

Bail-in: who invests in noncovered debt securities issued by euro area banks?

During the financial crisis numerous banks experienced financial difficulties and were subsequently bailed out by governments using taxpayers' money. Policymakers around the globe responded by overhauling resolution mechanisms for banks, including the introduction of bail-in rules to prevent future taxpayer-funded bail-outs. Despite the initial optimism that bail-in would mitigate the too-big-to-fail dilemma, criticism highlighting the shortcomings of this approach has recently been voiced both in academia and in wider circles. Several researchers have noted the urgent need for a more detailed analysis of the structure of holdings of bail-in-able debt securities. The aim of this paper is twofold: First, we provide an overview of the main arguments for and against the bail-in tool, and second, we shed light on the question of who invests in senior unsecured debt securities issued by banks, drawing on the Securities Holdings Statistics of the ECB for evidence. Our empirical evaluation on the basis of unconsolidated national banking sectors in the euro area provides information on the structure of the demand and supply side of bail-in-able bank debt securities in each euro area country. We are able to show which portions of the outstanding bail-in-able bank debt securities issued by euro area banks on aggregate and in individual countries are held in which region (home country, non-home euro area and outside the euro area) and by which sector (i.e. banks, other financial institutions and nonfinancial sector) within the euro area. In particular, we find that nearly 40% of all bail-in-able debt securities issued by euro area banks are held outside the euro area; intra-euro area cross-border holdings account for one-third of all euro area holdings of such debt, euro area banks' holdings for one-third and the euro area's nonfinancial sector (mainly households) for one-fourth. As regards bail-in-able debt issued by Austrian banks, about 20% are held outside the euro area, while euro area banks hold about 36% and the euro area's nonfinancial sector about 38% of all euro area holdings of this debt.

Claudia Pigrum,
Thomas Reininger
Caroline Stern¹

JEL classification: E44, G21, G28

Keywords: banking regulation, systemic risk, bail-in, contagion

During the financial crisis numerous banks experienced financial difficulties and were subsequently bailed out by governments using taxpayers' money. Policymakers around the globe responded by comprehensively overhauling resolution mechanisms for significant banks in order to address the too-big-to-fail issue and to prevent future taxpayer-funded bail-outs. Spearheaded by the Financial Stability Board (FSB), a set of principles (FSB, 2011b and 2014) was developed with the aim of ensuring that failing systemically important financial institutions could be resolved in an orderly manner without

burdening taxpayers. In this process, the term “bail-in” was coined, meaning that claims of shareholders and unsecured creditors were to cover losses incurred by banks, either by means of writedowns or by converting their claims into equity. The FSB notes that “The objective of bail-in is to reduce the loss of value and the economic disruption associated with insolvency proceedings for financial institutions, yet ensure that the costs of resolution are borne by the financial institutions' shareholders and unsecured creditors” (FSB, 2011a).

Despite the initial optimism that bail-in would mitigate the too-big-to-

¹ Oesterreichische Nationalbank (OeNB), Off-Site Supervision Division – Significant Institutions, Claudia.Pigrum@oenb.at, and Foreign Research Division, Thomas.Reininger@oenb.at and Caroline.Stern@oenb.at (corresponding author). Opinions expressed in this study do not necessarily reflect the official viewpoint of the OeNB or of the Eurosystem. The authors would like to thank Bianca Ullly, Georg Mosburger, Markus Schwaiger, Michael Boss (all OeNB) and Christoffer Kok (ECB) for their helpful comments and valuable suggestions.

Refereed by:
Christoffer Kok,
European
Central Bank

fail dilemma, criticism highlighting the shortcomings of the approach have recently been voiced both in academia and in wider circles (e.g. Avgouleas and Goodhart 2015; Persaud 2014 and 2016; Stiefmüller, 2016). Several authors have noted that a more detailed analysis of the structure of holdings of bail-in-able debt securities is urgently needed. The only empirically grounded paper on the holdings structure of bail-in-able debt securities that has come to the authors' attention was published by the European Central Bank (ECB). In this paper by Halaj et al. (2016) possible direct contagion channels are analyzed, using proprietary ECB data covering the securities cross-holdings of the 26 largest euro area banking groups. The authors find that cross-holdings of bail-in-able debt are currently at low levels: On average, the percentage of subordinated debt and senior unsecured debt securities issued by one bank of these 26 banks and held by the other 25 of these banks out of the total nominal amount of such debt issued by that bank amounts to only 0.6% and 5%, respectively, which is equivalent to 0.01% and 0.6% of total assets, respectively. Thus, the bulk of bail-in-able bank debt issued by these large banks is held by other banks (than those 26), nonbank financial institutions (such as insurance companies) and nonfinancial institutions (e.g. households). The authors conclude that the potential for contagion of a bail-in operation of one of these large banks lies mostly with these other holders (Halaj et al., 2016).

The aim of this paper is to close the gap in research by taking a more comprehensive view and to shed light on the question of who invests in senior unsecured debt securities issued by banks, drawing on the Securities Holdings Statistics of the ECB for evidence.

This paper is structured as follows: Section 1 presents the different approaches to bail-in adopted for G-SIBs (global systemically important banks) by the FSB, the EU and the U.S.A. Section 2 sketches the ongoing discussion on the merits and potential pitfalls of bail-in. Section 3 details the volumes of noncovered bail-in-able debt securities issued by banks in the euro area, the volumes available for bail-in (from common equity tier 1 (CET1) and noncovered debt securities) and the holding structure of noncovered bank debt securities across EU countries, all based on the ECB Securities Holdings Statistics. Section 4 concludes.

1 Different approaches to bail-in worldwide

In its Key Attributes of Effective Resolution Regimes for Financial Institutions, the FSB (2011b and 2014) lists bail-in as one resolution tool that gives the resolution authority the power to write down equity as well as unsecured and uninsured creditor claims to the extent necessary. To ensure that systemically important institutions have sufficient loss-absorbing and recapitalization capacity available in resolution, the FSB introduced the Total Loss Absorbing Capacity (TLAC) (Financial Stability Board, 2015), which will become a mandatory Pillar I requirement for G-SIBs in 2019. The common minimum requirement will be that G-SIBs must have TLAC-eligible instruments as outstanding liabilities in the amount of 16% of risk-weighted assets (RWA) or 6% of the leverage ratio exposure (LRE), rising to 18% of RWAs or 6.75% of the LRE by 2022. TLAC-eligible instruments comprise regulatory own funds and TLAC-eligible debt. The latter must be both subordinated and unsecured debt and have a maturity of at least one year. Subordination can

be contractual, statutory or structural (meaning that the instrument is issued by a nonoperating holding company).

1.1 The European bail-in model

In the EU, bail-in was introduced by the Bank Recovery and Resolution Directive (BRRD) and had to be implemented in Member States' national law by January 1, 2016. The bail-in tool may be applied to all liabilities of an institution, excluding only:

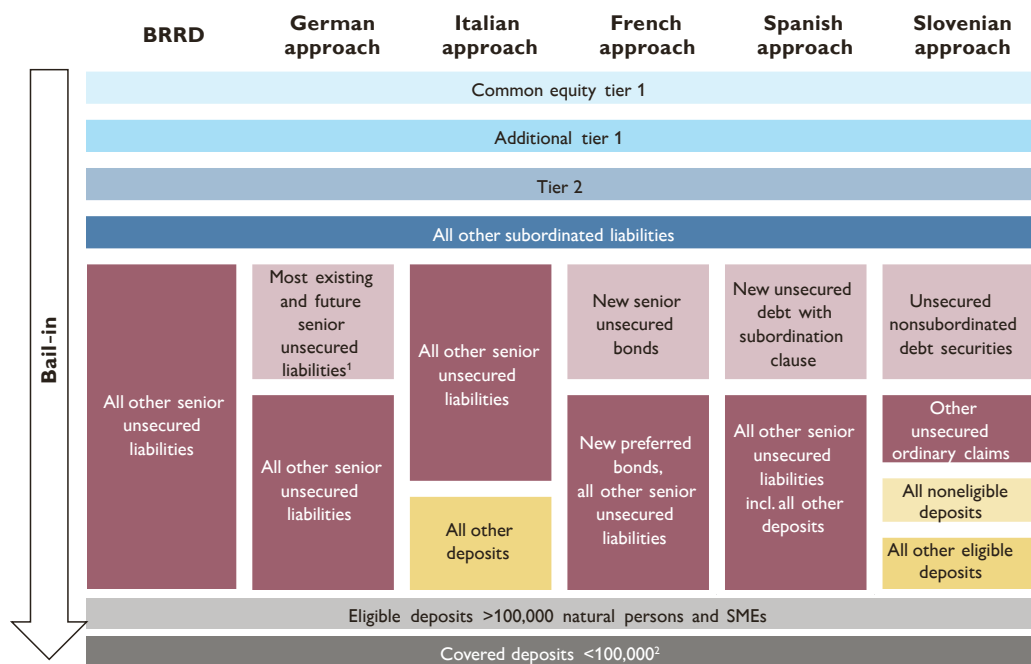
- 1) covered deposits,
- 2) secured liabilities (i.e. covered bonds),
- 3) client assets or client money,
- 4) liabilities that arise by virtue of a fiduciary relationship,
- 5) liabilities to institutions with an original maturity of less than seven days,
- 6) liabilities with a remaining maturity of less than seven days owed to systems or operators of systems designated as security settlements systems

- 7) liabilities to (a) employees, (b) commercial or trade creditors, (c) tax and social security authorities and (d) deposit guarantee schemes arising from contributions in accordance with the deposit insurance directive.

Moreover, the BRRD introduced the minimum requirement for own funds and eligible liabilities (MREL) to ensure that banks hold sufficient resources for the absorption of losses and for recapitalization. However, only specific bail-in-able liabilities are eligible to be included for MREL calculations (see also Metz et al., 2016). In particular, preferred deposits (i.e. deposits of households and SMEs that are basically eligible for coverage by deposit insurance, but exceed the amount of EUR 100,000) and liabilities with a maturity of less than one year do not count as fulfilling MREL requirements.

Chart 1

Loss absorption waterfall in the European Union



¹ Applies only to senior unsecured liabilities that are tradable and not declared as deposits; money market instruments are excluded.

² Bail-in contribution is borne by the deposit guarantee scheme.

One of the key uncertainties surrounding bail-in according to the BRRD in the EU is the bail-in waterfall, which leaves ample ambiguity as to the liabilities that will rank pari-passu with senior unsecured bonds, which fall into the category of all other senior unsecured liabilities (see first column of chart 1) unless they are explicitly subordinated. There are no clear indications as to which liabilities, such as corporate deposits, may be exempt due to political intervention in the event of a bail-in, the conundrum being that the “no-creditor-worse-off” principle dictates that no creditor should incur any losses under resolution that would not have been incurred in liquidation. If the holders of MREL-eligible liabilities are confronted with a situation where liabilities that rank pari-passu to their claims are exempt from bail-in, this may produce a stream of lengthy litigation, thereby possibly hampering the swift recapitalization of a bank.

In order to avert these uncertainties and create a reliable bail-in waterfall, some jurisdictions in Europe have amended the BRRD bail-in waterfall by passing legislation which clarifies the position of senior unsecured debt securities in the loss absorption waterfall versus other categories of liabilities.²

1.2 The U.S. bail-in model

In the United States the concept of bail-in for systemically important financial institutions (SIFIs) was introduced in the Dodd-Frank Act, requiring creditors and shareholders to bear all the losses of a financial company that has entered the Orderly Liquidation

Authority (OLA) process. Resolution involves two holding companies: HoldCo, which is the failed top-tier holding company, and NewCo, a bridge holding company into which healthy operating subsidiaries are transferred. HoldCo shareholders and creditors are left behind in the failed holding company, which is subsequently resolved. NewCo is established with the healthy assets of HoldCo, but with substantially fewer liabilities. Finally, a priority pyramid is established for claims against HoldCo which are satisfied after the bail-in haircut by means of a debt-for-securities exchange involving NewCo. However, unsecured creditors are not automatically converted into NewCo shareholders, but may be converted into unsecured creditors of NewCo.

Hence, in contrast to the European bail-in model, where the recapitalization of the distressed bank is one of the resolution options outlined in the BRRD (i.e. an “open bank process”), the U.S. bail-in model always implies a carve-out of healthy operational entities and a resolution of the HoldCo.

One of the main controversies surrounding the U.S. bail-model is the area of friction between formal insolvency, implying a CET1 ratio of 0%, and the Basel III requirement of a CET1 ratio of at least 4.5%. The main point of contention is that while regulators would presumably intervene before a significant financial institution reaches formal insolvency, this is problematic in the context of the “no-creditor-worse-off” condition, which states that the outcome for each creditor will be no worse than in formal liquidation. To

² On November 23, 2016, the European Commission published a proposal to introduce a new category of debt instruments, called “non-preferred” senior debt, which will rank between senior unsecured and subordinated debt in case of insolvency and bail-in. Under this category, banks can issue debt in the future and, hence, build up bail-in-able debt that is eligible for TLAC and MREL, respectively, over time. At the same time, this proposal does not affect the existing stocks of bank debt and their statutory ranking in insolvency and bail-in. Consequently, many of the current differences across countries regarding the bail-in waterfall would remain, but probably lose in importance in parallel to the accumulation of non-preferred senior debt liabilities.

some extent, the subordination requirement for TLAC-eligible instruments addresses this concern.

2 Discussions on bail-in

2.1 Arguments in favor of bail-in

After numerous bail-outs of banks during the financial crisis, the concept of bail-in, designed to protect taxpayers from exposure to bank losses, gained considerable traction. In particular, expectations of, inter-alia, the following *advantages* convinced policymakers to introduce bail-in:

A situation where a systemically relevant bank experiences financial difficulties very often puts governments in a difficult position. First, a disorderly liquidation could lead to substantial negative effects on financial markets and the real economy. Zhou et al. (2012) list the following three (related) sources of disruption: direct counterparty risk,³ liquidity risks and fire-sale effects in asset markets⁴ and contagion risks.⁵ The bail-in tool, together with other resolution tools, may have the potential to somewhat mitigate these risks (Zhou et al., 2012).

Second, a government bail-out of a bank signals to both the bank and its shareholders and creditors that they will not have to bear losses stemming from risks that banks assumed, thereby creating moral hazard and leading to riskier behavior of bank management, shareholders and creditors (Hakenes and Schnabel, 2010). Hence, bail-in should reduce moral hazard by forcing shareholders and creditors to bear the losses of the risks they have accepted.

Third, in connection with the moral hazard attitude taken by banks' creditors, there is evidence that espe-

cially large banks that financial market participants consider to be systemically important have benefited from an implicit state guarantee or at least the perception of such a guarantee (Denk et al., 2015; Hindlian et al., 2013; IMF, 2014; Noss and Sowerbutts 2012; Schich and Kim, 2012; Schich and Lindh, 2012; and Schich and Aydin, 2014). In other words, at least some banks have been able to refinance themselves at lower costs on the assumption that if they were to experience financial difficulties the government would bail them out. If a credible bail-in perspective is established for such large banks too, the associated implicit state guarantee will be reduced and creditors will have to expect to bear their share of a bank's losses so that they will demand a risk premium for bail-in-able claims. However, this also implies that market-based refinancing costs for banks will adjust and – ceteris paribus – should increase to a permanently higher level.

In order to assess the credibility of the bail-in mechanism, the ratio of the average bank credit default swap (CDS) premium to the sovereign CDS premium for six major European economies during two distinct time periods were examined by Mikosek and Schildbach (2016): the first period is between September 2008 and December 2014 and the second starts in 2015, when the BRRD had to be implemented in national law in the EU. The paper concludes that the markets perceive the bail-in model in the EU to be credible, which is reflected in a substantial rise in the ratio of the average bank CDS premium to the sovereign CDS premium since the beginning of 2015 in all

³ When the failing institution fails to meet its financial obligations or high demand for collateral (or "margin").

⁴ When the distressed institution is forced into asset sales to obtain liquidity, which further depresses asset prices (and thus raises demand for higher "margin") and causes credit crunches.

⁵ When the panic caused by the failure of one institution spreads to other financial institutions; the failure of one bank could easily lead to a system-wide destabilization if creditors lose their confidence in the whole banking sector.

six countries covered by the study (Mikosek and Schildbach, 2016).

Fourth, a large-scale government bail-out could lead to the fiscal destabilization of a whole country. By contrast, bail-in could to some extent break the vicious cycle between sovereign and bank debt. These interlinkages became particularly visible in some countries in the euro area during the financial crisis (Zhou et al., 2012).

Fifth, it can also be observed that public interventions for a bank's rescue to avoid bank insolvency procedures have often resulted in a further concentration of the banking sector through mergers; and this exacerbated the too-big-to-fail problem even further (Zhou et al., 2012).

2.2 Arguments against bail-in

However, despite the numerous far-reaching advantages of bail-in detailed above, a growing number of researchers and policymakers are voicing concerns that substantial risks are associated with bail-in. Some of them acknowledge that bail-in may be the superior resolution strategy in the case of idiosyncratic failures (Avgouleas and Goodhart, 2015; Persaud, 2016), but also point out substantial shortcomings of the bail-in tool:

First, the above-mentioned increase in refinancing costs as a result of the introduction of bail-in tools and the abolition of implicit state guarantees could be substantial. The higher refinancing costs can be expected – *ceteris paribus* – to lead to a permanently higher level of average bank lending rates and to a reduction of credit supply from (possibly elevated) previous levels (Denk et al., 2015).

Second, bail-outs by taxpayers cause many players to lose a little⁶ each, while

in a bail-in scenario comparatively few players lose a lot. Hence, bail-in has the potential to significantly increase the incentives for litigation, which will probably make the bail-in procedure complex, time consuming and expensive (Avgouleas and Goodhart, 2015).

Third, bail-in may increase procyclicality because a weakening bank will find funding increasingly difficult and expensive to come by. Emergency liquidity funding may be constrained by restrictions on any support that burdens taxpayers. Under the EU approach, where resolution is undertaken at the legal entity level, business creditors may be exempted from a bail-in, hence shifting the burden disproportionately to holders of noncovered debt securities and uncovered depositors. As a result, applying a bail-in instead of a bail-out model shifts the burden from taxpayers to pensioners and savers (Avgouleas and Goodhart, 2015).

Fourth, in a similar vein, some critics focus on specific liabilities that will be subject to bail-in. De Grauwe (2013) argues that bailing in deposits over EUR 100,000 will lead to more bank runs as large depositors seek to save their money, and thus to stronger contagion between troubled sovereigns and large banks, and to a burden on economies due to the interconnection between businesses using the same payment system. As a consequence, we arrive at a situation where the moral hazard of a bail-out is pitted against the immediate risks a bail-in poses to the economy.

Fifth, Persaud (2016) argues that bail-in-able securities are a form of market-priced insurance instrument and will tend to be mispriced if an unanticipated financial crash occurs, generating heavy and simultaneous losses to investors in bail-in-able debt securities.

⁶ However, we would like to add that this is true only unless fiscal consolidation measures in response to higher general government debt hit certain segments of the population in a severely disproportionate manner.

Also, an unexpected bail-in of one type of instrument is likely to lead to a downgrade of other instruments with a bail-in-able feature. In these cases, any widespread distribution of bail-in-able debt securities is likely to produce a crisis that is centered in financial markets, as opposed to one that is contained to several banks (Persaud, 2016).

Sixth, bail-in-able debt securities may be held by suboptimal investors. Götz and Tröger (2016) argue that ideal investors in bail-in-able debt securities should be sophisticated, active outside the banking sector and not subject to an asset-liability mismatch due to their investment strategy. The authors stipulate that insurance companies, pension funds, other financial institutions (like investment funds or money market funds) or high net-worth individuals represent ideal holders of bail-in-able debt securities as they are able to incur the potential short-run costs of a bail-in due to their long investment horizon although they may not have a maturity-matched balance sheet. In contrast, Götz and Tröger (2016) see households as suboptimal investors based on recent bail-in experiences in Italy and Portugal. They state that households are not sophisticated investors and are unlikely to charge an adequate risk premium for bail-in-able debt securities, limiting the market-disciplining effect of bail-in (Götz and Tröger, 2016).

In this context, Deutsche Bank Research postulates that investors should be professionally able to hedge the default risk of bail-in-able debt securities or at least be aware of the default risk but interested in the potentially higher return, regardless of the sector the investor belongs to (Mikosek and Schildbach, 2016).

It has to be noted that there is no uniform view of whether all above-mentioned institutional investors are indeed

ideal holders of bail-in-able debt. Regarding holdings by pension funds, the long-term nature of their investments may cause the bulk of the burden of bank failure to be lifted from taxpayers at large and transferred to pensioners. Persaud (2016) argues that this is likely to have more detrimental effects on the economy than burdening all taxpayers, as pensioners spend more of their income. Moreover, he argues that long-term investors such as pension funds⁷ should not hold bail-in-able debt securities but prefer instruments whose risks fall over time, such as public and private equity instead. This would put long-term investors in the position to act as heterogeneous agents in a crisis, providing liquidity when other institutions are forced into a fire-sale of assets (Persaud, 2016).

However, some of the above-mentioned potential risks associated with the bail-in concept – especially with regard to investors in bail-in-able securities – have been recognized by policymakers and supervisory authorities and, thus, have already been addressed to some extent. First, with regard to the potential risk inherent in cross-holdings of bail-in-able securities by banks, the Basel Committee on Banking Supervision (BCBS) has issued a requirement for internationally active banks (both G-SIBs and non-G-SIBs) to cap their holdings of bail-in-able securities issued by G-SIBs, i.e. TLAC-eligible instruments (BCBS, 2016). If these holdings exceed a certain threshold banks have to deduct the excess amount from their tier 2 capital. These restrictions are also expected to be transposed into EU law. However, policymakers should consider extending these restrictions also to instruments issued by large non-G-SIBs in order to effectively pre-empt potential intra-sectoral con-

⁷ Indeed, this argument would extend also to insurance companies.

tagion effects. Second, with regard to private investors holding or investing into bail-in-able debt securities, the European Securities and Markets Authority (ESMA) has published a statement that credit institutions and investment firms (also with respect to their portfolio management activities) should inform clients on the risk inherent in bail-in-able instruments (ESMA, 2016). Transparent information on potential risks of these instruments should prevent misselling.

Balancing the pros and cons of the bail-in tool, one may highlight its merits with respect to strengthening the resilience of individual banks and making several bank stakeholders (shareholders, creditors and authorities) better prepared for possible adverse developments. Also, it is a very useful tool to deal with idiosyncratic bank failures. At the same time, any bail-in tool has to be designed in a way that potential adverse effects (in particular contagion effects) are kept to a minimum, especially with regard to the holders of bail-in-able securities. In this way, the unavoidable costs of bail-in can be expected to be less harmful than the large costs of bail-outs. However, even if a credible bail-in tool is in place, there may still be the need to address the too-big-to-fail problem also by other means (e.g. reducing the complexity of banking groups, limiting or reducing the size of extremely large banking groups). Moreover, in addition to implementing bail-in, there may nevertheless be the need for credible ultimate common public backstops, in particular in case of unexpected financial crashes,

systemic crises or the need to contain effects of idiosyncratic failures in a timely manner.

3 Noncovered debt securities issued by euro area banks: stock-taking exercise

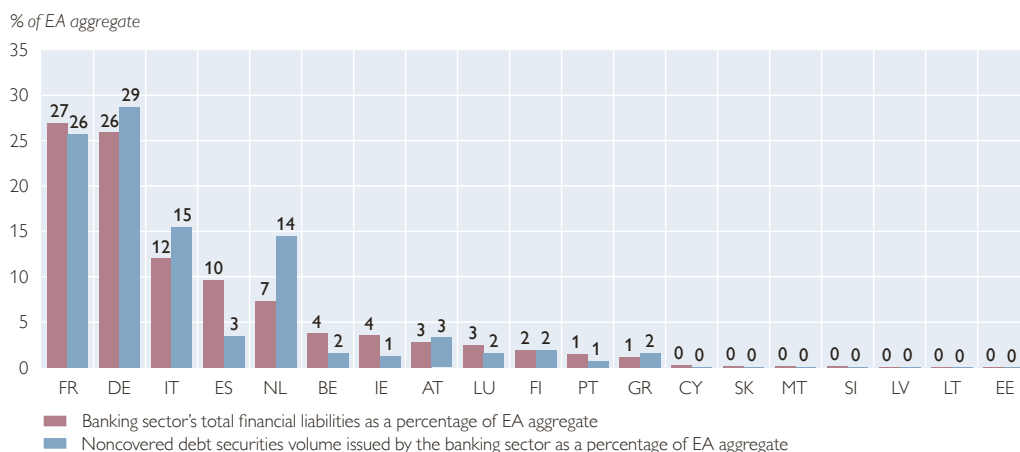
3.1 The supply side: who issued what amount of bail-in-able bank debt securities in the euro area?

Chart 2 below shows the share of each euro area country's banks in the aggregated total financial liabilities (including all debt and equity positions) of euro area banks. The figures are based on the unconsolidated national banking sectors (numbered as sector S.122) according to integrated financial accounts statistics. It is no surprise that the banking sectors of France, Germany, Italy, Spain and the Netherlands together account for the bulk of euro area banks' aggregated total financial liabilities, namely about 82%. Interestingly though, the banking sectors of these five countries have issued an even higher share of the outstanding volume of noncovered debt securities⁸ issued on aggregate by euro area banks, nearly 90%. A comparison of the country-wise distribution of banks' total financial liabilities across the euro area with that of the outstanding volume of noncovered debt securities issued by banks shows that five countries stand out in which banks' share of such outstanding debt significantly exceeds their corresponding share in total financial liabilities: Germany, Italy, the Netherlands, Austria and Greece. By contrast, France, Spain, Belgium, Ireland, Luxembourg and Portugal have comparatively smaller amounts of such outstanding debt.

⁸ The ECB's Securities Issues database provides the outstanding volume of debt securities issued by each country's banking sector. The ECB's Securities Holdings Statistics (SHS) database shows total holdings of debt securities issued by each country's banking sector (for more details on the SHS see ECB, 2015). For most countries, the latter are somewhat lower than the total outstanding volumes of issues for reasons of incomplete reporting of holdings, etc. We assume that for each country total holdings of covered debt securities (provided by the SHS database) deviate by a similar relative amount from the outstanding volumes of covered debt securities issued in order to derive the country-specific outstanding volume of covered debt securities issued and thus of noncovered debt securities. All data as of the end of 2015.

Chart 2

Distribution of the euro area's aggregated banking sector liabilities positions by country



Source: ECB, Eurostat, OeNB.

Note: EA = euro area. Banking sector: Sector S.122, deposit-taking corporations except central bank, of the unconsolidated integrated financial accounts.

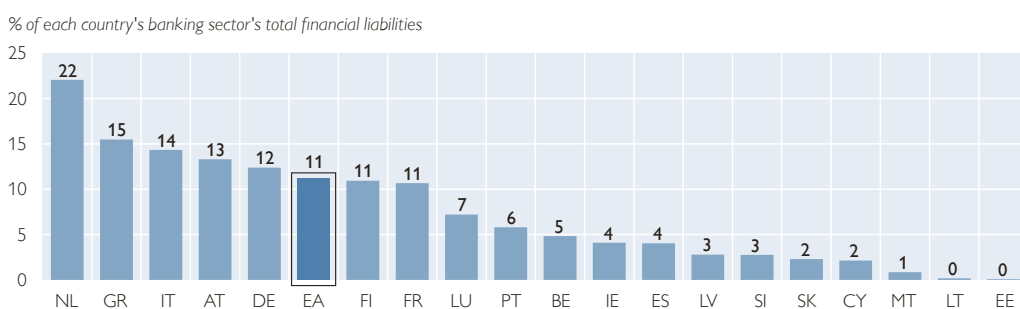
Providing a different perspective, chart 3 shows the outstanding noncovered debt securities volume issued by the banking sector (as a proxy for bail-in-able debt securities issued) relative to banks' total financial liabilities for each euro area country and the euro area aggregate. The aggregate euro area ratio is 11%. The banking sectors of smaller countries in terms of GDP, like Cyprus, Estonia, Lithuania, Latvia, Malta, Slovenia, and Slovakia, show particularly low ratios of bail-in-able

debt securities outstanding. This finding suggests that banking sectors in countries with less deep and liquid capital markets (which are typical for smaller euro area countries) have a structural disadvantage in using noncovered debt securities to augment their cushions for a possible bail-in.

In the context of any possible bail-in, the first line of defense would be banks' CET1. We note that other parts of banks' total own funds (i.e. additional tier 1 and tier 2) are to a considerable

Chart 3

Volume of noncovered debt securities issued by the banking sector



Source: ECB, Eurostat, OeNB.

Note: EA = euro area. Banking sector: Sector S.122, deposit-taking corporations except central bank, of the unconsolidated integrated financial accounts.

extent part of noncovered debt securities. Unfortunately, CET1 ratios of the unconsolidated banking sectors are not available for all euro area countries. As a proxy for this missing piece of information, we apply the CET1 ratio of each country's consolidated banking sector (augmented by foreign subsidiaries operating in this country). We argue that each country's banks' policies with respect to their capital positions on the unconsolidated level are probably not fundamentally different from those on the consolidated level, so that such a proxy can be used in order to gain a bird's-eye view of the order of magnitude involved. Usually, unconsolidated CET1 is higher than consolidated CET1, meaning that we probably underestimate the loss-absorption capacity of CET1 for bail-in. Hence, we derive a combined proxy ratio of bail-in-able capital and debt securities to total financial liabilities that is somewhat too low. Besides, we note that our analysis does not include other bail-in-able debt items like, in particular, certain deposits.

In chart 4, we thus compare the estimated CET1 volume and the estimated outstanding noncovered debt securities volume issued by each coun-

try's banking sector, both expressed in terms of banks' total financial liabilities. It is striking that banking sectors of the above-mentioned smaller countries in terms of GDP show particularly high above-average CET1 ratios. Nevertheless, these high capital volumes are generally not sufficient to fully compensate for below-average noncovered debt securities volumes, so that the sum of both bail-in-able items remains below the euro area average of 16.7%. However, other countries, namely Belgium and Spain, show the lowest values for the sum of both bail-in-able items. By contrast, the sum of both bail-in-able items lies above the euro area average in the Netherlands, Greece, Italy, Austria and Germany.

3.2 The demand side: who holds what amount of bail-in-able debt securities issued by euro area banks?

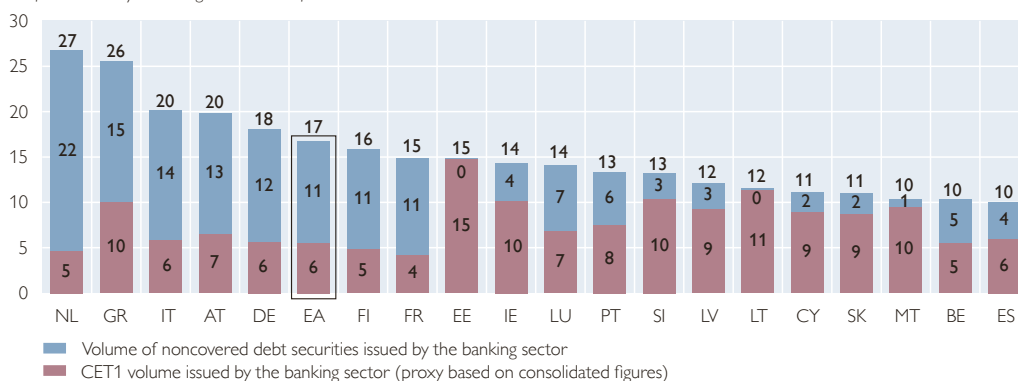
In this subsection, we take a look at the structure of holdings of noncovered debt securities issued by euro area countries' banking sectors.

Chart 5 shows the share of *euro area holders* as opposed to that of *non-euro area holders* in the total outstanding

Chart 4

Outstanding volume of bail-in-able capital and noncovered debt securities

% of each country's banking sector's total financial liabilities



Source: ECB, Eurostat, OeNB.

Note: EA = euro area. Banking sector: Sector S.122, deposit-taking corporations except central bank, of the unconsolidated integrated financial accounts.

volume of noncovered debt securities issued by each country's banking sector.⁹

Overall, non-euro area holders – for whom we unfortunately lack more precise information – account for nearly 40% of all bail-in-able debt securities issued by euro area banks. This signals that large-scale bail-ins of debt securities holders may have non-negligible contagion effects on the rest of the world.

The above-average share of non-euro area holders of debt issued by German and Dutch banks reflects the latter's strong position in the global funding market. Given the large weights of their bank debt within the euro area aggregate, Germany and the Netherlands lift the euro area average substantially. In some countries, like Estonia, Finland and Latvia, the very high share of non-euro area holders of their bank debt securities may be related to direct funding (or issuance guarantees) by non-euro area parent banks.¹⁰

By contrast, Italy, Greece and Cyprus stand out in terms of the very low share of non-euro area holders of outstanding noncovered debt securities issued by their banks.

For *euro area holdings*, the following further in-depth analysis of the structure of holdings is possible.

3.2.1 The shares of euro area sectors in total euro area holdings of bail-in-able debt securities issued by euro area banks

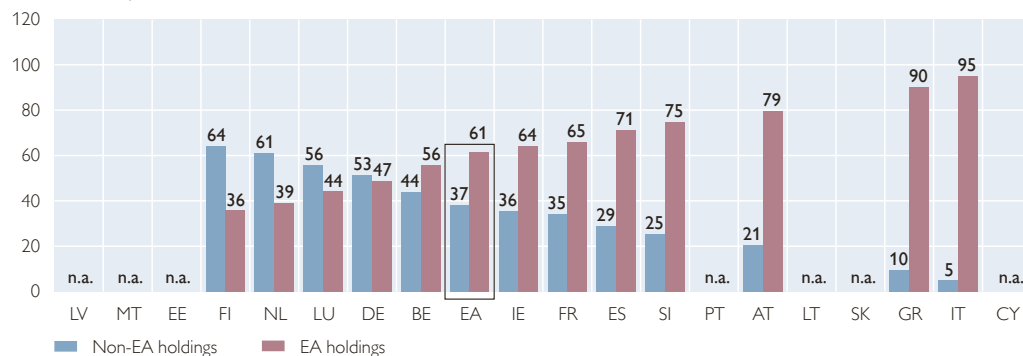
We now look at the *shares of individual euro area sectors* in total euro area holdings of noncovered debt securities issued by euro area banks on aggregate or (further below) by each country's banking sector.

Overall, *euro area banks* (sector S.122) themselves hold roughly one-third (33%) of all euro area holdings of bail-in-able debt securities *issued by euro area banks on aggregate*. This type of intra-sectoral connectedness may create severe conta-

Chart 5

All sectors'¹ holdings of noncovered debt securities issued by each country's banking sector

% of each country's banks' total issued volume



Source: ECB, OeNB.

¹ Excluding central banks.

Note: EA = euro area. Banking sector: Sector S.122, deposit-taking corporations except central bank, of the unconsolidated integrated financial accounts. Non-EA holdings partly include residuals between total holdings and total issued volumes.

⁹ We note that the non-euro area holdings include the (mostly minor) statistical difference between total holdings and the larger outstanding volumes of non-covered debt securities issued.

¹⁰ However, in Estonia, Latvia and Malta, the share of non-euro area holdings is boosted also by unusually large amounts of the residual between total holdings and total issued volumes, which is included in this share.

gion effects in case of actual large-scale bail-in operations, in particular if such a bail-in operation does not result from a bank's idiosyncratic problems only. The relatively large share of holdings by euro area banks on aggregate may hide one of the following two possible patterns:

- 1) The holdings of bail-in-able debt securities are spread across euro area banks so that most banks are below a relevant holding threshold.
- 2) The holdings of bail-in-able debt securities are not sufficiently spread across euro area banks, meaning that some of the euro area banks have to reduce their bail-in-able debt holdings to comply with a relevant holding threshold.

In this context, we see the need for further in-depth research.

Other financial institutions (OFIs) of the euro area hold 42% of all euro area holdings of bail-in-able debt securities issued by euro area banks. In this study this group comprises the sectors S.123 (money market funds, MMF), S.124 (non-MMF investment funds), S.125 (other financial intermediaries, except insurance corporations and pension funds, including financial vehicle corporations engaged in securitization transactions (FVC), security and derivative dealers, financial corporations engaged in lending and specialized financial corporations), S.128 (insurance corporations) and S.129 (pension funds). In general, this quite heterogeneous sector tends to have an adequate matching of maturities of assets and liabilities and is usually well-positioned to bear losses. However, as regards pension funds, one has to bear in mind that losses will ultimately be borne by pensioners, who tend to spend a higher proportion of their incomes (see also Persaud, 2014 and 2016, on this point) and who partially belong to less well-off segments of society.

Finally, nearly one-fourth (24%) of euro area holdings of bail-in-able debt securities issued by euro area banks are accounted for by the *euro area's non-financial sector*, comprising the sectors S.11 (nonfinancial corporations, NFCs), S.13 (general government) and, above all, S.14 (households) and, as a minor item, S.15 (nonprofit institutions serving households). In fact, households account for the bulk of this share. This comparatively high share of households as investors in bail-in-able bank debt securities may be considered as problematic from both a consumer protection and a financial stability viewpoint. Several authors, for instance Götz and Tröger (2016), have highlighted this issue, citing in particular cases in Portugal and Italy. Among other things they pointed out that households are suboptimal investors in bail-in-able debt securities because they are unlikely to exert an adequate monitoring function or to demand adequate risk premia, which reduces the intended stability-enhancing effect of the bail-in tool. Moreover, while one may presume that these households typically belong to wealthier segments of the population, a nonnegligible part of this share may not fit this description, especially in countries where this share is particularly high (see below). Thus, recent measures taken by ESMA to enhance obligations to provide information for clients with respect to the risks inherent in bail-in-able instruments are certainly welcome.

Looking at the country level (see chart 6), *euro area banks* account for the large majority of the euro area holdings of bail-in-able debt securities issued by banks in Cyprus and Greece, and they hold about 50% of such debt securities issued by banks in Germany and a substantial part of Portuguese bank debt securities. This signals that bail-ins for German banks would tend to have par-

ticularly large intra-sectoral contagion effects within the euro area. While the share of banks in total euro area holdings of Austrian and Italian bank debt securities is close to the euro area average, it is significantly lower for Belgian, Spanish, Finnish, French, Irish, Luxembourg and Dutch bank debt securities outstanding.

The euro area's nonfinancial sector has a high share in total euro area holdings of bail-in-able debt securities issued by banks in the three Baltic countries. This may be due to the fact that mainly subsidiaries of foreign (mostly Swedish) parent banks operate in these countries and that these subsidiaries may be considered as very stable (compared to the rest of the domestic economy) by a large part of the population. Apart from the Baltic countries, the nonfinancial sector has an above-average share in total euro area holdings in the case of Italian, Austrian and German bail-in-able bank debt securities. Interestingly, for the bank debt securities issued in

the above-mentioned seven countries for which euro area banks have a below-average share in total euro area holdings (Belgium, Spain, Finland, France, Ireland, Luxembourg, Netherlands) also the euro area nonfinancial sector has a below-average share.

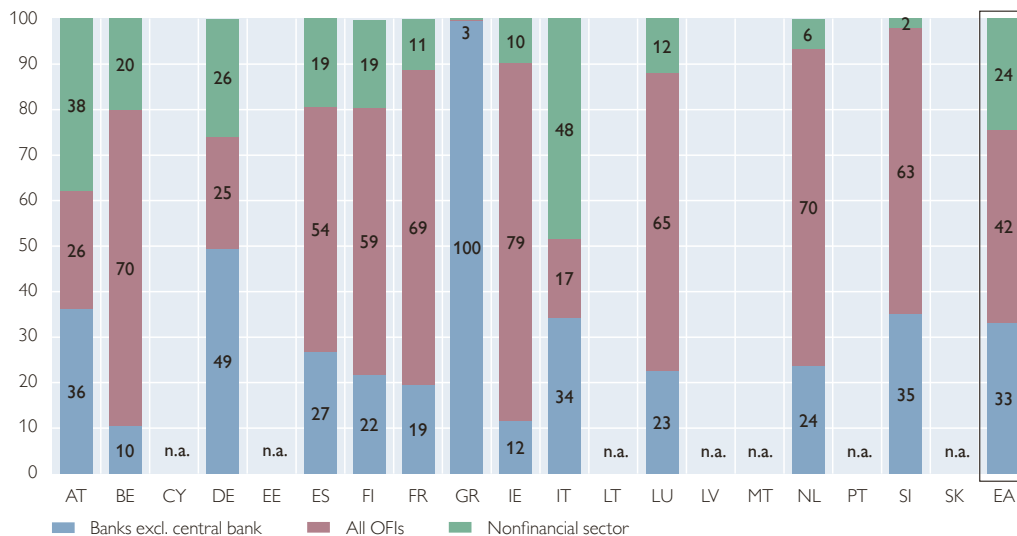
In turn, this implies that *euro area OFIs* have a comparatively large share in total euro area holdings of bail-in-able debt securities issued by banks in these seven countries. This signals that bail-ins for these countries' banks would tend to be somewhat less problematic, with the caveat mentioned before regarding pension funds still holding, however. By contrast, euro area OFIs have a relatively low share in total euro area holdings of Italian, Austrian and German bail-in-able bank debt securities issued by banks.

Taking a broader view by *combining these findings with the share of non-euro area holdings*, which are likely to consist largely of OFI holdings, it is striking that for four of the aforementioned seven

Chart 6

Euro area holdings of noncovered debt securities issued by each country's banking sector

% of total euro area holdings



Source: ECB, OeNB.

Note: EA = euro area. Banking sector: Sector S.122, deposit-taking corporations except central bank, of the unconsolidated integrated financial accounts.

countries, namely for Belgium, Finland, Luxembourg and the Netherlands, the high share of OFI holdings in total euro area holdings of these countries' bank debt securities comes on top of the above-average share of non-euro area holdings. For Germany, the above-average share of non-euro area holdings (likely to consist largely of OFI holdings) somewhat compensates for the low share of OFI holdings in total euro area holdings of its bank debt securities, while for Italy, the low share of non-euro area (OFI) holdings aggravates the implications of the low share of OFI holdings in total euro area holdings.

3.2.2 The home bias in total euro area holdings of bail-in-able debt securities issued by euro area banks

We now turn to the *share of home (that is, issuing) country's euro area holders as opposed to that of intra-euro area cross-border holdings*¹¹ in the total euro area holdings of noncovered debt securities issued on aggregate by euro area banks or (further below) by each country's banking sector.

Overall, non-home country euro area holders (intra-euro area cross-border holdings) account for roughly one-third (33%) of all euro area holdings of bail-in-able debt securities *issued on aggregate by euro area banks*. The breakdown of total euro area holdings by country shows that three countries (France, Germany, Italy) account for 71% and five countries (the top three plus Luxembourg and Ireland) hold 85% of these instruments.

Looking at the country level, for bail-in-able debt securities issued by banks in Belgium, Finland, Ireland, Luxembourg, the Netherlands and Slovakia, the share of intra-euro area cross-border holdings in total euro area holdings

is far above 50% (see chart 7). In four of these six countries, namely in Belgium, Finland, Luxembourg and the Netherlands, this high share comes on top of the above-average share of non-euro area holdings. Moreover, in all these six countries, the high share of non-home country euro area holders in total euro area holdings is typically coupled with a high share of euro area's OFI holdings in total euro holdings. It follows that any bail-ins for these countries' banks would tend to burden their domestic economies only to a limited extent. Interestingly, in all these six countries, the non-home euro area holders are concentrated on three (different) countries, with these top three countries accounting for more than 50% of all euro area holdings only in the case of these six countries.

By contrast, the home bias of euro area holdings is large not only for debt securities issued by banks in smaller countries (Cyprus, Malta, Baltic countries) and in Greece and Portugal, but also in Italy (85%) and in Germany, France and Spain (with a share of home-country holders in total euro area holdings of around 70%). Again, for Germany, the implications of this finding are attenuated by the above-average share of non-euro area holdings. On the other hand, for Italy, the substantial home-bias of euro area holdings coupled with the low share of non-euro area holdings, tend to make this country's domestic economy vulnerable to any bail-ins for its banks.

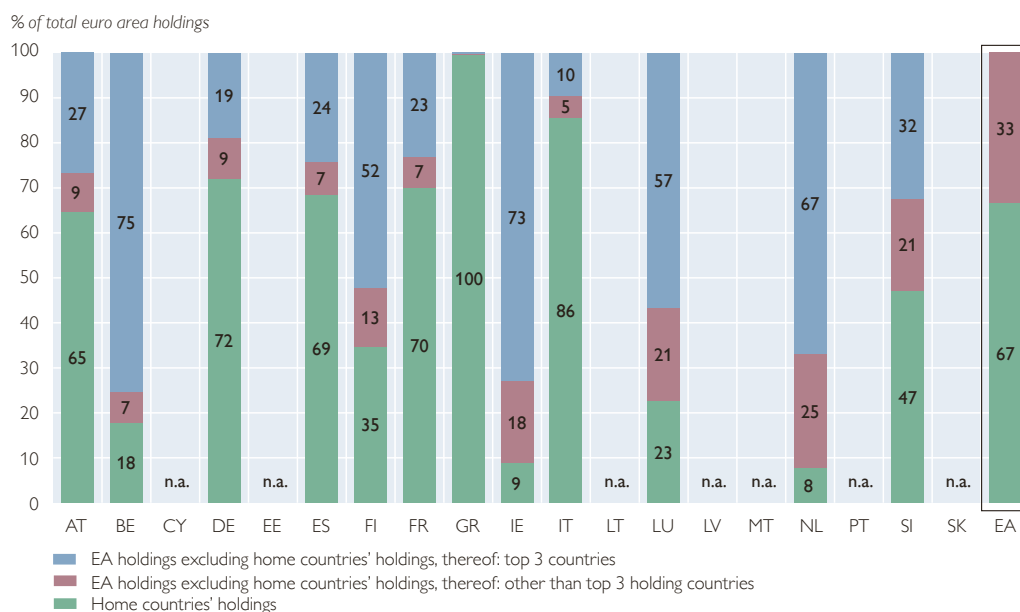
4 Conclusions

In recent years there have been widespread efforts to put in place sound and viable bail-in regimes for banking resolution. However, the bail-in regimes that have been introduced differ around the

¹¹ That is, holdings by non-home country euro area holders.

Chart 7

All sectors¹ euro area holdings of noncovered debt securities issued by each country's banking sector



Source: ECB, OeNB.

¹ Excluding central banks.

Note: EA = euro area. Banking sector: Sector S.122, deposit-taking corporations except central bank, of the unconsolidated integrated financial accounts. Non-EA holdings partly include residuals between total holdings and total issued volumes.

globe (e.g. in the EU and the United States). Even within the EU, the loss absorption waterfalls differ across jurisdictions (see chart 1). This introduces an additional level of complexity and uncertainty for market participants which could lead to significant obstacles to bail-in, particularly for an internationally active bank. As the bail-in regime in the EU, notably regulations regarding MREL, is not yet in line with the international framework established by the FSB for G-SIBs, the EU is currently in the process of revising the BRRD to align the European framework with FSB guidelines. This could provide an opportunity to adopt further adjustments, like, in particular, the harmonization of loss absorption waterfalls in the EU, which would considerably enhance transparency for market participants.

Meanwhile, the discussions on the concept of bail-in and the necessary

conditions for a credible and stability-enhancing bail-in regime are ongoing. Despite the many advantages of a bail-in regime for resolution, academia has recently highlighted a number of important shortcomings of the bail-in tool: (1) the possibly significant permanent increase in banks' refinancing costs following the introduction of a bail-in model; (2) the likelihood of lengthy litigation due to the distribution of losses among comparatively few players, which may adversely affect the speed at which a bail-in can be carried out; (3) the risk that bail-in may increase procyclicality and may shift the burden from taxpayers to pensioners and savers; (4) the possibility that the bail-in of depositors may trigger bank runs; (5) the threat that bail-ins for one bank may have contagion effects on other banks; and (6) uncertainties as to who should invest in bail-in-able debt

securities in order to ensure economic and financial stability in the event of a large-scale bail-in; specifically, there are doubts concerning households as holders of such debt.

Taking into account the arguments in favor of and against bail-in, one may highlight the tool's merits with respect to strengthening the resilience of the individual bank and rendering bank stakeholders (shareholders, creditors and authorities) better prepared for possible adverse developments. Also, it is a very useful tool to deal with idiosyncratic bank failures. At the same time, any bail-in tool has to be designed in a way that potential adverse effects (in particular contagion effects) are kept to a minimum, especially with regard to the holders of bail-in-able securities. In this way, the unavoidable costs of bail-in can be expected to be less harmful than the high costs of bail-outs. However, even if a credible bail-in tool is in place, there may still be the need to address the too-big-to fail problem also by other means (e.g. reducing the complexity of banking groups, limiting or reducing the size of extremely large banking groups). Moreover, in addition to implementing a bail-in regime, there may nevertheless be the need for credible ultimate common public backstops, in particular in case of unexpected financial crashes, systemic crises or the need to contain effects of idiosyncratic failures in a timely manner.

This paper contributes to the discussion by providing – to our best knowledge – a first comprehensive stock-take of the structure of holdings of noncovered debt securities issued by banks in the euro area.

Our empirical evaluation on the basis of unconsolidated national banking sectors in the euro area suggests that banking sectors in countries with less deep and liquid capital markets (as is

typical for smaller countries in terms of GDP) appear to have a structural disadvantage in using noncovered debt securities to build up a cushion for a possible bail-in. The above-average CET1 ratios of banking sectors in these countries are insufficient to fully compensate for below-average noncovered debt securities volumes.

On the demand side, the large share of non-euro area holdings in the outstanding volume of bail-in-able debt securities issued by euro area banks may indicate that large-scale bail-in operations for euro area banks may have non-negligible contagion effects on the rest of the world.

Concerning euro area holdings of bail-in-able debt securities issued by euro area banks on aggregate, the fact that euro area banks account for a large share in total euro area holdings reflects a large degree of intra-sectoral connectedness that may create severe contagion effects in case of actual large-scale bail-in operations, in particular if such an operation does not result exclusively from the idiosyncratic problems of a particular bank. Moreover, for noncovered debt securities issued by banks in Cyprus, Greece, Germany and Portugal, the share of euro area banks and thus intra-sectoral connectedness is particularly large. In this context, recently issued new Basel standards appear to be a step in the right direction, but do not seem to be far-reaching enough.

On the other hand, the quite substantial share of households in total euro area holdings of bail-in-able debt securities issued on aggregate by euro area banks may be considered as problematic from a financial stability and a consumer protection point of view. For noncovered debt securities issued by banks in the Baltic countries, Italy, Austria and Germany, this share is par-

ticularly large. In this context, measures taken recently by ESMA to enhance obligations to provide information for clients are certainly welcome.

For Belgium, Spain, Finland, France, Ireland, Luxembourg and the Netherlands, the high share of OFI holdings in total euro area holdings of noncovered bank debt securities issued by their banks, coupled with a high share of non-home country euro area holdings in total euro area holdings and a high share of non-euro area holdings in most of these seven countries, suggest that any bail-in operations in these countries' banks would tend to burden their domestic economies only to a limited extent, apart from the caveat of possible adverse effects on pensioners via pension funds. By contrast, the home bias of euro area holdings is large in smaller countries as well as in Greece, Portugal and Italy and – to a somewhat lesser extent – in Germany, France and Spain. While for Germany, the implications of this finding are attenuated by the above-average share of non-euro area holdings, for Italy, the substantial home-bias of euro area holdings coupled with the low share of non-euro area holdings tend to make this country's domestic economy vulnerable to any bail-in operations for its banks.

Euro area holdings of bail-in-able debt securities issued by euro area banks on aggregate are concentrated on three countries (France, Germany, Italy) that account for 71% and on five coun-

tries (the top three plus Luxembourg and Ireland) that hold 85% of these debt securities.

Some euro area countries holding such debt securities, namely Italy and Austria as well as Greece, Luxembourg, France, Portugal and Spain, may be more affected by bail-in operations for euro area banks, given the size of these countries' holdings relative to their total financial assets: the former two because their euro area bank debt holdings are spread at significant levels across three holding sectors and the latter five because their euro area bank debt exposure is very high in one holding sector.

On aggregate, euro area banks have an outstanding volume of bail-in-able debt securities issues that considerably exceeds their holdings of bail-in-able debt securities issued by other euro area banks; such a net refinancing position of the banking sector (relative to its total financial assets) is particularly large in the Netherlands, Austria, Finland, France, Italy and Germany. Taking into account all (banking and other) euro area sectors' holdings of bail-in-able euro area bank debt securities, we find that non-euro area investors finance euro area banks by holdings of noncovered debt securities equal to about 1.5% of euro area banks' total financial assets. At the same time, however, euro area sectors may be assumed to hold nonnegligible volumes of noncovered debt securities issued by non-euro area banks.

References

- Avgouleas, E. and C. Goodhart. 2015.** Critical Reflections on Bank Bail-ins. In: *Journal of Financial Regulation*. Volume 2015. Issue 1. 3–29.
- BCBS. 2016.** Standard. TLAC holdings. Amendments to the Basel III standard on the definition of capital. October.
- De Grauwe, P. 2013.** The New Bail-in Doctrine: A recipe for banking crises and depression in the Eurozone. CEPS Commentary. April 4.
- Denk, O., S. Schich and B. Coumède. 2015.** Why implicit bank debt guarantees matter: Some empirical evidence. In: *OECD Journal. Financial Market Trends*. Volume 2014. Issue 2.
- Eidgenössische Finanzmarktaufsicht. 2015.** New "too big to fail" capital requirements for global systemically important banks in Switzerland.
- ECB. 2015.** Who holds what? New information on securities holdings. In: *ECB Economic Bulletin* Issue 2. 72–84.
- ESMA. 2016.** MiFID practices for firms selling financial instruments subject to the BRRD resolution regime. Statement. June 2.
- EU. 2014.** Bank Recovery and Resolution Directive.
- Financial Stability Board. 2011a.** Consultative Document. Effective Resolution of Systemically Important Financial Institutions. Recommendations and Timelines. July 19.
- Financial Stability Board. 2011b.** Key Attributes of Effective Resolution Regimes for Financial Institutions. October.
- Financial Stability Board. 2014.** Key Attributes of Effective Resolution Regimes for Financial Institutions. Update. 15 October 2014.
- Financial Stability Board. 2015.** Principles on Loss-absorbing and Recapitalisation Capacity of G-SIBs in Resolution. Total Loss-absorbing Capacity (TLAC) Term Sheet. November 9.
- Götz, M. and T. Tröger. 2016.** Should the marketing of subordinated debt be restricted/different in one way or the other? What to do in the case of mis-selling? White Paper No. 35. SAFE – Sustainable Architecture for Finance in Europe. Goethe University.
- Hakenes, H. and I. Schnabel. 2010.** Banks without parachutes: Competitive effects of government bail-out policies. In: *Journal of Financial Stability*. Volume 6. Issue 3. 156–168.
- Halaj, G., A. C. Hüser, C. Kok, C. Perales and A. Kraaij. 2016.** Systemic implications of the European bail-in tool: a multi-layered network analysis. In: *ECB Financial Stability Review*. May. 123–133.
- Hindlian, A., S. Lawson, J. Murillo, K. Sadan, S. Strogin and B. Subromanian. 2013.** Measuring the TBTF effect on bond pricing. Goldman Sachs. May.
- IMF. 2014.** How big is the implied subsidy for banks considered too important to fail? In: *Global IMF Financial Stability Report*. April. 101–132.
- Noss, J. and R. Sowerbutts. 2012.** The implicit subsidy of banks. *Financial Stability Paper* No 15. Bank of England. May.
- Persaud, A. 2014.** Why Bail-In Securities Are Fool's Gold. Policy Brief November 2014. Peterson Institute for International Economics.
- Persaud, A. 2016.** A ticking time bomb: TLAC and other attempts to privatise bank bail-outs. In: *Butterworths Journal of International Banking and Financial Law*. March.
- Schich, S. and S. Lindh. 2012.** Implicit Guarantees for Bank Debt: Where Do We Stand? In: *OECD Journal. Financial Market Trends*. Volume 2012. Issue 1.
- Schich, S. and B. Kim. 2012.** Developments in the Value of Implicit Guarantees for Bank Debt: The Role of Resolution Regimes and Practices. In: *OECD Journal. Financial Market Trends*. Volume 2012. Issue 2.

- Schich, S. and Y. Aydin. 2014.** Measurement and analysis of implicit guarantees for bank debt. In: OECD Journal. Financial Market Trends. Volume 2014. Issue 1.
- Schweizerische Nationalbank. 2011.** Too big to fail. May.
- Stiefmüller, C. 2016.** TLAC/MREL: Making failure possible? Finance Watch Policy Brief March 2016. Finance Watch.
- Metz, V., K. Richter, P. Weiss, B. Rottensteiner, D. Unterkofler, J. Langthaler and P. Pechmann. 2016.** Minimum requirement for own funds and eligible liabilities (MREL) – initial assessment for Austrian banks and selected subsidiaries in the EU. In: Financial Stability Report 31. 82–95.
- Mikosek, M., and J. Schildbach. 2016.** Free market in death? Europe's new bail-in regime and its impact on bank funding. EU Monitor: Global financial markets. Deutsche Bank Research.
- U.S. Congress. 2010.** Dodd-Frank Wall Street Reform and Consumer Protection Act; Public Law 111-203. July 21.
- Zhou, J., V. Rutledge, W. Bossu, M. Dobler, N. Jassaud and M. Moore. 2012.** From Bail-out to Bail-in: Mandatory Debt Restructuring of Systemic Financial Institutions. IMF staff discussion note. April.