



EUROPEAN CENTRAL BANK
EUROSYSTEM

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MREL: financial stability implications

The minimum requirement for own funds and eligible liabilities (MREL) was introduced in order to ensure effective and credible application of the bail-in tool. While the medium to long-term benefits of this new requirement are undisputed, this chapter assesses market capacity to absorb bond issuances related to MREL shortfalls and the impact of more costly MREL-eligible bonds on bank profitability and capital. Overall, the capacity of financial markets to absorb shortfalls is sufficient. However, the market for bank debt in some countries is characterised by home bias and cross-holdings. Therefore, the capacity of the market to absorb MREL shortfalls in those countries may depend on banks' ability to place debt with international investors. The impact of MREL on banks' profitability and capital is expected to be limited overall, but is likely to be material for banks whose access to the MREL-eligible debt market is limited or very costly.

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Assessing the impact of bank capitalization changes conditional on a bail-in versus bail-out regime

The chapter presents a flow-based contingent claims model for valuing bank debt and equity and the value of banks for the government. The model is intended as an enhancement to the toolkit that can be used for quantifying the impact of capital-based macroprudential policy measures on the various claims of banks, and on their estimated probability of default and funding cost. The focus of the model lies on the differential effect that capital ratio changes exert conditional on moving between bail-out and bail-in regimes, which amounts to varying the recovery rate of debt holders in the model. As one may expect, the bail-in modalities are found to exert a sizeable impact on the estimated value of banks for the government and on their prospective bail-out costs.

Chapter 3 – Macroprudential regulatory issues

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The European Commission's proposals for reform of EU banking rules aim to complete the post-crisis reform agenda and to address outstanding challenges to financial stability which exist in the regulatory framework. This chapter outlines and explains the ECB's key messages concerning these proposals that are of particular importance for macroprudential regulation and policy. It also covers the implementation of internationally agreed standards with macroprudential relevance, such as the leverage ratio or total loss-absorbing capacity (TLAC).

Annex – Macroprudential policy measures at country level

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Foreword



ECB Vice-President
Vítor Constâncio

The aim of the ECB Macprudential Bulletin is to raise awareness of macroprudential policy issues in the euro area by bringing greater transparency to the ECB's ongoing work and thinking in this field. The current edition of this biannual publication looks at analytical work and regulatory issues relating to macroprudential policy.

The first chapter discusses the short-term impact of MREL on financial markets and banks from a financial stability perspective. As the Single Resolution Board is setting bank-level MREL targets, this chapter sheds some light on the ability of debt markets to absorb new issuances of bank debt related to the new requirement. It also provides an assessment of the extra cost to banks' funding relating to the issuance of bail-in-able liabilities that are more expensive on average and quantifies the impact of this cost on banks' core profitability and capital.

Chapter 2 gives an example of a recently developed analytical tool aimed at enhancing the quantitative model suite. The tool is an income flow-based contingent claims model for a large sample of European banks. The model can be used to estimate the market value of different bank claimants, and how these values may change in response to capital-based macroprudential policy actions. In addition, the framework enables different bail-in/bail-out modalities to be reflected and makes it possible to measure the differentiated impact that capitalisation changes may then have on claimants such as debt and equity holders as well as governments.

The last chapter discusses the macroprudential policy aspects of the recently published ECB opinions on the European Commission's proposals for amending the EU banking rules. The chapter will, in particular, explain the processes for implementation of international standards, the refinements to the Pillar 2 regime, and the crisis management-related elements of the reform package thereby contributing to the understanding of the macroprudential dimension of the proposed amendments to the EU law.

As in previous issues, this Macroprudential Bulletin ends with an overview of recent announcements relating to macroprudential instruments in the euro area.

Finally, if you are interested in being notified of the latest publication of the Macroprudential Bulletin, please send us an email at ECB.macprudential.bulletin@ecb.europa.eu.

Vítor Constâncio
Vice-President of the European Central Bank

Chapter 1 – Topical issue – MREL: financial stability implications¹

This chapter focuses on the evaluation of the market's capacity to absorb the issuance of MREL-eligible debt and the impact of the change in the composition of banks' liabilities on profitability and capital. The market for bank debt in some euro area countries is characterised, in aggregate terms, by home bias and cross-holdings, which may impede issuance. The average spread between MREL-eligible and MREL-ineligible bonds has been hovering at around 66 basis points (bp) over the past two years. However, the impact of an increase in the overall funding costs on banks' profitability and capital is likely to be limited overall. All in all, from a system-wide perspective, the extra cost of issuing MREL bonds does not pose a challenge for banks' core profitability and capital. However, home bias and shallow debt markets in some countries could make it difficult for banks with limited access to international capital and debt markets to place MREL-eligible debt.

1 Introduction

The minimum requirement for own funds and eligible liabilities (MREL) was introduced as part of the EU resolution framework in order to ensure effective and credible application of the bail-in tool. In a number of resolution cases throughout the crisis, public funds were activated. MREL is intended to ensure that EU banks' liabilities contain sufficient buffers of bail-in-able debt to absorb losses and, if necessary, to recapitalise themselves exclusively with private funds. By enhancing the credibility of the resolution framework and by minimising its costs, ultimately MREL contributes to enhancing financial stability. Notwithstanding these medium and long-term benefits, MREL may imply some short-term costs and risks to financial stability. In particular, the absorption capacity of the market for MREL-eligible debt is yet to be tested, while higher funding costs of bail-in-able debt compared with other, cheaper sources of funding is yet to feed into banks' profit and loss accounts and capital. This chapter attempts to shed some light on this.

2 Key features of MREL

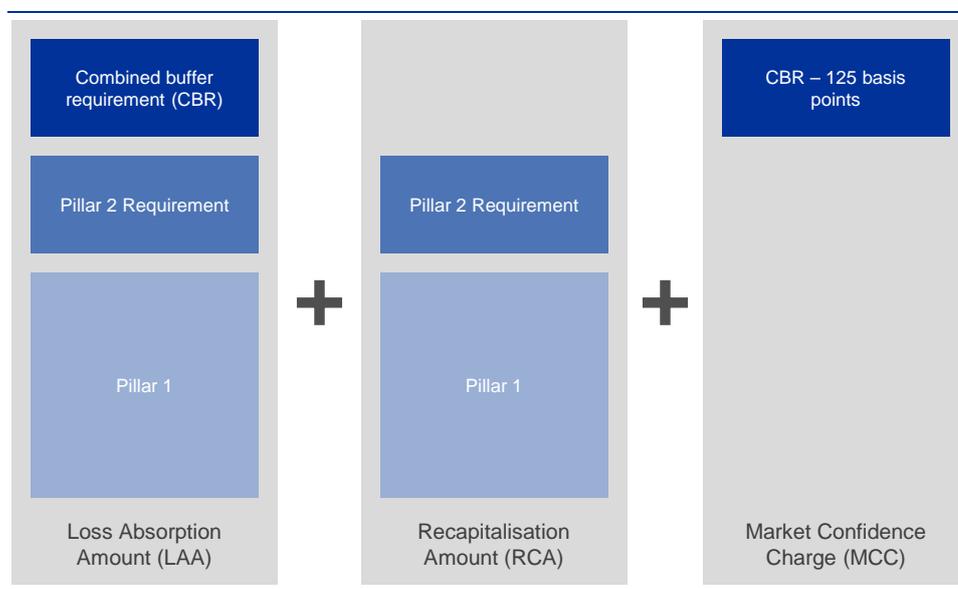
On 22 November 2017 the Single Resolution Board (SRB) announced its approach to MREL for 2017, as part of its ongoing, multi-year MREL policy.² The SRB's 2017 MREL policy introduces binding requirements, with transitional periods of up to four years applied on a case-by-case basis.

¹ Prepared by Gaiduchevici, G. and Żochowski, D.

² For further detail see: [6th Industry Dialogue: 2017 MREL Policy](#).

The binding MREL requirement was calibrated as the sum of the loss absorption amount (LAA), the recapitalisation amount (RCA) and the market confidence charge (MCC). The LAA itself was determined as the sum of Pillar 1 (P1), the Pillar 2 requirement (P2R) and the combined buffer requirement (CBR). The RCA was calibrated as the sum of P1 and P2R, while MCC is equal to CBR minus 125 basis points (see Figure 1). In addition, the Basel 1 floor³ is applied in the determination of the LAA and the RCA if they are higher than the amount determined by the sum of P1 and P2R, and of P1, P2R and CBR, respectively. In total, the binding MREL requirement is equal to twice the sum of P1, P2R and CBR less 125 basis points, i.e. $MREL = 2 \times (P1 + P2R + CBR) - 125bp$. This overall target may be subject to bank-specific adjustments related to the changes in a bank's risk weighted assets (RWAs) - for example, as a result of divestments related to restructuring plans. Furthermore, the SRB may adjust the overall MREL requirement target, on a case-by-case basis, to achieve a benchmark of 8% of total liabilities and own funds (TLOF).

Figure 1
SRB MREL policy for 2017



Source: SRB.

Notes: The sizes of the boxes are indicative and do not necessarily correspond to the actual relative sizes of P1, P2R and CBR.

In order to ensure the effectiveness of the MREL requirement, and with the intention of improving the resolvability of the relevant institutions, the SRB has set subordination benchmarks for global systemically important institutions (G-SIIs) and other Systemically Important Institutions (O-SIIs). For G-SIIs, 13.5% of RWAs plus the CBR must be covered by subordinated instruments, including equity - this is in line with the total loss-absorption capacity (TLAC) subordination requirement. For O-SIIs, the subordination threshold is set at the level of 12% of RWAs plus the CBR. The CBR is, in any case, covered by equity and it counts towards fulfilment of the subordination requirement. Assumptions about subordination requirements are thus

³ The Basel I floor has been introduced by Article 500(1)(b) of the CRR to ensure that a backstop exists for internal models. Pursuant to the relevant provision, an institution must hold own funds which are equal or greater than 80% of the own funds that the institution would be required to hold under Basel I.

critical in the determination of MREL shortfalls. Very high MREL shortfalls estimated by market participants in the past were also a result of the assumption of the full subordination of MREL instruments.

Article 45 of the Bank Recovery and Resolution Directive (BRRD)⁴ provides the definition of MREL-eligible instruments. The SRB will assess the binding MREL requirement targets against own funds and MREL-eligible instruments at the consolidated level, i.e. at the resolution group level, including all eligible liabilities in the subsidiaries.

The SRB's 2017 MREL policy is applicable to 76 banks, which represent approximately 80% of total assets of banks within the SRB's remit. The SRB estimates that the binding MREL requirement targets are, on average, equal to 26% of RWAs. According to the SRB's estimates, the aggregated shortfall (i.e. the difference between the binding requirement targets and the available eligible instruments) amounts to €117 billion, of which €47 billion must be met with subordinated instruments. The SRB will also communicate informative targets to banks; these targets, will set out a more strict definition of eligible instruments, under which only instruments issued at the point of entry, would be considered as eligible. This means that MREL-eligible instruments are only those issued by resolution entities of the group, which is either one single entity at the top of the group in case of a Single Point of Entry (SPE) strategy, or several entities within the group in case of a Multiple Point of Entry (MPE) strategy.

Currently the MREL calibration in the euro area, in terms of RWAs, is on the upper side of the range of equivalent requirements internationally. For example, at present MREL for euro area G-SIIs is higher, on average, than the TLAC requirement for US G-SIIs and MREL for UK G-SIIs. Having said this, US and UK G-SIIs are also subject to requirements based on a leverage ratio calibration and, in the case of the UK, they will increase following a transition period. MREL in the euro area also applies more broadly across institutions of different sizes compared to other major jurisdictions, with the requirement for euro area non-G-SIIs (SIs and O-SIIs) being approximately equal to that of euro area G-SIIs.

3 Market absorption capacity

The Securities Holdings Statistics (SHS) data on securities issued by credit institutions provide an insight into the geographical and sector diversification of the market for bank debt. Germany, France and Italy have the largest bank debt markets: close to €900 billion in bank debt is held by investors in each of Germany and France, while Italian financial institutions hold almost €500 billion in securities issued by credit institutions (see Figure 2, right-hand panel). Southern euro area

⁴ Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council (OJ L 173, 12.6.2014, p. 190).

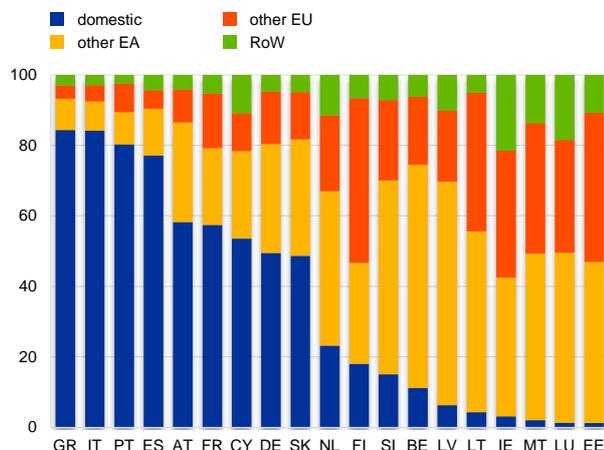
countries (Greece, Spain, Italy, and Portugal) are characterised by home bias, with a large proportion (more than 60%) of bank debt held by financial institutions being issued domestically (see Figure 2, left-hand panel). This fragmentation of the market for bank debt may pose challenges for the issuance of MREL-eligible bonds in international financial markets, particularly for banks with little debt issuance. As a result, market capacity to absorb the issuance required to cover MREL (i.e. the “MREL shortfalls”) may be country-specific and depend on the ability (and willingness) of local investors to invest in newly issued bonds. All in all, the home bias that characterises bank debt markets in some southern euro area countries may signal limits to the capacity of markets to absorb MREL-eligible issuance.

Figure 2

Home bias characterises the market for banks’ debt securities in some jurisdictions

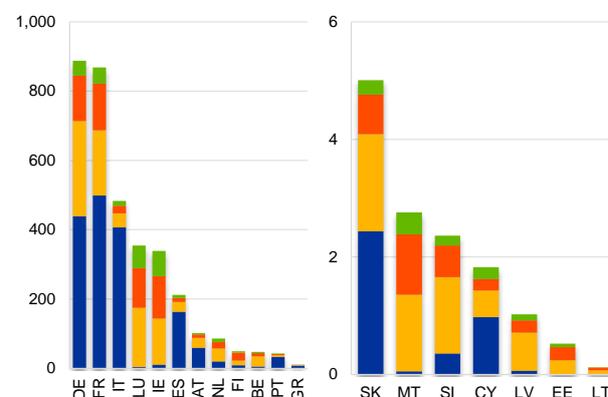
Holdings of debt issued by credit institutions by area of origination as a share of credit institution debt held in each country – all holder sectors

(percentages)



Holdings of debt issued by credit institutions by area of origination – all holder sectors

(EUR billions)



Source: SHS.

Note: SHS data do not allow for a breakdown of debt holdings by subordination rank. The non-domestic holdings of debt securities issued by the GR MFI sector may raise issues, including, in some cases, the possibility of double-counting for countries outside the euro area due to the treatment of repurchase agreements by custodians.

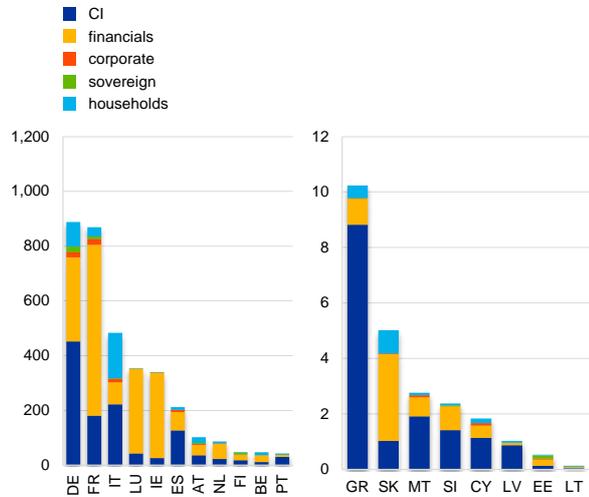
For most euro area countries, the universe of investors in bank debt is limited to financial institutions, including other banks, with the noticeable exception of Italy, where more than one-third of debt issued by credit institutions is held by households (see Figure 3, left-hand panel). Most of the debt issued by credit institutions in Germany is held by other banks, while in France most debt is held by non-bank financial institutions. In Greece, Portugal, Spain, Italy, Cyprus and Slovakia, more than 80% of credit institutions’ holdings of bank debt was issued domestically (see Figure 3, right-hand panel).

Figure 3

Most bank debt in the euro area is held by financial institutions

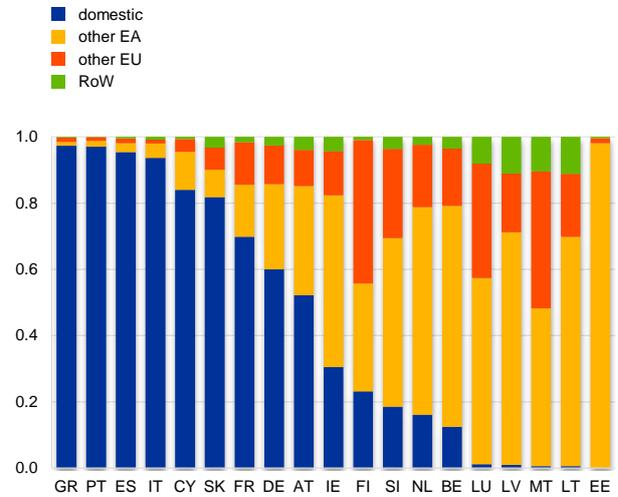
Holdings of debt issued by credit institutions broken down by holder sector

(EUR billions)



Credit institution holdings of debt issued by credit institutions broken down by area of origination

(as a share of total credit institution debt holdings)



Sources: SHS, ECB estimates.

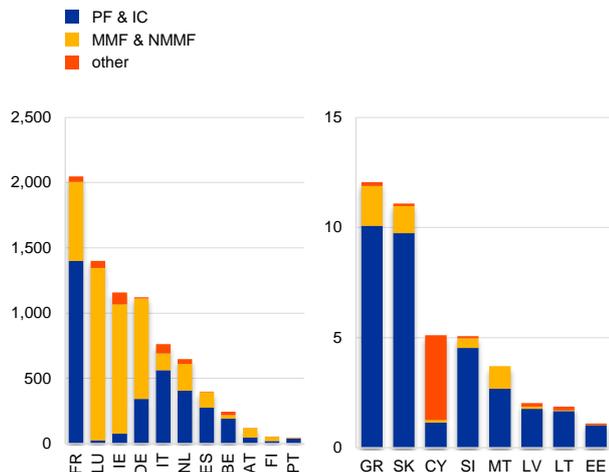
MREL cross-holdings of bank debt signal shallow markets. A large proportion of bank debt held by other banks may additionally limit the market absorption capacity, as investments in MREL-eligible debt need to be deducted from their own issuance of MREL-eligible debt, thereby increasing MREL shortfalls and potentially reducing the attractiveness of such debt for banks going forward. As a result, market absorption of new issuance would be more challenging in certain jurisdictions.

Figure 4

Pension funds, insurance companies and non-money market investment funds are the main potential investors in MREL-eligible bonds

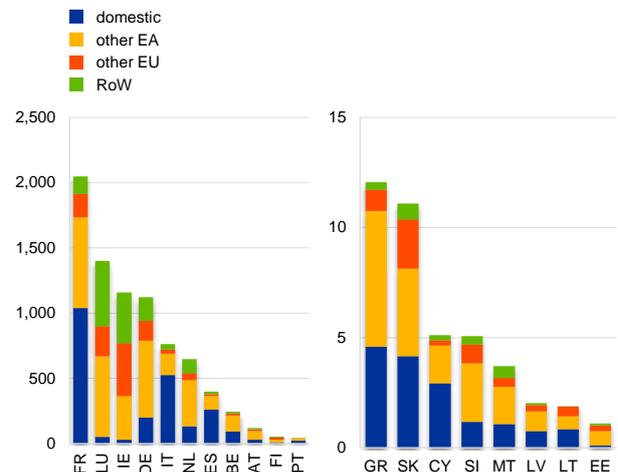
Debt security holdings of the non-bank financial sectors

(EUR billions)



Debt security holdings of the non-bank financial sectors by area of origination

(EUR billions)



Source: SHS.

Pension funds, insurance companies and investment funds are the main potential investors in MREL-eligible bonds. Pension funds and insurance companies are the largest investors in debt securities in France, Italy, the Netherlands, Spain and Belgium, while money market funds and other investment funds dominate in Luxembourg, Ireland and Germany (see Figure 4, left-hand panel). Investments in these institutions are more geographically dispersed and, except in the cases of Italy and Spain, are generally not subject to home bias (see Figure 4, right-hand panel). Should these investors decide to adjust their investment portfolio and invest in MREL-eligible bonds, there is a possibility that they could also invest cross-border. However, their capacity to invest may be constrained by regulations or internal investment/risk limits. Moreover, banks may explore ways to place bonds with non-financial sectors, even though only banks in Italy, Germany, France and Austria have placed sizeable amounts of debt with the household sector (see Figure 3, left-hand panel).

4 The impact of MREL on banks' profitability and capital

The purpose of this section is to determine the cost of MREL-eligible debt securities and evaluate its impact on banks' profitability and capital on the basis of estimates of individual bank MREL shortfalls.⁵ The MREL requirements regarding liability eligibility, as set out in Article 45 of the BRRD, apply at the instrument level, and MREL-eligible liabilities should satisfy certain conditions. In this regard, the most appropriate approach to analysing MREL-eligible debt characteristics is to use a highly granular dataset that provides the necessary details to assess the eligibility criteria down to individual security level. The Centralised Securities Database (CSDB)⁶ has proved to be a suitable data source for this purpose.

4.1 The characteristics and cost of MREL-eligible debt

As a starting point, the analysis took into consideration debt securities (i) issued in euro by banks residing in the EU, (ii) with an issue date later than January 2012, (iii) with an amount outstanding greater than € 100,000, and (iv) with complete, relevant and meaningful information (e.g. price information not older than 14 days). The resulting dataset used for this assessment constitutes a wide panel of debt securities and consists of 30 monthly observations covering the period from January 2015 to June 2017⁷ for approximately 29,000 International Securities Identification Numbers

⁵ Due to data constraints, the analysis of the impact on bank profitability is conducted on a selection of SSM banks. The spread calculation is based on a sample of 649 banks.

⁶ The CSDB is a proprietary ECB database. It is a comprehensive dataset containing information on over 7 million non-matured debt securities, equities and mutual fund shares. The CSDB is compiled monthly and contains information on an ISIN-by-ISIN basis that includes reference data on individual issues (e.g. outstanding amounts, issue and maturity dates, coupon information and statistical classifications), as well as information on issuers and bond prices.

⁷ The decision to use this time period was based on the following two considerations: (1) the requirement to comply with MREL applies from the date of national implementation of Article 45 of the BRRD, which is 1 January 2016 at the latest, so the chosen time period covers the year before the final implementation date; and (2) Legal Entity Identifier (LEI) codes are available in the CSDB for the period in question.

(ISINs) issued by 649 banks.⁸ Subsequently, the debt securities were individually assessed and separated into MREL-eligible and MREL-ineligible categories on the basis of the eligibility criteria set out in Article 45 of the BRRD.⁹ All debt securities that (i) are not guaranteed¹⁰ and/or secured, (ii) have a residual maturity greater than one year, (iii) have been fully paid up, and (iv) do not arise from a derivative position were considered as MREL-eligible.¹¹ The total outstanding amount of the debt securities included in the sample averaged €1.4 trillion over 2016, of which approximately 54% was classified as MREL-eligible debt with relatively good coverage for most of the euro area countries (see Table 1).¹²

Table 1
Debt securities issued by EU banks used in the analysis

Country	No. of institutions	Out-standing amount in EUR billions	Percentage of total out-standing amount	Percentage of eligible securities
AT	50	39.3	2.77	70
BE	3	17.7	1.25	15
DE	240	386.4	27.23	44
ES	10	73.1	5.15	16
FI	12	30.6	2.15	64
FR	79	300.0	21.14	60
IE	7	24.3	1.71	15
IT	180	231.9	16.34	71
LU	8	3.4	0.24	48
MT	2	0.2	0.01	100
NL	10	144.8	10.21	73
PT	5	22.3	1.57	40
SI	2	0.7	0.05	0
SK	6	4.2	0.29	5
CZ	2	2.0	0.14	0
DK	7	29.9	2.11	57
GB	15	62.7	4.42	58
PL	1	0.4	0.03	0
SE	10	45.3	3.19	39
Total	649	1,419.2		54

Source: ECB.

⁸ Using the LEI code as the only matching key, 93 banks were directly matched with the SSM list of significant institutions. This list comprised a total of 124 institutions as of 1 April 2017.

⁹ The subordination requirement was not considered in the analysis, as it is not a criterion referred to in Article 45 of the BRRD. A determination as to whether or not an instrument counts towards fulfilment of the subordination requirement is not straightforward, as it depends on the composition of the liabilities base of the relevant individual bank.

¹⁰ The data indicate whether a particular issue is guaranteed, regardless of the guarantor.

¹¹ The only criterion that could not be taken into account was the direct or indirect involvement of the institution in funding the issue; however, we consider this to be a minor shortcoming without a material impact.

¹² The outstanding amounts of MREL-eligible and MREL-ineligible debt may change over time, for instance because some MREL-eligible securities may become ineligible from one month to the next if their residual maturity becomes shorter than one year.

The spread between the yields to maturity (YTM) of MREL-eligible and MREL-ineligible debt securities stood at 66bp¹³ on average in the past two years. The average YTM for MREL-eligible debt securities is 141bp over the period between January 2015 and June 2017, with a maximum value of 173bp reached in June 2015 and minimum of 115bp reached in August 2016 (see Figure 5, left-hand panel).¹⁴ The YTM for MREL-ineligible securities followed broadly similar patterns, albeit at a lower level and with greater volatility. The average lower level of the ineligible debt YTM is largely explained by the fact that most ineligible securities are guaranteed and/or secured.

The spread between the YTM of MREL-eligible and MREL-ineligible debt securities throughout most of 2016 was higher than the 2.5-year average, while it stood below that average in the first half of 2017. The YTM of MREL-ineligible debt declined more than the YTM of MREL-eligible debt (see Figure 5, right-hand panel). This may be partially explained by the introduction of MREL, which, by identifying the securities likelier to be bailed in, makes the MREL-ineligible securities safer, thereby leading to a decrease in their yields. This is in line with the Modigliani-Miller effect, whereby the overall costs of funding are independent of the types of liabilities issued by institutions. Going forward, the current low YTM of MREL-ineligible debt (36bp on average in 2017) provides little room for the cost of MREL-ineligible debt to decrease further. Therefore, the scope for compensating for the increases in the YTM of MREL-eligible debt with decreases in the YTM of MREL-ineligible debt, i.e. the scope for the Modigliani-Miller effect to play out is limited on average, with the potential exception of countries with higher YTM levels. In general, the offsetting Modigliani-Miller effect will tend to increase as MREL is built up.

Nevertheless, the spread between the yields to maturity of MREL-eligible and MREL-ineligible securities is likely to be jurisdiction- and bank-specific. In particular, for smaller or weaker banks - or those with a less strong investor base (or none) due to a lack of, or limited, experience in issuing debt securities - the spread is likely to be higher. Indeed, certain banks may face significant challenges in placing bonds in the subordinated debt market.

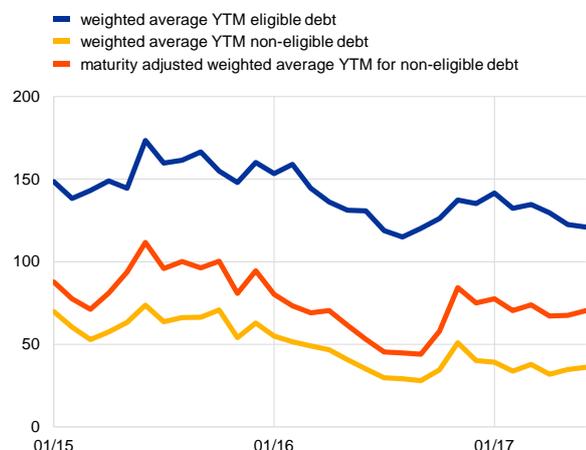
¹³ The 66bp is an empirical estimate and not a proxy. While the average is reported here, the impact assessment takes into account individual bank MREL spreads to the extent that they could be identified. For other banks, the country average is used instead.

¹⁴ In order to make the two metrics comparable, the ineligible debt YTM had to be adjusted upwards to compensate for the difference in residual maturity.

Figure 5
Price of MREL debt

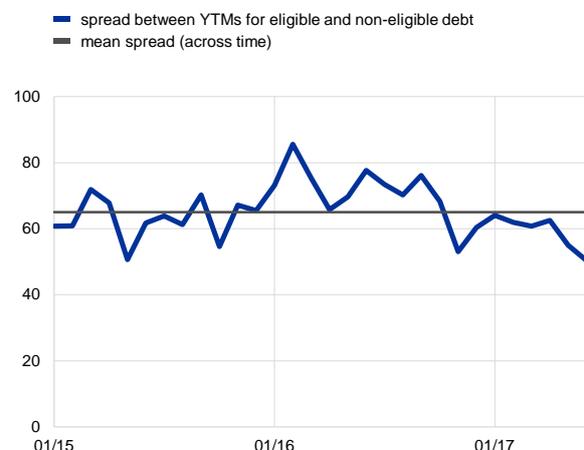
Weighted average yield to maturity for eligible and ineligible debt

(basis points)



Spread between the adjusted yields to maturity for eligible and ineligible debt

(basis points)



Sources: CSDB, ECB estimates.

The residual maturity of MREL-eligible bonds is, on average, two years longer than that of MREL-ineligible securities (see Figure 6, left-hand panel). The difference in the average maturity is due to the definition of MREL eligibility, which implies that all securities with a maturity of less than one year are not eligible. In order to make the two YTM directly comparable, the YTM of MREL-ineligible debt was corrected for the difference in residual maturity.¹⁵ This maturity adjustment was 25bp on average and was slightly lower in 2016 than in 2015.

The average outstanding amount of MREL-eligible debt per institution has increased by 34% over the past two 2.5 years¹⁶ (see Figure 6, right-hand panel). This suggests that banks have increased their stock of eligible debt securities, reflecting the need to comply with MREL. However, MREL regulation may not have been the only factor driving that increase, as favourable conditions in the debt markets may have incentivised banks to issue additional debt. This is also supported by the fact that the average outstanding amount of MREL-ineligible debt exhibits similar rates of increase,¹⁷ indicating that the substitution of ineligible with eligible debt has been limited.

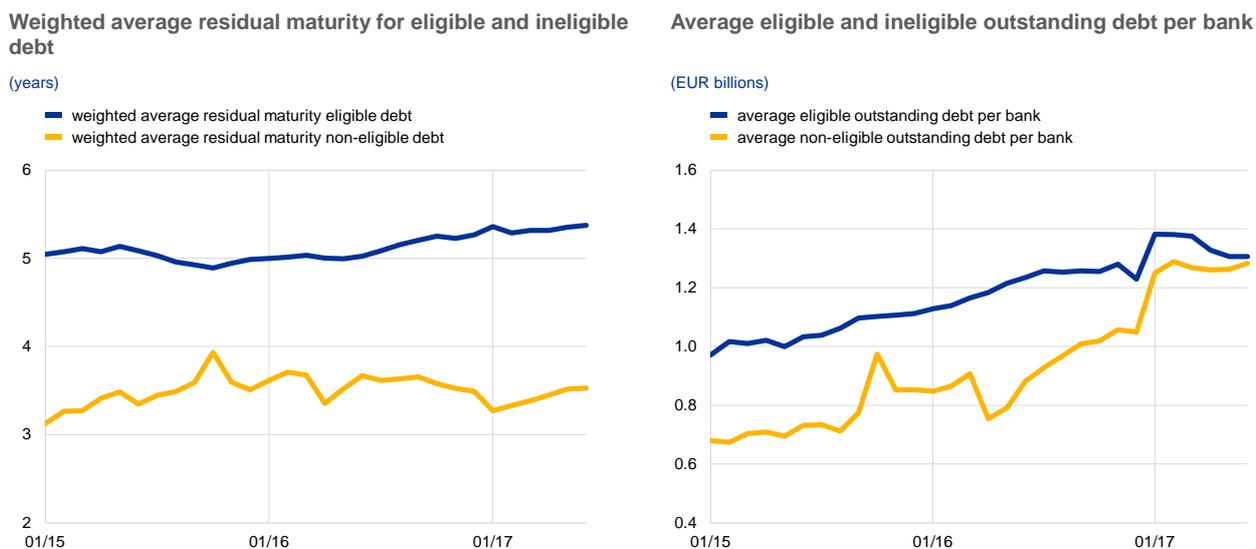
¹⁵ The adjustment was performed by adding, for every month, the weighted average sovereign yield spread between the three and five-year maturities to the YTM of ineligible debt securities. Since the sovereign spread was used as a proxy, the weighting formula accounted for the proportion of each country's outstanding amount in the total of each month.

¹⁶ The amount of eligible outstanding debt is influenced both by new issuances and reclassifications.

¹⁷ Corrected for the reclassification of securities with a maturity shorter than one year.

Figure 6

Residual maturities and outstanding amounts of MREL-eligible and MREL-ineligible debt



Sources: CSDB, Bloomberg, ECB estimates.

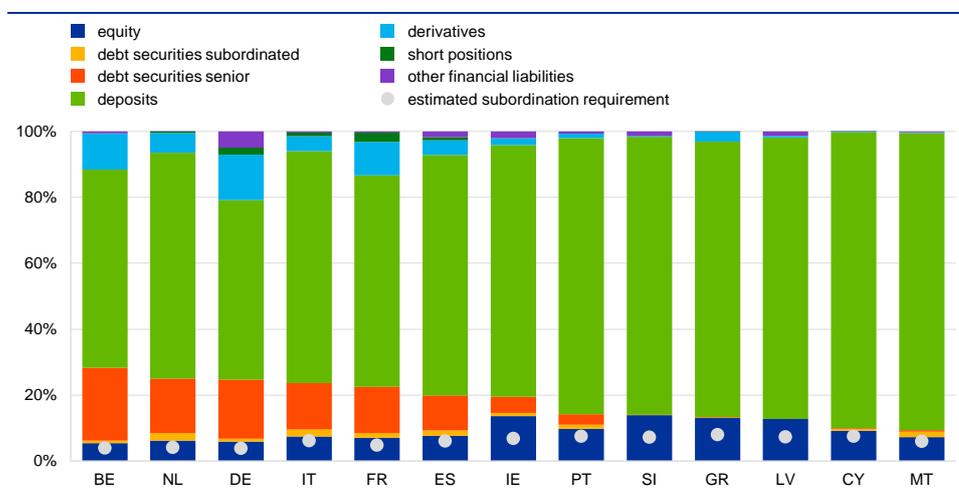
4.2 The impact of MREL on bank profitability and capital

The impact of MREL on banks' net interest margin (NIM) and CET1 ratio was estimated by assuming that banks would change the composition of their liabilities so as to cover the individual MREL shortfalls. Replacing already existing MREL-ineligible liabilities with MREL-eligible debt securities preserves the constant balance sheet assumption and eliminates the need to make difficult assumptions regarding the changes in size and composition of the assets. The difference in costs between the new issuances and the replaced liabilities increases interest expenses and decreases the NIM and CET1 ratio (via retained earnings). The assumptions regarding the type of liabilities and, more importantly, the order in which the liabilities will be replaced affect the resulting impact significantly. The methodology assumes a waterfall approach by replacing first the most costly liabilities provided that they (i) are not already MREL-eligible, and (ii) have a residual maturity shorter than one year, so that banks can replace them with MREL-eligible debt as they mature. While this approach may be the most realistic, it reduces the impact, as banks will experience a smaller increase in interest expenses. In most cases, the volumes associated with repo transactions, certificates of deposit and sight deposits were sufficient to cover the individual MREL shortfall. The cost of new issuances was given, where possible, by the bank-specific YTM of already existing MREL-eligible debt. In cases where the bank-specific yield could not be computed (e.g. where the bank did not have any MREL-eligible debt), the average for the respective country was used. The 2016 European Banking Authority stress test bank submission data were used to determine the cost and volumes of liabilities that had been replaced.

The additional cost of issuing MREL-eligible liabilities does not significantly affect banks' NIM – the median impact is limited to a few basis points. Nevertheless, in

countries where the prevailing yields on MREL-eligible debt are high, the cost of servicing that debt may be substantially higher. The increases in interest expenses are mainly driven by the higher cost of MREL-eligible debt relative to the cost of replaced liabilities, but also by the structure and composition of liabilities. In particular, banks in countries where deposit funding is the predominant model for financing banking assets may need to rebalance the composition of their liability structure towards more market-based funding by issuing additional equity and/or MREL-eligible debt securities. Figure 7 shows the aggregated data on the liability structures of banks in certain euro area countries, along with an estimated level of subordination requirements pursuant to the SRB's 2017 MREL policy (see Section 2 above). Overall, banks in all countries referred to in Figure 7 should be able to fulfil the subordination requirement with the equity and subordinated instruments that they had issued as at the end of the second quarter of 2017. At the individual bank level, however, some banks may need to issue subordinated MREL-eligible instruments.

Figure 7
Aggregated data on the liability structures of banks and MREL subordination requirements



Source: ECB and ECB estimates.

Notes: The subordination requirement as at the end of Q2 2017 was computed by translating the SRB requirement for G-SIIs (13.5%+CBR) and O-SIIs (12%+CBR), expressed in RWAs, into a requirement expressed in unweighted assets. The different subordination requirement thresholds for each country reflect the different composition of G-SIIs and O-SIIs in national banking sectors and the different levels of density of RWAs, measured by RWAs over total assets, across countries.

The impact of higher MREL-related funding costs on capital is also limited on average. The median yearly steady-state impact on CET1 as a result of a lower NIM is estimated to amount to around 10bps. Nevertheless, there is a wide dispersion in the impact of extra costs related to servicing of MREL-eligible liabilities, with a substantially higher impact on those banks for which prevailing yields on MREL-eligible debt are high.

All in all, in terms of average for euro area, the impact of MREL on banks' profitability and capital is expected to be limited.

5 Conclusions

MREL was introduced to make the bank resolution framework credible and less costly to taxpayers. While the medium to long-term benefits of this new requirement are undisputed, this chapter considered possible short-term costs related to the introduction of MREL from a financial stability perspective. In particular, it discussed the capacity of markets to absorb MREL shortfalls and provided an assessment of the impact of the requirement on bank core profitability and capital.

Overall, the capacity of financial markets to absorb shortfalls is sufficient. Nevertheless, the market for bank debt in some countries of the euro area is characterised by home bias and bank cross-holdings. Hence, the ability of the market to absorb MREL shortfalls in those countries may depend on banks' ability to open up their debt placement to international investors.

The impact of MREL on banks' profitability and capital is expected to be limited.

Chapter 2 – Macroprudential policy analysis and tools – Assessing the impact of bank capitalisation changes conditional on a bail-in versus bail-out regime¹⁸

We have developed a flow-based contingent claims model for valuing bank debt and equity, along with the value of banks for the government. The model is intended to be useful for quantifying the impact of capital-based macroprudential policy measures on the various claims of banks, and their estimated probability of default and funding cost. We focus on the differential effect that capital ratio changes exert conditional on moving between bail-out and bail-in regimes, which amounts to varying the recovery rate of debt holders in the model.

1 Purpose

We have developed a dynamic contingent claims model for a large sample of EU banks which serves as a basis for estimating the value of banks' equity and debt, the value for the government when banks are operated by private shareholders during "normal times", the expected future bail-out value, and the banks' credit spreads and probability of default. The model is intended as an enhancement to the ECB's analytical toolkit. Specifically, it can be used (i) for surveillance purposes, i.e. for monitoring the valuation and risk measures of banks over time, (ii) for contributing to analytical assessments of the impact of capital-based macroprudential policy instruments on the value of the banks for their claimants, and (iii) to assess how different bail-in/bail-out regimes affect the claim estimates, and how the latter two aspects interact. Tools such as the one presented here can be useful for supporting the ECB in its role as a macroprudential authority tasked with supporting national competent authorities in the euro area in setting and evaluating capital-based macroprudential policy measures. Such tools are intended not only to help shape our understanding of how bank balance sheet structures may be affected by capital-based policy in a qualitative manner, but also to provide a basis for deriving quantitative estimates of a number of relevant risk indicators.

We apply the model to an array of about a hundred EU banks. In line with empirical regularities, the model structure implies a nonlinear, monotonous, positive relationship between the funding cost spread and the probability of default, along with a less clear negative relationship between the banks' capital ratios and their

¹⁸ Prepared by Gross, M. and Población, J. The chapter is based on Dubiel-Teleszynski, T., Gross, M., and Población, J., "A structural model to assess the impact of capitalization changes conditional on a bail-in versus bail-out regime", *Mimeo*, 2017.

estimated probability of default. The latter finding is expected because the banks' probability of default is not only a function of their leverage but also of the variance, i.e., the risk, surrounding their income and expense streams over time.

We apply a +1 percentage point (pp) shock to the banks' capital ratios.¹⁹ The value of the bank for the government increases and the prospective bail-out cost estimates fall, both as expected. The value for bank creditors increases, whereas the value for shareholders decreases. The funding cost spreads the impact, and the change in the probabilities of the default is positive and quite visible. In addition, one parameter from the model, i.e. the recovery rate for the banks' debt holders, is used to apply the model in relation to the notion of bail-in and bail-out. The values for shareholders as well as the banks' probabilities of default, bail-out thresholds and expected time to bail-out all remain unaffected by moving the recovery rate. We then repeat the capital ratio shift simulations under two polar assumptions (bail-in versus bail-out regime). The results are intuitive. The sensitivity of the banks' value for the government to capital ratio changes becomes more pronounced when moving towards a bail-in regime. In addition, the funding cost spreads of banks in particular are found to be sensitive to a move towards a bail-in regime, since the expected loss conditional on default of banks would need to be borne by debt holders who, in turn, would wish to be compensated for the loss.

2 Description of the model

The model comprises commercial banks and a government. The latter is committed to keeping banks operating in the event that the private shareholders decide to abandon the bank. Private shareholders follow a wealth maximisation objective, do not bear any social responsibilities and are free to abandon the bank when they deem it no longer profitable. In turn, the government is a welfare-maximising agent and assumes control of the bank when the total income of the bank drops below a given threshold below which the private shareholders stop operating the bank. During times when the government does not need to take control over defaulting banks, it assumes a passive role by merely enforcing its tax schedule and not taking any pre-emptive action in anticipation of possible future bailouts.

Full symmetry of information is assumed for the government, private shareholders and bank creditors. They are assumed to possess all relevant information and to rationally anticipate each other's actions. Banks face an uncertain (stochastic) total income and cost stream, which they discount at a constant risk-free interest rate.²⁰ Part of the expense pertains to dividend payments to shareholders as long as net income is positive. Whenever net income turns negative, shareholders make the necessary cash injections to avoid default and are willing to inject cash into the bank

¹⁹ We are assuming that such a shift may reflect the result of a macroprudential policy instrument that is operating on capital requirements.

²⁰ Risk-free interest rates are known to correlate only to a small extent with cyclical macroeconomic conditions. Therefore this assumption is acceptable, in particular for the intended purposes of the model.

as long as these cash injections do not exceed the market value of their shares.²¹ Creditors which lend money to the bank (in the form of wholesale funding) are present in the model. This takes the form of constant, perpetual, coupon-bearing debt.²² A deposit insurance scheme is assumed to be in place so that depositors cannot lose their deposited funds.

Overall, the model is similar in spirit to the contingent claims models developed by Leland (1994), Goldstein et al. (2001) and Hackbarth et al. (2006). Unlike the model framework following Merton (1974), which bases the valuation on equity and implied asset values and volatility, so that the models are related to stocks, models such as ours instead take income and expense flows as their basis.²³ Flow-based valuation models entail a number of advantages, most of which are highlighted in the above-mentioned references. Generally speaking, the advantage of the net income flow-based model is that all contingent claimants of the banks (equity, debt, government stake, etc.) are treated in a consistent manner.^{24, 25} The model belongs to the class of first-passage-time models, which allow the default of a firm to occur before its debt obligations mature.²⁶

When shareholders stop operating a bank, they are assumed to lose their capital stake K , a portion α_1 of which is assumed to flow to the government, while $1 - \alpha_1$ of K is assumed to be lost to cover bankruptcy costs. Creditors are assumed to recover a portion α_2 of their claim, i.e. $1 - \alpha_2$ can be interpreted as their loss given default (LGD). The value of the debt holders' claim (D) in monetary terms in the event of the default of the bank therefore amounts to $\alpha_2 D$. The value of the bank for the government resulting from these two combined elements thus equals $\alpha_1 K + (1 - \alpha_2) D$. The above-mentioned cost of bankruptcy is nonzero when $\alpha_1 < 1$. The two parameters, α_1 (portion of bank capital received by the government upon bank default) and α_2 (creditors' recovery rate given bank default), play an important role in the model, in particular as regards the exemplary simulation results presented below.

The empirical application of the model rests on a quarterly data sample for 101 banks from Europe (from a subset of 20 EU countries) covering the 2006-2016 period. A subset of 61 banks is located across 12 euro area countries. The 101

²¹ We assume that neither the government nor the private shareholders are financially constrained.

²² Debt was also assumed to be perpetual in Modigliani and Miller (1958), Merton (1974) and Black and Cox (1976).

²³ Earlier models that are also comparable in nature to the one described here include the model put forward by Black and Cox (1976), who did not incorporate any taxes or, importantly, the possibility of firm bankruptcy. Graham (2000) also takes earnings flows as a basis for the capital structure model, but does not allow for bankruptcy or, in this case, for debt to be risky, i.e. debt is risk-free and no credit spreads can be implied by the model.

²⁴ For details see for example Goldstein et al. (2001).

²⁵ One concrete advantage of flow-based models arises in relation to the role of taxes and tax benefits in the model. It stems from the fact that the flow-based frameworks treat tax benefits not as an inflow of funds (as equity value-based models did) but as a reduction in an outflow to reflect the fact that all cash outflows of a firm (say dividends, debt coupon payments, interest expense and tax benefits) are generated by the same set of assets. In effect this means, for instance, that only in flow-based models such as ours does a tax rate increase imply a falling equity value (while equity value-based models predict the opposite to be the case, which is counterintuitive).

²⁶ This class of models constitutes an important enhancement of the original Merton-type models (Merton, 1974), in which default was assumed to occur only at maturity. Bielecki and Rutkowski (2004) is a useful entry point to the literature on first-passage-time models.

banks cover about 75% of the total consolidated banking system assets of the 20 EU countries. The required inputs include operating income, operating expenses and asset write-downs (the sum of the latter two constitute the “total costs” variable in the model), total capital and total debt. For the calculations related to the impact of capital ratio shifts, the amount of total assets is also a required input. Before conducting any simulations with the model, drift and variance parameters for the above-mentioned income and expense flow variables are estimated for all banks in the sample separately.

3 Estimation and simulation results

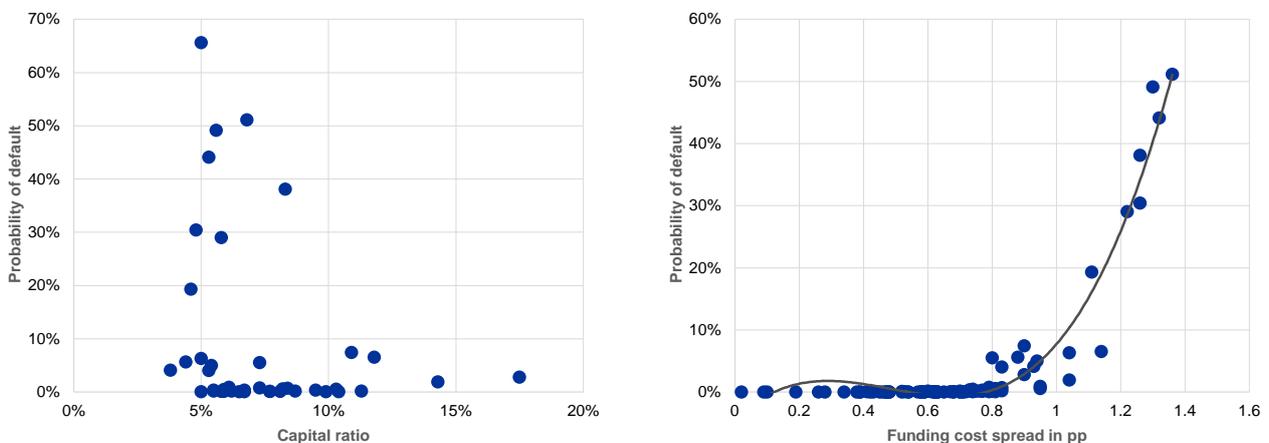
3.1 Base case model estimates

Figure 8 (left-hand panel) is a scatter that illustrates the ex post relationship between the estimated funding cost spread and the probability of default based on the cross-section of 101 banks, which suggests a monotonous positive relationship between the two and a very nonlinear shape. The two parameters were set to $\alpha_1 = 0.9$ and $\alpha_2 = 0.8$ for the base case estimates. Figure 8 (right-hand panel) is a scatter of the capital ratios of the banks as of 2016 against their estimated probability of default from the model. Here, the relationship is less visible (albeit negative). This lower visibility is expected, because the probability of default is not only a function of leverage but also of the variance surrounding the banks’ income and expense streams.

Figure 8
Basic relationships captured by the model

Relationship between banks’ probability of default, capital ratio and funding cost spreads

Probabilities of default in % at a one-year horizon; funding cost spreads expressed as percentage point difference to risk-free interest rate



Sources: Bloomberg and authors’ calculations.

Note: The scatter plots are based on the model-implied estimates of the banks’ probabilities of default and funding cost spreads, as well as the observed capital ratios of the banks as of year-end 2016.

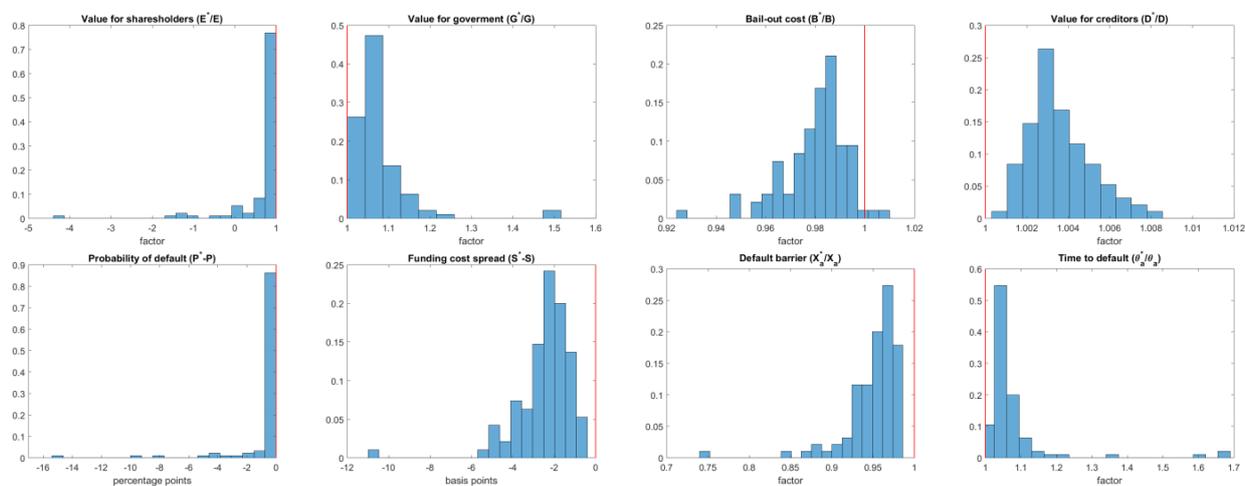
3.2 Simulating the effects of capital ratio shifts

We apply +1pp shifts to the banks' capital ratios, starting from the ratios as of their end-sample position in 2016. We assume that the banks move to the higher capital ratio by raising equity capital from outside the system of banks comprised by the sample, i.e. not by shrinking the size of their balance sheets or by cross-sourcing the funds (either from equity or debt) of the banks contained in the sample. Moreover, we do not make any assumptions at this point about possible implications for loan pricing and the associated volume effects, i.e. outstanding loan stocks of the banks are assumed to remain constant without new loans and deposits being created (or loans being allowed to mature without being replaced by new business). It is a snapshot assessment in that sense.

Figure 9 shows a collection of histograms that illustrate the changes in the base case estimates of the eight endogenous variables as a result of the +1pp capital ratio shift across the underlying 101 banks.

Figure 9
Differential impact of a bank capital ratio shift in a base case

A +1pp capital ratio shift exerts its impact on the eight endogenous model variables



Source: Authors' calculations.

Notes: The histograms show how the various value estimates for the values of the various claims change in response to a +1pp shift in the banks' capital ratios. The distributions are based on a sample of 101 large banking groups from 20 EU countries.

We can observe that the value for equity holders moves down (i.e. the E^*/E ratios are lower than one) in all cases, since the capital is taken into account as a penalty for equity holders if they decide to abandon the bank. The E^*/E ratios can fall below zero, which means that an initial positive base estimate of E has moved into negative territory after the application of the capital ratio shift, which is the case for eight banks in the sample. The value for the government increases, i.e. the negative estimates for G become less negative (the G^*/G ratios are higher than one) for G to increase by a factor of 1.08 (+8%) on average across all banks. The bail-out cost B falls (B^*/B ratios lower than one) by an average factor of 0.98 (-2%). The factor moves down to almost 0.92 (-8%) for two banks in the sample. Because we assume in the base case that only 90% of the capital moves to the government when

shareholders abandon the bank ($\alpha_1 = 0.9$) it can happen that the bail-out cost increases along with the capital increase for a few banks (and we do in fact see this happening).

Because the portion of debt recovered by debt holders is assumed to be high in the base case ($\alpha_2 = 0.8$), the value for creditors D tends to remain unaffected, although if anything it increases (D^*/D ratios larger than one) – by a factor of up to about 1.008 (+0.8%) – in response to the capital ratio shift. If the recovery rate for creditors were to decrease (i.e. for the creditors' LGD to increase), then the sensitivity of D to capital ratio changes would become stronger (the following section will focus on this aspect).

The funding cost spread impact ranges between -10bp and close to zero, with the impact for the median bank equalling about -2bp. The impact on the banks' probability of default ranges between close to zero and -15pp for a few banks. The estimated default barriers fall by a factor of up to about 0.75 (-25%) for one bank, and by a factor of 0.96 (-4%) for the median bank. Finally, the estimates of expected time to default increase by a factor of 1.05 (+5%) for the median bank and by a factor of up to 1.68 (+68%) for one bank at the upper end of the bank distribution.

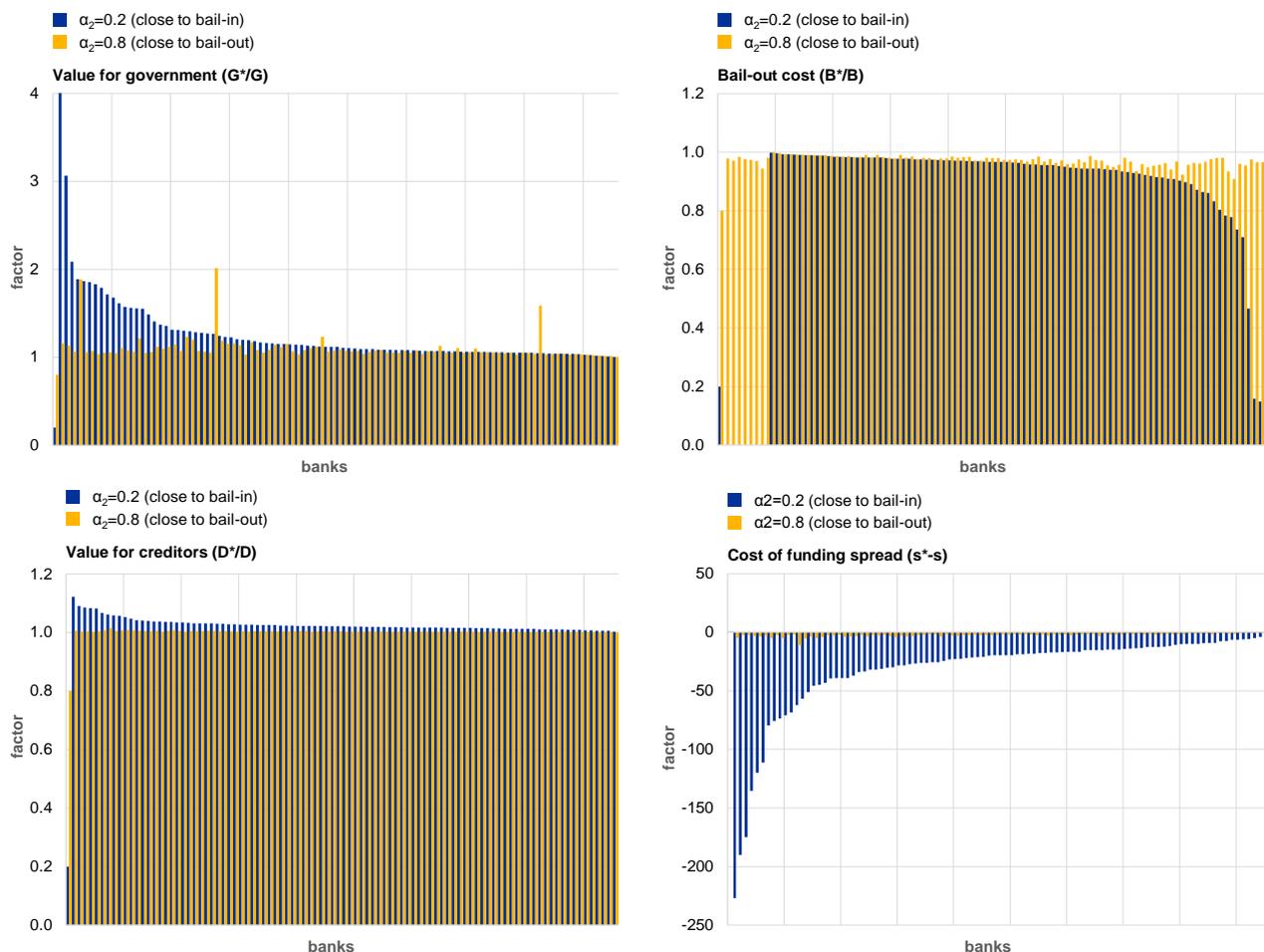
3.3 Simulating capital ratio shifts conditional on an assumed bail-in versus bail-out regime

We can use one parameter from the model, the creditors' recovery rate (α_2), to apply the model in relation to the notion of bail-in and bail-out. We can move gradually between a "bail-out" ($\alpha_2 = 1$) and a "bail-in" regime ($\alpha_2 = 0$), with bail-out and bail-in meaning that the LGD for creditors is zero and one respectively. We leave the α_1 parameter (portion of capital that the government receives upon a bank's default) at 100% for the following assessment. The bank's value for shareholders, the default barrier, the expected time to default and the default probability all remain unaffected, since shifting α_2 does not affect the actual fundamental structure of the bank balance sheet or its flow evolution over time in any way, and therefore does not affect the shareholders' abandonment decision either. The structure of the model implies that only the value for the government G , the bail-out cost B , the value for creditors D and the funding cost spreads react. Figure 10 illustrates the impact of a +1pp capital ratio shift under $\alpha_2 = 0.2$ and $\alpha_2 = 0.8$ which correspond to two regimes that are close to a full bail-in and bail-out regime, respectively. The impact estimates are not shown in histogram format as before but as bar charts for the underlying sample of banks, with the impacts being sorted along the bail-in regime estimates.

Figure 10

Differential impact of a bank capital ratio shift conditional on assumed bail-out and bail-in regimes

A +1pp capital ratio shift exerts a different impact on a subset of four model variables



Source: Authors' calculations.

Note: The bar charts illustrate the impact of a +1pp capital ratio shift for the underlying sample of 101 banks under two different assumptions for the recovery rates of the banks' debt holders.

The estimates relating to G suggest that the relative sensitivities of the value for the government to capital ratio changes become more pronounced the closer one moves to the assumed bail-in regime. The differential impact on the bail-out cost B is positive in economic terms, i.e. the B^*/B ratios are less than one for negative cost estimates to become less negative. Under the “close to bail-in” regime we observe a gradual fall of the impact ratios at the right end of the bank distribution. At the left end, the blue bars (bail-in regime) do not appear for eight banks, which is because the bail-out cost was already zero for these banks under the $\alpha_2 = 0.2$ setting in the base case simulation ($B=0$ in the denominator of the ratio defined in Figure 10).

As regards the value for debt holders D , we see that the capital ratio increase has less of an effect when moving towards the bail-in regime. The reason is that in a full bail-out regime debt holders do not lose anything in the event of a bank default, with a capital ratio increase not changing this fact.

Finally, with respect to the impact of the capital ratio shift on the funding cost, a very pronounced difference can be observed under the two regimes. The estimated funding cost relief amounts to -20bp and -2bp for the median bank for the bail-in and the bail-out regime respectively. This effect reflects the compensation of the creditors for the risk that their investment entails. This risk is greater under a bail-in regime, which in turn increases the sensitivity of the funding cost to capital ratio changes.

To conclude the assessment, Figure 11 shows the banks' estimated value for the government and the total bail-out cost for the euro area sub-sample of banks, distinguishing between the "close to bail-out" and "close to bail-in" regimes ($\alpha_2 = 0.8$ and $\alpha_2 = 0.2$ respectively) and also distinguishing between the end-sample position and the capital ratio shift scenario. The estimates are expressed as ratios to the total annual nominal gross domestic product (GDP) flows observed as of 2016 over the 12 euro area countries to which the 61 banks belong. The combined value for the governments falls from about 17% of GDP to 8.5% when considering the move to the bail-in regime. The total bail-out costs represent 24.7% and 12.3% of GDP flows under the bail-out regime and bail-in regime respectively.²⁷ In all cases, the additional +1pp shift in the capital ratios implies a fall in the shares of GDP of between 0.5pp and 0.7pp. A reverse capital ratio impact simulation was conducted to determine how large a capital ratio impulse would have to be in order to approximately replicate the impact of moving from the bail-out to the bail-in regime ($\alpha_2 = 0.8$ towards $\alpha_2 = 0.2$), i.e. so that the GDP impact estimate in turn falls from 17% to 8.5%. The reverse simulation suggests that a concerted impulse to the banks' capital ratios of about +13pp would have to be considered. Given an average of about 9% for the capital ratio in 2016 for the underlying bank sample, such a shift would increase their ratios to just above 20%.

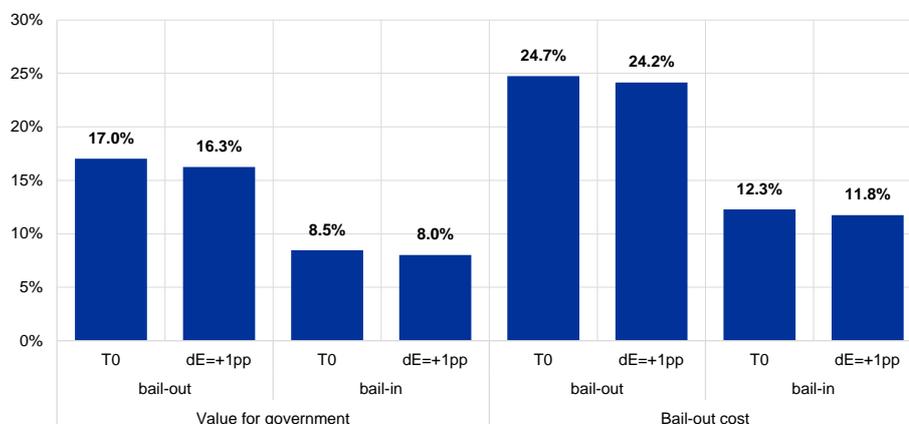
²⁷ Less attention should be given to the absolute levels of the percentage estimates in Figure 11, since the country coverage of the euro area is not complete (banks from 12 of 19 countries are included in the assessment). The estimates are meant to be informative in showing the relative role that capitalisation changes – as opposed to changes in the debt holder's recovery rate – play in the impact on the value for the government and the prospective bail-out costs.

Figure 11

Banks' estimated value for the government and bail-out costs relative to nominal GDP

Moving between bail-in and bail-out regimes entails an economically significant change for the governments' contingent claim on the banks

Percentage of nominal GDP flows as of 2016 for a subset of 12 euro area countries



Sources: Bloomberg, SDW and authors' calculations.

Note: The percentage estimates reflect the ratio of the estimated value for the government and the prospective bail-out costs for an underlying sample of 61 banks from 12 euro area countries, relative to annual nominal GDP flows as of 2016 for the 12 countries.

4

Conclusions

The purpose of the structural model described in this chapter is to value the bank balance sheet components by assuming that governments operate the banks under unlimited liability, being responsible for the bank's fixed claims upon the default of a bank, while shareholders of banks aim to maximise the net value of the bank. The model allows the distance to default for the banks to which it is applied to be quantified and monitored over time. It can therefore inform decisions about the need for supervisory action in terms of a possible recapitalisation via equity increases in the market or public participation. In that context, the model can not only help inform decisions but can also help to quantify the monetary benefit to the government and debt holders of a decrease in the funding cost spread, while also helping to quantify the probabilities of default of the bank, which is conditional on an assumed capital increase.

We have illustrated the use of the model for quantifying the impact of capital ratio shifts which can result from capital-based macroprudential policies on the valuation of the claims on banks and on some measures of risk, as well as the application of the model in relation to the notion of bail-in and bail-out. The banks' value for shareholders, the default threshold and the estimated time to and probability of default remain unaffected by the bail-in/bail-out regime setting, since the bail-in/bail-out assumptions do not affect the fundamentals of the bank, at least upon impact of a capitalization change. However, there is an incremental impact that can be measured for the banks' value for the government and the bail-out cost, which both

decrease when moving from a bail-out to a bail-in regime. This finding supports the rationale of the BRRD.

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Chapter 3 – Macroprudential regulatory issues – The ECB’s key messages on the European Commission’s banking reform package from a macroprudential perspective²⁸

In November 2016, the European Commission published its proposals on the reform of EU banking rules to further strengthen the resilience of EU banks, complete the post-crisis reform agenda and address outstanding challenges to financial stability. In March and November 2017, the ECB published opinions on various aspects of the proposed package. This chapter outlines the key messages in those opinions that are of particular importance from a macroprudential perspective.

1 Introduction

In November 2016, the European Commission published its comprehensive package of reforms to further strengthen the resilience of EU banks.²⁹ The banking reform package will incorporate into European legislation important elements of the global regulatory reform agenda, such as new global standards on bank capital adequacy and liquidity (for example the total loss absorbing capacity (TLAC), the leverage ratio and the net stable funding ratio (NSFR)), and will introduce certain new elements (such as harmonisation of the priority ranking of unsecured debt instruments). The proposed reform package will bring the post-crisis regulatory reforms in the EU close to completion,³⁰ strengthen the regulatory architecture, reduce risks in the banking sector and thereby increase the stability and resilience of the financial system. This progress in reducing risk will pave the way for commensurate progress on risk sharing in the European banking sector, which is needed to complete the banking union.

²⁸ Prepared by Attinger, B., Baumann, A., Corrias, R., Jahn, N., Melo, A., Torstensson, P. a. Zsámboki, B.

²⁹ The package includes the following proposals:

- [BRRD: Proposal for a directive amending Directive 2014/59/EU on loss absorption and recapitalisation capacity of credit institutions and investment firms](#)
- [BRRD – insolvency hierarchy: Proposal for a directive amending Directive 2014/59/EU as regards the ranking of unsecured debt instruments in insolvency hierarchy](#)
- [SRMR: Proposal for a regulation amending Regulation \(EU\) No 806/2014 as regards loss-absorbing and recapitalisation Capacity for credit institutions and investment firms](#)
- [CRD: Proposal for a directive amending Directive 2013/36/EU as regards exempted entities, financial holding companies, mixed financial holdings companies, remuneration, supervisory measures and powers and capital conservation measures](#)
- [CRR: Proposal for a regulation amending Regulation 2013/575/EU as regards the leverage ratio, the net stable funding ration, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, reporting and disclosure requirements and mending Regulation 2012/648/EU](#)

³⁰ Certain changes to the Basel III framework ([Basel III: Finalising post-crisis reforms](#)), most notably those on credit and operational risk, were finalised on 7 December 2017, after the European Commission’s proposal was published and are not included in the proposed reform package.

In March and November 2017, the ECB published opinions on various aspects of the proposed banking reform package.³¹ This chapter provides an overview of the ECB's key messages, from a macroprudential perspective. Further information and messages on additional aspects of the banking reform package are provided in the relevant ECB opinions.

2 ECB's key messages on the EU banking reform package from a macroprudential perspective

2.1 Implementation of international standards

The European Commission proposes to implement a series of internationally agreed supervisory standards which will increase financial stability and the resilience of EU institutions. These standards include the introduction into EU law of three standards developed by the Basel Committee on Banking Supervision (BCBS): the leverage ratio requirement; the net stable funding ratio requirement; and the revised market risk capital framework.

The compliance of EU law with these international standards is important to ensure bank resilience, financial stability and a global level playing field.

Deviations across jurisdictions can compromise the objectives of such standards, as they could render institutions more exposed to risks, compromise comparability between banks, and create an uneven playing field. Any deviation from global standards should, therefore, be thoroughly assessed and implemented only where strictly necessary in order to adapt them to specific EU characteristics.

A simple, non-risk-based leverage ratio requirement will complement the risk-based capital framework and restrict the build-up of excessive leverage in the banking system. A build-up of excessive leverage, followed by deleveraging, can decrease the stability of the financial system and was one of the root causes of the global financial crisis. The leverage ratio requirement will prevent excessive build-up of leverage, while complementing the risk-based capital framework by acting as a non-risk based backstop measure. Under the European Commission's proposal, the minimum leverage ratio requirement is calibrated at 3%, in line with the BCBS standards and the recommendation of the European Banking Authority (EBA).³²

Proposed exemptions of certain exposures from the scope of the leverage ratio are, however, in conflict with the rationale of the leverage ratio requirement proposed by the BCBS. The reform package includes several

³¹ [Opinion CON/2017/6 of the European Central Bank of 8 March 2017 on a proposal for a directive of the European Parliament and of the Council on amending Directive 2014/59/EU as regards the ranking of unsecured debt instruments in insolvency hierarchy](#); [Opinion CON/2017/46 of the European Central Bank of 8 November 2017 on amendments to the Union framework for capital requirements of credit institutions and investment firms](#) and [Opinion CON/2017/47 of the European Central Bank of 8 November 2017 on revisions to the Union crisis management framework](#).

³² See *EBA Report on the leverage ratio requirements under Article 511 of the CRR*, European Banking Authority, 3 August 2016, available on the EBA's website: www.eba.europa.eu

deviations from the relevant standard proposed by the BCBS; for example automatic exemptions for intragroup exposures already exempted from risk weights, exposures arising from the pass-through of regulated savings, as well as exposures arising from promotional loans or officially supported export credits provided by sovereigns or export credit agencies. These exemptions are in conflict with the rationale of the leverage ratio requirement, which has been designed as a simple, non-risk-based measure that ensures broad and adequate capture of both on-balance-sheet and off-balance-sheet sources of leverage. Moreover, the EBA did not identify in its report any specific bank business model that is significantly less exposed to leverage-related risks than other models.

The net stable funding ratio (NSFR) requirement will reduce excessive maturity transformation and promote funding stability. The NSFR ensures that any mismatch between a bank's assets and liabilities is not excessive, making banks' liquidity positions more resilient to disruptions to their funding sources. By limiting overreliance on short-term wholesale funding, encouraging better assessment of funding risk across all on- and off-balance-sheet items and promoting funding stability, the NSFR will contribute to further reduce banks' risk of failure and mitigate broader systemic risk.

Deviations from the Basel NSFR requirement may prevent the full reduction in funding risk which the BCBS anticipated. The European Commission's proposal largely reflects the BCBS NSFR framework, but also includes several technical deviations. While these changes would reduce the impact of the requirement and of potential unintended consequences on market functioning, they might also prevent the full reduction in funding risk anticipated by the previously agreed Basel standard. For example, one proposed deviation is that the requirement for stable funding should not apply to the most liquid assets. This approach may not be sufficiently prudent, as the price of even the most liquid instruments – except cash and central bank reserves – can change during the course of a year and should, therefore, be funded long-term to some extent. The proposed deviation also suggests that a lower stable funding requirement for banks' short-term lending to other financial counterparties, including secured lending, should be applied until a review of the treatment of secured transactions included in the NSFR is completed. While such a review would provide an opportunity to identify and address potential shortcomings in the NSFR framework, it would be preferable if it were conducted at the international level and that the stable funding requirement for secured transactions is applied consistently with the BCBS framework until the review is completed.

The proposed standard on market risk will address weaknesses in the current capital framework for trading activities. In particular, the reform package will introduce a revised boundary between the regulatory banking and trading books to reduce incentives for arbitrage in the allocation of instruments between the these books. The new standard will also enhance the internal model-based approach by providing for a more coherent and comprehensive capture of risk, a more granular model-approval process, and new constraints on the capital-reducing effects of hedging and portfolio diversification in the internal model-based approach. The reform package will also introduce a revised standardised approach; this will provide

a credible fall-back to banks' internal model-based approaches, and improve consistency in, and comparability of, reporting of market risk across banks.

The proposed deviations from the relevant standard on market risk capital framework that has been suggested by the BCBS may lead to unwarranted variation in supervisory practices and regulatory arbitrage. The deviations allow increased freedom to credit institutions, for example in developing their internal models and choosing which trading desks should be subject to the standardised approach and which should be treated instead using the internal model-based approach. These changes may lead to divergences in supervisory practices and risk modelling, as well as to regulatory arbitrage.

On 7 December 2017, the Group of Central Bank Governors and Heads of Supervision (GHOS) endorsed the BCBS' proposal to extend the implementation of the revised capital requirements for market risk from 2019 to 1 January 2022. Deferring implementation will allow banks additional time to develop the systems infrastructure needed to apply the framework and for the BCBS to address certain specific issues related to the market risk framework. This includes a review of the calibrations of the standardised and internal model approaches to ensure consistency with the BCBS' original expectations.

2.2 Refinements to the Pillar 2 framework

The European Commission's proposed reform package provides for refinements to the Pillar 2 framework, distinguishing between "requirements" and "guidance". This is in line with current ECB banking supervision practice, in which Pillar 2 capital add-ons are split into two components: a binding Pillar 2 requirement (P2R) which addresses risks not adequately covered by Pillar 1 requirements; and a Pillar 2 guidance (P2G) element which serves as a guide to the appropriate level of capital needed as a buffer to withstand stress scenarios. The P2G element is set on the basis of the results of the adverse scenario in the supervisory stress tests. While the P2R is a binding constraint, breach of which entails direct legal consequences, P2G is not a binding requirement and failure to meet it does not amount, in legal terms, to a breach of capital requirements.

The proposed reform package clarifies the institution-specific nature of the Pillar 2 framework; in particular that P2R – which is implemented by microprudential authorities – is not to be used to address macroprudential concerns. The proposed package provides that, given their institution-specific nature, Pillar 2 measures should only address idiosyncratic risks relating to the individual risk profile of a given institution. In doing so, the proposal contributes to better clarification of the roles of the macro- and microprudential authorities by clearly specifying responsibilities and powers over Pillar 2.

The policy objective of P2G should however be better defined in order to avoid possible overlaps with other macroprudential instruments, in particular the combined buffer requirement. While the proposal introduces a clear and distinct allocation of responsibilities and instruments between the microprudential and

macroprudential authorities as regards P2R, it does not clearly set out the policy objective of P2G and the latter's interaction with the combined buffer requirement. Further clarification is therefore needed to avoid possible overlaps with other instruments.

Furthermore, eliminating the use of the Pillar 2 requirement for macroprudential purposes should not result in gaps in the framework such that authorities do not have sufficient tools available. The removal of P2R from the macroprudential toolkit must be complemented by an equivalent broadening of the toolkit, to ensure that macroprudential authorities can effectively address systemic risks. In this regard, the use of existing capital- and liquidity-based measures – that are currently part of the macroprudential toolkit for banking – should be eased. In particular, streamlining the activation and coordination procedures and removing the mandatory sequencing (so called “pecking order”) of measures set out in Article 458 of CRR would be necessary. Such measures should be complemented with targeted instruments addressing sectoral and activity-related risks.

The proposed reform package also includes proposals on the harmonisation of rules related to the stacking order of capital requirements and the calculation of the maximum distributable amount (MDA) at the EU level. In this regard, the European Commission's proposal clarifies that Pillar 1 and Pillar 2 requirements are placed at the bottom of the stacking order and constitute binding minimum constraints, while capital buffers are placed at the top and may be breached, subject to restrictions on earnings distribution.

However, certain specific changes to the MDA rules should be introduced. The current framework only allows profits that have been generated since the most recent distribution or payment to be included in the calculation of MDA. Given that credit institutions often have multiple decision dates for paying out coupons, dividends and bonuses, the current rules limit the amount that may be distributed. To address this issue, all interim/year-end profits (that is, not only profits generated since the most recent distribution) should be included in the calculation of MDA.

2.3 Crisis management-related elements of the reform package

The proposed reform package introduces several revisions to the EU recovery and resolution framework to refine the existing regime. This includes alterations to the ranking of unsecured debt instruments in the insolvency hierarchy, as well as the incorporation of the new international standard on total loss-absorbing capacity (TLAC) in the framework of the minimum requirement for own funds and eligible liabilities (MREL). These revisions contribute to resolving the too-big-to-fail problem, to enhancing the resilience of financial institutions and to weakening the bank-sovereign nexus. The revised recovery and resolution framework is expected to further empower the “bail-in tool”, which allows imposing losses and recapitalisation needs on creditors via write-down or conversion into equity according to the predefined creditor hierarchy. Furthermore, the harmonisation of the creditor hierarchy, i.e. the ranking of creditors in insolvency, will help to improve certainty and

confidence in the legal status of investors and depositors in the framework for resolution across Europe, and thus increase financial stability of the overall system. The ECB fully supports these initiatives of the European Commission, and also suggests that certain additional points should be considered, as identified below. The resolution authority has the flexibility, to a certain extent, to require a higher or lower hard MREL requirement in order to adequately reflect risks resulting from the business model, funding model and overall risk.

In the ECB's view, consideration should be given to empowering resolution authorities, after consultation with the competent authority, to add an additional 'safety margin' to the MREL recapitalisation amount. This safety margin should be relatively small and operate to increase the recapitalisation amount by a limited extent in the event of unforeseen circumstances, thereby increasing flexibility for resolution authorities.

The package of proposed reforms includes the possibility for resolution authorities to set MREL guidance on top of the MREL requirement. This proposal, in conjunction with any combined buffer requirements, aims to cover any potential additional losses of a given entity and to ensure market confidence in resolution.

However, the MREL guidance adds an additional layer of complexity – which could arguably reduce clarity and, therefore, market confidence. It may also unduly increase the overall calibration of the MREL if the market were to view the guidance as a de-facto requirement – given the power of a resolution authority to convert the “soft” MREL guidance into a “hard” MREL requirement in the event of consistent breaches. Nor is MREL guidance necessary to enhance flexibility; a resolution authority already has the flexibility to adjust the MREL amount upwards and this would be enhanced with the introduction of the safety margin. Moreover, the MREL guidance is not required as protection against a breach of the MREL, as the combined buffer requirements would act as buffer for the MREL requirement as they would be breached first. In the event that the combined buffer requirements were breached because of the lack of sufficient MREL-eligible instruments, no automatic restrictions on MDA would be triggered.

The proposed reform package defines the intervention mechanism to be applied in the event of a breach of MREL requirements or of the combined buffer requirements which sit on top of them. A breach of MREL requirements is to be addressed by the resolution authorities and other competent authorities through the use of their powers to address or remove impediments to resolvability; or their early intervention or supervisory powers. **Where a bank breaches the combined buffer requirements which sit on top of MREL, either due to the lack of MREL instruments or the lack of sufficient own funds,** the European Commission's proposal introduces an exemption from the automatic restrictions on the MDA for a grace period of six months. The grace period is considered to be justified because the institution would still hold a high level of capital and fulfil the buffer requirements from a supervisory perspective, although not from an MREL perspective. However, the proposal does not include the same exemption where a

bank breaches the combined buffer requirements on top of MREL due to insufficient own funds.

Extensions to the exemptions in the event of breaches of the combined buffer requirements which sit on top of MREL should be considered, to avoid further exacerbating stress in funding markets. Where a breach of the combined buffer requirements which sit on top of MREL stems from insufficient own funds, consideration should also be given to exempt this case from the application of automatic restrictions on MDA, since, from the supervisory perspective, a sufficient level of own funds would remain available. Moreover, the grace period of six months during which automatic restrictions on MDA are not applied should be extended to 12 months; six months may not be sufficient time in which to issue MREL instruments.

The TLAC standard also includes specific rules concerning cross-holdings between global systemically important banks (G-SIBs); these rules are incorporated to a certain extent in the European Commission's proposals for reform. The general principle is that cross-holdings of TLAC should be avoided because of the risk that failure of one G-SIB leads to losses in other G-SIBs, thereby increasing the risk of contagion within the banking sector. The TLAC standard requires that internationally active banks (both G-SIBs and non-G-SIBs) deduct from Tier 2 capital any TLAC holdings that do not otherwise qualify as regulatory capital. The European Commission's proposal departs from this Tier 2-based approach by recommending the corresponding deduction of MREL holdings from other MREL liabilities. Bearing in mind that all banks in the EU are subject to MREL, which is the TLAC equivalent requirement, this approach of corresponding deduction is consistent with the treatment of holdings of regulatory capital instruments.

As proposed by the European Commission, this deduction regime should apply to all credit institutions in the EU because cross-holdings of MREL are not desirable from the perspective of financial stability. The scope of application should not be limited to G-SIBs; the contagion risk inherent in cross-holdings of MREL instruments is also a valid concern in relation to banks' holdings of instruments issued by non-G-SIBs.

The proposed reform package does not offer any suggestions for limiting investment by retail clients in MREL-eligible instruments. Although subordinated or "non-preferred" senior debt instruments are generally held by professional investors, it is not uncommon in certain euro area countries (for example, Italy and Germany) that non-professional investors, such as retail investors, are holding these instruments. In situations where the proportion of retail investors in a type of instrument is high, recent experience has shown that decision-makers may refrain from, or delay, bailing them in due to the social, political and/or economic impact (despite the "no creditor worse off" principle), although their holdings would easily be bail-inable and the affected households may have relatively high resilience in terms of shock-absorbing capacity.³³ The SRB considers that in some cases holdings of instruments by retail investors may constitute an impediment to resolvability, as it

³³ Lindner, P., Redak, V.-M., "The resilience of households in bank bail-ins", Financial Stability Report, No 33, ÖNB, June 2017, p.88.

may hamper achievement of the resolution objectives, especially if it damages the continuity of its critical functions.³⁴

Therefore, consideration should be given to limiting the pool of retail investors in MREL instruments. Rather than a complete ban on the sale of MREL-eligible instruments to non-professionals³⁵ – which may contradict the objectives of the capital markets union and financial integration under the banking union – safeguards including disclosure requirements that are clear and easy to understand should be considered to raise investors' awareness of the risks associated with the new non-preferred senior debt instruments and with subordinated debt instruments. The requirement of a minimum denomination of at least €100,000 per unit in respect of each of these instruments may also be appropriate at EU level. This would increase the investment threshold and thus also raise investor awareness, thereby limiting direct retail investment.

An adequate minimum transition period for the implementation of an entity-specific MREL requirement should be considered. Even without the MREL guidance, the overall calibration of MREL is a challenge for banks. It is anticipated that they will have potentially high levels of MREL shortfalls, which may pose significant challenges for a variety of reasons including limited (national) market access or market capacities, their business models and their issuance profile. Therefore, an adequate minimum transition period for the implementation of an entity-specific MREL requirement should be considered. This should be no shorter than the period applicable to G-SIBs set out in the FSB TLAC term sheet (where different minimum levels of TLAC as of 2019 and 2022 apply).³⁶ Resolution authorities should also be given the flexibility to (on a case-by-case basis and based on an assessment of the challenges faced by a given entity in meeting the MREL requirement) a period for compliance that is longer than that harmonised minimum.

The proposed package of reforms introduces a new creditor hierarchy in the event of insolvency, but does not cover the issue of general depositor preference. The proposal to introduce a new class of non-preferred senior debt was made in order to harmonise the creditor hierarchy across the EU and to create a uniform layer to fulfil any requirement to subordinate MREL, which will be mandatory for G-SIBs (in line with the TLAC standard). The new class of 'non-preferred' senior debt will facilitate the application of the bail-in tool, particularly in cross-border situations, and avoid distortions of the EU single market. The creditor hierarchy is significant in influencing the likelihood that a creditor will bear a loss in insolvency or resolution, and, as such, is a key driver of creditors' confidence. The ranking of depositors in insolvency can therefore have a direct impact on their behaviour, either inspiring confidence or prompting them towards a deposit-run. The position of

³⁴ "MREL: Approach taken in 2016 and next steps", SRB, Brussels, November 2016, p. 5.

³⁵ See, for example, Schoenmaker, D., "A macro approach to international bank resolution", *Working Paper Series*, No 56, ESRB, Frankfurt am Main, November 2017, p. 12.

³⁶ The FSB's Total Loss-absorbing Capacity (TLAC) term sheet, published in November 2015, determines under number 4. that the minimum TLAC applicable to G-SIBs must be at least 16% of the resolution group's RWAs or 6% of the Basel III leverage ratio denominator as of 1 January 2019. As of 1 January 2022, this will be respectively increased to 18% RWAs and 6.75% of the Basel III leverage ratio denominator.

depositors in the creditor hierarchy is consequently of material interest to the stability of the overall financial system. This macroprudential aspect of deposit protection was one reason for the earlier harmonisation by the BRRD of the insolvency ranking of covered deposits and eligible deposits of individuals and micro-, small- and medium-sized enterprises.³⁷ However, the insolvency ranking of other deposits – such as eligible deposits of large corporates exceeding the coverage level of the Deposit Guarantee Scheme (DGS), and deposits of public authorities – was not harmonised by the BRRD, and the relevant regimes of the Member States differ regarding their treatment. The European Commission's proposal does not include a general depositor preference.

A general depositor preference, based on a tiered approach, should be introduced. Beyond the specific reasons in the context of the MREL requirement and the TLAC standard, as mentioned above, a general depositor preference would facilitate the bail-in tool in general. This is because other (non-MREL-/TLAC-eligible) senior debt could also be bailed-in before affecting deposits and “no creditor worse off” concerns could be avoided. Moreover, the entire deposit-book could be carved out in resolution and transferred, for example to a private sector purchaser, without facing the risk of successful legal challenges by other creditors. This would facilitate resolution action and reduce the risk that the resolution fund must be relied on. As such, a general depositor preference can foster stability in the system: resolution becomes more credible because notably the bail-in tool is facilitated; thus, funding needs can be better internalised; and, importantly, depositor confidence is enhanced overall.

2.4 Other relevant elements of the proposed reform package

The proposed reforms include a requirement for third-country banking groups with two or more institutions operating in the EU to establish an intermediate EU parent undertaking (IPU).³⁸ This requirement will allow the consolidating supervisor to evaluate the risks and financial soundness of the entire banking group operating in the EU and to apply prudential requirements on a consolidated basis. Furthermore, the IPU will facilitate the EU-wide implementation of the TLAC standard and, more broadly, simplify and strengthen the resolution process of third-country groups that have significant activities in the EU.

Branches of third-country banking groups should be included in the scope of the IPU. The proposed requirement applies to subsidiaries, but branches of third-country banking groups are excluded. Consequently, the proposed IPU does not fully capture all arrangements through which third-country banking groups operate in the EU. This is particularly important since the lack of a harmonised prudential regime for branches in the EU of such groups has resulted in heterogeneous regulation and

³⁷ Article 108 of the BRRD confers a “super priority” on covered deposits and a “simple priority” on eligible deposits (i.e. deposits that by their nature are covered by the Deposit Guarantee Scheme, but that exceed the coverage level).

³⁸ The requirement would only apply where the total value of assets of the third-country banking group in the EU exceeds €30 billion, or the ultimate parent is a global systemically important institution.

supervision, and an uneven playing field. To fully capture the risks related to entities of banking groups established in the EU, and to avoid regulatory arbitrage, the proposed IPU should therefore include in its scope any branches in the EU of third-country banking groups.

To enable more efficient management of capital across the EU, the European Commission proposes to allow competent authorities to waive the application of prudential requirements in the case of a subsidiary whose head office is not located in the same Member State as the subsidiary's parent undertaking. The proposal is consistent with the establishment of the Single Supervisory Mechanism and the banking union, and would extend the scope of the existing legislation, which provides that the waiver may only be applied to subsidiaries and parent undertakings located within the same Member State, or to part of a liquidity sub-group spread across different Member States.

Financial stability concerns resulting from the application of the waiver mechanism to the banking union (which is still moving towards completion) could be addressed by introducing additional prudential safeguards and clarifications. For example, the proposed amendments could clarify that a parent undertaking's guarantee of a subsidiary must be reflected in the prudential requirements for credit risk applicable to that parent undertaking, and that the parent undertaking should control 100% of the subsidiary's voting rights. Moreover, the waiver could be subject to a floor, so that it is only applicable where the subsidiaries eligible for it do not exceed a certain threshold in terms of significance.³⁹ Finally, appropriate transitional arrangements for implementing the cross-border capital waiver would be required, taking into account plans for further progress on the banking union.

The European Commission's proposal does not give adequate consideration to the consolidated and solo supervision of large cross-border investment firms in the EU. This is necessary in order to provide prudent and consistent supervisory standards commensurate with the risks such firms can pose. Large and complex investment firms, particularly those with cross-border operations and those undertaking bank-like activities, can create increased financial stability risks, as well as an increased risk of spill-over effects on other banks. However, it is noted that the European Commission has recently stated its intention to align the regulatory and supervisory treatment of certain large investment firms with that of large credit institutions; as a consequence, such firms established within the banking union will be subject to supervision by the ECB.⁴⁰

³⁹ That is, applying for example, the thresholds for significance set out in Council Regulation (EU) No 1024/2013.

⁴⁰ On 11 October 2017 the Commission published an update in which it made clear that it will propose that large investment firms carrying out bank-like activities be considered as credit institutions and subject to bank supervision, supervised by the SSM (see the European Commission's press release, "Commission calls for the completion of all parts of the Banking Union by 2018", 11 October 2017, available at: http://europa.eu/rapid/press-release_IP-17-3721_en.htm)

3 Conclusions

This chapter sets out the key issues of the ongoing review of EU banking law, from a macroprudential perspective. Overall, the European Commission's proposals are broadly welcomed and will aid the advance towards increasing overall resilience of the European financial system, as well as mitigate the too-big-to-fail problem posed by large banks. That said, the proposals deviate in some respects from agreed international standards, which focus instead on ensuring compliance (for example in respect of the leverage ratio) and could be improved in certain other areas, as described above. The ECB's views on all the major relevant issues are provided in its published opinions with the aim of feeding into European legislative discussions in order to contribute to achieving a consistent, robust and safe regulatory environment.

Annex –

Macroprudential policy measures at country level

This Annex provides a summary of the macroprudential policy measures that have been implemented or announced in euro area countries since the publication of the third Macroprudential Bulletin in June 2017. The cut-off date for reporting macroprudential measures was 4 December 2017. An overview of all measures reported to the ECB under Article 5 of the SSM Regulation⁴¹ is provided on the [ECB website](#).⁴² The macroprudential policy measures are defined in the [glossary](#); their aim is described in further detail in the first issue of the [Macroprudential Bulletin](#).

1 Capital requirements at country level

Figure A displays the minimum and the maximum combined buffer requirements (CBRs) as well as the banks affected by the maximum CBR.

Whereas the minimum CBR is usually applicable to all banks in one country (blue colour), taking into account the capital conservation buffer (CCoB) and the countercyclical capital buffer (CCyB), the maximum CBR (yellow colour) relates to financial institutions which are required to apply the other systemically important institution (O-SII), global systemically important institution (G-SII) or systemic risk buffer (SRB), whichever is higher.⁴³

In some countries only few financial institutions are affected by the maximum CBR. In Malta, for example, only three institutions are designated as O-SIIs, while in Germany thirteen institutions are affected. In some countries, several financial institutions have been designated as O-SIIs, but no O-SII buffer applies yet as the transitional phase for applying the buffer will only start in the following years.

Overall, Figure A shows that the CBR is applied in a range between 1.875% and 5.5%. The minimum CBR in the euro area ranges from 1.875% (the minimum CCoB) to 3.5% (in Estonia, the 2.5% CCoB and a 1% SRB apply to all banks). The institution-specific maximum CBR may be 0%, but in some countries it can add up to 2%. These differences are justified by the heterogeneous macroeconomic developments in the euro area and by the different levels of systemic risk which individual institutions pose to financial stability.

Figure A compares the minimum CBR and the maximum CBR from April 2017 with those which will apply as of 1 January 2018. The minimum CBR will

⁴¹ Council Regulation (EU) No 1024/2013 of 15 October 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions (OJ L 287, 29.10.2013, p. 63).

⁴² Latest update on the website: 2 October 2017.

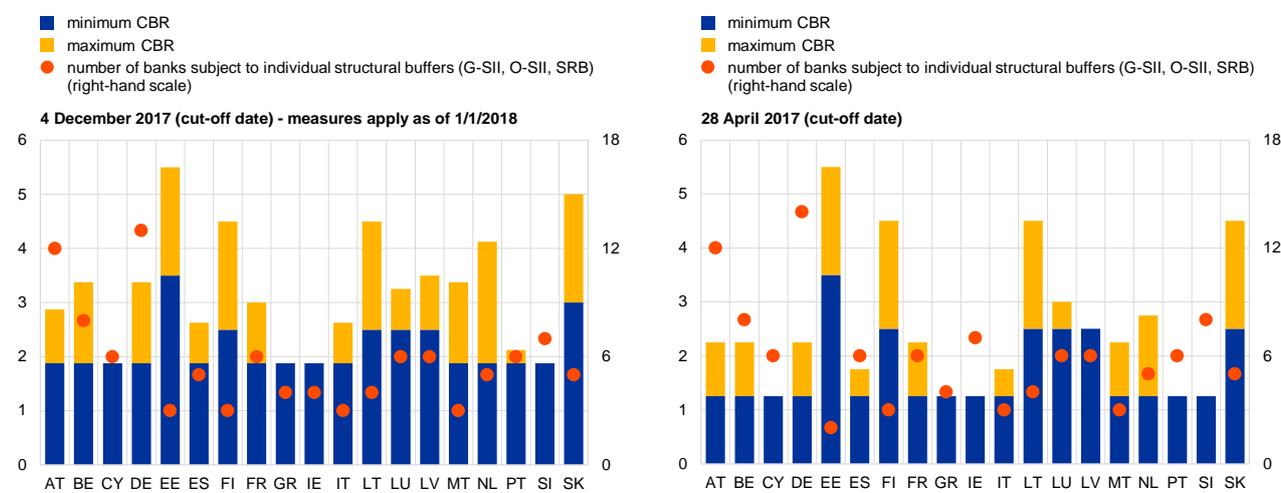
⁴³ In one country (Estonia), the SRB applies to all banks. In Estonia and Slovakia, the SRB is applied only to domestic exposures, meaning that the buffer comes in addition to the O-SII or G-SII buffer, whichever is greater.

increase for many countries from 1.25% to 1.875% because of the increase of the capital conservation buffer (CCoB) as foreseen in Art 160 of the CRD. However, some euro area countries do not use the transitional periods for the CCoB and apply the final CCoB level of 2.5%. The CCyB is also applied in one euro area country (0.5% of total risk exposure amount in Slovakia).

As regards the institution-specific maximum CBR, the level has overall further increased in many euro area countries due to the phase-in of the G-SII buffer, the O-SII buffer and the SRB. Many countries apply transitional periods for implementing these buffers. While the CCoB, the CCyB and the G-SII buffer will be fully phased-in as of 1 January 2019, the O-SII buffers and the SRB will be fully introduced in some euro area countries only as of 1 January 2022.

Figure A
Overview of combined buffer requirements

Scale on the left-hand side: percentage of total risk exposure amount (RWA); scale on the right-hand side: total numbers



Source: National notifications.

Notes: In some countries, certain financial institutions are designated as O-SIIs, but no additional buffer requirement applies at this time. Small and medium-sized investment firms are exempted from the CCyB and/or the CCoB in Italy, Lithuania, Luxembourg, Malta and Slovakia. For Estonia and Slovakia, the SRB is applied only to domestic exposures, meaning that the buffer applies in addition to the O-SII or G-SII buffer, whichever is greater. The figures only include information on supervised banks (e.g. excluding O-SII buffer requirements for CY investment firms).

2 Macprudential policy measures

National authorities review their macroprudential policy measures at least once a year (e.g. O-SII, CCyB etc). The result of these reviews, which led to changes in existing measures or led to the introduction of new measures, is listed below.

2.1 Countercyclical capital buffer



Slovakia

Slovakia has decided to increase the countercyclical capital buffer (CCyB) rate to 1.25% from August 2018, but postponed the increase to November with its decision in October. This is an increase of the CCyB rate from 0.5% which was activated in August 2017. Slovakia based its decision to further increase the buffer on the fact that the domestic credit-to-GDP trend gap has continued to increase, reaching 4.96%, which is above the 2% threshold that indicates need for an increase in the CCyB. All other euro area countries have notified the ECB that they will maintain their CCyB at 0%.

2.2 Other systemically important institutions (O-SII) buffer



Cyprus

The Central Bank of Cyprus has decided to update the O-SII buffers that will be phased in during the period from 1 January 2019 to 1 January 2022. The change only affects RCB Bank Ltd, for which the fully phased-in O-SII buffer requirement is reduced from 2% to 1.5% of total risk exposure amount.



Estonia

The Eesti Pank designated one additional bank as O-SII. As of 1 January 2018, an O-SII buffer of 0.5% of total risk exposure amount for AS LHV Pank will apply.



Germany

The BaFin reduced the number of O-SIIs to 13. The Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht – BaFin), in consultation with the Deutsche Bundesbank has identified 13 institutions authorised in Germany as O-SIIs, while in 2016, 14 O-SIIs had been identified for 2017. Volkswagen Financial Services AG, on which an O-SII buffer of 0.16% of total risk exposure amount in 2017 has been applied, will no longer need to keep this capital buffer. Among the 13 O-SIIs, one institution (Deutsche Bank) is designated at O-SII and G-SII at the same time.



Ireland

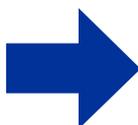
The Central Bank of Ireland identified six O-SIIs for 2018. Arising from the 2017 review, six institutions have been identified as systemically important in Ireland and

buffer rates have been applied to these institutions. The review has resulted in two changes to the existing policy stance: 1) Permanent tsb plc has not been identified as an O-SII due to its reduced size (total assets have fallen from end-2015 from €29.3 billion to €23.6 billion at the end-2016) and 2) the buffer applied to Citibank Holdings Ireland Limited has been increased to 1% of total risk exposure amount due to its increased importance.



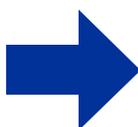
Italy

The Bank of Italy designated four banks as O-SIIs. In addition to UniCredit, Intesa Sanpaolo and Monte dei Paschi di Siena, Banco BPM has been added to the list of O-SIIs for 2018. Banco BPM is a new banking group which has been established following the merger between Banco Popolare and Banca Popolare di Milano. As O-SIIs, the four groups will have to maintain a capital buffer of 1.00, 0.75, 0.25 and 0.25%, respectively, of their total risk exposure, to be achieved according to new transitional periods. The transitional period has been extended to 2022 (before 2021). UniCredit has again been designated as O-SII and G-SII.



Latvia

The Financial and Capital Market Commission (FCMC) of Latvia identified six O-SIIs. The identified institutions are the same as in the last year's identification exercise, but AS DNB banka has been replaced in the O-SIIs list by the Luminor Bank AS. Luminor Bank AS is a new institution created as the result of the merger of AS DNB banka and Nordea Bank AB Latvian business. The O-SIIs must ensure compliance with the O-SII capital buffer in line with the transitional period, which ends on 30 June 2018.



Lithuania

The Bank of Lithuania designated Luminor Bank AB as O-SII, following a merger. Nordea Bank AB Lithuania branch business in Lithuania was transferred on 1 October 2017 to the systemically important AB DNB bankas and both banks have merged to make a new entity, Luminor Bank AB. The new bank is designated as an O-SII in Lithuania as the scores for the individual indicators of AB DNB bank and Nordea Bank AB Lithuania branch were added up.



Portugal

Banco de Portugal extended the phase-in period for the O-SII buffer. Banco de Portugal has kept unchanged both the methodology and the O-SII capital buffer levels, but has decided to extend the phase-in period – the initial two-year period was converted into a four-year period – taking into consideration the challenges facing the Portuguese banking system, such as non-performing assets; the new

accounting standard; the new requirements on own funds and eligible assets within the scope of the bank resolution framework and the end of the phase-out period of some instruments which have hitherto been included in regulatory own fund, in a context where interest rates remain very low.



Slovakia

Narodná banká Slovenska has decided to reduce the O-SII buffers for two banks as of 1 January 2018. The O-SII buffers for Poštová banka, a.s. and Tatra banka, a.s. will be reduced from 2% (1%) to 1% (0.5%) of the total risk exposure amount. There are two main factors behind this decision: (1) as there is a relatively large gap between the targeted buffer rate for Slovak O-SIIs and the minimum rates for O-SII buffers, which are based on the ECB methodology for the minimum level of the O-SII buffer, the O-SII buffers have been reduced to decrease this gap; and (2) the macroprudential authorities in all SSM countries have now identified the O-SIIs in their countries and set the corresponding O-SII buffers. This has created a level playing field for comparing all O-SIIs and their buffer rates.



Slovenia

The Bank of Slovenia decided to reduce the number of O-SIIs and to reduce the size of O-SII buffers for one bank. As Banka Koper is no longer designated as O-SII, only seven banks remain to be O-SIIs. The size of the O-SII buffer for one bank (SID banka d.d.) has been reduced from 0.5% to 0.25%.



Spain

The Banco de España designated five O-SIIs for 2018. Compared to the designations made last year, Banco Popular ceases to have O-SII status as a result of its resolution and consequent acquisition by the Banco Santander in June 2017. Among the five O-SIIs, one institution (Banco Santander) is designated at O-SII and G-SII at the same time.

2.3

Systemic risk buffer



Austria

The Financial Market Stability Board (FMSB) recommended adding two banking groups to the list of banks that are subject to a SRB. The FMSB recommended for DenizBank and Volksbanken Verbund a SRB of 1% and a transitional provision (maintaining a 0.25% SRB in 2018, and a 0.5% SRB in 2019). In addition to that, the FMSB recommended that the SRB is activated also at the unconsolidated level for seven credit institutions, given that systemic risks may

manifest themselves both at the consolidated and the unconsolidated level and that, in particular within cross-border banking groups, capital allocation in crisis situations would not be flexible. The overall SRB review will be completed by the end of the first half of 2018.



Slovakia

Narodná banka Slovenska has decided to reduce the SRBs for several banks as of 1 January 2018. The SRB of 1% will be cancelled for Československá obchodná banka, a.s., while for Slovenská sporiteľňa, a.s. and Všeobecná úverová banka, a.s, the SRB will be reduced from 2% to 1%. For Tatra banka, a.s., the SRB will be reduced from 1.5% to 1%.

2.4

Other macroprudential measures



Finland

The board of the financial supervisory authority, Finanssivalvonta, has set a minimum risk weight level of 15% for residential mortgage loans applicable to credit institutions that have adopted the internal ratings-based approach for the calculation of capital requirements. The measure will last for two years, will cover housing loans for the purchase of residential property located in Finland and will be applied on a consolidated basis. In setting the minimum level for risk weights, account was taken of second-round effects stemming from residential property and mortgage markets and amplifying shocks within the economy in crisis situations. Other systemic risks relating to residential mortgage lending and household debt accumulation were also taken into consideration.



Slovakia

Národná banka Slovenska announced the application of a limit on debt service to income (DSTI) ratio for consumer loans as well as maturity limits for consumer loans. As regards the DSTI limit, the loan instalments cannot exceed 80 % of borrower's disposable income as of 1 July 2018. The second measure applies a maturity limit of 8 years for consumer loans granted by financial institutions other than building societies and will apply as of 1 January 2018. Some parts of the measures have already been in place and they are only changing their legal status from non-binding to binding, others are new or tightened (e.g. DSTI limit).

Glossary

Regulatory framework

Bank Recovery and Resolution Directive (BRRD)

A harmonised framework for the recovery and resolution of credit institutions and investment firms. It introduces harmonised tools and powers relating to prevention, early intervention and resolution for all EU Member States.

Basel framework (Basel III)

A global regulatory framework for banks and banking systems, developed by the Basel Committee on Banking Supervision in response to the financial crisis of 2008. Basel III builds upon the Basel II rulebook. Its aim is to strengthen the regulation, supervision and risk management of the banking sector. The measures aim to improve the banking sector's ability to absorb shocks arising from financial and economic stress, improve risk management and governance, and strengthen banks' transparency and disclosures.

Capital Requirements Regulation / Capital Requirements Directive (CRR/CRD IV)

Regulation on prudential requirements for credit institutions and investment firms (CRR) and Directive on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (CRD IV). The CRR/CRD IV package transposes the global standards on bank capital (the Basel III agreement) into EU law.

Deposit Guarantee Schemes (DGS) Directive

Directive on deposit guarantee schemes introducing a harmonisation and simplification of rules and criteria applicable to deposit guarantees.

Single Supervisory Mechanism (SSM)

A mechanism composed of the ECB and national competent authorities in participating Member States for the exercise of the supervisory tasks conferred upon the ECB. The ECB is responsible for the effective and consistent functioning of this mechanism, which forms part of the banking union.

SSM Framework Regulation

The regulatory framework setting out the practical arrangements concerning the cooperation between the ECB and the national competent authorities within the Single Supervisory Mechanism.

SSM Regulation (SSMR)

The legal act creating a single supervisory mechanism for credit institutions in the euro area and, potentially, other EU Member States, as one of the main elements of Europe's banking union. The SSM Regulation confers on the ECB specific tasks concerning policies relating to the prudential supervision of credit institutions and macroprudential policy.

Capital-based macroprudential policy instruments

Capital conservation buffer (CCoB)

A capital buffer of up to 2.5% of a bank's total exposures to avoid breaches of minimum capital requirements during periods of stress when losses are incurred. The buffer has been implemented in the EU via Article 129 of the CRD IV and must be met with CET1 capital. Phasing-in arrangements apply between 2016 and 2019, but earlier introduction is possible.

Combined buffer requirement (CBR)

The total Common Equity Tier 1 capital required to meet the requirement for the capital conservation buffer extended by an institution-specific countercyclical capital buffer, a G-SII buffer, an O-SII buffer and a systemic risk buffer, as applicable. It is defined in Article 128 of the CRD IV.

Countercyclical capital buffer (CCyB)

A capital buffer intended to ensure that credit institutions accumulate sufficient capital during periods of excessive credit growth to be able to absorb losses during periods of stress. It has been implemented in the EU via Articles 130 and 135-140 of the CRD IV. It amounts to 0-2.5% of the total risk exposure amount and must be met with CET 1 capital, but it can be set at a higher level under certain procedures. The buffer is institution-specific and is calculated as a weighted average of the CCyB rates that apply in the countries where an institution's credit exposures are located.

Global systemically important institution (G-SII) buffer

A capital buffer that aims to reduce the moral hazard created by the implicit state support and guarantee of bail-out using taxpayers' money that such institutions enjoy due to their size, cross-

border activities and interconnectedness. It has been implemented in the EU via Article 131 of the CRD IV. It amounts to 1-3.5% of the total risk exposure amount to be met with CET 1 capital, depending on the degree of systemic importance of an institution. Phasing-in arrangements apply between 2016 and 2019.

Leverage ratio

The Basel III leverage ratio is defined as Tier 1 capital divided by the bank's total exposure, expressed as a percentage. The prudential use of a leverage ratio limit is intended to restrict the build-up of leverage in the banking sector and to strengthen the risk-based requirements by adding a simple, non-risk-based backstop.

Other systemically important institution (O-SII) buffer

A capital buffer that aims to reduce the moral hazard created by implicit support and guarantee of bail-out using taxpayers' money that such institutions enjoy due to their size, cross-border activities and interconnectedness. It has been implemented in the EU via Article 131 of CRD IV. It amounts to 0-2% of the total risk exposure amount to be met with CET1 capital and can be applied to domestically important institutions and to institutions important at EU level.

Sectoral capital requirements (SCR)

The prudential rules for the EU banking system provide for the use of more targeted capital-based tools designed to address vulnerabilities that can appear at sectoral level. They can take the form of stricter requirements for loss given default and higher real estate risk weights, which have been implemented via Articles 124, 164 and 458 of the CRR.

Systemic risk buffer (SRB)

A capital buffer applied to the financial sector or to one or more subsets of the sector, in order to prevent and mitigate long-term non-cyclical systemic or macroprudential risks. It must amount to at least 1% of the targeted risk exposure amount to be met with CET1 capital and can be applied to all exposures or to a subset of exposures. A special notification procedure must be followed in order to set the buffer at rates between 3% and 5%. Buffer rates above 5% are possible, but also require special authorisation (e.g. a Commission implementing act).

Liquidity-based instruments

Liquidity coverage ratio (LCR)

A short-term liquidity requirement which aims to ensure that credit institutions hold sufficient high-quality liquid assets to withstand an acute stress scenario lasting 30 days.

The LCR is calculated in accordance with the following formula: liquidity buffer ÷ net liquidity outflows over a 30 calendar-day stress period = liquidity coverage ratio %. Credit institutions must maintain a liquidity coverage ratio of at least 100%. Phasing-in arrangements apply between 2015 and 2019.

Net stable funding ratio (NSFR)

The amount of available stable funding relative to the amount of required stable funding. Available stable funding is the portion of capital and liabilities that is expected to be stable over a one-year time horizon. The amount of funding required of a specific institution is a function of the liquidity characteristics and residual maturities of the various assets held by that institution as well as those of its off-balance sheet (OBS) exposures. The NSFR should be equal to or higher than 100%.

Asset-based measures

Debt service-to-income (DSTI) ratio

A measure of the amount of debt service payments relative to total disposable income. It is frequently used to assess the financial obligations of mortgage-indebted households and their ability to repay debt, and is useful for evaluating their vulnerability to changes in interest rates in countries with a high share of variable rate mortgages.

Large exposures

An institution's exposure to a client or group of connected clients, the value of which is equal to or exceeds 10% of its eligible capital. Limits to large exposures can be implemented in Europe via Article 458 of the CRR.

Loan-to-income (LTI) ratio

The ratio of the amount borrowed to the total annual income of a borrower.

Loan-to-value (LTV) ratio

The ratio of the amount borrowed to the appraised value or market value of the underlying collateral, usually taken into consideration in relation to loans for real estate financing.

Abbreviations

Countries

BE	Belgium	HR	Croatia	PL	Poland
BG	Bulgaria	IT	Italy	PT	Portugal
CZ	Czech Republic	CY	Cyprus	RO	Romania
DK	Denmark	LV	Latvia	SI	Slovenia
DE	Germany	LT	Lithuania	SK	Slovakia
EE	Estonia	LU	Luxembourg	FI	Finland
IE	Ireland	HU	Hungary	SE	Sweden
GR	Greece	MT	Malta	UK	United Kingdom
ES	Spain	NL	Netherlands	US	United States
FR	France	AT	Austria		

In accordance with EU practice, the EU Member States are listed in this report using the alphabetical order of the country names in the national languages.

Others

ABS	asset-backed security	ISDA	International Swaps and Derivatives Association, Inc.
BCBS	Basel Committee on Banking Supervision	IRBA	internal ratings-based approach
BIS	Bank for International Settlements	LCR	liquidity coverage ratio
CBR	combined buffer requirement	LGD	loss given default
CCyB	countercyclical capital buffer	LTD	loan-to-deposit
CCoB	capital conservation buffer	LTI	loan-to-income
CET1	Common Equity Tier 1	LTSF	loan-to-stable-funding
CRD	Capital Requirements Directive	LTV	loan-to-value
CRR	Capital Requirements Regulation	MFI	monetary financial institution
D-SIB	domestic systemically important bank	MiFID	Markets in Financial Instruments Directive
DSR	debt service ratio	MMF	money market fund
DSTI	debt service-to-income	MREL	minimum requirement for own funds and eligible liabilities
DTI	debt-to-income	NCA	national competent authority
EAA	euro area accounts	NCB	national central bank
EBA	European Banking Authority	NDA	national designated authority
ECB	European Central Bank	NSFR	net stable funding ratio
ECOFIN Council	Economic and Financial Affairs Council	OECD	Organisation for Economic Cooperation and Development
EEA	European Economic Area	OJ	Official Journal of the European Union
EFSF	European Financial Stability Facility	PD	probability of default
EIOPA	European Insurance and Occupational Pensions Authority	RRE	residential real estate
EMIR	European Market Infrastructure Regulation	RWA	risk-weighted assets
EMU	Economic and Monetary Union	SRB	systemic risk buffer
ESA	European Supervisory Authorities	SRM	Single Resolution Mechanism
ESCB	European System of Central Banks	SSM	Single Supervisory Mechanism
ESM	European Stability Mechanism	SSMR	Single Supervisory Mechanism Regulation
ESMA	European Securities and Markets Authority		
ESRB	European Systemic Risk Board		
EU	European Union		
FSB	Financial Stability Board		
ICPF	insurance corporations and pension funds		
IMF	International Monetary Fund		
IOSCO	International Organization of Securities Commissions		

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