

EBA/CP/2016/08

25 July 2016

Consultation Paper

Report

on the appropriate target level basis for resolution financing arrangements under Bank Recovery and Resolution Directive



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1. Responding to this consultation

The EBA invites comments on all proposals put forward in this report.

Comments are most helpful if they:

- respond to the question stated;
- indicate the specific point to which a comment relates;
- contain a clear rationale;
- provide evidence to support the views expressed/ rationale proposed; and
- describe any alternative regulatory choices the EBA should consider.

Submission of responses

To submit your comments, click on the 'send your comments' button on the consultation page by 02.09.2016. Please note that comments submitted after this deadline, or submitted via other means may not be processed.

Publication of responses

Please clearly indicate in the consultation form if you wish your comments to be disclosed or to be treated as confidential. A confidential response may be requested from us in accordance with the EBA's rules on public access to documents. We may consult you if we receive such a request. Any decision we make not to disclose the response is reviewable by the EBA's Board of Appeal and the European Ombudsman.

Data protection

The protection of individuals with regard to the processing of personal data by the EBA is based on Regulation (EC) N° 45/2001 of the European Parliament and of the Council of 18 December 2000 as implemented by the EBA in its implementing rules adopted by its Management Board. Further information on data protection can be found under the Legal notice section of the EBA website.

2. Executive Summary

1. Article 102(4) of the Bank Recovery and Resolution Directive (BRRD) requires the EBA to draft and submit to the European Commission a report with recommendations on the appropriate reference point for setting the target level for resolution financing arrangements, and in particular, whether total liabilities constitute a more appropriate basis than covered deposits.
2. The report assesses various options based on their:
 - Alignment between the basis for the target level and potential expected resolution financing needs in case of failure,
 - Consistency with the methodology for institutions' individual contributions,
 - Consistency with the BRRD and wider regulatory framework and legislative decisions,
 - The dynamic and smoothness of contributions,
 - Practicality and the impact of the process on the Resolution Authorities and institutions, and
 - Simplicity and transparency.
3. Options assessed against the above-mentioned criteria include, in line with the mandate under Article 104(2) of the BRRD, 'covered deposits', and 'total liabilities'. In addition the following options are considered: 'total liabilities (excluding own funds)', 'total liabilities (excluding own funds) less covered deposits', 'total liabilities excluding MREL-eligible instruments', 'total liabilities excluding the amount of MREL set by the Resolution Authorities', 'total risk exposure amount', and 'available own funds'.
4. Based on the assessment of advantages and disadvantages of each option this report recommends changing the base for the target level of the resolution financing arrangement to one of the following: 'total liabilities (excluding own funds) less covered deposits', 'total liabilities (excluding own funds)' or 'total liabilities'. The key arguments in favour of these options are their consistency with the regulatory framework and contributions methodology, and simplicity and transparency. The burden arising from changes of the target level basis has been factored in the evaluation to reflect the procedural difficulties accompanying any changes for institutions and resolution authorities.
5. The report further recommends that the European Commission considers and, where appropriate, changes the ratio of the target level in accordance with the chosen basis.



Next steps

The report must be submitted by the EBA to the European Commission by 31 October 2016. Based on the results of this report, the European Commission shall, if appropriate, submit by 31 December 2016 a legislative proposal on the basis for the target level for resolution financing arrangements, as per Article 102(5) of the BRRD.

3. Background and rationale

1. Directive 2014/59/EU establishing a framework for the recovery and resolution of credit institutions, investment firms and related entities (BRRD) sets out a Union-wide framework for crisis prevention, crisis management and resolution of these entities.
2. This framework aims to ensure that, in case of an institution's failure, the losses are first borne by the shareholders and creditors of that institution. The framework also requires Member States to have ex-ante funded resolution financing arrangements, which may be used to ensure the effective application of the resolution tools subject to strict conditions¹.
3. Article 102(1) of the BRRD requires the resolution financing arrangement to reach a level of ex-ante contributions of at least 1% of the amount of covered deposits of all the institutions authorised in a given Member State's territory, by 31 December 2024.
4. Article 102(4) of the BRRD requires the EBA to draft and submit to the European Commission a report with recommendations on the appropriate reference point for setting the target level for resolution financing arrangements, and in particular, whether total liabilities constitute a more appropriate basis than covered deposits. The report must be submitted by 31 October 2016.
5. Based on the results of this report, the European Commission shall, if appropriate, submit by 31 December 2016 a legislative proposal on the basis for the target level for resolution financing arrangements, as per Article 102(5) of the BRRD.
6. This report aims to deliver on the mandate given to the EBA in Article 102(4) of the BRRD by providing recommendations on the appropriate basis for the target level for resolution financing arrangements.

¹ As per Article 44(4), (5) and (8) and Article 101(2) of Directive 2014/59/EU.

4. Report

In between the text of the draft Report that follows, further explanations on specific aspects of the proposed text are occasionally provided, which either offer examples or provide the rationale behind a provision, or set out specific questions for the consultation process. Where this is the case, this explanatory text appears in a framed text box.

EBA/GL-REC/20XX/XX

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Report

'draft'

on the appropriate target level basis for
resolution financing arrangements

1. Introduction

1.1 Legal mandate

1. Directive 2014/59/EU establishing a framework for the recovery and resolution of credit institutions, investment firms and related entities (BRRD) sets out a Union-wide framework for crisis prevention, crisis management and resolution of these entities.
2. This framework aims to ensure that, in case of an institution's failure, the losses are first borne by the shareholders and creditors of that institution. The framework also requires Member States to have ex-ante funded resolution financing arrangements, which may be used to ensure the effective application of the resolution tools subject to strict conditions².
3. Article 102(1) of the BRRD requires the resolution financing arrangement to reach a level of ex-ante contributions of at least 1% of the amount of covered deposits of all the institutions authorised in a given Member State's territory, by 31 December 2024.
4. Article 102(4) of the BRRD requires the EBA to draft and submit to the European Commission a report with recommendations on the appropriate reference point for setting the target level for resolution financing arrangements, and in particular, whether total liabilities constitute a more appropriate basis than covered deposits. The report must be submitted by 31 October 2016.
5. Based on the results of this report, the European Commission shall, if appropriate, submit by 31 December 2016 a legislative proposal on the basis for the target level for resolution financing arrangements, as per Article 102(5) of the BRRD.

1.2 Objectives of the report

6. This report aims to deliver on the mandate given to the EBA in Article 102(4) of the BRRD by providing recommendations on the appropriate basis for the target level for resolution financing arrangements.
7. Importantly, the mandate of this report does not include recommendations on changing the absolute minimum amount of contributions to resolution financing arrangements at the EU level. It is recommended that, if the European Commission proposes to change the target level basis, it should also consider an appropriate ratio depending on that target level basis. The overall level is, therefore, assumed to be constant irrespective of a change to the basis for calculating the target level. Given this assumption, any change to the basis

² As per Article 44(4), (5) and (8) and Article 101(2) of Directive 2014/59/EU.

will inevitably require changes of the percentage related to that basis. This is the case, because if the target basis was to change from covered deposits to total liabilities, keeping the target level at 1% would significantly increase contributions to the resolution financing arrangement.

8. The report assesses the appropriateness of the basis for the target level as per the BRRD but does not directly refer to the basis for the target level for the Single Resolution Fund (SRF) – a separate review of that basis, done by the European Commission with the aim of avoiding volatility in the flow of financial means to the SRF and of ensuring the stability and adequacy of the financing of the SRF over time, is envisaged in Regulation (EU) No 806/2014 by 31 December 2018. It is beyond the mandate of this report to directly assess whether changes to the basis for the target level are necessary not only in the BRRD but also in Regulation (EU) No 806/2014. It is the European Commission’s decision whether to issue a proposal on adjusting the basis for calculating the target level of the resolution financing arrangements, and whether it should be adjusted for the national resolution financing arrangements and the SRF at the same time.

2. The rationale and the role of resolution financing in the resolution regime

9. The Impact Assessment accompanying the European Commission's proposal for Directive 2014/59/EU ('Impact Assessment') called for an establishment of appropriate resolution financing arrangements, as without them there would be 'no private resources raised today to finance the resolution of tomorrow's failures'³. The Impact Assessment stated that, in order to determine an appropriate target amount, the ex-ante financing arrangements were assumed to absorb the losses that banks' capital could not absorb, and to provide new capital⁴. It then established a link between the amount of bail-inable debt (i.e. debt which in resolution can be converted into equity), the level of funding needs in the deposit guarantee scheme (DGS) and resolution financing arrangement, and the distribution of losses of failed banks⁵.
10. The resolution financing arrangements agreed in the BRRD serve the purpose of ensuring the effective application of the resolution tools and powers to facilitate the resolution of the failing firm.
11. In line with Article 101(1) of the BRRD, these financing arrangements may be used to guarantee assets or liabilities of, or grant loans to the institution in resolution; purchase assets of the institution under resolution; make contributions to a bridge institution or an asset management vehicle; make a contribution to the assets of the institution under resolution in lieu of the write down or conversion of liabilities of certain creditors, which are excluded from the scope of bail-in; or pay compensation to shareholders, creditors or the deposit guarantee scheme if any of them incurred greater losses during resolution than it would have incurred in a winding up under normal insolvency proceedings. Finally, the resolution financing arrangement may be used to lend to other financing arrangement on a voluntary basis.
12. Articles 44(4), (5) and (8) of the BRRD describe the conditions applicable when a resolution action results in part of the losses of an institution being passed on to the resolution financing arrangement. The contribution of the resolution financing arrangement is capped at 5% of the total liabilities including own funds of a given institution, unless the conditions in Article 44(7) are met. This limits the exposure of the resolution financing arrangement (more can be used only if all unsecured, non-preferred

³ http://ec.europa.eu/internal_market/bank/docs/crisis-management/2012_eu_framework/impact_assessment_final_en.pdf p.15

⁴ p.58

⁵ p.126

liabilities, other than eligible deposits, have been fully written down or converted in full). Furthermore, the resolution financing arrangement can only be used for this purpose after a contribution to loss absorption and recapitalisation equal to a certain ratio of the institution's total liabilities including own funds has been made by shareholders and creditors (generally at least 8% of total liabilities and own funds, but in certain conditions 20% of risk weighted assets as per Article 44(8) of the BRRD).

13. Therefore, resolution financing arrangements, and so implicitly the ex-ante funds contributed by the banking sector, play a secondary role in loss-absorption, after shareholders and at least some creditors have absorbed a certain part of the losses.
14. Information available on the financing arrangements of countries outside the EU shows that up to recently ex-ante resolution financing arrangements without DGS functions are rare - the hybrid concept of a resolution fund combined with a DGS is more common (e.g. in Korea and Canada). Other countries have arrangements in place where the expenses of financing resolutions are recovered via ex-post levies (e.g. in the USA and Japan). Among these arrangements, there is no one common method of calculation, the rate of the levy/tax and the definition of target levels or target contributions⁶.

⁶ It is worth noting that outside Europe there are some cases where the base for the target level and the base for the calculation of individual contributions are different. 1. Previous overviews on resolution financing arrangements include: OECD, 2010 – "How to fund Resolution" (tables on page 31-34); European Commission, 2012 – Impact assessment for the BRRD (table on pages 115-117); FSB, 2013 – "Thematic Review on Resolution Regimes" (table on page 79).

3. Criteria for evaluating different options for the target level basis

15. The need for funding from the resolution financing arrangements is closely related to the level of losses suffered by the failing institution, the need for liquidity support or the need to provide capital to a bridge bank or an asset management vehicle, or any contribution to the institution under resolution under Art. 44(4). Therefore, the central criterion for determining the most appropriate reference point for the target level should be:

- the alignment between the basis for the target level and potential expected resolution financing needs in case of failure of one or more institutions which would undergo resolution.

16. Further criteria, of a qualitative nature, which have been considered are:

- Consistency with the methodology for institutions' individual contributions. This criterion does not seek full alignment of the target level basis with the calculation method, but aims at a general level of consistency. Obvious contradictions between the basis for the target level point and calculation method for contributions to resolution financing arrangements, as laid down in the BRRD and Delegated Regulation (EU) 2015/63, should be avoided.
- Consistency with the BRRD and the wider regulatory framework and legislative decisions. This criterion aims to ensure that the proposed option for the basis of the target level does not contradict other provisions of the regulatory and supervisory framework. The basis should strengthen, rather than undermine, other regulatory and supervisory provisions, which aim at reinforcing the resilience of institutions against failure or their resolvability upon failure. Furthermore, Art. 44(5) of the BRRD states that the resolution financing arrangement may only make a contribution to resolution to cover losses or recapitalise the institution when a minimum contribution to loss absorption and recapitalisation of not less than 8% of the total liabilities including own funds of the institution under resolution has been made by the shareholders and creditors of the institution in resolution. The principles set out in Art. 44 also apply in the event that losses of an institution in resolution are passed on to the resolution financing arrangement in some other manner. Therefore, the assessment of the appropriate basis for the target level could also consider what amount of losses can be covered by bailing-in eligible liabilities (for example, using the amount of the minimum requirement for own funds and eligible liabilities (MREL) as a benchmark).

- The dynamic and smoothness of contributions. The reference point is intended to reflect changes in the risk profile of the contributing institution and potential funding needs in resolution. Therefore, the reference point should include a dynamic element. At the same time, in Article 102(2), the BRRD states that contributions should be spread out in time as evenly as possible until the target level is reached, with due account for the phase of the business cycle and the potential procyclicality of contributions⁷. For this reason, it is important to assess whether potential options for the target basis are not excessively volatile (i.e. that fluctuations reflect a changing long-term risk rather than being randomly unstable) and do not result in considerable differences between target levels from one year to the next or unnecessarily put Resolution Authorities' decisions into question. An appropriate measure should ensure that the Resolution Authorities and institutions have an adequate level of certainty of the contributions during the build-up phase and at the end of the initial contributions' period. Furthermore, changes should be the result of developments in the objective environment relevant for the aims of the BRRD and the resolution financing arrangement, rather than accidental or administrative factors such as regulatory and accounting changes or exchange rates resulting in further volatility.
- Practicality and the impact of the process on the Resolution Authorities and institutions. This criterion assesses:
 - i. accessibility: whether the data can be gathered from existing sources (especially from Competent and Resolution Authorities) without additional requests to financial institutions,
 - ii. availability, reliability and consistency of the historical series: historical data is useful to facilitate the determination of the target level in its dynamic, forward-looking aspects and, thereby, ensure the steady and successful achievement of the target level by the end of the relevant period;
 - iii. comparability across MSs.

The qualitative assessment also takes into account that introducing changes to the target level basis may be a burden for the Resolution Authorities and the institutions. The report does not, however, attempt to measure these costs and their impact on each Member State. This point may need to be addressed in more

⁷ In this context, see also EBA's technical advice on the initial period of the Single Resolution Fund, available under <http://www.eba.europa.eu/documents/10180/983359/EBA-Op-2015-11+Technical+Advice+on+Art+69.pdf>, and Commission Delegated Regulation supplementing Regulation (EU) 806/2014 of the European Parliament and the Council on the criteria relating to the calculation of ex-ante contributions, and on the circumstances and conditions under which the payment of extraordinary ex-post contributions may be partially or entirely deferred, available at http://ec.europa.eu/finance/general-policy/banking-union/single-resolution-mechanism/index_en.htm.

detail should there be a legislative proposal on changing the target level basis for the resolution financing arrangements.

- Simplicity and transparency. Straightforward indicators tend to be easier to implement and operationalise, reducing the risk of calculation errors, and are easier to amend, if necessary. Moreover, simplicity goes hand-in-hand with transparency, which is crucial in raising public confidence in the framework. In practice, simplicity of the measure should also make it easier to collect the necessary data, which would lower the regulatory burden on institutions and Resolution Authorities. Where possible, the need of additional reporting requirements for institutions should be avoided. Finally, simplicity of the measure should allow the Resolution Authorities to immediately compare target levels and to gauge the overall system capacity across different types of financing arrangements (resolution and deposit guarantee).

17. In addition, it should be borne in mind that the BRRD prescribes a minimum target level, which means that Member States will always be able to assess whether a higher funding level is appropriate to ensure financial stability and public confidence in their jurisdiction.

4. Options for the target level basis

18. The BRRD sets covered deposits as the basis for determining the target level of the resolution financing arrangement. The European Commission's proposal for the BRRD envisaged a common basis for the target levels of the resolution financing arrangement and the DGS funds in order to take advantage of the synergies between the two funds. This common basis would make it easier to raise the optimal level of funds – the more the DGS can contribute towards resolution, the smaller the need for contributions from the resolution financing arrangement, and vice versa. In addition, the assessment of the impact on the Member States and negotiations between the co-legislators on the BRRD and Deposit Guarantee Schemes Directive (DGSD) were facilitated by referring to the same basis in both proposals. However, the contribution of the DGS to absorbing losses is limited under the BRRD, and the DGS must not contribute to recapitalisation.
19. The BRRD resolution framework envisages the possibility of contributions to resolution from both the resolution and the DGS funds, which may call for an optimisation of calibration between the target levels of the two funds. Using the same basis for both target levels also allows Resolution Authorities to easily monitor and adjust the overall financing capacity available to deal with crisis situations. On the other hand, the European Commission's Impact Assessment states that the 'funding of resolution is to be expected very dependent on the size of banks' liabilities'⁸. These could have been the reasons why the legislator, in Article 102(4), mandated the EBA to prepare a report on the appropriate basis for the target level for resolution financing arrangements, and specifically mentions 'total liabilities' as a potentially more appropriate basis for the target level.
20. The importance of 'total liabilities' in resolution financing is further strengthened by the fact that this metric (with some adjustments) is the basis for contributions from individual institutions to resolution financing arrangements, as per Article 103(2) of the BRRD. However, the basis for individual contributions need not necessarily be the same as for the target. For example, the Swedish⁹ and German¹⁰ bank levies were designed with a liabilities-based individual calculation, but with a target level defined as a percentage of GDP and as an absolute amount, respectively.

⁸ The Impact Assessment accompanying the proposal for a Directive of the European Parliament and of the Council establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directives 77/91/EEC and 82/891/EC, Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC and 2011/35/EC and Regulation (EU) No 1093/2010 – page 58.

⁹ Introduced in 2009 (source: <http://www.sbs.ox.ac.uk/faculty-research/tax/publications/working-papers/can-taxes-tame-banks-evidence-european-bank-levies>).

¹⁰ Introduced through the Restructuring Act of December 2010 and the Restructuring Fund Ordinance of July 2011 (source: [ibid](#)).

21. Therefore, in line with the mandate under Article 104(2) of the BRRD,

a. **covered deposits**, and

b. **total liabilities**

are the first two options evaluated in this report. The definition of the terms should be aligned with Delegated Regulation 2015/63 on the ex-ante contributions to resolution financing arrangements. The regulation uses the term 'total liabilities' as defined in Section 3 of Council Directive 86/635/EEC (1), or as defined in accordance with the International Financial Reporting Standards referred to in Regulation (EC) No 1606/2002 of the European Parliament and of the Council. Under Directive 86/635/EEC total liabilities seem to include equity, whereas IFRS uses 'total liabilities and equity'. For clarity, this report indicates whether the term excludes or includes own funds and assesses both options. A more consistent definition and use of the term 'total liabilities' would also be desirable in other contexts of the BRRD. In accordance with Delegated Regulation 2015/63, 'own funds' means own funds as defined in point (118) of Article 4(1) of Regulation (EU) No 575/2013.

22. The European Commission's Impact Assessment also drew links between the funding needs in resolution and the level of liabilities which can be bailed-in¹¹; the more liabilities available to be bailed-in, the lesser the need to provide further loss-absorption and funding from the resolution financing arrangement. Hence, in addition to covered deposits and total liabilities (including or excluding own funds), the following options are considered in this report:

- c. **Total liabilities (excluding own funds)**. This measure excludes own funds as in a resolution these will absorb the losses in the first instance, ahead of the resolution financing arrangement.
- d. **Total liabilities (excluding own funds) less covered deposits**. This measure is the basis for establishing individual contributions to resolution financing arrangements (before risk adjustment), and, by excluding own funds and deducting covered deposits that are protected by the DGS, it targets the remaining balance sheet;
- e. **Total liabilities excluding MREL-eligible instruments**. This measure excludes MREL-eligible instruments (including own funds) as they represent the easily bailable amount of loss-absorbing liabilities in resolution which are highly likely to be available to be bailed-in at the point of crisis, before the resolution financing arrangement is employed;

¹¹ p.46

- f. **Total liabilities excluding the amount of MREL set by the Resolution Authorities.** This measure also excludes MREL-eligible, loss absorbing instruments, but only the amount set by Resolution Authorities (on a case-by-case basis) in accordance with Article 45 of the BRRD. For this measure, it is assumed that only for this amount it is ascertained that it will be available for loss absorption in a long-term perspective – although these instruments must have a minimum maturity of at least one year, there is no guarantee that the full amount exceeding the regulatory minimum requirement is available for loss absorption over a longer period.
- g. **Total risk exposure amount,** in accordance with the definition provided by art. 92(3) of Regulation (EU) No 575/2013. This measure captures the riskiness of an institution. The higher the riskiness of the balance sheet of an institution, the higher the probability of failure, and in turn, the higher the potential draw on the resolution financing arrangement if used in the context of its failure. Furthermore, it is in line with the denominator of the own funds requirements.
- h. **Available own funds.** The idea for this measure is to build the equivalent of an extra capital buffer in the hands of the Resolution Authorities. Contributions by an entity would be based on total liabilities less own funds and covered deposits (with risk adjustment), creating an individual incentive for entities to pay less by increasing their own funds. At the same time, the base of the target level is directly linked to the aim of the resolution arrangements (protection for the banking system through orderly resolution, the funding of which would be supported by an extra capital buffer).

5. Qualitative and quantitative assessment of the options for the target level basis

23. In this section, the report presents the main results of the analysis of the options outlined in Section 4 against the criteria identified in Section 3 - these include qualitative and quantitative aspects of the assessment.

Quantitative assessment

Analysis of the correlation of options for the target level basis and State aid approved

24. The main criterion - the potential funding needs of the resolution financing arrangements - requires a quantitative analysis. However, with a view to the fundamentally new paradigm of resolution and the far reaching changes institutions and their balance sheet are undergoing as a result of this and other regulatory developments, as well as the changed market environment, there is no obvious approach to do this forward-looking analysis in a fully convincing and sound manner. As there seems to be no reliable basis for a prognosis of potential future funding needs, the analysis of such potential funding needs uses historical data from the last crisis; given the lack of experience with bank failure under the fully implemented BRRD framework, the analysis can be informed by past experience with the recapitalisation and liquidity support for failing banks. However, the analysis acknowledges the possible shortcomings of drawing lessons from the past, as the conceptual approach towards and the conditions for dealing with failing banks have been significantly changed by the introduction of the BRRD. Annex 1 contains an overview of shortcomings and caveats along with further arguments in favour of this approach.
25. From an assessment of these shortcomings and caveats, the following conclusions have been reached regarding the available quantifiable analysis:
- The results of the quantitative analysis must be interpreted cautiously.
 - The results will be used to support the analysis based on the qualitative criteria rather than to make definitive conclusions regarding the criterion of the potential funding needs for resolution financing arrangements. Had data with a closer link to the potential funding needs of the resolution financing arrangements been available, this criterion would have been given a higher weight relative to other criteria.
26. Potential funding needs are estimated by reference to losses which occurred during the last financial crisis. Reliable and comprehensive data are available for this crisis in the form of the European Commission's data on State aid cases in the period from 2008 to Q3 2014. From a historical perspective, this financial crisis represents a major systemic crisis,

which resulted in significant impact on the real economy on the one hand, and in considerable public (and private) intervention to contain its effects.

27. The analysis tests the statistical correlation between the aggregate capital and liquidity support measures per Member State for the period from 2008 to Q3 2014 on the one hand, and the options for the target level basis, including ‘covered deposits’ and ‘total liabilities’ on the other hand for the year 2008, and, respectively the years 2008 to 2010 (to address problems with discontinuous data and test the robustness of the results). A higher statistical correlation could be interpreted as capturing a higher alignment of a certain reference point with the potential funding needs. However, the report acknowledges that the amount of public support granted during the analysed period is a proxy and cannot be seen as a perfect measure of funding needs in the new resolution framework.

28. The test brought the following main results (see Table 1):

- A high, positive correlation between State aid approved during the financial crisis and all of the indicators considered (between 0.5 and 0.8 in each specification) could be observed,
- Total liabilities (and its sub-categories, e.g. excl. deposits) and total risk-weighted exposures were consistently more positively correlated with State aid measures approved (total, capital, liquidity) than deposits but the difference is relatively small,
- For 2008-2010 averages, the correlation between total liabilities (and its modifications, e.g. plus equity, excl. deposits), risk-weighted exposures and total and capital State aid consistently reaches coefficients between 0.7 to 0.8,
- The correlation between State aid and banking sector liabilities tends to increase when deposits are excluded (e.g. sub-categories liabilities less deposits are by trend more positively correlated with State aid than total deposits).

Table 1. Correlation coefficients between banking sector indicators and State aid approved.

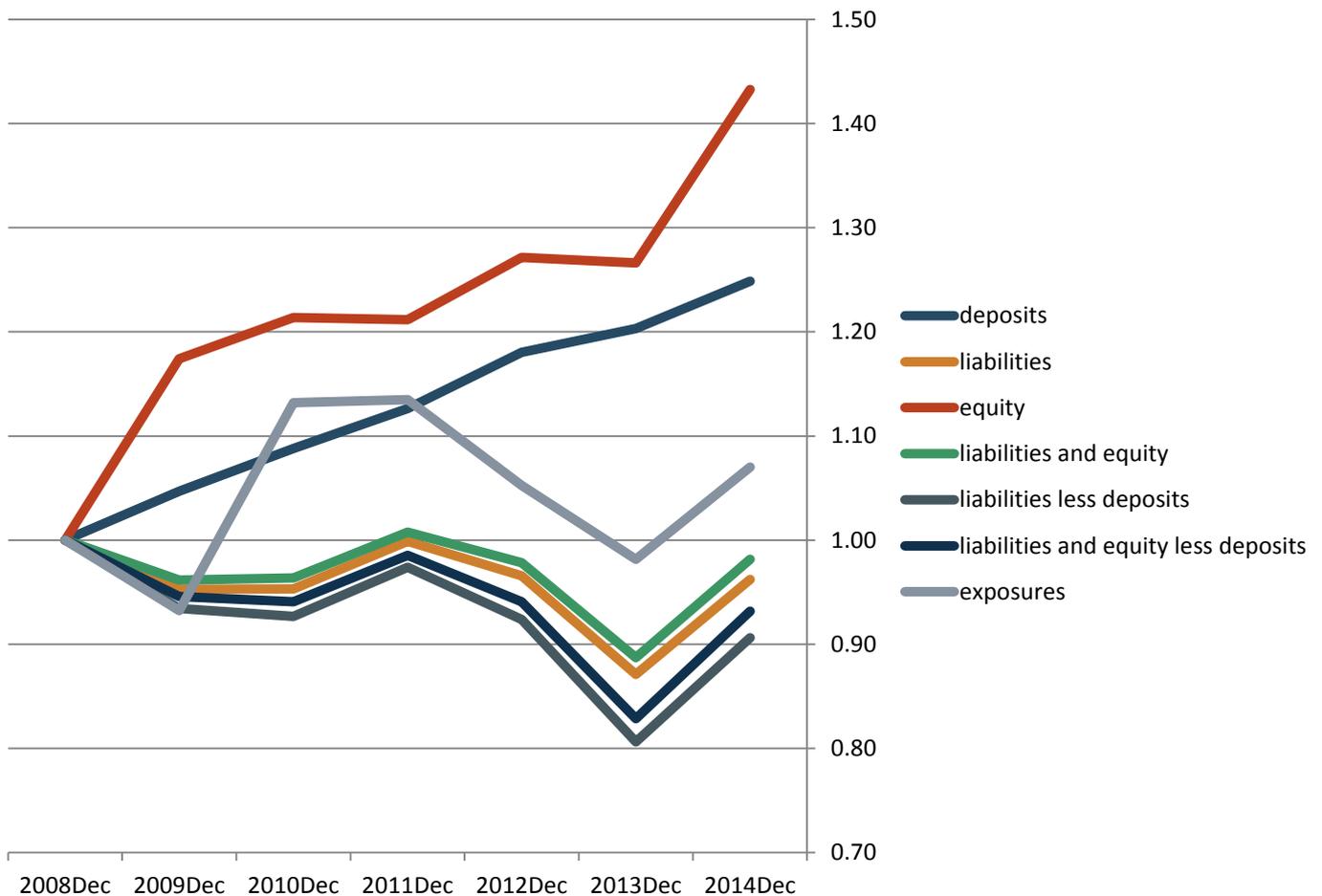
State aid approved	Deposits	Liabilities and equity	Liabilities	Liabilities and equity excl. deposits	Liabilities excl. deposits	Equity	Exposures
	2008-2010	2008-2010	2008-2010	2008-2010	2008-2010	2008-2010	2008-2010
total	0.65	0.72	0.72	0.72	0.73	0.71	0.73
capital	0.66	0.73	0.73	0.73	0.73	0.74	0.77
liquidity	0.57	0.64	0.64	0.64	0.65	0.62	0.64

29. These initial results are not conclusive, but show that a reference point based on total liabilities or total risk exposures might be a more comprehensive and appropriate measure than a ratio based on covered deposits. However, the quantitative differences are small and therefore, qualitative criteria should be considered alongside these preliminary quantitative results.

Analysis of the stability of the reference points discussed over time

30. In addition to the correlation between historical losses and the options discussed, the report also analyses the stability of the measures over time. The analysis utilised the same data as for the correlation analysis and considered the period from the end of 2008 to the end of 2014 for the EU banking sector. Although it would be desirable to consider a longer period, no comparable, equally comprehensive data source covering the whole EU is available for earlier years.

Chart 1. Development of different measures over time



31. The analysis showed a very steady increase of customer deposits, even during the years of the financial crisis. This means that, while the level of covered deposits is not constant, their increase is expected to be steady and predictable.
32. However, the statistical deviation of these measures over the considered period with fluctuations around the level of 100% proved to be lower than that of covered deposits with their steady increase to a level of 125% at the end of 2014. Measured in terms of standard deviation, total liabilities (and its modifications) are the least volatile indicators.
33. This means that covered deposits as a basis for the target level result in a steady increase of that target level, whereas the other measures (in particular, liabilities) are less volatile and reflect better the changing economic conditions in the banking industry.

Methodology of assessing each option against the chosen criteria

34. The qualitative criteria, as outlined in Section 3 of this report, are not weighted and the analysis below addresses the criteria in alphabetical order. The analysis below describes advantages and disadvantages for each option-criterion combination and assesses them as 'highly positive' (++), 'positive' (+), 'neutral' (0), 'negative' (-) or 'highly negative' (--) based on expert judgement and empirical evidence, where available.

Option 1. Covered deposits

Criteria	Advantages and disadvantages
Consistency with the contributions methodology	<ul style="list-style-type: none"> - (--) Calculation of contributions may appear logically inconsistent as covered deposits are used as a basis for the target level, but deducted from contributions to national resolution financing arrangement. This could mean that institutions with lower deposits would have to pay a disproportionately high share of the contributions when comparing across Member States.
Consistency with the regulatory framework	<ul style="list-style-type: none"> - (+) There is a link between the resolution financing arrangement and the DGS – both are elements of the safety net in case of a bank failure. The same target level basis allows synergy between both. - (+) Covered deposits are statutorily excluded from bail-in. Instead, the DGS makes a contribution to loss-absorption. Due to the limitations on the contribution from a DGS under Article 109 of the BRRD, it is questionable whether this contribution would be sufficient to replace funding from the resolution financing arrangement. In particular, the DGS may not contribute to a recapitalisation in the meaning of Art. 46(1)(b) of the BRRD, which then might need to be funded by the resolution financing arrangement. Therefore, a large share of funding through covered deposits increases the probability of the need for a contribution from the resolution financing arrangements. - (--) Does not adequately cater for potential losses stemming from investment firms, and bank activities other than deposit-taking. - (-) Measure not sensitive to the riskiness of the assets of the institutions. - (-) Potential conflict with the use of the resolution financing arrangements as the objective is not to deal with depositors' contributions but support resolution activity, i.e. covered deposits can be assumed to be unchanged within the resolution process. - (--) No obvious causality between changes to covered deposits and the need for resolution financing arrangements. It could be misleading in cases where covered deposits are removed and held in cash (e.g. negative interest rates, expectation of capital controls). Perceived weakness of Member States' banking sector can result in deposit outflows to other countries. This would weaken the banking system and, thus, add to potential funding needs in resolution while reducing the target level.

	<ul style="list-style-type: none"> - (--) No link to bail-inable amount, which excludes covered deposits.
Correlation with historical losses	<ul style="list-style-type: none"> - (0) The statistical correlation with the historical need for State aid is the lowest among all options, although the differences are not significant, due to the positive correlation of all options to size, and the correlation of size to the amount of State aid received.
Dynamic and smoothness of contributions	<ul style="list-style-type: none"> - (++) It provides certainty to Resolution Authorities and institutions during the build-up phase as compared to changing the definition of the target level already a few years into it. - (+) The increase of covered deposits is relatively stable, in normal times, and can be forecast easily. In a crisis there may be migrations of deposits from the banking system of a Member State as a whole, though, once the retail depositors perceive it as unstable.
Practical considerations	<ul style="list-style-type: none"> - (++) Maintaining covered deposits as the basis does not introduce any new practical challenges in implementation. - (-) Some flexibility in the definition of covered deposits in DGSD means the measure is not entirely consistent across Member States. - (-) Built-in volatility due to currency exchange, in particular in non-Eurozone Member States, which could impact the target level of the resolution financing arrangements.
Simplicity and transparency	<ul style="list-style-type: none"> - (++) No change from the current procedure. Method well understood by banks. - (++) Simple and understandable calculation. - (++) Data already available for other purposes. - (-) Currently data is not publicly available in every Member State.

Option 2. Total liabilities and own funds (2a), Total liabilities (excluding own funds) (2b), Total liabilities (excluding own funds) less covered deposits (2c)

Criteria	Advantages and disadvantages
Consistency with the contributions methodology	<ul style="list-style-type: none"> - (+) Largely consistent with the basis of the contributions methodology (2a & 2b). - (++) Fully consistent with the basis of the contributions methodology, where own funds and covered deposits are deducted (2c).
Consistency with the regulatory framework	<ul style="list-style-type: none"> - (++) Captures the size of the whole sector, by including investment firms within the scope of the BRRD (2a & 2b & 2c.). - (++) Covers interbank instruments and wholesale funding, which are related to contagion risk and, therefore, are used as a measure of the systemic relevance of individual banks (e.g. in the G-SII indicators) (2a & 2b & 2c). This is directly linked to decision-makers' motivation to provide funding from the resolution financing arrangement. - (+) The simplest measure of potential call on the resolution financing arrangement (2a & 2b & 2c). - (++) The measure changes in line with potential build-up of risk in the system, often preceded (or reflected) by an increase in balance sheet (2a & 2b & 2c). - (+) Complementarity with the existing target for the DGS fund, which is based on covered deposits (2c). - (-) The measure is not sensitive to the riskiness of the assets of the institutions (2a & 2b & 2c). <p>(-) There may be arguments that total liabilities overestimate funding needs, as total liabilities include both bail-inable liabilities and liabilities which are excluded or unlikely to be bailed-in. Capital instruments and other bail-inable liabilities and the potential DGS contribution in case of a bail-in are not reflected, which would reduce financing needs provided by the resolution financing arrangement (2a). This argument is weaker in the case of total liabilities excluding own funds, as own funds are fully loss-absorbing, and is least applicable where total liabilities exclude own funds and covered deposits (2b & 2c).</p> <p>On the other hand it could be argued that:</p>

	<p>(-) Own funds – in particular CET1 – absorb losses on an ongoing basis and may be depleted before resolution. Therefore, even if the level of own funds exceeds minimum requirements established by the competent authority, it does not mean that these funds will be available in a resolution (2b, 2c).</p> <p>(-) Covered deposits are statutorily excluded from bail-in. Instead, the DGS makes a contribution to loss-absorption. Due to the limitations on the contribution from a DGS under Article 109 of the BRRD, it is questionable whether this contribution would be sufficient to replace funding from the resolution financing arrangement. In particular, the DGS may not contribute to a recapitalisation in the meaning of Art. 46(1)(b) of the BRRD, which then might need to be funded by the resolution financing arrangement. Therefore, a large share of funding through covered deposits may in some instances increase the probability of a need for a contribution from resolution financing arrangements (2c).</p>
Correlation with historical losses	- (+) The statistical correlation with historical need for State aid is positive.
Dynamic and smoothness of contributions	<p>- (+) Dynamic measure where changes are related to potential call on the resolution financing arrangement (2a). Even more dynamic with deductions of own funds and covered deposits which usually are more stable (2b & 2c).</p> <p>- (--) Changing the definition of the target level already a few years into the build-up phase introduces uncertainty for Resolution Authorities and potentially unexpected changes for the institutions (2a & 2b & 2c).</p>
Practical considerations	<p>- (--) Introducing changes to the target level basis is likely to be a burden for the Resolution Authorities and the institutions (2a & 2b & 2c).</p> <p>- (-) Not completely harmonised definition due to national GAAP vs IFRS (e.g. treatment of derivatives differs – mainly relevant for the transitional period). To adjust for derivatives, complex calculations, prone to mistakes. However, Member States are already using same definition in the calculation of the individual ex-ante contributions (2a & 2b & 2c).</p> <p>- (-) Some flexibility in the definition of covered deposits in DGSD means the measure is not entirely consistent across Member States (2c).</p>
Simplicity and	- (++) Data already available for other purposes (2a & 2b & 2c).

<p>transparency</p>	<ul style="list-style-type: none"> - (++) Simple and transparent calculation based on publicly disclosed data. (2a & 2b). - (+) Simple and transparent calculation but part of the calculation – covered deposits – is not publicly disclosed in all Member States (2c). - (-) While the definition of own funds is harmonised, the definition and the composition of own funds are subject to regulatory changes (2b, 2c). - (-) Differences in the level of own funds requirements across Member States including due to different application of transitional arrangements (2b, 2c).
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Option 3. Total liabilities less MREL-eligible instruments (including own funds)(3a) & Total liabilities less the amount of MREL set by the Resolution Authorities (3b)

Criteria	Advantages and disadvantages
Consistency with the contributions methodology	<ul style="list-style-type: none"> - (+) To some extent consistent with the basis of contributions defined in BRRD which deducts own funds from total liabilities (3a & 3b). (-) The level of consistency dependant on Resolution Authorities' decision on MREL (3b).
Consistency with the regulatory framework	<ul style="list-style-type: none"> - (++) Captures the size of the whole sector, by including investment firms within the scope of the BRRD (3a & 3b). - (++) A realistic measure of potential call on the resolution financing arrangement as remaining losses and recapitalisation needs are clearly linked to the amount of loss absorption and recapitalisation that can be achieved by bail-in. The measure is a good proxy for the objectives of the resolution financing arrangement when used to make a contribution in lieu of the write down and conversion of liabilities of certain creditors (3a & 3b). - (++) Covers interbank instruments and wholesale funding, which are related to contagion risk (3a & 3b). - (-) Measure not sensitive to the riskiness of the assets of the institutions (3a & 3b). - (-) May be seen as inconsistent with the regulatory objective of setting MREL: Authorities set a relatively higher MREL to reflect higher systemic risk and to achieve a higher level of certainty that losses can be absorbed. A higher MREL is set for institutions that are likely to be resolved rather than undergo regular insolvency proceedings (i.e. they are likely to meet the public interest test and where liquidation is not a feasible and credible option). This directly implies a higher likelihood for funding needs from the resolution financing arrangements. Setting a higher MREL also may result from higher risks of individual institutions – which can be reflected in a higher own funds requirement and, consequently, higher need of recapitalisation, or higher loss-absorbency for the event of failure in the form of eligible liabilities – and the banking system or higher risk adversity. This could be thwarted by the result that the resolution financing arrangement has less means if a higher MREL is deducted and MREL-instruments increase as a result of this (3a & 3b).

	<ul style="list-style-type: none"> - (+) The measure is more stable than the option to deduct MREL-eligible liabilities, as the resolution strategy (and therefore recapitalisation amount, MREL) is expected to change less with the annual review of resolution plans than the liabilities in institutions’ balance sheets (3b). BUT (-) does not accurately reflect the effective amount at the disposal for loss-absorption and recapitalisation, only the required amount (3b). - (-) MREL provides a line of defence in resolution in order to cover all liquidity and capitalisation requirements that can be anticipated in resolution planning (adjusting for the regulatory risk of an institution) whereas resolution financing only contributes when the capital or liquidity requirements exceed the foreseen measure. Therefore, the excess of eligible instruments over the MREL requirement set by the NRA might provide a more appropriate measure (3b).
<p>Correlation with historical losses</p>	<ul style="list-style-type: none"> - (+) The statistical correlation with historical need for State aid is positive.
<p>Dynamic and smoothness of contributions</p>	<ul style="list-style-type: none"> - (+) Includes a dynamic element where changes are related to potential call on the resolution financing arrangement (3a & 3b). - (--) Changing the definition of the target level already a few years into the build-up phase introduces uncertainty for Resolution Authorities and potentially unexpected changes for the institutions (3a & 3b).
<p>Practical considerations</p>	<ul style="list-style-type: none"> - (--) Introducing changes to the target level basis is likely to be a burden for the Resolution Authorities and the institutions. - (-) No data available yet. Current estimated amount of MREL may not accurately reflect the liability structure after the determination of MREL-requirements (3a & 3b). - (-) Not completely harmonised definition due to national GAAP vs IFRS (e.g. treatment of derivatives differs – mainly relevant for the transitional period). The adjustment for derivatives requires complex calculations, which increases the risk of mistakes (3a & 3b). - (-) No common approach to MREL setting yet; including uncertainty of approach to institution subject to simplified obligations. In addition ongoing debate on TLAC and MREL (3a & 3b). - (-) MREL remains an untested concept (3a & 3b). - (-) Currently MREL has not been determined for most institutions, and the

	<p>timing may differ among institutions and Member States. So the measure would be fully relevant and comparable among Member States only after Resolution Authorities have determined the MREL for all institutions.</p>
<p>Simplicity and transparency</p>	<ul style="list-style-type: none"> - (+) Data will be collected for other purposes and so simple to apply in this case, too (3a & 3b). - (-) Relatively complex. The basis is not easy to understand for non-experts (3a). - (-) The view on MREL-eligible instruments might complicate the data collection since an institution's view on MREL-eligible instruments might differ from the NRA's view (e.g. on excluded liabilities). Such differences also reduce the harmonisation effect (3a). - (-) Data may not be publicly available (3a & 3b).

Option 4. Total risk exposure amount (TREA)

Criteria	Advantages and disadvantages
Consistency with the contributions methodology	<ul style="list-style-type: none"> - (+) Risk adjusted measure, as is the contributions method. - (-) No clear link with the contributions method beyond being risk-based. - (-) TREA focuses only on risks covered by minimum own funds requirements and does not include other (Pillar 2 risks). It does not reflect supervisory assessment of risks as it is calculated by institutions leading to the underestimation of risks, which may lead to own funds being lower than needed and, in consequence, the amount in the resolution financing arrangement may be inadequate.
Consistency with the regulatory framework	<ul style="list-style-type: none"> - (++) Captures the size of the whole sector, by including investment firms. - (++) Reflects the risk profile of institutions, and consequently of the banking sector. - (++) Reflects that recapitalisation needs are based on the TREA (though after restructuring in resolution), and not on liabilities. - (+) The measure is aligned with the expected use of the resolution financing arrangement as the higher the riskiness of an institution, the higher the probability of failure, and in turn, the higher the probability that resolution financing might be needed upon its failure.
Correlation with historical losses	<ul style="list-style-type: none"> - (+) The statistical correlation with historical need for State aid is positive.
Dynamic and smoothness of contributions	<ul style="list-style-type: none"> - (--) Changing the definition of the target level already a few years into the build-up phase introduces uncertainty for Resolution Authorities and institutions.
Practical considerations	<ul style="list-style-type: none"> - (+) Homogeneity of data across jurisdictions. - (--) Introducing changes to the target level basis is likely to be a burden for the Resolution Authorities and the institutions. - (-) Significant change from current methods. - (-) Model risk. IRB models depend on a correct specification. If the models

	<p>are not correct in their evaluation of risks, TREA is an imperfect measure of the risk of an institution. Admittedly, however, the same argument applies to the standard approach, since the risk element of each type of asset is implicitly defined by the regulator.</p> <p>- (-) Limited knowledge about TREA's development and volatility EC-wide over a credit cycle and how this might impact the potential reference point and contribution to the resolution financing arrangements¹².</p>
Simplicity and transparency	<p>- (+) Data is available and could be collected from Competent Authorities.</p> <p>- (-) Complex. The basis is not easy to understand for non-experts.</p>

¹² The EBA has conducted a long term review on RWAs, though, which resulted in insights regarding the consistency of RWAs: <http://www.eba.europa.eu/risk-analysis-and-data/review-of-consistency-of-risk-weighted-assets>

Option 5. Available own funds

Criteria	Advantages and disadvantages
Consistency with the contributions methodology	<ul style="list-style-type: none"> - (+) The measure reflects the risk of an institution linked to the asset side of the balance sheet. - (--) Calculation of contributions may appear logically inconsistent – own funds used as a base for the target level, but deducted from actual contributions to resolution financing arrangements.
Consistency with the regulatory framework	<ul style="list-style-type: none"> - (+) Own funds reflect the capital requirements in place and are, therefore, in line with the prudential framework. - (-) Own funds – in particular CET1 – absorb losses on an ongoing basis and may be depleted before resolution. Therefore, even if the level of own funds exceeds minimum requirements established by the competent authority, it does not mean that these funds will be available in a resolution. - (-) The measure will penalise jurisdictions with stricter prudential requirements and higher levels of own funds. - (-) Counterintuitive measure as the bigger the amount of own funds in the system, the lower the probability of failure and, therefore, of the use of the resolution financing arrangements. - (--) Introduces the risk of “double prudential failure”. If the competent authority underestimates capital requirements, available own funds may be lower than needed and, therefore, may lead to lower amount in the resolution financing arrangement.
Correlation with historical losses	<ul style="list-style-type: none"> - (+) The statistical correlation with historical need for State aid is positive.
Dynamic and smoothness of contributions	<ul style="list-style-type: none"> - (+) It provides a stable target in times of volatility of balance sheet sizes. - (+) Own funds based contributions will have countercyclical effects, as there will be higher contributions when there is more capital in the system and lower contributions, when there is a drop in own funds in a downturn. - (--) Changing the definition of the target level already a few years into the

	build-up phase introduces uncertainty for Resolution Authorities and institutions.
Practical considerations	<ul style="list-style-type: none"> - (--) Introducing changes to the target level basis is likely to be a burden for the Resolution Authorities and the institutions. - (-) Model risk. At national and Euro-wide level, own funds depend significantly on capital requirements set by the competent authority, which, in turn are dependent on the correct calculation of the TREA. However, both IRB and standard models have their limitations.
Simplicity and transparency	<ul style="list-style-type: none"> - (+) Relatively simple and transparent. - (+) Historical data are publicly available. - (-) While the definition of own funds is harmonised, the definition and the composition of own funds are subject to regulatory changes. - (-) Differences in the level of own funds requirements across Member States including due to different application of transitional arrangements.

Question 1. Do you think the report is missing any crucial criteria or arguments in favour or against a particular option?

6. Conclusions and Recommendations

35. The analysis in this report is mainly based on qualitative assessment of the chosen options against the chosen criteria. The report describes advantages and disadvantages for each option-criterion combination and assesses them as ‘highly positive’ (++), ‘positive’ (+), ‘neutral’ (0), ‘negative’ (-) or ‘highly negative’ (--). As the analysis is qualitative, the summary of each option against each criterion is then assessed based on the strength of the pros and cons. As the analysis is qualitative the outcome is not a simple sum of pluses and minuses but includes expert judgement. Table 2 summarises these results, acknowledging the inevitably qualitative element of the summary score.

Table 2. Summary of options for the target level basis

	Consistency with the contributions methodology	Consistency with the regulatory framework	Correlation with historical losses	Dynamic and smoothness of contributions	Practical considerations	Simplicity and transparency
Covered deposits	(--)	(-)	(0)	(++)	(+)	(++)
Total liabilities (including own funds)	(+)	(+)	(+)	(-)	(-)	(++)
Total liabilities (exc. own funds)	(+)	(+)	(+)	(-)	(-)	(++)
Total liabilities (exc. own funds) less covered deposits	(++)	(++)	(+)	(-)	(-)	(++)
Total liabilities less MREL-eligible instruments (including own funds)	(+)	(++)	(n/a)	(-)	(--)	(-)
Total liabilities less the amount of MREL set by the Resolution Authorities	(0)	(++)	(n/a)	(-)	(--)	(-)
Total risk exposure amount	(0)	(++)	(+)	(-)	(-)	(0)
Available own funds	(--)	(-)	(+)	(-)	(-)	(+)

Recommendations

36. This report assessed each of the options outlined in Section 4 against all of the criteria set out in Section 3. Based on the assessment of advantages and disadvantages of each option, both quantitative and qualitative, this report recommends changing the base for the target level of the resolution financing arrangement to one of the options: ‘total

liabilities (excluding own funds) less covered deposits' or 'total liabilities (including own funds)' or 'total liabilities (excluding own funds). In the analysis presented in Section 5 of the report and summarised in the table above, these three indicators received the highest scores overall, and the most consistently positive scores across a range of criteria. The key arguments in favour of these options are their consistency with the regulatory framework and contributions methodology, and simplicity and transparency, without the major disadvantages of any of the other options. In particular, it is crucial that the target level basis based on total liabilities (with or without further exclusions) captures the whole population of institutions in the scope of the BRRD, and, especially in the case of total liabilities (excluding own funds) less covered deposits, accurately reflects the potential call on the resolution financing arrangements in case of a given failure. The burden arising from changes of the target level basis has been factored in the evaluation to reflect the procedural difficulties accompanying any changes for institutions and resolution authorities. Had the report disregarded such practical considerations, the recommendation would not have been different but the assessment would have been clearer in favour of the recommended options.

37. The report further recommends that the European Commission considers and, where appropriate, changes the ratio of the target level in accordance with the chosen basis.

Question 2. Do you have a preference for one of the following recommended options?:

- (a) total liabilities (including own funds),**
- (b) total liabilities excluding own funds,**
- (c) total liabilities excluding own funds less covered deposits.**

Questions 3. Is there any other option which would be preferable to those in the recommendation? Please provide the rationale supporting your view.

Annex 1

Outline of the methodology

This analysis tests the statistical correlation between State aid support measures per Member State for the period 2008 to Q3 2014 on the one hand and the options for the target level basis, including 'covered deposits' and 'total liabilities', on the other hand. A higher correlation is interpreted as indicating a higher correlation of a certain reference point with the potential funding needs.

A recent study on the target level of the Single Resolution Fund (SRF)¹³ followed a similar approach; namely, to estimate potential funding needs of the SRF, the study referred to the European Commission State aid data and on this basis estimated losses of individual banks in Euro area Member States to draw conclusions on potential recapitalisation needs. For the purposes of this analysis, however, it is sufficient to look at data at Member State level, not at individual State aid cases, as the basis for the target level will apply at Member State level.

Shortcomings and caveats

The approach taken in this report has its shortcomings. In these early days of the new resolution framework, uncertainty remains as to the future of:

The amount and structure of institutions' loss absorption capacity:

- The practice of Competent Authorities setting buffer and Pillar 2 own fund requirements and the minimum requirement of eligible liabilities (MREL) under Article 45 of the BRRD. These would increase loss-absorption capacity, but on the other hand higher own fund requirements might result in higher recapitalisation needs following resolution.
- The future liability structure of institutions and the volume of own funds and eligible liabilities. The liability structure not only depends on regulatory decisions, but also on the conditions for various types of refinancing, on banks' management decisions and the wider economic environment.
- Losses may be different in volume and distribution due to a changed regulatory environment and higher risk awareness of bank management and investors, as well as the specific circumstances in a future crisis.

¹³ De Groen/Gros, Estimating the bridge financing needs of the Single Resolution Fund: How expensive is it to resolve a bank?, November 2015

- Resolution Authorities' practice in applying resolution tools instead of regular insolvency proceedings, in particular in applying the public interest test under Article 32(1)(c), (5) of the BRRD.

Practice in handling resolution:

- Resolution Authorities' practice in applying the bail-in tool and exceptions from bail-in, in particular with regard to a potential contagion risk, which may depend on the holders of bank debt. In addition, practice may vary on whether, after shareholders and creditors have contributed 8% of total liabilities, Resolution Authorities will decide that the resolution financing arrangement should contribute or rather seek additional loss participation from creditors.
- Member States' practice in applying the no creditor worse off (NCWO) safeguard under Article 74 of the BRRD and valuers' practice in conducting valuations, as the compensation to creditors is paid by the resolution financing arrangements.

Further factors in the wider context of resolution:

- The sources of liquidity available to banks after resolution and their size following restructuring, as this determines how much liquidity support may be needed. This depends on whether market confidence in the resolved entity can be restored. If institutions fully depended on liquidity support, this would increase funding needs significantly.
- The nature of future crises, in particular the amount of losses and their distribution within the banking sector, and the number of institutions failing in case of a systemic crisis.
- The availability of ex-post contributions or alternative sources of funding (borrowing between financing arrangements).

In addition to the problems mentioned above, the results are subject to more caveats, including:

- The practice among Member States of whether and under what circumstances they granted State aid to failing institutions may have varied during the last financial crisis for policy and macroeconomic reasons, rather than reasons that might be reflected in balance sheet data. This applies, in particular, with regard to the question of which institutions are regarded as systemic in terms of the public interest test, and whether sufficiently capitalised institutions received State aid or not.
- The test looks at data at Member State level, while State aid was, and funding from the resolution financing arrangements will be, granted to individual banks. The specifics of such cases may not be reflected in data referring to a Member State's banking system as a whole.

- With testing the statistical correlation on the Member States of the EU, the analysis looks at a relatively small sample of 28 countries. In connection with the heterogeneity of the banking systems in many Member States, any statistical correlation should be treated carefully.
- All potential target level basis options are correlated to size. Therefore, a certain level of correlation is to be expected; as a result, the differences in the level of correlation are small, which leads to doubts as to whether they reflect any causality.

On the other hand, it is reasonable to assume that State aid was given predominantly to systemically important institutions. Although the notion of systemically important institutions may have been broader during a severe systemic crisis and in the absence of resolution tools than under BRRD public interest test, it should be noted that not all institutions received State aid – there were failures and private sector solutions. For these there is an indication that they would not pass the public interest test under the BRRD and would not be resolved, but would have been wound down in regular insolvency proceedings, or at least would not receive contributions from resolution financing arrangements. Therefore, there are arguments for parallels between the past crisis and potential future funding needs.

With these shortcomings and caveats in mind, the following conclusions are drawn:

- The results of the quantitative analysis must be interpreted cautiously.
- The results will be used to support the analysis based on the qualitative criteria rather than to make definitive conclusions regarding the criterion of the potential funding needs for resolution financing arrangements. Had data with a closer link to the potential funding needs of the resolution financing arrangements been available, this criterion would have been given a higher weight relative to other criteria.

Prerequisites and data

Prerequisites for the analysis are:

- A consistent data set relating to all banks in a Member State. It would not make sense to restrict the analysis to only a small subset of banks, as the target level will refer to the banking system of the Member State as a whole, as well as the cumulative State aid data. There are no apparent means to avoid the issue that the results could potentially be distorted if only a small subset of banks were used.
- Time consistency between the data and the State aid data. This requires certain methodological decisions, as losses may be related to banks' risk-taking behaviour, asset quality, funding model governance etc. much earlier than when losses occur. In addition, the balance sheet data are not continuous. The analysis decides to address these problems by using average values over several years.

Further options of reference points were tested where consistent data are available: the risk exposure amount on the asset side and a deduction of own funds from total liabilities, as these could be obtained from the European Central Bank (ECB) – Monetary Financial Institution (MFI) balance sheet statistics and consolidated banking data.

Data from the following sources are used:

- Data regarding State aid (recapitalisation, asset relief measure, liquidity support and guarantee) granted to financial institutions in the context of the recent financial crisis from the European Commission State Aid scoreboard 2014. The test looks at the total of State aid measures as evaluated by the European Commission and at capital and liquidity measures separately.
- Data on household deposits from the ECB MFI balance sheet statistics which covers the entirety of the European banking sector (Banking Union and other EU Member States) and is available consistently for a sufficiently long time period (from 2007 onwards). Given the analytical purpose of these statistics (Eurosystem's monetary analysis), counterparty sector information (households) is used to approximate covered deposits.
- Data on total liabilities, own funds (approximated by equity) and risk-weighted assets / risk-weighted exposure amounts from ECB Consolidated Banking Data. This statistics broadly covers the European banking sector (Banking Union and other EU MS) and is available for the large majority of Member States since 2007 (until 2014, annual frequency). Given the analytical purpose of this statistics (macro-prudential analysis, micro-prudential supervision), the concepts of data items presented are closely related to the reference points considered in this report.
- Data available at EBA to double-check and assure the quality and robustness of the primary data sources used.

Results

The test yielded the following main results:

- Close correlation between State aid provided during the financial crisis and all indicators considered (between 0.5 and 0.8 in each specification); higher for 2008-2010 than for 2008-based (no UK exposure data available) calculations.
- Total liabilities (and its modifications, e.g. plus equity, excl. deposits) and total risk-weighted exposures (for 2008-2010 averages, incl. UK) consistently more highly correlated with State aid (total, capital, liquidity) than deposits.
- Correlation between deposits and State aid is reflecting the close (0.97) correlation between deposits and balance sheet size (liabilities plus equity).

- For 2008-2010 averages, the correlation between total liabilities (and its modifications, e.g. plus equity, excl. deposits), risk-weighted exposures and total and capital State aid consistently reaches coefficients between 0.7 and 0.8.
- Correlation generally higher for ‘total’ and ‘capital’ State aid than for liquidity only data (anecdotal evidence indicates that liquidity support was often provided to strengthen confidence in the wider system rather than to address bank-specific issues).
- *Table 3. Correlation coefficients between banking sector indicators and State aid approved.*

State aid approved	Deposits	Liabilities and equity	Liabilities	Liabilities and equity excl. deposits	Liabilities excl. deposits	Equity	Exposures
	2008-2010	2008-2010	2008-2010	2008-2010	2008-2010	2008-2010	2008-2010
total	0.65	0.72	0.72	0.72	0.73	0.71	0.73
capital	0.66	0.73	0.73	0.73	0.73	0.74	0.77
liquidity	0.57	0.64	0.64	0.64	0.65	0.62	0.64

To test the robustness of these results and analytical conclusions, the EBA has conducted various alternative specifications of this analysis. More concretely, the following approaches have been analysed:

- Alternative correlation measures (Pearson, Spearman),
- Alternative approximations of the reference points discussed,
- Alternative approximations of the measures for government intervention,
- Alternative time periods for the reference points discussed.

Those robustness tests broadly confirm the results presented in the table above, providing evidence that those results are valid across alternative technical specifications.

Interpretation of the initial results

- Results support argument that total liabilities (and modified indicators, e.g. excluding deposits, plus equity) are more closely related to expected financing needs of Member States’ banking sector than covered deposits.
- Total risk-based exposures could also be an appropriate reference point.

- There seems to be no evidence that the amount of covered deposits itself is closely linked to expected financing needs in resolution beyond its high correlation to balance sheet size.