

# Strengthening the euro area by addressing flawed incentives in the financial system

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*The costs of the financial crisis have been high in all major economies and particularly high in the euro area economy. Enhancing financial stability will strengthen monetary union, but it can also increase regulatory complexity. The set of measures presented in this article are designed to enhance financial stability and strengthen monetary union without adding complexity. The measures focus on realigning the incentive structure for bank shareholders and bank creditors with the objective of maintaining financial stability.*

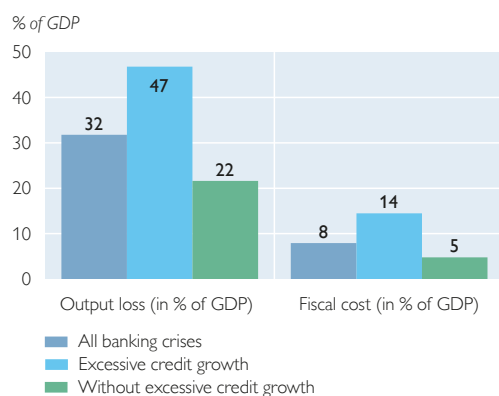
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The financial crisis has brought the issue of financial stability to the top of the agenda – not only for supervisory authorities, but also for public policy makers in general. This is largely due to the high costs systemic banking crises cause in terms of both loss of GDP and fiscal cost. In the European Free Trade Association (EFTA) countries, 34 systemic banking crises have occurred since 1977. International Monetary Fund (IMF) data suggest that, on average, systemic banking crises result in a loss of output equivalent to 32% of GDP and a fiscal cost of 8% of GDP (chart 1). Systemic banking crises that follow excessive credit growth impose particularly high costs on societies. In such cases, the average output loss amounts to 47% of GDP and the average fiscal cost to 14% of GDP.<sup>1</sup>

Chart 1

## Average cost of systemic banking crises (EFTA: 1977–2008)



Source: Laeven and Valencia (2012), OeNB calculations.

In the aftermath of the financial crisis, the G-20 and the EU substantially strengthened microprudential regulation (BCBS, 2017a, 2017b). However, the financial crisis demonstrated that compliance with microprudential regulation does not guarantee financial stability (IMF, 2013). During the buildup to the crisis, banks were already subject to tighter regulation and supervision than were most other sectors of the economy. The banks generally complied with the regulatory requirements. However, placing the regulatory focus solely on idiosyncratic risk proved both insufficient and misleading. As a result, macroprudential supervision, i.e. the identification and mitigation of systemic risk, has taken center stage throughout the EU.

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The costs of the financial crisis – which varied widely across the euro area countries in terms of both output loss and fiscal cost<sup>2</sup> – have put the euro area under substantial pressure. Consequently, some euro area countries have faced problems in rolling public debt forward. In response, the European legislators have acted to strengthen monetary union by undertaking institutional reform in addition to regulatory reform. The EU approach has thus far concentrated on enacting ever more detailed banking regulations as well as creating several new institutions and the associated legal structures (see section 1). This has in turn increased regulatory complexity in the euro area (EC, 2016a). Not only have the sheer number and volume of legal acts and legal instruments increased (regulations, directives, delegated acts, implementing technical standards, regulatory technical standards), but their cross-references and interpretations have expanded as well.

First, this paper argues that regulatory complexity is costly. Second, it presents a broad outline for strengthening financial stability and monetary union without increasing regulatory complexity. Rather than focusing on symptoms, we recommend to address flawed incentives such as the too-big-to-fail issue, the implicit government guarantee of bank debt, tax subsidization of bank debt, and the debt overhang problem.

This paper is structured as follows: section 1 summarizes the milestones of financial regulatory reform in the G-20 and the EU. Section 2 argues that, in the case of Austria, the benefits outweigh the costs of regulation. Section 3 identifies the costs of regulatory complexity. Section 4 studies the reasons for regulatory complexity. Section 5 presents the current proposals to reduce regulatory complexity, which we regard as insufficient. In section 6, we propose a combination of measures to address flawed incentives in the financial system. Section 7 presents our conclusions.

## 1 Milestones of financial regulatory reform

The regulatory reforms undertaken by the G-20 and the Basel Committee on Banking Supervision (BCBS) following the financial crisis have contributed to shaping financial regulation in the euro area. The introduction of Basel III and its transposition into EU law via the CRR/CRD<sup>3</sup> addressed the most severe shortcomings of microprudential regulation in Basel II by strengthening the capital framework and introducing liquidity standards (BCBS, 2010a). The framework is still evolving, with the latest adaptation in December 2017 when the BCBS disclosed its final revision designed to reduce the excessive variability of risk-weighted assets (BCBS, 2017a).

An important part of the CRR/CRD package is the establishment of macroprudential supervision in the EU, which is responsible for addressing cyclical and structural systemic risk (Eidenberger et al., 2014a). Its main cyclical instruments – countercyclical capital buffers and capital conservation buffers – address cyclical systemic risk by building up capital in “good times” and depleting it when systemic events occur. Its main structural instruments – systemic risk buffers and other systemically important institutions buffers – aim to address long-term, noncyclical

<sup>2</sup> The direct fiscal costs (2008–2014) in the euro area averaged 4.7% of GDP and varied between –0.1% of GDP in Italy and 31.1% of GDP in Ireland (ECB, 2015, table 1).

<sup>3</sup> Capital Requirements Regulation/Capital Requirements Directive.

systemic risk. Banks that fail to meet their capital buffer requirement face restrictions on the payout of dividends, among other penalties. By legally limiting possible dividend payouts, this should avoid a further deterioration in their capital base.

To complement Basel III and macroprudential supervision, European regulators introduced the Bank Recovery and Resolution Directive (BRRD). The BRRD addresses the problem – observed during the financial crisis – of governments being incentivized to rescue banks due to the lack of insolvency procedures for banks. It does so by introducing a gradual approach to dealing with ailing banks. In the early phase, supervisory authorities are able to intervene, using powerful tools such as appointment of a temporary administrator before the point of non-viability. Although not yet applied in practice, early intervention has the potential to bring about a paradigm shift in banking supervision. In practical terms, this is intended to provide resolution authorities with a toolkit that will enable them to deal with failing institutions by allowing the latter to leave the market without recourse to public money and without causing serious market disruptions.

In the euro area, the financial crisis led to a sovereign debt crisis that put monetary union under severe strain. In addition to implementing the G-20 financial regulatory reforms, the EU aims to strengthen monetary union by introducing a set of institutional reforms. Building on the outcomes of the de Larosière Report (EC, 2009), the European System of Financial Supervision (ESFS)<sup>4</sup> was created in 2010 to ensure a stronger, more coordinated system of supervision for all financial actors in the EU. The European policy response to the sovereign debt crisis has been to introduce institutional reforms to strengthen monetary union, including the European Stability Mechanism (ESM) and banking union. Once fully implemented, the latter will consist of the Single Supervisory Mechanism (SSM), the Single Resolution Mechanism (SRM), and the European Deposit Insurance Scheme (EDIS), with EDIS yet to take effect. Banking union aims to strengthen monetary union by reducing the likelihood of banking crises caused by inadequate banking supervision due to political interference and regulatory capture of national supervisors.

## 2 In Austria, the benefits of regulation outweigh the costs

With respect to Austria, we argue in this section that the benefits of financial reform have outweighed its costs. We distinguish between intended cost effects (higher weighted average cost of capital) and unintended cost effects, i.e. higher regulatory complexity, which we discuss in section 3.

Austria has implemented its global reform agenda primarily via (EU) secondary legislation. The core elements consist of the Capital Requirements Regulation (CRR), which is directly applicable, along with the Capital Requirements Directive (CRD IV) and the Bank Recovery and Resolution Directive (BRRD), which were transposed into national law in the form of amendments to the Austrian Banking

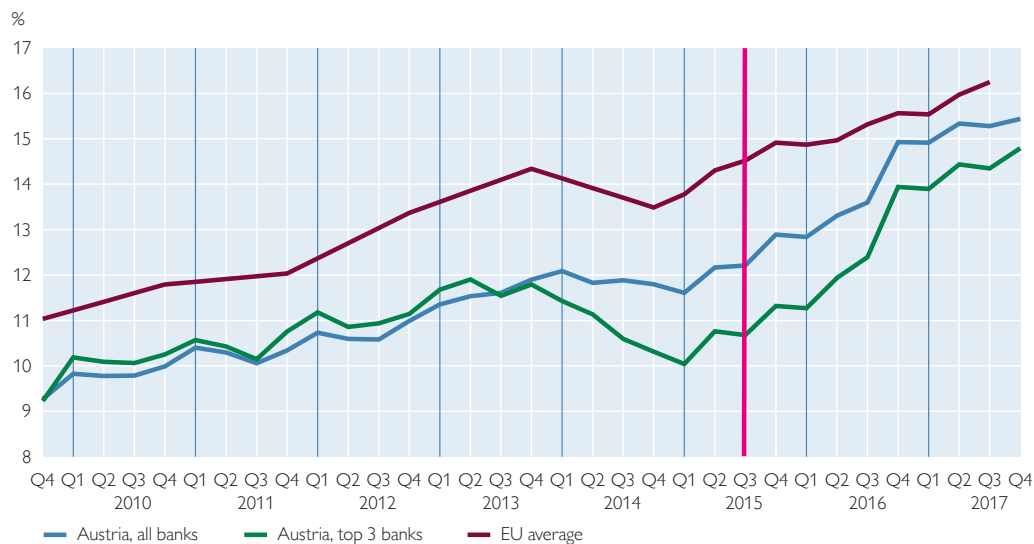
<sup>4</sup> Consisting of the European Banking Authority (EBA), the European Securities and Markets Authority (ESMA), and the European Insurance and Occupational Pensions Authority (EIOPA), the ESFS ensures stronger coordination in the application of supervisory standards and deeper cooperation between the national microprudential supervisors. In addition to the three European Supervisory Authorities (ESAs), the European Systemic Risk Board (ESRB) takes responsibility for coordinating the national designated authorities' macroprudential supervision of systemic risk in the EU.

Act (BWG) and the introduction of the Austrian Bank Recovery and Resolution Act (BaSAG).

Financial reform has helped substantially strengthen Austrian banks' balance sheets which led to various rating upgrades for the Austrian banking system and Austrian banks.<sup>5</sup> The tier 1 (T1) ratio for the Austrian banking sector increased from 9.3% of risk-weighted assets (RWAs, consolidated) at the beginning of the reform process in 2009 to 15.4% at the end of 2017 (chart 2). The increase has accelerated since 2015, absolutely and relatively to the EU average, with the introduction of a systemic risk buffer of 1% to 2% of RWAs (phased in until 2019) for 12 Austrian banks.

Chart 2

### Tier I ratio



Source: OeNB, ECB.

Note: The red line marks the announcement in June 2015 that a systemic risk buffer will be phased in Austria from 2016 to 2019. Tier 1 ratios are used here instead of CT1 ratios because the latter were only available until 2014. At 0.3 percentage points, the difference at year-end 2017 is marginal.

The social benefits of financial reform are significant in Austria, as higher capitalization substantially reduces the probability of a national financial crisis. According to a BCBS study (2010b), a systemic crisis occurs once every 20 to 25 years and the annual crisis probability is around 4% to 5%. The study analyzes the long-term economic impacts of higher core tier 1 (CT1) ratios on the annual probability of a systemic banking crisis (without any changes in liquidity ratios). In order to mitigate model risk, it presents the results of seven different simulation models employing a variety of methods, regional samples, and periods of calibration (see table A1 in the annex). The results should nonetheless be interpreted as “order of

<sup>5</sup> See *inter alia* the upgrade of the Austrian banking system from BICRA (Banking Industry and Country Risk Assessment) group 3 to group 2 out of 10 (1 lowest risk, 10 highest risk; no banking system in group 1 as of 1 June 2018): “...its stability has improved, primarily due to capital strengthening, supported by the derisking of larger banks in Central and Eastern Europe. Given this positive transformation in recent years, we consider that overall industry risk for the Austrian banking sector has reduced to be on par with that of previously stronger peers, such as Germany, France, Belgium, or the Netherlands.” (Standard and Poor’s 2018) and Moody’s (2017).

magnitude” estimates, given that the samples used in the empirical analyses cover time periods and regions that are only imperfect proxies for today’s banking system in Austria.

Based on the BCBS findings, we estimate that the increase in the level of capitalization in the Austrian banking sector of 6.5 percentage points of CT1 since 2008 has reduced the probability of a banking crisis by about three-quarters. At a capitalization rate of 8.5%, the average crisis probability across the six models shown in table A1 is approximately 2.25% per year. The probability decreases to approximately 0.5% at a capitalization rate of 15%.

The social costs of financial reform have been benign in Austria. Higher capital requirements increase banks’ average weighted cost of capital and thus banks’ internal hurdle rate for asset generation. The minimum internal hurdle rate is the rate of return on newly generated assets at which the transaction is neutral in terms of economic value added. All else being equal, this results in higher loan spreads. The downward sloping demand curves in the various asset markets in which banks operate (e.g. corporate loan market, interbank market, securities financing transactions) imply that bank balance sheets adjust to the rise in the weighted average cost of capital. The adjustments affect all components of bank balance sheets (Eidenberger et al., 2014b): Bank leverage came down markedly in Austria between 2009 and 2014, which was mainly attributable to increases in capital and decreases in interbank loans and external assets (outside the euro area and Central, Eastern and Southeastern Europe) as well as in securities issued by other banks. In contrast, exposures in the real economy (i.e. of households, nonfinancial corporations (NFCs), and the public sector) have increased. Furthermore, the link between bank loans and macroeconomic growth has been weakening over the past 20 years. In 2017, loans to NFCs accounted for only 17% of total bank assets in Austria (1999: 23%) and loans to small and medium-sized enterprises (SMEs) for around 6%. Faced with higher bank loan spreads, NFCs in particular are increasingly turning to alternative sources of funding, such as raising capital, retaining earnings, obtaining funding from other NFCs along the value chain, issuing debt instruments (including promissory notes), and factoring.

The higher weighted average cost of capital applicable to banks is largely intentional, as this serves to redistribute the costs of financial crisis from the public to bank shareholders. In addition, the higher costs for banks are partly mirrored by higher tax receipts. Notably approximately one-third of the higher loan spreads ensuing from higher capital requirements are due to reductions in tax shields (assuming an effective tax rate of 25%). This is a consequence of replacing debt with equity, which reduces tax-deductible debt servicing costs.

The higher costs arising from complexity are not intentional, however.

### 3 The cost of regulatory complexity

Complexity imposes costs on banks, investors, and supervisors alike. Banks incur higher costs for reporting, compliance, and supervisory risk management. For bank investors, bank balance sheets become more difficult to decipher and the information contained therein is prone to greater uncertainty (e.g. the risk weights and valuation of complex instruments such as interest rate swaps or distressed assets). As the cost of information gathering also increases, complexity impedes effective market surveillance and discipline – the third pillar of Basel III (Haldane,

2011). For supervisors, the costs of on-site and off-site supervision increase, as do impediments to resolution (BCBS, 2013).

Complexity in regulation leads to complexity in financial structures and systems, particularly in light of market participants' efforts to mitigate the costs and complications induced by regulation (Spatt, 2012) – including tailoring structures and products around regulation (Haldane and Madouros, 2012).

Complexity increases the chance of encountering loopholes in financial regulation, which can be highly profitable for banks to exploit (Archaya et al., 2013). The possibility of regulatory arbitrage may result in banks' generating asset portfolios with higher risk in order to maximize return on capital (Koehn and Santomero, 1980). Risk weighting of assets in bank portfolios ought to mitigate that effect somewhat (assuming the risk weights are accurate). However, bank efforts to actively manage risk weights (Mariathasan and Merrouche, 2014) can push many risks off balance sheet (Goodhart, 2011).

Complexity-induced executive decisions have governance implications and entail high agency costs, as managements adopt business strategies and structures for hiding excessive risk and posting “inflated” short-term profits. This also increases the size of performance-based executive compensation packages (Avgouleas and Cullen, 2015a). Furthermore, complexity incentivizes lobbying to undermine regulatory constraints given that highly technical regulations largely escape public scrutiny that might otherwise serve as a counterforce. This in turn increases the danger of regulatory capture that occurs when regulatory bodies protect and advance the agenda of the industry. Complexity might even become a source of systemic risk (Haldane, 2011; Freixas et al., 2015).

#### 4 The reasons for regulatory complexity

In our view, flawed incentives are the main cause of regulatory complexity. The divergence between the private and social costs of bank failure incentivizes regulators to minimize the probability of failure, while at the same time encouraging bank stakeholders to take excessive risk.

Complexity is a consequence of conflicting incentives for banks with regard to financial stability (Admati, 2015). On the one hand, incentives for increasing leverage are created by implicit government guarantees, the tax deductibility of the cost of debt, and bank shareholders' limited liability. In some cases, the regulatory framework itself is used to promote non-financial stability-related policy objectives; examples that spring to mind are the promotion of SMEs (SME supporting factor; EBA, 2016) and the sustainable/green finance initiative (EC, 2018). By contrast, financial regulation aims to limit leverage to counterbalance the negative consequences of flawed incentives.

There are trade-offs to be made within the regulatory framework (BCBS, 2013). To some degree, policy makers deliberately embrace complexity in exchange for greater risk sensitivity and less intrusiveness.

Current regulation aims for a high degree of risk sensitivity to avoid incentives for banks to shift to riskier portfolios within the very simple approach under Basel I. This has increased the complexity of the framework due to the broad set of different risk weights used in the standardized approach, and even more so by allowing banks to use their internal models to calculate regulatory risk weights (BCBS, 2013). To this end, the current regulation incentivizes banks to “optimize”

their internal models, forcing supervisors to increase scrutiny of banks' internal models. However, the discretionary powers granted to supervisors under Pillar 2 make the framework even more opaque (Bruni, 2005; Haldane, 2011). Some components of Pillar 2 (Pillar 2 guidance) do not even have to be disclosed. Moreover, there is some risk of further inconsistencies when national regulators employ different practices, which can create an unlevel playing field (Döme and Kerbl, 2017).

Although using tools targeted toward specific policy objectives reduces the intrusiveness of regulation, such tools increase complexity. The Tinbergen rule states that for policy makers to achieve independent objectives, the number of independent instruments available to them must equal the number of objectives (Tinbergen, 1952). Accordingly, it is not possible to achieve two independent objectives using a single policy instrument if policies are to be effective. As a result, this rule increases complexity by adding instruments. However, the different instruments in play do allow policy makers and authorities to act less intrusively and in a more targeted manner. Macroprudential supervision is an example of targeted, evidence-based regulation.<sup>6</sup>

Some degree of complexity is unavoidable, however.

Banks, products, and systems are complex, and the regulatory framework mirrors that complexity. The complexity, size, and interconnectedness of banks were among the main motivators for public bailouts during the financial crisis. For example, many of the major banks have hundreds if not thousands of subsidiaries, which makes it very hard for market participants to monitor them (Cetorelli and Goldberg, 2014). Furthermore, the financial instruments themselves have become more complex (e.g. structured products). The financial system is highly complex due to the increasing interconnectedness of financial institutions across sectors, the lengthening of the intermediation chain, and closer international financial integration (Landau, 2009).

Globalization and European integration are additional sources of complexity. The interaction between international, European, and national regulators (“multi-level regulation”) makes the allocation of regulatory responsibilities unclear and confusing to both the public and market participants. This results in greater risk of fragmentation, possible inconsistencies, and conflicts between the various regulatory regimes (Wallace et al., 2005).<sup>7</sup> European banks often lobby for preserving national specificities, whereas EU regulators thrive to harmonize regulation.

## 5 Current proposals to address complexity

Regulatory complexity has been receiving increasing attention from both global and European policy makers recently (Dombret, 2014; Ingves, 2016; Nouy, 2017; Dombrovskis, 2018). However, few policy makers have presented concrete proposals

<sup>6</sup> The case of the countercyclical capital buffer (CCyB) illustrates this well. Instead of increasing the minimum capital requirement permanently by 2.5%, the CCyB is only activated when credit growth is excessive. It is again released when credit growth returns to its long-term average or below (e.g. due to a credit bubble bursting). While establishing rules and guidance on its activation and release adds complexity, the CCyB is less intrusive for banks.

<sup>7</sup> This is also the case within the euro area with respect to the Single Supervisory Mechanism (SSM), where the relevant legal basis becomes more complex due to the combination of European and national law consisting of 19 different legal systems (Angeloni, 2017). While with the SSM a further player has been added to the already complex decision-making process, the SSM aims to harmonize the rules for banks in the banking union and thus contributes to simplicity.

to address the problem. Boss et al. (2018, in this issue) make the case for greater proportionality in banking regulation and supervision in the EU.

The two most concrete proposals suggest reducing risk sensitivity in order to decrease complexity.

The most detailed proposals came from the BCBS Task Force on Simplicity and Comparability (BCBS, 2013) and build on an increasingly skeptical view of the role and robustness of internal risk models within the regulatory framework. Now that Basel III (2010) has significantly simplified the numerator used to calculate capital adequacy ratios (the definition of capital), Basel IV (BCBS, 2017a) aims to reform the denominator (i.e. the risk-weighted asset calculation methodologies). At the center of the Basel IV reforms is the so-called output floor, which sets a capital requirements floor of 72.5%, calculated using internal models.<sup>8</sup> Output floors will be gradually implemented from 2022 onward and fully phased in by 2027. In the United States, such a backstop was introduced in 2010 with the Collins amendment to the Dodd-Frank Act. It prescribes a 100% floor based on the simpler standardized approach. So far, each new Basel standard that has corrected unintended consequences of earlier versions has contributed to increased complexity. The risk weightings are still rather opaque and the actual effect on complexity of the introduction of the floors depends on their consistent implementation.

Haldane (2013) and Admati and Hellwig (2013) go one step further and suggest that the leverage ratio should be higher so that weighted capital ratios and unweighted leverage ratios are on an (at least) equal footing. Basel III includes a simple leverage ratio as backstop for the complex capital adequacy ratio. This is a step in the right direction, but the new minimum leverage ratio requirement is only 3%, or about the same as that of the largest U.S. banks when the global crisis erupted. According to Haldane (2013) and Admati and Hellwig (2013), the hierarchy should be reversed, with the leverage ratio playing the frontstop role given its simplicity and superior predictive performance. The more complex the bank, the stronger this case is. Admati and Hellwig (2013) call not only for the leverage ratio to play a more prominent role, but also suggest that it should be much higher at 20% of bank assets and completely replace capital adequacy ratios based on risk weights. They argue that their proposal only seems costly for banks due to the distortions inherent in the implicit government guarantee and the tax subsidies for explicit bank debt guarantees. Based on historical banking crisis data, a group of IMF researchers suggests a minimum leverage ratio of 9% (Dagher et al., 2016).

## 6 Addressing the root causes, rather than the symptoms, of complexity

We argue that any attempt to reduce regulatory complexity without addressing flawed incentives is unlikely to succeed. As long as the potential rewards for regulatory arbitrage and product innovation around complex regulation are high for bank shareholders and the potential costs of failure are partially externalized, the race between bankers and regulators will increase complexity on both sides. Correcting flawed incentives for bank shareholders and creditors is the most efficient contribution to enhancing financial stability and thus strengthening

<sup>8</sup> The BCBS (2017a) also imposes additional restrictions on the use of internal models for certain types of portfolios.



monetary union. Therefore, we suggest the following medium-term measures to realign incentives for bank stakeholders with the objective of maintaining financial stability.

First, the implicit government guarantee of bank debt should be abolished. The introduction of the BRRD and its implementation in Austria (BaSAG) constitute progress in this respect. However, the debate on fiscal and liquidity backstops<sup>9</sup> for euro area banks highlights the fact that a significant number of these banks are still considered to be too big to fail as well as too big to be resolved without recourse to public funds (Regling, 2018; Mersch, 2018). Similarly, activating macroprudential buffers for systemically important institutions (O-SII) can make an important contribution. If well calibrated, such buffers can reduce the likelihood of failure and hence the value of the implicit government guarantee. Should a failure occur, the buffers decrease the capital shortfall, consequently facilitating resolution. However, the CRD IV sets the maximum value of the buffer at 2% of RWAs, which translates into only around 0.6% of total assets in the case of large European banks. It is also important that insolvency procedures and – in selected cases – the resolution framework be transparent and rule based in order to stabilize expectations. These gone concern rules are prerequisites for the risk-sensitive pricing of liabilities that are subject to bail-in in resolution in a going concern scenario. The minimum requirement for loss-absorbing liabilities (or MREL) needs to be high enough to ensure that the bail-in potential is sufficient to avoid relying on public funds.<sup>10</sup> Deposit guarantee schemes (DGSs) should be strengthened to ensure credible protection for insured depositors in the event of market exit, without amplifying systemic risk, should a bank become insolvent.<sup>11</sup> Either the ex ante funds must be sufficiently large to require only small ex post contributions, or banks should hold additional capital to enable them to absorb the contingent costs of substantial ex post contributions, and ex ante credit arrangements should allow the deposit guarantee scheme to raise additional funds in a timely manner. Moreover, national insolvency regimes need to become more efficient and harmonized (Lautenschläger, 2018; König, 2018).

Second, macroprudential supervision needs to ensure that the financial system is well equipped to absorb direct losses and indirect shock waves arising from market exits by banks and other financial institutions. In other words, the framework should be such that the market exit of banks does not result in external costs such as financial instability or public bailouts. Financial systems operate risk-sharing mechanisms such as DGSs (see above) and interbank liabilities. For a bank market exit to be credible, banks must be prepared to absorb the potential losses inherently arising from the intended functioning of those mechanisms

<sup>9</sup> Calls for a fiscal backstop focus on the ESM as backstop for the Single Resolution Fund (SRF); the envisioned liquidity backstop would be provided by the Eurosystem, if the bank exiting resolution faces a liquidity gap too large to be closed by the SRF.

<sup>10</sup> The precise minimum level of MREL that is necessary to achieve these objectives is institution specific and is determined by the Single Resolution Board or the national resolution authority.

<sup>11</sup> Systemic risk can result from large ex post contributions and/or the need to close a funding gap by a loan. The Deposit Guarantee Schemes Directive (DGSD) requires an ex ante fund of only 0.8% of covered deposits and relies on ex post contributions and/or loans to the DGS (Article 10 (9) of the DGSD) to cover insured deposits. Currently, not all national DGSs in the EU have put mechanisms in place that ensure that they obtain short-term funding in a timely manner. For DGS data, see <https://www.eba.europa.eu/regulation-and-policy/recovery-and-resolution/deposit-guarantee-schemes-data>.

without compromising financial stability. This was not the case during the financial crisis. Rather, the mechanisms were perceived as channels of contagion that amplified systemic risk, which resulted in intervention by the authorities: e.g. the liquidity injections by the Eurosystem in August 2007 (ECB, 2007) and public rescue packages (Weber and Schmitz, 2011). The burden of risk sharing was thus transferred to the public. As a consequence, in Austria, the systemic risk buffer component of “systemic vulnerability” was calculated to require a set of 12 banks to hold 1% of RWAs to absorb potential losses arising from risk-sharing mechanisms (e.g. due to direct interbank exposures, indirect contagion in the form of a spread shock, or ex post contributions and loan provision to the DGS). This approach to the too-big-to-fail problem complements the other systemically important institutions (O-SII) buffer, which aims to reduce the probability and the cost of failure of systemically important institutions.

Third, better disclosure would help restore market discipline and strengthen transparency. More reporting data should be made public in the EU, similar to the U.S.A.

Fourth, certain very large and complex banks need to make adjustments to ensure that they become resolvable. The more complex a bank, the harder it is to put it into resolution (when it is failing or likely to fail) and hence the greater the value of the implicit public subsidy arising from the perception of systemic importance (BCBS, 2013). Major events (such as the Société Générale/Kerviel case in 2008) serve as a reminder that the problems encountered in managing the risk of large, complex financial firms can make the world’s largest banks too big to manage. While the framework for global systemically important banks (G-SIBs) aims to address their complexity and size, there is no quantitative evidence at present that the G-SIB buffers have been effective in this regard (Carmassi and Herring, 2016; Goldberg and Meehl, 2018). Article 17 of the BRRD provides resolution authorities with alternative tools to remove impediments – such as complexity and size – to the resolution of going concern institutions. This applies in cases where it is neither feasible nor credible for the resolution authority to either liquidate an institution in normal insolvency proceedings or to resolve it without causing major disruptions in the financial system. If banks remain too complex and too big to be credibly resolved, resolution authorities should make use of their intrusive powers to require changes in the legal or operational structures of institutions, to restrict existing business lines, or to require the institution to divest specific assets or cease certain activities altogether.

Fifth, the debt overhang problem needs to be addressed ex ante. Once capital is low, limited liability can distort incentives. At the borderline between going and gone concern, it is the bank’s debtors that are the main beneficiaries of recapitalization, and the bank’s shareholders less so.<sup>12</sup> This gives bank shareholders less incentive to recapitalize banks that feature low levels of capital. One way to address this problem is contingent convertible bonds (CoCos). Under certain conditions – defined by the CRR – CoCos count as eligible capital (as additional tier 1 or tier 2

<sup>12</sup> Before CoCo triggers and early intervention triggers bite, macroprudential policy already requires shareholders and bank management to reduce dividend payments if the bank does not fulfill its combined buffer requirement. To contribute to reducing the probability of a debt overhang problem, macroprudential buffers need to be sufficiently high throughout the euro area. Even then, dividend restrictions are ineffective when profits are low or negative.

instruments; BCBS, 2010a). If designed well, they can improve the incentive structure for bank shareholders to recapitalize the bank in a timely manner. In particular, a relatively high conversion threshold (e.g. at a common equity tier 1 (CET1) ratio of at least 7% of RWAs, mirroring the CET1 Pillar 1 minimum requirement and the capital conservation buffer) could ensure timely recapitalization. Moreover, mandatory conversion into equity at a low conversion price in combination with a higher proportion of CoCos on banks' balance sheets would result in a substantial dilution of existing shareholders and thus give incentives for shareholders to recapitalize the banks well before the debt overhang problem takes hold. A study by Goldman Sachs (2009) shows that during the height of the financial crisis, well-designed CoCos would have incentivized U.S. bank shareholders to recapitalize the banks privately without government support. Currently, a large percentage of the CoCos issued in the EU is not well designed, as the triggers are too low (Deutsche Bundesbank, 2018) and the CoCos are often written down rather than converted into equity. The CRR should be amended to ensure that CoCo design improves. Furthermore, supervisors should make active use of their early intervention powers to avoid bank capitalization falling to a level at which debt overhang becomes an issue.

Sixth, supervisors should allow market discipline to work for banks in going and gone concern scenarios, even if this might cause temporary market volatility. The Pillar 3 disclosure and market discipline requirements are an important element of Basel III. However, alternative considerations often undermine the workings of market discipline when it actually takes hold. For example, the short-term unsecured money market can react very sensitively to changes in perceptions of bank stability. The disciplining effects are often undermined when central banks replace market funding with central bank funding (as was the case with the large liquidity injections by the Eurosystem in 2007). In the short term, this might be rational from the point of view of central banks given their concerns about effective monetary policy implementation and financial stability. In the long term, it, however, undermines the workings of market discipline. To avoid such time inconsistency in the future, central banks and supervisors should learn to accept some short-term volatility when market discipline is in operation. Over time, financial market participants will learn to live with this as well. At the same time, market discipline should concentrate on liabilities for which alternative considerations are unlikely to undermine its workings. CoCos fulfill this objective.<sup>13</sup> Their risk-bearing characteristics in gone concern situations and the sensitivity of their coupon payments in going concern situations increase the risk sensitivity of their market prices. The maximum distributable amount (MDA) constitutes a central element in this respect: it restricts banks' ability to pay coupons on additional tier 1 (AT1) instruments and dividends when their capitalization fails to meet the combined buffer requirement (CBR).<sup>14</sup> This simple and binding rule helps anchor investor

<sup>13</sup> The recapitalizations of UniCredit and Deutsche Bank in 2017 (after sharp drops in the market prices of their CoCos) provide an initial indication that additional tier 1 instruments can supply incentives that are conducive to financial stability.

<sup>14</sup> The MDA decreases from a maximum dividend payout ratio of 60% to no dividend at all as the gap between the CBR and the actual capitalization level widens. MDA acts as a mild yet effective measure that raises the risk sensitivity of bank funding costs at the margin.

expectations, facilitates the pricing of AT1 instruments, and avoids a time inconsistency problem for supervisors.<sup>15</sup>

Seventh, tax subsidies for leverage need to be eliminated at the margin. The tax deductibility of business expenses constitutes a core element of business taxation. As such, the tax subsidization of leverage applies to all companies, not only banks, and is consistent with the nature of the tax system. However, for banks, debt costs are typically the largest cost factor as they are highly leveraged. Unlike nonbanks, however, their leverage can have substantial negative externalities. One way to address the issue is to make not only the cost of debt, but also the cost of equity, tax deductible for all companies (EC, 2016b).<sup>16</sup> Another would be to address the problem in a bank-specific manner. A bank levy could be structured in a way that counterbalances the tax subsidy at the margin. A target rate for bank debt would have to be defined for tax purposes, say 80% to 85% of RWAs and 90% to 95% of total assets, and EU governments would no longer subsidize debt beyond those levels. Banks with capitalizations below the stated levels would have to pay a levy equal to the tax subsidy for any debt that exceeds the target rate. That would still leave debt cheaper than equity, but by a smaller margin.

Eighth, financial regulation should not be used to promote non-financial stability-related, general economic policy objectives. The European Commission (2018a, 2018b) triggered a public debate in suggesting policy initiatives on “sustainable finance,” “green bonds,” and a “green supporting factor.” The latter would lower capital requirements for green investments by applying lower risk weights. Banks could then fund these loans with less loss-absorbing equity, which means more bank leverage. The European Commission had already introduced a SME supporting factor to decrease capital requirements for loans to SMEs and encourage banks to lend more. However, there is little evidence that SME loans are less risky than other non-financial corporate loans or that the SME supporting factor has been effective (EBA, 2016). Evidence suggests that quite large changes to risk weights would be needed to have any effect on bank lending decisions (BoE, 2014; EBA, 2016). Incorporating other objectives when setting capital requirements is at best ineffective, and at worst undermines financial stability and increases complexity (Bruegel, 2018; Finance Watch, 2018).

Ninth, building a capital markets union (CMU) – which would strengthen alternatives to bank financing for the real economy – should be supported. Banks are fragile by construction; their liabilities are liquid and nominally fixed, while their assets are illiquid and risky. Banking regulation and banking union seek to mitigate the potentially destructive consequences of bank fragility for monetary union by means of ever more complex regulation and supervisory structures. A shift from bank-based to more market-based financing (including private placements) would be even more effective in strengthening monetary union (EC, 2015). This would reduce the size of the banking sector and, as a result, the costs of banking crises in the euro area. This positive effect would be enhanced by

<sup>15</sup> *In the past, supervisory inaction was often justified by the negative signaling effects potentially associated with taking action. In addition, the sensitivity of AT1 prices provides an early warning signal not only for investors but also for supervisors, which improves the incentive structure for the bank to close the gap to the CBR.*

<sup>16</sup> *The European Commission proposed to relaunch the Common Consolidated Corporate Tax Base in October 2016 with the aim of reducing the tax bias for all companies in the EU. Addressing the tax bias could also lead to more equity in nonbanks and thus increase both bank debtors' credit quality and financial stability.*

diminishing the threat to the euro area stemming from the bank-sovereign nexus. It would also reduce the politico-economic hurdles to monetary union, as it would promote risk sharing through private markets (see Beer and Waschiczek, 2018, in this issue). In this respect, we regard CMU as an important complement to banking union. Finally, risk-adequate capital requirements for sovereign bonds, to be gradually implemented to avoid an unsettling of monetary union, would weaken the bank-sovereign nexus further and strengthen monetary union.

Tenth, to address the potential buildup of excessive leverage in the financial system and to anticipate a potential future crisis, the macroprudential regulatory framework should be expanded to the nonbanking sector (Houben et al., 2015). The growing shift from bank-based financing to a more market-based financing model – mainly deriving from the diversification of funding for the real economy, incentives stemming from CMU, and increased regulation of banking – calls for the introduction of new macroprudential tools. The latter are needed to address possible risks emerging in the securities markets, for mutual funds, and in the insurance and pension sectors and could be, for instance, margin and haircut requirements for derivatives and securities financing transactions as well as leverage and liquidity requirements for investment funds (Constâncio, 2017).

## 7 Conclusions

We suggest ten medium-term measures that address flawed incentives for banks. These would shield the euro area against the fallout from financial crises in its member countries more effectively than adding complex regulation and supervisory structures would. The most important recommendations are: First, abolish the implicit government guarantee and tax subsidization of bank debt. Second, strengthen the risk bearing capacity of the financial system to enable it to absorb the costs of the temporary market volatility associated with bank market exits. Third, improve the design of contingent convertible bonds. Fourth, reduce the size and complexity of banks by promoting alternatives to bank funding for the real economy. Not least, supervisors would have to accept the temporary market volatility inevitably associated with bank market exits.

Once this has been achieved, the social costs of bank market exit would be substantially lower. As a result, society would have a higher tolerance for bank failures, and regulation could be greatly simplified. The externalities/consequences of bank failure would be internalized within the banking/financial sector and among bank creditors. Simpler regulation might then result in more bank failures, but without having any significant detrimental effects on the wider financial system or the real economy and without destabilizing monetary union.

## Annex

Table A1

## Impact of higher capital ratios on crisis probability in six selected models

TCE/ RWA <sup>1</sup> (%)	FSA model	Linear BoJ model	Non-linear BoJ model	Bottom-up approach	BoE model for major U.K. banks	BIS model for global banks	BoC stress testing model	Average	
	Crisis probability in % per annum								
6	6.9	3.2	7.3	8.3	12.8	4.9	6.4	7.1	
7	5.5	2.5	4.2	5.6	6.0	3.8	4.7	4.6	
8	4.3	1.9	2.3	3.8	2.6	2.9	1.7	2.8	
9	3.4	1.5	1.2	2.5	0.8	2.3	0.1	1.7	
10	2.7	1.1	0.6	1.6	0.3	1.8	NA	1.4	
11	2.1	0.8	0.2	1.0	0.1	1.4	NA	0.9	
12	1.7	0.6	0.1	0.7	NA	1.2	NA	0.9	
13	1.3	0.5	NA	0.4	NA	1.0	NA	0.8	
14	1.0	0.3	NA	0.3	NA	0.8	NA	0.6	
15	0.8	0.2	NA	0.2	NA	0.7	NA	0.5	

Source: BCBS (2010b): Annex 2, table A2.1.

<sup>1</sup> TCE/RWA = tangible common equity divided by risk weighted assets. We proxy TCE by CT1 in the discussion of this table in section 2.

Note: Annex 2 of BCBS (2010b) provides brief descriptions of the six models presented here. They include models from the U.K.'s Financial Services Authority (FSA)/National Institute for Economic and Social Research (NIESR), the Bank of England (BoE), the Bank of Japan (BoJ), the Bank of Canada (BoC) and the Bank for International Settlements (BIS). Three of these models are structural logit or probit models, two are estimated portfolio models, one is a Merton-style model and one is a stress test model.

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