise may also be controversial since it reduces the liabilities available for bail-ins and implies unequal treatment of depositors.

Other Key Attributes that may affect the likelihood that the resolution procedures will be applied refer to rules for how a bank becomes subject to resolution under the resolution authority, the treatment of cross-border contracts and measures enhancing the preparedness of a resolution authority to carry out its task.

The BRRD states that the transition from early intervention under the authority of a supervisory board takes place when an entity is deemed to be “failing or likely to fail.” The main criterion for this event is that “extraordinary public financial support is required.” Under the SRM for euro-zone countries a resolution scheme adopted by the Single Resolution Board (SRB) can be implemented only if there are no objections from the European Council and the

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<sup>11</sup> See Scott (2014) and Bergman et al (2004).

<sup>12</sup> See Sherman and Sterling (2016).

European Commission's scheme for resolution. The SRM regulation allows for a systemic crisis exemption for the determination of resolvability of a bank.<sup>13</sup>

In this connection it should also be mentioned that a precautionary recapitalization as in the case of Banco Monte dei Paschi (BMP) can prevent that the issue of resolution even arises. As mentioned, the recapitalization of the BMP was accompanied by a bail-in of some creditors. The BRRD, as well as the SRM for the euro-zone, allows the use of public funding for a precautionary recapitalization as an alternative to resolution when the bank complies with capital requirements but, nevertheless, requires recapitalization that cannot be obtained in private markets. The precautionary recapitalization in the euro-zone requires the approval of the ECB as well as the European Commission. The former has power to put conditions for liquidity support while the latter must approve any state aid within the EU.

The treatment of cross-border contracts in resolution is particularly important for so-called G-SIBs (Globally Systemically Important Banks) that operate in more than one jurisdiction. Single Point Entry (SPE) in resolution on the holding company level simplifies the task of bailing in creditors of highly integrated international banks. Nevertheless, cross-border conflicts may arise if a foreign creditor disputes the right of a resolution authority to bail in a claim on a bank in resolution. Since January 1, 2016, financial firms in the EU subject to the BRRD are required to include a clause in their contracts with creditors that the latter agree that the firm's liabilities may become subject to bail-in.<sup>14</sup> However, there is no similar requirement that contractual parties in other jurisdictions should recognize the possibility that their claims may be stayed. Member countries of the FSB are making an effort in cooperation with the International Swap and Derivatives Association (ISDA) to harmonize rights for netting, set-offs and

collateral and to strengthen cross-border recognition of stays but so far harmonization has not been achieved.

Among measures enhancing the preparedness of resolution authorities, structured early intervention by a supervisory authority can reduce the likelihood that resolution will be needed. In the EU supervisory authorities are empowered to impose early intervention measures including the replacement of management to reduce the likelihood that a bank fails. Unlike the prompt corrective action (PCA) procedures in the US there are no pre-specified capital ratios, which trigger increasingly severe intervention measures.

Another Key Attribute of relevance for preparedness of the resolution board is the requirement that systemically important banks develop so-called Living Wills or Recovery and Resolution Plans (RPP). The main intention is to prepare the bank as well as its regulatory authority for managing distress. The Living Wills should specify how the bank or the large financial institution can stabilize or wind down operations, sell parts of the operations, and sell assets to recover with a minimum of systemic consequences. The Living Will is subject to approval by the regulatory authority and this authority can require the bank to reorganize itself to increase its resolvability. Resolution authorities should use the plans to develop a comprehensive and coordinated resolution strategy for complex financial institutions. The plans must be updated regularly and approved by regulatory authorities.

Scott (2014) discusses how Living Wills can increase the preparedness of the resolution authority to handle a resolution but he also warns that no plan can cover all possible reasons for banks to become distressed. The Living Wills can also contribute to increased transparency of complex financial institutions and to make valuation of claims on the bank easier.<sup>15</sup>

<sup>13</sup> Regulation (EU) No 806/2014, July 15, 2014 establishes uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of the Single Resolution Mechanism (SRM) and the Single Resolution Fund (SRB).

<sup>14</sup> See Sherman and Sterling (2016 Febr 22).

<sup>15</sup> Carmassi and Herring (2013) are somewhat pessimistic with respect to the contribution of Living Wills in this respect.

## 4. Credibility and Contagion

To what extent can market discipline on banks' risk-taking be expected to increase as a result of the implementation of procedures incorporating bail-ins as a resolution tool? There are two aspects to this question. First, effective market discipline requires that there are a sufficient number and size of creditors subject to credible bail-ins. If not, the marginal cost of funding for a financial institution will not reflect its default risk. Second, it must be possible to apply the bail-in rules without serious systemic consequences. Authorities are not likely to allow bail-ins if they are not convinced that they can be applied with a minimum of systemic consequences. Therefore, the credibility of the bail-in rules and their systemic effects are intertwined. It is clear that concern with systemic risk has been an important factor behind several attributes of the resolution procedures described in the previous section.

Opinions differ about the effectiveness of resolution procedures with respect to their ability to impose losses on creditors without serious systemic consequences. Sheila Bair, the former Chairman of the FDIC argued during the crisis in 2009 that Citibank should not be bailed out but restructured under the FDICIA rules.<sup>16</sup> Peter Brierley at the Resolution Directorate of Bank of England stated at a conference in 2016 that the building blocks including bail-ins are now in place to resolve even the large international G-SIBs.<sup>17</sup> Academics have been more skeptical for reasons discussed below.

To discuss these issues further it is useful to consider different sources of systemic risk and the possible impact on systemic risk of the bail-in attributes of resolution procedures. Following Scott (2014) we can define three main sources; (inter)connectedness, correlation and contagion. These are the “three Cs of systemic risk.”

Connectedness implies that the failure of one financial institution creates losses for other financial institutions with credit exposures to the failing one through, for example, payment and settlement systems and other interbank positions (liability connectedness). Another source of connectedness arises when the failing institution is an important source of funding for others (asset connectedness).

Correlation as a source of systemic risk occurs when asset prices held by several financial institutions collapse at the same time. The institutions may be holding similar assets or prices for several asset classes may collapse at the same time. This source of systemic risk may be the result of events in the macro-economy but it is amplified by fragility in the financial system and similarity of portfolios across the financial sector. An example is the broad fall in real estate values across the USA prior to the subprime crisis that triggered the 2008-2009 financial crisis.

Contagion in Scott's terminology involves run behavior manifested through direct withdrawals of funds from financial institutions and asset markets used by financial institutions to fund operations. The contagion becomes systemic either if there are withdrawals of funds from a substantial part of the financial system or if the failure of one bank creates fear that other financial institutions will not be able to live up to their commitments.

The deepening of financial crisis after the collapse of Lehman Brothers in September 2008 was primarily a result of contagion according to many observers including Scott (2014) and Carmassi and Herring (2015). Banks and other financial market institutions relying on short term borrowing in, for example, markets for repos and commercial paper markets lost the ability to finance longer term asset positions when the markets for short term financial instruments “froze” after the Lehman bankruptcy in

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<sup>16</sup> See Bair (2012)

<sup>17</sup> Peter Brierley's presentation at the conference of the National Institute for Economic and Social Research (NIER) on March 18, 2016 is available on <http://www.niesr.ac.uk/events/>.

September 2008.<sup>18</sup> At the same time, fire sales of assets were curtailed by sharply declining asset prices.

What is the impact of bail-in rules and other attributes of the resolution procedures on the three sources of systemic risk? To begin with connectedness it is clear that expected bail-ins of liabilities to other financial institutions necessarily makes those connected as creditors or potential creditors more sensitive to default risk. The upside of this sensitivity is that it strengthens market discipline on risk-taking. This is the intended effect of expected bail-ins but the enhanced market discipline must be balanced against the risk that connected financial institutions may become more fragile and even fail as dominos.

Since holders of relatively long-term claims on a financial institution cannot escape without facing substantial losses, they are not likely to try to dispose of their claims quickly. Thus, the expected bail-ins of these debt-holders are not expected to worsen the distress to a great extent. If connected institutions have appropriate risk-management systems in place the expected bail-ins should not be a great threat to their solvency.

Holders of short-term claims, on the other hand, like lenders in interbank and repo markets as well as counter-parties in derivatives markets can “run” quickly in response to news about impending bail-ins. Expected bail-ins of these types of claims may, therefore, exacerbate a distress situation for a bank very quickly even if it remains solvent.

The bail-in rules in the resolution procedures discussed above recognize to some extent that liquidity problem may arise as a result of expected bail-ins of short term creditors. Although the

maturity of a claim does not affect its contractual priority, the BRRD exempts securitized claims and some financial sector claims with a maturity less than seven days from bail-ins. Furthermore, short-term counterparty claims with collateral or subject to netting and set offs are likely to be exempt from bail-ins on the grounds that they perform critical functions or that they are sensitive from a systemic point of view. However, resolution authorities are given substantial discretion with respect to eligibility of assets for bail-ins. Uncertainty about eligibility for bail-ins may be sufficient to create runs on a distressed bank and threaten its liquidity position.<sup>19</sup>

The possibility that many short-term liabilities will be subject to bail-ins may retain a degree of market discipline but it will also increase the costs of funding since long term financing is generally more costly than short term financing in financial markets. On the other hand, protection of these sources of market financing from bail-ins strengthens the incentives to use these run-sensitive sources. Thereby, the share of liabilities that can be bailed in is reduced.

Turning to the impact of correlation as a source of systemic risk, the credibility of bail-in rules depends very much on the share of a banking system that is affected by a an economic shock and on the fragility of the system. Even if the existing resolution procedures are effective when one large and highly connected bank must be resolved, the situation facing authorities is different when the financial system as a whole is on the verge of collapse. Strong intervention is necessary to support both liquidity and solvency in the financial system. Thus, the market discipline that can be realistically achieved needs to be based on expected bail-ins in case a financial institution is alone in distress.<sup>20</sup>

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<sup>18</sup> Many observers argue that the Lehman bankruptcy was not the trigger for the liquidity crisis. For example, Cochran and Zingales (2010) argue that the announcement of TARP with its \$700 bn available for bank rescues the week after was seen as a signal that the financial system was in a crisis.

<sup>19</sup> Jackson et al., (2011) discuss these issues in the US context and present an alternative proposal for a Chapter 14 bankruptcy code for large financial institutions.

<sup>20</sup> Brown and Dinç (2011) find that a government is less likely to take over, or less likely to close, a failing bank if other banks in that country are weak. They further argue that this “too many to fail” effect was present in the US savings-and-loan crisis of the 1980s and in the Japanese banking crisis of the 1990s.

The third source of systemic risk, contagion, can be viewed as an amplification of problems of connectedness. The difference between connectedness as a source of systemic risk and contagion is that, in contagion, uncertainty about one financial institution's ability to serve its contractual obligation creates uncertainty about other financial institutions ability. Thus, markets for short-term funding in securities markets may dry up for the financial system as a whole, and the ability to sell assets to obtain liquidity is lost. Thus, both market and funding liquidity evaporates. The role of bail-ins in resolution of a financial institution is similar to their role with respect to connectedness but the effect of expected bail-ins for short-term contracts is magnified by the contagion. Thus, the case for protecting the short-term sources of market funding from bail-in risk is strengthened by contagion risk in spite of the weakening of market discipline and the stronger incentives of financial institutions to use these sources of funding. The BRRD suggests "minimum requirements for own funds and eligible (for bail-in) liabilities" (MREL) to limit the reliance on market-based short-term funding.

Limitations on bail-ins and eligible liabilities imply that authorities must have additional instruments to address contagion risk and its consequences for system-wide liquidity. This means that central banks' traditional lender of last resort role as supplier of liquidity remains an important part of the financial system even if effective resolution procedures are in place. Scott (2014) discusses how central banks can devise schemes to support liquidity ex ante, for example, by enabling banks to buy commitments to obtain liquidity under specific conditions.

Another way to reduce the risk of contagion and, thereby, to strengthen the credibility of resolution procedures is to increase the transparency and the resolvability of financial institutions. Increased market discipline may itself strengthen incentives of solvent institutions to signal their quality relative to the insolvent ones and to adopt organizational structures that are more transparent and resolvable. Living wills are intended to strengthen these incentives but other organizational reforms may contribute as well. For example, in the UK investment

banking must be strongly separated from traditional commercial banking. Other forms of organizational restrictions to reduce complexity are possible as well as discussed in Barth and Wihlborg (2016). The former chairman of the FDIC, Sheila Bair (2013), has noted that the resolvability of large complex financial institutions can be enhanced if banks are required to choose legal organizations corresponding to its business lines.

Academics' skepticism with respect to the credibility of resolution procedures seems to be based partly on political considerations in combination with the discretionary powers of authorities with influence on resolution decisions. For example, Barth and Wihlborg (2016) argue that political influences on the determination of whether a financial institution qualifies for resolution are likely to be strong. Although the alternative for an insolvent systemically important financial institution is supposed to be general bankruptcy law and the use of tax-payer funds to bail out shareholders is not allowed, the bailout of creditors remains possible. Bailout costs are to be covered by future levies on other banks rather than taxpayers; but this does not change the fact that bailouts of creditors beyond those explicitly insured remain possible.

The identification of G-SIBs can become a two-edged sword from the perspective of credibility of resolution procedures. This designation implies more stringent prudential standards and higher capital requirements than other banks. Thus, the designation is associated with costs. These costs can be seen as a "tax" to compensate for a stronger implicit protection of their creditors. The designation may be interpreted as a signal that these banks will receive special treatment in distress with a high likelihood of bailouts.

The European Shadow Financial Regulatory Committee (ESFRC, 2014) expresses similar doubts about the credibility of the Single Resolution Mechanism in the EU. They point to the ability of the European Council and the European Commission to block a resolution decision. Also, the so-called systemic crisis exemption in Article 10.3 of the SRM regulation explicitly states that a bank may not be

considered resolvable unless “significant adverse consequences for the financial system, including circumstances of broader financial instability or system-wide events, of the Member State in which the entity is situated” can be avoided to the maximum extent when resolution powers are exercised.

The credibility of the bail-in requirements in the resolution procedures is affected by the power of authorities to choose precautionary recapitalization to restore the solvency of a financial institution. Although the BRRD states that such recapitalization using government funds requires that a financial institution complies with capital requirements and that the European Commission approves the state aid. Such aid can be approved if systemic risk justifies it. Since systemic risk is such a dominating driver of financial reform efforts including the BRRD, authorities are likely to err for fear of systemic risk. Precautionary recapitalization should also be accompanied by bail-ins but on a more ad hoc basis than in actual resolution.

### 5. Concluding comments

Experiences with bail-ins under resolution procedures are still lacking. We may have to see an important European bank resolved by a resolution board before the effectiveness of the procedures can be fully evaluated. Empirical evidence on the impact of the resolution procedures and bail-ins on banks' costs of funding is lacking as well. There is some evidence that the costs of debt for UK banks increased after the Special Resolution Regime was implemented in 2009.<sup>21</sup> The largest Danish bank, Danske Bank, complained that their costs of funding increased after Denmark's implementation of bank resolution procedures in 2010.<sup>22</sup> Furthermore, ratings agencies like Fitch have started to take reduced likelihood of state support into account in their government support ratings.

Although the quantitative importance of the effects of bail-in rules remain uncertain the reform efforts are likely to contribute to a stronger degree of market discipline over time. Even if precautionary recapitalizations are likely to be used to a greater extent than actual resolutions, perceptions that some creditors must accept losses have been strengthened by bail-ins of subordinated debt holders in Denmark and Portugal, and institutional holders of junior debt in the Monte dei Paschi case in Italy. The issuance of CoCos by many banks may also contribute to market discipline.

There are still doubts that market discipline on the large and complex international banks has increased to such an extent that their funding cost advantage has declined. One reason is that the systemic risk exception from placing a bank under a resolution board can be attractive for politically sensitive authorities. A second reason is that banks can increase their share of funding from sources that are eligible for bail-ins to sources that are less likely to be subject to bail-ins. A third reason is that the large complex banks often operate with subsidiaries in several countries. There is uncertainty about contractual recognition of cross-border claims in resolution proceedings and conflicts between countries may arise with respect to burden sharing.

The Financial Stability Board does not regard the Key Attributes of resolution regimes as the final solution to the problems of implicit guarantees and systemic risk. Even if bail-in rules can be made more credible they cannot completely eliminate the dilemma between strengthening market discipline and eliminating systemic risk. The central banks lender of last resort role remains essential when contagion threatens liquidity in the financial system. Capital and liquidity requirements remain important although their level and design are subjects for a separate debate. Organizational reforms can contribute to the resolvability of large financial institutions and thereby enhancing the credibility of resolution procedures.

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<sup>21</sup> See Brierley (2015).

<sup>22</sup> For example, on February 20, 2012 the spread on interbank loans to the Danske Bank relative to Euribor was 7.05 basis points according to Wihlborg (2012).

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