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DEPOSIT INSURANCE FUND TARGET RATIO

Research Paper

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TABLE OF CONTENTS

List of Tables	ii
List of Figures	ii
List of Abbreviations	i
Executive Summary	iii
I. Introduction.....	1
II. Definition of Key Terms.....	2
III. Methodology	4
A. Survey.....	4
B. Case Studies	5
C. Workshop	6
D. Literature Review	6
IV. Framework for Fund Target	6
A. Setting the Fund Target	6
B. Factors Considered in Setting the Fund Target.....	12
1. Financial system structure and characteristics	12
2. Legal framework.....	13
3. Prudential regulation, supervision and resolution regime.....	14
4. Macroeconomic conditions	14
5. Availability and accessibility of emergency/backup funding	14
6. State of accounting and disclosure regime and other considerations.....	15
C. Methods for Determining the Fund Target	15
1. Discretionary method	18
2. Statistical method.....	21
3. Combination of discretionary and statistical methods	22
V. Time Frame to Achieve the Fund Target	24
VI. Reviewing the Fund Target	26
VII. Policy Responses to Address a Fund Surplus or Shortfall.....	28
A. Fund Surplus	29
B. Fund Shortfall.....	30
VIII. Other Funding Issues Influencing the Fund Target.....	32
A. Building up the Fund – Sources and Uses	32
1. Start-up or seed funding.....	32
2. Regular and other sources of fund build-up	34
3. Fund uses.....	35
B. Backup Funding	36
C. Funding for Systemic Crisis	39
1. Agencies responsible for dealing with a systemic crisis	40
2. Formal funding arrangements with other safety-net players	42
3. Systemic crisis consideration in setting the fund target.....	44
IX. Conclusion.....	45
Annex A. DIFTR Survey Questionnaire	53
Annex B. Respondents to the DIFTR Survey	64
Annex C. Country Case Studies.....	66
Annex D. Methods for Determining the Fund Target	96

List of Tables

Table 1. Fund target of DIAs.....	10
Table 2. Methods for determining the fund target.....	18
Table 3. Time frame and achievement of the fund target	26
Table 4. Factors that triggered change in fund target.....	28

List of Figures

Figure 1. Profile of survey respondents	5
Figure 2. Plan to set a fund target.....	5
Figure 3. DIAs with a fund target	7
Figure 4. Denominator of the target ratio	8
Figure 5. Factors considered in the choice of target ratio denominator	9
Figure 6. Factors considered in setting the fund target.....	12
Figure 7. Financial system structure and characteristics	13
Figure 8. Legal framework.....	14
Figure 9. Time frame set to achieve the target.....	25
Figure 10. Frequency of periodic review of fund target.....	27
Figure 11. Policy responses to address a surplus.....	29
Figure 12. Funding of DIF Shortfall.....	31
Figure 13 Start-up or seed funding.....	33
Figure 14. Sources of start-up or seed funding	34
Figure 15. Sources of fund build-up.....	35
Figure 16. Uses of the deposit insurance fund.....	36
Figure 17 Emergency funding explicitly set out in law or regulations.....	37
Figure 18. Sources of emergency funding.....	38
Figure 19. Agencies responsible for dealing with systemic crisis	41
Figure 20. Formal arrangements with other safety-net players on funding for failure during a systemic crisis	43
Figure 21. Systemic crisis consideration in setting the fund target.....	44

List of Abbreviations

BIS	Bank for International Settlements
BRRD	Bank Recovery and Resolution Directive
BSD	Bahamian dollar
CDIC	Canada Deposit Insurance Corporation (Canada); Central Deposit Insurance Corporation (Chinese Taipei)
DGS	Deposit Guarantee Schemes
DIA	Deposit insurance agency
DIF	Deposit insurance fund
DIFK	Deposit Insurance Fund of Kosovo
DIFTR	Deposit insurance fund target ratio
DIS	Deposit insurance system
DRR	Designated reserve ratio
DSIBs	Domestic systemically important banks
EAD	Exposure at default
EL	Expected losses
EU	European Union
EUR	Euro
EWS	Early Warning System
FDIC	Federal Deposit Insurance Corporation
FGDR	Fonds de Garantie des Dépôts et de Résolution (French Deposit Fund)
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
IADI	International Association of Deposit Insurers
JODIC	Jordan Deposit Insurance Corporation
JPY	Japanese yen
JSC	Kazakhstan Deposit Insurance Fund
KDIC	Korea Deposit Insurance Corporation
KMV	Kealhofer, McQuown, and Vasicek
KRW	Korean won
LARC	Latin America Regional Committee
LGD	Loss given default
PD	Probability of default
RGC	Research and Guidance Committee
SRF	Single Resolution Fund
TRR	Target reserve ratio
UL	Unexpected Losses

US
VaR

United States
Value-at-risk

Executive Summary

This paper examines the current approaches and practices of deposit insurance agencies (DIAs) with ex ante funding in determining the optimal size of the deposit insurance fund (DIF) through the setting of fund targets. On the basis of a survey and case study analysis, the paper provides a summary of these approaches and practices, which DIAs could use as guidance when adopting a fund target or enhancing existing approaches and practices.

The setting of the fund target for DIAs with an ex ante funding system is important in ensuring the adequacy of their DIF. This can be gleaned from the results of the 2015 DIF Target Ratio Survey where 69% of total respondents with an ex ante funding system have a fund target.

The IADI Core Principles for Effective Deposit Insurance Systems (2014) specifically state under Core Principle 9 that “funding for the deposit insurance system is provided on an ex ante basis.”

The IADI Funding of Deposit Insurance Systems (2009), on the other hand, states that an appropriate fund target size should be adequate to at least cover the potential losses of the deposit insurer under normal conditions. The fund target is affected by a number of factors, which could vary across jurisdictions. Thus, every jurisdiction may have a different method for setting its fund target.

This paper used a survey, case studies, a workshop, and literature reviews to gather data and information on current approaches and practices in determining and administering a fund target. These methodologies were also designed to aid in the analysis of results, and to yield conclusions. The analysis shows the following:

Framework for the fund target

The fund target is typically expressed as a ratio to the assessment base (i.e. insured or insurable deposits) of the DIAs. The most common factors considered in setting the fund target are financial system structure and characteristics (e.g. number of member institutions, financial condition of member institutions, risk exposure of the DIA, types of deposits and depositors covered, degree of concentration and loss experience of DIA), legal framework, and macroeconomic conditions.

DIAAs use different approaches in setting their fund target. For DIAAs that use a discretionary approach, an expert opinion or discretionary judgment is often backed by analysis of data and information. For DIAAs that use the statistical approach, some use risk-based models while others do not. DIAAs may likewise combine both statistical models and discretionary judgment in their estimation.

Setting the time frame to achieve the fund target

The majority of DIAAs have set a time frame to achieve the target, with most either on schedule or ahead of schedule in terms of meeting the target.

Reviewing the fund target

To ensure that the target remains current and relevant, the majority of DIAAs conduct periodic reviews, predominantly at least once a year, to validate the approach, methodology and models used to determine the adequacy of the target.

Policy responses to address a fund surplus or shortfall

In the case of a fund surplus, most DIAAs either reduce or suspend premium collection. The latter approach, however, would exempt newly established banks from contributing to the fund, and is thus viewed as inequitable.

In the case of a DIF shortfall, the majority of DIAAs increase premiums or levy special premiums on insured institutions. Some DIAAs request a capital injection/budget appropriation from the government or collect premiums in advance from insured institutions.

Other funding issues

Start-up funding and regular sources of funds

More than half of DIAAs are provided with start-up or seed funding, commonly sourced from the government. Premium collections and income from investments are the most common sources of financing for the DIF.

Uses of the fund

The DIF is used to cover insurance losses/resolution costs and fund operating expenses. Some DIAs use the fund for other purposes, such as reimbursement of the government's start-up funding.

Backup funding

Most DIAs with a fund target have their emergency funding set out in law, but the majority have no implementation arrangements. DIAs should consider setting up such arrangements to ensure effective and timely access to emergency funds in support of prompt reimbursement of depositors' claims.

Funding for systemic crisis

A systemic failure or systemic crisis is normally dealt with by all financial safety-net participants. The survey shows that systemic crisis is most often co-managed by the government, central bank, financial supervisory authorities, resolution authorities, and/or the DIAs which is not usually structured to deal with a systemic crisis on its own (IADI, 2015a).

While it is necessary to adopt formal funding arrangements for systemic crisis resolution among safety-net players, only one-third of the DIAs have formal arrangements with other safety-net participants for this purpose. In some cases, a separate resolution fund has been set up or is currently being considered to cover the resolution of systemic banks.

I. Introduction

A growing trend among deposit insurers to set a fund target ratio has been observed. Half of the respondents to the 2015 International Association of Deposit Insurers (IADI) Annual Survey on Deposit Insurance Systems (DISs) revealed that they have a fund target, which is either set in the law or by the governing body, with different methodologies and approaches adopted. It is noteworthy that, in recent years, the choice of funding strategy has moved towards ex ante systems, which allows the setting of a fund target. Based on the results of the 2008 and 2014 IADI Annual Surveys, the percentage of deposit insurers with ex ante funding systems has increased from 83% to nearly 90% (IADI, 2015a). This trend appears to be a deliberate initiative on the part of deposit insurance agencies (DIAs), in keeping with the Core Principles for Effective Deposit Insurance Systems.

In 2014, the IADI Executive Council approved revisions to the Core Principles for Effective Deposit Insurance System, including those related to sources and uses of funds (Core Principle 9). Essential Criterion 1 stipulates that funding for the DIS is provided on an ex ante basis, and that funding arrangements are clearly defined and established in law or regulation (IADI, 2014). An ex ante funding system has distinct advantages. First, it may strengthen private sector confidence and enhance financial stability, provided that risk is correctly priced (IMF, 2013). Second, the ex ante system is fairer given that all entities, including those that failed, contribute premiums (Fogafin, 2013).

The setting of a fund target for DIAs with an ex ante funding system is important in ensuring the adequacy of the DIF under normal conditions. Essential Criterion 5 states that, after establishing an ex ante deposit insurance fund (DIF): (a) the fund target is determined on the basis of clear, consistent and transparent criteria, which are subject to periodic review and (b) a reasonable time frame is set to achieve the fund target (IADI, 2014).

Based on the aforementioned, this paper seeks to describe and examine current approaches and practices of DIAs with ex ante funding in determining the optimal size of the DIF through the setting of a fund target. On the basis of a survey and case study analysis, the paper provides a summary of these approaches and practices, which DIAs could use as guidance when adopting a fund target size or enhancing their current approaches and practices.

The rest of the paper is organised as follows. Section II offers the definition of key terms. Section III describes the methodology. Section IV presents the framework for setting the fund target. Section V discusses the time frame to achieve the fund target. The review of the fund target is the focus of Section VI. Section VII shows the policy responses to address a fund surplus or shortfall. Other funding issues are discussed in Section VIII. Section IX concludes the paper.

II. Definition of Key Terms

“Assessment base” refers to the basis (i.e. insured deposits, total liabilities, assets) on which the deposit insurer charges premiums to a member bank or calculates the levy needed to compensate the insured depositors (IADI, 2015b).

“Backup funding” refers to additional funding arrangements to supplement the DIFs in situations where the cumulated funds are insufficient to meet the needs of intervention and failure resolution, which include depositor reimbursement (2013 IADI Annual Survey).

“Bank” refers to any entity which accepts deposits or repayable funds from the public and is classified under the jurisdiction’s legal framework as a deposit-taking institution (IADI, 2015b).

“Deposit insurance agency (DIA)” refers to the specific legal entity responsible for providing deposit insurance, deposit guarantees or similar deposit protection arrangements. (IADI, 2014). Other terms used are “deposit insurer,” “deposit guarantee scheme,” and “deposit protection scheme”.

“Ex ante funding” refers to the regular collection of premiums, with the aim of accumulating a fund to meet future obligations (e.g., reimbursing depositors) and cover the operational and related costs of the deposit insurer (IADI, 2014).

“Ex post funding” refers to systems in which funds to cover deposit insurance obligations are only collected from surviving banks after a bank failure (IADI 2014).

“Financial Safety-Net” refers to a framework that includes the functions of prudential regulation, supervision, resolution, lender of last resort, and deposit insurance. In many jurisdictions, a department of government (generally a Ministry of Finance or Treasury responsible for financial sector policy) is included in the financial safety-net (IADI, 2015b).

“Funding” refers to financing mechanisms necessary to cover the operating expenses and obligations of a deposit insurer (IADI, 2015b).

“Insured deposits (covered deposits)” refers to eligible deposits that do not exceed the maximum level of coverage provided by a DIS (IADI, 2015b). Other terms used are “guaranteed deposits,” “protected deposits,” and “covered deposits”.

“Eligible deposits” refers to deposits that fall within the scope of coverage of a DIS (i.e., they meet the requirements for coverage under a DIS, and are based typically on the type/s of depositor and/or deposit) (IADI, 2015b). This is also called “insurable deposits”.

“Resolution” refers to the disposition plan and process for a non-viable bank. Resolution may include: liquidation and depositor reimbursement, transfer and/or sale of assets and liabilities, the establishment of a temporary bridge institution and the write-down of debt or conversion to equity. Resolution may also include the application of procedures under insolvency law to parts of an entity in resolution, in conjunction with the exercise of resolution powers (IADI, 2014).

“Resolution costs” refers to the sum of the expenditures and obligations incurred by the resolution authority for a given resolution method, including any immediate or long-term obligations and any direct or contingent liabilities for future payment, less the recoveries on assets of a failed bank (IADI, 2015b).

“Start-up funding” refers to the funding received by a newly established DIS as initial contributions to the DIF, typically from financial institutions, the government, and/or the central bank. This start-up funding does not include the following: (a) support from the government and/or other financial safety-net players in the form of an initial endowment or capital for administration costs, staffing, and operational expenses, separately recorded from the DIF; and (b) funding support from international organisations or technical assistance agencies with the explicit agreement that such funding will not be repaid (IADI, 2015b). Other term used is “seed funding.”

“Target fund size” refers to the size of the ex ante DIF, typically measured as a proportion of the assessment base (e.g. total or insured deposits), sufficient to meet the expected future obligations and cover the operational and related costs of the deposit insurer. (IADI, 2014). Another term used is “target reserve ratio”.

III. Methodology

This paper was based on a survey and case studies, presented and discussed at the International Workshop on the DIF Target Size and complemented by literature reviews. These methodologies were intended to generate the necessary updates and fill the existing information gaps on current approaches and practices in setting and administering a fund target. The data gathered were analysed from which conclusions were drawn.

A. Survey

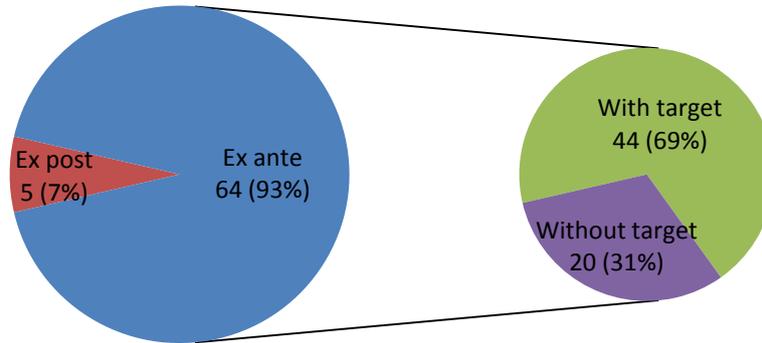
The DIF Target Ratio (DIFTR) Survey was conducted to gather data and information on prevailing policies and practices in setting and administering a fund target. A questionnaire¹ was developed and sent on 10 April 2015 to 113 DIAs, comprising both members and non-members of IADI. Sixty-nine DIAs, or 61%, responded to the survey.² The survey responses were supplemented by the information currently available in the IADI database.

The results of the survey showed that, of the 69 DIA respondents, 64 (93%) use ex ante funding arrangements, and 44 (69%) of these have a fund target (**Figure 1**). While there are 20 DIAs that do not currently have a fund target, 19 of them (95%) have plans to set one (**Figure 2**).

¹See Annex A for the DIFTR Survey questionnaire.

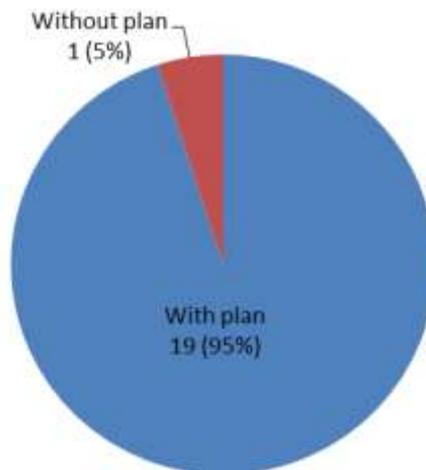
²See Annex B for the DIFTR Survey respondents.

Figure 1. Profile of survey respondents



Base: DIA respondents (69)

Figure 2. Plan to set a fund target



Base: DIAs without fund target (20)

B. Case Studies

Nine members of the DIFTR Subcommittee, namely Chinese Taipei, Colombia-Fondo de Garantías de Instituciones Financieras (Fogafin), France, Jamaica, Jordan, Kosovo, the Philippines, Russia, and South Korea, prepared case studies. The case studies³ offer detailed information on the fund target; triggers for setting the target; estimation method; assessment of fund adequacy;

³See Annex C for the country case studies.

administration of the fund target, including periodic review, changes made since initial adoption, and policy responses to address a surplus/shortfall; challenges encountered; and enhancements to be introduced.

C. Workshop

The International Workshop on the DIF Target Size was held in Makati City, the Philippines, on 15–17 June 2015. It was attended by 60 participants from 20 DIAs, along with other institutions from the Philippines such as the Bangko Sentral ng Pilipinas, Department of Finance, and Commission on Audit. The workshop was organised to present the preliminary results of the DIFTR Survey and provide a venue to discuss and exchange views, issues and jurisdiction experiences in setting and administering a fund target. Case studies from some members of the IADI Regional and Guidance Committee (RGC) Subcommittee on DIFTR, namely Chinese Taipei, Colombia-Fogafin, Jordan, the Philippines and South Korea, as well as the experiences of Canada Deposit Insurance Corporation (CDIC), Poland, and the United States (US), were presented. France shared a proposed model for administering a fund target.

D. Literature Review

Related literature was reviewed in the course of this research. The review included not only IADI guidance papers and research/discussion papers, but also studies from academia, multilateral institutions, and other DIAs which have extensive experience in deposit insurance funding and targeting.

IV. Framework for Fund Target

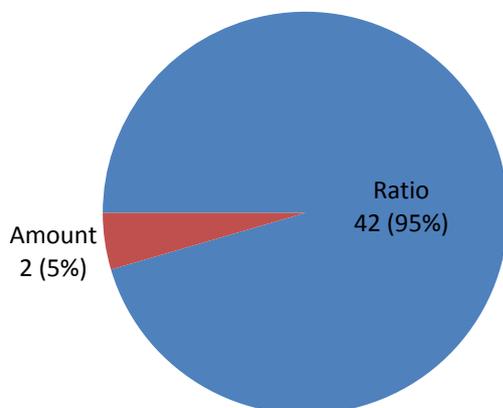
A. Setting the Fund Target

The appropriate fund target should be adequate to at least cover the potential losses⁴ of the insurer under normal circumstances (IADI, 2009). The fund target is affected by a number of factors, which could vary across jurisdictions. Thus, every jurisdiction may have different methods for setting their fund target.

⁴ IADI (2015a) notes that DIAs should also consider their estimated net loss after accounting for potential recoveries from the liquidation of a failed bank.

Forty-two DIAs, or 95% of those with a fund target, set their fund target as a ratio (**Figure 3**). Only the DIAs of the Bahamas and Japan use a specific amount as a fund target.

Figure 3. DIAs with a fund target



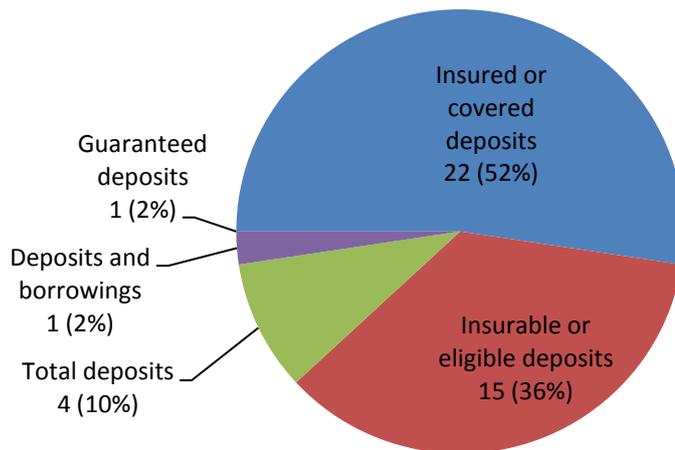
Base: DIAs with fund target (44)

The denominator of the fund target ratio is typically either insured (or covered) deposits or insurable (or eligible) deposits. Twenty-two DIAs, or 52% of those with a target ratio, use insured (or covered) deposits, while 15 DIAs (36%) apply insurable (or eligible) deposits (**Figure 4**). Other denominators are total deposits, and deposits and borrowings, as used by four DIAs and one DIA, respectively. Where insured or covered deposits are the denominator, the ratio ranges from 0.25% (Hong Kong [China]) to 15% (Kyrgyz Republic). For insurable or eligible deposits, the ratio ranges from 0.825% (South Korea) to 5.7%⁵ (Kazakhstan).

For 74% of the DIAs using a target ratio, the denominator is the same as the assessment base, which is consistent with the IADI definition of the fund target.

⁵ Data as of 1 April 2015.

Figure 4. Denominator of the target ratio

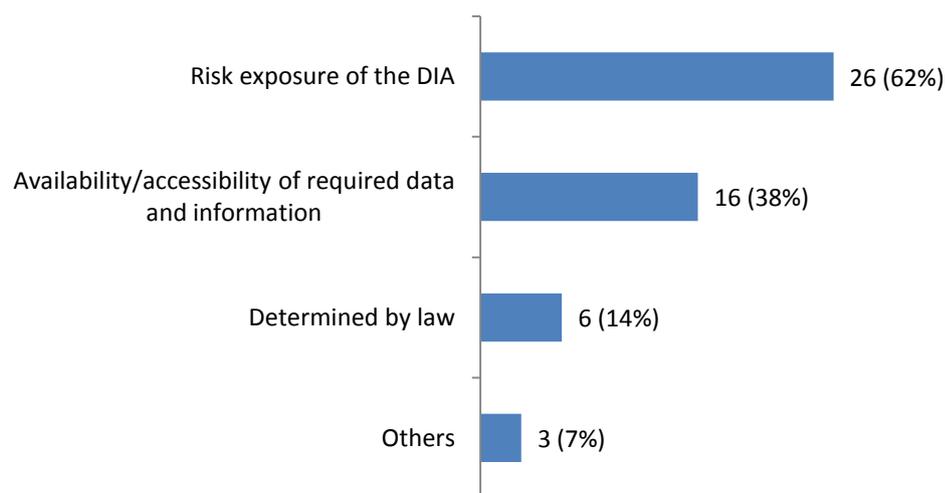


Base: DIAs with fund target as ratio (42)

The choice of the denominator is predominantly determined by the DIA's risk exposure, and the availability and accessibility of required data and information (**Figure 5**). At the very least, the denominator should reflect some measure of the DIA's "potential loss exposure over some appropriate time horizon" (Federal Deposit Insurance Corporation [FDIC], 2007). For example, estimated insured deposits have been chosen as the appropriate denominator for the fund target in the Philippines since this reflects the additional exposure of the DIF to the increase in coverage, rather than total deposits, which is the assessment base. If, *ceteris paribus*, deposit insurance coverage was doubled, then the ratio of the fund balance to total deposits would not change. In contrast, the ratio of fund balance to insured deposits would be reduced by 50% (Seelig, 2012).

In the US, the denominator for the target ratio is estimated insured deposits, while the assessment base on which premiums are charged is average consolidated total assets minus average tangible equity, "to make the largest banks responsible for a greater share of the FDIC assessment revenue" (Mihalik, 2015).

Figure 5. Factors considered in the choice of target ratio denominator



Base: DIAs with fund target as ratio (42)

Note: Percentages do not total 100% due to multiple response options.

Some forms of the target ratio are expressed as a range (with minimum and maximum values), such as those of Jamaica, Kosovo, Malaysia and South Korea. Adopting a target ratio range is useful to DIAs that adjust premium rates relative to the level of the DIF. Kosovo has adopted an 8% to 9% target range, which would permit a gradual increase in premiums as necessary, while a point target ratio might require drastic increases in premium rates to replenish the fund. In the case of South Korea, the target is set in a range of 0.825% to 1.1% to reduce the frequency premium rate adjustments. IADI (2015a) recognises that “a range of target levels may be more reflective of the financial system as well as the risk profile of member banks, and may remain relevant given the constantly evolving macroeconomic conditions”. For DIAs with a point target ratio, drastic adjustments in premium rates may be avoided by a more frequent review of the target ratio or the time frame to achieve the target.

The fund target of the majority of DIAs, representing 28 DIAs or 64% of those with a fund target, is set by law or regulation,⁶ while that of the remaining 16 DIAs (36%) is set by the DIA governing body (**Table 1**). Setting the target by law or regulation makes the fund target public, and thus provides clear and specific triggers indicating when member institutions can expect a premium adjustment. This, however, can be difficult to adjust to take account of changes in the risk profile of banks and other factors.

⁶ Financial Stability Board (FSB) (2012) noted that “most FSB member jurisdictions have a fund target size specified by laws or regulations”.

Some jurisdictions have addressed this constraint by setting in statute, a minimum fund target to ensure legal certainty, while retaining the flexibility for their governing bodies to adopt a higher target based on their review. The US has adopted a long-term target of 2%, referred to as the designated reserve ratio (DRR) (FDIC, 2013), which is higher than the legislated fund target of 1.35% by 2020. Kosovo has adopted a target range of 8% to 9%, higher than the 5% target set in the law.

Table 1. Fund target of DIAs

Fund target	Jurisdiction	Fund target
Set in the law, 28	As % of insured or covered deposits, 15	
	Albania	5%
	Bulgaria	1%
	Chinese Taipei	2%
	Finland	0.8%
	France	0.5%
	Hong Kong (China)	0.25%
	Hungary	0.8%
	Italy	0.8%
	Kyrgyz Republic	15%
	Libya	3%
	Moldova	7%
	Montenegro	10%
	Poland	2.6%
	Singapore	0.3%
	Slovak Republic	0.8%
	As % of insurable or eligible deposits, 11	
	Azerbaijan	5%
	Brazil	2%
	Czech Republic	1.5%
	Estonia	2%
	Guatemala	5%
	Honduras	5%
	Indonesia	2.5%
	Kazakhstan ^a	5.7%
	Macedonia	4%
	Palestine	3%
	Uruguay	5%

	As % of total deposits, 2	
	Armenia	5%
	Argentina	5%
Set by the DIA governing body, 16	As % of insured or covered deposits, 7	
	Brunei	0.5%
	Canada-CDIC	1%
	Jamaica	8% to 10%
	Kosovo	8% to 9%
	Malaysia	0.6% to 0.9%
	Philippines ^b	5.0%
	US	2%
	As % of insurable or eligible deposits, 4	
	Colombia-Fogafin ^c	5.5%
	Mongolia	4%
	Romania	3%
	South Korea	0.825% to 1.1%
	As % of total deposits, 2	
	Canada-British Columbia	0.88%
	Zimbabwe	2%
	As % of deposits and borrowings, 1	
	Canada-Alberta	1.5%
	As an amount, 2	
	Bahamas	BSD 81 million
Japan	Approximately JPY 5 trillion	

^aIn Kazakhstan, the deposit insurance law stipulates the minimum DIFTR as no less than 5% of all eligible (insurable) deposits, while the statistical approach established the DIFTR at 5.7% of all eligible (insurable) deposits.

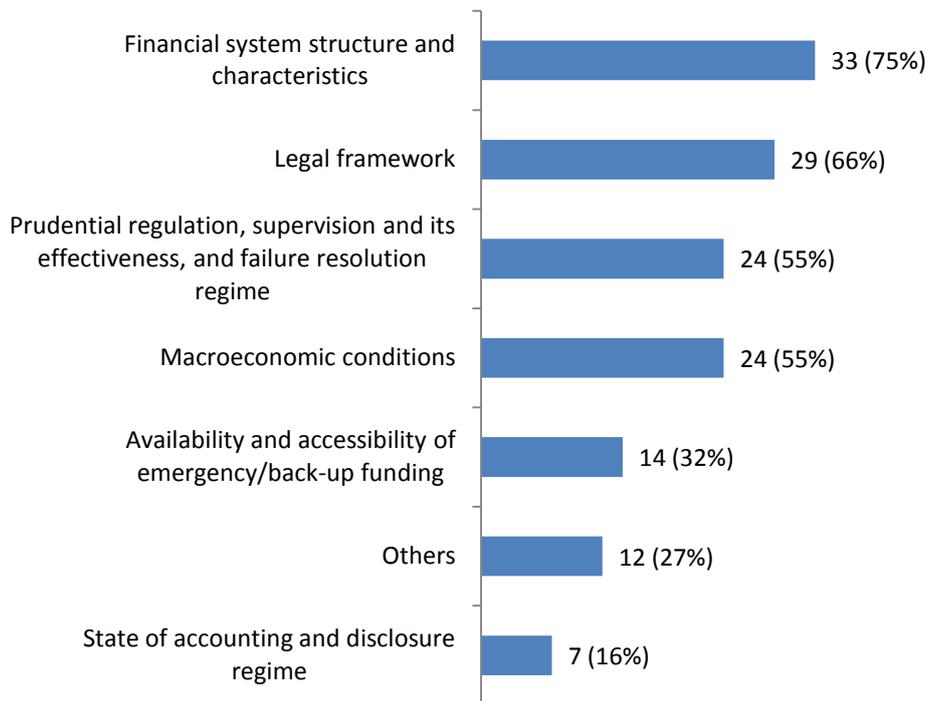
^bIn 2017, the Philippines moved from a point to a range target ratio of 5.5% to 8.0%. The lower limit of 5.5% represents the adequacy of the DIF to cover direct costs and possible threats to the fund, based on the PDIC's past experience and bank failures, while the upper limit of 8.0% represents the adequacy of the DIF to cover losses from possible contagion brought about by a big bank closure.

^cOn 24 July 2015, Colombia-Fogafin's target for the fund size was presented to its Board of Directors but not formally adopted. On 20 January 2016, a target range of 4.9% to 6.3% with a midpoint of 5.6% was finally adopted by the Board.

B. Factors Considered in Setting the Fund Target

Consistent with the recommendation in the IADI Enhanced Guidance on Ex Ante Funding (IADI, 2015a), DIAs consider a number of factors in setting the fund target. Survey results from 44 DIAs with a fund target show that the most common factors considered are: financial system structure and characteristics; legal framework; macroeconomic conditions; and prudential regulation, supervision, and resolution regime. The other factors are availability and accessibility of emergency/backup funding and the state of the accounting and disclosure regime (**Figure 6**).

Figure 6. Factors considered in setting the fund target



Base: DIAs with fund target (44)

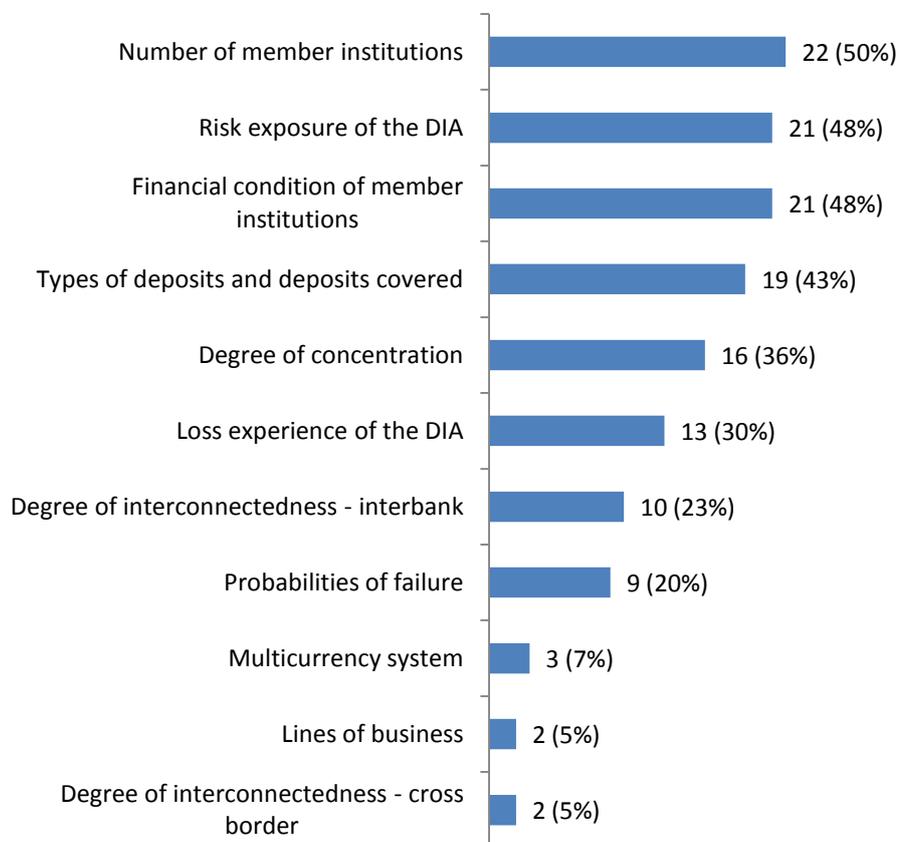
Note: Percentages do not total 100% due to multiple response options.

1. Financial system structure and characteristics

Thirty-three DIAs (75%) considered the financial system structure and characteristics. Among the elements under this concept, the most commonly cited are number of member institutions, financial condition of member institutions, risk exposure of the DIA, types of deposits and depositors covered, degree of concentration, and loss experience of the DIA (**Figure 7**). Other considerations are the degree of interbank or cross-border interconnectedness,

probabilities of failures, multicurrency systems where currency substitution and dollarisation⁷ exist, and lines of business of member institutions.

Figure 7. Financial system structure and characteristics



Base: DIAs with fund target (44)

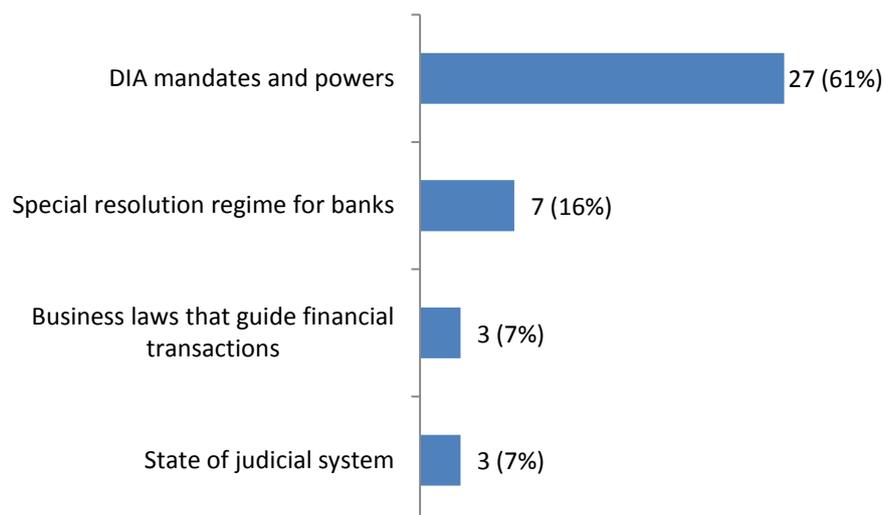
Note: Percentages do not total 100% due to multiple response options.

2. Legal framework

Twenty-nine DIAs (66%) considered the legal framework. The legal framework includes the DIA's mandates and powers, the existence of a special resolution regime for banks that is separate from the general corporate insolvency laws (IADI, 2015a), the state of the judicial system, and business laws that guide financial transactions (**Figure 8**).

⁷ Currency substitution is defined as the use of a foreign currency as a medium of exchange in the domestic economy. Dollarisation is defined as the use of a foreign currency as a medium of exchange and a store of value in the presence of a domestically issued currency (Berg and Borensztein, 2000; Menon, 2007).

Figure 8. Legal framework



Base: DIAs with fund target (44)

Note: Percentages do not total 100% due to multiple response options.

3. Prudential regulation, supervision and resolution regime

Twenty-four DIAs (55%) considered the prudential regulation, supervision and resolution regime. These include prompt identification and correction of weaknesses of member institutions, properly monitored corrective measures, resolution approaches, and powers of the deposit insurer, i.e., powers of early intervention to lower the costs associated with bank failures (IADI, 2014; IADI, 2015a). Moreover, IADI (2014) provides that the “implementation of corrective measures is monitored and, where deficient, early intervention and an effective resolution regime help to lower the costs associated with bank failures”.

4. Macroeconomic conditions

Twenty-four DIAs (55%) considered the macroeconomic conditions that may directly or indirectly affect the stability of the financial system in general, and the potential default rates of member banks in particular (Bank for International Settlement, 2012; IADI, 2015a).

5. Availability and accessibility of emergency/backup funding

Fourteen DIAs (32%) considered the availability and accessibility of emergency/backup funding. This refers to the available external funds that the deposit insurer can access to fully cover immediate liquidity requirements in reimbursing insurance claims by depositors, such as a borrowing facility with the

government. External funding is distinct from internal funding, which is primarily sourced from premium payments of member banks (IADI, 2015a).

6. State of accounting and disclosure regime and other considerations

Seven DIAs (16%) considered state of accounting and disclosure regime. This includes internationally accepted accounting principles and rules as well as a system ensuring ease in risk identification and a system of internal audits (IADI, 2014).

Twelve DIAs (27%) considered other factors. For example, in the US, the FDIC took into consideration the mitigation of sharp swings in assessment rates and any other factors that the FDIC Board determines to be appropriate. Jamaica considered maturity of the scheme/years since establishment, growth of the fund, and premium assessment rates. Kosovo also considered the assessment base of its premium levy.

Another consideration cited in setting the fund target is funding during systemic crisis. (See detailed discussion under **Section VIII.C**). Six DIAs (Colombia-Fogafin, Guatemala, Japan, Libya, Palestine, Singapore) indicated that funding for failure during systemic crisis is considered in setting the fund target.

C. Methods for Determining the Fund Target

Deposit insurers adopt different approaches and methodologies in setting the fund target, ranging from a discretionary approach to statistical modelling (IADI, 2015a). The DIFTR survey, case studies and the International Workshop on DIF Target Size show that DIAs use different approaches in setting the fund target.

The **discretionary method** or quantitative approach relies on judgment. For instance, a DIA sets a sufficient fund target to cover its potential exposure to insured deposits for all small banks and some medium-sized banks (IADI, 2015a). Similarly, the method reflects expert opinions based on international best practice and the specific situation of the DIA. Historical data on bank failure and associated losses may or may not be incorporated in the analysis, which serves as a basis for the discretionary method. Some DIAs with little or no

history of bank failure also adopt the expert opinion method,⁸ which reflects the ideas of experts on the fund target of the DIA. Despite the variation in the terminology, similarities have been noted, such as the use of discretionary judgment, which may either be backed by an analysis of historical data or based purely on the opinions or ideas of experts.

Based on the IADI Evaluation of DIF Sufficiency on the Basis of Risk Analysis (2011), a target reserve ratio (TRR) approach is at the centre of the discretionary method for setting the target fund size. The TRR is the ratio of the DIF to total deposits and the DIF margin of safety is based on an expert opinion. The TRR, however, estimates the soundness of a DIS without taking into consideration the level of potential liability of the DIA, which corresponds to the coverage limit. When the coverage limit is higher or there are adverse market conditions, the DIF has to have a larger buffer to cover losses that exceed the fund.

The statistical method usually involves the estimation of the DIA's loss distribution, which can be used to determine the DIA's adequate fund level. (Kuritzkes, Shuermann, and Weiner, 2005; De Lisa et al., 2010). IADI (2011) cited different approaches and models that can be used to determine the adequacy of the DIF. The evaluation of DIF sufficiency is based on risk analysis using statistical methodologies, as opposed to the discretionary method, which relies on the judgment of experts and/or incorporates the history of bank failure.

The value-at-risk (VaR) methodology estimates the covered losses of the DIA and requires that the DIF should be sufficient to cover expected losses (EL) and unexpected losses (UL).⁹ UL are estimated using the statistical simulation method or Monte Carlo simulations. EL analysis involves estimating the insured deposits of member banks, referred to as exposure at default (EAD), which is an exogenous input that is known in advance; the probability of default (PD) of member banks; and the share of non-recoverable losses from the bankruptcy estate of liquidated banks, referred to as loss given default (LGD), which is defined as the ratio of losses in the event of default to EAD.

The PD of member institutions can be computed by using three methodologies: the credit rating approach where PDs are estimated based on credit ratings of member banks which are either internally developed by the DIA

⁸ The expert opinion method is recognised by IADI as one of the methods used in evaluating DIF sufficiency. The method does not compute for probability of default (PD) of member banks, but is based on ideas of some respected experts about the margin of safety which the DIF should have (IADI, 2011).

⁹ Covered losses = expected losses + unexpected losses.

or provided by credit rating agencies such as Standard & Poor's, Moody's, and Fitch; econometric models where PDs are estimated using models such as logit, probit, ordered probit and duration models; and market analysis using available financial market information.

These models must be constantly back-tested in order to ensure comparability of results of the PD estimation (IADI, 2011; Fogafin, 2013). In practice, variations in approaches, methodologies and models exist (see Annex C on Country Case Studies).

Meanwhile, the IADI Latin America Regional Committee (LARC) has developed a methodology based on credit risk modelling theory to determine the target level of the DIF "for jurisdictions where financial, economic and bank analysis indicators or detailed statistics on historical bank failures are lacking – a common occurrence in the region" (IADI LARC, 2015).¹⁰

A **combination method** uses a statistical method combined with a discretionary approach based on historical experience or expert opinion.

Results of the survey showed that DIAs set their fund target through a discretionary approach, statistical approach or a combination of both. Eleven DIAs (25%) did not indicate a method but have their fund target set in law (**Table 2**).

For DIAs that use the discretionary approach, the expert opinion or discretionary judgment is often backed by analysis of data and information. For DIAs that use the statistical approach, some use risk-based models while others do not. DIAs may likewise combine both statistical models and discretionary judgment in their estimation.

¹⁰ In the absence of historical data on the rate of recovering assets from failed banks, the IADI LARC (2015) suggests the use of an LGD from another DIA or an international standard.

Table 2. Methods for determining the fund target¹¹

Method	In-house		Outsourced/ co-sourced		Legislation/ Directive		Not specified		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%
Discretionary	6	37	3	30	3	38	5	50	17	39
Statistical	3	19	2	20	1	12	0	0	6	14
Combination	7	44	2	20	1	12	0	0	10	23
Not specified	0	0	3	30	3	38	5	50	11	25
Total	16	100	10	100	8	100	10	100	44	100

Based on survey results, the availability/accessibility of required data and information and international practice influence the DIA's choice of method for determining the fund target. Other DIA-specific factors were also considered, such as the absence of a history of bank failures, a very low number of defaults, non-reliance on the use and/or results of mathematical models, and the application of a European Union (EU) directive.

Countries that do not have historical loss experience would adopt the discretionary method (e.g., Jamaica, Kosovo). When data are available, systematic modelling of the DIA's fund requirement that accounts for possible risks can be pursued (e.g., Russia). But even without historical failure data, the statistical method can still be pursued by using proxies.¹² There are countries (e.g., the Philippines), however, that adopted the discretionary method rather than the statistical method, even though they have historical loss experience. To benefit from the advantages of both methods, some DIAs have adopted a combination of discretionary and statistical methods (e.g., Canada-CDIC, Poland, South Korea). Overall, the analysis reveals that the choice of method for determining the fund target is country-specific.

1. Discretionary method

Survey results showed that 17 DIAs (39%) use the discretionary approach in setting the fund target. Six of the 17 developed their method in-house, three through outsourcing/co-sourcing and three through legislation or EU directive. Five, however, did not specify who developed the method for setting the fund target.

¹¹ See Annex D for the methods for determining the fund target.

¹² See IADI (2015a), which provides a note on how Malaysia used a statistical method even without past failure data, and IADI LARC (2015).

Different methods were used under the discretionary approach, namely, the expert opinion method in the case of Chinese Taipei, Jamaica, Kosovo, and the qualitative approach in the case of the Philippines. For both Chinese Taipei and the Philippines, the DIA's historical experience of bank failures and associated losses, on which the discretionary judgment in setting the fund target was based, was analysed. IADI recognizes the use of historical experience as a common approach among DIAs since it is "relatively straightforward and relies on existing information" although it also cautioned that the past may not be representative of future bank failure or financial crisis (IADI, 2015a).

In the US, the FDIC undertook an analysis of the historical changes in DIF balances, reserve ratios, assessment rates, and simulated income data from 1950 to 2010 "to determine how high the reserve ratio would have had to be before this period's two banking crises to have maintained both a positive fund balance and stable assessment rates" (Davison and Carreon, 2010; Mihalik, 2015). Results show that a reserve ratio of 2% of insured or covered deposits would enable its DIF to withstand a future financial crisis on a scale similar to past crises. Based on these results, the FDIC adopted a comprehensive and long-term management plan for a DRR that is designed to reduce procyclicality; achieve moderate, steady assessment rates throughout economic and credit cycles; and maintain a positive fund balance. The FDIC governing body adopted a final rule to set the DRR at 2% in December 2010 and has maintained the DRR since then.

In the case of Chinese Taipei,¹³ the fund target was determined using an empirical method with inputs from experts and deposit insurance practitioners. A study was commissioned by the DIA in 2004, and an analysis of the following three models was made: (a) Monte Carlo historical simulation and Markov switching model, (b) the credit risk model, and (c) the empirical model. Based on the research paper and discussions with deposit insurance practitioners, the empirical model was adopted, with the recommendation that the fund target be set at a level that should have the capability to cover the payout losses and resolution costs of one large bank or one to four medium-sized banks. In 2007, Chinese Taipei adopted through the Deposit Insurance Act the fund target of 2% of covered deposits.

The Philippines,¹⁴ likewise, engaged a third-party expert to study the adequacy of its DIF. Historical data on bank failures and associated losses for the past 15 years, encompassing both the Asian and global financial crises, were

¹³ Discussion is based on CDIC – Chinese Taipei (2015) and Hsi (2015).

¹⁴ Discussion is based on PDIC (2015).

analysed. Based on the available data, it was not possible to use a purely statistical approach since “increases in deposit insurance coverage in recent years heavily skewed the losses and exposure of the insurance fund to the most recent period, reflecting very low losses in most of the earlier period” (Seelig, 2012). Using a qualitative approach based on analysis of historical data, a fund target of 5% of estimated insured deposits was adopted. The fund target is equivalent to (a) actual losses from closed banks for the worst two contiguous years, plus (b) potential losses from the failure of at least one large bank that, under ordinary market conditions, would not be considered systemic, and (c) an additional year’s failures and/or an additional commercial bank failure as cover for unanticipated risks (Seelig, 2012).

For Jamaica and Kosovo, which do not have historical data on bank failures, the discretionary judgment was benchmarked against policy and available data. Both DIAs acknowledged that, as there is an absence of historical data on bank failures, the expert opinion method is advantageous since it combines quantitative factors with qualitative information and does not rely solely on historical bank failure experience.

Jamaica¹⁵ used the expert opinion method, which includes an assessment of both quantitative and qualitative information. An analysis of how to establish a fund that is adequate to offset potential liabilities without borrowing or receiving government support over a given period and an assessment of the characteristics and structure of the banking system were performed, with the goal of building a fund target over a given horizon. The setting of the fund target balance is guided by the following: the cost of funding the resolution of non-systemic member institutions which is benchmarked against the amount adequate to offset the cost to payout depositors of the institution; and projected bank failures and losses to the DIF. In 2006, a fund target was set at 5% of insured deposits, which is adequate to cover the payout of insured deposits of nine of the 15 member institutions in Jamaica. The fund target it was projected to be achieved in 2012. In 2009, the target ratio was increased to a range of 8% to 10% of insured deposits, to be achieved in 2021 since, based on the size and structure of the banking system, it was necessary to ensure that the DIF was adequate to cover the insured deposit liabilities of any two medium-sized institutions. Further, a review of its fund target conducted in 2014 indicated that it was no longer adequate to cover the total insured deposits of any two medium-sized member institutions, which would have necessitated a change in the target ratio to a range of 10% to 12% of insured deposits. The DIA, however,

¹⁵ Discussion is based on JDIC (2015).

deemed it prudent to focus on enhancing the resolution framework for banks and formalising contingency funding arrangements, instead of raising the fund target.

In Kosovo,¹⁶ the target ratio was initially set by legislation at a minimum of 5% of insured deposits in 2011. No model was used but the target was based on practices in the Balkan peninsula. In 2012, the report on the Financial Sector Assessment Program (FSAP) included a recommendation to increase the fund target to a working range of 8% to 9% of insured deposits to allow the DIA to compensate insured depositors in the event of two small bank failures or one medium-sized failure. The estimation method used in determining the level of target ratio was based on expert opinion due to the absence of a history of bank failures and a high concentration in the banking sector. The expert judgment was assessed against data and the conclusion was reached that an increase in the DIF target ratio was prudent given that a direct borrowing facility from government through the treasury was non-existent, and that the DIA relied only on market funding arrangements. In 2013, the DIA governing body made a policy decision to increase the target ratio from 5% of insured deposits to a working range of 8% to 9% of insured deposits, which is sufficient to cover the insured deposits of two small banks or one medium-sized bank. A 14-year time frame was adopted, consistent with the EU Directive.

In EU countries, the target size is defined by a Deposit Guarantee Schemes (DGS) Directive, which is at least 0.8% of covered deposits or 0.5% if banks operate in a highly concentrated national market. Initially, a Monte Carlo simulation was used to come up with the target of at least 1.5% of covered deposits. Negotiation among EU members, however, reduced the DIF ratio as defined in the DGS Directive, taking into account, among other factors, past practices, as well as a legal environment including specific resolution procedures and a separate resolution fund for systemic cases.

2. Statistical method

Survey results showed that six DIAs (14%) use the statistical approach¹⁷ in estimating the fund target. Of the six DIAs, three developed their own models, while two outsourced/co-sourced their development.

In the case of Russia,¹⁸ the fund target is estimated through risk-based analysis using three mathematical models for the purposes of managing the

¹⁶ Discussion is based on Deposit Insurance Fund of Kosovo (DIFK) (2015).

¹⁷ This estimates the financial state of member banks as a statistical function of their past financial performance and other relevant parameters, so to maximise the similarity between the observed and estimated financial standings (IADI, 2011).

risks and forecasting adequacy of the DIF. The first one is an econometric model. It is used to assess the possible expenses of the fund over a quarter, six months and a year. The model uses algorithms to process the bank's financial statements and estimate the PD of each member bank. The second model is referred to as a bond model, used to estimate the PD of banks based on market quotations of bonds issued by the banks. The third model is a rating model, a supplementary model to refine the PD of banks based on the information from credit rating agencies.

3. Combination of discretionary and statistical methods

Survey results show that a total of 10 DIAs (23%) use a combination of methods. A statistical risk-based model¹⁹ was commonly used. For Colombia-Fogafin,²⁰ the methodology adopted is based on the DIA's loss distribution function and its risk tolerance. The DIA's loss distribution is computed using the estimated PD of member institutions and the correlation among them using Monte Carlo simulations.²¹ The statistical risk analysis is combined with a historical analysis of the growth of eligible deposits and DIF, in order to determine the funds needed if the DIA were to experience a crisis similar in the 1990s. Further, the methodology took into account recoveries of the liquidation process, which can be financed with alternative sources such as contingency credit lines, and the DIA's investment policy. Based on the result of the statistical analysis and policy considerations, a fund target of 5.5% of total insurable deposits was derived and presented to the DIA governing body for formal adoption. Colombia-Fogafin established a five-year strategic plan (2015 to 2019), with the goal of achieving 75% of its fund target by 2019.

In the case of Canada-CDIC,²² loss estimation and discretionary analysis were used to estimate the fund target. A Monte Carlo simulation was used to produce the DIA's loss distribution. The failure of a member institution is determined by the random trial and PD of each member bank. Contagion effects were simulated by assigning a correlation between the PD of any two financial institutions. Inputs to its loss estimation model are as follows: exposure to member institutions (domestic systemically important banks [DSIBs] and non-

¹⁸Discussion is based on DIA - Russia (2015). Russia followed the methodology in IADI (2011).

¹⁹Risk analysis method of DIF sufficiency evaluation is based on estimation of PD of member banks and DIF cover losses (IADI, 2011).

²⁰Discussion is based on Fogafin (2013), Fogafin (2015), and Hernandez (2015).

²¹Fogafin followed the methodology proposed in the IADI Discussion Paper "Evaluation of Deposit Insurance Fund Sufficiency on the Basis of Risk," November 2011. Fogafin's methodology is detailed in Fogafin's paper "A Methodology in Determining the Fund Targeting Level of a Deposit Insurer," February 2013.

²²Discussion is based on Cosman (2015).

DSIBs),²³ the PD derived for each member bank using the KMV²⁴ model and credit ratings by Standard & Poor's and Moody's, LGDs assigned to each group based on an analysis of international experience to compensate for a lack of recent loss data in Canada, and loss scenarios or assumed default correlations driven by member peer groups. Since the fund target was based on estimates, stress testing was done to understand what the impact will be when inputs were modified. A positive stress test, or better than base case, was performed, with the PD and LGD inputs reduced by 20% and 35%, respectively. Likewise, a negative stress test, or worse than base case, was carried out, with the PD and LGD inputs increased by 20% and 35%, respectively. Aside from the statistical analysis, a discretionary analysis was also done based on CDIC's liquidity view of sufficiency, profile of membership, ability to fund the payout of a single member or a number of members collectively, ability to fund recapitalisation of member institutions, and calibration of funding levels.

South Korea²⁵ uses both the quantitative approach and the policy approach in estimating its fund target. The quantitative approach involves deriving the reserve target through estimation of its probability distribution of losses. A default model, J.P. Morgan's Credit Metrics, was used to estimate a PD of losses and calculate a credit VaR with a 99% confidence interval. To estimate the DIA loss distribution, the credit VaR at the given percentile was calculated, the reserve targets were determined, and the Monte Carlo simulation was used. Inputs to the Monte Carlo simulations include default rates estimated using models and assumptions based on policy variables, DIA exposure requiring estimation of the insurable amounts and recovery rate, and correlations using credit ratings and assumptions based on policy variables. Further, the policy approach determines the target based on a comprehensive review of the DIA's ability to raise funds in the event of an emergency, the member institutions' ability to pay, historical experience, and foreign cases. Both approaches are merged to come up with a range target.

In the case of Poland,²⁶ a Monte Carlo simulation, which adopts PD on the basis of international experience (rating agencies' research), estimated the DIA's fund requirements. Inputs to the Monte Carlo simulation are bank risks determined on the basis of Early Warning System (EWS) ratings and PD, determined by mapping EWS ratings to average historical default frequencies

²³Domestic assets for DSIBs to consider the implementation of a bail-in regime in Canada and insured deposits for non-DSIBs.

²⁴Stands for Kealhofer, McQuown, and Vasicek, a credit risk analysis tool of Moody's Analytics Enterprise Risk Solutions.

²⁵ Discussion is based on KDIC (2015) and Jang (2015).

²⁶ Discussion is based on Sitkowska (2015).

calculated by Standard & Poor's. In addition to the Monte Carlo simulation, an analysis of the upper levels of the historical coverage ratio, the capacity of the current coverage ratio, and broad expert analysis of the largest coverable bank ranking are used to derive the fund target. Target fund levels are established in legislation — 2.6% for the DIF and 1.2% for the resolution fund. As of 31 March 2015, DIF reserve ratio was 1.75% ex ante and 0.94% ex post. Funds exceed the target under the DGS Directive.

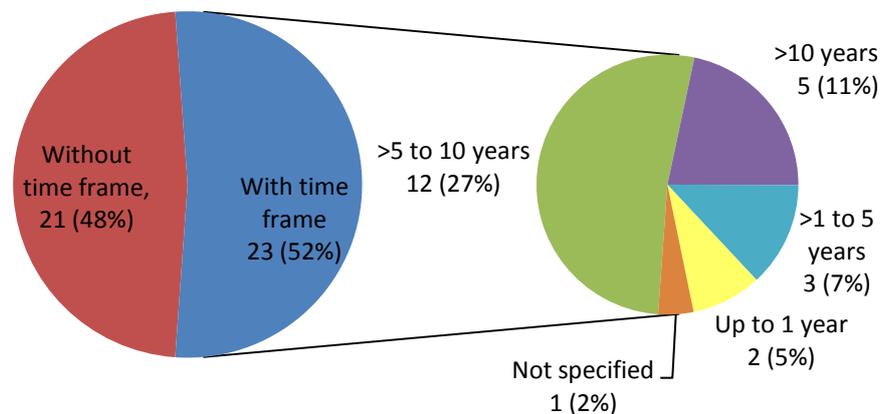
V. Time Frame to Achieve the Fund Target

In setting a credible time-to-fund, the IADI Enhanced Guidance on Ex Ante Funding (2015a) identified the rate of growth of insured deposits, the level of premiums to be assessed on member banks, and the level of net surplus to be accumulated annually. The level of premium collections has the greatest impact and "premium rates constitute the major means by which the deposit insurer could accelerate the time-to-fund". In some jurisdictions, however, premium rates have a legislated limit (minimum or maximum) and hence it should be taken into consideration as it imposes "a restriction on the time-to-fund". It notes, on the one hand, that too long a time-to-fund may undermine the credibility of the DIS. On the other hand, a too short a time-to-fund may have an adverse impact on the financial condition of member banks.

Results of the survey showed that, of the 44 DIAs with a fund target, 23 (52%) have set a time frame to achieve the target, while 21 (48%) have not (**Figure 9**). Of the 21 DIAs, four (Armenia, Colombia-Fogafin, Czech Republic, Kyrgyz Republic) have a plan to establish a target period. The setting of a time frame is in line with the IADI Enhanced Guidance on Ex Ante Funding (2015a) and allows the DIA to monitor its progress in achieving the target.

Commonly (12 or 27% of DIAs with time frames), the time frame set to achieve the fund target is at least five to 10 years. The shortest time frame is at most one year – as set by two DIAs (5%) – while the longest is greater than 10 years – as observed in five DIAs (11%).

Figure 9. Time frame set to achieve the target



Base: DIAs with fund target (44)

Fifteen or 65% of DIAs with time frame are on schedule to meet the target, while two or 9% are ahead of schedule (Canada-British Columbia, the Philippines). Higher than projected income from investments and premium collections, lower resolution costs due to the improved financial condition of member banks, and an improved regulatory environment contributed to the early achievement of their fund target. In addition, tax relief and government contributions in deposit insurance payments also helped the Philippines, while Canada-British Columbia benefited from lower than expected deposit growth.

The six DIAs (26%) that are not on schedule to meet their fund target cited lower than projected premium collections²⁷ (e.g., in case of Kosovo, the lower risk profile of banks reduced risk-based premium, hence premium income decreased) and income from investments, and higher resolution costs. Numerous claim payouts and high indebtedness also hindered Hungary in meeting its target. Meanwhile, Libya cited unfavourable domestic circumstances during its DIA's establishment as the reason why it has been off target.

The survey results show that the length of the time frame does not seem to affect the possibility of meeting the fund target on schedule or not. While the majority of DIAs that are on schedule have adopted a medium-term time frame (greater than 5 years to 10 years), half of DIAs that are not on schedule have the same time frame (**Table 3**).

²⁷ Improvements in the risk profile of member banks could also reduce premium rates. The resultant lower premium collection may have an adverse impact on the time frame for meeting the target, as in the case of Kosovo.

Table 3. Time frame and achievement of the fund target

Time Frame	Achievement of the Fund Target					
	On schedule		Ahead of schedule		Not on schedule	
	Count	%	Count	%	Count	%
Up to 1 year	2	13%	0	0%	0	0%
>1 up to 5 years	0	0%	1	50%	2	33%
>5 to 10 years	9	60%	0	0%	3	50%
>10 years	4	27%	0	0%	1	17%
Not specified	0	0%	1	50%	0	0%
Total	15	100%	2	100%	6	100%

VI. Reviewing the Fund Target

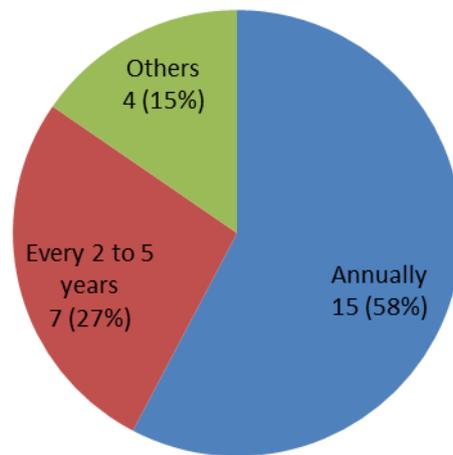
A fund target should not be static, as the factors considered in setting the fund target (e.g. macroeconomic conditions, banking environment, risk profile of member banks, rate of growth of insured deposits, and net surplus of the deposit insurer) can change over time. It is good practice, therefore, to periodically review and validate the approach, methodology and models used to determine the adequacy of the fund level to ensure that they remain current and relevant (IADI, 2015a).

Based on the results of the survey, the majority (26 or 59%) of DIAs with a fund target conduct periodic reviews, predominantly (15) at least once a year (**Figure 10**). Some DIAs review continuously (Hong Kong [China]), or as required (Brunei) or when needed (Kyrgyz Republic). Seven DIAs review their target once every two to five years.

Of the 26 DIAs, 24 conduct their own review while two (Hungary, Italy) are reviewed by external entities (i.e., European Commission and European Banking Authority).

In South Korea, according to the Depositor Protection Act, the appropriateness of target ratios is reviewed on a regular basis in consideration of the overall condition of the national economy and the stability of the financial system. If necessary, target ratios are adjusted through a resolution of the Deposit Insurance Committee.

Figure 10. Frequency of periodic review of fund target



Base: DIAs with fund target and periodic review (26)

For DIAs with no periodic review, the conditions that will trigger a review include changes in the macroeconomic environment and financial situation (Armenia) and an increase in bank failures (Zimbabwe). Two DIAs (Chinese Taipei, Honduras) responded that the conditions for triggering a review are not determined/specified, while for two DIAs, there are no conditions (Moldova) or trigger (Uruguay) for reviewing the fund target.

In the case of EU countries, discussions at EU level in the aftermath of the financial crisis triggered a review of European deposit insurers' resources and led to the setting of a harmonised minimum target level through various provisions of a new DGS Directive. For France, the deposit insurance fund amounted to EUR 1.5 billion before the 2008 crisis. According to the new directive, the French DIS size should increase from its current level of EUR 3.4 billion to EUR 5.25 billion in 2024.²⁸ The increase will be financed gradually by bank contributions and, in the interim period, is covered by a syndicated credit line, available on first call.

Survey results showed that 17 DIAs (39%) have revised their fund target since initial adoption, of which 13 DIAs conduct periodic review. Reasons cited for the revision are shown in Table 4.

²⁸ As of 2017 data.

Table 4. Factors that triggered change in fund target

Factors	Jurisdictions
Increase in deposit insurance coverage limit	Armenia, Hong Kong (China), Jamaica, Kyrgyz Republic
Change in macroeconomic environment	Armenia, Canada – Alberta
Recommendation from FSAP or consultant	Kosovo, Philippines
Amendment in legislation	South Korea, US
Fund target estimation parameters	Kazakhstan
Further financial system concentration	Brazil
New DGS directive	Bulgaria
Response to credit crisis and an international movement to higher targets	Canada - CDIC
Change in credit union system and oversight/monitoring methodology	Canada - Alberta
Change in total insured deposits and DIA’s investment returns and expenditures	Malaysia
Creation of special account to deal with losses arising from a series of savings bank failures	South Korea

Five DIAs (11%), all of which conduct periodic review of fund target, have changed their method of fund target estimation since initial adoption of a fund target. Reasons for the modification were changes in economic conditions and credit union system and oversight/monitoring methodology (Canada - Alberta); an amendment in legislation (US); IADI Guidance (Canada – British Columbia, Hong Kong [China]); and DIA initiative to address weaknesses in the current methodology (Philippines).

VII. Policy Responses to Address a Fund Surplus or Shortfall

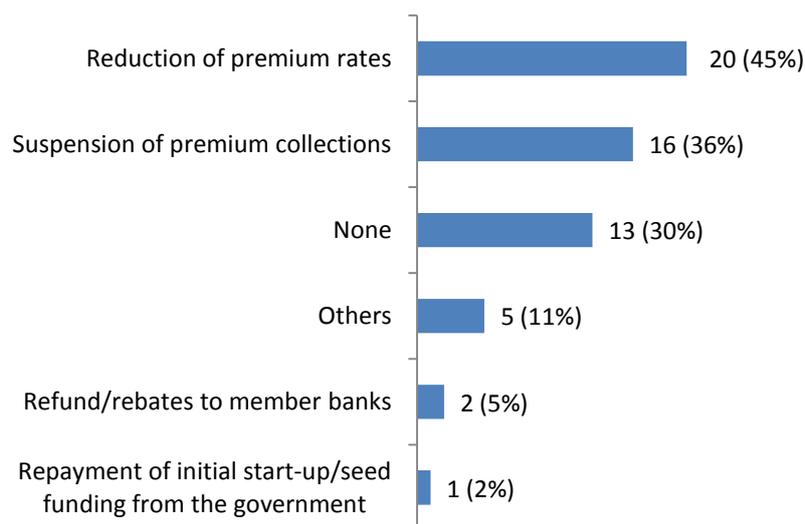
Deposit insurers may consider options when accumulated funds already exceed the target level or when there is a deficit in the fund. In the case of a fund surplus, DIAs may develop a disbursement mechanism. On the other hand, measures to cover a shortfall need to be identified to accelerate fund build-up. Of the 44 DIAs with a fund target, 23 (52%) have policies in place to cover both fund conditions.

A. Fund Surplus

To address a surplus, a more equitable approach is to continue to assess premiums for all members and then link rebates to past contributions based on the current risk profile of each bank, consistent with the risk-adjusted assessment of premiums on member banks. This is in contrast to the suspension of premium collection, which is considered not equitable since newly established banks would not have contributed to the fund (IADI, 2015a).

Results of the survey show that there are 29 DIAs (66%) with a policy response in the case of a fund surplus. The reduction of premium rates and suspension of premium collection are the most common policy responses adopted by DIAs when the fund target is exceeded (Figure 11). These responses are set in the law governing 20 DIAs (45%) of the DIAs, and set by the DIA governing body in 12 DIAs (27%). The policy responses of the DIAs of Estonia, Mongolia, and Montenegro are set both in the law and by their governing body.

Figure 11. Policy responses to address a surplus



Base: DIAs with fund target (44)

Note: Percentages do not total 100% due to multiple response options.

Hong Kong (China) and South Korea may refund or grant an exemption to member banks while Uruguay may repay the start-up funding from the government – a practice which is advocated by the IADI Core Principles for Effective Deposit Insurance Systems²⁹(2014) – in addition to the suspension of

²⁹Initial start-up or seed funding (e.g. from government or international donor organisations) is permitted to help establish a deposit insurer. Any start-up funding provided by a government should be fully repaid before the deposit insurer reduces any or all bank premiums.”

premium collection. Estonia can stop or continue collecting contributions based on the decision of the Board, while funding from the government to meet operational costs may be suspended in Brunei. In Indonesia, once the fund target has been reached, the excess will be surrendered to the government as non-tax revenue.

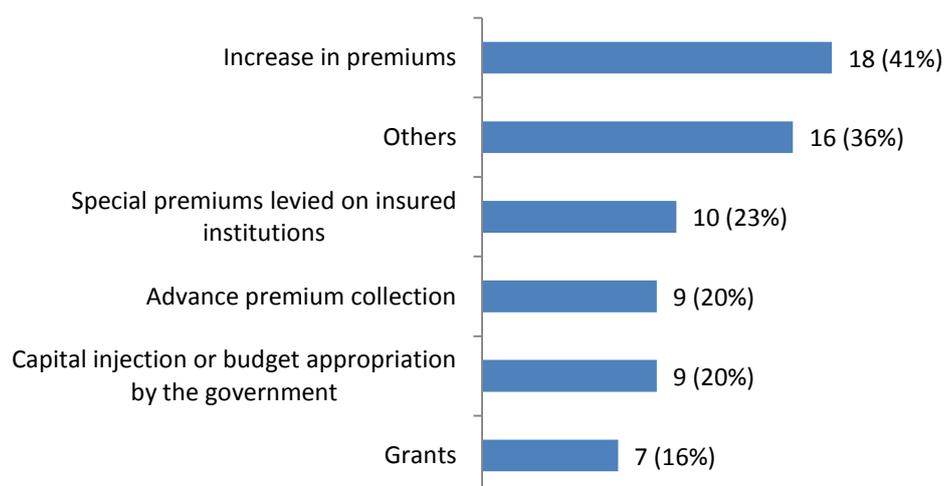
France (FGDR, 2015b) proposed a model³⁰ which was implemented in 2016 that “entails achieving a constant refresh or rollover of the risk base, thus addressing, among others, the fund surplus issue. This could be obtained by providing for repayment of the oldest contributions on a rolling basis over several years, or even more efficiently, by switching to a stock-based contributions system, where contributions are seen as the share of each member bank in the total resources of the deposit insurer fund”.

B. Fund Shortfall

A policy response is in place for 37 DIAs (84%) in the case of a shortfall against the fund target. The most common response identified by the DIAs is an increase in premiums (**Figure 12**). Some DIAs may levy special premiums, request a capital injection/budget appropriation from the government and/or require advance premiums from member institutions.

³⁰In an attempt to explore methods that will allow close management of the deposit insurer’s coverage target level and each member’s individual risk situation, France’s Fonds de Garantie des Dépôts et de Résolution (FGDR) has implemented a contribution model that deposit insurers could use equally during the DIF build-up phase and after the DIF has reached its target level. Based on the FGDR paper, the model better incorporates the specific characteristics of deposit insurance business and its funding, as well as the requirements related to moral hazard. With regard to monitoring the deposit insurer’s resources, this would result in a shift from setting an annual premium rate to determining an annual overall risk coverage target (FGDR, 2015b).

Figure 12. Funding of DIF Shortfall



Base: DIAs with fund target (44)

Note: Percentages do not total 100% due to multiple response options.

Sixteen DIAs (36%) cited other policy responses, which include borrowings from the government, the central bank, capital markets or other sources. These borrowings are external fund sources, which normally supplement internal funding of DIAs to meet liquidity requirements arising from activities related to intervention and failure resolution (IADI, 2015a).

Malaysia may borrow from the government, capital markets and other sources. Loan agreements (Albania) and borrowing from the central bank (Libya) or from any entity as approved by the Minister in Charge of Finance (Jamaica) are other policy responses. Colombia-Fogafin is exploring a private contingency line or a reinsurance scheme.

Chinese Taipei may require special insurance premiums only in cases of DIF insufficiency as the result of a systemic crisis. South Korea collects adjusted premiums until the lower limit of the target is reached.

In Jordan, the DIA has the authority to increase the annual premium of banks at a rate not greater than 100% of the annual membership fee if the fund target is not achieved within 10 years from its establishment, i.e., 2011. The DIA, however, opted not to exercise this authority in 2011, when its ratio of reserves to eligible deposits was 120 basis points below the 3% target in order to avoid increasing the burden on member banks amid uncertainty in the economy. Moreover, the level of the reserves fund was deemed sufficient to reimburse depositors of 7 member banks simultaneously, and to reimburse

depositors of 16 member banks individually, while the remaining 6 member banks are covered partially with a coverage ratio ranging between 68.5% and 97.1% for medium-sized banks and between 16.9% and 19.5% for large banks (Jordan Deposit Insurance Corporation [JODIC], 2015).

An appropriate sequencing for fund usage should be considered by DIAs with powers to borrow or raise funds from public and private sources. If internal funds from premiums collected from member banks prove to be insufficient, and the amount to be financed would have a negligible impact on the financial system as a whole, then financing could be obtained directly from the market. These measures must be complemented by a robust backup or emergency funding mechanism from public authorities. This borrowing should eventually be repaid from the funds recovered by the deposit insurer during the liquidation of the failed member bank, and through future premium assessments against member banks (IADI, 2015a).

VIII. Other Funding Issues Influencing the Fund Target

A. Building up the Fund – Sources and Uses

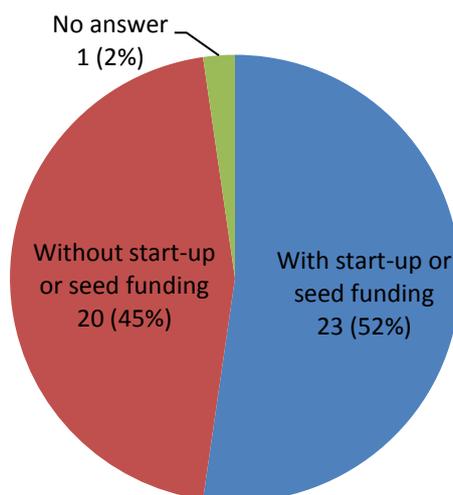
To ensure prompt reimbursement of depositors' claims, Core Principle 9 of the IADI Core Principles for Effective Deposit Insurance Systems (IADI, 2014) provides that deposit insurers should have readily available funds and all funding mechanisms necessary, including assured liquidity funding arrangements. Funds are sourced from the government, member banks/institutions or a combination of both. A steady build-up of an ex ante fund from regular and other sources will facilitate the achievement of the fund target.

1. Start-up or seed funding

Start-up or seed funding is permitted to help establish a deposit insurer, on the condition that government funding is fully repaid before a deposit insurer reduces any or all bank premiums, in line with Essential Criterion 3 of IADI Core Principle 9. Initial funding support from the government or other sources helps build a credible and effective DIS, particularly for a new DIS that does not always have the time or capacity to quickly build up an adequate fund (IADI, 2015a).

Of the 44 respondent DIAs with a fund target, 23 (52%) were provided with start-up or seed funding (**Figure 13**). Of these 23 DIAs, 13 (57%) identified only one source of start-up funding while the rest have two sources, the most common of which are the government and private member banks/financial institutions (**Figure 14**). Two DIAs (Kosovo and Montenegro) responded that donor organisations also provided them with start-up funding.

Figure 13 Start-up or seed funding

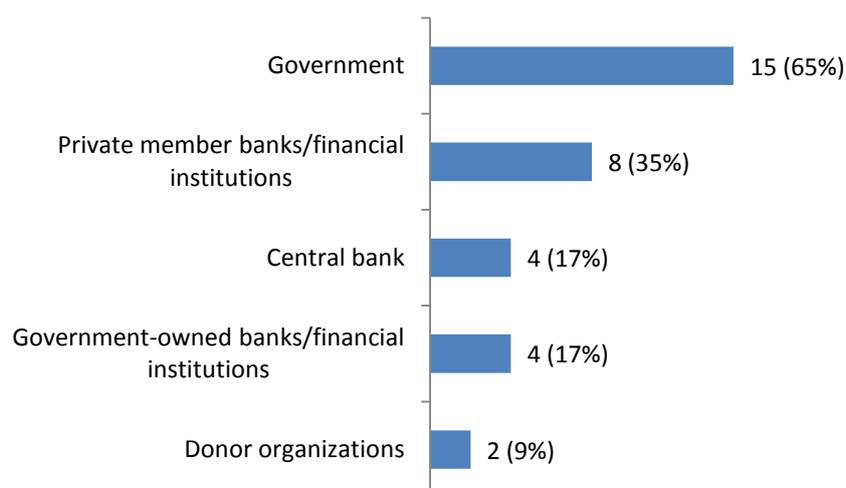


Base: DIAs with fund target (44)

In the case of the US, the FDIC was established in 1933 with capital provided by the US Treasury and the 12 Federal Reserve Banks. It was repaid in full by 1948.

Of the 15 DIAs with start-up funding provided by the government, two DIAs (Jamaica, Uruguay) identified repayment of the start-up fund as one of their uses of the DIF (see discussion in **Section VIII.A.3**).

Figure 14. Sources of start-up or seed funding



Base: DIAs with fund target and seed funding (23)

Note: Percentages do not total 100% due to multiple response options.

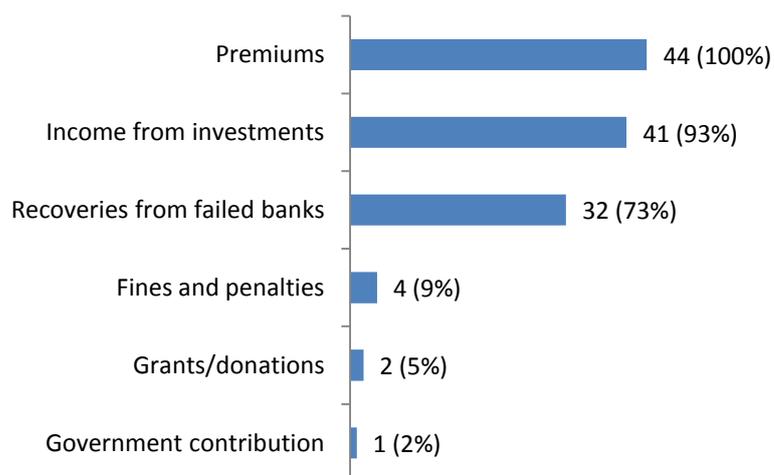
2. Regular and other sources of fund build-up

Data from the survey show that the most common sources of funds for the DIAs are premium collection³¹ and income from investments (**Figure 15**). This supports Essential Criterion 2 of Core Principle 9, which states that funding the deposit insurance system is the responsibility of member banks. To ensure that premiums collected from member banks are well managed and readily available to meet deposit insurance obligations, a sound fund management framework should be established by DIAs with an ex ante funding system (IADI, 2015a).

Almost three-quarters of the DIAs also included recoveries from failed banks as source of funds. Some DIAs listed fines/penalties (Azerbaijan, Honduras, Kazakhstan, Libya), donations (Azerbaijan, Honduras), and government contributions (Honduras) as other sources of funds.

³¹Based on the IADI 2015 Annual Survey results, the flat rate premium system is adopted by 55% of the 44 DIAs in building up their fund while the differential rate premium system is used by 30%. Five DIAs (Argentina, Brunei, Chinese Taipei, Czech Republic, Uruguay) use a combination of flat rate and differential premium system. Two DIAs (Guatemala, Poland) use other ways of assessing premiums.

Figure 15. Sources of fund build-up



Base: DIAs with target fund size (44)

Note: Percentages do not total 100% due to multiple response options.

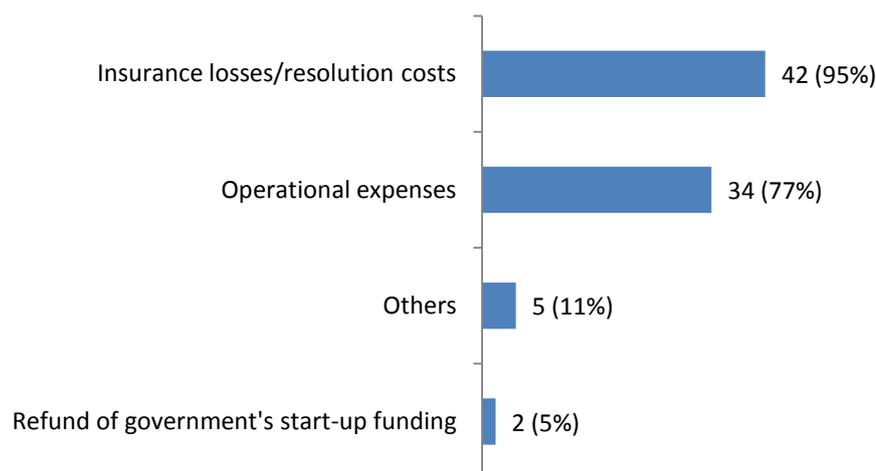
3. Fund uses

According to the IADI Enhanced Guidance Paper on Ex Ante Funding (2015a), a deposit insurance fund can be used for many purposes, depending on legislated mandates. The purpose and use of the DIF should be clearly established in legislation. These include reimbursement of depositors' claims in the event of bank failures and funding resolution.

The survey shows that most of the DIAs use their DIF to cover insurance losses/resolution costs³² and operating expenses (**Figure 16**).

³²The IADI (2014) Core Principle 9 for effective DIS provides that DIAs that do not have resolution powers may authorise a third party to use its funds for the resolution, other than liquidation, of member banks in accordance with its legal framework. When the DIA's fund is used by another entity, however, the DIA should have knowledge of and involvement in the decision-making process. This can be an area for future study.

Figure 16. Uses of the deposit insurance fund



Base: DIAs with target fund size (44)

Note: Percentages do not total 100% due to multiple response options.

Other uses of the fund include repayment of borrowings (Romania and Estonia), dividends to the national government (the Philippines), incidental liquidity support to member banks guaranteed by credit assets (Brazil) and requirements to contribute to the resolution of systemic banks (Bank Recovery and Resolution Directive [BRRD] for EU countries).

Some DIAs allocate a portion of their fund for other purposes. In South Korea, where the DIF faced an exceptional risk due to the failure of many mutual savings banks, a special account was set up in 2011 with the sole purpose of financing the resolution of these savings banks.³³ To fund the restructuring process, 45% of premiums paid by all insured financial institutions between 2011 and 2026 are diverted to the special account, while the remaining 55% go to sector-specific accounts of the DIF corresponding to several institutions covered by the DIA (i.e., banks, financial investment, life insurance, non-life insurance, merchant banks, and savings banks).

Two DIAs (Jamaica, Uruguay) identified repayment of the start-up fund as one of their uses of DIF.

B. Backup Funding

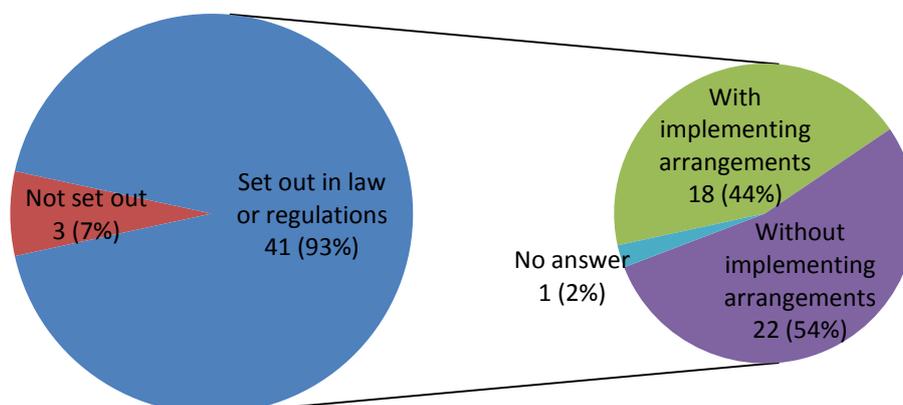
Specifying the manner in which emergency funding will be provided adds credibility to the deposit insurance (Schich, 2009; FSB, 2012; IADI, 2015a). As

³³ The KDIC spent KRW 27.2 trillion on the resolution of 31 failed mutual savings banks (Jang, 2015).

such, clear arrangements are indispensable as they ensure effective and timely access to emergency funding that supports the prompt reimbursement of depositors' funds, as provided for in IADI Core Principle 9 (IADI, 2014).

Forty-one DIAs with a fund target (93%) have emergency funding specified in the law or regulations (**Figure 17**). Of these DIAs, less than half have implementing arrangements for emergency funding. The remaining three (7%) do not have support from the law or regulations but still have access to emergency funding. These are Honduras, Hong Kong (China), and Kosovo. Moreover, the access to emergency funding of Hong Kong (China) and Kosovo is strengthened by implementing arrangements.

Figure 17. Emergency funding explicitly set out in law or regulations



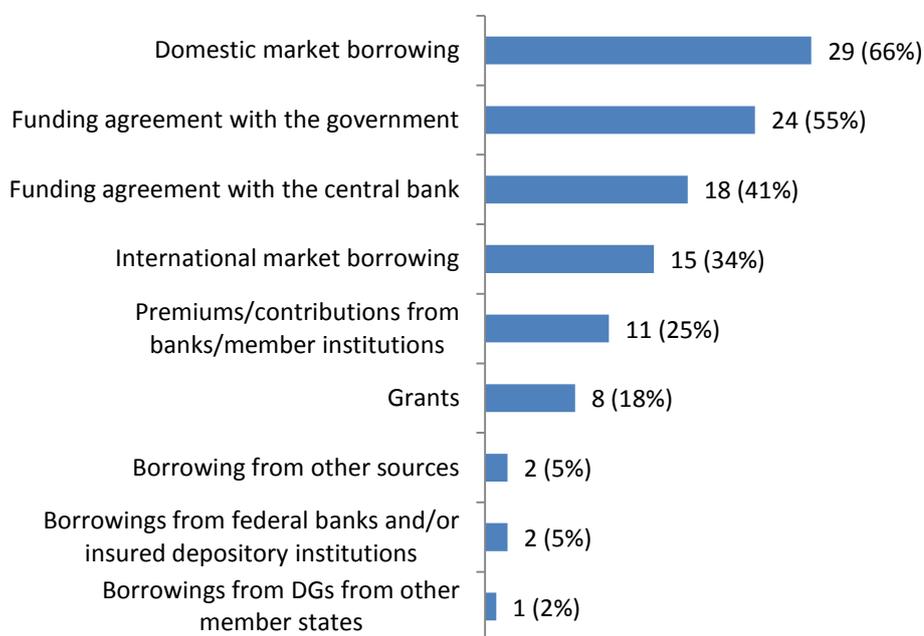
Base: DIAs with target fund size (44)

DIAs may have access to more than one source of emergency funding. The most common sources are borrowing in the domestic market and a funding agreement with the government (**Figure 18**). Funding agreements with the government, however, may be a concern if its financial resources are limited. It can happen that a DIF shortfall may be greater than the government's resources.³⁴ Among the DIAs with a fund target, 15 (34%) have considered borrowing in the international market, and one (2%) has considered borrowing from other DIAs."

³⁴See University of Iceland (2012).

A funding agreement with the central bank, international market borrowing, contributions from banks, and grants may also provide emergency funding to some DIAs.

Figure 18. Sources of emergency funding



Base: DIAs with fund target (44)

Note: Percentages do not total 100% due to multiple response options.

Raising emergency funds domestically, specifically those that do not involve public authorities such as the government or the central bank, can be a challenge given the risk of a slowdown, if not contraction, in economic activity during crisis periods as domestic sources may struggle for their own survival. Thus, domestic market borrowing and collecting premiums from banks or member institutions would be complicated by the difficult market situation in the wake of bank failures.

Temporary sources of funding should have a mechanism for ex post recovery from shareholders, unsecured creditors, or the financial industry, analogous with the provisions for resolution financing in Key Attribute 6 (FSB, 2014). This is to minimise, if not alleviate, the incentive for insured institutions to expose themselves to risks that could impair the deposit insurance, thus protecting the DIA, and ultimately taxpayers, from any losses. This mechanism can deter financial institutions from engaging in moral hazard behaviours that may ultimately impair the DIS.

DIA's often have credit arrangements with the central bank and/or the government, such as the Ministry of Finance, in their countries. Arrangements with member banks have also been observed. The Kazakhstan Deposit Insurance Fund (JSC) and the Deposit Protection Agency of the Kyrgyz Republic may demand additional premiums from member banks should the regular premiums be insufficient to pay deposit coverage to all insured depositors.

In Kazakhstan, the JSC has the right to borrow funds from the central bank in the event of insufficiency of the special reserve funds. Chinese Taipei may also borrow from financial institutions during an emergency. In Jordan, the DIA may borrow directly, or it may issue debenture bonds, to enable it to pay the obligations owed thereby according to the provisions of its law. Meanwhile, South Korea has funding arrangements depending on the level of losses relative to the fund target. It may issue bonds, which will be settled later on with surviving member institutions through cost-sharing arrangements, if losses are larger than the actual amount of reserves but smaller than target reserves. On the other hand, if losses are greater than both the actual and target reserves, then the DIA may also access additional funding sources such as through credit line agreements with insured financial institutions.

In Macedonia, the Ministry of Finance may redeem non-maturing securities held by the DIA and issued by the government without public notice, in order to provide liquidity to the DIF to reimburse depositors. In Chinese Taipei, the Central Deposit Insurance Corporation (CDIC) provides collateral to apply for a special financial accommodation from the central bank. If the financial accommodation exceeds the value of the collateral, the difference shall be guaranteed by the National Treasury after securing approval from the Executive Yuan (or Cabinet).

C. Funding for Systemic Crisis

There is a consensus that a financial crisis underscores the need for effective failure resolution arrangements, both for systemic and non-systemic institutions (Schich and Kim, 2010). Deposit insurance,³⁵ a common element in failure resolution arrangements, however, was regarded as insufficient during the recent financial crisis.

While it was observed that there was a funding gap for systemic crisis resolution in deposit insurance funds, it was also noted that the deposit

³⁵ This refers to a deposit insurance scheme when there is no resolution fund in addition.

insurance fund balances in many jurisdictions, where the banking sector experienced substantial stress, have not decreased (Schich and Kim, 2010). This shows that dealing with a systemic crisis has been a shared responsibility and not a concern of DIAs alone, or that deposit insurance has not been the main mechanism to absorb the shock arising from a systemic crisis, in line with the IADI Core Principles (2014). There are jurisdictions that filled the funding gap by strengthening existing deposit insurance mechanisms or enhancing them with other measures to fund systemic crisis resolution but without exposing taxpayers to losses (Schich and Kim, 2010). Approaches include ex ante premiums to fund future systemic crisis resolution and ex post levies on financial institutions to fully fund the cost of resolution. A complementary effort is to strengthen self-insurance by demanding higher capital and liquidity buffers from individual institutions.

In 2009, Sweden introduced a stability levy (Stability Fund) of 0.036% of certain bank liabilities. The Fund, with an initial allocation (approximately EUR 1.5 billion) from the central government, is designed to be used in a crisis to counteract any risk of serious disturbance to the Swedish financial system. In 2010, Germany passed a law on bank restructuring, orderly bank resolution and the establishment of a restructuring fund to ensure the resolvability of any bank, including systemically important ones. The fund is separate from deposit insurance programmes, since it is designed to address restructuring, while the latter focus on compensation in the event of liquidation (Schich and Kim, 2010).

In 2014, the EU issued the BRRD, which is a single rulebook to cover the resolution of banks and large investment firms. This is in line with Key Attribute 6³⁶ of the FSB's Key Attributes of Effective Resolution Regimes for Financial Institutions (2014), and in recognition of the fact that "a clear and comprehensive bank recovery and resolution regime that covers both national and cross-border bank failures is crucial for ensuring long-term financial and economic stability, and for reducing the potential public cost of possible future financial crises" (BRRD, 2014).

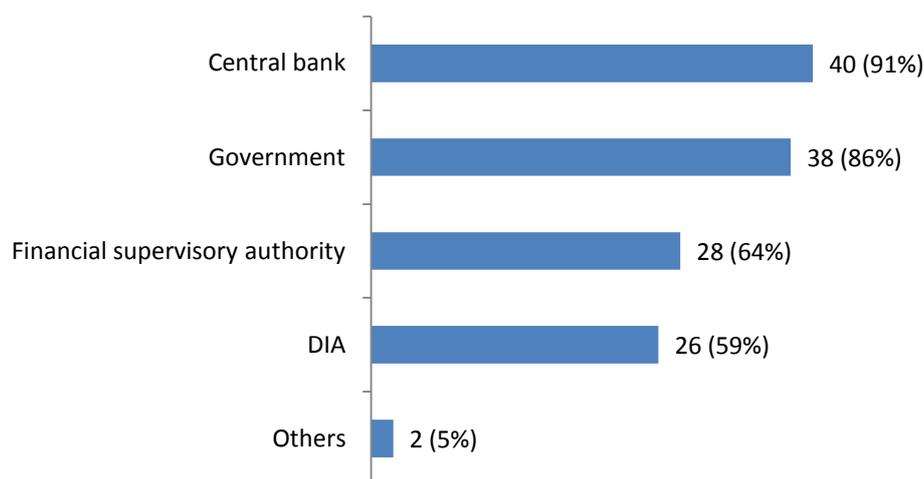
1. Agencies responsible for dealing with a systemic crisis

The survey reveals that the most common agencies responsible for dealing with a systemic crisis in jurisdictions with a fund target are the central bank and the government. DIAs and financial supervisory authorities are also accountable in the majority of jurisdictions (**Figure 19**).

³⁶ Emphasises that jurisdictions should have statutory or other policies in place so that authorities are not constrained to rely on public ownership or bail-out funds as a means of resolving firms.

Normally, a systemic crisis is dealt with by all financial safety-net players in the country (IADI, 2015a). This is affirmed by the results of the survey, which show that a systemic crisis is most often co-managed by the government, central bank, financial supervisory authorities, resolution authorities, and/or the DIAs. Some of these DIAs indicated their participation in failure resolution.

Figure 19. Agencies responsible for dealing with systemic crisis



Base: DIAs with fund target (44)

Note: Percentages do not total 100% due to multiple response options.

The CDIC in Chinese Taipei was directly involved in resolving 56 failed financial institutions during a domestic financial crisis in the early 2000s. This resulted in the DIF position turning into a deficit. To address the deficit, it received business tax revenue from the government, by virtue of an amendment to the Business Tax Law, from 2007 to 2014.

In the US, the regime for the resolution of bank holding companies and non-bank financial companies whose failure may pose systemic risk is separate from the regime for the resolution of banks. If the FDIC, the Federal Reserve, and the Treasury agree that the failure of a bank holding company or non-bank financial company under applicable bankruptcy laws (the default resolution regime) would create systemic risk, then the FDIC generally would be appointed receiver and, if necessary, borrow from the Treasury through a special fund that is separate from the deposit insurance fund. Any borrowing that cannot be repaid out of the proceeds from the disposition of the assets of the failed company will be repaid by assessments on large financial companies. In the case of a failing bank, if the FDIC, the Federal Reserve, and the Treasury agree that its resolution under “least cost” requirements would create systemic

problems, then the FDIC would not be required to resolve the bank at the least cost to the deposit insurance fund but would still have to place the bank in receivership. Funding for the resolution would come out of the resources of the DIF, with losses recovered through a special assessment.

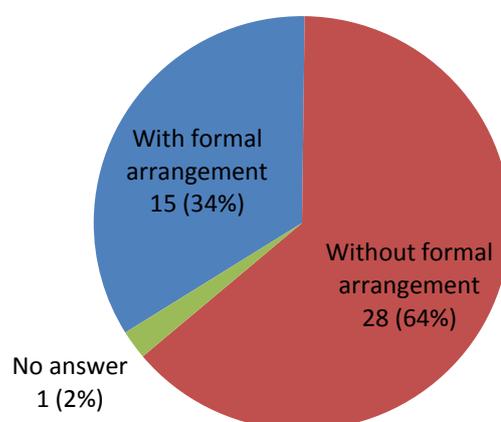
There are a few instances, however, where dealing with systemic crisis is the sole responsibility of the central bank (Brunei, Czech Republic, Libya) or financial supervisory authority (Singapore). DIAs in Italy and Kazakhstan identified other agencies responsible for dealing with a systemic crisis. Italy cited the EU. In Kazakhstan, there is a special council, with membership from the central bank, executive departments of the government, antitrust agency, and associations of financial institutions, that advises the President on financial stability and financial market development.

2. Formal funding arrangements with other safety-net players

A systemic failure or systemic crisis is normally dealt with by all financial safety-net players (IADI, 2015a), including government, central bank, financial authorities, resolution authorities, and/or DIAs, which are not usually structured to deal with a systemic crisis on their own. It is therefore necessary to adopt measures to fund systemic crisis resolution but without exposing taxpayers to losses (Schich and Kim, 2010). This may include formal funding arrangements among safety-net participants.

The survey results, however, showed that only 15 DIAs (34%) have formal arrangements, through a memorandum of agreement/understanding and/or as provided in the law or regulation, with other safety-net players on funding for failure during a systemic crisis (**Figure 20**). It is important for the other DIAs to establish formal funding arrangements in advance since there is little time to design and build such a framework during a crisis (IADI, 2012).

Figure 20. Formal arrangements with other safety-net players on funding for failure during a systemic crisis



Base: DIAs with fund target(44)

Funding arrangements during a systemic crisis often engage the central bank. Less frequently, the government, particularly the Ministries of Finance and Treasury, is also a party to these arrangements. These arrangements involve loans or grants to the DIA.

In Japan, the DIA may borrow or issue bonds that are guaranteed by the government. In the US, the FDIC may borrow from the Treasury, as well as access a special fund, which in turn can borrow from the Treasury. By adopting a long-range management target of 2% DRR³⁷ in 2010 to maintain a positive fund balance during a crisis period, however, the likelihood that the FDIC will borrow from the Treasury during periods of economic or banking crisis to meet funding needs is diminished. However, the historical analysis that led to the 2% DRR did not include the failure of a systemically important institution that caused a loss to the DIF.

In the EU, a Single Resolution Fund (SRF) was set to cover banking systemic crisis and went into operation on 1 January 2016. The SRF will equal 1% of covered deposits at EU level and will be built up in eight years from 2016 to 2024. Countries will transfer and mutualise contributions, fully financed by

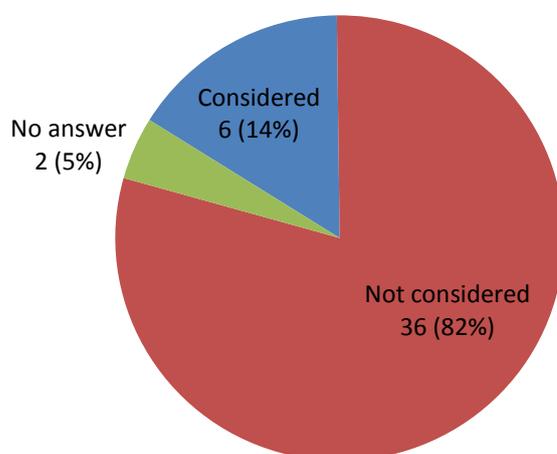
³⁷This also allows for steady deposit insurance assessment rates as the procyclicality of the deposit insurance assessment system is reduced. This strategy also diminishes the likelihood that the FDIC will increase deposit insurance assessment rates during periods of economic or banking crisis to meet funding needs.

banks, to the SRF.³⁸ The SRF may be used to effectively execute a resolution action for failing banks after other options such as the bail-in tool have been exhausted. Using the SRF to absorb losses of or recapitalise an institution is generally unacceptable.

3. Systemic crisis consideration in setting the fund target

Only six DIAs (14%) have considered funding for failure during systemic crisis in setting their fund target (**Figure 21**). These are Colombia-Fogafin, Guatemala, Japan, Libya, Palestine, and Singapore.

Figure 21. Systemic crisis consideration in setting the fund target



Base: DIAs with fund target (44)

The fund targets of Colombia-Fogafin and Singapore were determined through simulations that account for correlated bank failures among member institutions. Note that Colombia-Fogafin is considering expressing its fund target as two separate target ratios one for deposit insurance and another for resolution even though there is only one fund that is used for both purposes.

Laws or regulations in Guatemala provide for various safety-nets that can be deployed to support funding for failure during a systemic crisis. In Guatemala,

³⁸The Single Resolution Board, an independent EU Agency established by EU Regulation No. 806/2014 on the Single Resolution Mechanism, offers a discussion of the methodology of the SRF in https://srb.europa.eu/sites/srbsite/files/single_resolution_fund_0.pdf.

a law³⁹ specifies contributions from the state as a source to cover deficiencies in the Fund for Savings Protection or to widen its deposit insurance coverage.

Poland, which did not consider systemic crisis in setting up the deposit guarantee fund, established a separate resolution fund to address systemic crisis with a target of 1.2% of covered deposits to be reached in 2030. This is in accordance with the EU BRRD.

With some DIAs having started to consider systemic crisis in setting resolution fund targets, proxy variables for resolution exposures under this scenario may be an area for future study.

IX. Conclusion

The determination of the optimal level of the DIF is central in building public confidence in the financial system. The setting of the fund target is important in ensuring the adequacy of the DIF and depends on certain country-specific conditions.

The analysis of survey data and review of case studies and the International Workshop on DIF Target Size proceedings summarise the current approaches and practices of DIAs with ex ante funding, which could be used as guidance when adopting a fund target ratio or enhancing existing approaches and practices. Some DIAs, however, do not have ex ante funding arrangements in place in line with the IADI Core Principles and more work is required for many systems to meet all the standards of the same in full.

Framework for fund target

1. The fund target of DIAs is commonly expressed as a ratio to either insured/covered deposits or insurable/eligible deposits. For the majority of DIAs, the denominator is the same as the assessment base, consistent with the IADI definition of a fund target. The choice of denominator is most commonly determined by the DIA's risk exposure.
2. Some target ratios are expressed as a range (with minimum and maximum values), which is in line with the observation of IADI that a range target may be more reflective of the risk profile of member banks and may remain relevant given the constantly evolving macroeconomic conditions.

³⁹See Article 86 of the Banks and Financial Groups Law, or Decree Number 19-2002 of the Congress of the Republic of Guatemala.

3. The majority of fund targets are set in the law or regulation. In some cases, however, a minimum or initial target is set in the law but the DIA governing body can set and adopt a higher target based on its review.
4. Consistent with the recommendation in the IADI Enhanced Guidance on Ex Ante Funding, DIAs considered a number of factors in setting the fund target. The most common are financial system structure and characteristics, legal framework, and macroeconomic conditions.
5. DIAs use different approaches in setting the fund target. For DIAs that use the discretionary method, expert opinion or discretionary judgment is often backed by analysis of data and information. For DIAs that adopt the statistical method, some use risk-based models. DIAs may likewise combine both statistical models and discretionary judgment in their estimation.

Setting the time frame to achieve the fund target

6. The majority of DIAs have set a time frame to achieve the fund target, and most are ahead of or on schedule. The setting of a time frame is in line with the IADI Enhanced Guidance on Ex Ante Funding and allows the DIA to monitor its progress in achieving the target.

Reviewing the fund target

7. The majority of DIAs conduct periodic reviews, generally at least once a year, to validate the approach, methodology, and models used to determine the adequacy of the fund level. This practice ensures that the target remains current and relevant.

Policy responses to address a fund surplus or shortfall

8. Most of the DIAs have policy responses in case of fund surplus, commonly in the form of a reduction in premium rates or suspension of premium collection. The IADI Enhanced Guidance on Ex Ante Funding, however, states that a more equitable approach is to continue assessing premiums for all member institutions and then link rebates to past contributions based on the current risk profile of each member institution. The suspension of premium collection would have the effect of newly established banks not contributing to the fund. The stock-based contribution system recently proposed by the French FGDR to better address moral hazard issues, including a fund surplus, may deserve further consideration from deposit insurers going forward.

9. In the case of a DIF shortfall, the majority of DIAs increase premiums or levy special premiums on insured institutions. Some DIAs request a capital injection/budget appropriation from the government or collect premiums in advance from insured institutions.

Other funding issues

Start-up funding and regular sources of funds

10. More than half of DIAs are provided with start-up or seed funding, commonly sourced from the government, a practice that is permitted by IADI as it helps build a credible and effective DIA. Premium collections and income from investments are the most common sources of the DIF, in line with IADI Core Principle 9, which states that funding is the responsibility of member banks and that a sound fund management framework should be established by the DIAs.

Uses of the fund

11. DIAs use their DIF to cover insurance losses/resolution costs and fund operating expenses. Some DIAs use the fund for other purposes, such as reimbursement of the government's start-up funding, which is consistent with IADI Core Principle 9, repayment of borrowings, and liquidity support to member banks.

Backup funding

12. Most DIAs with a fund target have their emergency funding set out in law, but the majority have no implementation arrangements. DIAs should consider setting up such arrangements, to ensure effective and timely access to emergency funds in support of prompt reimbursement of depositors' claims.

Funding for systemic crisis

13. The government and central bank are the most common agencies responsible for dealing with a systemic crisis. A systemic failure or systemic crisis is normally dealt with by all financial safety-net players. The results of the survey affirmed that a systemic crisis is most often co-managed by the government, central bank, financial supervisory authorities, resolution

authorities and/or the DIAs, which are not usually structured to deal with a systemic crisis on their own.

14. It is necessary to adopt formal funding arrangements for systemic crisis resolution among safety-net players. The survey results, however, showed that only one-third of the DIAs have formal arrangements with other safety-net players, through a memorandum of agreement/ understanding and/or as provided in the law or regulation, on funding for failure during a systemic crisis. It is important for the other DIAs to establish formal funding arrangements in advance since there is not much time to design and build such a framework during a crisis.

There are some DIAs which considered systemic crisis in setting their fund target. In some cases (e.g., the EU member states), however, a separate resolution fund has been set up or is currently being considered for the purposes of covering the resolution of systemic banks.

While this paper provides a comprehensive discussion of fund targeting based on the survey results, case studies, workshop and literature reviews, some issues on ex ante funding arrangements can be considered for future studies, such as: (a) the use of a DIA's funds by third parties where the DIA does not have resolution powers; (b) the rationale and factors to be considered in setting up a separate fund for resolution; (c) the issues between indemnification and accumulation periods; and (d) the measurement of funding targets according to relative risk.

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Annex A. DIFTR Survey Questionnaire

IADI RESEARCH PAPER ON DEPOSIT INSURANCE FUND (DIF) TARGET FUND SIZE

This survey is designed to gather data and information for the IADI Research Paper on DIF Target Fund Size. The responses to this survey, along with relevant data from the IADI Annual Survey, will serve as a basis for the Research Paper. The paper aims to describe and examine the current approaches and practices of deposit insurance agencies (DIAs) with ex ante funding in determining the optimal size of the deposit insurance fund (DIF), and to summarise these approaches and practices based on observations that could guide DIAs in determining the target fund size, in order to enhance existing approaches and practices.

Name of deposit insurance agency: _____

Contact person for entries in this survey:

Name: _____

Email: _____

Phone: _____

I. Setting the DIF target fund size

DIF definition

1. DIF level or balance as at 31 December 2014 in local currency and USD:

Local currency: _____ USD: _____

2. How is the DIF presented in the balance sheet of the DIA? – Single selection

- Liability
- Capital or equity
- Other Please specify:

3. What are its components, if any, as presented in the balance sheet? – Multiple selections

- Initial “start-up” or “seed” funding
- Premium or assessment collection

- Reserves (for insurance, resolution losses)
 - Other Please specify:
-

4. Are provisions for probable and estimable insurance losses (i.e. from payouts and/or resolutions) deducted when determining the DIF?

- Yes
- No

5. For DIAs without a target fund size, when do you plan to set one? – Single selection

- Short term (up to 1 year)
- Medium term (>1 up to 5 years)
- Long term (>5 years)
- To be determined

6. Please specify the following ratios as at 31 December 2014.

DIF/insured or covered deposits _____
DIF/insurable or eligible deposits _____
DIF/assessment base _____

(END OF SURVEY FOR DIAs WITHOUT A TARGET FUND SIZE)

Target fund size

7. Specify target fund size. - Multiple selections

- Amount in local currency: _____ Amount in USD: _____
- Ratio: _____

If target is a range of values, indicate minimum and maximum.

Minimum Maximum

- Amount in local currency _____ _____
- Amount in USD _____ _____
- Ratio _____ _____

8. For those with a range of values as target, please specify considerations for adopting a range of values.

—

9. If ratio, please specify denominator. - Single selection

- Insured or covered deposits
- Insurable or eligible deposits
- Other Please specify:

10. Is the denominator in the target ratio the same as the assessment base?

- Yes
- No

If no: please specify assessment base. _____

11. What factors were considered in choosing the denominator of the target ratio? - Multiple selections

- Risk exposure of the DIA
- Availability/accessibility of required data and information
- Other Please specify:

12. Is the target fund size: - Single selection

- Set in the law
- Set by the DIA governing body
- Other Please specify:

13. Is there a time frame set to achieve the target fund size?

- Yes
- No

If yes:

Please indicate the time frame:

- up to 1 year
- >1 up to 5 years
- >5 up to 10 years
- > 10 years

Is the time frame: -

- Set in the law
- Set by the DIA governing body
- Other Please specify: _____

If no, is there a plan to set a time frame?

- Yes
- No

14. If there is a time frame set, is the DIA on schedule in terms of meeting the target?

- Yes
 - On schedule
 - Ahead of schedule

No

15. If ahead of schedule in terms of meeting the target, what factors contributed to the early achievement? - Multiple selections

- Higher premium collections than expected
- Higher income from investments than expected
- Additional fund contributions from other sources
- Lower resolution costs due to improved financial condition of member institutions
- Improved regulatory environment
- Other Please specify: _____

16. If not on schedule, what constraints or challenges were encountered that contributed to the failure to achieve the target within the time frame set?
Multiple selections

- Lower premium collections than expected
- Lower income from investments than expected
- Higher resolution costs due to deteriorating financial condition of member institutions
- Other Please specify: _____

Factors considered

17. What factors were considered in setting the target fund size? - Multiple selections

- Macroeconomic conditions
 - Financial system structure and characteristics
 - Number of member institutions
 - Degree of concentration
 - Types of deposits and depositors covered
 - Financial condition
 - Degree of interconnectedness
 - Interbank
 - Cross-border
 - Multi-currency system
 - Lines of business
 - Probabilities of failure of DIAs
 - Risk exposure of DIAs
 - Loss experience of DIAs
 - Prudential regulation, supervision and its effectiveness, and failure resolution regime
 - Legal framework
- DIA's mandate/powers
- Special resolution regime for banks
 - State of judicial system
 - Business laws that guide financial transactions
- State of accounting and disclosure regime
- Availability and accessibility of emergency/backup funding
- Other Please specify: _____

Emergency/backup funding arrangements

18. Is emergency/backup funding for the DIA explicitly set out (or permitted) in law or regulation? - Single selection

- Yes
 - No
 - Other Please specify:
-

19. Which of the following sources of emergency/backup funding does the DIA have access to? Multiple selections

- Funding agreement with the government
 - Funding agreement with the central bank
 - Domestic market borrowing
 - International market borrowing
 - Grants
 - Other Please specify:
-

20. Is emergency/backup funding supported by implementing arrangements to ensure timely access when required?

- Yes
- No

If yes, what are these implementing arrangements?

Estimation method/approach

21. What method was used in estimating the target fund size? – Multiple selections

- Based on historical experience on bank failure and associated losses
 - Statistical risk-based model/s
 - Other Please specify:
-

Please give a brief description of the selected estimation procedure.

Who developed the method?

- DIA
 - Outsourced
 - Other
- Please specify:
-

22. Why was this method of estimation used? – Multiple selections

- Availability/accessibility of required data and information
 - International practice
 - Other
- Please specify:
-

23. What are the advantages in using this method? Please enumerate.

24. What are the challenges or limitations encountered? Please specify and discuss.

25. How were these challenges or limitations addressed?

26. Are there plans to introduce enhancement/s to the current practice of setting the target fund size?

- Yes
- No

If yes, please describe.

II. Funding/fund build-up

Fund sources

27. Was there initial “start-up” or “seed” funding to build up the DIF?

- Yes
- No

28. If yes, what are the sources of initial "start-up" or "seed" funding?

– Multiple selections

- Government
- Government-owned banks/financial institutions
- Donor organisations
- Private member banks/financial institutions
- Other Please specify:

29. How are the funds of the DIA generated? – Multiple selections

- Premiums received
- Income from investments
- Recoveries from failed banks
- Other sources Please specify:

30. If the ex ante funding has ex post features, please describe.

Fund uses

31. What are the uses of the DIF?– Multiple selections

- Insurance losses/resolution costs
- Operating expenses
- Refund of government's start-up or seed funding
- Other Please specify:

III. Administration of the target fund size

32. Is the target fund size subject to periodic review?

- Yes
- No

If yes, by whom?

- DIA
- External person/entity Please specify:

If yes, how often?

- Annually
 - Other Please specify:
-

33. If there is no periodic review, what are the conditions that will trigger a review? Please enumerate.

How are these conditions set? – Single selection

- Set in the law
 - Set by the DIA governing body
 - Other Please specify:
-

34. What are the policy responses when the target fund size is reached?
– Multiple selections

- Repayment of initial “start-up” or “seed” funding from government
 - Refund/rebates to member banks
 - Reduction of premium rates
 - Suspension of premium collections
 - None
 - Other Please specify:
-

How are these responses set?

- Set in the law
 - Set by the DIA governing body
 - Other Please specify:
-

35. How is the DIF shortfall (against target) funded? – Multiple selections

- Capital injection or budget appropriation by the government
- Advance premium collection
- Increase in premiums
- Special premiums levied on insured institutions
- Grants

Other Please specify:

36. Has there been a change (increase or decrease) in the target fund size (amount or ratio) since initial adoption of a fund target?

Yes

No

If yes, what triggered the change? Please specify details.

37. Has there been a change in the method of estimation since initial adoption of a fund target?

Yes

No

If yes, what triggered the change? Please specify details.

IV. Funding for failure during systemic crisis

38. Is funding for failure during systemic crisis a consideration in setting the target fund size?

- Yes
- No

If yes, how?

39. Which agencies are responsible for dealing with a systemic crisis?
– Multiple selections

- Government
 - Central bank
 - Financial supervisory authority/ies
 - DIA
 - Other Please specify:
-

40. Are there formal arrangements with other safety-net participants on funding for failure during systemic crisis?

- Yes
- No

If yes, please describe these arrangements.

END OF SURVEY

Annex B. Respondents to the DIFTR Survey

Jurisdiction	Deposit Insurance Agency
Albania	Albanian Deposit Insurance Agency
Argentina	Seguro de Depósitos S.A (SEDESA)
Armenia	Armenian Deposit Guarantee Fund
Australia	Australian Prudential Regulation Authority
Azerbaijan	Azerbaijan Deposit Insurance Fund
Bangladesh	Bangladesh Bank
Bogotá, Colombia	Guarantee Fund of Cooperative Entities (FOGACOOB)
Brazil	Fundo Garantidor de Créditos(FGC)
Brunei	Brunei Darussalam Deposit Protection Corporation
Bulgaria	Bulgarian Deposit Insurance Fund
Canada	Canada Deposit Insurance Corporation
Canada-Alberta	Credit Union Deposit Guarantee Corporation
Canada-British Columbia	Credit Union Deposit Insurance Corporation of British Columbia
Canada-Quebec	Autorité des marchés financiers
Caribbean	Barbados Deposit Insurance Corporation
China	Hong Kong Deposit Protection Board
Colombia	Fondo de Garantías de Instituciones Financieras
Czech Republic	Deposit Insurance Fund
Ecuador	Corporación del Seguro de Depósitos (COSEDE)
Estonia	Guarantee Fund (Tagatisfond)
Finland	Talletussuojarahasto (DGF Finland)
France	Fonds de Garantie des Dépôts et de Résolution (FGDR; French Deposit Fund)
Germany	The Deposit Protection Fund of German Banks - Association of German Banks
Greece	Hellenic Deposit and Investment Guarantee Fund
Guatemala	Banco de Guatemala, as administrator of the Fund for Savings Protection
Guernsey	Guernsey Banking Deposit Compensation Scheme
Hungary	National Deposit Insurance Fund of Hungary
Iceland	Icelandic Depositors' and Investors' Guarantee Fund
India	Deposit Insurance and Credit Guarantee Corporation
Indonesia	Indonesia Deposit Insurance Corporation
Italy	Fondo Interbancario di Tutela dei Depositi - Interbank Deposit Protection Fund
Jamaica	Jamaica Deposit Insurance Corporation
Japan	Deposit Insurance Corporation of Japan

Jersey	Jersey Deposit Compensation Scheme
Kazakhstan	Kazakhstan Deposit Insurance Fund (JSC)
Kosovo	Deposit Insurance Fund of Kosovo
Kyrgyz Republic	Deposit Protection Agency of the Kyrgyz Republic
Libya	Depositor's Insurance Fund
Liechtenstein	Deposit Guarantee and Investor Compensation Foundation PCC
Macedonia	Deposit Insurance Fund
Malaysia	Malaysia Deposit Insurance Corporation
Mexico	Instituto para la Protección al Ahorro Bancario
Moldova	Fondul de Garantare a Depozitelor în Sistemul Bancar
Mongolia	Deposit Insurance Corporation of Mongolia
Montenegro	Deposit Protection Fund
Nicaragua	Fondo de Garantía de Depósitos de las Instituciones Financieras (FOGADE)
Norway	Norwegian Banks' Guarantee Fund
Palestine	Palestine Deposit Insurance Corporation
Peru	Fondo de Seguro de Depósitos
Philippines	Philippine Deposit Insurance Corporation
Poland	Bank Guarantee Fund
Romania	Bank Deposit Guarantee Fund
San Salvador, El Salvador	Instituto de Garantía de Depósitos
Singapore	Singapore Deposit Insurance Corporation Ltd
Slovak Republic	Deposit Protection Fund
South Korea	Korea Deposit Insurance Corporation
Sweden	Swedish National Debt Office
Switzerland	esisuisse (formerly Deposit Protection of Swiss Banks and Securities Dealers)
Chinese Taipei	Central Deposit Insurance Corporation
Tegucigalpa, Honduras, C.A.	Fondo de Seguro de Depósitos (FOSEDE)
Thailand	Deposit Protection Agency
The Bahamas	Deposit Insurance Corporation
Trinidad and Tobago	Deposit Insurance Corporation
Turkey	Savings Deposit Insurance Fund (SDIF)
United States	Federal Deposit Insurance Corporation
Uruguay	Corporación de Protección del Ahorro Bancario
Venezuela	Fondo de Protección Social de los Depósitos Bancarios (Fogade)
Vietnam	Deposit Insurance of Vietnam
Zimbabwe	Deposit Protection Corporation

Annex C. Country Case Studies

I. BACKGROUND/OVERVIEW

1. What is the DIF target ratio? Is the target ratio statutory (set in the law) or discretionary (set by the DIA governing body)? Please describe.

Chinese Taipei	2% of covered deposits; In 2007, under the amendments to the Deposit Insurance Act, the target ratio of the deposit insurance fund (DIF) was set at 2% of covered deposits in preparation for granting CDIC Taiwan the powers to resolve one large bank, or one to four medium-sized banks.
Colombia-Fogafin	5.5% of insurable deposits; Not statutory; Currently, the target level is defined based on a statistical methodology and the main results are known by the Board of Directors, but it is not formally set/adopted.
France	0.5% of covered deposits in 2024 (the usual 0.8% EU ratio might be adjusted to 0.5% with the agreement of the EU Commission in cases where the country shows a high banking concentration); the DIF target fund ratio was set in law by the European Commission through a 2014 DGS Directive ("DGSD2").
Jamaica	8–10% of estimated insured deposits; The fund target is not a statutory requirement, and as such has allowed the JDIC to take various approaches in the past when determining the most appropriate target fund size.
Jordan	3% of eligible deposits; Statutory; To be achieved within 10 years from the date of establishment on 17 September 2000.
Kosovo	Based on the Law on Deposit Insurance (LDI): "the target size of the DIF may exceed the target of 5% of the total amount of the insured deposits in the banking sector". The Management Board sets and reviews the target policy regularly. The current target ratio is 8–9% (moving target); the DIF target ratio is set as a minimum in the Law on Deposit Insurance (LDI).
Philippines	5% ^a of estimated insured deposits (EID); ^b In March 2012, the PDIC Board of Directors approved the adoption of a DIF target ratio of 5% of EID for the purposes of setting the PDIC's institutional key performance indicator.
Russia	Within the standard meaning of the term, the target size of the fund is not defined in Russia. At the same time, the law defines the thresholds for the fund size that trigger a reduction (or nullification) of the premium rate: (1) The premium rate for banks shall not exceed 0.15% of the assessment base (the

	<p>volume of eligible deposits) per quarter; (2) If the fund size exceeds 5% of the total volume of eligible deposits with the banks, the premium rate shall be decreased to the level of no more than 0.05% of the assessment base; (3) If the fund reaches 10% of the total volume of eligible deposits with the banks, the payment of premiums shall automatically cease.</p> <p>The DIA uses another DIF target ratio for managing risks of the deposit insurance system and for forecasting the DIF's future adequacy/sufficiency. Target size (thresholds) of the fund for the purposes of reduction (or nullification) of the premium rate of the banks is formalised in legislation.</p>														
South Korea	<p>Percentage of insurable/eligible deposits</p> <table border="1" data-bbox="827 496 1520 766"> <thead> <tr> <th>Account</th> <th>Target ratio</th> </tr> </thead> <tbody> <tr> <td>Banks</td> <td>0.825~1.1</td> </tr> <tr> <td>Investment traders/brokers</td> <td>0.825~1.1</td> </tr> <tr> <td>Life insurance</td> <td>0.66~0.935</td> </tr> <tr> <td>Non-life insurance</td> <td>0.825~1.1</td> </tr> <tr> <td>Savings banks</td> <td>1.65~1.925</td> </tr> <tr> <td>Merchant banks</td> <td>Deferred</td> </tr> </tbody> </table> <p>Target ratios may be adjusted through a resolution of the Deposit Insurance Committee</p>	Account	Target ratio	Banks	0.825~1.1	Investment traders/brokers	0.825~1.1	Life insurance	0.66~0.935	Non-life insurance	0.825~1.1	Savings banks	1.65~1.925	Merchant banks	Deferred
Account	Target ratio														
Banks	0.825~1.1														
Investment traders/brokers	0.825~1.1														
Life insurance	0.66~0.935														
Non-life insurance	0.825~1.1														
Savings banks	1.65~1.925														
Merchant banks	Deferred														

^aOn 5 October 2016, the PDIC Board of Directors approved the adoption of a target range of 5.5% to 8.0% of EID, based on a new methodology.

^bBased on bank reports.

2. What event/s, if any, triggered the setting of the target ratio? Please describe.

Chinese Taipei	<p>When CDIC Taiwan conducted the periodic review of the Deposit Insurance Act in order to enhance the deposit insurance mechanism, it found that, as of the end of January 2005, the ratio of accumulated DIF to covered deposits was 0.14%, which was relatively low compared with other deposit insurers around the world. Considering that DIF adequacy is the key to effective operation of the deposit insurance system and efficient payouts, and hence to enhanced depositor confidence, CDIC Taiwan then referred to</p>
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	the experience in other countries, such as the US, and set a target ratio of 2% of covered deposits in the amendments to the Deposit Insurance Act which came into effect in January 2007.
Colombia-Fogafin	There was no specific event that triggered the setting of the target ratio. We believe it is important to have one.
France	New European DGS directive
Jamaica	<p>In an effort to enhance the JDIC's Fund management strategies, and consistent with international standards of best practice, a policy decision was made in 2003 to implement a fund target. The target was initially set in 2003 at 2.0% to 2.5% of the total estimated insured deposits in the banking system. This target was revised in 2006 to 5.0% and subsequently (in 2009) to the current target ratio of 8.0–10.0%. It is projected that this target will be reached in 2021.</p> <p>In 2009, a decision was taken to increase the target ratio twofold, i.e. 8–10%, to be achieved by 2021. The target ratio was increased as the JDIC was of the view that, based on the size and structure of the banking system, it was necessary to ensure that the DIF was adequate to cover the insured deposit liabilities of any two medium-sized institutions individually. The global financial crisis which started in 2008 also underscored the need to build a larger fund, so as to be better able to deal with future bank failures without government funding. In this regard, consideration was given to accelerating the growth of the fund and reducing the timeline to achieve the target ratio. However, it was deemed imprudent to increase premium rates, especially against the background of the unstable conditions in the financial system internationally and domestically.</p>
Jordan	Building a sufficient level of funds to cover a bank failure; Being in line with best practice.
Kosovo	The target ratio was set at the inception of the deposit insurance scheme, as a rule of thumb (following the regional practice) with no model for determining the appropriate size.
Philippines	The increase in maximum deposit insurance coverage (MDIC) from PHP 250,000 to PHP 500,000 in 2009, without a corresponding increase in the assessment rate.
South Korea	To maintain public confidence in the deposit insurance system, the KDIC guarantees the long-term financial viability and health of the new DIF through the accumulation of adequate fund reserves. In the meantime, as the 1997 Asian financial crisis subsided, the KDIC faced growing dissatisfaction from member institutions over the level of premiums, inequality (perceived or real) in premium assessment among different types of financial institutions or among individual institutions, and uncertainty about how

	<p>long they would be required to contribute to the fund.</p> <p>In response, the KDIC and the government adopted the target fund system, believing that it would clarify the level of financial contributions required of member institutions and prevent an excessive collection of premiums. Also, having an adequate level of reserves in the fund was expected to help ensure that adequate resources are available when problems arise, and help smooth the costs of deposit insurance over time.</p>
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II. SETTING THE DIF TARGET RATIO

1. How is the deposit insurance fund (DIF) defined? What are the components? How is the DIF presented in the balance sheet (e.g. liability, capital or reserves)?

Chinese Taipei	<p>The DIF is reserved for CDIC Taiwan to fulfil its insurance responsibilities, including payout, deposit transfer, purchase and assumption (P&A), bridge bank and open bank assistance. The components of the DIF include assessment income (premiums), investment income, recoveries, etc.</p> <p>The DIF is presented as a liability in the balance sheet, under the item “deposit insurance payout special reserves”.</p> <p>According to the Deposit Insurance Act, any remainder of the annual gross income of CDIC Taiwan, after deducting costs, expenses and losses, shall be fully appropriated for deposit insurance payout special reserves.</p>
Colombia-Fogafin	<p>The fund is made up of the premiums paid by the member institutions and the accumulated returns on these funds. The DIF is recorded as a liability. It will be recorded as capital in 2016, following the adoption of IFRS.</p>
France	<p>The DIF has the same legal structure as the DIA, i.e. the FGDR in France. The DIA’s balance sheet can be regarded as the DIF balance sheet.</p>
Jamaica	<p><i>Deposit Insurance Fund (DIF) - A Fund established under the Deposit Insurance Act to pay depositors should their insured financial institution fail or to offer financial assistance to Policyholders.</i></p>

	<p><i>It is ordinarily made up of premiums collected from Policyholders/member institutions and investment income. (Source: Glossary, JDIC 2013/2014 Annual Report p. 107).</i></p> <p>The DIF is accounted for as a portion of shareholder's equity in the JDIC's Statement of Financial Position. The JDIC's financial statements are presented and publicly disclosed in accordance with the International Financial Reporting Standards (IFRS).</p> <p>As at 31 December 2014, the fund balance was JMD 11.7 billion (USD 0.102 billion) and the DIF ratio was 4.5%.</p>
Jordan	<p>The DIF is defined as part of the Corporation's reserves. DIF components are: (1) annual premiums (membership fees) paid by banks; and (2) returns on investments and any other returns after deducting the Corporation's expenses.</p> <p>DIF is presented in the balance sheet as reserves on the equity side.</p>
Kosovo	<p>The DIF is financed on an "ex ante" basis, mainly through the collection of ongoing insurance premiums paid by member banks. The DIF is an accumulated reserve to cover potential liabilities (i.e. insured deposits) and consists of: initial capital contributions and net surpluses (from ongoing premium collections from member banks). The DIF can be financed from other sources, including revenues from invested funds, revenues from the claims of the DIFK in liquidation proceedings of financial institutions, etc.</p> <p>The DIF balance is recorded as capital (seed capital from Ministry of Finance and KfW) and surpluses (accumulated income from previous years), in line with the IFRS reporting framework. In accounting terms, both capital items in the balance sheet represent the DIF.</p>
Philippines	<p>The DIF is defined in Section 17 of the Amended PDIC Charter (Republic Act No. 10846) as the capital account of the PDIC and principally consists of: (1) the Permanent Insurance Fund; (2) assessment collections subject to the charges enumerated in Section 6d (Section 7d* under the amended Charter); (3) reserves for insurance and financial assistance losses; and (4) retained earnings. The reserves for insurance and financial assistance losses and retained earnings must be maintained at a reasonable level to ensure capital adequacy.</p>

	<p>DIF is recorded as capital in the PDIC's Statement of Financial Position.</p> <p><i>*All assessment collections and income from operations after expenses and charges shall be added to the DIF. Such expenses and charges are: (1) the operating costs and expenses of the Corporation for the calendar year; (2) additions to reserve to provide for insurance and financial assistance losses, net of recoverable amounts from applicable assets and collaterals during the calendar year; and (3) the net insurance and financial assistance losses sustained in said calendar year.</i></p>
Russia	<p>The mandatory DIF is composed of: (1) insurance premiums paid by member banks; (2) funds received as the result of satisfaction of claims of the Agency acquired through payouts to insured depositors; (3) income from investment of temporarily idle funds of the DIF; and (4) contributions by the Russian Federation to the Agency.</p> <p>The Agency records the resources of the DIF in its balance sheet as own funds (liabilities side).</p>
South Korea	<p>The DIF was established for the purpose of collecting insurance premiums, paying out insurance money, purchasing claims such as deposits, making investments, and providing financial assistance.</p> <p>The KDIC classifies its funds in three accounting units: the DIF, the KDIC Internal Account and the DIF Bond Redemption Fund. The DIF and the KDIC Internal Account issue consolidated financial statements, with the exception of internal transactions between separate accounting entities and unrealised gains. The consolidated financial statements are composed of: a statement of financial position; an income statement; a cash flow statement; a statement of changes in equity; and explanatory notes (including a statement of appropriation of retained earnings and a statement of disposition of accumulated deficit).</p>

2. How is the fund target defined? If it is a ratio, against what base is it compared?

	Definition of the fund target	Base
Chinese Taipei	Ratio of DIF to total covered deposits	Covered deposits
Colombia-Fogafin	Percentage of insurable deposits	Insurable deposits
France	Percentage of covered deposits	Covered deposits
Jamaica	Deposit Insurance Fund Ratio – DIF expressed as an average of the total insured deposits (DIF/total insured deposits).	Total estimated insured deposits
Jordan	DIF (reserves) divided by total eligible deposits ^a	Total eligible deposits
Kosovo	Deposit insurance fund to total insured deposits	Total insured deposits
Philippines	Ratio of DIF to EID	EID
Russia	For the purposes of reduction (or nullification) of the premium rate of the banks: fund target size is defined as the ratio of the fund size to total eligible deposits. For the purposes of managing DIS’s risks: target size is defined as the ratio of the fund size to the total covered (insured) deposits (potential insurance liability).	For the purposes of reduction (or nullification) of the premium rate for banks: total eligible deposits. For the purposes of managing DIS’s risks: total covered (insured) deposits (potential insurance liability).
South Korea	Target ratios are computed as a certain ratio of eligible/insurable deposits as of the end of the previous fiscal year of the KDIC.	Eligible/insurable deposits

^aAll deposits denominated in Jordanian Dinar held by member banks, excluding government deposits, interbank deposits and cash collateral within the limits of the value of extended facilities guaranteed by the said collateral.

3. What factors were considered in setting the DIF target ratio?

	Macroeconomic conditions	Financial system structure and characteristics	Prudential regulation, supervision and its effectiveness, and resolution	Legal framework (DIA's mandate/powers)	Accounting and disclosure regime	Availability and accessibility of backup funding	Funding for failure during systemic crisis	Other considerations
Chinese Taipei	✓	✓ ^e	X	✓	X	X	X	✓ ^y
Colombia-Fogafin	✓ ^a	✓ ^f	✓	✓ ^p	✓	X ^t	✓ ^x	
France	X	X	X	✓ ^q	X	✓ ^u	X	
Jamaica	✓ ^b	✓ ^g	✓ ^m	✓ ^r	X	✓ ^v	X	✓ ^z
Jordan	✓	✓ ^h	✓ ⁿ	X	X	✓	X	
Kosovo	X	✓ ⁱ	X	✓ ^s	X	✓	X	
Philippines	✓	✓ ^j	✓	✓	X	✓	X	
Russia	✓ ^c	✓ ^k	✓ ^o	X	X	X	X	
South Korea	✓ ^d	✓ ^l	X	✓	X	✓ ^w	X	

^aThe DIF target was defined taking into account systemic and non-systemic scenarios. The underlying rationale is that Fogafin's mandate covers not only deposit insurance payments but also open bank assistance for financial institutions.

^bState of the economy and operating environment.

^cTo define the target size for the purposes of risk management.

^dOverall condition of the national economy and stability of the financial system.

^eSize, degree of concentration, lines of business, liabilities, condition, deposit insurer's risk exposure, probability of failure, loss experience.

^fThe methodology takes into account: (1) characteristics of each member institution; (2) Fogafin's exposure to each member institution and their probability of default; (3) correlation of the probabilities of default among member institutions; (4) loss given default; and (5) the DIF's investment policy.

^gStructure and size of the banking system; risk profile of each member institution and systemic importance; level and scope of deposit coverage.

^hNumber of banks and size of deposits; past experience with bank failure and the associated losses; composition of the banking sector.

ⁱBanking system structure with high degree of concentration; new banking sector with no previous failure; assessment base of premium levy.

^jRisk exposure; the PDIC's loss experience in bank closures.

^kFor the purposes of reduction (or nullification) of the premium rate of the banks; to define the target size for the purposes of risk management: banking system's structure and characteristics (probability of defaults of DIS member banks, statistics of losses, etc.).

^lSize of insurable deposits, average loss rate, fairness in premium assessment for member institutions, members' ability to pay, and recovery rate. Loss rate is defined as "1 - the recovery rate". While the recovery rate can be estimated based on historical experience of recovery, the KDIC thought that past experience could not be relied on to provide an accurate guide when changes in the market environment and government policies were expected. So it used a 15% loss rate after a comprehensive review of various factors, including the average loss rate (8%) experienced by the US FDIC, fairness in premium assessments for member institutions, and members' ability to pay.

^mStrength of the prudential regulatory and supervisory regime.

ⁿPrudential regulations, as well as sound measures of supervision and resolution adopted by the Central Bank of Jordan (CBJ).

^oFor the purposes of reduction (or nullification) of the premium rate for banks.

^pThe DIF target definition took into consideration Fogafin's mandate, which is clearly defined by law and can be summarised as follows: (1) organise and administer a deposit insurance scheme; and (2) provide support for financial institutions.

^qMandate and assignments of the DGS: In France, the FGDR can intervene either to compensate depositors or in preventive resolution of a failing bank. Since prevention is usually a less costly solution, there will be less demand on the DIF, thus maintaining a more stable DIF ratio. This implies, of course, a reactive supervision of banks. Scope of intervention: In Europe, a Single Resolution Fund will cover banking systemic risks. This will reduce the exposure of the FGDR and the scale of its interventions.

Creditor hierarchy: In Europe all insured deposits will be acknowledged as preferential over general creditors, which will limit a DIA's exposure in resolution.

^rIntervention and resolution framework for banks, as well as the resolution powers of the JDIC.

^sInstitutional mandate ('pay box').

^tFogafin can access the resources of the ministry of finance in a crisis; however, the target fund definition did not take this source of funds into consideration.

^uThe DIF ratio also depends on the ability to raise funds in the event of a banking crisis. In France, the FGDR has access to financial markets (mainly bank borrowings) and is also entitled to request exceptional contributions from banks to offset the costs incurred when managing a bank failure.

^vBackup/contingency funding arrangements.

^wAdditional consideration for the buffer size: The difference in target ratios between the quantitative approach and the policy approach is due to a buffer included to account for statistical variance and additional policy considerations.

^xOne of the motivations for defining a target ratio is that the resources available in the DIF prior to the Colombian financial crisis of the 1990s were insufficient to cover its costs. In addition, the mechanisms used to obtain funds during the crisis were expensive and involved taxpayers' resources.

^yExperience of other countries; domestic practitioners' and scholars' evaluation of the cost of a problem financial institution's exit from the market (Source: 2012 IADI Survey).

^zLevel of public expectations and awareness about depositor protection; maturity of the scheme.

4. What is the estimation method used (e.g. expert opinion, risk analysis, others)? What are the factors considered in deciding what estimation method to use? What are the advantages in using this method? Please describe how the fund target ratio was derived.

Chinese Taipei	The estimation method used is based on expert opinion plus suggestions from deposit insurance practitioners. According to a research paper produced by a group of scholars and commissioned by CDIC Taiwan in 2004, three methodologies were analysed to estimate fund adequacy, including (1) Monte Carlo historical simulation and the Markov switching model; (2) the credit risk model; and (3) the empirical method. After analysis and several rounds of discussions among the external experts and deposit insurance practitioners, the empirical method was recommended.
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	<p>CDIC Taiwan therefore adopted this method, which considered both the theoretical basis and practical operations and experiences to estimate the DIF level that would cover the payout losses and resolution costs of one large bank, or one to four medium-sized banks.</p>
Colombia-Fogafin	<p>The fund target ratio was defined based on a statistical methodology. The main objective of the methodology was to determine the loss distribution in a crisis using the estimated probability of default (PD) of member institutions and the correlation between them via Monte Carlo simulations. The target level was established after evaluating the potential losses of a portfolio of loans; the loans correspond to the exposures of the DIS to insured institutions.</p> <p>Main advantage of this approach: intuitive and robust.</p> <p>The methodology followed is explained broadly in the following document: https://www.fogafin.gov.co/default/imagenes/file/Informacion%20al%20Ciudadano/Publicaciones/Funding%20target%20level.pdf</p> <p>(A) The calculation of the target funding level begins with the estimation of the loss distribution of the DIS. The procedure to create the loss distribution of the DIS takes into account the characteristics of each member institution. It is summarised as follows: (1) definition of the DIS's financial exposure to each institution; (2) estimation of the PD and its correlations; and (3) simulation process and loss distribution calculation.</p> <p>(B) Determining a percentile associated with a level of risk.</p> <p>(C) Splitting ex ante funding in two, taking into account the investment policy.</p>
France	<p>Preliminary to DGSD2, the DIF was set up to cover at least the failure of two small banks or one medium-sized bank, based on expert opinion. As a consequence, the DIF amount was close to EUR 1.5 billion.</p> <p>Currently, the funding ratio set in DGSD2 is the result of negotiations between EU members. The EC initially planned to require that the DGS should be funded ex ante and the funding amount should represent at least 1.5% of covered deposits (based on Monte Carlo simulation).</p> <p>The funding ratio (also) depends on the mandate and assignments of the deposit guarantee scheme. The FGDR's mandate includes compensation and prevention/resolution. The scope of intervention is an important parameter in calibrating the DIF (e.g. a Single Resolution Fund will cover banking systemic</p>

risks).

Note that a Single Resolution Fund has been set up in parallel at EU level, with a target equal to 1% of covered deposits.

The DIF ratio also depends on the ability to raise funds in the event of a banking crisis. The FGDR has access to bank borrowings and is also entitled to request exceptional contributions from banks to offset the costs incurred when managing a bank failure.

The FGDR did not state the method used and its advantages but discussed why the use of some statistical methods may not be relevant, viz:

As the nature of the DIA's intervention can vary a lot (compensation, resolution, prevention), we do not believe that the use of statistical methods such as Monte Carlo or binomial law are relevant. Assumptions in these models do take loss simulations into account, but do not reflect the variety of interventions which the DGA can apply.

Furthermore, those models are also based on correlation factors or assumptions that proved to be very fragile in the past, especially during the last financial crisis. They need large populations and numerous cases to work (possibly) correctly, much larger than the number of banks a DIA covers and the number of payouts it faces. Those models also give both decision-makers and the public at large a false and usually dangerous sense of objectivity and security.

As a general approach, we may also underline that explaining to depositors that they are covered by a DIF which has been calibrated in the same way as CDOs and subprime used to be assessed, might not enhance depositors' confidence in the financial safety-net.

Currently, the funding ratio set in DGSD2 is the result of negotiations between EU members. The EC initially planned to require that the DGS should be funded ex ante and the funding amount should represent at least 1.5% of covered deposits (based on Monte Carlo simulation). EU authorities took under consideration comments from EU members, as well as other parts of the resolution framework, and decided to reduce the DIF ratio to 0.8% of covered deposits, and even 0.5% if banks operate in a highly

	concentrated national market.
Jamaica	<p>The JDIC uses the expert opinion method, which includes a combination of quantitative factors and qualitative information.</p> <p>The JDIC has no bank failure experience and there is limited historical data on the cost of individual bank failures (as well as provisions for recoveries) that would assist in assessing the cost of future bank crises. Key activities in determining the approach and methodology are summarised as follows: (1) establish the fund value that is adequate to offset potential liabilities without borrowings or government support over a given period; (2) assess the characteristics and structure of the banking system; (3) determine the target fund value/balance; (4) project the DIF balance over a given horizon; and (5) determine the target fund ratio and timeline.</p>
Jordan	Based on expert opinion; other factors: (1) size of the banking sector, such as number of banks, size of deposits and growth of deposits in the banking system, and composition of the banking system; (2) mandate of the Corporation; (3) past experience of bank failures; and (4) concentration of deposits where the largest five member banks hold approximately two-thirds of deposits.
Kosovo	<p>The estimation method used in determining the level of the target ratio was based on expert opinion, given that there was no history of bank failures under a DI scheme, a high concentration in the banking sector and no access to a borrowing facility through the treasury for liquidity purposes.</p> <p>The target level was set so as to absorb losses and cover liquidity requirements in an insured event, and cover fully the insured deposits of the two smallest banks.</p> <p>As a “pay box” DIA with limited staff, the advantages of this simple method for determining the target ratio are its manageability and simple assessment with a greater focus on the consultation process. In 2012, the IMF/World Bank FSAP issued a recommendation (cf. pp. 34–35) that the “<i>current target reserve level of 5% of total insured deposits should be raised to a range of 8–9% with the recommendation of a fund size that could compensate insured depositors in the event of two small or one medium-sized bank failures</i>”. The Management Board of the DIFK decided to approve a working range for the target size 8–9%, to be reached over 14 years starting in 2013.</p>
Philippines	Qualitative approach. ^a Prior to adoption of the existing method, the Insurance Reserves Targeting

	<p>framework, based on risks in the banking system, was used. To complement this and in the absence of failure prediction and stress testing models, the consultant recommended the use of 15-year historical data as a basis for setting the target ratio since this encompasses both the Asian and global financial crises.</p> <p>This was chosen over a purely statistical approach, since losses were heavily skewed to recent years due to increases in the MDIC, with very few losses reflected in earlier periods. A qualitative approach using historical data was used based on the following criteria: (1) The fund should be sufficient to cover actual losses on failed banks for the worst two contiguous years; (2) It should be able to address the failures of at least one large bank that, under ordinary market conditions, would not be considered systemic; and (3) An additional margin of comfort can be obtained to cover unanticipated risks by providing sufficient funds to cover an additional year's failures and/or an additional commercial bank failure.</p>
Russia	<p>For the purposes of reduction (or nullification) of the premium rate of the banks: the target size of the fund is formalised in legislation.</p> <p>For the purposes of managing the DIS's risks: the target size is estimated on the basis of risk analysis (probability of default of DIS member banks).</p>
South Korea	<p>The KDIC uses both a quantitative approach and a policy approach. Quantitative approach: this approach is warranted on theoretical grounds. Policy approach: while this approach lacks theoretical foundation, it is easy to explain and understand.</p> <p>Quantitative approach: we estimate a probability distribution of losses and identify appropriate reserve targets from that. The target reserve ratio for each financial sector is set at a level where the money in the sector's account will be able to cover operating costs and some proportion of expected and unexpected losses (the VaR). We use J.P. Morgan's Credit Metrics, which is a default model that counts only the default of an individual financial institution as a loss. By using it, we estimate a probability distribution of losses and calculate the credit VaR with a 99% confidence interval.</p> <p>Policy approach: target ratios are determined from a policy perspective based on a comprehensive review of the deposit insurer's ability to raise funds in the event of an emergency, member institutions' ability to pay, historical experience and foreign cases.</p>

Comparison of results between quantitative and policy approaches:
 The difference in target ratios between the quantitative approach and the policy approach is due to a buffer included to account for statistical variance and additional policy considerations. The buffer size was determined in consideration of expected insurance events, past experience, availability of backup financing, and the amount of financial burden that member institutions would assume.

Category	Target ratios (amount in trillion KRW)	
	Quantitative	Policy
Banks	1.2% (5.7)	1.5-2.0% (7.2-9.7)
Investment traders/brokers	1.2% (0.18)	1.5-2.0% (0.2-0.3)
Life insurance	1.7% (2.9)	1.2-1.7% (2.5-3.6)
Non-life insurance	2.3% (0.6)	1.5-2.0% (0.5-0.7)
Savings banks	7.7%(3.2)	Deferred
Merchant banks	3.5% (0.03)	Deferred

^aBeginning in 2017, a new methodology will be adopted using an updated Expert Opinion method. The lower limit DIF/EID ratio of 5.5% will replace the previous limit and should cover PDIC's anticipated losses, while the upper limit includes unanticipated risks in the banking system. The upper limit was adopted taking into consideration the direction of other DIAs in setting up resolution funds. Likewise, the DIF has to be built up to ensure financial preparedness prior to the occurrence of a crisis.

5. How do you assess the adequacy of the fund? Is there a time frame set to achieve the target ratio? How does the DIA finance the target fund? Please describe.

Chinese Taipei	<p>According to the expert opinion plus suggestions from deposit insurance practitioners, the adequacy of the fund should be sufficient to cover the payout losses and resolution costs of one large bank or one to four medium-sized banks.</p> <p>There is no regulatory time frame set to achieve the target ratio.</p> <p>Currently, the DIF is mainly financed through premium collection and investment income.</p>
Colombia-Fogafin	<p>The target ratio (5.5%) is significantly above the current level (3.2%).</p> <p>Based on projected future contributions, investment returns and deposit growth, the DIF target will not be reached for a very long time – more than 20 years.</p>

	<p>The fund is primarily financed with the premiums paid by the member institutions and the returns that these funds accumulate. The DIF is invested in USD (85%) and COP (15%), mostly in government securities.</p>
France	<p>Assessment of adequacy is regulated at EU level by a directive; 2024; bank contributions in cash.</p>
Jamaica	<p>Adequate to cover the total insured deposits of any two medium-sized policyholders. Yes. 8-10% of estimated insured deposits by 2021. Of note, there is no statutory requirement or policy directive that governs the timeline to achieve the target fund level. The main source of funding for the JDIC is premiums levied on member institutions. In addition to premiums, the DIF comprises of returns on investment and other sources of income.</p>
Jordan	<p>The adequacy of the fund is assessed by: (1) monitoring the DIF ratio and comparing it with the target stipulated in the law; (2) frequent (annual) projections to estimate when the DIF ratio will hit the target ratio stipulated in the law; (3) calculations of the number and size of banks whose individual insured deposits can be covered by the DIF over a specific period of time. The law on the Corporation stipulates that the target ratio should be achieved within 10 years of the law coming into effect (which was 17 September 2000).</p> <p>Yet, 14 years after the Corporation was established, the DIF ratio had not been achieved, owing to the exceptional growth rate of eligible deposits witnessed in the years 2005 and 2008. Although the target ratio had not been achieved within 10 years of the law on the Corporation coming into effect, the Board decided not to increase the banks' annual membership fee, due to a sufficient level of reserves and in light of the following: (1) macroeconomic conditions; (2) safe and sound banking system; and (3) prudential regulations and effective supervision. However, the target ratio is projected to be achieved at the beginning of 2017, according to projections under the financial programme set up by the Corporation. Annual membership fees from banks.</p>
Kosovo	<p>The adequacy of the fund is assessed regularly based on the set time frame, FSAP recommendations, premium income and growth of insured deposits.</p> <p>In January 2013, the Management Board made a policy decision to reach the working target range of 8-</p>

	9% within 14 years, in line with the FSAP recommendation of 2012 that the fund target should be sufficient to compensate the insured deposits of two small banks simultaneously or one medium-sized bank. Although the time frame for the target to be achieved was not explicit in the FSAP recommendation, the DIFK has proposed a timeline of 14 years in line with the EU Directive; Mainly through collection of premiums and returns on investments.
Philippines	<i>Refer to answer in the previous question; Yes, five years; Through assessments collected from member banks and income from investments.</i>
Russia	To manage the DIS's risks, the Agency uses a special estimation procedure to define the adequacy of fund resources. It is based on three mathematical models. The first is an econometric model. It is used to assess the possible expenses of the fund over a various horizons: a quarter, six months and a year. The model uses certain algorithms to process the bank's financial statements and estimate the probability of default of each member bank. The Agency also uses a bond model to estimate the probability of default of banks based on market quotations for bonds issued by the banks. The third model is a rating model – a supplementary model to refine the probability of default of banks based on information from credit rating agencies. The laws do not specify any time limit for reaching the fund target size for the purposes of a reduction (or nullification) of the premium rate for banks. The DIA has not set any deadline for reaching the target DIF size that is used for the purposes of risk management.
South Korea	Adequacy of the fund is assessed based on the ratio of accumulated fund reserves divided by eligible deposits; this is referred to as the reserve ratio. The KDIC does not have a specific time frame to achieve the target ratio; <i>See reply to Question III-3.</i>

III. ADMINISTRATION OF THE FUND TARGET RATIO

- 1. Is the fund target ratio subject to periodic review? If yes, how often? If no, what are the conditions that will trigger a review? Are these conditions set in the law or by the DIA governing body? Please describe.**

Chinese Taipei	CDIC Taiwan reviews the fund target ratio on a regular basis, and when it deems it necessary to review the mandates and powers in the Deposit Insurance Act. No specified timeline or conditions for triggering the periodic review are stipulated by law.
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Colombia-Fogafin	Given that it is not formalised, there is no mandatory review framework. However the ratio (DIF/total deposits) is constantly monitored by the Board of Directors and the Risk Department regularly reviews the estimation.
France	The French deposit insurance fund amounted to EUR 1.5 billion before the 2008 crisis. This amount was considered to be too small in the aftermath of the financial crisis and during the negotiations to define the new European DGS directive. According to this new directive, the French DIF size should increase from its current level (EUR 3.4 billion) to a minimum of EUR 5.25 billion by 2024. ⁴⁰ This increase will be financed gradually by bank contributions.
Jamaica	<p>The JDIC conducts an evaluation of the target fund level at least once annually. The evaluation is done as part of the statutory required annual review of the fund size. In conducting the evaluation, the JDIC determines the following: appropriateness of the current fund target level, taking into consideration the impact of any projected changes to the variables of the DIF; probability of failure of member institutions; and structure and size of the banking system. The evaluation also includes a review of the key design features/elements of the scheme that impact on decisions affecting the DIF.</p> <p>The JDIC is statutorily required to ensure that a review of the fund size is conducted not less than once annually, having regard to its liabilities and potential liabilities.</p> <p>According to the Jamaica Deposit Insurance Act, Section 17 (4), the Corporation shall from time to time, but in any event not less often than once in each year review the size of the Fund having regard to its liabilities and potential liabilities and taking into account the advice of duly qualified professionals and, as necessary, make such recommendation to the Minister as it deems appropriate.</p>
Jordan	The fund target ratio is subject to yearly review by the Corporation's management and Board. The sufficiency of reserves is assessed on an annual basis by the top and middle management, in line with JODIC's strategy and policy.
Kosovo	The fund target ratio is subject to regular review (funding assessment reports are submitted annually to the Management Board). This is not required by law but is part of the internal assessment to ensure funding requirements.

⁴⁰As of 2017 data

Philippines	Yes, annually by the governing body.
Russia	For the purposes of a reduction (or nullification) of the premium rate for banks: the fund target size is not reviewed. The law does not define any triggers for such reviews; therefore, the governing bodies of the Agency cannot review or amend them. For the purposes of risk management: the DIF target size is regularly reviewed to reflect risks that emerge/increase/decrease.
South Korea	According to Article 30-4 (3) of the Depositor Protection Act, the appropriateness of target ratios is reviewed on a regular basis (every three years) in consideration of the overall condition of the national economy, stability of the financial system, etc. and, if necessary, target ratios are adjusted through a resolution of the Deposit Insurance Committee.

2. Since the initial adoption of a fund target, has there been a change in the target ratio and/or estimation method? What triggered the change? What are the advantages or disadvantages derived from such change? Please describe.

Chinese Taipei	There has been no change since the initial adoption of a fund target ratio and estimation method in 2007. The target reserves were reduced as a result of political circumstances rather than the risks posed to the DIF, and this has given rise to concerns that the DIF may not be able to effectively deal with future failures. Moreover, with the reduction of target ratios, some accounts which have not seen failures in recent years may reach their targets early and become eligible for premium discounts, even though their reserves are far from sufficient.
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Jamaica

JDIC's DIF and Fund Target Ratios Dec 31 st 2003 – 2014			
Year	Actual DIF Ratio (%)	Target Fund Ratio (%)	Projected Timeline to be Achieved
2003*	0.97	2.0 - 2.5	2008
2004	1.33	2.0 - 2.5	
2005	1.77	2.0 - 2.5	
2006*	2.17	5.0	2012
2007	1.90	5.0	
2008	2.37	5.0	
2009*	2.93	8.0 - 10.0	2021
2010	3.42	8.0 - 10.0	
2011	3.89	8.0 - 10.0	
2012	4.52	8.0 - 10.0	
2013	4.02	8.0 - 10.0	
2014	4.40	8.0 - 10.0	

Note: * Changes to the Target Fund Ratio

The target fund level, initially set in 2003 at 2.0–2.5% of total insured deposits, was amended in 2006 to 5.0%. It was determined that the increased fund ratio would add credibility to the Scheme through the capacity to resolve more vulnerable institutions, based on the risk profile at that time. The increase was also geared towards delaying any sustained lobby on the part of member institutions for a premium rebate or discount as the DIF ratio was 2.17%, and as such the lower level of the previous target of 2.0–2.5% had been achieved. Consideration was also given to the projected 100% increase in the coverage limit, which became effective in 2007.

In 2009 a decision was taken to increase the target ratio twofold, i.e. 8–10%, to be achieved by 2021. The target ratio was increased as the JDIC was of the view that, based on the size and structure of the banking system, it was necessary to ensure that the DIF was adequate to cover the insured deposit liabilities of any two medium-sized institutions individually. The global financial crisis which started in 2008 also underscored the need to build a larger fund so as to be better able to deal with future bank failures without government funding.

Jordan

There has been no change in the target ratio and/or estimation method since the initial adoption of a fund target.

Kosovo

The initial target ratio of 5% was changed to a range of 8–9% after FSAP recommendations, which were

	<p>triggered to pass policy resolutions by the management board. The FSAP proposal, although based on expert judgment and the 'rule of thumb' method, was assessed against data.</p> <p>It was concluded that it would be prudent to increase the DIF target ratio given that no direct borrowing facility from government through treasury exists; instead, the fund has to rely on borrowing in the market. Disadvantage of the FSAP proposal: no mention of a time frame to reach the target.</p> <p>The downside of adopting a target size ratio is the instability of the level of premium rates. Our experience shows that the setting of the target size should incorporate clear policy objectives, backed up by both quantitative and qualitative methods which are consulted and approved by member banks and all stakeholders.</p>												
<p>Philippines</p>	<p>The PDIC started to apply a target fund approach in late 2003; this was refined in 2008 and a more risk-based approach, called the IRT framework, was adopted. In 2012, to complement the IRT framework and in the absence of failure prediction and stress testing models, a qualitative approach was adopted based on the recommendation of a consultant from FIRST Initiative. Alongside this, the PDIC continues to monitor the ratio of DIF to IRT for validation purposes.</p> <p>The change in target/estimation method was recommended by the consultant since such a fund ratio would allow PDIC to readily absorb the losses associated with bank failures during a two-year period of stress, including the failure of a larger bank.</p> <table border="1" data-bbox="577 833 1745 1230"> <thead> <tr> <th data-bbox="577 833 869 867"></th> <th data-bbox="869 833 1157 867">2004 to 2007</th> <th data-bbox="1157 833 1451 867">2008 to 2011</th> <th data-bbox="1451 833 1745 867">2012 to present^a</th> </tr> </thead> <tbody> <tr> <td data-bbox="577 867 869 932">Target fund size</td> <td data-bbox="869 867 1157 932">PHP 90 billion by 2011</td> <td data-bbox="1157 867 1451 932">DIF/IRT = 100%</td> <td data-bbox="1451 867 1745 932">5% of EID, except for 2016 (5.5%)</td> </tr> <tr> <td data-bbox="577 932 869 1230">Approach/method</td> <td data-bbox="869 932 1157 1230">Target fund approach</td> <td data-bbox="1157 932 1451 1230">IRT framework</td> <td data-bbox="1451 932 1745 1230">Qualitative approach/expert opinion (note: ratio of DIF to IRT continues to be computed alongside 5% of EID)</td> </tr> </tbody> </table>		2004 to 2007	2008 to 2011	2012 to present ^a	Target fund size	PHP 90 billion by 2011	DIF/IRT = 100%	5% of EID, except for 2016 (5.5%)	Approach/method	Target fund approach	IRT framework	Qualitative approach/expert opinion (note: ratio of DIF to IRT continues to be computed alongside 5% of EID)
	2004 to 2007	2008 to 2011	2012 to present ^a										
Target fund size	PHP 90 billion by 2011	DIF/IRT = 100%	5% of EID, except for 2016 (5.5%)										
Approach/method	Target fund approach	IRT framework	Qualitative approach/expert opinion (note: ratio of DIF to IRT continues to be computed alongside 5% of EID)										

South Korea

There have been two adjustments.

The first was made when the Depositor Protection Act was amended and the Insurance Account in the DIF was separated into the Life Insurance Account and the Non-life Insurance Account. At that time, the target ratio for life insurance companies was lowered from 1.5–2.0% to 1.2–1.7%. In addition, for the Merchant Bank Account, where there were only two contributing members, the establishment of a target ratio was deferred.

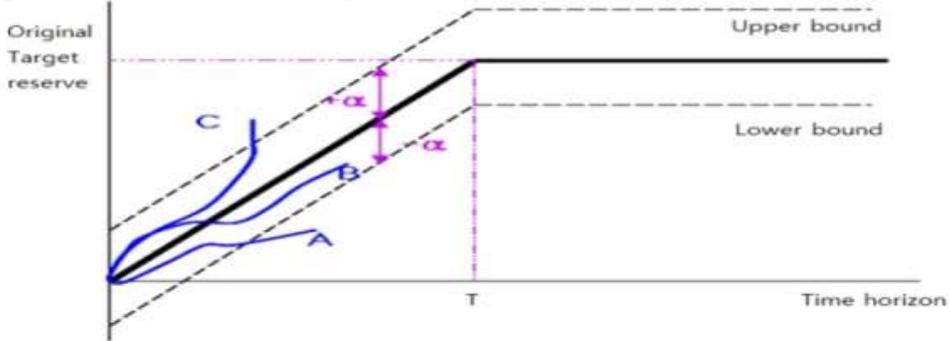
The second adjustment was made when the Special Account was created to deal with losses arising from a series of savings bank failures. As this cost the DIF a lot of money, we decided to lower target ratios. During the legislative process to create the Special Account, we agreed with the industry to cut target ratios by 45%, which is the percentage of their premiums to be diverted to the Special Account after its implementation.

Category	Initial establishment (28 December 2008)	1 st change (24 June 2009)	2 nd change (30 March 2011)
Banks	1.5–2.0	1.5–2.0	0.825–1.1
Investment traders/brokers	1.5–2.0	1.5–2.0	0.825–1.1
Life insurance	1.5–2.0	1.2–1.7	0.66–0.935
Non-life insurance	1.5–2.0	1.5–2.0	0.825–1.1
Savings banks	3.0–3.5	3.0–3.5	1.65–1.925
Merchant banks	3.0–3.5	Deferred	Deferred

^aFor 2016, the target fund size was 5.5%. For 2017, the target fund size was set at a range of 5.5–8.0% of EID. This approach is an updated forecast of the expert opinion, with the lower limit covering the PDIC's anticipated losses, while the upper limit takes into account unanticipated losses or possible contagion/systemic risks arising from a big bank closure.

3. What policy responses are in place to address a shortfall or surplus in the fund target ratio (e.g. special premiums, rebates, adjustment in premium rates)? Please describe.

Chinese Taipei	The policy response to address a shortfall or surplus in the fund target ratio is mainly an adjustment in premium rates, using a gradual approach.
Colombia-Fogafin	Shortfall: In order to reach the target ratio, Fogafin has been trying to identify alternative sources of funds, such as reinsurance and contingent credit lines. Given that Fogafin does not expect to reach the target in the near future, it has not outlined any policy for a surplus scenario.
France	The issue of the policy responses when the target level is reached is regarded by the FGDR as structural, given its possible implications in terms of moral hazard mitigation and for the calculation of member banks' contributions, even well before the target level is reached.
Jamaica	<p>If it is determined that the target fund is not on track to be achieved within the projected timeline and/or if there is a shortfall, the JDIC may employ one or more of the following options: (i.) In accordance with its statutory powers under Section 17 of the Deposit Insurance Act and giving due consideration to other variables, the growth of the fund may be accelerated by the following: (a) increasing the premium assessment rate and/or use a larger premium assessment base such as total assets and/or total deposits; (b) levying a special premium/assessment; (c) requesting member institutions to prepay estimated premiums for a specified period; (d) obtaining advances from the government; (e) borrowing funds from any entity approved by the Minister in accordance with the Deposit Insurance Act; and (f) raising funds by any other necessary means approved by the Minister in accordance with the Deposit Insurance Act. (ii.) Amending/reducing the target level based on the risk profile of member institutions, the regulatory framework and access to contingency funding.</p> <p>Currently, there is no policy in place to address a surplus in the target fund. The JDIC will conduct research to inform policies regarding the action(s) to be taken when the target is achieved. The JDIC will consider the advantages and disadvantages of adopting one or more of the following options: (1) reducing the premium rate to slow the growth of the fund as it approaches the upper limit of the target – this may include the implementation of a risk-based differential premium system with lower rates; (2) suspending premium collection from member institutions that contributed to the fund, with new members required to contribute in order to mitigate moral hazard; (3) implementing ex post funding; and (4) increasing the target level based on the potential liabilities, the risk profile of member institutions, the</p>

	regulatory framework and access to contingency funding.
Jordan	The Corporation has the authority, through its Board, to increase the banks' annual membership fee to no more than double the annual membership fee for banks in the following cases: If the Corporation's reserves do not reach the limit established under the law within 10 years of the law coming into effect, or if the Corporation's reserves fall short of the said limit after having reached it, or if the liquidation of a bank is decided before the Corporation's reserves reach the said limit. However, if the Corporation's reserves exceed the said limit (3%), the Board may lower the annual membership fee or exempt banks from paying for at least one year as the circumstances require, according to the law on the Corporation.
Kosovo	In line with the LDI and the Rule on Emergency Funding, if the DIF does not have sufficient financial resources to carry out its objectives, it can require an additional premium from member institutions by temporarily increasing the current level premium levied against insured institutions, up to twice its (capped) level at the time of the emergency in one year, with the Management Board determining whether such emergency premiums will be credited against future premiums. Additionally, in the event of a shortfall in the fund, the DIA has the power to borrow from the market. Currently, the DIFK has arranged a standby credit line to make up for the shortfall between the actual DIF level and its target ratio.
Philippines	In the proposed PDIC Charter amendments, ^a the authority to collect a special assessment from any member bank is included to maintain the target level of the DIF.
South Korea	At a certain point in time, if the actual amount of reserves is within the range of the dotted lines (estimated level of reserves $\pm \alpha$), as line B in the figure below shows, no adjustment is needed. But if it strays out of the range, as line A or C in the figure below shows, we adjust the premium rate. 

	<p>If losses are larger than the current amount of reserves but smaller than target reserves, the shortfall in funding will be met by the KDIC through the issuance of bonds and later settled with surviving member institutions through cost-sharing arrangements. The Deposit Insurance Committee will adjust premium rates. The ex post settlement of funding shortfalls is basically understood as a matter of liquidity.</p> <p>When losses exceed target reserves, the fund is (in effect) bankrupt. In that case, we need access to additional funding sources and adjust the target ratios. Meanwhile, when the reserves reach the target levels, we give a premium discount, grant an exemption from the payment of premiums, or make a refund. (Reserves above the lower limit: premium discount; reserves above the upper limit: payment exemption or refund.)</p>
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^a The amendments to the PDIC Charter took effect on 11 June 2016, and this authority was part of the amendment, i.e. the PDIC has the authority to collect a special assessment from any member bank, and prescribe the terms and conditions thereof, to maintain the DIF target level set by the Board of Directors.

IV. CHALLENGES/PROBLEMS ENCOUNTERED IN ESTIMATION AND/OR IMPLEMENTATION

1. What are the challenges/problems encountered? Please specify and discuss.

<p>Chinese Taipei</p>	<p>When the target ratio was set at 2% of covered deposits in 2007, it was expected that the target would be reached in about 15 years (around 2022). The main funding sources were premium collection and business tax revenue. The reason that business tax revenue was included was that, following the CDIC's resolution of 56 failed financial institutions (i.e. a domestic financial crisis) in recent years, the DIF for the general banking account recorded a deficit in 2007. To solve this problem, in the same year the Taiwan government amended the Business Tax Law to allow the CDIC to receive bank business tax revenue to finance the DIF from 2011.</p> <p>However, due to a sudden change in government policy, in 2014 the government amended the Business Tax Law to terminate the tax injection to the DIF. As a result, date at which the fund was projected to reach the 2% target ratio was revised, to around 2051.</p> <p>As a Prompt Corrective Action (PCA) mechanism stipulated in the Banking Act is in place, problem financial institutions are handled by early intervention, and the probability of a payout or resolution process is reduced. Thus, the 2% target ratio may be considered to be an ideal target without a</p>
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	<p>regulatory time frame to achieve it.</p> <p>To provide another example: After the CDIC actively communicated with all financial safety-net participants, insured institutions and different stakeholders, hoping to mitigate possible opposition to an increase in premium rates, we successfully won their full support and obtained the approval of the competent authority to significantly raise the premium rates from 2011, in order to speed up the process of making up the shortfall in the fund and achieving the 2% target ratio according to the Deposit Insurance Act, so as to enhance public confidence in the deposit insurance system.</p>
Colombia-Fogafin	The main challenge is that the target is above the current ratio, and a substantial amount of resources are required to reach the target.
Jamaica	<p>The following are challenges encountered by the JDIC in the administration of the DIF: (1) determining the most appropriate target fund balance over a given period, and the premium rate to be levied, with due consideration to projections for the economic and other key variables that affect the fund. There is no universally accepted rule for determining how large a deposit insurance fund should be in relation to insured deposits; (2) the practicality of developing a model that provides precision in determining a member institution's probability of/ potential failure; estimated loss given failure and cost of recoveries, against the background that the JDIC has limited data on the cost of individual bank failures in Jamaica. The JDIC will continue to pursue initiatives in collaboration with the Supervisor of Banks to strengthen the risk analysis, in order to make better grounded estimates of risk associated with the failure of member institutions; (3) reducing the likelihood and/or perception of collecting premiums from member institutions (ex ante) over an extended period to build a fund that may not be needed. If premium rates are not properly assessed/levied, this could adversely affect the credit supply capacity of the banking system as a whole, by transferring too many funds to the DIS rather than leaving them in the banking system, where they would be viable for lending and promoting economic growth; (4) ensuring that the timeline to achieve the target is realistic and achievable. Timelines that appear unrealistic can lead to the loss of public confidence and credibility in the deposit insurance system, especially in an environment where economic conditions are unfavourable and there is a high likelihood of bank failures; and (5) determining the appropriateness of publishing the target ratio and timelines that are projected to be achieved in the very long term, as this may also have implications for public confidence in and the credibility of the deposit insurance system.</p>
Jordan	Broadening the protection umbrella to include Islamic deposits held with Islamic banks will increase

	JODIC's burdens. Expansion of JODIC's mandate from a pay box plus to a loss minimiser with resolution powers. Currently, JODIC does not have backup funding agreements with the Ministry of Finance (MOF) through the Central Bank of Jordan (CBJ) but the law on the Corporation grants it the availability and accessibility of backup funding. Investment of funds is restricted by the law on JODIC to government bonds; there are no alternative investment tools. Exceptional growth of eligible deposits. Insurance of foreign currency, in the event that the CBJ decides to do so.
Kosovo	The literature on determining the optimal target level suggests that the estimation should be based on historical actuarial data on previous bank failures, and should provide reasonable probability estimates looking forward. However, given Kosovo's lack of historical data on bank failures and relatively new banking sector, the setting of the target size was based on expert opinion and a discretionary approach. The determination of the fund target ratio based on a rule of thumb often requires a change of premium level, especially for a DIA with pay box mandate that has limited data for long-term forecasting.
Russia	No problems have been encountered, either as regards the target fund size for the purposes of a reduction (or nullification) of the premium rate for banks or as regards the DIF target size that is used for managing the risks of the deposit insurance system.
South Korea	<p>1. Adjustment of target ratios due to the creation of the Special Account: The KDIC created the Special Account in the DIF in 2011 to deal with problems in the mutual savings banking sector. It was decided that 45% of premiums would be diverted to the Special Account to fund the restructuring process, with the remaining 55% going to sector-specific accounts. With this change, the target ratios were cut by 45% as a result of negotiations with the financial industry. We originally set the lower limit of target reserves for the whole fund at KRW 20.6 trillion, but after the introduction of the Special Account, this was adjusted to KRW 11.3 trillion (55% of the original target).</p> <p>As the target reserves were reduced due to political circumstances rather than the risks posed to the DIF, there are concerns that the DIF may not be able to effectively deal with future failures. Also, with the reduction of target ratios, some accounts which have not seen failures in recent years may reach their targets early and become eligible for premium discounts, even though their reserves are far from sufficient.</p> <p>2. Need to develop measures regarding how to maintain the level of reserve ratio if it falls: The law on the target fund system provides only for the incentives (e.g. premium discount, refund) that are given when the targets are met. There are no binding measures prepared in the event of a fall in the reserve ratio (ratio of accumulated fund reserves divided by insurable deposits).</p>

	<p>3. Need to secure backup financing: In the event of a failure(s) in one sector of the financial industry that cannot be resolved with the money in the sector’s account, the cost of the resolution should be shared by the industry as a whole. The options that can be considered are (1) creation of a common account or (2) integration of accounts.</p>
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2. How are these problems and challenges addressed?

Colombia-Fogafin	Fogafin established a five-year plan aimed at formally setting a target and achieving at least 75% of the goal in this period.
Jamaica	As the JDIC conducts an annual evaluation of its target fund, it continuously looks for ways to improve its approach and methodology while ensuring the least possible exposure of the Corporation to loss, as well as taking steps to minimise any operational and/or regulatory burden on its member institutions.
Jordan	JODIC is currently drafting the following main amendments to the law: (1) establishment of an Islamic deposit insurance fund, which would have mandatory membership for Islamic banks; (2) a mechanism for member banks’ premiums to be calculated and paid on quarterly basis; and (3) abolition of claims submission by depositors for the insured amount of their deposits.
Kosovo	The existing literature on DIF sufficiency based on risk and loss estimation methods is being studied. It is planned to move to a more advanced statistical estimation method using existing data as well as qualitative information.
South Korea	<p>The KDIC needs to find a way to restore the target reserves to the originally intended level of KRW 20.6 trillion. It is vital to maintain public confidence in the deposit insurance system.</p> <p>Possible responses include: levying special premiums and advance payment of premiums. But the circumstances under which these tools can be used and the purpose should be specified in laws and regulations, to ensure transparency and make the industry more receptive to the additional requirements.</p> <p>The options that can be considered are as follows. (1) Creation of a common account: As the lines between financial markets and firms have blurred, the risk of crisis contagion has increased. Under this option, the resolution of any failure will be financed with money in the sector’s own account first, and in the event of a funding shortfall, the shortfall will be funded from reserves in the common account;^a</p>

	(2) Integration of accounts: Some accounts in the DIF that are similar in terms of risk profile and reserve ratios may be consolidated into one account. ^b
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^aIn the past, the UK FSCS had a similar arrangement.

^bFor example: 1. Banks + savings banks + merchant banks; 2. Life insurers + non-life insurers.

3. Are there plans to introduce enhancement/s to the current practice of setting the fund target ratio? If yes, please describe.

Jamaica	As outlined in this paper, the approach and methodology have evolved over the years. They could even be described as experimental, in the sense that the efficacy of the methodologies used has not been tested because there has been no bank failure since the establishment of the DIS. The fund target is not a statutory requirement, and as such has allowed the JDIC to take various approaches in the past when determining the most appropriate target fund size.
Jordan	JODIC's management regularly reviews the fund target ratio, making use of the applicable best practices and statistical methodologies.
Kosovo	There is a plan to study the literature and existing research on available methods based on more advanced methodologies. The relevant methods will be selected for testing and validation, with a view to possible application in the future. This will allow us to move from a discretionary approach to a more advanced methodology for setting the target fund ratio. It is the DIFK's objective to build a funding policy framework which addresses the need to build a credible fund to ensure loss absorption as well as back up funding for liquidity support. Additional objectives may also include stable premium levels.
Philippines	Yes. In January 2015, the PDIC launched a study on the DIF target, to ensure capital adequacy and enable the Corporation to provide insurance coverage to the depositing public. This is to provide overall direction and guidance in the conduct of related reviews to update the corporate strategy on the DIF target, taking into consideration the developments and various possible scenarios, and their implications for the adequacy of the DIF in the medium term. The Corporation continued to carry out the task of updating the DIF over the past two years, ensuring an adequate level to fund deposit insurance payments in the event of bank closures under normal circumstances and, more recently, "too big to fail" closures. (Note: On 5 October 2016, the PDIC Board of Directors approved the adoption of a range target of 5.5–8.0% of EID, based on a new methodology. See also footnote a of Question II.4)

Russia	The Agency makes constant efforts to improve its mathematical models and methods for estimating the DIF target size, to ensure their relevance and ability to capture emerging/changing risks.

Annex D. Methods for Determining the Fund Target

Method	In-house		Outsourced*		Legislation/Directive		Not specified		Total
	Number	DIA	Number	DIA	Number	DIA	Number	DIA	
Discretionary	6	Brunei, Jamaica, Libya, Mongolia, Uruguay, US	3	Guatemala, Chinese Taipei, Philippines	3	Brazil, Hungary, Romania	5	Estonia, Finland, France, Indonesia, Kosovo	17
Statistical	3	Bulgaria, Hong Kong (China), Macedonia	2	Bahamas, Malaysia	1	Singapore			6
Combination discretionary & statistical	7	Canada-CDIC, Canada-British Columbia, Colombia-Fogafin, Japan, Kazakhstan, Palestine, Poland	2	Canada-Alberta, South Korea	1	Italy			10
Not specified			3	Argentina, Kyrgyz Republic, Zimbabwe	3	Albania, Montenegro, Slovak Republic	5	Armenia, Azerbaijan, Czech Republic, Honduras, Moldova	11
Total	16		10		8		10		44

**Includes: Argentina - supervisory authority; Guatemala - policymakers; Kyrgyz Republic - National Bank & DIA; Malaysia - Co-sourced*