

Guidelines on methods for calculating contributions to deposit guarantee schemes

(EBA/GL/2015/10)

These guidelines are addressed to the bodies which administer deposit guarantee schemes (DGS) and competent authorities. Where the competent authorities or designated authorities are responsible for developing the calculation method of riskbased contributions to DGS, they should apply the provisions of these guidelines.

The guidelines encompass the essential elements for each calculation method of risk-based contributions: the calculation formula, risk categories and risk indicators (including mandatory and optional indicators), thresholds for aggregate risk weights and other necessary elements.

Additionally, the guidelines point out the objectives and principles governing DGS contribution schemes.

EBA published these guidelines on 22.09.15. Banco de España's Executive Commission adopted them as their own on 17.11.2015.

On 13.06.2016, EBA published a consolidated version in order to correct some mistakes.

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Guidelines

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Compliance and reporting obligations

Status of these guidelines

1. This document contains guidelines issued pursuant to Article 16 of Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/78/EC (the EBA Regulation). In accordance with Article 16(3) of the EBA Regulation, competent authorities and financial institutions must make every effort to comply with the guidelines.
2. Guidelines set out the EBA's view of appropriate supervisory practices within the European System of Financial Supervision or of how Union law should be applied in a particular area. The EBA, therefore, expects all competent authorities and financial institutions to which guidelines are addressed to comply with guidelines. Competent authorities to whom guidelines apply should comply by incorporating them into their supervisory practices as appropriate (for example, by amending their legal framework or their supervisory processes), including where guidelines are directed primarily at institutions.

Reporting requirements

3. According to Article 16(3) of the EBA Regulation, competent authorities must notify the EBA as to whether they comply or intend to comply with these guidelines, or otherwise with reasons for non-compliance, by [2 months after publication of the final translation]. In the absence of any notification by this deadline, competent authorities will be considered by the EBA to be non-compliant. Notifications should be sent by submitting the form provided at Section 5 to compliance@eba.europa.eu with the reference 'EBA/GL/2015/10'. Notifications should be submitted by persons with appropriate authority to report compliance on behalf of their competent authorities.
4. Notifications will be published on the EBA website, in line with Article 16(3).

Title I - Subject matter, scope and definitions

Subject matter

5. The new Directive 2014/49/EU of the European Parliament and of the Council of 16 April 2014 on deposit guarantee schemes (Directive 2014/49/EU), recasting Directive 94/19/EC and its subsequent amendments, was published in the Official Journal on 12 June 2014¹. Directive 2014/49/EU harmonises the funding mechanisms of deposit guarantee schemes (DGSs) and mandates the collection of risk-based contributions. Pursuant to Article 13 of Directive 2014/49/EU, the contributions to DGSs shall be based on the amount of covered deposits and the degree of risk incurred by the respective members. The DGSs may develop and use their own methods for calculating the risk-based contributions from their members. Each method shall be approved by the competent authority in cooperation with the designated authority. The EBA shall be informed about the approved methods.
6. Article 13(2) of Directive 2014/49/EU stipulates that the calculation of contributions shall be proportional to the risk of the members and shall take due account of the risk profiles of the various business models. Those methods may also take into account the asset side of the balance sheet and risk indicators, such as capital adequacy, asset quality and liquidity.
7. These guidelines fulfil the mandate given to the EBA under Article 13(3) of Directive 2014/49/EU, to issue guidelines to specify methods for calculating contributions to DGSs, and in particular, that such guidelines, are to include a calculation formula, specific indicators, risk classes for members, thresholds for risk weights assigned to specific risk classes, and other necessary elements.
8. These guidelines specify the objectives and principles governing DGS contribution schemes. They also provide guidance on specific elements that should be taken into account in developing and assessing the methods for calculating risk-based contributions, while properly addressing the characteristics of national banking sectors and business models of member institutions.

Definitions

9. In addition to the definitions referred to in Article 2 of Directive 2014/49/EU, the following definitions apply for the purpose of these guidelines:
 - a. 'DGS contribution scheme' means the DGS financing arrangement which is entitled to raise from its member institutions both the *ex-ante* contributions and extraordinary *ex-post* contributions;

¹ Directive 2014/49/EU of the European Parliament and of the Council of 16 April 2014 on deposit guarantee schemes, OJ L 173, 12.6.2014, pp. 149–178.

- b. 'calculation method' means the method for calculating contributions of member institutions to a DGS;
- c. 'member institution' means a credit institution, as defined in point (1) of Article 4(1) of Regulation (EU) No 575/2013², affiliated to a particular DGS;
- d. 'annual target level' means the amount of contributions that a DGS plans to collect in a specific year from its member institutions;
- e. 'SREP' means the supervisory review and evaluation process as defined in Article 97 of Directive 2013/36/EU³ and further specified in the EBA guidelines on the common procedures and methodologies for SREP developed in accordance with Article 107 of Directive 2013/36/EU.

Abbreviations:

- a. DGS – deposit guarantee scheme;
- b. IPS – institutional protection scheme.

Scope and level of application

- 10. These guidelines are addressed to competent authorities and designated authorities as defined respectively in Article 2(1)(17) and (18) of Directive 2014/49/EU.
- 11. Competent authorities and designated authorities should ensure that these guidelines are applied by DGSs when developing methods for calculating risk-based contributions by their members, and are used when approving these calculation methods in accordance with Article 13(2) of Directive 2014/49/EU.
- 12. Where the competent authorities or designated authorities are responsible for developing the calculation method, they should apply the provisions of these guidelines.
- 13. The calculation methods should be applicable both to *ex-ante* contributions and extraordinary *ex-post* contributions. *Ex-post* contributions should thus be calculated on the basis of the same risk categorisation as the one applied for the purpose of the last annual *ex-ante* contributions.
- 14. DGSs should seek approval from the competent authorities before the initial implementation of a calculation method. The DGSs should obtain renewal of the competent authorities' approval at a frequency which competent authorities deem appropriate and, in any event, before introducing any material changes to an already approved calculation method. Non-material changes should be notified to the competent authorities on a yearly basis.

² Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012, OJ L 176, 27.06.2013, p. 1.

³ Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC Text with EEA relevance, OJ L 176, 27.06.2013, p. 338.

15. According to Article 15(1) of Directive 2014/49/EU, Member States are to check that branches established in their territory by a credit institution which has its head office outside the Union have protection equivalent to that prescribed in Directive 2014/49/EU. If protection is not equivalent, Member States may, subject to Article 47(1) of Directive 2013/36/EU, stipulate that those branches must join a DGS in operation within the Member State territories. In any event, the DGSs are bound by the obligations to raise risk-based contributions from their members pursuant to Articles 10 and 13 of Directive 2014/49/EU.
16. According to Article 47 of Directive 2013/36/EU, the prudential requirements and supervisory treatment of branches of third-country credit institutions fall under the responsibility of Member States. Many of the risk adjustment metrics provided for by these guidelines do not apply to these branches and, consequently, it is appropriate to leave to Member States the power to specify the risk adjustment for such branches in a consistent manner with the treatment afforded to them under national law. Therefore, the branches of third-country credit institutions should not fall within the scope of these guidelines.

Title II- Guidance on developing methods for calculating contributions to DGSs

Part I - Objectives for DGS contribution schemes

17. Contribution schemes should:

- a. ensure that the cost of financing DGSs is, in principle, borne by credit institutions themselves, and that the financing capacity of the DGSs is proportionate to their liabilities;
- b. ensure that the target level is reached within the build-up period laid down in Article 10 of Directive 2014/49/EU;
- c. help to mitigate incentives for excessive risk-taking by member institutions by collecting higher contributions from riskier institutions; this should also ensure that failed institutions have properly contributed in advance.

Part II - Principles for developing the calculation methods

18. DGSs, competent authorities and designated authorities, while developing or approving the methods for calculating contributions to DGSs, should comply with the principles listed in the following paragraphs.

Principle 1: calculation methods should, as far as possible, reflect an increased liability incurred by a DGS as a result of a member's participation

19.The contribution of each member institution should, as far as possible, reflect:

- the likelihood of the institution's failure (i.e. whether the institution is failing or is likely to fail within the meaning of Article 32 of Directive 2014/59/EU⁴ on the recovery and resolution of credit institutions and investment firms (Directive 2014/59/EU);
- the potential losses stemming from a DGS intervention, on a net basis after potential recoveries from the bankruptcy estate of the failed institution.

Principle 2: calculation methods should be consistent with the build-up period envisaged in Directive 2014/49/EU

20.The build-up period for the target level envisaged in Article 10(2) of Directive 2014/49/EU will be no more than 10 years. It may be extended by additional 4 years if there is cumulative disbursement exceeding 0.8% of covered deposits. Within that time horizon, contributions should be spread out as evenly as possible over time until the target level is reached, but with due account of the phase of the business cycle and the pro-cyclical impact that contributions may have on the financial position of member institutions.

21.In any event, Directive 2014/49/EU does not prevent Member States from setting a higher target level or providing that a DGS may request member institutions to make *ex-ante* contributions even after the target level is reached in order to fulfil the objective mentioned in paragraph 17(c).

Principle 3: incentives provided by contributions to the DGSs should be aligned with prudential requirements

22.In order to mitigate moral hazard the incentives provided by the DGS contribution scheme should be compatible with prudential requirements (i.e. capital and liquidity requirements reflecting the risk of the member institution).

23.In particular, if calculation methods are developed and calibrated using statistical and econometric tools, the outcome of the methodology regarding the riskiness of member institutions should be consistent with the prudential requirements applicable to the institutions.

Principle 4: calculation methods should take into account specific characteristics of the banking sector, and should be compatible with the regulatory regime, and accounting and reporting practices in the Member State where the DGS is established

24.Calculation methods should be appropriate for the structure of the banking sector in a Member State. Therefore, DGSs established in Member States with a large number of heterogeneous institutions should develop more sophisticated calculation methods, applying

⁴ Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms, J L 173, 12.6.2014, p. 190–348.

an appropriately large number of risk classes (or a sliding scale approach) in order to properly differentiate institutions according to their risk profile. DGSs established in Member States with a more homogenous banking sector should use simpler calculation methods. In any case, the risk indicators selected for the calculation method should enable the DGS to adequately capture differences in the risk profile of the institutions while taking due account of their business model.

Principle 5: the rules for calculating contributions should be objective and transparent

25. Risk-based contribution systems should be objective and ensure that deposit taking institutions with similar characteristics (in particular in terms of risk, systemic importance and business model) are categorised similarly.
26. DGS contribution schemes should be transparent, understandable and well explained. As a minimum, the basis and criteria used to calculate contributions should be transparent to member institutions. Transparency will help the member institutions understand the purpose of applying risk-based contributions and will make the scheme predictable for them.

Principle 6: the required data for the calculation of contributions should not lead to excessive additional reporting requirements

27. For the purpose of calculating contributions DGSs should, as far as possible, make use of information already available to them or requested from member institutions by competent authorities as part of their reporting obligations. A balance should be struck between requiring information necessary for the calculation of contributions and avoiding making unduly burdensome requests for information from the member institutions.
28. The DGSs should only require data that is not already reported on a regular basis if such information is needed for determining the risk that member institutions pose to the DGS.
29. In cases where the DGS does not gather information directly from member institutions but relies on the information provided by the competent authority, either statutory provisions or formal arrangements should be in place so that the information required for administering the contributions is collected and transmitted on a timely basis.

Principle 7: confidential information should be protected

30. DGSs should keep confidential the information used for calculating contributions which is not otherwise publicly disclosed. However, the DGSs should disclose to the public at least the description of the calculation method and the parameters of the calculation formula, including risk indicators but not necessarily their respective weights. In contrast, the results of the risk classification and its components for a particular member institution should be disclosed to that institution and not to the public.

Principle 8: calculation methods should be consistent with relevant historical data

31. Where the DGS has access to the relevant historical data of financial institutions it should use that data when calibrating and re-calibrating the parameters of the calculation methods. For this purpose historical data may include: (i) data about institutions' failures and events where an institution has been likely to fail but its failure has been avoided by actions of public authorities, or other events when risks posed by the member institutions to the DGS have materialised; and (ii) data about recovery rates of the DGS from such events.
32. Appropriate corrections to the calculation methods should be made in cases where regulatory or institutional changes have occurred (for example, a change in the minimum levels of regulatory capital requirements).
33. In advance of the 2017 review of these guidelines, competent authorities should compare the results obtained in applying calculation methods with their risk assessment performed under the SREP. This comparison should be made in a holistic manner (for example, using samples). The competent authorities should inform the EBA of the holistic outcome of this comparison and the discrepancies observed.

Part III - Mandatory elements of the calculation methods

34. The essential elements for each calculation method of risk-based contributions to DGSs should encompass: (i) the calculation formula; (ii) thresholds for aggregate risk weights; (iii) risk categories and core risk indicators. These elements are described in the following paragraphs.

Element 1. Calculation formula

35. Annual contributions to a DGS by individual member institutions should be calculated using the formula provided below.

$$C_i = CR \times ARW_i \times CD_i \times \mu$$

Where:

C_i	=	Annual contribution from member institution 'i'
CR	=	Contribution rate (identical for all member institutions in a given year)
ARW_i	=	Aggregate risk weight for member institution 'i'
CD_i	=	Covered deposits for member institution 'i'
μ	=	Adjustment coefficient (identical for all institutions in a given year)

(a) Contribution rate (CR)

36. The contribution rate is the percentage rate that should be paid by a member institution with an aggregate risk weight (ARW) that equals 100% (i.e. assuming no risk differentiation) in order to reach the annual target level. During the initial period, the calibration of the contribution rate should ensure that the target level is reached and that the annual contributions are spread out as evenly as possible over time.

37. The annual target level should be established, at a minimum, by dividing the amount of financial means that the DGS still needs to collect in order to meet the target level, by the remaining build-up period (expressed in years) for reaching the target level. This formula is, however, without prejudice to the discretion left to Member States to foresee that DGSs continue collecting *ex-ante* contributions even after reaching the target level.
38. In line with the fourth subparagraph of Article 10(2) of Directive 2014/49/EU, when establishing the annual target level, the DGS or designated authority must also take into account the phase of the business cycle and the pro-cyclical impact that contributions may have on the financial position of member institutions. The cyclical adjustment achieved via an increased or decreased annual target level should be established so as to avoid collecting excessive contributions during economic downturns, and to allow for a faster build-up of the DGS fund in economic upturns. The cyclical adjustment should take into account the risk analysis undertaken by the relevant designated macroprudential authorities and reflect current economic conditions as well as medium-term perspectives, as persistent economic difficulties may not justify low contributions indefinitely. Competent authorities that have approved an own risk-based method pursuant to Article 13(2) of Directive 2014/49/EC may require an amendment of the calculation method to properly reflect developments in the business cycle that have occurred since the initial approval of the method. The cyclical adjustment may also take into account the expected evolution in the covered deposits base.
39. The contribution rate should be established by the DGS on a yearly basis by dividing the annual target level by the sum of covered deposits of all its member institutions.
40. Where, subsequently to a call for contributions, data related to some institutions would require an update (for example, in order to correct accounting errors) the DGS should be able to postpone the adjustment to the next call for contributions.

Box 1 – Example: Effect of changes in the amount of covered deposits (CD) on the target level, annual target level and contribution rate (CR)

The following table presents the evolution of amounts of covered deposits over four consecutive years for all member institutions affiliated to a particular DGS. It shows corresponding target levels for DGS funds calculated on the basis of the current amount of covered deposits.

Year	Covered deposits (CD)(million EUR)	Target level (CD × 0.8%)(million EUR)
Year 20X1	1,000,000	8,000
Year 20X2	1,200,000	9,600
Year 20X3	1,300,000	10,400
Year 20X4	1,100,000	8,800

For each year, calculation of the annual target level and contribution rate (CR) should be conducted as described below, under the following assumptions:

- in Year 20X1 the DGS starts collecting *ex-ante* contributions from its member institutions with the aim of reaching the target level within 10 years;

- the contributions need to be spread out over 10 years as evenly as possible; and
- each year, contributions collected by the DGS equal to the annual target level established for that year.

Year 20X1

Annual target level₁ = $1/10 \times \text{Target level}_1 = 1/10 \times \text{EUR } 8,000 = \text{EUR } 800$

CR₁ = Annual target level₁/CD₁ = EUR 800/EUR 1,000,000 = 0.00080 = 0.080%

At the end of year 20X1 the funds available to the DGS amount to EUR 800.

Year 20X2

Annual target level₂ = $1/9 \times (\text{Target level}_2 - \text{Funds already available in the DGS}) = 1/9 \times (\text{EUR } 9,600 - \text{EUR } 800) = \text{EUR } 8,800/9 = \text{EUR } 978$

CR₂ = Annual target level₂/CD₂ = EUR 978/EUR 1,200,000 = 0.00081 = 0.081%

At the end of year 20X2 the funds available to the DGS amount to EUR 1,778 (= EUR 800 + EUR 978)

Year 20X3

Annual target level₃ = $1/8 \times (\text{Target level}_3 - \text{Funds already available in the DGS}) = 1/8 \times (\text{EUR } 10,400 - \text{EUR } 1,778) = \text{EUR } 8,622/8 = \text{EUR } 1,078$

CR₃ = Annual target level₃/CD₃ = EUR 1,078/EUR 1,300,000 = 0.00083 = 0.083%

At the end of year 20X3 the funds available to the DGS amount to EUR 2,856 (= EUR 1,778 + EUR 1,078)

Year 20X4

Annual target level₄ = $1/7 \times (\text{Target level}_4 - \text{Funds already available in the DGS}) = 1/7 \times (\text{EUR } 8,800 - \text{EUR } 2,856) = \text{EUR } 5,944/7 = \text{EUR } 849$

CR₄ = Annual target level₄/CD₄ = EUR 849/EUR 1,100,000 = 0.00077 = 0.077%

At the end of year 20X4 the funds available to the DGS amount to EUR 3,705 (= EUR 2,856 + EUR 849)

(b) Aggregate risk weight (ARW)

41. The aggregate risk weight for a member institution 'i' (ARW_i) should be assigned on the basis of the aggregate risk score for that institution (ARS_i).
42. The ARS_i is calculated by summing up all individual indicators' risk scores adjusted for appropriate indicator weights. Two different methods for calculating the ARS_i and assigning the ARW_i to the member institution on the basis on its ARS_i are the 'bucket' method and the 'sliding scale' method, laid down in more detail in Annex 1. The DGSs should choose the calculation method after taking into consideration the characteristics of the national banking sector, and the degree of heterogeneity among institutions.

(c) Adjustment coefficient (μ)

43. According to Article 10(2) of Directive 2014/49/EU, the available financial means of a DGS must at least reach the target level specified in Directive 2014/49/EU within a 10-year period. In line with the principle laid down in paragraph 20, these contributions should be spread out as evenly as possible over time until the target level is reached, but with due account of the phase of the business cycle and the pro-cyclical impact of contributions on the institutions' financial position.

44. If the sum of annual contributions from all member institutions is based only on the CD_i , the ARW_i and the fixed contribution rate (CR), the amount of contributions in a given year might be higher or lower than the annual target level established for that year. In order to remedy this discrepancy, an adjustment coefficient (μ) should be used. The coefficient should adjust the amount of total contributions (C) so as to reach the annual target level where otherwise the total contributions would be too high or too low.

Box 2 – Example of application of the calculation formula

For illustration purposes, calculations in this example are carried out for a Member State A in year 2X01. There are only three credit institutions and one DGS in that Member State and the total amount of deposits covered by the DGS is EUR 1,500,000. It is assumed that year 2X01 is the first year when the DGS in Member State A starts collecting *ex-ante* contributions from deposit-taking institutions in order to reach a target level of 0.8% of covered deposits in 10 years (i.e. by year 2X11). Therefore, in line with the requirement to spread contributions as evenly as possible, the annual target level, representing total annual contributions (C) from all institutions in Member State A in year 2X01, should be approximately 1/10 of the target level. The contribution rate (CR) in this case amounts to 0.0008 ($CR = 1/10 \times 0.8\%$). The total annual contributions for year 2X01 should be calculated as follows: $C = \text{EUR } 1,500,000 \times (0.0008) = \text{EUR } 1,200$.

The table below shows the breakdown of the total covered deposits and the respective risk-unadjusted contributions by the institutions in Member State A in year 2X01.

Risk-unadjusted contributions in Member State A in year 2X01

Institution	Covered deposits (EUR)	Risk-unadjusted contributions (EUR)
Institution 1	200,000	160 (= 200,000 × 0.0008)
Institution 2	400,000	320 (= 400,000 × 0.0008)
Institution 3	900,000	720 (= 900,000 × 0.0008)
Total	1,500,000	1,200 (= 1,500,000 × 0.0008)

The method for calculating risk-based contributions adopted in Member State A relies on four different risk classes, with different aggregate risk weights (ARW) assigned to each risk class as follows: 75% for the institution with the lowest risk profile, 100% for institutions with the average risk profile, 120% for risky institutions, and 150% for the most risky institutions.

The following formula is used to calculate annual contributions for individual institutions 'i':

$$C_i = CR \times ARW_i \times CD_i \times \mu$$

Scenario 1: relatively high-risk institutions in year 2X01

Under Scenario 1, the ARW_i for institutions 1, 2, and 3 are 75%, 150% and 120%, respectively. After applying only the risk-adjusting factor based on the ARW, the amount of total annual contributions from all institutions in Member State A is EUR 1,464, which is higher than the planned total annual contribution level (EUR 1,200), as illustrated in the table below.

Risk-adjusted contributions in Member State A in year 2X01 under Scenario 1

Institution	CD_i (EUR)	ARW_i	Risk-adjusted contributions (EUR)
Institution 1	200,000	75%	120 (= 200,000 × 0.0008 × 0.75)
Institution 2	400,000	150%	480 (= 400,000 × 0.0008 × 1.50)
Institution 3	900,000	120%	864 (= 900,000 × 0.0008 × 1.20)
Total	1,500,000		1,464

Therefore, an adjustment coefficient μ should be used to ensure that the total annual contributions (i.e. the sum of all individual contributions) would equal 1/10 of the target level. In this case, the adjustment coefficient to be applied for all institutions can be calculated as $\mu_1 = \text{EUR } 1,200 / \text{EUR } 1,464 = 0.82$. The estimates for the risk-adjusted contributions after the application of the adjustment coefficient μ_1 are presented in the table below.

Corrected risk-adjusted contributions in Member State A in year 2X01 under scenario 1

Institution	CD_i (EUR)	ARW_i	Risk-adjusted contributions (EUR)	Adjustment coefficient μ_i	Final risk-adjusted contributions (EUR)
Institution 1	200,000	75%	120	0.82	98 (= 120 × 0.82)
Institution 2	400,000	150%	480	0.82	394 (= 480 × 0.82)
Institution 3	900,000	120%	864	0.82	708 (= 864 × 0.82)
Total	1,500,000		1,464		1,200

Scenario 2: relatively low-risk institutions in year 2X01

Under Scenario 2, the ARW_i for institutions 1, 2, and 3 are 75%, 120% and 75%, respectively. When only the risk-adjusting factor (ARW) is applied, the total annual contribution from all institutions in the Member State A is EUR 1,044 and it is lower than the planned total annual contribution level of EUR 1,200.

Risk-adjusted contributions in Member State A in year 2X01 under scenario 2

Institution	CD_i (EUR)	ARW_i	Risk-adjusted contributions (EUR)
Institution 1	200,000	75%	120 (= 200,000 × 0.0008 × 0.75)
Institution 2	400,000	120%	384 (= 400,000 × 0.0008 × 1.20)

Institution 3	900,000	75%	540 (= 900,000 × 0.0008 × 0.75)
Total	1,500,000		1,044

The adjustment coefficient μ is applied so that the total annual contribution equals 1/10 of the target level. Under this scenario, the adjustment coefficient to be applied for all institutions can be calculated as $\mu_2 = \text{EUR } 1,200 / \text{EUR } 1,044 = 1.15$. As the sum of the risk-adjusted contributions is lower than the annual target level, the adjustment coefficient is greater than 1.

Corrected risk-adjusted contributions in Member State A in year 2X01 under scenario 2

Institution	CD _i (EUR)	ARW _i	Risk-adjusted contributions (EUR)	Adjustment coefficient μ_i	Final risk-adjusted contributions (EUR)
Institution 1	200,000	75%	120	1.15	138 (= 120 × 1.15)
Institution 2	400,000	120%	384	1.15	442 (= 384 × 1.15)
Institution 3	900,000	75%	540	1.15	620 (= 540 × 1.15)
Total	1,500,000		1,044		1,200

Scenario 3: annual target level adjusted to reflect macroprudential environment

Under Scenario 3, the ARW_i for institutions 1, 2, and 3 are 75%, 150% and 120%, respectively. The financial market in Member State A is experiencing volatility which has led to an increase in credit losses for institutions, not only in a specific segment but throughout the banking system. It is decided to lower the annual target level in order to avoid spreading contagion to the rest of the DGS members. It is decided that in year 2X01 the annual target level will be 75% of the 1/10 of the overall target level and so will be EUR 900 (EUR 1,200 × 0.75). Therefore, the contribution rate in this case amounts to 0.0006 (CR = (1/10 × 0.75) × 0.8%).

Risk-adjusted contributions in Member State A in year 2X01 under scenario 3

Institution	CD _i (EUR)	ARW _i	Risk-adjusted contributions (EUR)
Institution 1	200,000	75%	90 (= 200,000 × 0.0006 × 0.75)
Institution 2	400,000	150%	360 (= 400,000 × 0.0006 × 1.50)
Institution 3	900,000	120%	648 (= 900,000 × 0.0006 × 1.20)
Total	1,500,000		1,098

Adjustment coefficient μ is applied to ensure that the total annual contribution equals 75% of the 1/10 of the target level. Under this scenario, the adjustment coefficient to be applied for all institutions can be calculated as $\mu_3 = \text{EUR } 900 / \text{EUR } 1,098 = 0.82$. The estimates for the risk-adjusted contributions after the application of the adjustment coefficient μ_3 are presented in the table below.

Corrected risk-adjusted contributions in Member State A in year 2X01 under scenario 3

Institution	CD _i (EUR)	ARW _i	Risk-adjusted contributions (EUR)	Adjustment coefficient μ_i	Final risk-adjusted contributions (EUR)
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Institution 1	200,000	75%	90	0.82	74 (= 90 × 0.82)
Institution 2	400,000	150%	360	0.82	295 (= 360 × 0.82)
Institution 3	900,000	120%	648	0.82	531 (= 648 × 0.82)
Total	1,500,000		1,098		900

The adjustment coefficient μ can be determined after all member institutions are categorised into risk classes and are assigned aggregate risk weights (reflecting their risk profile). If upon performing calculations by the DGS, some institutions would update the data used for risk classification (for example, to correct accounting errors from the previous reporting periods), the DGS should be able to postpone the adjustment until the next call for contributions. In effect, this will mean that, for example where an institution contributed too little because of using incorrect data, its next contribution will include the missing amount from the previous year (year 1) and the correct amount for the current year (year 2). In this scenario, in year 1 all the other institutions would have contributed more than they should have and their contributions in year 2 will be adjusted to account for the overpayment in year 1.

Element 2. Thresholds for aggregate risk weights (ARW)

45. In order to help mitigate moral hazard the ARWs should reflect the differences in risk incurred by different member institutions. Where the calculation method uses risk classes with different ARWs assigned to them (the ‘bucket’ method), it should set specific values of ARW applicable to each risk class. Where the calculation method follows the ‘sliding scale’ approach instead of a fixed number of risk classes, the upper and lower limits of ARWs should be set.
46. The lowest ARW should range between 50% and 75% and the highest ARW between 150% and 200%. A wider interval could be set upon justification that the interval limited to 50%-200% does not sufficiently reflect the differences in business models and risk profiles of member institutions, and would create moral hazard by artificially grouping together member institutions with very different risk profiles.
47. The DGS should strive to map the ARW to the aggregate risk scores (ARS) in such a way that it is possible for member institutions to be assigned to the lowest and highest ARW, and for the various risk classes to be populated. In particular, the DGS should avoid calibrating the model in such a way that almost all member institutions, despite having significantly different risk profiles, would be assigned to only one risk class (for example, the risk class for institutions with an average risk profile). However, this does not imply that in each year the DGS should necessarily use the full interval and assign institutions to the ARW corresponding to the lowest and the highest points of the interval.

Element 3. Risk categories and core risk indicators

Categories of risk indicators

48. The calculation of the aggregate risk weight (ARW) for an individual member institution should be based on a set of risk indicators from each of the following risk categories:

- a. Capital
- b. Liquidity and funding
- c. Asset quality
- d. Business model and management
- e. Potential losses for the DGS

49. Within each category, the calculation method should include the core risk indicators specified in Table 1. As an exception, competent authorities may exclude or allow the DGS to exclude, with regard to specific types of institutions, a core indicator upon justification that this indicator is unavailable because of the legal characteristics or supervisory regime of such institutions.

50. Where competent authorities or the DGS remove a core risk indicator for a specific type of institution, they should strive to use the most appropriate proxy for the removed indicator. They should ensure that the risks posed by the institution to the system are reflected in other indicators used. They should also take into account the need for a level playing field with other institutions for which the excluded indicator is available.

51. Risk categories and core indicators are described in Table 1 below. The core risk indicators are also described in more detail in Annex 2.

Table 1. Risk categories and core risk indicators

Risk category	Description of the risk categories and core risk indicators
A. Likelihood of failure	
1. Capital	<p>Capital indicators reflect the level of loss-absorbing capacity of the institution. Higher amounts of capital held by the institution indicate that it has a better ability to absorb losses internally (mitigating the risks arising from the institution's high-risk profile), thus decreasing its likelihood of failure. Therefore, institutions with higher values of capital indicators should contribute less to the DGS.</p> <p>Core indicators:</p> <ul style="list-style-type: none"> - Leverage ratio⁵, and - Capital coverage ratio or common equity tier 1 ratio (CET1)

⁵ Tier 1 capital/Total assets ratio should be used until a definition of a leverage ratio determined according to Regulation (EU) No 575/2013 is fully operational.

2. Liquidity and funding	<p>The liquidity and funding indicators measure the institution's ability to meet its short- and long-term obligations as they come due without adversely affecting its financial condition. Low liquidity levels indicate the risk that the institution may be unable to meet its current and future, expected or unexpected, cash-flow obligations and collateral needs.</p> <p>Core indicators:</p> <ul style="list-style-type: none"> - liquidity coverage ratio⁶ (LCR), and - net stable funding ratio⁷ (NSFR)
3. Asset quality	<p>Asset quality indicators demonstrate the extent to which the institution is likely to experience credit losses. Large credit losses may cause financial problems that increase the likelihood of failure of the institution. For instance, a high non-performing loan ratio (NPL) indicates that the institution is more likely to incur substantial losses and consequently require a DGS intervention; therefore, this justifies higher contributions to the DGSs.</p> <p>Core indicator:</p> <ul style="list-style-type: none"> - non-performing loans ratio (NPL)
4. Business model and management	<p>This risk category takes into account the risk related to the institution's current business model and strategic plans, and reflects the quality of the institution's internal governance and internal controls.</p> <p>Business model indicators can, for instance, include indicators related to profitability, balance sheet development and exposure concentration:</p> <ul style="list-style-type: none"> – Profitability indicators provide information on the ability of the member institution to generate profits. Low profitability or losses incurred by the institution indicate that it may face financial problems that could lead to its failure. However, high and unsustainable profits may also indicate elevated risk. In order to avoid point-in-time measurements, the profitability indicators should be calculated as average values over a period of at least 2 years. This will mitigate pro-cyclical effects and better reflect the sustainability of the income sources. For institutions which have restrictions on their level of profitability due to provisions under national law or in their statutes, this indicator may be set aside or calibrated in relation to the institution's peer group that has similar restrictions. – Balance sheet development indicators can provide information on potential excessive growth in total assets, certain portfolios or segments. These indicators may also include the relative measure of risk-weighted assets to total assets. – Concentration indicators can provide information on excessive sectoral or geographical concentrations of institution's exposures. <p>Other potential types of risk indicators in this category include: indicators measuring economic efficiency or sensitivity to market risk, or market-based indicators.</p>

⁶ If available, a national definition of the liquidity ratio, such as Liquid assets/Total assets should be used until the Regulation (EU) No 575/2013 measures are fully operational.

⁷ The NSFR ratio should be applied once its definition as determined in Regulation (EU) No 575/2013 is fully operational.

	<p>The management indicators introduce qualitative factors into the risk classification of the institutions in order to reflect the quality of their internal governance arrangements. In particular, qualitative indicators can be based on off-site and on-site inspections performed by the DGSs; on special questionnaires designed for this purpose by the DGSs and/or on the comprehensive assessment of the institutions' internal governance reflected in the SREP.</p> <p>Core indicators:</p> <ul style="list-style-type: none"> - Risk-weighted assets/Total assets, and - Return on assets (RoA)
B. Potential losses for the DGS	
5. Potential losses for the DGS	<p>This risk category reflects the risk of losses for the DGS if a member institution fails. The extent to which the institution's assets are encumbered⁸ will have a particular impact as encumbrance will reduce the prospect of the DGS recovering the pay-out amount from the institution's bankruptcy estate.</p> <p>Core indicator:</p> <ul style="list-style-type: none"> - Unencumbered assets / Covered deposits

Additional risk indicators

52. In addition to the core risk indicators, DGSs may include additional risk indicators that are relevant for determining the risk profile of member institutions.

53. The additional risk indicators should be classified into appropriate risk categories according to Table 1. Only in cases where additional indicators do not fall into the description of any other risk category, should they be classified into the 'Business model and management risk' category.

54. Each DGS should define its own set of risk indicators in order to reflect the differences in risk profiles of its member institutions. Annex 3 provides a list of examples of additional quantitative and qualitative risk indicators with a detailed description.

Weights for risk indicators and categories

55. The sum of weights assigned to all risk indicators in the method for calculating contributions to DGSs should be equal to 100%.

⁸ Definition of encumbered assets for the purpose of the EBA guidelines on disclosure of encumbered and unencumbered assets is determined in the following way: 'an asset should be treated as encumbered if it has been pledged or if it is subject to any form of arrangement to secure, collateralise or credit-enhance any on-balance-sheet or off-balance-sheet transaction from which it cannot be freely withdrawn (for instance, to be pledged for funding purposes)'.

56. When assigning weights to particular risk indicators, the minimum weights for the risk categories and core risk indicators, as specified in Table 2, should be preserved.

Table 2. Minimum weights for risk categories and core risk indicators

Risk categories and core risk indicators	Minimum weights
1. Capital	18%
1.1. Leverage ratio	9%
1.2. Capital coverage ratio or CET1 ratio	9%
2. Liquidity and funding	18%
2.1. LCR	9%
2.2. NSFR	9%
3. Asset quality	13%
3.1 NPL ratio	13%
4. Business model and management	13%
4.1. RWA / Total assets	6.5%
4.2. RoA	6.5%
5. Potential losses for the DGS	13%
5.1. Unencumbered assets / Covered deposits	13%
Sum	75%

57. The sum of the minimum weights specified in these guidelines for risk categories and core risk indicators amounts to 75% of total weights. DGSs should distribute the remaining 25% among the risk categories laid down in Table 1.

58. The DGS should allocate the flexible 25% of weights by distributing them among the additional risk indicators and/or by increasing the minimum weights of the core risk indicators provided that the following conditions are met:

- the minimum weights of risk categories and core risk indicators are preserved;
- where only core risk indicators are used in the calculation method, the flexible 25% weight should be allocated among the risk categories in the following way: 'Capital' - 24%; 'Liquidity and funding' - 24%; 'Asset quality' - 18%; 'Business model and management' - 17%; and 'Potential use of DGS funds' - 17%;
- the weight of any additional indicator, or the increase in the weight of a core risk indicator, should not be higher than 15%, except for additional qualitative risk indicators representing the outcome of a comprehensive assessment of the member institution's risk profile and management (included in the risk category 'Business model and management') and cases specified in paragraph **59**.

59. Where a core indicator is not used, the minimum weight of the remaining core indicator from the same risk category should amount to the full minimum weight for this risk category.

60. Where there is only one core indicator in a category, and this core indicator is not used, it should be replaced by a proxy with the same minimum weight as the core indicator.

Box 3 – Example of using the flexibility in assigning 25% weights among risk categories and core risk indicators

Scenario 1

All core risk indicators are used and no additional indicators are included in the calculation method. The flexible 25% of weights is distributed among core risk indicators in such a way that the proportions between minimum weights for risk categories and core risk indicators are retained (for example, additional weight for capital amounts to $6\% = 25\% \times (18\%/75\%)$).

Risk indicator	Minimum weights (1)	Flexible weights (2)	Final weights (1) + (2)
1. Capital	18%	+ 6%	24%
1.1. Leverage ratio	9%	+ 3%	12%
1.2. Capital coverage ratio or CET1 ratio	9%	+ 3%	12%
2. Liquidity and funding	18%	+ 6%	24%
2.1. LCR	9%	+ 3%	12%
2.2. NSFR	9%	+ 3%	12%
3. Asset quality	13%	+ 5%	18%
3.1 NPL ratio	13%	+ 5%	18%
4. Business model and management	13%	+ 4%	17%
4.1. RWA / Total assets	6.5%	+ 2%	8.5%
4.2. RoA	6.5%	+ 2%	8.5%
5. Potential losses for the DGS	13%	+ 4%	17%
5.1. Unencumbered assets / Covered deposits	13%	+ 4%	17%
Sum	75%	+ 25%	100%

Scenario 2

One of the core risk indicators is not available (NSFR) during a transitional period and no additional risk indicators are included in the calculation method. The minimum weight assigned to the LCR ratio would amount to 18% - the total weight for the risk category 'Liquidity and funding' (9% + 9%) increased by further 6% up to 24% - the maximum weight for this category as per paragraph 57. The other weights would be distributed among the risk indicators in a similar way as under Scenario 1.

Risk indicator	Minimum weights (1)	Flexible weights (2)	Final weights (1) + (2)
1. Capital	18%	+ 6%	24%
1.1. Leverage ratio	9%	+ 3%	12%
1.2. Capital coverage ratio or CET1 ratio	9%	+ 3%	12%
2. Liquidity and funding	18%	+ 6%	24%
2.1. LCR	9%	+ (6% + 9%)	24%

2.2. NSFR	9%	- 9%	N/A
3. Asset quality	13%	+ 5%	18%
3.1 NPL ratio	13%	+ 5%	18%
4. Business model and management	13%	+ 4%	17%
4.1. RWA / Total assets	6.5%	+ 2%	8.5%
4.2. RoA	6.5%	+ 2%	8.5%
5. Potential losses for the DGS	13%	+ 4%	17%
5.1. Unencumbered assets / Covered deposits	13%	+ 4%	17%
Sum	75%	+ 25%	100%

Scenario 3

All core risk indicators are used in the calculation method but the DGS would like to increase (by 5%) the weight of one core indicator ('Leverage ratio') because it considers this indicator to be highly effective in predicting distress among its member institutions. Moreover, the DGS intends to include two additional risk indicators (one with a weight of 3% in the risk category 'Asset quality', and the second one with a weight of 5% in the risk category 'Business model and management'). The remaining 12% of flexible weights will be distributed among all the other core risk indicators in such a way that preserves the relationship of the minimum weights assigned to these indicators.

Risk indicator	Minimum weights (1)	Flexible weights (2)		Final weights (1) + (2)
1. Capital	18%	+ 5%	+3%	26%
1.1. Leverage ratio	9%	+ 5%		14%
1.2. Capital coverage ratio or CET1 ratio	9%		+ 3%	12%
2. Liquidity and funding	18%		+ 3%	21%
2.1. LCR	9%		+ 1.5%	10.5%
2.2. NSFR	9%		+ 1.5%	10.5%
3. Asset quality	13%	+ 3%	+ 2%	18%
3.1 NPL ratio	13%		+ 2%	15%
3.2. Additional risk indicator (1)	N/A	+ 3%		3%
4. Business model and management	13%	+ 5%	+ 2%	20%
4.1. RWA / Total assets	6.5%		+ 1%	7.5%
4.2. RoA	6.5%		+ 1%	7.5%
4.3. Additional risk indicator (2)	N/A	+ 5%		5%
5. Potential losses for the DGS	13%		+ 2%	15%
5.1. Unencumbered assets / Covered deposits	13%		+ 2%	15%
Sum	75%	+ 13%	+ 12%	100%

Scenario 4

All core risk indicators are used in the calculation method but the DGS would also like to include additional five indicators (one indicator in risk categories 'Capital', 'Asset quality' and 'Potential losses for the DGS', and two indicators in risk category 'Business model and management'). The weights assigned to risk indicators are presented in the last column in the table below.

Risk indicator	Minimum weights	Flexible weights	Final weights
1. Capital	18%	+ 5%	23%
1.1. Leverage ratio	9%		9%
1.2. Capital coverage ratio or CET1 ratio	9%		9%
1.3. Additional risk indicator (1)	N/A	+ 5%	5%
2. Liquidity and funding	18%		18%
2.1. LCR	9%		9%
2.2. NSFR	9%		9%
3. Asset quality	13%	+ 5%	18%
3.1 NPL ratio	13%		13%
3.2. Additional risk indicator (2)	N/A	+ 5%	5%
4. Business model and management	13%	+ 10%	23%
4.1. RWA / Total assets	6.5%		6.5%
4.2. RoA	6.5%		6.5%
4.3. Additional risk indicator (3)	N/A	+ 5%	5%
4.4. Additional risk indicator (4)	N/A	+ 5%	5%
5. Potential losses for the DGS	13%	+ 5%	18%
5.1. Unencumbered assets / Covered deposits	13%		13%
5.3. Additional risk indicator (5)	N/A	+ 5%	5%
Sum	75%	+ 25%	100%

Requirements for risk indicators

61. The risk indicators used in the calculation method should capture a sufficiently wide spectrum of sources of risk.
62. The selection of the risk indicators should be aligned with the best practices in risk management and with the existing prudential requirements.
63. For each member institution the values of risk indicators should be calculated on a solo basis.
64. However, the value of risk indicators should be calculated at a consolidated level where the Member State exercises the option given in Article 13(1) of Directive 2014/49/EU to allow the central body and all credit institutions permanently affiliated to the central body, as referred

to in Article 10(1) of Regulation (EU) 575/2013, to be subject as a whole to the risk weight determined for the central body and its affiliated institutions on a consolidated basis.

65. Where a member institution has received a waiver from meeting capital and/or liquidity requirements on a solo basis pursuant to Articles 7, 8 or 21 of Regulation (EU) 575/2013, the corresponding capital/liquidity indicators should be calculated at the consolidated or semi-consolidated level.

66. To calculate values of risk indicators for a given period the DGS should use:

- the value at the end of the period (for example, net income as reported on 31 December for the annual income statement) for positions from the income statement;
- the average value between the beginning and the end of the reporting period (for example, average value of total assets from 1 January to 31 December in a given year) for positions from the balance sheet.

Part IV - Optional elements of the calculation methods

(i) *Minimum contribution*

67. According to Article 13(1) of Directive 2014/49/EU, Member States may decide that credit institutions should pay a minimum contribution irrespective of the amount of their covered deposits.

68. Where a Member State exercises the option to have member institutions paying a minimum contribution (MC) irrespective of the amount of their covered deposits, the following modified calculation formula should be used to calculate the individual contributions:

- a. In cases where the minimum contributions are paid by each member institution in addition to its risk-based contributions:

$$C_i = MC + (CR \times ARW_i \times CD_i \times \mu)$$

- b. In cases where the minimum contributions are paid only by those member institutions for which their annual risk-based contributions calculated according to the standard formula (as specified in paragraph 35) would be lower than the amount of the minimum contribution:

$$C_i = \text{Max} \{MC ; (CR \times ARW_i \times CD_i \times \mu)\}$$

Where:

C_i	=	Annual contribution for a member institution 'i'
MC	=	Minimum contribution
CR	=	Contribution rate (applied for all member institutions in a given year)
ARW_i	=	Aggregate risk weight for a member institution 'i'
CD_i	=	Covered deposits for a member institution 'i'
μ	=	Adjustment coefficient (applied for all institutions in a given year).

69. When setting a minimum contribution, competent authorities and designated authorities should take due care of the risk of moral hazard inherent in setting fixed contributions and the risk of creating barriers to entering the market for banking services.

(ii) *Reduced contributions for members of an IPS that is separate from the DGS*

70. According to Article 13(1) of Directive 2014/49/EU, Member States may decide that members of an IPS pay lower contributions to the DGS. As reflected in recital 12 of Directive 2014/49/EU, this option has been introduced in order to recognise ‘schemes which protect the credit institution itself and which, in particular, ensure its liquidity and solvency’.

71. Where a Member State avails itself of this option, the aggregated risk weight (ARW) of an institution which is also a member of a separate IPS may be reduced to take into account the additional safeguard provided by the IPS. In this case, the reduction should be implemented by including an additional risk indicator, related to IPS membership, in the risk category ‘Business model and management’ of the calculation method. The IPS membership indicator should reflect the additional solvency and liquidity protection provided by the scheme to the member, taking into account whether the amount of the IPS *ex-ante* funds, which are available without delay for both recapitalisation and liquidity funding purposes in order to support the affected entity if there are problems, is sufficiently large to allow for credible and effective support of that entity. Additional funding commitments callable upon request and backed by liquidity reserves held by IPS members in IPS central institutions may also be taken into account. The level of the IPS funding should be examined in relation to the total assets of the IPS member institution.

(iii) *Use of DGS funds for failure prevention*

72. Where a Member State allows a DGS, including an IPS officially recognised as a DGS, to use the available financial means for alternative measures in order to prevent the failure of a credit institution, this DGS may include an additional factor in its own risk-based calculation based on the risk-weighted assets of the institution. In this case, the formula is as follows:

$$C_i = CR \times ARW_i \times (CD_i + A) \times \mu$$

Where A is the amount of risk-weighted assets in institution ‘i’.

73. Before the implementation of this additional factor by a DGS, competent authorities should assess, as part of the approval procedure referred to in paragraph 14, whether its introduction is commensurate with the risk of having to intervene in order to prevent the failure of institutions beyond the protection of covered deposits.

(iv) *Low-risk sectors*

74. According to Article 13(1) of Directive 2014/49/EU, Member States may provide for lower contributions from institutions belonging to low-risk sectors which are regulated under national law.

75. If a Member State has, through regulation, imposed restrictions on institutions within a certain subsector in a manner that substantially reduces the likelihood of failure, DGS contributions from these institutions may be proportionately reduced on the basis of adequate motivation.
76. Reductions in contributions from institutions belonging to low-risk sectors should be allowed based on empirical evidence indicating that within these low-risk sectors the occurrence of failure has been consistently lower than in other sectors. Agreement on reduced contributions should be made by the competent authority in cooperation with the designated authority, after consulting the DGS.
77. Such reductions should be implemented in the calculation method by including an additional risk indicator into the risk category 'Business model and management'.

Title III - Final Provisions and Implementation

78. Competent authorities and designated authorities should implement these guidelines by incorporating them in their supervisory processes and procedures by the end of 2015. From that date on, contributions to be raised by DGSs should comply with these guidelines.
79. However, where, according to the third subparagraph of Article 20(1) of Directive 2014/49/EU, appropriate authorities establish that a DGS is not yet in a position to comply with Article 13 of Directive 2014/49/EU by 3 July 2015, these guidelines should be implemented by the new date set by these authorities, and in any case no later than by 31 May 2016.

Annex 1 - Methods to calculate Aggregate Risk Weights (ARW) and determine risk classes

(i) The 'bucket' method

Individual risk indicators

1. In the 'bucket' method, a fixed number of buckets should be defined for each risk indicator by setting upper and lower boundaries for each bucket. The number of buckets for each risk indicator should be at least two. The buckets should reflect different levels of risk posed by the member institutions (for example, high, medium, low risk) assessed on the basis of particular indicators.
2. There should be an individual risk score (IRS) assigned to each bucket. If the value of the risk indicator is higher (lower) than the upper (lower) boundary of the highest (lowest) bucket, it should be assigned the IRS of the highest (lowest) bucket.
3. The buckets' boundaries should be determined either on a relative or absolute basis, where:
 - when using the relative basis, the IRSs of member institutions depends on their relative risk position vis-à-vis other institutions; in this case, institutions are distributed evenly between risk buckets, meaning that institutions with similar risk profiles may end up in different buckets;
 - when using the absolute basis, the buckets' boundaries are determined to reflect the riskiness of a specific indicator; in this case, all institutions may end up in the same bucket if they all have a similar level of riskiness.
4. For each risk indicator the boundaries of buckets determined on the absolute basis should ensure there is sufficient and meaningful differentiation of member institutions. The calibration of the boundaries should take into account, where available, the regulatory requirements applicable to the member institutions and historical data on the indicator's values. The DGS should avoid calibrating the boundaries in such a way that all member institutions, despite representing significant differences in the area measured by a particular risk indicator, would be classified into the same bucket.
5. For each risk indicator, the IRSs assigned to buckets should range from 0 to 100, where 0 indicates the lowest risk and 100 the highest risk.

Box 4 - Examples of bucket-scoring by type of risk indicator

The following examples illustrate how the individual risk scores (IRSs), from a range of 0 to 100, should be assigned to various buckets for different types of risk indicators.

Scenario 1

Five buckets; a risk indicator for which higher values indicate higher risk (for example, NPL ratio)

Buckets	Boundaries	IRS
Bucket 1	< 2%	0
Bucket 2	≤ 2 – 3.5% <	25
Bucket 3	≤ 3.5 – 5% <	50
Bucket 4	≤ 5 – 7% <	75
Bucket 5	≥ 7%	100

Scenario 2

Three buckets; a risk indicator for which higher values indicate higher risk (for example, NPL ratio)

Buckets	Boundaries	IRS
Bucket 1	< 2%	0
Bucket 2	≤ 2 - 7% >	50
Bucket 3	≥ 7%	100

Scenario 3

Four buckets; a risk indicator for which higher values indicate lower risk (for example, liquidity ratio)

Buckets	Boundaries	IRS
Bucket 1	> 60%	0
Bucket 2	< 40 – 60% ≤	33
Bucket 3	< 20 - 40% ≤	66
Bucket 4	≤ 20%	100

Scenario 4

Two buckets; a risk indicator with binary values that can be either neutral or negative to the risk profile assessment (for example, Excessive balance sheet growth ratio)

Buckets	Boundaries	IRS
Bucket 1	< 15%	50
Bucket 2	≥ 15%	100

Scenario 5

Two buckets; risk indicator with binary values that can be either positive or neutral to the risk profile assessment (for example, institution belonging to the low-risk sector regulated under the national law should be regarded as less risky, whereas the institutions not belonging to the low-risk sectors should be considered as posing an average risk).

Buckets	Boundaries	IRS
Bucket 1	Institution belonging to a low-risk sector	0
Bucket 2	Institution not belonging to the low-risk sector	50

Scenario 6

Three buckets; risk indicator with non-standard interpretation of results (for example, RoA) where both negative values (losses) as well as the excessive values of the indicator may indicate that the institution has a high risk profile.

Buckets	Boundaries	IRS
Bucket 1	$\leq 0 - 2\% \leq$	0
Bucket 2	$< 2 - 15\% \leq$	50
Bucket 3	$< 0\%$ or $> 15\%$	100

Please note that in examples under Scenarios 1-4 the mapping of the individual risk scores (IRS) to buckets is linear (for example, 0 – 33 – 66 – 100). This is not the general requirement and for some risk indicators applying a non-symmetrical allocation of the IRS within the range of 0-100 (for example, 0 – 25 – 50 – 90 – 100) may be warranted in order to properly reflect the cases where the institution becomes significantly more risky when the indicator's value reaches a specific threshold.

Aggregate risk score (ARS)

- Each IRS for an institution 'i' should be multiplied by an indicator weight (IW_i) assigned to a specific risk indicator. It should then be summed up to an aggregate risk score (ARS_i) using an arithmetic average.
- The weights assigned to each indicator 'i' (IW_i) should be the same for all institutions and calibrated by using supervisory assessment and/or historical data on failures of institutions.
- The structure of the described model could be as follows:

Risk indicator	Indicator weight	Buckets	Individual risk scores (IRS)
Indicator A_1	IW_1	A_1	IRS_{A_1}
		B_1	IRS_{B_1}
	
		M_1	IRS_{M_1}
Indicator A_2	IW_2	A_2	IRS_{A_2}
		B_2	IRS_{B_2}
	
		M_2	IRS_{M_2}
...
Indicator A_n	IW_n	A_n	IRS_{A_n}
		B_n	IRS_{B_n}
	
		M_n	IRS_{M_n}

9. The aggregate risk score (ARS_i) for institution 'i' should be calculated for each institution according to the following formula:

$$ARS_i = \sum_{j=1}^n IW_j * IRS_j$$

Where:

$$\sum_{j=1}^n IW_j = 100\%, \text{ and}$$

$$IRS_j = IRS_{X_j}, \text{ for some } X \text{ in } \{A, B, \dots, M\} \text{ (i.e. the bucket corresponding to indicator } A_j)$$

Aggregate risk weight (ARW)

10. Every ARS_i should have a corresponding aggregate risk weight (ARW_i), which should be used to calculate the contribution of an individual member institution (C_i) according to the contribution formula specified in paragraph 35 of these guidelines.

Risk classes

11. The ARW may be calculated via a bucketing method, where ranges for the ARS are defined in such a way that they correspond to a particular risk class and ARW (see table below).

Risk Class	Aggregate risk score (ARS) boundaries		Aggregate risk weight (ARW)
1	a_1	$\leq a_2$	ARW_1
2	a_3	$\leq a_4$	ARW_2
3	a_5	$\leq a_6$	ARW_3
...

12. The number of risk classes should be proportionate to the number and variety of DGS member institutions. However, the number of risk classes should be four as a minimum. There should be at least one risk class for member institutions with an average risk, at least one risk class for low-risk members, and at least two risk classes for high-risk institutions.

Box 5 - Example – application of aggregate risk weights to institutions

The following example illustrates how the aggregate risk weight (ARW) might be assigned to the member institutions on the basis of the values of the aggregate risk scores and assuming that there are four risk classes with risk weights (75%, 100%, 125% and 150%) assigned to each class in the following manner:

Risk class	Boundaries for ARS	ARW
1	< 40	75%
2	$\leq 40 - 55 <$	100%
3	$\leq 55 - 70 <$	125%
4	≥ 70	150%

For instance, if the ARS for a given institution is 62 this institution should be classified into the third risk class and the ARW of 125% should be assigned to it.

(ii) The 'sliding scale' method

Individual risk indicators

13. In this method, for each institution, an Individual Risk Score (IRS_j) will be calculated for each risk indicator A_j . Each indicator should have an upper and a lower boundary, a_j and b_j defined. When a higher indicator value indicates a riskier institution and the indicator is above the upper boundary, the IRS_j will be a fixed value of 100. Similarly, when the indicator's value is below the lower boundary, the IRS_j will be 0. Analogously, if a lower indicator indicates a riskier situation and the indicator is below the lower boundary, the IRS_j will be a fixed value of 100. Correspondingly, when the indicator value is above the upper boundary, the IRS_j will be 0.
14. If the indicator's value is between the defined boundaries, the IRS_j will lie between 0 and 100. Each IRS_j has a pre-determined risk-weight which is used to calculate the aggregate risk score for each institution 'i' (ARS_i). By design, in this model the ARS_i will always be a value between 0 and 100.
15. For each risk indicator a determination of the upper and lower boundaries a_j and b_j should ensure there is sufficient and meaningful differentiation of member institutions. The calibration of these boundaries should take into account, where available, the regulatory requirements applicable to the member institutions and historical data on the indicator's values. The DGS should avoid calibrating the upper and lower boundaries in such a way that all member institutions, despite significant differences in the area measured by a particular risk indicator, will persistently fall either below the lower or above the upper boundary.
16. The structure of the described model could be as follows:

Risk indicator	Indicator weight	Upper boundary	Lower boundary	Individual risk scores (IRS)
Indicator A_1	IW_1	a_1	b_1	IRS_1
Indicator A_2	IW_2	a_2	b_2	IRS_2
...
Indicator A_n	IW_n	a_n	b_n	IRS_n

Where:

$$\sum_{j=1}^n IW_j = 100\%.$$

17. For each risk indicator A_j , its value will correspond to an output score (IRS_j), defined as follows:

$$IRS_j = \begin{cases} 100 & \text{if } A_j > a_j \\ 0 & \text{if } A_j < b_j \\ \frac{A_j - b_j}{a_j - b_j} \times 100, & \text{if } b_j \leq A_j \leq a_j \end{cases}, \text{ where } j = 1 \dots n$$

or

$$IRS_j = \begin{cases} 0 & \text{if } A_j > a_j \\ 100 & \text{if } A_j < b_j \\ \frac{a_j - A_j}{a_j - b_j} \times 100, & \text{if } b_j \leq A_j \leq a_j \end{cases}, \text{ where } j = 1 \dots n$$

Aggregate risk score (ARS)

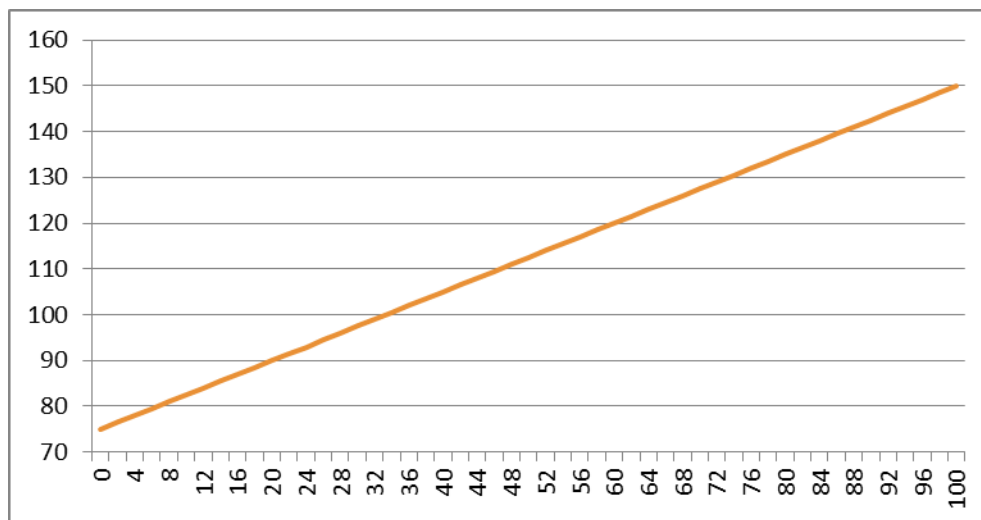
18. The aggregate risk score (ARS_i) for an institution 'i' will be calculated as $ARS_i = \sum_{j=1}^n IW_j * IRS_j$.

Aggregate risk weight (ARW)

19. The ARS_i might be translated into an aggregate risk weight (ARW_i) by using a 'sliding scale' method based either on a linear or exponential formula.
20. The following linear formula can be used to translate ARS_i into the ARW_i :

$$ARW_i = \beta + (\alpha - \beta) * ARS_i / 100$$

In this method, the ARW_i associated to the ARS_i is linear, with an upper and lower boundary, α and β , for example, 150% and 75%, respectively. For a given institution where the ARS_i is 100 (the riskiest score), the corresponding risk weight will be α , the highest risk weight. Similarly, if the ARS_i is 0, the corresponding risk weight will be β , the lowest risk weight. The graph below illustrates the linear behaviour of the suggested formula.



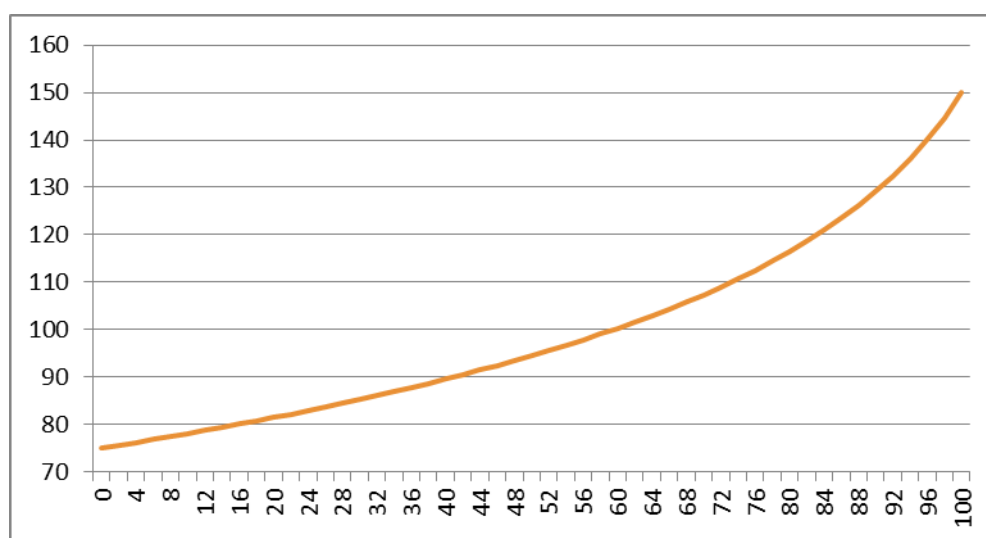
21. The following exponential formula can be used to translate ARS_i into the ARW_i

✓C1

$$ARW_i = \beta + (\alpha - \beta) * (1 - \log_{10}(10 - 9 * (\frac{ARS_i}{100})))$$

✓O

In this method, the ARW_i associated to the ARS_i is exponential, with an upper and lower boundary, α and β , for example, 150% and 75%. For a given institution where the ARS_i is 100 (the riskiest score), the corresponding risk weight will be α , the highest risk weight. Similarly, if the ARS_i is 0, the corresponding risk weight will be β , the lowest risk weight. The graph below illustrates the non-linear behaviour of the suggested formula so that there is a higher increase in the contribution when an institution lies on the higher end of the risk scale. This formula presents a stronger incentive for institutions to have a lower risk score, when compared to a linear method. The calculation method may also include non-linear methods other than the logarithmic one presented in this annex.



Annex 2 - Description of core risk indicators

Indicator name	Formula / Description	Comments	Sign
1. Capital			
1.1. Leverage ratio	$\frac{\text{Tier 1 Capital}}{\text{Total Assets}}$ <p>This formula should be replaced by the leverage ratio as defined in Regulation (EU) No 575/2013 once it becomes fully operational.</p>	The aim of the leverage ratio is to measure the capital position regardless of the risk weighting of the assets.	(-) A higher value indicates lower risk
1.2. Capital coverage ratio	$\frac{\text{Actual CET1 ratio}}{\text{Required CET1 ratio}}$ <p>or</p> $\frac{\text{Actual own funds}}{\text{Required own funds}}$	Capital coverage ratio measures the actual capital held by a member institution in excess of the total capital requirements applicable to that institution, including additional own funds required pursuant to Article 104(1)(a) of Directive 2013/36/EU.	(-) A higher value indicates lower risk
1.3. Common Equity Tier 1 ratio (CET1 ratio)	$\frac{\text{Common Equity Tier 1 Capital}}{\text{Risk Weighted Assets}}$ <p>Where: 'risk-weighted assets' means the total risk exposure amount as defined in Article 92(3) of Regulation (EU) No 575/2013.</p>	The CET1 ratio expresses the amount of capital held by an institution. A high ratio indicates good loss-absorption capacity which can mitigate risks from the institution's business activities.	(-) A higher value indicates better risk mitigation
2. Liquidity and funding			
2.1. Liquidity Coverage Ratio (LCR)	LCR ratio as defined in Regulation (EU) No 575/2013 once it becomes fully operational.	The aim of the LCR ratio is to measure an institution's ability to meet its short-term debt obligations as they come due. The higher the ratio, the larger the safety margin to meet obligations and unforeseen liquidity shortfalls.	(-) A higher ratio indicates lower risk

2.2. Net stable funding ratio (NSFR)	NSFR ratio as defined in Regulation (EU) No 575/2013 once it becomes fully operational.	The aim of the NSFR ratio is to measure an institution's ability to match the maturity of its assets and liabilities. The higher the ratio, the better the maturity match and the lower the funding risk.	(-) A higher ratio indicates lower risk
2.3. Liquidity ratio (national definition)	$\frac{\text{Liquid Assets}}{\text{Total Assets}}$ <p>Where:</p> <p>'liquid assets' as defined in the national regulations for supervising credit institutions (to be replaced with the LCR ratio when in force).</p>	Transitional indicator. The aim of the liquidity ratio is to measure an institution's ability to meet its short term debt obligations as they become due. The higher the ratio, the larger the safety margin to meet obligations and unforeseen liquidity shortfalls.	(-) A higher value indicates lower risk
3. Asset quality			
3.1 Non-performing loans ratio (NPL ratio)	$\frac{\text{Non Performing Loans}}{\text{Total Loans and Debt Instruments}}$ <p>or alternatively, in cases where national accounting or reporting standards do not impose on institutions an obligation to report data on debt Instruments:</p> $\frac{\text{Non Performing Loans}}{\text{Total Loans}}$ <p>Where (in both cases):</p> <p>'non-performing loans' as defined in the national regulations for the purpose of supervising credit institutions.</p> <p>'Non-performing loans' should be reported gross of provisions.</p>	The NPL ratio gives an indication of the type of lending an institution engages in. A high degree of credit losses in the loan portfolio indicates lending to high-risk segments / customers.	(+) A higher value indicates higher risk
4. Business model and management			

4.1. Risk-weighted assets (RWA) / Total assets ratio	<p><u>Risk Weighted Assets</u> <u>Total Assets</u></p> <p>Where: 'risk-weighted assets' means the total risk exposure amount as defined in Article 92(3) of Regulation (EU) No 575/2013</p>	<p>The level of RWA gives an indication of the type of lending an institution engages in. A high ratio indicates that an institution engages in risky activities.</p> <p>For this ratio, the guidelines permit use of different calibration for institutions using advanced methods (for example, IRB) or standardised methods for calculating minimum own funds requirements.</p>	<p>(+) A higher value indicates higher risk</p>
4.2 Return on assets (RoA)	<p><u>Net Income</u> <u>Total Assets</u></p>	<p>RoA measures an institution's ability to generate profits. A business model which is able to generate high and stable returns indicates lower risk. However, unsustainably high levels of RoA also indicate higher risk. Institutions which have restrictions on their level of profitability due to provisions under national law or in their statutes, should not be disadvantaged by the calculation method.</p> <p>To avoid including one-off events and avoid pro-cyclicality in contributions, an average of at least 2 years should be used.</p>	<p>(+)/(-) Negative values indicate higher risk but too high values can also indicate high risk</p>
5. Potential losses for the DGS			
5.1. Unencumbered assets / covered deposits	<p><u>Total Assets – Encumbered Assets</u> <u>Covered Deposits</u></p> <p>Where: 'encumbered assets' is defined in the EBA guidelines on disclosure of encumbered and unencumbered assets</p>	<p>This ratio measures the degree of expected recoveries from the bankruptcy estate of the institution which was resolved or put into normal insolvency proceedings. An institution with a low ratio exposes the DGS to higher expected loss.</p>	<p>(-) A higher value indicates lower risk</p>

Annex 3 - Description of additional risk indicators

1. The following list of additional risk indicators is provided for illustration purposes only.
2. Where data on specific items used in the formulas presented below is not covered by the national financial or regulatory reporting templates, the DGS may use equivalent items from its national templates.

Indicator name	Formula / Description	Comments	Sign
3. Asset quality			
Level of forbearance	$\frac{\text{Exposures with forbearance measures}}{\text{Total corresponding instrument on the balance sheet}}$ <p>Where: 'exposures with forbearance measures' as defined in the EBA guidelines on supervisory reporting on forbearance and non-performing exposures</p>	This ratio measures the extent to which counterparties of the institution have been granted modification of terms and conditions of their loan contracts. The ratio gives information on the forbearance policy of the institution and it may be compared to the level of default itself. A high value of this ratio indicates known problems in the loan portfolio of the institutions or potential low quality of other assets.	(+) A higher value indicates higher risk
4. Business model and management			
Sector concentrations in loan portfolio	$\frac{\text{Exposures from the sector with the highest concentrations}}{\text{Total loan portfolio}}$	The aim of this indicator is to measure the risk of incurring substantial credit losses as a result of a downturn in a specific sector of the economy to which an institution is highly exposed.	(+) A higher value indicates higher risk
Large exposures	$\frac{\text{Large exposures}}{\text{Eligible capital}}$ <p>Where: 'large exposures' as defined in Regulation (EU) No 575/2013; and 'eligible capital' as defined in point 71 in Article 4(1) of Regulation (EU) No 575/2013</p>	The aim of this indicator is to measure the risk of incurring substantial credit losses as a result of the failure of an individual counterparty or group of connected counterparties.	(+) A higher value indicates higher risk

Excessive balance sheet growth ratio	$\frac{[\text{Total Assets in year T} - \text{Total Assets in year (T - 1)}]}{\text{Total Assets in year (T - 1)}}$	<p>This indicator measures the growth rate of the institution's balance sheet. Unsustainably high growth might indicate higher risk. Off-balance-sheet items and their growth should also be included. When setting thresholds for this indicator it is necessary to determine what level of growth is considered too risky. This should take due account of the growth of the economy in a given Member State or national banking sector. When using this indicator special rules should be defined for new institutions and for entities which have been involved in mergers and acquisitions over the last few years.</p> <p>To avoid including one-off events in calculating contributions, an average growth observed during the last 3 years should be used.</p>	(+) Values exceeding a predefined level of excessive growth indicate higher risk
Return on equity (RoE)	$\frac{\text{Net Profit}}{\text{Total Equity}}$	<p>This ratio measures institutions' ability to generate profits to shareholders from the capital these have invested in the institution. A business model which is able to generate high and stable returns indicates reduced likelihood of failure. However, unsustainably high levels of RoE also indicate higher risk. Some institutions may have restrictions on their level of profitability based on their ownership structure so they should not be disadvantaged by the calculation method.</p> <p>To avoid including one-off events and avoid pro-cyclicality in calculating contributions, an average of at least 2 years should be used.</p>	(-)/(+) Negative values indicate higher risk. However, too high values can also indicate high risk

Core earnings ratio	$\frac{\text{Core earnings}}{\text{Total loan portfolio}}$ <p>Where: 'core earnings' may be calculated as (interest income + fee and commission income + other operating income) - (interest expenses + fee and commission expenses + other operating expenses + administrative expenses + depreciation)</p>	<p>The core earnings ratio measures an institution's ability to generate profits from its core business lines. A business model which is able to generate high and stable earnings indicates reduced likelihood of failure.</p> <p>To avoid including one-off events and avoid pro-cyclicality in calculating contributions, an average of at least 2 years should be used.</p>	(-) A higher value indicates lower risk
Cost-to-income ratio	$\frac{\text{Operating costs}}{\text{Operating income}}$	<p>This ratio measures an institution's cost efficiency. An unusually high ratio may indicate that the institution's costs are out of control, especially if represented by the fixed costs (i.e. higher risk). A very low ratio may indicate that operating costs are too low for the institution to have the required risk and control functions in place (i.e. this also indicates higher risk).</p>	(+)/(-) Values of the ratio that are too high indicate higher risk; however values that are too low may also indicate higher risk
Off-balance-sheet liabilities / Total assets	$\frac{\text{Off balance sheet liabilities}}{\text{Total Assets}}$	<p>Large off-balance-sheet exposures indicate that an institution's exposure to risk may be larger than that reflected in their balance sheet.</p>	(+) A higher value indicates higher risk

Qualitative assessment of the quality of management and internal governance arrangements	<p>Depending on data availability and operational capacity of the DGS, the assessment of qualitative aspects of its member institutions may be based on the following sources of information:</p> <ul style="list-style-type: none"> - questionnaires designed by the DGSs to assess the quality of management and internal governance arrangements of its member institutions; accompanied by on-site and/or off-site inspections performed by the DGSs; - comprehensive assessment of institutions internal governance reflected in the SREP scores; - external ratings assigned to all member institutions by a recognised external credit assessment institution. 	<p>Good quality management and robust internal governance practices may mitigate risks faced by member institutions and reduce the likelihood of failure.</p> <p>Qualitative indicators are more forward looking than accounting ratios and they provide relevant information on the institution's risk management and risk mitigation techniques. In order to be used in the calculation method the qualitative indicators need to be available for all member institutions of the DGS. Moreover, the DGS should strive to ensure fair and objective treatment of its member institutions and that the qualitative assessment is based on pre-defined criteria. The DGS methodology for assessing the quality of management and internal governance arrangements should include a list of criteria that should be examined with regard to each member institution.</p>	(+)/(-) Qualitative judgment can be both positive and negative
IPS membership where the IPS is separate from the DGS	$\frac{\text{Available ex ante funds in the IPS}}{\text{Total assets of the individual IPS member}}$	<p>The IPS membership indicator measures the level of <i>ex-ante</i> funding of the IPS.</p> <p>IPS membership, other things being equal, should reduce the risk of the institution's failure because the scheme insures the entire liability side of the balance sheet for its members. However, in order for the IPS protection to be fully recognised it should fulfil additional conditions related to the level of its <i>ex-ante</i> funding. This indicative additional indicator maybe further refined to reflect, besides <i>ex-ante</i> funds, additional available funding commitments callable upon request and backed</p>	(-) Membership in the IPS with a higher level of <i>ex-ante</i> funding indicates lower risk

Systemic role in an IPS scheme officially recognised as a DGS	<p>The indicator can have two values:</p> <ul style="list-style-type: none"> (i) the institution has a systemic role in the IPS; or (ii) the institution does not have a systemic role in the IPS 	The fact that an institution has a systemic role in the IPS, for example by providing other IPS members with critical functions, implies that its failure can have a negative impact on the viability of other IPS members. Therefore, the systemic member of the IPS should pay higher contributions to the DGS in order to reflect the additional risk it poses to the system.	(+) Only binary values are possible: (i) indicates higher risk; (ii) does not indicate higher risk.
Low-risk sectors	<p>The indicator can have two values:</p> <ul style="list-style-type: none"> (i) the institution belongs to a low-risk sector regulated under national law; or (ii) the institution does not belong to a low-risk sector regulated under national law 	This indicator allows the calculation method to reflect the fact that some institutions belong to low-risk sectors regulated under national law. The rationale is that such institutions should be regarded as less risky for the purpose of calculating contributions to DGSs.	(-) Only binary values are possible: (i) indicates lower risk; (ii) indicates average risk.
5. Potential losses for the DGS			
Own funds and eligible liabilities held by institution in excess of MREL	$\left[\frac{\text{Own funds and eligible liabilities}}{\text{Total liabilities including own funds}} \right] - MREL$ <p>Where: 'own funds' means the sum of tier 1 and tier 2 capital in accordance with the definition in point (118) of Article 4(1) of Regulation (EU) No 575/2013; 'eligible liabilities' are the sum of liabilities referred to in point (71) of Article 2(1) of the BRRD; 'MREL' means the minimum requirement for own funds and eligible liabilities as defined in Article 45(1) of the BRRD.</p>	This indicator measures the loss absorbing capacity of the member institution. The higher the loss absorbing capacity of the institution, the lower the potential losses to the DGS.	(-) A higher value indicates lower risk

Annex 4 - Steps to calculate annual contributions to the DGS

Upon collecting data from its member institutions, the DGS should take the following steps in order to calculate annual contributions of all its members.

Step	Step description	Relevant provisions from the guidelines
Step 1	Define the annual target level	Paragraph 37 of the guidelines
Step 2	Define the contribution rate (CR) applicable to all member institutions in a given year	Paragraphs 39 of the guidelines
Step 3	Calculate values of all risk indicators	Paragraphs 48-77 of the guidelines (requirements for indicators); Annex 2 and Annex 3 (formulas for indicators)
Step 4	Assign individual risk scores (IRSs) to all risk indicators for each member institution	Paragraphs 1-5 and 13-17 of Annex 1
Step 5	Calculate the aggregate risk score (ARS) for each institution by summing up all its IRSs (using an arithmetic average)	Paragraphs 41, 54-56 of the guidelines (requirements for weights of indicators); Paragraphs 6-9 and 18 of Annex 1
Step 6	Assign an aggregate risk weight (ARW) to each member institution (categorising the institution into a risk class) based on its ARS	Paragraphs 43-45 of the guidelines; Paragraphs 10-12, 19-21 of Annex 1
Step 7	Calculate unadjusted risk-based contributions for each member institution by multiplying the contribution rate (CR) by institution's covered deposits (CD) and its ARW	Paragraphs 35 of the guidelines
Step 8	Sum up the unadjusted risk-based contributions of all member institutions and determine the adjustment coefficient (μ)	Paragraphs 44 of the guidelines
Step 9	Apply the adjustment coefficient (μ) to all member institutions and calculate adjusted risk-based contributions	Paragraphs 44 of the guidelines