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IN-DEPTH ANALYSIS

"Total Assets" versus "Risk Weighted Assets": does it matter for MREL requirements?

External author: Willem Pieter de Groen
Centre for European Policy Studies

Provided at the request of the
Economic and Monetary Affairs Committee

July 2016
ECON EN

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Provided in advance of the public hearing
with the Chair of the Single Resolution Board
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Abstract

The bail-in of creditors forms a critical element within the new European bank recovery and resolution mechanism. The bail-in must ensure that indeed creditors instead of taxpayers absorb a bank`s losses under ordinary circumstances. In order to allow an orderly bail-in to happen it is important that banks, among others, have sufficient loss-absorbing capacity. This so-called 'minimum requirement for own funds and eligible liabilities' (MREL) is currently based on a combination of indicators that are translated into a ratio as a percentage of total liabilities plus own funds. In this paper distribution across banks for the total liabilities plus own funds and the two alternative indicators – risk-weighted assets and leverage exposure – are assessed. The results show, based on a sample of 90 euro-area banks subject to direct supervision of the Single Resolution Board, that the difference between leverage exposure and total liabilities plus own funds is limited across the four different variables applied to categorise banks, namely supervisory, size, business models and ownership structures. In turn, the application of a risk-weighted and assets-based ratio substantially changes the distribution, with relatively lower average requirements for systemically relevant, larger, more market-oriented and publicly owned banks.

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DISCLAIMER

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LIST OF ABBREVIATIONS

BCBS	Basel Committee on Banking Supervision
BRRD	Bank Recovery and Resolution Directive
CRD	Capital Requirements Directive
EBA	European Banking Authority
ECB	European Central Bank
EEA	European Economic Area
ESRB	European Systemic Risk Board
EU	European Union
FSB	Financial Stability Board
G20	Group of 20
G-SIBs	Global systemically important banks
G-SIIs	Global systemically important institutions
MREL	Minimum requirement for own funds and eligible liabilities
O-SIIs	Other systemically important institutions
PSI	Private sector involvement
RTS	Regulatory technical standard
RWA	Risk-weighted assets
SRB	Single Resolution Board
TLAC	Total loss-absorbing capacity

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EXECUTIVE SUMMARY

The regulatory and supervisory framework for banks has been completely reformed in the aftermath of the 2007-09 global financial crisis. The creation of a bank recovery and resolution mechanism is one of the cornerstones of the revised framework that must ensure that all banks, including those considered 'too big to fail' during the crisis, can be resolved in an orderly manner without the necessity of public bailouts.

The bail-in of creditors forms the critical element in this mechanism to ensure that creditors instead of taxpayers absorb the losses in ordinary circumstances. The minimum requirement for own funds and eligible liabilities (MREL) needs to ensure that the European banks have sufficient capital and debt instruments available for a bail-in. The MREL as defined in the Bank Recovery and Resolution Directive is expressed as a share of the total liabilities plus own funds. However, the EBA's regulatory technical standard (RTS) that determines how the resolution authorities should set the MREL also include capital requirements components, which have respectively risk-weighted assets (RWA) and leverage exposure as denominator. The latter are also the prime components of the total loss-absorbing capacity (TLAC) that will be applicable to at least the 13 global systemically important banks (G-SIBs) domiciled in the EU.

In this paper the distributional effects of the application of the three components to determine the minimum absorbing capacity are assessed. The analysis is based on end-2014 figures for the 90 euro-area banking groups that were subject to the EBA's 2015 transparency exercise. All these banks are under direct responsibility of the Single Resolution Board. This makes it likely that normal liquidation is considered infeasible for these banks and potential access to the resolution fund may be an option. They are therefore most likely to receive an MREL that will force them to hold additional bail-inable capital and debt instruments.

The main finding is that the variance in RWA is substantially higher than in the equivalent ratios for leverage exposures and total liabilities plus own funds that are closer to total assets. Looking more closely at the RWA across four different types of banks:

- **Supervisory**. The more systemic the banks, i.e. G-SIBs, G-SIIs and O-SIIs, are considered by supervisors, the lower the average risk weights.

- **Size**. The results for medium and large banks are more apparent. The smaller the bank, the higher the average risk weights, i.e. medium-sized banks have almost a quarter higher average risk weight than large banks.

- **Business models**. The variation between the five business models is most clear. The banks that conduct predominantly retail-oriented activities have significantly higher RWA to total assets than the more market- and government/institution-oriented investment and wholesale banks.

- **Ownership structures**. The RWA to total assets for commercial, cooperative, nationalised and savings banks are not significantly different, while the public banks have significantly lower risk weights due to relatively higher low risk-weighted exposures to governments and institutions.

The MREL needs to fit in the complex legislative European and international framework, which requires it to have multiple components. This does not mean, however, that the current calibration could not be simplified. The total liabilities plus own funds could, for example, be replaced by the leverage ratio that is also a measure for bank size. For this the minimum bail-in requirement to access resolution funds should also be based on leverage exposure.

Finally, the levels ultimately determine whether a risk-based component like RWA or size component like leverage or total liabilities plus own funds drives the MREL. In principle, banks that should conduct more risky activities should also have more loss-absorbing capacity. But the recent past has shown that the measures to determine the RWA are far from flawless, with risk weights too low for government exposures and large differences for the same exposures across banks. Moreover, the risks of assets tend to converge in crises, which requires a relatively strong size component, like the relatively high bail-in based on total liabilities plus own funds.

1. INTRODUCTION

The 2007-09 global financial crisis demonstrated that the legislative and institutional framework was insufficient to deal with a serious banking crisis. After years with no or just a few failures, Europe was confronted with dozens of banks failing in just a couple of years, among them several larger systemic relevant banks. The failures fuelled uncertainty about the stability of the entire banking sector and urged national governments and monetary authorities to intervene with *ad hoc* decisions or quickly installed national programmes, which incurred great costs.

In response, political leaders at the G20 Summit in 2009 launched a far-reaching reform agenda for bank regulation and supervision. The main objectives of the reforms targeting predominantly the global systemically important banks (G-SIBs) were to reduce the probability that financial institutions would fail and the impact of a potential failure on public finances, financial markets and the wider economy. The Financial Stability Board (2011) followed up on the agenda with key attributes for a resolution framework that should make the G-SIBs that were considered 'too big to fail' resolvable.

As home to the greatest share of the world's G-SIBs (13 out of 30), the EU has an important role in the implementation of the key attributes. The Bank Recovery and Resolution Directive (BRRD) together with the specifications in the European Banking Authority's (EBA) implementing measures transposed the FSB's key attributes in EU law. Under the BRRD all Member States are required to have a supervisor responsible for resolution, in the euro-area led by the Single Resolution Board (SRB). Moreover, it requires each credit institution to draw a recovery plan for a private solution and the resolution authority to draw a resolution plan when the private solution is unsuccessful in stress situations. The resolution authorities then have the possibility to bail in creditors and reduce the loss and capital requirement using the resolution tools (Huertas, 2016).

Each credit institution is obliged to have a minimum amount of capital and debt instruments available for bail-in. This amount is the minimum requirement for own funds and eligible liabilities (MREL), which is set by the resolution authorities. The MREL as defined in BRRD[1] is expressed as a share of the total liabilities plus own funds. The regulatory technical standard (RTS) of the EBA (2015a) that implements the MREL is, however, determined as a share of the risk-weighted assets, total liabilities plus own funds and in the future potentially the leverage exposure depending on whether it becomes required, as envisaged. The minimum amount of loss-absorbing capacity is then translated in the share of total liabilities plus own funds. Finally, the global equivalent for MREL, total loss-absorbing capacity (TLAC) that is in principle applicable only to G-SIBs, is based and expressed on either risk-weighted assets or leverage exposure.

The TLAC standard still needs to be transposed into EU law and the MREL is subject to a review, which provides the opportunity to reassess whether the total liabilities plus own funds is the best determinant to set the minimum loss-absorbing capacity. In this paper an assessment is made to determine the impact of the different denominators on the minimum bail-in capacity of various credit institutions. More specifically, based on the information on the 90 euro-area banks that have been subject to the EBA's "2015 EU-wide transparency exercise", an assessment is made on the allocation of the minimum loss-absorbing capacity across different types of banks for three different denominators: risk-weighted assets, leverage ratio, and total liabilities plus own funds.

The remainder of this paper assesses the distributional effects of the three denominators for four different variables to categorise banks, i.e. supervisory, size, business models and ownership structures. Moreover, in the second section the interplay between the various denominators within the MREL and TLAC requirements as they are currently formulated are discussed. In the third and final section the conclusions and policy remarks are drawn.

[1] Article 45, OJ L 173 of 16.6.2014 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0059&from=EN).

2. IMPACT OF DIFFERENT DENOMINATORS ON MREL ALLOCATION

In this section the impact of the different components of both MREL and TLAC on various types of banks is assessed.

2.1 Data description

The loss-absorbing requirements are likely to primarily impact systemic banks. Hence, TLAC is in principle only applicable to G-SIBs and their material subgroups and MREL, which is based on the EBA`s RTS will *de facto* only have an impact on the institutions that cannot be liquidated. Primarily banks that the EBA has identified as systemic, are under direct supervision of the ECB or indicated to be under direct supervision of the SRB are likely to be subject to a MREL above the regulatory capital requirements. The focus of this analysis has therefore been these systemic banks, which are also among the few banks for which the regulatory ratios and exposures are based on a completed transition of the latest Capital Requirements Directive (CRDIV).[2]

The data for the analysis is obtained from the EBA's most recent transparency exercise that was completed in 2015. The exercise provided granular data on both exposures and legislative capital components for 31 December 2014 and 30 June 2015 on 105 banking groups in the EEA, of which 90 were domiciled in the euro-area. For the analysis end-2014 figures from the transparency exercise have been used and complemented with the 2014 accounts from the banks. Hence, the results of the exercise included data on the risk-weighted assets and leverage exposure, but not on the total liabilities plus own funds that forms the denominator for the MREL. The latter has been estimated using end-2014 figures from the annual reports of the banking groups.[3]

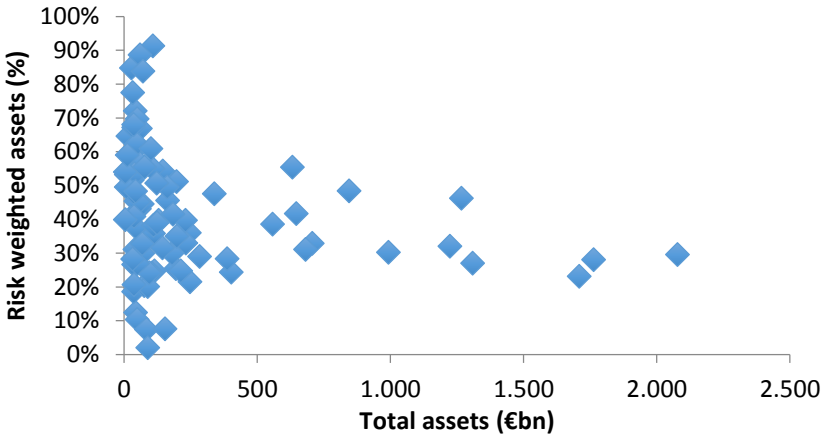
The sample covers the large majority of the euro-area banking sector in asset terms. In fact, the 90 banking groups together had approximately €21.7 trillion in assets at the end of 2014, which is equivalent to between 80% and 90% of the total euro-area banking assets. The banking groups are domiciled in 15 countries. Except for Greece all countries with large domestic banking groups were represented in the sample. The EBA excluded the Greek banks because they were undergoing a comprehensive assessment by the ECB at the time of the exercise. About two-thirds of the banks came from just four countries (Germany: 20 banking groups; Italy: 14; Spain: 14; France: 10), and the remaining countries had up to six banks each in the sample.[4]

2.1.1 Denominators

The distributional effects are compared for the three denominators that are currently included in the MREL as determined under the EBA's RTS and the TLAC standard in the FSB's Term Sheet.

[2] OJ L 321 of 13.11.2013 (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:321:0006:0342:EN:PDF).
[3] When 2014 data was not available, as was the case for two banking groups, end-2013 figures were used instead.
[4] Austria (five banking groups), Belgium (five), Cyprus (three), Finland (one), Ireland (three), Luxembourg (two), Latvia (one), Malta (one), The Netherlands (six), Portugal (three) and Slovenia (two).

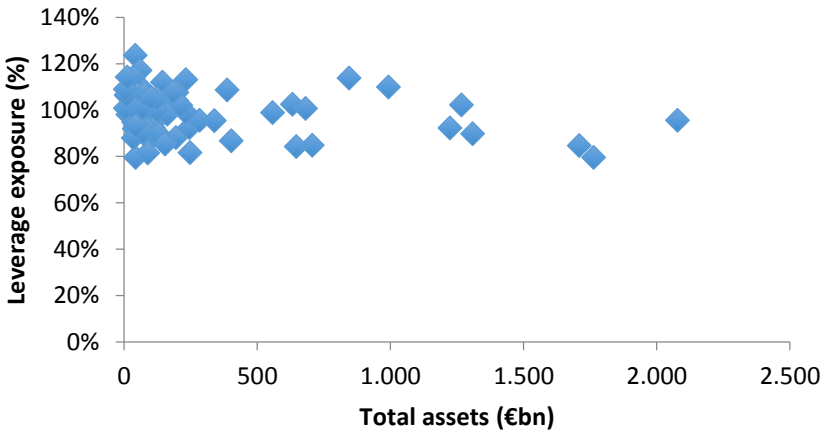
Figure 1: Risk-weighted assets as share of total assets (end-2014)



Source: Author's elaboration based on EBA (2015).

First, the **risk-weighted assets** (RWA) form traditionally together with the regulatory capital the most important determinants for the regulatory capital position. In the aftermath of the crisis there have been some changes in the calibration of the risk weights; these revisions, included in the latest Capital Requirements Directive,[5] have been taken into account for this exercise. Figure 1 shows a scatter plot of the RWA as share of total assets. It shows that the RWA, on average, are around 42% of total assets. Moreover, there is large variety in the ratios, with a standard deviation of 19% and a minimum average risk weight of just around 2% of the Dutch Nederlandse Waterschapsbank and a maximum of around 91% of the German VW Financial Services.

Figure 2: Leverage exposure as share of total assets (end-2014)



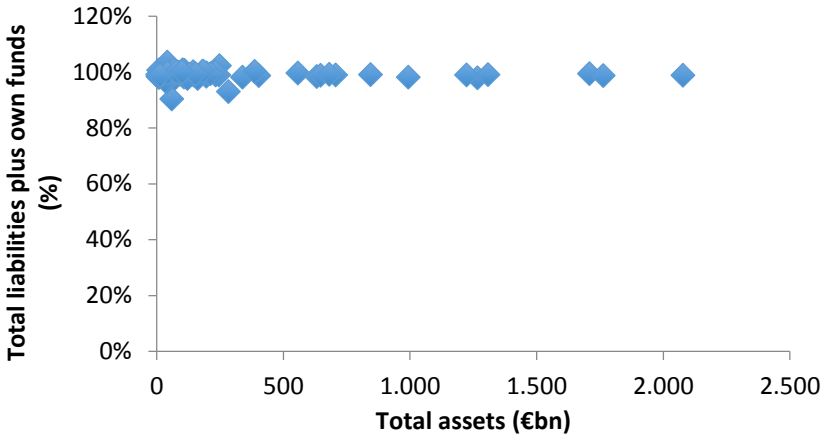
Source: Author's elaboration based on EBA (2015).

Second, the **leverage exposure** is the denominator of the leverage ratio that banks currently only need to report but is envisaged to become a binding requirement from 2018 onward. Banks should from then on have at least 3% Tier 1 capital as a share of total leverage exposure. The leverage exposure is fairly similar to total assets with additions primarily for off-balance-sheet exposures and deductions for additional derivative-netting and intangibles. Figure 2 shows a scatter plot with the leverage exposure as share of total assets. The results show that the leverage is, on average, almost equal to total assets. Hence, looking back at the average RWA to total asset ratio, since the RWA are in general

[5] OJ L 321 of 13.11.2013 (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:321:0006:0342:EN:PDF).

substantially lower than the leverage exposures, the RWA-based capital ratio needs to be substantially higher to have the same effect, i.e. around 2.4 times the leverage ratio. Moreover, although the average ratio is higher, the standard deviation is substantially lower for the leverage exposures as share of total assets (9% instead of 19%). The low variance is also reflected in the extreme values that go from the minimum 80% leverage ratio as share of total assets of the Belgium AXA Bank Europe to a maximum 124% of German HASPA Finanzholding.

Figure 3: Total liabilities plus own funds as share of total assets (end-2014)



Source: Author's elaboration based on EBA (2015).

Third, the **total liabilities plus own funds** are fairly similar as a share of total assets across all banks in the sample. The denominator for the minimum loss-absorbing and recapitalisation capacity entered the banking legislation with the BRRD[6] and includes – instead of the capital instruments reported in the financial statements – the regulatory capital and takes some additional netting agreements for derivative exposures into account. Since the total liabilities plus own funds are not included in the regular reporting, they have instead been estimated, i.e. total assets minus total equity and Tier 2 capital plus own funds serves as a proxy. Hence, there has not been any additional netting on the derivative exposures because of insufficiently granular data in the financial statements. The netting might, however, for some banks that are very active in derivatives trading lead to different results. Figure 3 shows the scatter plot for leverage exposure as a share of total assets. For almost all of the banks in the sample the proxy for total liabilities plus own funds is close to total assets and the standard deviation is only around 1.5%. The extreme values are further relatively close to one another; the lowest value in the sample is 90% of French Bpifrance and the highest value is 104% of German HASPA Finanzholding.

Overall, since the leverage exposure is more closely linked to total liabilities plus own funds than to risk-weighted assets, the inclusion of the latter in MREL is likely to disperse the allocation of the minimum loss-absorbing capacity relatively more.

2.1.2 Types of banks

Since the denominators are not perfectly correlated a change in the components of the MREL will have an impact on the allocation of the requirement across banks. To assess the impact on the allocation the average exposures as well as different calculations of ratios are assessed across four different variables to categorise banks:

[6] Article 45, OJ L 173 of 16.6.2014 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0059&from=EN).

- In the past few years **supervisors** around the globe singled out systemic banks. In this analysis both the global and the European systemic institutions are compared. Since all of the 90 banking groups in the sample or their successors are on the list with 143 groups and entities under direct responsibility of the SRB as of 1 June 2016 and 123 groups and entities are under direct supervision of the ECB, there are no separate categories for these supervisory selections. In turn, in the sample eight banks were on the most recent list with the 30 global systemically important banks (G-SIBs) of the FSB. These banks need to hold, among others, additional capital (up to 3.5%). The EU translation of the G-SIBs are the global systemically important institutions (G-SIIs), which also includes some other large banking groups with more than €200 billion of leverage exposure and potential systemic relevance. The sample includes in total 25 banks that were on the latest list with 37 G-SIIs in the EEA that the EBA disclosed in 2014. While the non-G-SIBs on the lists of G-SIIs are bound only to additional disclosure, most of the other systemically important institutions (O-SIIs) need to hold additional capital (up to 2%). The sample included in total 58 bank groups of the 171 entities and groups that the EBA and national competent authorities considered in 2015 to be more likely to destabilise the financial system.

- The total assets are one of the main determinants of the systemic importance of banking groups. The **size** groups are based on the same thresholds as used by the ECB for the 'consolidated banking database'. The banks in the sample have been distributed across three groups, i.e. small, medium and large. There are no small banks (less than 0.005% of total EU bank assets or €1.725 billion total assets); there are 63 medium and 27 large banks (more than 0.5% or €172.5 billion).

- The activities of a bank are key factors for the systemic importance as well as economic contribution. The allocation across **business models** is based on Ayadi et al. (2016), which clustered around 2,500 banking groups across five business models based on their balance sheet composition, e.g. bank loans, customer loans, debt liabilities, etc. Most banks in the sample are either diversified retail type 1 or type 2, respectively 33 and 30 banks. The other banking groups are either focused on retail (9), investment (13) or wholesale (4).[7] The retail banks engage relatively more in customer lending and customer deposit-taking; diversified retail type 1 conducts relatively more trading activities and diversified retail type 2 obtains a larger share of its funding from debt liabilities. Of the two more financial market-oriented business models, the wholesale banks have large exposures to other banks and the investment banks are more involved in trading activities, i.e. larger exposures to derivatives and other securities.

- While the **ownership structures** have an impact on the objectives of banks, they can in some cases also limit the possibility of raising additional capital (Ayadi et al., 2010). Hence, member or foundation-owned organisations, like most of the cooperative and savings banks, cannot continue their stakeholder value-based model when they lose their share capital to private investors and most public banks are being considered utilities which can often not be united with profit maximisation that private investors require from the banks. The ownership structures have been assigned according to the categorisation in Ayadi et al. (2016). The largest ownership group in the sample are the privately owned commercial banks, with 28 banking groups, followed by the membership or foundation-owned cooperative banks (21 banks) and foundation- or publicly owned savings banks (19); the remaining banks are distributed across state-owned banks that have either been nationalised during the crises (14) or were already public before them (8).

[7] For eight of the banks there was no business model indication available for 2014, thus the business model of 2013 was assigned instead. To one of the banks there was no business model assigned at all.

2.2 Estimation of minimum loss-absorbing capacity

Whether a specific denominator prevails in the calibration of the minimum loss-absorbing capacity requirement depends on the interplay between the relative size and the level of the requirement. Hence, when the risk-weighted assets are half of the leverage exposure, the minimum capital requirement needs to be at least twice the leverage ratio to drive the MREL. In addition to the relative sizes of the three denominators varying across the types of banks, the levels also differ through bank specific capital buffers in the capital requirements. In fact, this can either smoothen or aggravate the differences across banking groups depending on whether the banks have high or low RWA to total assets.

In order to understand the dynamics between the various denominators and levels, the MREL and TLAC have been decomposed.

The MREL, as defined in the EBA's RTS, consists of three components: risk-weighted assets, leverage exposure and total liabilities plus own funds. The component based on risk-weighted assets is equal to twice the capital level, including buffers for both loss-absorbing and recapitalisation, i.e. total capital ratio (8%) plus capital conservative buffer (2.5%) plus the higher of the O-SII (0-2%) and G-SIBs buffer (0-2%), times two.[8] The MREL based on leverage is twice the 3% leverage exposure, and finally the access to the resolution fund requires at least 8% of total liabilities plus own funds. The highest of the three components expressed in total liabilities plus own funds forms the MREL.

The TLAC is relatively straightforward, without supervisory additions as done in this analysis. The decomposed elements are 18% of risk-weighted assets plus capital buffers and 6.75% of leverage exposure. The higher of both elements forms the TLAC. The requirement is, however, not yet comparable to the MREL, which also includes the 8% minimum total liabilities plus own funds. For a TLAC-compatible MREL, therefore, the higher of the three MREL and two TLAC components has been taken.

2.3 Minimum loss-absorbing capacity allocation

The results for the various denominators and minimum loss-absorbing requirements show some clear differences across the various categories of banks. Annex 2 summarises the main results for the different denominators for minimum loss-absorbing capacity requirements and the four different types of banks. The figures in the table are weighted based on total assets and expressed as a share of total assets.

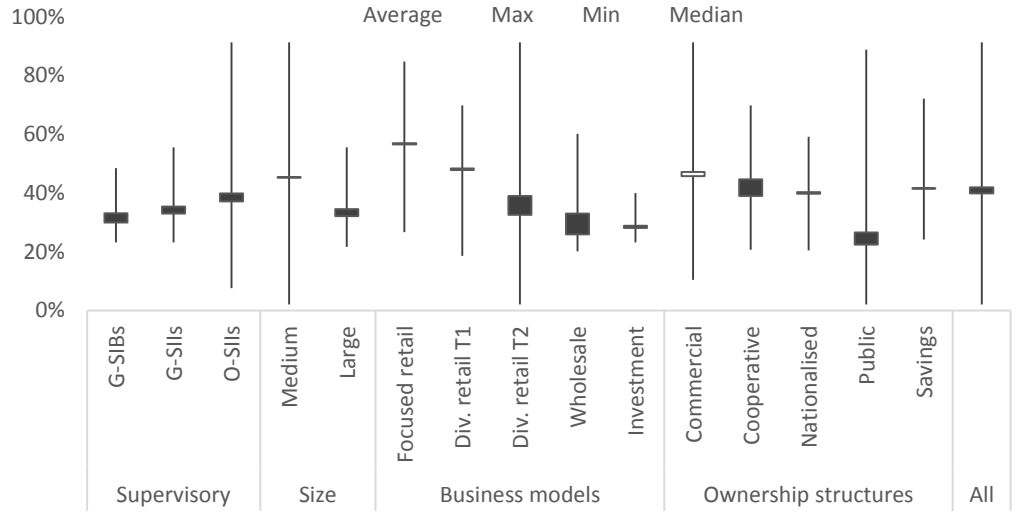
2.3.1 Denominators

Looking at the three denominators assessed, the **risk-weighted assets** show the largest variance across types of banks. Figure 4 shows the RWA as a share of total assets across the various types of banks. The more systemic the banks, the lower the average RWA are as a share of total assets. Hence, the average risk weight for the eight G-SIBs is 33% of total assets, while the larger groups of G-SIIs and O-SIIs have rates of 35% and 40% respectively. The averages for all three groups of systemic banks are below the sample average of 42%. Although both the average and median values follow the same order, there are banks within the different categories and in particular O-SIIs that quote ratios both below and above the average values of the other supervisory categories. The RWA as a share of total assets of the systemic banks are significantly below the less systemically relevant banks in the sample.

[8] The countercyclical buffer (0-2.5%) and supervisory add-on are unknown and therefore excluded from the analysis. Moreover, it is assumed that the impact of adjustments for the potential use of deposit insurance funds and of the foreseen *ex ante* deleveraging after resolution will be nil.

The differences across size are even more apparent, i.e. the smaller the bank, the higher the average risk weights. The group of large banks that are largely overlapping with the G-SIIs have also an average risk weight of 35%, while the medium-sized banks have almost a quarter higher average risk weight of 45%. Although there are also some medium-sized banks with RWA to total assets below those of large banks, the means of the large banks are significantly lower than those of medium banks, at 1% using a simple t-Test to test the difference in means.

Figure 4: Risk-weighted assets across bank types (% of assets, end-2014)



Source: Author's elaboration based on EBA (2014, 2015), FSB (2015) and Ayadi et al. (2016).

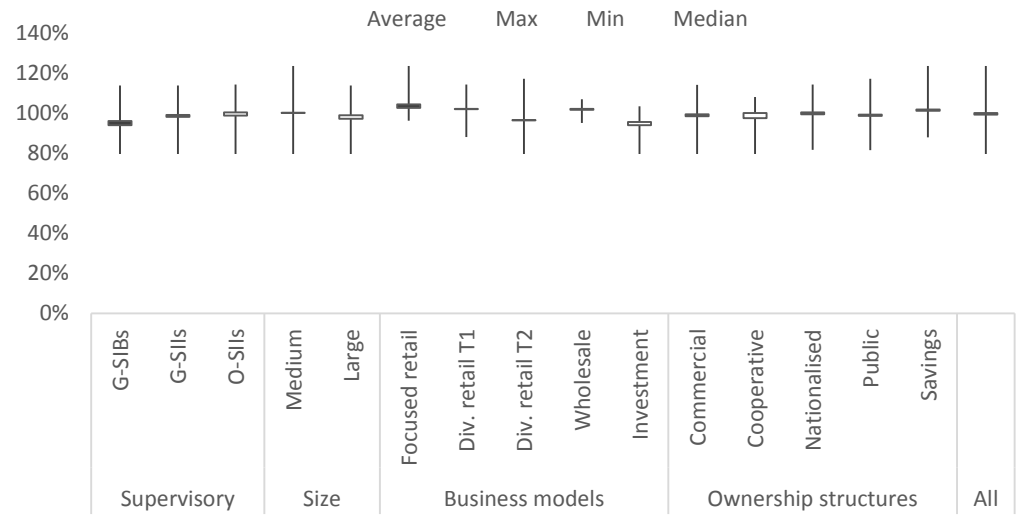
The differences across the means and medians of the various business models are even larger. There seems to be a clear division between the banks conducting more retail activities, i.e. focused and diversified retail types 1 and 2, and the other banks that conduct more trading and interbank lending activities, i.e. wholesale and investment banks, with the latter having clearly lower average risk weights. The more traditional retail-focused banks have, at 57%, the largest average risk weight, which are followed by the diversified retail type 1 (48%) and type 2 (39%) banks. To explain the differences one should look at the underlying exposures and the average risk weights (see also Annex 3). The retail-focused banks have clearly less low risk weight exposures to governments and institutions than the other banks, while they have higher exposures to SMEs and retail clients with relatively high risk weights. Compared to the retail-focused banks, the retail-diversified banks have, on average, clearly lower exposures to retail clients. Looking at the diversified retail banks, the exposures are fairly similar for the two types. The diversified retail type 1 banks have, on average, only lower retail exposures and higher mortgage-secured exposures with a higher risk weight. The main difference between the two types is, however, made through lower average risk weights for retail and corporate exposures as well as less non-credit risk-related risk-weighted assets, i.e. RWA for market and operational risk.

The wholesale and investment banks have substantially lower average risk weights, with 33% and 29% respectively. The average risk weights of the wholesale banks, however, vary considerably, which is reflected in a relatively large difference between mean and median values. Looking at the composition of their exposures, the wholesale banks have considerably higher exposures to governments and institutions and less to corporates and retail with higher risk weights, while investment banks have somewhat lower exposures to both governments and institutions with lower average risk weights. The investment banks have, however, lower average risk weights on their exposures to institutions, corporates and retail. In the latter they have relatively low exposures to

SMEs, which are considered more risky than large corporates and have therefore a higher effective average risk weight. The average risk weights of the business models are significantly different, at 5%, with the exception of the difference between retail-focused and retail-diversified type 1, which is significantly different, at 10%, and the difference between retail-diversified, wholesale and investment banks is not significant.

The differences between the five ownership structures are considerably smaller. The commercial (46%), cooperative (45%), savings banks (42%) and nationalised (40%) quote relatively high average risk weights, while the average risk weights of the public banks (27%) are substantially lower. The differences between the business models are not significant, with the exception of public banks that have a significantly lower risk weight than all business models except for nationalised banks. The commercial, cooperative, savings and nationalised banks have largely similar exposures. The commercial banks have slightly higher exposures to corporates and lower exposures to institutions. The cooperative banks have the highest retail exposures, while they have slightly lower exposures to central governments and central banks, institutions as well as corporates. The nationalised banks have relatively larger exposures to, in particular, central governments, central banks and institutions that have lower risk weights. In turn, the exposures to, in particular, corporates that have a higher average risk weight are lower than the sample average. The savings banks have relatively higher exposures to institutions and less to retail. Hence, some of the savings banks are central institutions that primarily cater to the affiliated local savings banks and have therefore higher interbank exposures. The lower risk weight assets due to the larger exposures to institutions are offset by substantially higher risk weights for other exposures such as equities. The lowest average risk-weighted assets to total assets are thus for public banks that have relatively very high exposures to governments, government-related entities and institutions that have lower average risk weights. The substantially lower exposures to retail and corporates are partially offset by relatively higher risk weights for these exposures. The non-credit risks, i.e. RWA for market and operational risk, for the public banks are also lower than for other ownership structures.

Figure 5: Leverage exposures across bank types (% of assets, end-2014)



Source: Author's elaboration based on EBA (2014, 2015), FSB (2015) and Ayadi et al. (2016).

The **leverage exposures** show substantially less variation. The average leverage exposures are across all types of banks close to total assets. The total leverage exposures as a share of total assets for the entire sample is 99%. This means that, on average, the deductions for intangibles and derivative-netting are higher than the additions for off-balance sheet exposures. The difference among the three categories of systemic banks identified by the supervisors is negligible, at less than 3%. The

difference with the other banks in the sample is not significant at 10% level. Looking at the different size categories, large banks (97%) have lower leverage exposures than medium-sized banks (100%). Although size categories are not very homogenous, the differences are significant at 10% level. The differences between the average leverage exposures across business models are larger. Like G-SIBs, investment banks (94%) and diversified retail (type 2) (97%) seem to benefit on net terms more from deductions of, for example, derivative exposures than the focused (105%), diversified retail (type 1) (103%) and wholesale (102%) banks that have significantly higher leverage exposures. Among the ownership structures the differences are quite limited. The cooperative (98%), commercial (99%) and public (99%) quote relatively low leverage exposures, while nationalised banks (100%) and savings banks (102%) have leverage exposures in terms of total assets above the sample average. The differences are not significant at 10% level except for public and cooperative, which have significantly lower leverage exposures than savings banks. The lower leverage exposures of cooperatives seem in particular due to some larger cooperatives and specialised financiers for governments among the public banks with more sizable derivative activities.

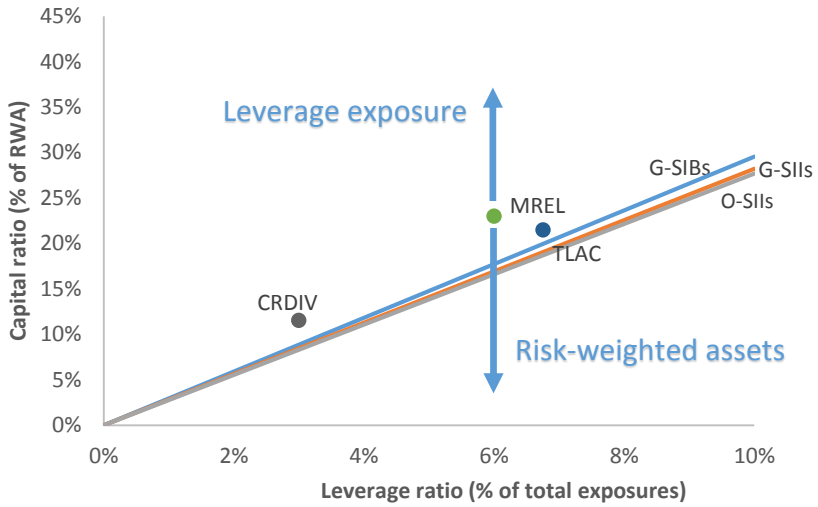
The **total liabilities plus own funds** show the least variance. Hence, the difference between all the categories of banks is about 1%. Although there are some significant differences among some business models and ownership structures, the impact on the underlying capital is limited given the limited range of the values. It is not surprising that the figures are very close to total assets (99.1%), since the measure used in the paper is a proxy based on total assets and the regulatory capital position for most banks is not too distinct from the capital as accounted for in the financial reporting. The actual total liabilities plus own funds are likely to deviate more from the total assets. In fact, the banks are allowed to net part of their remaining derivative exposures, which is likely to bring down the total liabilities plus own funds. This also means that the actual total liabilities plus own funds are likely to be more similar to the leverage exposure that also has provisions for derivative-netting.

2.3.2 Interaction between minimum loss-absorbing capacity components

The MREL needs to combine several components in order to fit in the revised financial legislative and supervisory framework. Hence, it will have to bridge, among others, the capital requirements, resolution mechanism and TLAC standard, for which currently three different denominators are used.[9] The final allocation across different types of banks will vary substantially depending on which indicator is dominant in the requirement. Hence, the allocation of the minimum loss-absorbing capacity will be similar to assets when total liabilities plus own funds drives the requirement, while the distribution will be more divergent with leverage exposure and most divergent with RWA as a main requirement.

[9] See Annex 1 for a list with the main criteria to which the ideal MREL would comply.

Figure 6: Driving indicator across supervisory groups (end-2014)

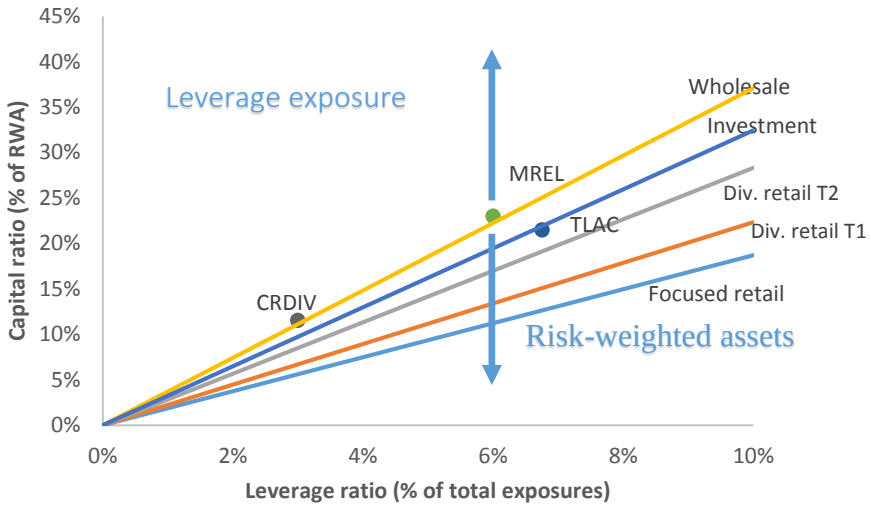


Source: Author's elaboration based on EBA (2014, 2015), FSB (2015) and Ayadi et al. (2016).

The minimum levels set for the different ratios determines the denominator that drives the **MREL**. For example, the minimum capital requirement excluding countercyclical and systemic risk and potential supervisory buffers is 10.5% with an average risk-weighted assets to total assets of 42% and leverage exposure to total assets of 99%; the leverage needs to be around 4.45% to have, on average, the same effect. In practice, however, the leverage ratio is 3%, which means that for an average bank the capital requirement will determine the MREL. Only for banks with an average risk weight expressed in total assets below 28% is the leverage ratio likely to drive the results. In fact, the MREL based on the leverage exposure is above the risk-weighted asset for only one of the categories of banks, i.e. public banks with an average risk weight of 23%. For all the other types of banks, e.g. supervisory, size, business models and ownership structures, the ratio based on risk-weighted assets is driving the requirement, even for wholesale and investment banks. Although they have average RWA to total assets ratios of 27%, the need to comply with a higher effective capital ratio (+0-2% for systemic risk buffers) and relatively lower leverage exposure pushes down their indifference curve. This is also shown in Figure 6 and Figure 7, where the MREL point lies clearly above the indifference curves between capital and leverage ratio for respectively the various supervisory and business models, which means that for the average banks the risk-weighted average determines the MREL. However, since the leverage exposure is relatively similar to the total liabilities plus own funds, the 8% minimum bail-in requirement is for many banks higher than the 6% leverage requirement (2x3%). In fact, the total liabilities plus own funds drive the MREL requirement for G-SIBs, large banks, retail type 2, wholesale, investment, cooperative, nationalised and public banks.

TLAC changes the driving indicator for some categories of banks. The ratio between RWA and leverage slightly changes in favour of leverage ratio in TLAC compared to MREL. In fact, the RWA component is for all banks lower (minimum 21% vs. minimum 18%) and the leverage ratio is higher than under the existing MREL (minimum 6% vs. minimum 6.75%). As is also partially shown in the figures, the different levels do not have an impact on the driving component for the averages in the supervisory categories, and for size and ownership structures the driver is not changed but splits the different business models. Hence, for the average wholesale and investment banks the leverage ratio becomes the driving component, whereas for the retail banks the risk-weighted assets-based component continues to prevail. The overall impact is nevertheless limited because the 8% total liabilities plus own funds in most cases still supersedes the TLAC leverage requirement for almost all banks.

Figure 7: Driving indicator across business models (end-2014)



Source: Author's elaboration based on EBA (2014, 2015), FSB (2015) and Ayadi et al. (2016).

Overall, both the denominators indicating the bank size, i.e. leverage and the total liabilities plus own funds, contribute to convergence of the requirements in asset terms across different types of banks. The difference between the business models in terms of risk-weighted assets was 51%, while the difference in the MREL requirement is just 36%. Hence, in general the higher the leverage/total liabilities plus own funds compared to risk-weighted assets, the smaller the relative differences between banks.

3. CONCLUSIONS

The denominators used to determine the MREL make a difference for the allocation of the minimum loss-absorbing capacity across banks. The total liabilities plus own funds stick closest to total assets, while leverage exposure differs a bit and risk-weighted assets (RWA) differ substantially from total assets.

Looking more closely at the results for the various types of banks, the more systemic, larger, market-oriented the business model and more government-oriented the ownership structure, the lower the average RWA as a share of total assets seem to be. Hence, the main drivers for the differences seem to be the distribution of exposures (in particular, larger exposures to governments and institutions lead to lower average risk weights) and relatively lower average risk weights for certain exposures such as those to institutions, corporates and retail.

The results for leverage exposures have some similarities. In fact, size and activity also seem to matter for leverage exposure. The larger banks as well as the diversified retail type 2 and investment banks that are more active on capital markets have, on average, a significantly lower leverage exposure than medium-sized and more retail/government-oriented business models. Among the public and cooperative banks, banks that are more engaged in funding government institutions and larger banks with more sizable derivative exposures drive the average leverage exposures significantly below those of savings banks.

The total liabilities plus own funds are so close to total assets – a difference of only 1% – that these *de facto* do not have an impact on the distribution in asset terms. The small difference might be partially explained by the simplified proxy that had to be used since the official total liabilities plus own funds including derivative-netting is for the moment not included in the official financial statements. When the derivative-netting would have been taken into account, the total liabilities plus own funds would most probably converge towards leverage exposure.

But which denominator to choose: total liabilities plus own funds, leverage ratio or RWA? The simple argument for RWA is clear. Different parts of the asset side of the balance sheets of banks lead to different risks and this should be recognised in the requirements, which are supposed to make a bank resolvable in a crisis. Following this logic, banks that hold mainly low-risk assets should not be required to hold the same amount of capital or bail-inable liabilities as banks that hold high-risk assets. But the risk weights used to calculate RWA have a number of drawbacks, which render them, *de facto,* of only limited use as a signal for the riskiness of a bank.

The existing, official risk factors are usually only rough approximations of the real risk of any one of these assets. In a systemic crisis, or a local, regional or national recession, the correlations across individual risks can increase dramatically, leading to much higher risk for categories, which taken individually, are usually considered low risk. Moreover, it has been shown that, in practice, the internal models used by different banks lead to sometimes widely diverging results (BCBS, 2013, 2016; EBA, 2014a). The same portfolio of assets can thus lead to widely different RWA calculations.

In addition, there is the fundamental question of the zero risk-weighting of sovereign exposure (ESRB, 2015). Using RWA would provide an advantage for banks holding directly government bonds or other assets with a public guarantee. The probability of another PSI or outright sovereign default anytime soon is remote. However, as the cases of Dexia and the Greek PSI show, government exposure can lead to considerable risks even if such an extreme event does not materialise (Bank of Greece, 2012; De Groen, 2011). Hence, for instance, the wholesale and investment banks as well as public banks that have the lowest average risk weights have these partially due to substantial exposures to governments and institutions.

All in all, it appears that requirements that are based on the size of the entire balance sheet, such as total liabilities plus own funds or leverage exposure, might better capture the risk of major, but rare, events.

However, even in case of a failure, in such a situation the banks need to be recapitalised based on an RWA capital ratio. This means that a combination of at least leverage and an RWA-based ratio is needed for MREL. The ratio between levels for both determines which component drives the results. Based on the current definition of MREL, the risk-weighted assets drive the minimum loss-absorbing capacity when comparing the RWA and leverage exposure. In order to have the leverage exposure as the driving component, it should be increased relative to the RWA component. This is to some extent already the case today. Hence, the total liabilities plus own funds that are more similar to the leverage exposure is already the prevailing MREL component for many categories of banks, e.g. G-SIBs, large banks, retail type 2, wholesale, investment, cooperative, nationalised and public banks.

Finally, the similarity between total liabilities plus own funds and leverage exposures are likely to be substantial. This is potentially an avenue to simplify the framework and bring it more in line with the international TLAC standard. Hence, it could be considered to replace the total liabilities plus own funds with leverage exposure for the minimum bail-in requirement to access the resolution funds and the MREL denominator could be changed. This would make both the MREL and TLAC based on the same two denominators, i.e. RWA and leverage exposure. Before the total liabilities plus own funds is replaced, a thorough assessment of, in particular, the impact of derivative-netting on the total liabilities plus own funds would be required.

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ANNEX 1. MAIN CRITERIA FOR MREL

The MREL is part of a complex new financial legislative and supervisory framework applicable to an even more complicated banking sector. This complexity means that MREL needs to fulfil many different criteria to make the framework work. The seven main criteria that the MREL should meet to fit in the post-financial crisis legislative framework and reach the main objectives to reduce the moral hazard and exposure to taxpayers' money and at the same time preserve the single market are discussed below:

- Ensure **loss-absorbing** by creditors. One of the main side-effects of the 'too big to fail' conundrum is that banks and in particular large banks that are likely to be bailed out receive an implicit subsidy enhancing moral hazard, i.e. banks are taking more risk because of insurance. At the moment that the creditors have to absorb the entire loss it is less likely that they take too much risk based on moral hazard. It remains, however, very difficult to make an accurate estimate of the loss given resolution or default. The MREL should therefore be high enough, with a large degree of certainty that losses can be covered. This is also to limit the potential contagion to government or monetary finances.

- Sufficient for **recapitalisation**. For the banks that are likely to be resolved with the use of resolution tools, it is important that after the loss-absorbing sufficient funds are available for recapitalisation to ensure that at least the critical functions of the bank can continue operating after a potential failure, i.e. after accounting for resolution measures such as bridge bank, asset sales, etc. The recent past has shown that the banks are expected to hold abundant regulatory capital during crises (Ayadi et al., 2016), which means that the minimum requirements are unlikely to be sufficient. The capital is likely to be partially or entirely recoverable and potentially even deliver a return, which makes using resolution funds for recapitalisation less hazardous than using them for absorbing loss.

- Access to **resolution fund**. The MREL should be high enough to ensure that the resolution authorities can use the resolution funds and other tools when necessary. Hence, when the resolution authority is comfortable that the bank can be liquidated, the bank will *de facto* not have access to the fund and would thus not have to comply (EBA, 2015). In order to access the resolution fund at least 8% of total liabilities plus own funds and in some exceptional cases 20% of risk-weighted assets need to be bailed in.

- Compatible with the **TLAC standard**. In addition to the MREL, the G-SIBs have to comply with the TLAC set by the FSB. The MREL requirement may thus not contradict the TLAC standard, in order to allow G-SIBs to comply with both; preferably the calibration would be identical or fairly similar to reduce the compliance costs.

- Ensure that the **bail-in** is credible. In order to let the system work it is important that the creditors that are potentially bailed in can absorb the losses in stress situations. Hence, banks and other financial institutions that could destabilise the financial system and economy at large should be strongly disincentivised from holding bail-in instruments to reduce the contagion risk.[10] Moreover, the instruments held by members of specific groups with great political leverage, such as retail clients and SMEs, could better be excluded *ex ante* to prevent the instruments from creating the need for additional funds *ex post*.

[10] In addition to the direct contagion, there is also an indirect contagion risk. Part of the instruments eligible for MREL have only a limited maturity and are thus likely to have to be renewed at some point in time. In case the market for MREL instruments dries up during a period of distress, some banks might no longer be able to renew the MREL instruments, which may lead to a breach of the MREL requirement.

- Safeguard **level-playing field**. The MREL requirements must be harmonised across Member States to ensure that banks with a similar profile, e.g. resolvability, riskiness, systemic importance, etc., are treated similarly across Member States and to prevent differences in funding costs based on domiciliation (EBA, 2015).

- Ensure **proportionality**. Diversity and a certain degree of fragmentation could contribute to the resilience of the banking sector. Although there is a need for further empirical research to test this hypothesis, the MREL should preferably follow a risk-based approach, i.e. the MREL should be higher and more stringent for banks that pose more risk to the financial sector, e.g. business model, systemic relevance, etc.

ANNEX 2. ALLOCATION OF LOSS-ABSORBING CAPACITY

Table 1: Allocation of loss-absorbing capacity across types of banks (weighted averages as % of total assets, 2014)

	Supervisory			Size		Business models					Ownership structures					
	G-SIBs	**G-SIIs**	**O-SIIs**	**Medium**	**Large**	**Focused retail**	**Diversified retail (Type 1)**	**Diversified retail (Type 2)**	**Wholesale**	**Investment**	**Commercial**	**Cooperative**	**Nationalised**	**Public**	**Savings**	**All**
Denominators																
Risk-weighted assets	32%	34%	34%	42%	33%	56%	46%	34%	27%	27%	36%	33%	33%	23%	40%	35%
Leverage exposure	94%	95%	95%	99%	95%	105%	103%	96%	101%	89%	97%	90%	97%	99%	102%	96%
Total liabilities plus own funds	99%	99%	99%	99%	99%	100%	99%	99%	99%	99%	99%	99%	100%	99%	99%	99%
MREL																
Risk-weighted assets	7.5%	7.9%	8.0%	9.3%	7.8%	12.2%	10.5%	7.7%	5.8%	6.5%	8.5%	7.6%	7.6%	5.0%	8.8%	8.1%
Leverage exposure	5.6%	5.7%	5.7%	5.9%	5.7%	6.3%	6.2%	5.8%	6.1%	5.3%	5.8%	5.4%	5.8%	5.9%	6.1%	5.7%
Total liabilities plus own funds	7.9%	7.9%	7.9%	7.9%	7.9%	8.0%	7.9%	7.9%	8.0%	7.9%	7.9%	7.9%	8.0%	7.9%	7.9%	7.9%
Overall	8.5%	8.6%	8.8%	10.5%	8.6%	12.4%	10.6%	8.6%	8.4%	7.9%	9.2%	8.5%	8.8%	8.7%	9.3%	9.0%
TLAC																
Risk-weighted assets	6.9%	7.3%	7.4%	8.9%	7.2%	11.7%	9.9%	7.3%	5.6%	6.0%	7.9%	7.1%	7.1%	4.8%	8.4%	7.5%
Leverage exposure	6.3%	6.4%	6.4%	6.7%	6.4%	7.1%	6.9%	6.5%	6.8%	6.0%	6.5%	6.1%	6.5%	6.7%	6.9%	6.4%
Overall	7.1%	7.5%	7.7%	9.7%	7.4%	11.8%	9.9%	7.8%	7.3%	6.2%	8.1%	7.2%	7.6%	7.4%	8.6%	7.8%
MREL (TLAC compatible)																
Overall	8.5%	8.6%	8.8%	10.5%	8.6%	12.4%	10.6%	8.6%	8.4%	7.9%	9.2%	8.5%	8.8%	8.7%	9.3%	9.0%
Observations	*8*	*25*	*58*	*63*	*27*	*9*	*33*	*30*	*4*	*13*	*28*	*21*	*14*	*8*	*19*	*90*

Source: Author's elaboration based on EBA (2014, 2015), FSB (2015) and Ayadi et al. (2016).

ANNEX 3. EXPOSURES ACROSS TYPES OF BANKS

Table 2: Exposures across types of banks (% of total exposures)

	Supervisory			Size	
	G-SIBs	**G-SIIs**	**O-SIIs**	**Medium**	**Large**
Central governments or central banks	17.6%	17.5%	17.6%	17.7%	17.7%
Regional governments or local authorities	1.7%	2.4%	2.9%	5.5%	2.4%
Public sector entities	0.8%	0.9%	1.0%	2.9%	0.9%
Multilateral development banks	0.1%	0.1%	0.2%	0.3%	0.1%
International organisations	0.1%	0.1%	0.2%	0.4%	0.2%
Institutions	10.5%	11.9%	12.3%	12.4%	12.6%
Corporates	30.4%	30.2%	29.0%	21.7%	29.9%
Corporates - SME	4.2%	5.5%	5.7%	8.4%	5.4%
Corporates - Specialised lending	3.3%	3.8%	3.5%	1.1%	3.8%
retail	29.6%	28.6%	27.5%	19.6%	28.1%
Retail - SME	0.8%	0.7%	0.7%	1.8%	0.7%
Secured by mortgages on immovable property	3.1%	2.7%	3.2%	9.2%	2.6%
Secured by mortgages on immovable property - SME	0.4%	0.3%	0.4%	1.1%	0.3%
Items associated with particularly high risk	0.0%	0.0%	0.1%	0.3%	0.0%
Covered bonds	0.1%	0.1%	0.2%	2.0%	0.1%
Claims on institutions and corporate with a short-term credit assessment	0.0%	0.0%	0.0%	0.0%	0.0%
Claims in the form of CIU	0.6%	0.5%	0.5%	0.3%	0.5%
Equity exposures	1.0%	1.1%	1.0%	1.4%	1.0%
Securitisation	2.2%	1.9%	2.0%	2.2%	1.9%
Other items	2.1%	1.8%	2.2%	4.0%	1.9%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%

Table 2: Exposures across types of banks (% of total exposures) (continued)

	Business models				
	Focused retail	**Diversified retail (Type 1)**	**Diversified retail (Type 2)**	**Wholesale**	**Investment**
Central governments or central banks	11.5%	17.4%	17.4%	35.0%	17.7%
Regional governments or local authorities	2.3%	3.2%	4.2%	2.9%	1.9%
Public sector entities	0.9%	1.2%	1.7%	4.4%	0.9%
Multilateral development banks	0.2%	0.1%	0.2%	0.5%	0.1%
International organisations	0.5%	0.2%	0.2%	0.2%	0.2%
Institutions	6.2%	11.6%	10.5%	28.4%	15.3%
Corporates	18.7%	28.1%	27.5%	4.1%	31.5%
Corporates - SME	7.9%	6.7%	8.0%	1.6%	3.4%
Corporates - Specialised lending	0.6%	3.3%	3.6%	0.0%	3.2%
retail	34.3%	24.5%	30.8%	6.6%	24.1%
Retail - SME	2.4%	1.3%	0.7%	1.9%	0.6%
Secured by mortgages on immovable property	16.8%	6.9%	2.1%	9.2%	2.1%
Secured by mortgages on immovable property - SME	2.3%	0.8%	0.3%	1.2%	0.1%
Items associated with particularly high risk	1.3%	0.1%	0.0%	0.1%	0.0%
Covered bonds	0.4%	0.2%	0.2%	4.7%	0.0%
Claims on institutions and corporate with a short-term credit assessment	0.1%	0.1%	0.0%	0.0%	0.0%
Claims in the form of CIU	0.5%	0.3%	0.1%	0.3%	0.9%
Equity exposures	1.3%	0.9%	1.4%	1.2%	1.1%
Securitisation	1.1%	1.1%	2.2%	0.1%	2.7%
Other items	3.9%	4.0%	1.6%	2.3%	1.4%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%

Table 2: Exposures across types of banks (% of total exposures) (continued)

	Ownership structures					
	Commercial	**Cooperative**	**Nationalised**	**Public**	**Savings**	**All**
Central governments or central banks	17.0%	15.9%	22.3%	27.5%	17.1%	17.7%
Regional governments or local authorities	1.6%	3.2%	1.8%	14.8%	4.8%	3.1%
Public sector entities	0.8%	0.9%	0.8%	10.0%	1.2%	1.3%
Multilateral development banks	0.2%	0.1%	0.3%	0.5%	0.1%	0.2%
International organisations	0.1%	0.2%	0.4%	0.4%	0.3%	0.2%
Institutions	10.9%	11.0%	15.4%	22.6%	16.0%	12.6%
Corporates	32.7%	25.5%	20.3%	7.5%	29.8%	28.1%
Corporates - SME	5.7%	6.3%	6.8%	2.5%	7.5%	6.1%
Corporates - Specialised lending	3.3%	2.6%	2.7%	0.0%	5.8%	3.2%
retail	26.4%	34.1%	29.4%	4.3%	16.4%	26.3%
Retail - SME	1.1%	0.9%	0.3%	0.9%	0.6%	0.9%
Secured by mortgages on immovable property	3.6%	3.4%	4.5%	2.2%	7.3%	4.1%
Secured by mortgages on immovable property - SME	0.5%	0.6%	0.5%	0.3%	0.5%	0.5%
Items associated with particularly high risk	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%
Covered bonds	0.7%	0.1%	0.2%	2.9%	0.2%	0.5%
Claims on institutions and corporate with a short-term credit assessment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Claims in the form of CIU	0.5%	0.7%	0.0%	0.1%	0.2%	0.4%
Equity exposures	1.0%	1.5%	0.4%	2.4%	0.7%	1.1%
Securitisation	1.7%	1.9%	1.1%	1.8%	3.5%	1.9%
Other items	2.6%	1.6%	3.0%	2.9%	2.4%	2.4%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note: The figures in the table above are weighted averages based on total exposures.

Source: Author's elaboration based on EBA (2014, 2015), FSB (2015) and Ayadi et al. (2016).

Table 3: Exposures across types of banks (average risk weights)

	Supervisory			Size	
	G-SIBs	**G-SIIs**	**O-SIIs**	**Medium**	**Large**
Central governments or central banks	7.4%	8.0%	7.4%	5.2%	8.1%
Regional governments or local authorities	12.7%	8.9%	6.7%	2.6%	9.5%
Public sector entities	12.2%	13.5%	12.2%	5.7%	14.9%
Multilateral development banks	0.5%	0.5%	0.4%	0.2%	0.4%
International organisations	0.9%	0.5%	0.3%	0.0%	0.4%
Institutions	19.7%	19.0%	18.9%	19.1%	18.2%
Corporates	52.8%	53.0%	55.1%	71.1%	53.0%
Corporates - SME	65.4%	54.5%	56.3%	62.8%	54.7%
Corporates - Specialised lending	38.5%	49.3%	50.2%	63.4%	48.7%
retail	27.2%	25.3%	26.0%	35.7%	25.2%
Retail - SME	57.8%	58.1%	57.8%	57.4%	58.1%
Secured by mortgages on immovable property	44.0%	42.4%	42.2%	38.7%	42.4%
Secured by mortgages on immovable property - SME	47.4%	46.0%	48.1%	45.7%	46.0%
Items associated with particularly high risk	150.0%	145.6%	147.3%	148.1%	145.8%
Covered bonds	15.0%	14.7%	15.1%	12.5%	14.7%
Claims on institutions and corporate with a short-term credit assessment	55.3%	41.0%	40.7%	25.6%	41.0%
Claims in the form of CIU	39.8%	45.5%	48.0%	85.2%	45.5%
Equity exposures	287.1%	300.1%	289.0%	174.0%	300.1%
Securitisation	34.1%	35.9%	34.5%	33.2%	36.4%
Other items	97.9%	106.6%	95.2%	72.1%	101.3%
TOTAL	35.2%	34.5%	34.6%	36.6%	34.2%
% of Total RWA	*80%*	*81%*	*81%*	*81%*	*81%*

Table 3: Exposures across types of banks (average risk weights) (continued)

	Business models				
	Focused retail	**Diversified retail (Type 1)**	**Diversified retail (Type 2)**	**Wholesale**	**Investment**
Central governments or central banks	5.1%	9.1%	7.1%	0.3%	7.3%
Regional governments or local authorities	8.0%	4.6%	10.3%	8.7%	2.4%
Public sector entities	31.7%	14.6%	9.4%	0.6%	9.5%
Multilateral development banks	0.4%	0.6%	0.0%	0.0%	0.5%
International organisations	0.0%	0.5%	0.0%	0.0%	0.2%
Institutions	28.1%	21.3%	20.0%	22.9%	13.9%
Corporates	87.4%	63.6%	53.9%	87.7%	49.2%
Corporates - SME	79.7%	60.5%	49.1%	94.0%	65.6%
Corporates - Specialised lending	97.6%	67.1%	43.1%	..	38.9%
retail	32.9%	31.9%	22.0%	70.1%	26.9%
Retail - SME	58.4%	57.7%	58.3%	57.4%	57.4%
Secured by mortgages on immovable property	37.3%	40.9%	43.3%	36.0%	40.1%
Secured by mortgages on immovable property - SME	40.5%	47.3%	45.8%	36.1%	49.7%
Items associated with particularly high risk	150.0%	144.6%	150.0%	141.3%	145.5%
Covered bonds	14.5%	15.9%	20.1%	13.2%	14.2%
Claims on institutions and corporate with a short-term credit assessment	20.4%	48.7%	25.7%	..	31.3%
Claims in the form of CIU	96.3%	63.6%	82.5%	100.0%	38.2%
Equity exposures	139.6%	292.7%	247.8%	130.7%	290.2%
Securitisation	39.2%	32.2%	38.4%	60.1%	34.5%
Other items	92.0%	76.0%	114.5%	78.8%	107.0%
TOTAL	45.1%	39.3%	32.6%	22.9%	32.4%
% of Total RWA	*80%*	*81%*	*83%*	*79%*	*79%*

Table 3: Exposures across types of banks (average risk weights) (continued)

	Ownership structures					
	Commercial	**Cooperative**	**Nationalised**	**Public**	**Savings**	**All**
Central governments or central banks	10.0%	6.1%	8.1%	0.8%	4.9%	7.5%
Regional governments or local authorities	8.4%	11.3%	14.3%	2.7%	2.2%	6.9%
Public sector entities	19.4%	6.3%	33.3%	0.9%	15.3%	10.7%
Multilateral development banks	0.5%	0.4%	0.1%	0.1%	0.0%	0.3%
International organisations	0.6%	0.3%	0.0%	0.0%	0.0%	0.2%
Institutions	21.7%	18.2%	13.7%	20.2%	12.6%	18.4%
Corporates	54.6%	57.1%	57.4%	86.4%	56.3%	56.0%
Corporates - SME	55.4%	61.2%	53.3%	88.1%	53.4%	57.1%
Corporates - Specialised lending	51.5%	37.2%	44.6%	..	58.5%	49.8%
retail	30.9%	20.6%	24.7%	71.5%	28.0%	26.9%
Retail - SME	57.7%	57.7%	57.3%	58.2%	58.4%	57.8%
Secured by mortgages on immovable property	42.5%	40.6%	43.4%	42.0%	36.1%	40.6%
Secured by mortgages on immovable property - SME	47.9%	41.1%	61.1%	60.3%	37.6%	45.9%
Items associated with particularly high risk	147.0%	147.1%	148.3%	145.5%	149.9%	147.4%
Covered bonds	10.5%	21.8%	21.2%	15.1%	17.4%	12.9%
Claims on institutions and corporate with a short-term credit assessment	47.7%	25.4%	78.6%	28.7%	20.4%	39.5%
Claims in the form of CIU	50.4%	42.9%	126.3%	103.0%	96.7%	50.6%
Equity exposures	230.9%	289.3%	282.5%	153.3%	483.7%	266.2%
Securitisation	34.1%	43.3%	43.3%	40.6%	27.6%	35.6%
Other items	99.8%	104.2%	64.5%	18.3%	91.2%	90.7%
TOTAL	37.9%	33.6%	29.0%	21.4%	34.0%	34.7%
% of Total RWA	*79%*	*83%*	*82%*	*88%*	*81%*	*81%*

Note: The figures in the table above are the weighted averages for both the exposures accounted for under the standard and internal rating-based approaches. The averages are weighted based on total risk-weighted exposures.

Source: Author's elaboration based on EBA (2014, 2015), FSB (2015) and Ayadi et al. (2016).

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