

# Bail-In: EU Rules and Their Applicability in the Nordic Context<sup>1</sup>

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## Abstract

The global financial crisis has led to extensive regulatory reforms around the globe. The bail-in rules introduced in the Bank Recovery and Resolution Directive are an essential part of the new bank crisis management landscape in Europe. The paper seeks to clarify their implications and applicability in three ways. First, we provide a concise overview of the issues involved based on recent – mainly theoretical – literature. Second, we describe the key features of the European resolution framework. Third, we discuss the implications of the bail-in approach for crisis management in the Nordic context.

**Keywords:** Resolution, bail-out, bail-in, BRRD, systemic risk.

**JEL codes:** G21, G28.

<sup>1</sup> We are grateful to Lars Calmfors, Peter Englund and two anonymous referees for useful comments on an earlier draft and the participants in the Nordic Economic Policy Review seminar in Helsinki on 12 December 2019 for a discussion of the issues involved. Views expressed are those of the authors and do not necessarily reflect the views of the Bank of Finland or the Financial Stability Authority.

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## 1. Introduction

Financial crises where financial intermediation is disturbed have often led to massive 'bail-outs' where states have financially supported the continuation of financial institutions' operations by various means. The obvious motivation of such policy has been to avoid the serious implications of financial instability for economic activity. However, on many occasions these policies have resulted in significant costs to taxpayers while not being able to fully eliminate financial disruption.

Furthermore, bail-outs have been hypothesised to create perverse incentives, moral hazard, in the sense that they encourage bank owners and wholesale creditors to accept excessive risk-taking by bank managements. This problem is particularly significant with regard to large and highly connected institutions, which often are considered 'too big to fail'. Reduction of financial instability in the short run may thus increase it in the long run.

As a result, much effort has been put into developing regulation, supervision and crisis management policies so as to avoid such bail-outs of financial institutions. A key element of this are higher requirements of capital. In addition, steps have been taken to increase financial institutions' loss absorption capacity through the requirement that banks should issue bail-inable debt, i.e. debt which, by the decision of resolution authorities, can be written down or converted into equity capital as needed to restore solvency. The idea is that with a large enough loss absorption capacity even large, systemically important institutions failing or about to fail could be 'resolved' without disturbing financial intermediation too much.

A key constraint for the rigorous application of the bail-in policy is the fear that it could trigger financial instability. Expectation of losses to bank creditors could raise funding costs and weaken liquidity, potentially aggravating the situation by leading to an acute liquidity crisis. Credit losses and declining asset prices could in turn contribute to cascading defaults across the financial system.

Bail-in policy is also associated with practical difficulties. Implementing bank resolution in a prompt and efficient manner can be

difficult, particularly in the context of multinational banks, where resolution requires cooperation of authorities of many jurisdictions. Hence, an essential part of a resolution framework is contingency planning by resolution authorities and banks.

The new approach to the handling of banking crises making use of bail-in is a complex undertaking. This paper seeks to produce some clarity to this complexity in three ways. Section 2 provides a concise overview of the issues involved based on recent – mainly theoretical – literature. Section 3 describes the key features of the European resolution framework, which has emerged over the past five years. Section 4 discusses the implications of the bail-in approach for crisis management in the Nordic context. Section 5, finally, summarises our key observations.

## **2. Economic analysis of bank resolution and bail-in**

In this section, we discuss the economic rationale for bank resolution and bail-in, drawing from the theoretical literature and review the early empirical evidence.

The Financial Stability Board (2015, p. 5) states as the main guiding principle that '[t]here must be sufficient loss absorbing and recapitalisation capacity available to implement an orderly resolution that minimises any impact on financial stability, ensures the continuity of critical functions, and avoids exposing taxpayers (that is, public funds) to loss with a high degree of confidence'.

This principle relates closely to the following questions: What is the optimal amount of total loss absorbing capacity (henceforth TLAC) that banks should have in their balance sheet? Should TLAC consist only of capital requirements or should it include also bail-in-able debt? The first question has been extensively studied after the crisis (see e.g. Aikman et al. 2018 for a review). We focus on the second question: how much should bank safety be based on equity capital that reduces the likelihood of failure and how much on bail-in-able debt that enables orderly resolution after a failure?

The literature follows two lines of thought. The first emphasises the choice between bail-outs and bail-ins in dealing with bank failures (see e.g. Dell’Ariccia et al. 2018 and Berger et al. 2019). The key trade-off centers on excessive risk-taking incentives (i.e. moral hazard) of banks if bail-outs are to be expected instead of bail-ins. Governments may choose bail-outs if externalities of bank failures cannot otherwise be contained. Hence, bail-in policy is potentially time-inconsistent. Therefore, the challenge is to implement bail-ins so that major externalities are avoided. This would establish the *ex-ante* credibility of resolutions and reduce moral hazard.

The other line of thought emphasises the choice between capital requirements and bail-inable debt. As Dell’Ariccia et al. (2018) note, higher capital ratios reduce likelihood of bank failures and hence the probability that bail-outs or bail-ins are required in the first place. Nonetheless, the optimal mix of total loss absorbing capacity might contain both bail-inable debt and equity.

When considering the optimal mix of bank funding, the Modigliani and Miller (1958) irrelevance theorem is an important starting point (see e.g. Admati et al. 2013). It implies that, although an institution’s cost of equity is higher than its cost of debt, it does not follow that more debt is always preferred over equity. This is because the cost of equity and debt adjust to a change in their shares: a reduction in the debt-to-equity ratio reduces financial risk and thereby the cost of both funding sources. In theory, this offset is complete and thus the weighted average cost of capital stays unchanged.<sup>6</sup> This offset appears to be empirically quite high, also in the case of banks (see e.g. references in Aikman et al. 2018 and Gimber and Rajan 2019).

Two traditional reasons why a firm’s capital structure *does* matter for the total firm value are (i) tax deductibility of interest payments and (ii) bankruptcy costs. The former implies a preference for a higher and the latter for a lower debt-to-equity ratio. An optimal

<sup>6</sup> The cost of equity is higher than the cost of debt as equity is the residual claim on an institution’s assets. When the share of equity in the balance sheet increases, it means that the share of the more costly form of financing increases. However, this is offset by the fact that, as the financial risk of the institution is reduced as a result of less leverage, the risk premium of both equity and debt declines.

capital structure would strike a balance between these factors. These factors are highly relevant also for banks.

Banks are, however, special because their bankruptcy costs entail a high social component, resulting from disruption in financial services and financial stability (see e.g. Admati et al. 2013). This further implies that a bank's optimal capital structure may differ depending on whether one takes a private or public perspective. If bank shareholders do not internalise the social costs of bank failure, they may prefer a higher debt-to-equity ratio and hence tolerate a higher probability of bank failure than is socially optimal. This is an important argument for regulatory capital requirements.

As pointed out by Admati et al. (2013), losing part of the 'tax subsidy' of debt if capital requirements are increased – i.e., there will be less debt and hence less interest payments to deduct from earnings before tax on profits is determined – is a private cost to bank owners but not necessarily a social cost. Nonetheless, the private cost of equity arising from this tax channel (or other channels such as high informational cost of issuing new equity) may provide banks with incentives to shift part of their assets outside their balance sheet to 'shadow banks'. As a result, large risks may shift outside the regulatory perimeter with financial stability implications. Moreover, higher capital requirements, and hence higher private costs of bank equity, may lead to a reduction in bank lending and hence slow down economic activity.<sup>7</sup> This is a factor in determining the socially optimal capital structure for banks, and has been an active area of research.<sup>8</sup>

## 2.1 Benefits and costs of bail-in

The private costs of bank equity and their potential real implications are important reasons why many authors have advocated hybrid instruments such as contingent capital ('CoCos') or, indeed,

<sup>7</sup> However, e.g. Dagher et al. (2016) suggest that the economic costs of higher capital requirements in the long run are small.

<sup>8</sup> Another important factor that tilts banks' optimal capital structure towards less equity is that banks' demand deposits, which are part of their debt, provide important liquidity services (a recent paper using this argument is Mendicino et al. 2017).

bail-inable debt instead of higher equity requirements (see Flannery 2017). Here we focus on bail-in instruments.<sup>9</sup>

Bail-ins aim to reduce banks' excessive risk-taking behaviour, as mentioned previously.<sup>10</sup> In contrast, bail-outs undermine market discipline and enable banks to transfer losses to taxpayers, thereby encouraging risk-taking.

Moreover, orderly resolution by applying the bail-in tool aims to reduce 'bankruptcy costs' by offering a swift alternative to laborious bankruptcy proceedings and thereby supporting critical functions and maintaining financial stability.

In their analysis of the choice between bail-in, bail-out and no public intervention, Berger et al. (2019) assume that all banks and market participants know which regime the regulator is committed to. In this setting, the authors conclude that the challenges to credibility of bail-in arise from two sources: the need to avoid contagion of problems of one institution to other institutions and the need to act fast. The latter issue concerns implementation of bail-in, which is tackled by contingency planning by resolution authorities and banks alike (see Section 3).

Dell'Ariccia et al. (2018) develop a banking model with both bail-out and bail-in costs to analyse the trade-offs in bank resolution. By arguing that recent regulatory reforms have likely reduced the spill-over costs from bail-ins, they conclude that bail-outs should be the exception, not the rule, in the current framework. However, they also note that the use of some public funds may need to be allowed during systemic crises.

An interesting analysis is provided by Mendicino et al. (2017) who simultaneously model the choice of the level of total loss absorbing capacity as well as its composition in terms of bank equity and

<sup>9</sup> Both CoCos and bail-inable debt convert to equity or absorb losses when certain conditions are met; either a trigger equity level is breached from above (CoCos) or a bank failure triggers resolution authorities' intervention and hence bail-in. CoCos recapitalize the bank before failure whereas bail-inable debt is activated after the failure has happened (see also Chen et al. 2013).

<sup>10</sup> Note that, as pointed out e.g. by Dell'Ariccia et al. (2019), a higher equity level also reduces moral hazard, by making bail-outs less likely and giving bank shareholders more 'skin in the game'.

bail-inable debt. In their formulation, bail-inable debt and equity provide identical loss absorbing capacity. However, too much total loss absorbing capacity can reduce banks' socially valuable liquidity provision via demand deposits. Further, equity and bail-inable debt help solve different incentive problems within the bank. This has an impact on the optimal composition of total loss absorbing capacity. Given their quantitative estimates, they conclude that the current plans for the TLAC size are appropriate and that an important part of that should consist of bail-inable debt.

### *Contagion*

As already pointed out, the key concern in a resolution situation is the potential contagion to other institutions that might lead to a full-scale systemic crisis (see e.g. Beck et al. 2020). Whether the risk of contagion can be credibly contained is vital for the credibility of resolution. The direct contagion channel stems from potential cross-holdings of securities among financial institutions. For instance, if debt to be bailed in is held by other banks, these will incur losses which in turn could jeopardise their financial health. For such reasons, policy proposals such as Liikanen (2012), while strongly supporting the use of bail-in, require that bail-inable debt should be held by investors outside the banking sector.

Using proprietary data of securities cross-holdings by banks, Hüser et al. (2017) conduct a network analysis to simulate the effects of bail-in. Although their baseline loss scenario is relatively severe, they find only muted direct or indirect contagion effects of bail-in. However, as Caballero and Simsek (2013, p. 2549) point out, much of the contagion risk may arise from the 'uncertainty about the financial network of cross exposures' among banks. The effects of such uncertainty may be difficult to quantify.

Whether or not any deposits should be bail-inable has also been actively debated. Currently, as described in Section 3.4, only deposits covered by deposit insurance are excluded from bail-in.

### *Operational challenges*

Admati et al. (2013, p. 5) note that '[b]ail-in mechanisms place extraordinary demands on regulators in crisis situations and present many implementation issues.' Further, Berger et al. (2019) note that at times when financial stability implications of bail-in are of

the greatest concern, several institutions may become subject to financial distress simultaneously, complicating resolution authorities' task further.

One of the most challenging questions is the resolution of multinational institutions which operate through subsidiaries in a number of different countries or jurisdictions which have national or regional regulators. The specific challenge is how the loss absorbing capacity can be pooled and shared when some of the subsidiaries become subject to resolution and bail-in. From the viewpoint of efficient risk diversification, the loss absorbing capacity should be available at the group level. However, this may not be the case in practice as national regulators may start ring-fencing loss absorbing capacity in a crisis situation.

One strategy implies that resolution and the related loss absorption would take place through a single point of entry. An alternative approach is a multiple-point-of-entry resolution where loss absorbing capacity is separately pre-specified to each subsidiary, or group of entities comprising a natural resolution group, in different jurisdictions that the multinational bank operates in.

Bolton and Oehmke (2018) analyse these alternatives.<sup>11</sup> A single-point-of-entry resolution would be the most efficient alternative because it centralises decision-making concerning allocation of loss absorbing capital to the bank holding company level. However, this may not be possible to commit to if the expected transfers needed to absorb losses and recapitalise would be too asymmetrically distributed across different parts of the banking group. In such cases a multiple-point-of-entry resolution strategy may be the more robust arrangement. Given that possible impediments to resolutions are different in case a single-point-of-entry or a multiple-point-of-entry approach is planned for, the analysis of Bolton and Oehmke (2018) also has implications for operational structures of global banks. Specifically, opting for a multiple-point-of-entry approach entails at least partial withdrawal from cross-border banking.

<sup>11</sup>Faia and Weder di Mauro (2016) come to the same conclusions, and moreover show that costs for holders of bail-inable debt instruments are generally higher if authorities are unable to cooperate under single-point-of-entry resolution.



## 2.2 Early evidence of market expectations regarding bail-in

There is increasing evidence of the effects on market expectations and bank behaviour of the new bank resolution and bail-in frameworks both in the US and Europe. Dell'Arricia et al. (2018) and Schäfer et al. (2016) study how other banks' credit default swap (CDS) spreads have been affected by bail-in actions in Europe. Bank CDS spreads have increased as a reaction to bail-ins in the home country but also in other countries although to a lesser extent. Moreover, Schäfer et al. (2016) find that banks in crisis-stricken countries have been more strongly affected than banks in other countries. According to the authors, the likely reason is that the fiscal capacity of the country in which the bank is headquartered is an important determinant of bail-out expectations. Overall, Schäfer et al. (2016) find that market expectations are more strongly affected by bail-in actions than by the legal implementation of resolution frameworks.<sup>12</sup>

The theoretical model of Berger et al. (2019) referred to above suggests that the likelihood of a bail-out policy would diminish as a bail-in framework is implemented. They find empirical evidence of positive changes in the US banks' capital ratios, which is consistent with this prediction. The authors also list a number of other studies that indicate that bail-ins strengthen market discipline, but may also cause undesirable effects such as increased stock market volatility. Gimber and Rajan (2019) study how the relative pricing of different layers of debt and equity in bank balance sheets are affected by the post-2014 reforms in Europe but do not find very strong effects.<sup>13</sup> Lewrick et al. (2019), on the other hand, find a risk premium between bail-inable senior bonds and senior bonds not subject to bail-in risk. The risk premium is higher for riskier banks and for banks in Europe in comparison to banks in other jurisdictions.

Assessments done by the credit rating agencies further inform us about whether the resolution framework is seen as credible. Aikman et al. (2018) report that, while the major UK banks' bondhold-

<sup>12</sup> Note that in general it may be difficult to identify whether the impact of bail-ins in one country on bank spreads in another results from contagion effects or shifts in beliefs regarding future bail-in likelihood.

<sup>13</sup> There is also interesting work in progress using structural Merton-style models to estimate market-implied bail-out and bail-in probabilities for banks by Guennewig and Pennacchi (2019) and Berndt et al. (2018). The latter estimate that there has been a significant decline in the market-based 'too-big-to-fail' expectations for the US systemically important banks.

ers enjoyed around four notches of implied ratings uplift owing to expectations of government support in 2010, the uplift had fallen to less than one notch by 2016. Blix Grimaldi et al. (2019) report a similar trend in a sample of large Swedish banks.

There is also some evidence of the indirect real effects of bail-in. Beck et al. (2018) use bank-firm matched Portuguese data to show that banks more exposed to the bail-in of a major Portuguese bank that unexpectedly collapsed tightened their credit conditions more than other banks, and that this had an impact on investment and employment in small and medium-sized enterprises dependent on these affected banks.

This sub-section has reviewed what previous research has to tell about the optimal mix of capital requirements and bail-in capacity to secure bank safety and, ultimately, maximise social welfare. According to Aikman et al. (2018), the current bank capital requirements may have been calibrated at a somewhat lower level than would appear optimal on the basis of research literature. But if the agreed bail-inable debt requirements (see Financial Stability Board 2015) are taken as a substitute to capital requirements, the total loss absorbing capacity may be close to the estimates of optimal capital requirements in the literature. Aikman et al. (2018) further note that whether bail-inable debt truly works as a substitute for capital requirements largely depends on how credible bail-in would be as an enabler of orderly bank resolution, particularly in a systemic crisis. Although historical evidence raises concerns in this regard, the new resolution powers granted to authorities may provide grounds to be more optimistic in the future (Philippon and Salord 2017 and Aikman et al. 2018).

### **3. The bank resolution framework in Europe**

An EU legal framework for bank crises was introduced in 2014. It consists of the Bank Recovery and Resolution Directive (BRRD) and is complemented by the Single Resolution Mechanism Regulation (SRMR). The BRRD had to be transposed into national law by each

EU member state and each European Economic Area country<sup>14</sup>, while the SRMR is a directly applicable regulation, which centralises certain resolution functions in the banking union. Overall, the resolution frameworks differ somewhat across the Nordic countries according to their membership in the EU and participation in the banking union.

In addition to introducing new tools for bank resolution, the BRRD is also aimed at better crisis prevention by providing for enhanced early intervention powers to supervisors and requiring banks themselves to prepare recovery plans to overcome financial distress. In what follows, we focus on the resolution function.

### **3.1 Institutional setup and decision-making procedures<sup>15</sup>**

The institutional setup and decision-making procedures play a key role in ensuring a speedy management of distressed banks. First, each EU member state has to designate a national resolution authority. Second, for cross-border banking groups, resolution colleges have to be set up with participation by all relevant national resolution authorities.<sup>16</sup> The European Banking Authority (EBA) is an observer ensuring the consistent functioning of the colleges across Europe and will take on a mediation role in case the participants to the joint decision cannot agree. There might be disagreement on measures to be taken; whether the preferred resolution strategy is to be implemented or refined; or how losses incurred are to be allocated across countries.<sup>17</sup>

<sup>14</sup> The European Economic Area (EEA) consists of the EU member states and three countries of the European Free Trade Association (EFTA) (Iceland, Liechtenstein and Norway; excluding Switzerland). The BRRD was fully and formally implemented into the EEA agreement on 1 January 2020 (<https://www.efta.int/eea-lex/32014L0059>).

<sup>15</sup> See also Ekholm (2020) in this volume for a discussion of resolution procedures in the banking union.

<sup>16</sup> The home resolution authority is the chair of the college and commonly takes the lead in the annual resolution planning cycle and in outlining the group resolution scheme at the time of resolution. A national resolution authority has a voting right in a joint decision regarding a bank in case it has a subsidiary in the particular member state.

<sup>17</sup> On the condition that participation to the resolution scheme would pose a national financial stability threat, a host resolution authority can opt out and exclude a subsidiary from the group resolution scheme.

In the banking union, most of the decision-making power has been shifted to the Single Resolution Board.<sup>18</sup> Together with national resolution authorities, it forms the Single Resolution Mechanism. In deliberating on a specific bank, the Single Resolution Board convenes in an extended executive session (the chair and the four full-time board members as well as representatives from the Commission and the ECB as observers) with representatives of the relevant national resolution authorities. No resolution colleges are set up for cross-border banks operating only within the banking union. For cross-border banks with activity both within and outside the banking union, decisions are made both by the extended executive session of the Single Resolution Board and the joint decision members of the relevant resolution college.

Once the Single Resolution Board has adopted a resolution scheme, it sends it to the European Commission. The scheme may enter into force only if no objection is expressed by the Commission or the Council of the European Union within 24 hours. If the Commission objects to some aspects of the scheme, the Single Resolution Board must modify it accordingly, after which it is approved and enters into force.<sup>19</sup> When the resolution action involves a use of the resolution funds or the granting of state aid, the resolution scheme is adopted after the Commission has decided positively on the compatibility of such aid with the internal market. Eventually, relevant national resolution authorities will take the necessary actions to implement the resolution scheme at the national level with the Single Resolution Board monitoring the execution of the scheme.

<sup>18</sup> The Single Resolution Board is the resolution authority for significant banks and other cross-border banking groups in the banking union. The national resolution authorities are responsible for all banks which are not under the direct remit of the Single Resolution Board. However, the Single Resolution Board can decide, or a national resolution authority can request the Single Resolution Board, to exercise its powers with regard to banks falling within a national resolution authority's remit in cases where it is necessary to ensure a consistent application of resolution standards.

<sup>19</sup> The Commission can also propose to the Council that the latter should object to the scheme because there is no public interest, or the latter should require a material modification to the use of the Single Resolution Fund. If the Council objects to the scheme because it is not in the public interest, the bank will be wound up in an orderly manner in accordance with the applicable national law. If the Council approves the modification to the use of the Single Resolution Fund, the Single Resolution Board modifies the scheme accordingly, after which it is approved and enters into force. If the Council rejects the proposal of the Commission, the scheme enters into force in its original form.

### 3.2 Resolution strategy and tools

Resolution authorities can take resolution actions only if three conditions are met. First, there is an assessment that a bank is 'failing or likely to fail' by the supervisory authority. Second, there is no reasonable prospect that any alternative private sector or supervisory measures would prevent the failure within a reasonable time frame. Third, a resolution action is deemed necessary from a public interest point of view (also fulfilling the 'no-creditor-worse-off' principle which requires that creditors would not have been worse off in normal insolvency proceeding).

If conditions for putting a bank into resolution are met, the resolution authority decides on the appropriate resolution strategy and on the application of resolution tools, of which bail-in is one. The other resolution tools are the sale of business, the bridge institution, and the asset separation tool.<sup>20</sup> When deciding on the appropriate tool, resolution authorities have to abide by the least-cost principle and avoid destruction of value unless necessary to achieve the resolution objectives set out in EU legislation.<sup>21</sup>

### 3.3 Annual resolution planning

The resolution authority takes a decision on the resolution plan (including an assessment of critical functions, a description of the preferred resolution strategy and measures needed to ensure financial and operational continuity) and on the minimum requirement for own funds and eligible liabilities (MREL) annually. The MREL, aiming to ensure sufficient resources that can absorb losses and provide for recapitalisation, is one of the key tools in enhancing banks' resolvability and it applies to all EU banks.<sup>22</sup> It is institution-specific and reflects the preferred

<sup>20</sup> See Single Resolution Board home page (<https://srb.europa.eu/en/content/tasks-tools>).

<sup>21</sup> The resolution objectives are: (i) to ensure the continuity of critical functions; (ii) to avoid significant adverse effects on financial stability; (iii) to protect public funds; (iv) to protect depositors; and (v) to protect client funds and client assets. The Single Resolution Board approach to public interest assessment was published in July 2019 (<https://srb.europa.eu/en/node/799>).

<sup>22</sup> For details on how the MREL requirement is determined, see the Single Resolution Board MREL policy (<https://srb.europa.eu/en/content/mrel>). Global systemically important banks must also comply with the international standard for total loss absorbing capacity (TLAC). Currently, none of the Nordic banks is classified as a global systemically important bank.

resolution strategy as outlined in the resolution plan. The MREL can be met by a bank's own funds and specific debt instruments.<sup>23</sup>

In the annual resolution planning process, the resolution authorities also identify possible impediments to orderly resolution and have the mandate to ask the bank to take steps to remove them, including setting the MREL and monitoring that banks build up eligible liabilities in the agreed time frame.<sup>24</sup>

### **3.4 Application of the bail-in tool**

When the bail-in tool is applied, debt is written down or converted to equity according to a predefined creditor hierarchy (see Table 1).

The bail-in tool excludes deposits covered by the deposit guarantee scheme. In addition, several other types of instruments are excluded, including covered bonds and certain other debt instruments that are fully secured.<sup>25</sup> Retail and small-and-medium-sized firms' deposits in excess of the deposit guarantee scheme limit are preferred to senior unsecured debt and only touched in case the bail-in of securities in the latter class is not sufficient.

Some member states have altered the national insolvency ranking to make non-preferred, non-covered deposits, i.e. primarily corporate deposits, senior to senior unsecured debt.<sup>26</sup> The unfortunate consequence is that the treatment of deposits is different across Europe, with implications for the predictability of loss waterfall in case of bail-in, but also for the assessment of possible breach of the 'no-creditor-worse-off' principle.

Regulatory steps to protect retail investors from bail-in have been taken. In the implementation of the Second Bank Recovery and Res-

<sup>23</sup> Common Tier 1 capital, Additional Tier 1 capital, and Tier 2 capital; and debt instruments with a remaining maturity of at least one year, not related to derivatives, issued and fully paid using funds not financed by the bank itself, not collateralised or guaranteed, and not related to preferential deposits.

<sup>24</sup> The Single Resolution Board has outlined its expectations that banks are to meet in order to become resolvable (see public consultation: <https://srb.europa.eu/en/node/866>).

<sup>25</sup> These include client assets, liabilities to unrelated institutions with an original maturity of less than seven days, liabilities arising under payment and settlement systems, liabilities to employees, liabilities to certain trade creditors, tax and social security claims, and claims of deposit guarantee schemes.

<sup>26</sup> For the insolvency ranking in the banking union member states, see the listing published by the Single Resolution Board ([https://srb.europa.eu/sites/srbsite/files/ldr\\_-\\_annex\\_on\\_insolvency\\_ranking\\_2020\\_v1.1.pdf](https://srb.europa.eu/sites/srbsite/files/ldr_-_annex_on_insolvency_ranking_2020_v1.1.pdf)).

**Table 1 Order of loss absorption in bail-in**

Common Tier 1 capital	Shareholders' equity and retained earnings
Additional Tier 1 capital	Preferred shares, perpetual term contingent convertible securities
Tier 2 capital	Hybrid instruments, deeply subordinated debt
Senior non-preferred debt	Subordinated debt instruments senior to tier 2 capital, but junior to senior unsecured debt
Senior unsecured debt	Corporate (non-SME) deposits, bonds and other instruments
Deposits not covered by the Deposit Guarantee Scheme, but preferential	Retail and SME deposits in excess of 100 000 €

**Liabilities legally excluded from bail-in**

Covered deposits (≤ 100 000 €)	Secured debt such as covered bonds and secured derivatives	Customer funds, salaries etc.
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olution Directive, the member states are given alternative means of restricting retail investors' investments in bail-inable instruments (for example a cap on the proportion of such instruments in the retail investor's portfolio, and a minimum required initial investment amount). To mitigate the risk of contagion across the banking sector, measures have been taken to disincentivise the most systemically important banks to hold bail-inable instruments.<sup>27</sup>

The introduction of the senior non-preferred debt class in the insolvency ranking aims to ensure that the extent to which senior unsecured debt is touched by bail-in is limited, thus helping to avoid

<sup>27</sup> Specifically, the global systemically important banks need to deduct their holdings of bail-inable instruments issued by other global systemically important banks from their own eligible liabilities.

triggering contagion. Furthermore, improved predictability of the treatment of different debt instruments at the time of resolution is expected to facilitate pricing and support market discipline. The credit rating agencies have amended their rating methodologies to account for the new credit hierarchy.

The valuation to determine the extent of the bail-in needed to cover losses and recapitalise the bank is to be done by an independent party. Resolution authorities, in close dialogue with the supervisor, decide on the level of capital that is necessary following a bail-in. The level should not only reflect the minimum capital requirement of the institution post the resolution weekend, but also the need to ensure market confidence, thus enabling the resolved bank to rely on market funding as soon as possible.

### **3.5 Funding in resolution<sup>28</sup>**

In addition to the bail-in of creditors, the Single Resolution Fund or any of the national resolution funds outside the banking union may contribute to the recapitalisation of a failing bank. The resolution fund's contribution to the recapitalisation of a resolved bank is subject to several strict conditions. Losses totalling at least eight per cent of total liabilities including own funds must already have been covered by the use of the bail-in tool, and the contribution of the fund may not exceed five per cent of total liabilities including own funds of the institution under resolution.<sup>29</sup> The European Stability Mechanism will act as a backstop to the Single Resolution Fund in case it would be depleted.<sup>30</sup>

The capacity of the resolution funds is calibrated with a view to cover losses and recapitalise banks in a severe crisis situation, such

<sup>28</sup> See also Ekholm (2020) in this volume for further discussion.

<sup>29</sup> In case the member state has chosen to have a larger ex-ante-funded resolution fund amounting to three per cent of covered deposits rather than one per cent thereof, the use of the resolution fund is conditioned on covering by the bail-in tool losses of at least 20 per cent of risk-weighted assets of the institution concerned rather than the stricter requirement of eight per cent of total liabilities. The requirement to apply bail-in before the use of the fund does not apply in case the fund is only used as liquidity support in a situation when the bail-in tool is not applied.

<sup>30</sup> The common backstop provided by the European Stability Mechanism will be in place at the latest by 1 January 2024. The size of the backstop will be aligned with the target level of the Single Resolution Fund, thus effectively doubling the estimated 60 billion euros capacity of the Single Resolution Fund. If the credit line is used, the Single Resolution Fund will pay back the European Stability Mechanism loan with money from bank contributions within three years.



as a global financial crisis.<sup>31</sup> However, the resources of the resolution funds, including the Single Resolution Fund and the backstop provided by the European Stability Mechanism, are not necessarily sufficient for the provision of liquidity in resolution, particularly in case of very large banks. Even if a bank would be recapitalised, access to market funding might be limited for days or weeks. Adding to the challenge, collateral enabling participation in normal central bank operations is not necessarily available and the provision of emergency liquidity assistance<sup>32</sup> may be constrained by existing rules and regulations. In the banking union, it is commonly understood that the existing arrangements are not entirely fit-for-purpose and a number of potential solutions are being discussed in political fora.<sup>33</sup>

In some EU member states, in case of a systemic crisis, resolution authorities may also seek funding from so called governmental stabilisation tools.<sup>34</sup> However, this is only possible after bailing-in at least eight per cent of total liabilities including own funds. Hence, it is apparent that there has been a fundamental regime switch from bail-out to bail-in with very limited room to use public funds.

## 4. Bail-in in the Nordic context

### 4.1 The Nordic financial system and the institutional set-up for resolution

The Nordic financial systems are bank-centred and dominated by a few large institutions that are highly interconnected (see Figures 1 and 2). The strong interconnectedness implies that cross-border collaboration is an essential part of bank resolution in the Nordic countries. Indeed, resolution colleges have been set up for six Nordic banking groups (see Box 1). The work of the colleges builds on the long tradition of supervisory colleges in the Nordic-Baltic region.

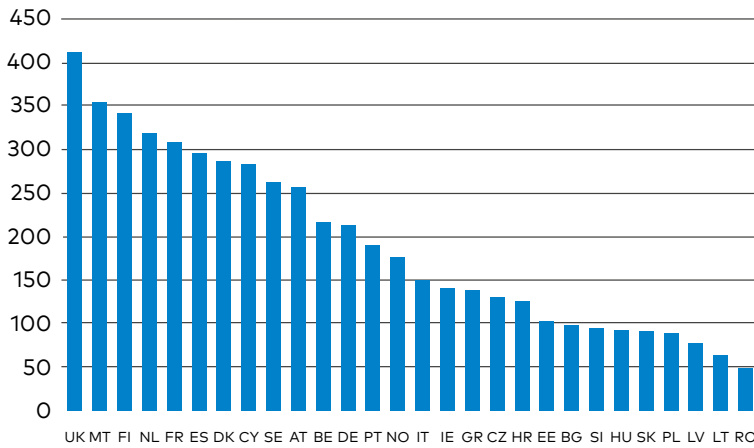
<sup>31</sup> See the Bank Recovery and Resolution Directive impact assessment and de Groen and Gros (2015).

<sup>32</sup> Emergency liquidity assistance refers to exceptional situations in which a central bank provides funding to a financial institution facing liquidity problems with operations that are not standard monetary policy operations.

<sup>33</sup> For more information, see European Parliament (2019).

<sup>34</sup> This requires that the relevant articles of the BRRD have been transposed to national legislation. It is not recognised in the SRMR and, therefore, does not apply in all member states.

**Figure 1 Banking sector size in selected European countries, 2018, percent of GDP**



Sources: ECB, Finance Norway and Statistics Norway.

**Figure 2 Cross-border claims of Nordic banking sectors, third quarter 2019**



Note: The thickness of the arrows reflects the share of bilateral foreign claims in the total claims of the banking sector extending the loans.

Sources: BIS and Bank of Finland calculations.

The resolution planning cycle is well-established in the Nordic countries as a number of cycles have already been completed by the resolution colleges. With the re-domiciliation of Nordea from Sweden to Finland, the responsibility for Nordea was transferred from the Swedish resolution authority to the Single Resolution Board in the autumn of 2018. Given that the Bank Recovery and Resolution Directive has now been transposed into national legislation in Norway, the resolution college for DNB has been established and its first joint decisions on the resolution plan and the MREL were taken at the end of 2019.

Given the systemic importance and centralised business models of the large Nordic banking groups, a single-point-of-entry approach where bail-in is implemented at the parent level while ensuring the continuation of the (healthy parts of the) whole group, is foreseen. To ensure sufficient loss absorption capacity, it is assessed that a recapitalisation amount roughly equal to the capital requirement currently set to cover losses is needed. This effectively doubles (the euro amount of) a bank's loss absorbing capital compared to the supervisory capital requirement. While the regulatory capital requirement is set in relation to a bank's risk-weighted assets<sup>35</sup>, the MREL is set in relation to total liabilities and own funds (see Table 3). Currently, all the Nordic banking groups fulfil the minimum requirements that have been set.

While the large Nordic banks are all well capitalised, the MRELs exceed the leverage ratio (capital requirement set in relation to unweighted assets rather than to the risk exposure amount) significantly. The difference between the MREL and leverage ratio requirement tells us what role bail-inable debt plays for a bank's total loss absorption capacity.

To date there is no real-life experience of the use of the bail-in tool in the new EU framework. Specifically, senior unsecured debt has not been touched in the recent cases of bank distress, either because other resolution tools than bail-in have been applied or because the Single Resolution Board did not see that resolution was

<sup>35</sup> Banks must calculate a total risk exposure amount which is the sum of their credit risk, operational risk, market risk, and the risk of a credit valuation adjustment. The total risk exposure amount is compared to own funds to yield the bank's capital ratio.

### Box 1 The institutional set-up for resolution

In the Nordics, the institutional set-up for the resolution authority varies:

- Finland (FI): The Financial Stability Authority, which is an independent authority, while administratively under the Ministry of Finance, is responsible for both resolution and deposit guarantee scheme.
- Sweden (SE): The Swedish National Debt Office is responsible for both resolution and the deposit guarantee scheme.
- Denmark (DK): The Danish Financial Supervisory Authority and the state-owned Financial Stability Company are resolution authorities. The latter is responsible for resolution execution, and also for the deposit guarantee scheme.
- Norway (NO): The Norwegian Financial Supervisory Authority is responsible for resolution.

The number of members and observers in the resolution colleges reflect the geographic scope of the bank (see Table 2). Whether or not a resolution authority in a host country takes part in the joint decision-making depends on whether the bank operates as a branch or a subsidiary there. For countries within the banking union, whether the national resolution authority or the SRB is the joint decision party depends on whether or not the subsidiary is significant enough to be under the direct supervision of the ECB. In case the SRB is the party to the joint decision, the national resolution authority participates in the college as an observer.

**Table 2 Composition of resolution colleges for the largest Nordic banks**

Bank	Group level resolution authority	National resolution authority participating in the joint decision	National resolution authority as member not participating in joint decision or as observer
Nordea	SRB	SE, DK	FI, NO
Svenska Handelsbanken	SE	FI, UK	DK, NO
SEB	SE	SRB	DE, DK, EE, FI, LI, LT, LU, NO, PO
Swedbank	SE	SRB	EE, DK, LI, LT, NO
Danske Bank	DK	FI, LU, SE, UK	EE, LI, NO
DNB	NO	LU, PO	FI, SE, UK

**Table 3 Capital requirement and Minimum Requirement for own funds and Eligible Liabilities (MREL) in the largest Nordic banks, percent**

	Capital requirement in terms of total capital to risk exposure amount	Capital ratio in terms of total capital to risk exposure amount	Leverage ratio	MREL as of total liabilities and own funds	MREL eligible resources as of total liabilities and own funds
Nordea	16.7	20.8	5.3	8.0	n.a.
Svenska Handelsbanken	19.1*	23.2	4.9	5.8	12.6*
SEB	18.7*	23.3	5.1	7.3	11.1*
Swedbank	18.9	21.8	5.4	6.5	10.9*
Danske Bank	19.4	22.7	4.6	10.8	11.5**
DNB	16.1	22.9	7.4	36.7 (of risk-weighted assets)	n.a.

Sources: Information on capital requirements, capital ratio as well as leverage ratio is based on the fourth-quarter and full-year 2019 reports of the six banks. Information on MREL in force from the beginning of 2020 (30 June 2020 for DNB) is based on Nordea Debt Investor Presentation Q4 and full year 2019; Swedish National Debt Office, Annual Decisions Taken on Planning for Crisis Management of Swedish Banks <https://www.riksgalden.se/fi/press-and-publications/press-releases-and-news/press-releases/2018/annual-decisions-taken-on-planning-for-crisis-management-of-banks/> 18.12.2019; Danske bank, Fastsættelse af krav til nedskrivningsegne passiver, jf. § 266 i lov om finansiel virksomhed, and DNB Debt Investor Presentation February 2020. Information on MREL eligible resources of Swedish banks in the third quarter of 2019 has been published by the Swedish National Debt Office in Crisis Preparedness of Swedish Banks Q3 2019. \* Data from the third quarter of 2019 rather than the fourth quarter of 2019 as used elsewhere in the table. \*\* Estimation based on the amount in terms of risk-weighted assets reported by the bank.

in the public interest resulting in a normal insolvency proceeding for the distressed bank.<sup>36</sup> Also there have been cases where funds of the deposit guarantee scheme have been used to take preventive measures and thus avoiding a situation in which the bank would have been deemed failing or likely to fail.

<sup>36</sup> For information on recent cases, see the Single Resolution Board home page (<https://srb.europa.eu/en/content/resolution-cases>) and Schäfer et al. (2016).

There is, however, valuable experience gained from crisis simulation exercises. In January 2019, the Nordic and Baltic financial stability authorities and relevant authorities from the European Union conducted a joint exercise. This tested the authorities' crisis management capabilities and regional cooperation in the new European framework in a hypothetical crisis scenario involving fictitious financial institutions in the Nordic and Baltic countries. The findings of the exercise will be used to enhance the practical crisis management preparedness of the authorities involved. Work is underway to develop the necessary technical means for efficient collaboration and communication. The Nordic and Baltic countries have agreed to conduct regular financial crisis simulation exercises going forward.

#### **4.2 Bail-in in the Nordic environment: what do we know?**

Given the structure of the Nordic banking system, the failure of any major bank in the Nordic area can have systemic implications for the home country as well as the other Nordic countries. Therefore, whether or not the EU bail-in framework works in systemic crises is crucial for the Nordics.

It is, however, very difficult to determine how bail-in would play out in a systemic crisis. First, there is no test case of a systemically important bank failing or being under an acute risk of failure in Europe since the enactment of the BRRD. Second, the little evidence that exists about bail-ins of systemically important banks prior to BRRD and recent bail-ins of non-systemic banks is unlikely to provide reliable guidance as to what would happen in a bail-in applied to a major Nordic bank.

The resolution of two undoubtedly systemic Cypriot banks in 2013 is the most extensive bail-in case in Europe in the recent past. The disruption of the financial system was significant as was the associated economic crisis. GDP declined by 6% in the year of the bail-in. Nevertheless, by 2019 Cyprus' GDP is forecast to have grown by the same rate of 11 % relative to 2012 as that of the euro area as a whole. Thus, there was a major shock to the real economy but not one that set Cyprus clearly apart from the neighbouring countries which did not experience a similar bail-in shock. The impact on banks outside Cyprus was also statistically significant in terms

of changes in banks' stock prices and CDS spreads (Schäfer et al. 2016). But these effects were not long-lasting.

There was an important mitigating factor, though. A large fraction of the bail-in losses was borne by foreign (mainly Russian) creditors and stock owners. This limited the impact on the Cyprus economy. Similarly, its small size and its relatively weak links to other EU countries' banking systems (except for Greece) reduced the impact on other countries.

Other less extensive bail-in events in Europe suggest that other banks, their stock prices and CDS spreads, can be affected widely by bail-in actions (Dell'Ariccia et al. 2018, Schäfer et al. 2016). The real economy consequences have not been systematically analysed. There are, however, no indications that they have been significant.

The Danish bail-in cases, Amagerbanken in 2011 and Andelsbanken in 2015, are of special interest from the Nordic perspective. Importantly, as in Cyprus, in both cases the bail-in extended to senior debt. There is evidence of some reactions in the financial markets. Dell'Ariccia et al. (2018) report statistically significant changes in bank stock prices and CDS spreads, as in other bail-in cases. Also the ratings of systemically important financial institutions weakened somewhat following the bail-ins. The effects were nevertheless modest.

The few recent bail-in cases discussed do not point to overwhelming consequences. But, as noted, the examples may not be very informative about contagion effects if bail-ins were to be implemented in highly interconnected large banking institutions. Some insight into such effects is provided by Hüser et al. (2017) in the simulation analysis referred to in Section 2. Two key findings emerge in the baseline scenario: (i) there are no bank defaults as a consequence of the bail-in of any other bank, and (ii) in all cases subordinated debt is affected (in 75% of the cases bail-in is extended to senior unsecured debt, but only in one case deposits are hit).

The analysis is obviously partial as it only considers the direct impacts on other large banks through cross-holdings. The direct impacts on smaller banks and other holders of debt are not considered. Even more importantly, the effects through fire sales of

assets and confidence are excluded from the analysis. Therefore, while the direct contagion effects appear subdued (the expression used by authors), the results should be regarded as a lower bound of the contagion effects a shock to the capital of a single bank can lead to.

While there are bank failures which stem from truly idiosyncratic shocks in the presence of otherwise normal financial market conditions, failures tend to cluster in times of generalised economic weakness. The attempts of the individual banks and other financial market players to reduce risks and improve their liquidity positions may in such circumstances lead to significant reduction of lending and to fire sales of assets. Such coinciding reactions may compound the initial shocks significantly.

These worries about the contagion spreading in fragile financial market and macroeconomic conditions have led some experienced observers to raise doubts about the feasibility of bail-in in situations of systemic vulnerability. Former US Treasury Secretary Timothy Geithner for example writes: ‘...imposing haircuts on bank creditors during a systemic panic is a sure way to accelerate the panic’ (Geithner 2014, p. 214). In the same vein, Goodhart and Avgouleas (2014, p. 37) conclude that bail-in could be used for systemically important banks only if the problem was idiosyncratic. In other circumstances, ‘contagion may be uncontainable’.

Whatever the final assessment of the contagion effects of a bail-in of a major institution during generalised financial and economic weakness may be, such effects can be reduced by good resolution planning. First, the planning needs to make sure that the financial institutions are in practice resolvable in the very short time typically available for effective resolution and that the institutions have sufficient amounts of bail-inable liabilities. Second, to reduce uncertainty, the investors and depositors need to be made clear of the potential of resolution and how different assets are treated in resolution situations. Third, an effective collaboration of the respective authorities is essential for a smooth resolution of institutions operating in several jurisdictions. Fourth, there needs to be ample liquidity available for solvent institutions.



It seems to us that the factors helping to contain spillover effects are in a relatively good shape in the Nordic area. Banks are in general well-capitalised and all significant institutions meet the minimum requirement of bail-inable liabilities. The cooperation between the competent authorities is close; resolution colleges have been set up for all significant institutions and resolution based on the single-point-of-entry approach is foreseen. The resolution authorities have conducted crisis simulation exercises and continue to do so on a regular basis.

## 5. Conclusions

The global financial crisis led to regulatory reforms, which have enhanced both the resilience of the banking sector and the crisis management abilities of authorities. The bail-in rules introduced in the EU legislation are an essential part of the bank crisis management reform in Europe. Instead of bail-outs of bank creditors by public authorities, bank creditors along with owners are now foreseen to share the burden of bank failures.

The analyses surveyed suggest that the crisis resolution approach based on bail-in could reduce taxpayers' costs in the short run and improve risk-taking incentives in the long run. However, it is not equally clear to what extent the loss absorption capacity should take the form of equity capital and various hybrid instruments and to what extent that of bail-inable liabilities.

The European resolution framework sets clear rules for the planning and execution of bank resolution, including bail-in of creditors. The institutions foreseen for the implementation of bank resolution are largely in place. Nevertheless, not all banks in Europe have yet modified their liability structures to meet the requirements set by the authorities, nor is the supporting legislation, e.g. on national insolvency procedures, harmonised as would be useful. The empirical evidence on the application of the new rules is scanty and does not give reliable guidance about how bail-in would work in the future.

The key challenge is contagion when a major – systemically important – institution is subject to bail-in, particularly in the circumstances of generalised economic weakness. Because of this, it cannot be excluded that public money will need to be used to safeguard financial stability also in future banking crises. However, even if some public funds may be deemed necessary, the need for public funds will most likely be less than what it has historically been.

The systemic challenge of bail-in is very important in the Nordic countries with a concentrated and highly interconnected banking system. Fortunately, the resolution planning of authorities as well as the banks is well-advanced. This gives some confidence that the resolution of even a large Nordic bank should be doable without devastating financial stability consequences, at least when the failure has idiosyncratic roots.

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## **Comment on E. Jokivuolle, V. Vihriälä, K. Virolainen and H. Westman: Bail-In: EU Rules and Their Applicability in the Nordic Context**

**Pär Holmbäck Adelwald<sup>1</sup>**

The paper provides a number of interesting perspectives on the new financial crisis management framework called resolution which is now being established throughout all major economies. For a practitioner, the literature review in the paper is very helpful when contemplating some of the fundamental questions underpinning crisis management in general and the new resolution and bail-in framework in particular.

Two such questions addressed in the paper concern first whether the bail-in of banks' creditors will lead to substantial contagion, especially if applied in a systemic crisis, and second how liquidity is to be ensured through a resolution procedure. My opinion is that the concerns expressed in relation to contagion are exaggerated, whereas the issue of funding in resolution is more serious and warrants further discussion.

### **1. Will bail-in cause contagion?**

The introduction of a resolution framework was mandated by G20 leaders in 2009 following the massive disruption to the financial system and world economy caused by first the demise of Lehman Brothers and, subsequently, the costly bail-outs of banking groups by governments around the globe. Whereas the case of Lehman made it clear that systemically important institutions could not be allowed to fail in a disorderly way, the bail-outs proved not to be a workable strategy because of the substantial damage they caused to public finances in places like Ireland and Iceland. There was a need for a third way, as the authors put it, between non-intervention and bail-out. That third way is resolution, which in its core is

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nothing short of the reinstatement of the fundamental principles of the market economy to the banking system.<sup>2</sup>

While most people seem to agree resolution and bail-in is a good idea in principle, some are concerned it might lead to an amplification of the problems if applied in a systemic event (see for instance Goodhart and Avgouleas 2014, Geithner 2017 and Borg 2019). The risk perceived is that, while the bail-in might restore the solvency of one firm, it will spread the problems to other firms because of (a) cross-holdings and (b) general uncertainty gripping the market. Although due caution should of course be paid when discussing matters as complex as financial crises, these concerns are exaggerated as I see it.

Take cross-holdings: will the bail-in of firm A risk to impose losses on firm B at such proportions that B also becomes insolvent? That will only happen if B is holding the instruments issued by A that will be subject to bail-in. It is true that banks typically hold large amounts of one another's instruments, not least in the Nordics, but it is crucial to differentiate between what types of instruments they are holding. Mostly, these are covered bonds which are statutorily exempt from bail-in. They cannot be bailed in. And further, in addition to the capital instruments already in place banks are now required to issue large amounts of subordinated debt. That is debt instruments which will rank in between capital and senior unsecured instruments, i.e. the normal funding of a bank which is dependent on wholesale markets or large corporates' deposits. These are the instruments which primarily will be carrying the risk of being bailed in, not senior unsecured funding and certainly not covered bonds. The risks of direct contagion, therefore, will be very limited.<sup>3</sup>

To the other cause for concern then: what about general uncertainty when writing down capital and converting debt instruments into equity? Will investors not stop funding the bank out of sheer panic, as argued by Caballero and Simsek (2013) and cited by the authors? This argument draws upon the 2008 experience when the failure

<sup>2</sup> I will be elaborating on this theme in a forthcoming publication.

<sup>3</sup> It is striking that Hüser et al. (2017), as cited by the authors, show that even before the introduction of the subordinated debt requirements none of the 26 banks included in the study would have become insolvent when bail-in is applied. In terms of the issuances of subordinated debt by Swedish bank to date, they are typically taken up by non-Scandinavian institutional investors.

and non-intervention in Lehman caught market actors with total surprise. No one had expected the US authorities to let a systemic institution fail. But when that happened, investors worried who might be next and sought to get out of whatever exposures they could. This is the crucial point: no one expected this to happen. The purpose of resolution, on the other hand, is to achieve a paradigm shift whereby the expectations are moved from the paradigm of bail-out to the paradigm of bail-in. It is to be made crystal clear that debt instruments might face losses after capital instruments in accordance with the hierarchy of claims. Also in this regard does subordinated debt, therefore, become important. By separating this chunk out of the broad senior unsecured step of the insolvency ladder, investors will know ex ante what kind of risk they are buying and thereby be able to price it correctly. Provided that the subordinated debt layer becomes adequately sizeable, investors will then de facto be able to choose whether they want to buy a debt instrument which has a contingent capital feature to it or if they want to buy a normal funding instrument. There should be no more surprises.

This paradigm shift is now in the making. Most institutional investors in Europe and the US are, according to my experience, nowadays quite clear on this route of travel. Standard & Poor's (2019) says that '[...] Europe and the U.S. will complete the transition from bail-out to bail-in and so, in time, will deliver substantially resolvable systemic banks'. Tucker (2013) was of the opinion already five years after Lehman that the US had come to the point where resolving systemically important institutions was fully possible. What is necessary to complete this transition also in Europe is that politicians and policy makers stay firm in their ambition to abolish too-big-to-fail and not risk ending up in the Irish predicament once more.

## **2. Liquidity funding in resolution – central banks need to move**

The second item I want to focus on, and where I think the authors could have elaborated further, is the issue of temporary liquidity



funding. In this regard there is a need in Europe and the Nordics to get clarity around how a bank in resolution might draw on the central banks' liquidity facilities.

A common reaction from the central banking community when this issue is raised is that further clarity cannot be provided since it would further moral hazard, citing the well-known arguments of Thornton and Bagehot on the risks of having a too generous lender of last resort.<sup>4</sup> However, in the case of lending to a bank which has been put into resolution, there is no risk of moral hazard.

Why is that? For the rather simple reason that in most cases resolving a bank will entail the application of bail-in, thereby wiping out the shareholders and facing subordinated bondholders with a loss or conversion of their holdings into equity. And obviously, the senior management which steered the bank into failure will be replaced and whatever incentive program they enjoyed will not be as shiny following the bail-in procedure. So the question then is whose moral it is that would be hazarded if the central bank were to support a resolution procedure? It is hard to see the case. If anything, resolution will strengthen the central bank's position before the point of failure since it will enable it to actually say no when an insolvent bank applies for lender of last resort support as it can be put into resolution instead.

Rather, what is happening is that another public body in the shape of the resolution authority comes in to manage the failure and restore the bank's viability and reorganize it on behalf of the state. Quite another thing than a privately controlled firm which gambles for its resurrection.

Even though discussions on this matter have been ongoing for a couple of years now, there has not been much movement in terms of public statements on how central banks' facilities might be used in resolution. In contrast, The Bank of England, the Reserve Bank of Canada and the Hong Kong Monetary Authority are among those central banks who have publicly declared being open for busi-

<sup>4</sup> Thornton (1802) and Bagehot (1873) argued, in essence, that central banks should lend to banks in trouble only as long as they were solvent, against adequate collateral and at penal interest rates. Otherwise, they argued, there was a risk that banks might take excessive risks while betting on being saved by the central bank in the end.

ness. From a crisis management perspective these are very helpful statements.

Elsewhere, such as at the ECB and the IMF, there seems to still be a lot of focus on the moral hazard argument. And also closer to home, I have to admit. But for the reasons just mentioned, I would argue this is flawed thinking.

The issue of how to ensure the temporary funding of a bank in resolution is a crucial element in successfully applying the new framework. Resolution authorities will need some time for the dust to settle from the resolution weekend when they take control and communicate what is to happen. It may be that the bank's own liquidity resources and collateral pools are exhausted and that regular counterparties are not inclined to resume lending immediately. Extending a guarantee or bilateral loan from the resolution funds may be an option, but it might take some time for it to be operational. That creates a gap which someone has to fill and that someone should be the central bank.

So, I would concur with Tucker (2018) in his recommendation to central banks that they should reconsider their policies in this regard and, as he put it, start 'shouting from the rooftops' what the conditions for access to resolution facilities would be.

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## Comment on E. Jokivuolle, V. Vihriälä, K. Virolainen and H. Westman: Bail-In: EU Rules and Their Applicability in the Nordic Context

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The authors succeed in a demanding task of clarifying the economic theory, empirical results and practical issues related to bail-in policies. For the first time, bail-in is discussed specifically in the Nordic context. The paper provides a very thorough picture of how bail-in is implemented in Europe and what the economic literature says on the possible benefits, costs and uncertainty related to these policies. I will focus on two issues. The first one is related to bail-in policies and the bail-in literature in general. The second one is more focused on the conclusions of the paper at hand.

### 1. Anything else but equity!

As a critique of the bail-in literature in general, it seems that the point of view from which bail-in policies are studied can be at least roughly described as *anything but equity* type of thinking. This quote is from the best-selling book *The bankers' new clothes* by Admati and Hellwig (2013), where the authors claim that bail-inable debt is also a form of bankers' new clothes or at least an instrument created to avoid regulation implying significantly higher equity requirements for banks.

Jokivuolle et al. provide a really good and comprehensive literature review of the research that tries to figure out the role and consequences of bail-inable debt in bank capital regulation. The review gives more support for the view that the question academics and policy makers are currently focused on is '*How much of banks' total loss absorbing capacity (TLAC) should be bail-inable debt?*' rather than on '*How much bail-inable debt should banks have, if any, given that equity is at a sufficient level?*'. For example, only Mendicino et al. (2017) study simultaneously the level of TLAC and the shares of equity and bail-inable debt in it. In other words, can we really talk

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about the role of bail-inable debt in TLAC (relative to equity), if we are not taking into account the whole level of TLAC? Clearly the higher the level of TLAC is, the smaller is the need for bail-inable debt within TLAC, assuming that the purpose of bail-inable debt is to improve the resolution process.

In a way, bail-inable debt is seen as a substitute for equity rather than a complement. We are preparing for the worst (a banking crisis) without doing the necessary things (higher equity requirements) to prevent it in the first place. Instead, we are creating something more complex with uncertain effects (bail-inable debt substituting for equity in capital requirements). As the paper concludes – especially in the context of a systemic event – there are many uncertainties regarding bail-in. There might be turmoil in the market due to trigger points where bail-inable debt is converted to equity. Although bail-in is included in the regulators' toolbox, there might be a bailout anyway! On top of these issues, there will be operational challenges, spillovers etc.

One must ask, why equity and bail-inable debt are not used separately so that the probability of a crisis is minimized with larger equity to total assets requirements and on top of this, bail-inable debt requirements to improve the resolution process if needed? There could be concerns that raising capital requirements would dampen economic activity via reduced bank lending. The argument for this view is usually that equity would be a more costly way for a bank to fund its business (lending etc.) than debt funding.

Many studies (e.g. Modigliani and Miller 1958, Cecchetti 2014, Aikman et al. 2018) give strong either theoretical or empirical arguments for the opposite view, namely that higher capital requirements do not affect the cost of capital and, hence, should have no negative effects on bank lending and economic activity. Although it is still under debate whether higher capital requirements will affect the cost of bank lending and bank profitability, there seems to be at least some consensus on the benefits and costs of higher capital requirements for society. The former are large (lower probability of crisis and lower costs if it occurs) and the latter are small or close to none (bank lending not affected significantly). A recent survey by Ambrocio et al. (forthcoming) of the views of leading academic experts on bank capital regulation provides similar conclusions.

Due to the likely positive effects of higher equity requirements, uncertainty related to the effects of bail-in policies and the fact that the Basel III requirement for the leverage ratio is currently 3%, it is quite hard to see why bail-inable debt is regarded as part of the solution for bank capital regulation. The question that needs to be answered in the first place is whether higher bank capital requirements have (socially) negative effects and how large these effects are relative to the positive ones. Only when these questions have been clarified and it has been concluded that the negative effects are larger than the positive effects, new forms of capital such as bail-inable debt should be considered in capital requirements. In the light of current regulation, where a fall of 3% in a bank's asset value would result in insolvency, it can hardly be seen as socially optimal to introduce an uncertain policy instrument to substitute for a much more certain instrument.

## 2. Nordic bail-in uncertainty

The most significant contribution of Jokivuolle et al. is the discussion of possible benefits and costs of bail-in in the Nordic context. The authors emphasize that the Nordic financial system is interconnected and consists of a small number of large banks, which implies that systemic events are more likely in the Nordics than in other financial systems. Although banks and financial authorities in the Nordics are well-advanced in their resolution planning, the effects of bail-in still remain uncertain. This relates to the fact there has been hardly any experience of bail-in in the context of systemic events in the Nordics or even in Europe after the imposition of the Bank Recovery and Resolution Directive (BRRD) in 2014.

The authors discuss the bail-in of a systemic bank in Cyprus in 2013, where the bail-in had some effects on banks' stock prices and CDS spreads outside Cyprus. However, Russian investors carried most of the bail-in losses, which together with the fact that Cyprus is neither a large economy nor has banks interconnected with EU banking systems may be a reason why the feared contagion effects were not substantial.

Jokivuolle et al. also discuss two Danish bail-in cases where the banks were not systemic, but the stock markets and the ratings

of systemically important financial institutions nevertheless reacted clearly to the bail-in. The authors add that the spillover effects were small, probably due to the small size of both banks. In addition to these results, the only evidence of the effects of bailing-in interconnected banks is a simulation study that does not take into account several important things such as effects on small banks and other creditors, fire sales of assets etc.

The points made in the previous part of this comment are even more relevant in the Nordic context as the uncertainties regarding bail-in are greater in the case of a highly interconnected financial system consisting of a few large banks. The benefits of higher equity requirements are somewhat agreed on: both smaller probability of and smaller cost associated with a crisis (the latter being more certain). The benefits of bail-in are more uncertain - equity is still equity and investors know this. Due to these uncertainties, the role of both bail-inable debt and equity capital as preservers of financial stability should be studied more. This paper has been a clear step in the correct direction.

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