

A TOOLKIT FOR DEVELOPING A DEPOSIT INSURANCE SCHEME

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ABSTRACT

The toolkit is intended to be a resource for prospective and existing deposit insurers in developed and developing countries, as well as other participants in a country's financial safety net.

The toolkit includes:

1. A guide for the development of a deposit insurance scheme
2. Templates for legislative, legal, and organizational documents (e.g., deposit insurance laws, organizational charts, corporate governance policies, crisis management plans)
3. Analytical tools for determining insurance premium systems, premium rates, and the target insurance fund.

In this toolkit, *resolution* refers to the definition given by the International Association of Deposit Insurers.

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TABLE OF CONTENTS

1. Introduction	5
2. Initial Considerations for Insurance Scheme Design	6
2.1 History, Benefits and Costs of Deposit Insurance	7
2.2 Adverse Selection and Moral Hazard in Deposit Insurance	8
3. Setting Up a Deposit Insurance Agency	11
3.1 Private versus Public Systems	12
3.2 Funding Issues (seed funding, ex-ante funding, back-up funding)	12
3.3 Determining Which Deposits Will Be Covered By Deposit Insurance and How	13
3.4 Drafting a Deposit Insurance Law (outline of a model law provided)	13
4. Strategic Role of the Deposit Insurer	14
4.1 Determining the Public Policy Objectives (Core Principle 1)	15
4.2 Determining the Mandate (CP 2)	15
5. Organizational Issues for Deposit Insurers	16
5.1 Determining the Appropriate Governance Structure (CP3)	17
5.2 Developing a Good Organizational Structure	18
5.3 Legal Protection (CP 11)	18
5.4 Adopting a Business Continuity Plan (CP 6)	19
5.5 Managing Operational Expenses	19
6. Crisis Management and Resolution Issues Affecting the Deposit Insurer	20
6.1 Developing a Crisis Management Playbook (CP 6)	20
6.2 Representation of Deposit Insurer on Crisis Management Committees (CP 6)	21
6.3 Issues Involved in Determining the Optimal Hierarchy of Claims in Liquidation	22
6.4 Hierarchy of Claims and Failure Resolution Costs	24
6.5 Funding of Failure Resolution (CP 9)	25
6.6 Recoveries (CP 16)	27
7. Design Features	28

7.1	Setting Premiums (CP 9).....	28
7.2	Funding Issues (ex-ante funding, back-up funding) (CP 9).....	33
7.3	Establishing a Target Fund (CP 9)	35
7.4	Setting and Re-evaluating Insurance Coverage Levels (CP 9).....	38
7.5	Adopting Risk-Related Premiums (CP9)	42
7.6	Memoranda of Understanding	44
	7.6.1 With Other Members of the Safety Net	44
	7.6.2 With Other Deposit Insurers (cross-border)	45
8.	Fund Management	46
8.1	Sources and Uses of Deposit Insurance Funds	46
8.2	Stakeholders versus Shareholders	46
8.3	Investment Portfolio Risk	47
	8.3.1 Credit Risk	47
	8.3.2 Market Risk	47
	8.3.3 Liquidity Risk	48
8.4	Investment Policy	48
9.	Preparing for Insured Depositor Pay Outs (Core Principle 15)	49
9.1	Use of Paying Agents	53
9.2	Alternative Methods for Paying Claims	53
9.3	Determining Insured Amount (issues of set-off, aggregation of accounts including treatment of joint accounts)	54
9.4	Access to Real-Time Information	57
9.5	Use of Legal Identifiers.....	57
10.	Public Awareness Strategies (CP 10)	57
10.1	Essential Criteria.....	58
10.2	Measuring the Effectiveness of Public Awareness Strategies.....	60
10.3	Developing Communication Protocols	61
11.	References	62
12.	Recommended Readings.....	65
13.	Analysis Tools	70
13.1	Probability of Default	70

13.2	Risk-related Premiums	77
13.3	Setting Deposit Insurance Premium Rates	77
13.4	Methodologies for Determining the Target Fund	79
13.4.1	Loss Distribution Approach	84
13.4.2	Merton-Vasicek Approach.....	84
13.4.3	Copula Approach	85
13.4.4	Stress Scenario Approach.....	85
14.	Templates of Deposit Insurance Laws, Operations, Policies and Agreements	88
14.1	Memorandum of Understanding between the Deposit Insurance Agency and the Foreign Deposit Insurance Agency	88
14.2	Outline for a Business Continuity Plan (BCP).....	93
14.3	Outline for a Public Awareness Strategy.....	94
14.4	Evaluation of Effectiveness of Public Awareness Strategy	94
14.5	Memorandum of Understanding between the Deposit Insurance and the Supervisory Authority	95
14.6	Agreement between the Receiver/Liquidator for [Failed Bank] and the Deposit Insurance Agency	98
14.7	Crisis Management Outline.....	100
14.8	Form Funding Agreement among the Deposit Insurer, the Central Bank and the Minister of Finance	102
14.9	Model Deposit Insurance Act	104
14.10	Sample Organizational Chart for Paybox Plus Deposit Insurance Showing Positions for Resolution Specialists	122
14.11	Sample Deposit Base Profile to Assist in Bank Closure	123
14.12	Sample Paying Agent Agreement	124
14.13	Sample Confidentiality Agreement.....	140
14.14	Sample Financial Crisis Committee Operational Memorandum	141

1 INTRODUCTION

Bank deposit insurance can be an important part of a country's financial sector safety net and, as a result, deposit insurance schemes have been adopted by a large number of countries.¹ The purpose of this document is to provide a toolkit for the establishment and further development of deposit insurance schemes. The toolkit is intended to be a resource for prospective and existing deposit insurers in developed and developing countries, as well as other participants in a country's financial safety net. The toolkit includes: 1) a guide for the development of a deposit insurance scheme, 2) templates for legislative, legal, and organizational documents (e.g., deposit insurance laws, organizational charts, corporate governance policies, crisis management plans), and 3) analysis tools for determining insurance premium systems, premium rates, and the target insurance fund. Templates and analysis tools included are embedded documents and, where necessary, as internet links to materials.

The deposit insurance guide included in this document discusses aspects of deposit insurance scheme design from three perspectives. The first perspective is the legal basis for the insurer (i.e., a Deposit Insurance Act or equivalent legislation establishing a deposit insurance scheme) that, in turn, determines the insurer's mandate and powers (e.g., failure-resolution methods, reimbursement of insured depositors, failed-bank receiver/liquidator, levy assessment/premium setting, bank regulation, access to supervisory information and access to insured banks) and responsibilities for day-to-day operations and financial crisis management. The second perspective is the design of the deposit insurance framework (e.g., coverage, claims priority and insurance premiums (assessments)). The third perspective is the organizational design and governance of the deposit insurer that is determined by the previous two design factors, as well as by the underlying economic, governmental and legal systems. The guide draws from recommendations provided by the International Association of Deposit Insurers, International Monetary Fund, World Bank Group, the Financial Stability Board, European Commission, national public sector bank regulators (e.g., Bank of England, U.S. Federal Deposit Insurance Corporation) and academic research.

OPERATIONAL ASSUMPTIONS

The Toolkit is designed for a deposit insurer that operates under a “paybox-plus” model², which is

¹ International Association of Deposit Insurers, www.iadi.org/en/about-iadi/deposit-insurance-systems. According to IADI there were 145 countries as of July 2019 that had instituted some form of explicit deposit insurance.

² A “paybox-plus” model as defined by the International Association of Deposit Insurers is a mandate for a deposit insurer that includes additional responsibilities beyond simply payment of insured deposits after a bank closure such as the provision of financial support to a resolution authority in completing a resolution action. International Association of Deposit Insurers, <https://www.iadi.org/en/core-principles-and-guidance/glossary/>.

the most common model worldwide. Such a model represents a practice that allows a deposit insurer to contribute to resolution actions and thus provide the resolution authority with a greater ability to implement a cost-effective resolution and avoid the disruption of a liquidation action often at a lesser cost.³ In general, however, each jurisdiction should select a deposit insurance model that best suits their legal, economic and regulatory environment.

In preparing this guide we assumed the following: 1) the deposit insurer is an independent agency of the national government, and 2) co-insurance of deposits⁴ is not available. Should these assumptions not hold true, the recommendations provided by this guide and toolkit may have to be modified to fit the individual country's framework. The toolkit can be applied to deposit insurance schemes for any type of depository institution—e.g., commercial banks, specialty banks, savings associations and credit unions—which we refer to as banks in this document.

TARGET AUDIENCE

The Guide and Toolkit can be used as starting points for deposit insurers that wish to develop the appropriate forms, agreements and Memoranda of Understanding to improve their operations and make deposit insurance more widely known and understood in their jurisdictions or as a way to amend forms and agreements already in existence. The outline of the Guide and Toolkit largely draws from the governing principles for deposit insurers set forth in the International Association of Deposit Insurers Core Principles for Effective Deposit Insurance Systems, and practices recommended or applied by the aforementioned international and national organizations concerned with deposit insurance as well as academic research.⁵

2 INITIAL CONSIDERATIONS FOR INSURANCE SCHEME DESIGN

The strengths and weaknesses of deposit insurance schemes can be traced to scheme design and how that design aligns with public and private sector institutions as well as legal and regulatory systems in the jurisdiction. In this section we review the origins of deposit insurance from historical and theoretical perspectives.

³ Croitoru, Dobler and Molin [4].

⁴ In this context, co-insurance refers to a framework in which the deposit insurer provides protection for only a portion of the amount of eligible deposits covered by the deposit insurance scheme with the depositor bearing the risk of loss for the remaining portion of the deposit.

⁵ See <https://www.iadi.org/en/core-principles-and-guidance/core-principles/>.

2.1 HISTORY, BENEFITS AND COSTS OF DEPOSIT INSURANCE

Banks have existed since medieval times (e.g., Medici Bank of Florence in the 1400s) and banking services can be traced to the Roman empire. Despite the early origins of banking, deposit insurance is a relatively recent phenomenon. The first deposit insurers in the U.S. appeared in the 1880s as state-sponsored and private systems; all these early deposit insurers failed. Czechoslovakia was the first country to establish a national deposit insurer in 1924.⁶ The United States was the second country to establish a national deposit insurer, the Federal Deposit Insurance Corporation (FDIC), in 1933 as part of the New Deal economic support programs enacted after the U.S. Great Depression. This history raises questions about why it took so long for deposit insurance to appear compared to banks and why did government support deposit insurance spread globally in the latter half of the 1990s and early 2000s?

A key to understanding deposit insurance is to compare its history to that of other types of insurance, such as fire, property, and life insurance. The first property insurers in the United Kingdom that insured merchandise and ships appeared in 1601. The types of insurance available in the United Kingdom expanded over time to include fire insurance in 1666. Life insurance was first offered in the United States in 1759.⁷ There are important differences between fire, property and life insurance versus deposit insurance that help explain the late development of deposit insurance. The first difference is that insurance contracts for fire, property, and life insurance cover physical objects where loss usually occurs due to independent events. Under these circumstances, actuarial science can devise contracts that are both affordable to the insured and profitable to the insurer. Should large-scale events occur that trigger widespread claims and insurer losses, the insurer will most certainly fail but such events are historically rare (e.g., severe weather causing fire, flood, and loss of merchant ships). Importantly, both the insurer and insured have knowledge of the underlying risks and rewards of the insurance contract, i.e., there is less opportunity for adverse selection than occurs with deposit insurance.⁸ Fire and property insurers can inspect the property and learn its true market value. Further, the insurance contract can include conditions that nullify the contract should there be fraud on the part of insurance claimants. This is very different from the situation created by national deposit insurance where insured depositors only have access to aggregated bank financial data—income statements and balance sheets—and whatever information bank supervisors might provide (e.g., in the U.S. supervisory

⁶ Palermo, Danilo and Juan Buchenau [25].

⁷ See Insurance Handbook, Insurance Information Institute. Available at <https://www.iii.org/publications/insurance-handbook/brief-history>.

⁸ Adverse selection occurs when one side of a transaction can benefit from having information the other side of the transaction does not possess, also known as asymmetric information.

enforcement actions against banks that violate laws and engage in unsafe and unsound practices).

In addition, with fire, property and life insurance there is less opportunity for moral hazard than occurs with deposit insurance. Specifically, moral hazard in deposit insurance is the reduced incentive of insured depositors and bankers to monitor risk due to the insurance provided. Moral hazard in banking is encouraged by the implicit or explicit guarantee of the national government that accompanies the deposit insurance offered to depositors. A merchant shipping company will have less opportunity to defraud the insurer if the insurer can inspect cargo and vessel. This is very different from the situation insured depositors and bankers face where insured depositors have little incentive to monitor the bank's risk of illiquidity and insolvency. Further, bank management typically has little financial stake in the bank but can extract substantial wealth through salaries, bonuses, and severance packages even while making negative net present value investments for the bank.

Regarding fire, property, and life insurers, we should ask who monitors their condition? These types of insurers rely primarily on premiums from insured customers for funding and these customers have reason to monitor insurers' ability to perform on the contract.⁹ Further, jurisdictions establish insurance regulators to oversee insurance companies' activities and monitor their condition, and also establish guarantee funds that provide financial support for customers of failed insurance companies.¹⁰ To conclude, the prevalence of adverse selection and moral hazard in deposit insurance suggests deposit insurance is not a profitable private sector enterprise and a risky public sector enterprise; we explore these issues further in the next section.¹¹

2.2 ADVERSE SELECTION AND MORAL HAZARD IN DEPOSIT INSURANCE

Calomiris and Jaremski [3] review the extensive literature on deposit insurance and state that the spread of deposit insurance can be explained by two alternative theories. The first is the traditional economic rationale for deposit insurance as a means of limiting bank runs. To begin, consider the

⁹ In the U.S. there is no national regulation and supervision of fire, property and life insurers and no national insurance fund to cover insured individuals should insurers become insolvent. There are state programs for regulation and supervision of these types of insurers and state funds to back up these insurers. However, as has been the case with state insurance of banks, state insurance of fire, property and life insurers cannot offer the level of protection the "full faith and credit" backing of the U.S. government offers to insured depositors.

¹⁰ In the U.S. insurance companies offering life, health, as well as property and casualty insurance are regulated by state insurance departments who monitor insurers' condition and conduct periodic onsite examinations of insurers. State guarantee funds provide financial protection set by state law for policy holders in the event of an insurer insolvency. Further, national associations of guarantee funds provide support and coordinate failure resolutions for insurers that sell policies in multiple states. The National Organization of Life and Health Insurance Guaranty Associations (NOLHGA) and The National Conference of Insurance Guaranty Funds for property and casualty insurers (NCIGF) provide support for the various state guarantee funds, especially for insolvencies of multistate insurers.

¹¹ The comparison of fire, property and life insurance to deposit insurance is motivated by the literature on moral hazard and adverse selection in banking.

causes of bank runs. Individuals find the maturity transformation function banks provide to be beneficial. Small depositors are generally unable to monitor the use of credit they might provide directly to firms and other individuals, as well as indirectly through banks, due to the high costs of monitoring those obligors. Individuals do, however, value the use of bank deposit accounts for transactions and are willing to lend to banks (deposit accounts) and delegate the monitoring of the ultimate borrowers (bank loans to businesses and individuals) to banks. Bank lending becomes less risky as the scale and scope of lending increases due to the diversification of loan portfolios, all other factors being equal. Banks are still exposed to losses due to credit cycles where credit risk cannot be sufficiently reduced through loan portfolio diversification to limit the risk of bank insolvency.

Whether due to macroeconomic conditions or idiosyncratic bank problems, some bank depositors will find reason to withdraw deposits when perceived bank illiquidity and/or insolvency risk is high and not wait until banks become illiquid and/or insolvent before doing so. Large-scale withdrawal of deposits can lead to severe illiquidity at a bank (liquidity insolvency). Depositors are aware of the “first come, first serve” reality of deposit withdrawals and this can precipitate widespread withdrawals of deposits (i.e., a bank run). Further, a run on one bank can lead to runs on other banks perceived to be in the same position as the initial bank, broadening the crisis. Bank runs have occurred historically with banks lacking deposit insurance, most prominently in the U.S. in 1929, resulting in the Great Depression. Bank runs have also occurred with banks that offered relatively limited deposit insurance. The United Kingdom bank, Northern Rock, experienced a bank run in 2007 when the public became aware of its severe illiquidity due to losses on subprime real estate loans. At the time of the run on Northern Rock, UK’s deposit insurance covered 100 percent of the first £2,000 of deposits and 90 percent of the next £33,000 in deposits, resulting in a maximum coverage level of £31,700. The 2006–2007 average income in the U.K was £23,325; it is likely that many individuals had deposit balances above £2,000 at Northern Rock and would likely lose money should the bank fail.¹²

Deposit insurance can greatly reduce the risk of bank runs if the insurance is credible and coverage is sufficiently high. Calomiris and Jaremski [3] point out that the economic benefits of deposit insurance come at a cost—reduced market discipline. The fact that many bank creditors have less need to monitor banks’ condition when deposit insurance is provided can result in increased risk tolerance by bank managers, senior executives and boards of directors. Reduced incentives to monitor risk by bankers and insured depositors is the moral hazard problem of deposit insurance. The moral hazard problem is compounded by a second problem in banking, adverse selection. The fact that depositors find it costly to monitor banks and those to whom banks lend means bank borrowers and bank management have an information advantage relative to depositors. Historically, bankers and bank

¹². Shijn [28].

borrowers have used that advantage to their benefit at the cost to depositors and deposit insurers. Most recently, moral hazard and adverse selection contributed to the 1980s U.S. Savings and Loan (S&L) crisis and 2007–2009 global financial crisis.

Governments that offer deposit insurance can offset a portion of the loss of market discipline through prudential supervision and regulation of banks, i.e., regulatory discipline. Calomiris and Jaremski [3] explain that regulatory discipline is unlikely to be as effective as market discipline because regulators do not have a monetary stake in banks and are subject to political pressures that can lead to ineffective bank regulation and supervision. This latter situation leads us to the second theory of deposit insurance, the political theory. Under the political theory of deposit insurance Calomiris and Jaremski [3] argue that certain constituencies in a jurisdiction can benefit from deposit insurance because it provides a subsidy to banks and bank borrowers. Implicit in the subsidy argument is the belief that deposit insurance is underpriced. This insurance subsidy and attendant moral hazard and adverse selection problems were evident in the 1980s S&L and 2007–2009 U.S. financial crises in which a period of de-regulation and de-supervision allowed thrifts and banks to dramatically increase loan portfolio concentrations of subprime commercial and residential real estate loans. Since real estate markets are prone to boom-bust cycles, the market crashes were inevitable. In both market collapses the deposit insurer was unable to cover losses at failed S&Ls and banks. The Federal Savings and Loan Insurance Corporation (FSLIC) that insured S&Ls became insolvent in 1989 after the U.S. Congress denied FSLIC's requests for emergency funding.¹³ The FDIC's Deposit Insurance Fund (DIF) became negative in 2009–2010 after accounting for contingent loss reserves for anticipated bank failures.¹⁴ The financial support programs the U.S. Treasury and Federal Reserve System offered to banks during the 2007–2009 financial crisis included capital injections under the Temporary Asset Relief Program (TARP) that helped many banks avoid insolvency, allowing the FDIC to reverse the loss reserve and restore its capital. The 2007–2009 financial crisis' strain on the FDIC's liquidity was severe, forcing the FDIC to use shared loss agreements to resolve bank failures. Shared loss agreements allow failed-bank asset acquirers to keep problem assets and work out credit problems over time with borrowers, sharing losses on acquired assets with the FDIC. Had the FDIC needed to place all failed-bank assets in receiverships and liquidate those assets over time there would have

¹³ The S&L crisis began in the United States in the mid-1980s when interest rates on short-term S&L and bank funding (deposits) rose dramatically. The rise in short-term interest rates meant S&Ls were forced to fund long-term real estate loans with higher cost, short-term funding. The asset and liability maturity mismatch for S&Ls—30-year mortgages and demandable deposits—was no longer a feasible business model and most thrifts were insolvent on a market value basis as a result. Regulators approved questionable accounting rules for S&Ls to mask these insolvencies, allowing S&Ls to use accounting treatments that deferred losses and accelerated gains. In sum, reported S&L net worth (equity capital) under regulatory accounting bore no relation to actual net worth. The result was that insolvent S&Ls bet on risky subprime real estate lending during the late 1980s real estate market “boom” to gamble their way out of an interest rate risk induced insolvency. The second bet failed and so did the S&Ls deposit insurer.

¹⁴ The FDIC's Deposit Insurance Fund also became negative in 1991. This was due to increases in the contingent loss reserves for anticipated bank failures that were not as bad as the government auditors expected.

been insufficient liquid funds to pay insured depositors.

Calomiris and Jaremski [3] conclude that the political theory of deposit insurance explains the spread of deposit insurance internationally. If that conclusion is correct what we are left with is a trade-off between competing interests that should be considered when designing a deposit insurance scheme—i.e., design a deposit insurance system that can benefit small savers without being exploited by individuals and groups that can benefit from adverse selection.¹⁵ There is also a need to be sure that individuals cannot exploit the benefits of deposit insurance by structuring accounts in order to take advantage of deposit insurance coverage. For example, if a jurisdiction were to treat joint accounts as separately insured from individual accounts without aggregating individual interests in each joint account there would in effect be no coverage limit for an individual account holder who opened multiple joint accounts.

3 SETTING UP A DEPOSIT INSURANCE AGENCY

In establishing deposit insurance within a jurisdiction there are many issues to consider.¹⁶ One of the primary benefits of having deposit insurance is that the cost of protecting depositors with relatively small amounts of deposits (“small depositors”) should a bank fail is borne by the member institutions rather than the public through the collection of premiums from insured entities and the establishment of a deposit insurance fund. Thus, one of the first steps a jurisdiction could take in deciding to adopt deposit insurance is to establish a deposit insurance fund and begin collecting premiums from whatever financial institutions will become part of the system (for example banks, credit unions or other credit cooperatives). This fund will then begin to grow even as the final contours of a rules-based system are debated and adopted. This fund can be established within the Central Bank with a small staff dedicated to managing the collection of premiums and investments of the collected funds or in an independent organization established for such purpose. In some jurisdictions the deposit insurance fund may remain part of the Central Bank or another entity as an independent unit particularly if the number of financial institutions contributing to the fund is small and the availability of qualified personnel to set up and run a stand-alone agency is limited.

It could be that establishing an explicit, rules-based, limited coverage deposit insurance system will at first create a need for public assurances about the health of the banking system if depositors had

¹⁵ Examples of interest groups that have benefited from deposit insurance subsidies include residential and commercial real estate developers and elites operating within Kleptocracies.

¹⁶ For a discussion of an alternative to a formal deposit insurance system through the use of priority schemes for recovery by depositors see Dobler, Emre, Gullo and Kale [7].

been operating under a belief that their deposits in banks were covered by an implicit guarantee. In such situations the government steps in to cover deposits when a bank fails, thereby covering either all or at least some deposits, usually of small depositors.¹⁷ Moving from such implicit guarantees to an explicit system therefore requires a substantial public education effort about how such an explicit system would work. Adoption of explicit deposit insurance should be done at a time of stability in a country's banking system so as not to put immediate stress on a new deposit insurer and potentially create a lack of confidence that such a new institution could perform effectively in a crisis.¹⁸

3.1 PRIVATE VERSUS PUBLIC SYSTEMS

Public deposit insurance systems are the most common and, in many ways, can be considered to be a good practice. However, private deposit insurance systems do exist in a number of countries and the debate on the issue of whether such systems are preferable to public ones continues.¹⁹ However, one important challenge for private systems is the necessary constraint on the sharing of information on the condition of member institutions with that institution's competitors and the rules surrounding bank secrecy. It may also be difficult to provide the necessary level of back-up funding to a purely private system whereas a public deposit insurer should have access to sources of public funds both for liquidity purposes and as a backstop if needed for paying insured depositors at the time of a bank failure. In such cases there could be pressure on the government to provide funding to avoid the potential contagion effects from an inability to pay depositors.

3.2 FUNDING ISSUES (SEED FUNDING, EX-ANTE FUNDING, BACK-UP FUNDING)

Funding of a deposit insurer is needed not only as it is set up but also on an ongoing basis as described above. It may be that seed money for a deposit insurer can be provided from some sort of public funding or by assessing a fee for institutions to join the deposit insurance system followed by the regular assessment of premiums on a periodic basis. Funding is increasingly done on an ex-ante basis²⁰ for deposit insurers, thereby providing for the payment of premiums into a fund that accrues and is thus available in advance for use at the time of a bank failure. There are some deposit insurers²¹ use ex-post funding, thereby collecting the funds used to make a depositor payout once the

¹⁷ An implicit guarantee is “[a]n expectation that some form of government protection would be provided in the event of a Financial Institution failure. Implicit Protection is, by definition, never formally specified. There are no statutory rules regarding the eligibility of Financial Institution liabilities, the level of protection provided or the form which reimbursement will take.” International Association of Deposit Insurers, <https://www.iadi.org/en/core-principles-and-guidance/glossary/>.

¹⁸ Garcia [12].

¹⁹ See, for example, Salama and Braga [26].

²⁰ IADI [15].

²¹ Adema, Hainz and Rhode [1].

payout is completed. There can also be a combination of both ex-ante and ex-post funding²² where a depleted deposit insurance fund is replenished through an assessment on the industry after a payout. Regardless of the type of funding there is a need for a certain source of backup funding for the deposit insurer so that the public can be confident that insured deposits will be able to be reimbursed promptly in the case of a bank failure. This is specifically addressed in IADI Core Principle 9, Sources And Uses Of Funds.²³

3.3 DETERMINING WHICH DEPOSITS WILL BE COVERED BY DEPOSIT INSURANCE AND HOW

An analysis of the deposit structure within a jurisdiction is essential to determining how best to set up a deposit insurance system. Deposit insurance is a tool to protect most but not all depositors in a banking system and should be designed to accomplish that goal by excluding from coverage large deposits. Exclusions from coverage can include certain categories of deposits (such as inter-bank deposits) and types of deposits (e.g., those held by insiders at an institution) and those deposits exceeding the coverage limit (e.g., the deposits held by large corporates will in most cases exceed the deposit insurance limits in place). It may be that in some jurisdictions only deposits held by individuals are covered which could have an impact on small businesses within that jurisdiction in the case of a bank failure. Core Principle 8, Coverage, addresses the issues of the level and scope of deposit insurance, requiring clear definitions of both by the deposit insurer. An increasingly important issue for deposit insurers is how to treat new developments in financial technology that are blurring the once-distinct lines between deposits and payment systems, such as e-money.²⁴ Greater deposit insurance coverage of these newer methods of storing money may in some circumstances contribute to greater financial inclusion. As methods of value storage and payment accessibility are evolving²⁵ deposit insurers will need to assess whether and if so how to cover these new financial instruments and how to plan for and pay out holders of such instruments if needed in the event of a bank failure.²⁶

3.4 DRAFTING A DEPOSIT INSURANCE LAW (OUTLINE OF A MODEL LAW PROVIDED)

The IADI Core Principles, as well as the Financial Stability Board’s Key Attributes of Effective Resolution Regimes for Financial Institutions²⁷, should be reflected in the legal framework governing

²² Ibid.

²³ Core Principle 9 provides in part that a deposit insurer “should have readily available funds and all funding mechanisms necessary to insure prompt reimbursement of depositors’ claims, including assured liquidity funding arrangements.”

²⁴ IADI [15].

²⁵ For a discussion of the challenges and opportunities for deposit insurers in what has been termed Deposit Insurer Technology or DepTech see Garnett, Youssef and Hoople (13).

²⁶ Dobler, Garrido, Grolleman, Khiaonarong and Nolte [6].

²⁷ Financial Stability Board [9].

the deposit insurance system. The law should cover the objectives of the deposit insurance scheme, the establishment of the insurer as a stand-alone agency or as part of an appropriate existing government agency, a specification of the mandate and powers of the deposit insurer, its governance arrangements, its funding structure including its ability to borrow in support of its mandate, and all other aspects of the deposit insurer's operation as a member of the jurisdiction's financial safety net. The Toolkit contains a Model Deposit Insurance Act (Appendix 13.9) to aid deposit insurers in crafting an appropriate governing law.

It is important to note that we have not distinguished between common and civil law jurisdictions in this paper although that distinction is important in structuring the laws governing a deposit insurer's operations. In civil law jurisdictions the laws are almost entirely codified, requiring more detailed legal frameworks to be in place. Common law jurisdictions on the other hand depend to a substantial extent on published judicial opinions interpreting the legislative language in place. The model law we have attached can act as a guide for qualified practitioners within a jurisdiction to refer to when developing a law that fits within whichever legal structure is in effect in their jurisdiction.

The deposit insurance law must align with the laws governing bank resolution and supervision generally and should not be inconsistent with other laws governing the financial system. There should be a specific reference to the priority of claims that will govern the failure of a financial institution which may differ in important respects from the priority of claims that govern a corporate bankruptcy. If there is any distinction to be drawn between how claims will be paid in different types of financial institutions (for example, differing coverage levels for deposits held in smaller institutions such as credit cooperatives from larger institutions such as banks) the reason for such distinctions should be clear and should not unduly complicate the payout process for the deposit insurer or interfere with its ability to recoup its payments from available repayment sources.

4 STRATEGIC ROLE OF THE DEPOSIT INSURER

A deposit insurer is an important part of the financial safety net in any jurisdiction and as such a full partner with other safety net players in terms of information sharing, crisis preparedness and crisis management for the sector. This is true regardless of the deposit insurer's mandate as understanding risks to the financial sector which could result in the need for the deposit insurer to mobilize its funds is essential to prudent management of the insurance fund and readiness in case of a need for an insured deposit payout.

4.1 DETERMINING THE PUBLIC POLICY OBJECTIVES (CORE PRINCIPLE 1)

A deposit insurer should have its contribution to the stability of a country's financial system as one of its public policy objectives. This is because the existence of deposit insurance should lessen the possibility that depositors who perceive that a financial institution is troubled will “run” from that institution by withdrawing their deposits, potentially exacerbating an institution's problems or even contributing to a perception that all financial institutions are unsound and thus creating the risk that depositors at even healthy institutions begin to withdraw their funds. The existence of deposit insurance may also increase trust in the banking system and therefore encourage more people to open bank accounts, thereby decreasing the unbanked population in a jurisdiction.

The fundamental public policy objective for a deposit insurer should be the protection of depositors, but focused on smaller retail and non-retail depositors (small and medium enterprises (SMEs)). Large corporate depositors (including banks holding inter-bank deposits) are better positioned to monitor the condition of the financial institution with which they conduct business and thus theoretically can avoid the possible losses they could incur from a failure of such an institution. Covering such large depositors may create the possibility of increasing the moral hazard that can be associated with deposit insurance although the deposit insurance limit will most likely represent an insignificant portion of a large company's bank deposits.

Other public policy objectives may also focus on failure resolution of financial institutions. The introduction of deposit insurance can shift the cost of such failures to a privately funded deposit insurance system from what in many countries in the past might have been the government. A formal deposit insurance system can also result in a more orderly and efficient resolution process, thereby advancing the public good of speedier and more certain depositor reimbursement.

4.2 DETERMINING THE MANDATE (CP 2)

IADI defines the term “mandate” as the “set of official instructions describing the deposit insurer's roles and responsibilities. There is no single mandate or set of mandates suitable for all deposit insurers. When assigning a mandate to a deposit insurer, jurisdiction-specific circumstances must be taken into account. Mandates can range from narrow “paybox” systems to those with extensive responsibilities, such as preventive action and loss or risk minimisation/management, with a variety of combinations in between. These can be broadly classified into four categories: Paybox, Paybox plus, Loss Minimiser and Risk Minimiser as defined by IADI.²⁸

²⁸ For definitions of terms—Paybox, Paybox plus, Loss Minimiser and Risk Minimiser—see IADI Glossary available at <https://www.iadi.org/en/core-principles-and-guidance/glossary/>.

There is no preferred mandate for a deposit insurer and the choice of a mandate should be informed by individual country circumstances, policy considerations, resource issues and experience within a jurisdiction with bank failures. However, it has become increasingly clear that a solely paybox mandate where the deposit insurer is empowered to pay insured depositors only if a financial institution's license is withdrawn and the financial institution is closed may not serve the needs of a financial sector where a transfer of insured deposits to a healthy institution when an institution becomes non-viable is not only possible but preferred to avoid disruption to established banking relationships.²⁹ In order for the deposit insurer to participate in such a transfer by supplying funds in support of the resolution it is necessary that it has the more flexible paybox-plus mandate.

There are jurisdictions where the deposit insurer has the broader mandate of a loss minimiser or a risk minimiser but these jurisdictions often have a large number of financial institutions or financial institutions that, due to their complexity, might require highly developed resolution regimes. Many of these jurisdictions also have long established deposit insurance systems that have gained significant experience in serving as either risk or loss minimisers.³⁰ It can be challenging to set up or expand a deposit insurer's mandate beyond that of a paybox plus and, in a country where bank resolution is not needed on more than a periodic basis, it may not be the most efficient use of either human or financial resources. For example, where a bank resolution may occur only once in a decade it may not be efficient to have a deposit insurance agency whose mandate includes acting as a resolution authority if such a mandate requires human and financial resources that are not utilized fully in other activities in the agency.

5 ORGANIZATIONAL ISSUES FOR DEPOSIT INSURERS

There are certain functions that must be performed by any deposit insurer no matter what mandate it has. Such functions include reimbursing insured depositors of failed banks, management of bank resolution issues,³¹ collection of insurance premiums, the investment of such funds, the gathering and management of insured deposit data, the outreach to member institutions and the public about the operation of the insurance system, interactions with other members of the financial safety net and external relations with the press and others such as international organizations on the operations

²⁹ Croitoru, Dobler and Molin [4].

³⁰ For example, the FDIC in the United States has a mandate as a risk minimiser but it has been in existence for almost 80 years.

³¹ Even if the deposit insurer is not itself the resolution authority it will be involved in issues arising from resolution in addition to its role as the insurer for covered deposits. For example, it will have to manage its claim as the subrogee for its payment of such deposits.

of the deposit insurance system. An effective deposit insurer also must have strong internal controls and accountability systems in place. Depending on the mandate or other responsibilities given to the deposit insurer it may also be necessary that there be personnel devoted to other tasks such as member institution supervision or receivership management. Appendix 13.10 presents an example of an organizational chart reflecting these various functions.

5.1 DETERMINING THE APPROPRIATE GOVERNANCE STRUCTURE (CP3)

Core Principle 3 sets forth the rules for governance of deposit insurers. It requires that the deposit insurer “should be operationally independent, well-governed, transparent, accountable, and insulated from external interference.”³² The Board and management of the deposit insurer are responsible for the prudent management of the agency’s funds which, as noted below, should be part of a transparent process with appropriate disclosures to stakeholders. This standard envisions a deposit insurer that has the ability to execute its functions free from any political or other undue influence that would hinder it in accomplishing its mission. As discussed in section 2, the moral hazard problem for deposit insurance can arise in both banks and the deposit insurer.

“The relationship between a deposit insurance system and its key stakeholders (i.e., the authority from which it receives its mandate or to which it is accountable, depositors, member banks, and other safety net organizations) can hold the potential for conflict of interest and for excessive stakeholder influence and interference.”³³

Most deposit insurers are governed by a Board of Directors that appoints a Chief Executive Officer or management team that manages the day-to-day responsibilities of the insurer. This structure allows for the separation of board and management to allow for more independent oversight of the deposit insurer’s overall operation. An appropriate governance structure should advance the deposit insurer’s ability to manage its resources to grow its fund and limit its administrative expenses by avoiding excessive operational costs (e.g., by paying excessive board fees). There should be an odd number of positions on the Board of Directors for the deposit insurer to avoid the possibility of a tie vote when decisions need to be taken which, for most jurisdictions, would result in a Board of Directors made up of three or five members.³⁴ Active bankers should also not be on the Board to allow for the sharing of information without concern of one financial institution learning of information about a competitor that might present an actual or perceived conflict of interest. It is important, however, to have private

³² IADI [16] p. 21.

³³ IADI [17] p. 8.

³⁴ A smaller board may result in cost efficiencies for the deposit insurer. An advisory board with members of diverse skill, experience and knowledge can be established to provide a small board with any necessary outside expertise.

sector involvement on the board to enhance perceived independence and minimize regulatory capture. Board members should meet clear qualification standards, be covered by fit and proper rules and have no conflicts of interest that would present any issues in their board service.

Core Principle 3 makes clear that although the deposit insurer should be subject to oversight by a higher authority in accordance with general good governance practices it should be operationally independent and not be under the control of another agency or interested entity. There could be established performance metrics in place for the deposit insurer for example and such metrics could be subject to monitoring by the higher authority along with reporting requirements such as the requirement that the deposit insurer prepare an annual report. There must also be strict conflict of interest rules in place to avoid the possibility or even the perception that members of the Board could profit from their access to confidential information.

5.2 DEVELOPING A GOOD ORGANIZATIONAL STRUCTURE

After consideration of the appropriate governing board structure for the deposit insurer (i.e., three or five board members, non-government non-ex-officio chair of the board, non-active banker members, ex-officio members and other qualified members such as academics or accountants) as discussed above the next task should be to set up an appropriate organizational structure to address all needed functions. No matter its mandate every deposit insurer will need a properly designed and staffed internal audit function, legal, research, IT and administrative capabilities to properly manage its operations. In some smaller jurisdictions the deposit insurer may be able to make use of certain functions within the central bank or supervisory agency to have access to needed services like IT without having to expend its own resources to develop independent systems. All necessary safeguards would of course have to be in place to ensure the integrity of the systems devoted to the deposit insurer's functions. For some deposit insurers there might be a need for a separate function to manage liquidation or receivership operations. A draft of an organizational chart is attached as Appendix 13.10 as a starting point for consideration of the needs of any given deposit insurance organization.

5.3 LEGAL PROTECTION (CP 11)

IADI Core Principle 11 addresses the need for those working for the deposit insurer (and its former employees) to have legal protection so that actions taken in the course of the good faith performance of their duties cannot result in personal liability arising from actions, claims, lawsuits or other proceedings for their decisions, actions or omissions.³⁵ Such protections are essential in order to protect employees

³⁵ This Principle is consistent with Basel Core Principle for Effective Banking Supervision 2 (BCP 2) which sets forth the need for banking supervisors to be protected from legal actions for actions taken in good faith. BCP 2 also references the need for supervisors to be indemnified against the costs of defending their actions.

of the deposit insurer from the potential chilling effect of the fear of being sued by a disgruntled depositor. The protection should also extend to those working for or engaged by the deposit insurer, such as lawyers or accountants, (with of course adequate oversight) because many functions performed by a deposit insurer in making insured depositors whole are carried out by contractors hired for the specific tasks associated with the closing of a financial institution. The Model Deposit Insurance Act (Appendix 13.9) contains language reflecting the need for legal protection to extend beyond current employees of the deposit insurer in Articles 96 and 97. The legal protection provided for the deposit insurer should also be available to those working as supervisors and resolution personnel in the financial system to avoid the possibility that a lack of such protection will prevent the relevant authorities from taking the necessary actions to address shortcomings in a financial institution's operations that may of necessity lead to that institution's exit from the financial system in accordance with good international practice.

5.4 ADOPTING A BUSINESS CONTINUITY PLAN (CP 6)

IADI Core Principle 6 addresses the role of the deposit insurer in contingency planning and crisis management and is discussed in section 6.1. However, as part of such preparedness by the deposit insurer itself it is essential that a Business Continuity Plan (BCP) be developed and implemented as needed. (See Appendix 13.2 for Outline for a BCP).³⁶ Business continuity planning is the process involved in creating a system of prevention and recovery from potential threats to an institution and is designed to ensure that personnel and assets are protected and are able to function quickly in the event of a disaster. The process of developing a BCP involves defining any and all risks that can affect operations as part of an organization's risk management strategy. Risks may include pandemics, war, natural disasters and, of increasing importance in protecting a deposit insurer's operations, cyber-attacks. Some of these risks may require the deposit insurer to be able to work remotely and to access information through off-site facilities and equipment.

5.5 MANAGING OPERATIONAL EXPENSES

It is essential that a deposit insurer manage its resources efficiently and effectively in order to build and maintain its insurance fund. As a deposit insurer begins operations it will have significant expenses such as those associated with developing the necessary computer systems and training staff to be prepared for an insurance payout. However, there should be oversight by the management of the institution at the highest levels to ensure that administrative expenses remain reasonable

³⁶ Basel Committee on Banking Supervision [2].

and that such expenses are fully disclosed to stakeholders. See, e.g., Appendix 13.9, Model Deposit Insurance Act Article 6.

It may be appropriate for management to adopt in a transparent manner a benchmark for such expenses as a percentage of its operating budget (for example administrative expenses will normally not exceed a given percentage of investment income of the fund). Management should also routinely review processes for payout to insured depositors to be sure that all modern payment systems are incorporated in their planning for a payout, including the budgeting for such payouts.

6 CRISIS MANAGEMENT AND RESOLUTION ISSUES AFFECTING THE DEPOSIT INSURER

This section addresses the issues affecting a deposit insurer associated with crisis management and resolution.³⁷ It is designed to offer general guidance on such issues as well as to provide some examples of documents that should be part of a deposit insurer’s toolkit to guide its work.

6.1 DEVELOPING A CRISIS MANAGEMENT PLAYBOOK (CP 6)

Core Principle 6 addresses the role of the deposit insurer in contingency planning and crisis management:

The deposit insurer should have in place effective contingency planning and crisis management policies and procedures, to ensure that it is able to effectively respond to the risk of, and actual, bank failures and other events. The development of system-wide crisis preparedness strategies and management policies should be the joint responsibility of all safety-net participants. The deposit insurer should be a member of any institutional framework for ongoing communication and coordination involving financial safety-net participants related to system-wide crisis preparedness and management.

A deposit insurer should develop procedures and documents to guide its ongoing work processes such as collection of data, assessment of premiums, dissemination of information about the deposit insurance scheme and other routine matters. As discussed above, it should also engage in contingency planning on an ongoing basis and will have in place a BCP that will guide it in a situation where business processes are interrupted by events including natural disasters or manmade events such as power outages. However, during a financial crisis there may need to be additional processes

³⁷ Resolution is defined in part by IADI [16] as a “disposition plan and process for a non-viable Bank”, see footnote 26.

in place as well as prepared guidance on how the deposit insurer will respond to the crisis as part of the financial safety net both for the public and for use by all members of the crisis response team. Such processes should be guided by a crisis management playbook that sets forth the responsibilities of the deposit insurer in a financial crisis and provide guidance as to how those responsibilities will be handled, as well as Memoranda of Understanding signed by key players in the financial safety net. The deposit insurer should have comprehensive plans in place for executing a payout including all the operational pre-positioning for such execution such as access to depositor files and secure portals between itself and its member institutions for data transmission on a real time basis. There should also be a plan for how the deposit insurer will execute its role (if any) in completing a resolution action such as a purchase and assumption transaction.

Some examples of what should be addressed in a playbook are how to retain needed temporary help, how to develop needed communication tools such as relevant press releases and Frequently Asked Questions (FAQs), what type of governance structure for crisis management will be in place (for example will there be a Crisis Management Committee established within the organization and if so how will it be staffed), how will delegations of authority work in a crisis (standard delegations may need to be modified to deal with the greater demands on the organization during a crisis), how will public procurement issues affect the deposit insurer's preparations, identification of additional expenses that may be incurred and how will such expenses be managed (will the budget process be modified in any way to address additional spending needs in a crisis such as the payment of greater overtime to staff) and how will coordination with other members of the financial safety net or the government as a whole be managed. See Outline of a Crisis Management Plan, Appendix 13.7. The plan can be tested by the use of crisis simulation exercises conducted in coordination with other members of the safety net.

6.2 REPRESENTATION OF DEPOSIT INSURER ON CRISIS MANAGEMENT COMMITTEES (CP 6)

Addressing a financial sector crisis is not the job of only one member of the financial safety net or the government. Management of such a crisis requires detailed analysis, often in a short period of time, of substantial, often complex data about the interactions of various parts of a country's financial system. For that reason, it is good practice to have in place a forum for relevant regulators and government representatives such as the Minister of Finance for the exchange of ideas and information on a regular basis as well as the sharing of information during a crisis situation. Establishing an interagency dialogue on financial stability in normal times can significantly contribute to better interagency coordination in crisis situations. The work program of such a committee can focus on microprudential issues such as regulation and supervision of financial groups, alignment of regulatory frameworks, the routine exchange of relevant information and capacity building, macroprudential issues including

the timely detection and mitigation of risks for the entire financial system and systemic crisis management (once such a crisis is declared).

Participants in such a crisis committee should not only include the Ministry of Finance but also the Central Bank, the Supervisory Authority (if separate from or even as a separate division within the Central Bank), the deposit insurer and any regulators for the securities and pensions sectors if significant in the financial sector. Other parties³⁸ can be asked to participate in Committee meetings to bring additional perspectives to the dialogue or to provide additional expertise.

The committee can be established by legislation or regulation or even through the signing of a Memorandum of Understanding. [An example of a Financial Crisis Committee Operational Memorandum can be found in Appendix 14.14].

6.3 ISSUES INVOLVED IN DETERMINING THE OPTIMAL HIERARCHY OF CLAIMS IN LIQUIDATION

A company may go into insolvency proceedings and its assets will be marshalled by a bankruptcy judge or practitioner to pay the creditors of the insolvent firm to the extent assets are available. As the assets are liquidated, creditors of the firm are paid in priority order in accordance with the law governing insolvency proceedings. Administrative claims, claims for wages, tax claims, secured claims, claims of general creditors and finally shareholders will be paid either in full if possible or only to the extent assets are not exhausted by the payment of higher priority claims.

The hierarchy of claims in liquidation for financial institutions is usually different than the general priority followed in bankruptcy proceedings because of the need to address the priority of depositors' claims, both insured and uninsured. The ranking of the deposit insurer's claims and how such claims are defined has a direct impact on the required funding for the deposit insurer and also may impact the behavior of senior creditors as a financial institution is perceived to be experiencing financial difficulties. There is also the possibility that a financial institution has outstanding advances from the Central Bank which may be given the highest priority for recovery on the institution's assets to avoid putting the balance sheet of the Central Bank at risk, thereby lessening the funds available for the reimbursement of a deposit insurer's payments.

The priority of claims is often contained in a country's banking law or, if there is a separate law governing bank resolution it can often be found there. Less often such a priority of claims can be set forth in the deposit insurance law.³⁹ Wherever it is found it should clearly set forth which claims

³⁸ For example, it may be useful for the regulatory unit for financial integrity (anti-money laundering) to participate for at least some purposes in a crisis committee.

³⁹ It can be problematic when the priority of claims is set forth in legislation governing insolvency proceedings generally as opposed to having a specific provision governing the liquidation of financial institutions which often have specific types of financial instruments such as secured claims which should be addressed clearly in the bank insolvency context.

will take priority on the proceeds of a liquidation action, which must then be followed in completing resolution actions so as not to create preferences for creditors.⁴⁰

The priority scheme in place has a real impact on what could happen as a financial institution approaches insolvency. Sophisticated market players may have made secured loans to such an institution and may call such loans or begin to realize upon their collateral which can have a serious impact on the already-stressed institution's balance sheet if no priority for secured claims is provided in liquidation. As stated above, the Central Bank may also have extended secured loans to the troubled institution.

There should also be a provision for the payment of liquidation expenses as an administrative claim. Without a priority of payment of liquidation expenses, it will be difficult if not impossible to have a party other than the government act as liquidator. As discussed above, careful consideration should be given to whether secured creditors should be able to satisfy their claims either outside of the priority scheme or as a first priority, to the extent of their security.

The issue of the appropriate priority for the claims of insured and uninsured depositors involves important policy issues and should be the subject of a robust discussion and a weighing of the pros and cons of the different choices that can be made in this regard. There are various types of depositor preference that can be adopted as part of the bank resolution framework.⁴¹ Full depositor preference gives a priority over other creditors for all depositors, both insured and uninsured. With no depositor preference, depositors (and the deposit insurer to the extent of its subrogation) share in the recoveries from the liquidation with other creditors (usually general creditors) pro rata. Insured depositor preference allows the deposit insurer to recover to the extent of its subrogation before uninsured depositors, thereby making it more likely that it will largely or fully recover its cost for providing deposit insurance.⁴²

The priority scheme also has a significant effect on whether the deposit insurer's funds will be available to be used to facilitate a resolution (see Core Principle 9, Sources and Uses of Funds). To the extent there is no priority for secured claims it may make the need for a contribution to a resolution by the deposit insurer less likely, thereby shifting at least part of the cost of resolution to any secured creditors left at the time of a bank's failure. This is so because the deposit insurer would in most liquidations incur no or a small cost for its payment of insured deposits if it has a high priority

⁴⁰ The Key Attributes address the issue of varying from the hierarchy of claims in certain limited circumstances. See Key Attribute 5.1.

⁴¹ See generally Hardy [14].

⁴² The costs incurred by the deposit insurer can either be part of its subrogated claim or in some jurisdictions is recovered as part of the administrative costs of the liquidation.

in the ranking of claims and more money would be available in the liquidation because secured creditors would not first recover from the estate to the extent of their security. If the measure of the contribution the deposit insurer makes to a resolution is what its cost would be to complete a payout (see discussion under Funding of Resolution) then a high priority for recovery of the deposit insurer's payment of insured claims corresponds to a lower contribution amount for resolution.⁴³

6.4 HIERARCHY OF CLAIMS AND FAILURE RESOLUTION COSTS

In the absence of a specific law governing bank resolution, upon the failure of an insured bank the disposition of the failed-bank's assets and liabilities is determined by bankruptcy law in the jurisdiction and any bilateral arrangements made for cross-border claims. Bankruptcy law, as applied to personal and corporate bankruptcy, can result in a lengthy period before claims are resolved. This has proven to be ill suited to the resolution of bank failures since a drawn-out failure-resolution process can pose significant financial hardship on commercial and consumer depositors who depend on deposit accounts for day-to-day transactions. Nascent deposit insurance systems may have to rely on existing bankruptcy law; however, separate bankruptcy laws for banks that allows for more immediate payment to insured depositors is preferred.

From the deposit insurer's perspective, there are two important considerations regarding the priority of claims in a failed-bank receivership.⁴⁴ The first is the priority of insured depositor claims in the receivership since this is the deposit insurer's subrogated claim on the receivership. The higher the priority of insured depositor claims in receiverships, the greater the insurer's share of recoveries from failed-bank asset liquidations and failed-bank franchise sales. In many jurisdictions, recoveries from failed-bank receiverships are extremely small, due to a combination of delays in bank insolvency determination, poorly designed bankruptcy laws, poor enforcement of contractual obligations by the court system and a lack of legal protections for government officials responsible for closing insolvent banks. The second consideration is how receivership expenses are defined and prioritized as claims against the receivership. Typically, receivership expenses, both internal expenses and external (contractor fees), receive priority over all other receivership claimants.⁴⁵ This high priority makes sense

⁴³ See generally Croitoru, Dobler and Molin [4].

⁴⁴ In some jurisdictions the deposit insurer has a super priority so that its subrogated claim is paid before all other depositor claims such as those of uninsured depositors. In other jurisdictions the deposit insurer takes in pari passu with other uninsured depositors. Depending on the composition of the failed bank's deposits the difference in how claims are paid to the deposit insurer can have a large impact on its level of recovery for its payout.

⁴⁵ Insured depositors' claims are not typically considered to be a receivership expense with some exceptions.

from an operational standpoint since receivership expenses would eventually exhaust insurer capital should these expenses be effectively non-reimbursable due to low priority in receivership claims.

The deposit insurer's claim on receivership recoveries is determined by the proportion of insured deposits-to-total deposits under depositor preference law or proportion of insured deposits-to-total liabilities without depositor preference. Clearly, as changes to the treatment of insured deposits in the receivership claims process are made there is a substantial impact on the likelihood that one will recover enough proceeds from the receivership to cover insured depositor claims, i.e., the insurer will incur a small or no loss.

The recoupment of deposit insurer funds after liquidation may also depend on creating a legal environment that allows for an expeditious recovery process. There are ways to simplify the liquidation process by allowing for determinations of no-asset receiverships or permitting notice of the abandonment of claims that might be too costly or time-consuming to pursue. These are areas that may require changes in the law governing bank liquidation procedures.

6.5 FUNDING OF FAILURE RESOLUTION (CP 9)

Core Principle 9 addresses a number of issues relating to funding for the deposit insurer⁴⁶ but for purposes of the discussion on the appropriate measure of a deposit insurer's contribution to resolution the relevant Essential Criteria is number 8:

PRINCIPLE 9 – SOURCES AND USES OF FUNDS

The deposit insurer should have readily available funds and all funding mechanisms necessary to ensure prompt reimbursement of depositors' claims, including assured liquidity funding arrangements. Responsibility for paying the cost of deposit insurance should be borne by banks.

⁴⁶ For a fuller discussion of how the necessary funding for a deposit insurer should be determined see sections 7.2 and 7.3.

RELEVANT ESSENTIAL CRITERIA

8.) Where the deposit insurer is not the resolution authority, it has the option, within its legal framework, to authorise the use of its funds for resolution of member institutions other than liquidation.⁴⁷ In such situations the following conditions are met:

- a. the deposit insurer is informed and involved in the resolution decision-making process;
- b. the use of the deposit insurer's funds is transparent and documented, and is clearly and formally specified;
- c. where a bank is resolved through a resolution process other than liquidation, the resolution results in a viable, solvent and restructured bank, which limits the exposure of the deposit insurer to contribute additional funding in respect of the same obligation;
- d. contributions are restricted to the costs the deposit insurer would otherwise have incurred in a payout of insured depositors in a liquidation net of expected recoveries;
- e. contributions are not used for the recapitalisation of resolved institutions unless shareholder's interests are reduced to zero and uninsured, unsecured creditors are subject to *pari passu* losses in accordance with the legal claim priority;
- f. the use of the deposit insurer's funds is subject to an independent audit and the results reported back to the deposit insurer; and
- g. all resolution actions and decisions using the deposit insurer's funds are subject to *ex post* review.

Implementation of these rules will require close cooperation between the bank regulator, the deposit insurer and the resolution authority in determining not only the level of the contribution of the deposit

⁴⁷. Such use may be compulsory under national law.

insurer to a resolution but also whether that contribution can be made under the legal framework in place. The board of the deposit insurer must authorize the use of its funds and the amount to be contributed. This will require not only the sharing of relevant information about the losses at the targeted financial institution but also the likely recoveries that would have been realized if the institution had been liquidated. It will also require cooperation between the deposit insurer and the resolution authority if there is a requirement that resolution actions must meet a least cost test.⁴⁸ All of these matters can be governed by a cooperation agreement between the deposit insurer and the relevant authorities (i.e., supervisor and resolution authority) (see attached cooperation agreements, Appendices 14.5 and 14.6).

6.6 RECOVERIES (CP 16)

Core Principle 16 sets forth the requirement that the law address the need for the deposit insurer to recover the funds it advances for the payment of insured deposits:

The deposit insurer should have, by law, the right to recover its claim in accordance with the statutory creditor hierarchy.

ESSENTIAL CRITERIA

1. The deposit insurer's role in the recovery process is clearly defined in law. The DI is clearly recognized as a creditor of the failed bank by subrogation.
2. The deposit insurer has at least the same creditor rights or status as a depositor in the treatment in law of the estate of the failed bank.
3. The deposit insurer, in its capacity as creditor has the right of access to information from the liquidator, so that it can monitor the liquidation process.
4. The management and disposition of assets of a failed bank is guided by commercial and economic considerations.
5. Those working on behalf of the deposit insurer, other financial safety-net participants, and third party professional service providers providing resolution services are not allowed to purchase assets from the liquidator.

⁴⁸ The least cost test requires that the costs of a resolution to a deposit insurance fund is not greater than the cost of paying out insured depositors in a liquidation, net of expected recoveries. Croitoru, Dobler and Molin [4].

Importantly this Core Principle does not specifically address how the hierarchy of claims should be designed (discussed above) nor does it make clear that the deposit insurer's costs should also be recovered either as an administrative expense or as part of the subrogated claim for its payment of insured deposits. The choice of how such costs will be recovered will of course have an impact on the deposit insurer's funding and also how much it can contribute to resolution.

7 DESIGN FEATURES

Every public and private sector organization has a structure comprised of rules, roles and responsibilities that drive the organization's activities. An organization's structure can be very simple, e.g., an organizational hierarchy that determines who does what and when. Organizational design is used to make choices about the workflow of an organization that are not driven by organizational structure. A deposit insurer's structure is determined by the laws and regulations that establish the deposit insurer, determine its powers and responsibilities, as well as its financing—sources and uses of funds. Depending on the rigidity of the structure, deposit insurers are able to make design choices.

7.1 SETTING PREMIUMS (CP 9)

We begin this discussion of deposit insurance premiums by comparing insurance premium setting for commercial and consumer insurance (e.g., property, casualty and life insurance) with deposit insurance premium setting practices. We believe a review of the similarities (dissimilarities) in premium setting practices for commercial and consumer insurers compared to deposit insurers, and the reasons for those similarities (dissimilarities), can assist in understanding deposit insurers' unique situation.

COMMERCIAL AND CONSUMER INSURANCE PREMIUMS

Business and personal insurance premiums are charged over the life of the insurance contract and are collected prior to insurance claims.⁴⁹ These Insurers seek to collect sufficient premiums to cover expected losses due to claims, as well as operating costs, and return a profit. Expected insurance losses (L) over the life of the contract (T) are typically modelled as the product of the expected average loss per claim (severity, or lifetime losses divided by expected number of claims, L/N) and expected number of claims (N) over the life of the contract (frequency, N/T), as shown in equation 1:

⁴⁹ Tober [31].

$$E\left(\frac{L}{T}\right) = E(L/N) * E(N/T)$$

1

Commercial and consumer insurers assume that claim frequency and severity follow known probability distributions and are distributed independently of one another. The claim frequency is typically assumed to follow a Poisson distribution where the vast majority of insured entities (businesses or individuals) do not file claims over a given period (exposure) and the frequency distribution of the number of claims per insured entity is highly skewed toward the left. To predict claim frequency insurers have used generalized linear models (GLM) with a Poisson link function. The frequency distribution of claim severities is also skewed to the left and is often assumed to follow a gamma distribution. The gamma distribution results from processes where the interval between events is meaningful and events (e.g., claims) follow a Poisson process.⁵⁰ To predict claim severity insurers have used generalized linear models (GLM) with a gamma link function. In recent years, insurers have used machine learning methods, such as decision tree methods, to model claim frequency and severity. The dependent variables in these models are measures of claim frequency and severity and the explanatory variables are measures correlated with claim frequency and severity. Explanatory variables include attributes of the insurer entity and the property that is insured.⁵¹

DEPOSIT INSURANCE PREMIUMS

Deposit insurers incur losses when a bank fails, i.e., becomes insolvent. The extent of deposit insurer losses depends on several factors. First, failed-bank receiverships typically charge all expenses associated with managing the receivership and liquidating assets to the receivership. As a consequence, only the net proceeds of the receivership (gross recoveries minus expenses) are available to reimburse receivership claimants. Insured deposit reimbursement is typically not considered a receivership expense. Second, the priority that insured depositors have in the claims process affects how much of bank-failure resolution costs the insurer might recover from the receivership as the insurer's subrogated claim on the receivership is based on insured deposits. Secured liabilities may have first claim on the net receivership recoveries and should the jurisdiction have enacted depositor preference laws all depositors have second claim on net receivership recoveries. Under depositor preference, the insurer's claim on net recoveries, after secured claims, is determined by the ratio of insured deposits-to-total deposits, as shown in equations 2, 3 and 4.

⁵⁰ Tiwari [30]

⁵¹ Tiwari [29, 30] provides examples of claim frequency and severity modelling in auto insurance.

$$\text{Net Recoveries} = \sum_{t=1}^T (\text{Recoveries}_t - \text{Expenses}_t - \text{Secured}_t) \quad 2$$

$$\text{Insurer Recoveries} = \text{Net Recoveries} * \left(\frac{\text{Insured Deposits}}{\text{Total Deposits}} \right) \quad 3$$

$$\text{Deposit Insurer Loss} = \text{Insurer Recoveries} - \text{Insured Deposits} \quad 4$$

The deposit insurer's share of net recoveries can vary substantially across banks depending on the level of insured deposits. If depositor preference laws have not been enacted, the deposit insurer's share of net recoveries is determined by the ratio of insured deposits-to-total liabilities, net of secured liabilities if given preference, and that share is typically much less than the share under depositor preference.

As is the case with commercial and consumer insurance, deposit insurers typically model losses by separately considering three components of loss—probability of bank failure, loss rate on exposure given failure and insurer exposure at time of failure (insured deposits)—using a credit risk model approach based on Merton [20]. Merton models a firm financed with a single bond and equity. Merton argues bond holders have a call option on the firm's assets that can be exercised when the market value of its assets is less than that of liabilities (the bond), implying the firm fails. In the Merton model bank default is synonymous with bank bankruptcy, hence we use the terms default and failure interchangeably in this document. Under the credit risk model approach, the expected loss to the deposit insurer from the default of bank k at time t is the product of the bank's probability of default (PD), insurer loss given default (LGD) and insurer exposure at time of default (EAD), as shown for failed bank k in equation 5:

$$\text{Expected Loss}_k = \text{PD}_k * \text{LGD}_k * \text{EAD}_k \quad 5$$

At a point in time, the deposit insurer may have a reasonable estimate of EAD based on reported bank liabilities but will need to find ways to estimate PD and LGD for an expected bank failure. Historical recovery data from receiverships can be used to find average net recovery rates for different asset classes and applied to a bank's balance sheet to determine expected net recoveries. The insurer's expected share of net recoveries and losses after insured depositor payments can then be computed. Deposit insurers have also used regression models to estimate LGD by relating observed loss rates for failed banks to bank condition and performance indicators, as well as macroeconomic indexes. The probability of bank failure (PD) can be modelled using binomial logit models that relate the incidence

of bank failure to bank internal factors and external macroeconomic factors known to be correlated with failure.⁵²

As shown in equation 6 the log odds ratio of the probability of failing-to-not failing is regressed against a set of explanatory variables, $X_{j,k}$, representing bank j 's characteristics, with estimated coefficients, β_k , and intercept, α . Failure models may also include indexes of local and national macroeconomic conditions and other types of indexed (e.g., dummy) explanatory variables, $G_{j,k}$, with estimated coefficients, λ_k . We leave out time subscripts in equation 6 for simplicity, however, all explanatory variables would be measured on or prior to some date prior to bank failure. In failure models presented in this guide all explanatory variables are measured 12 months prior to the time of failure.

$$\ln\left(\frac{P_j}{1-P_j}\right) = \alpha + \beta_1 X_{j,1} + \dots + \lambda_n G_{j,n} + \varepsilon \quad 6$$

For ease of discussion, let Z_j represent the linear combination of bank j 's explanatory variables and intercept term, as shown in equation 7:

$$Z_j = \alpha + \beta_1 X_{j,1} + \dots + \lambda_n G_{j,n} + \varepsilon \quad 7$$

To estimate the probability that bank j fails within 12 months, one takes the product of estimated coefficients and bank j 's values for the explanatory variables and inputs the sum of these products plus intercept term into the inverse logit function (equation 8), and assumes the regression error term, ε , is zero.

$$P_j(\text{default}) = \frac{e^{Z_j}}{1 + e^{Z_j}} \quad 8$$

As equations 7 and 8 indicate, the impact of a change in an explanatory variable of a bank's predicted probability of failure depends on the value of the variable and all other explanatory variables. This property of logit regression is very different from the properties of linear regression when the

⁵² Should a deposit insurer lack sufficient historical data on bank failures to model the probability of default (PD) using regression models, an alternative is to model the incidence of banks becoming critically undercapitalized, e.g., having less than a 2 percent tangible capital-to-assets ratio. Data on insured deposits should be available to estimate exposure at default (EAD). Loss given default (LGD) data may be proxied by expert judgement and the use of data from similar jurisdictions that have experienced bank failures and their losses.

impact of an explanatory variable on the dependent variable is constant across variable values and independent of other explanatory variable values.

We chose logistic regression as our estimation technique since it is particularly well suited to bank failure prediction. Logistic regression is useful when the events being modeled (failure) are relatively rare in the estimation sample. Further, logistic regression assumes the data are log-normally distributed rather than normally distributed; log-normality is by far an easier criteria to satisfy than normality. Finally, a majority of industry and academic models of default (failure) use logistic regression and this allows researchers to compare the performance of their models to previous research.

As a robustness test of the logistic regression results we also estimated the preferred models using another econometric technique—probit regression. The results of probit regression estimates of the failure models are not materially different than those we obtained using logistic regression. As is the case with commercial and consumer insurance, deposit insurers can also apply machine learning models for estimation of PD and LGD.

In terms of premium setting, commercial, consumer and deposit insurers base premium rates on expected losses and operating expenses. Deposit insurers, however, do not have expected profit margins for compensating the risks to the insurer. Aside from the relative merits of charging for risks borne, it would be difficult for a deposit insurer to determine an appropriate profit margin since most deposit insurers have a monopoly on providing deposit insurance and lack a reasonable benchmark profit rate. Further, as public sector institutions, deposit insurers have less flexibility in terms of premium setting than do private sector insurers. Deposit insurers' ability to determine premium rates is limited by the laws establishing the insurer. Historically, deposit insurers were limited to using a single insurance premium rate for all banks—**flat rate**—where the rate is applied to a base that is typically insured deposits.⁵³ Many deposit insurers currently use flat-rate insurance premiums. That rate can be adjusted upward (downward) over time depending on the insurer's funding needs, however, the process of changing the industry-wide premium rate can be slow and require revision of laws for premium setting. This type of deposit insurance pricing process opens premium setting to political considerations where interest groups can be successful in ensuring deposit insurance is underpriced, shifting risk onto taxpayers.

A second approach to premium setting is the use of **risk-related premiums** where premium rates vary based on factors found to be related to the likelihood of bank failure and might also include factors related to the cost of resolving failures. In statistical terms risk-related premiums are based on

⁵³ The insurance base can also be total deposits or total assets.

the probability a bank defaults on its obligations and deposit insurer loss given default. Risk-related premium systems can use PD and LGD estimates to place banks into cohorts where a single premium rate is applied to all banks within a cohort, however, rates can vary across cohorts. Table 1 provides a hypothetical risk-related premium matrix based on PD and LGD estimates (rounded to nearest whole percent). We should point out that the premium rates used by the matrix will adjust to take into account the deposit insurer's funding needs, hence, the table's importance is in providing relative changes in premium rates as bank risk varies.

Table 1. Hypothetical Risk-related Premium Rate Matrix

PD	LGD		
	0%-to-10%	11%-to-20%	Over 21%
0%-to-5%	2%	4%	8%
6%-to-10%	4%	8%	12%
Over 10%	8%	12%	15%

Risk-related premiums can be based on statistical models of the probability of bank failure and loss given failure, allowing for a continuous rate setting model that can vary rates at the bank level.

7.2 FUNDING ISSUES (EX-ANTE FUNDING, BACK-UP FUNDING) (CP 9)

It is generally recommended that deposit insurers collect funds to resolve bank failures before the failures occur, i.e., ex ante funding, as opposed to obtaining funds after failures occur (ex post funding). Ex ante funding helps ensure the insurer in most cases can reimburse insured depositors of failed banks quickly. Commercial and consumer depositors typically cannot withstand delays in access to deposits without incurring serious economic harm. Sources of ex ante funding include the equity capital provided to the insurer at the time of its establishment (which may be public funds), and deposit insurer net income (premiums and investment revenue net of operating and failure resolution expenses).⁵⁴

While national deposit insurers may have the backing of the government, should the insurer lack sufficient funds to reimburse insured depositors of failed banks, that backing can be delayed and sometimes thwarted by bureaucratic, legal and political processes. For example, in the United States

⁵⁴ The initial capital provided to a deposit insurer by the national government may or may not be required to be repaid over time.

the insurer of savings and loan institutions (S&Ls) that existed prior to 1989, the Federal Savings and Loan Insurance Corporation (FSLIC), was severely underfunded and could not resolve the several hundred S&Ls that had become insolvent due to a high interest rate environment. The United States Congress failed to provide sufficient funds to adequately recapitalize FSLIC, hence, insolvent S&Ls remained open for extended periods of time and incurred ongoing losses, thereby significantly increasing the cost of S&L failure resolutions.

Although a good practice is to have access to back-up funding made explicit in the law governing the deposit insurer's obligations that is not always in place. Therefore, it is essential that deposit insurers have in place agreed access to back-up funding (see IADI Core Principle 9) and a process in place to access that funding when needed. That process can be set forth in a Memoranda of Understanding (see example in Appendix 13.8) signed by the deposit insurer, the government and the central bank, with consideration being given to the jurisdiction's legal framework for lending to public institutions. The information required by the government to provide such funding should be set forth in the MOU to eliminate as much as possible any delay in gaining access to the funds needed for prompt payment of insured depositors. In some jurisdictions deposit insurers have access to government guarantees for the issuance of debt which can provide an alternative source for needed funding but in times of serious financial stress in a jurisdiction it may be difficult for the deposit insurer to issue such bonds thereby requiring more ready access to funding from the government.

Liquidity funding must also be available to the deposit insurer. Such funding is distinct from back-up funding in that a deposit insurer with sufficient funds to complete a payout may face constraints in accessing those funds if they are not liquid. This can happen if the deposit insurer's funds are invested in long-term government securities or other assets that are not immediately able to be converted into cash in the existing financial market. According to IADI [16], CP 9 states as an essential criteria:

“The deposit insurer has responsibility for the sound investment and management of its funds. The deposit insurer has a defined investment policy for its funds that aims at ensuring:

(a) the preservation of fund capital and maintenance of liquidity; and

(b) that adequate risk management policies and procedures, internal controls, and

disclosure and reporting systems are in place.”⁵⁵

⁵⁵ See IADI [16], p. 29.

It may also be that the deposit insurer wants to avoid the signaling effect a large-scale security sale on the open market could have. For these reasons it is necessary for the deposit insurer to have a repo agreement in place with the Central Bank to allow it to convert its government securities when needed even if those securities have not yet reached maturity. Such agreements are common between central banks and market participants and should be adapted as needed for use by the deposit insurer.

In summary, back-up (contingency) funding is provided by a government department, e.g., Ministry of Finance. The contingency funding allows the insurer to resolve bank failures in the near term and to repay the government over time. Liquidity funding arrangements provide liquidity (working capital) to the insurer, allowing it to resolve bank failures associated with a banking crisis without requiring it to access the capital markets if such access would either be unavailable or would create unwanted signaling of an upcoming financial institution resolution action.

7.3 ESTABLISHING A TARGET FUND (CP 9)

The deposit insurer's target fund ratio, i.e., optimal insurance fund-to-insured deposits ratio, can be specified in the deposit insurance law. As is the case with premiums, deposit insurers have varying degrees of flexibility and responsibility in target fund determination. For this discussion we assume that deposit insurers have a voice in target fund setting either individually or in concert with the national government and can offer suggestions for how the target fund can be determined.

Deciding the optimal funding level for a deposit insurer is very different from determining capital adequacy for private sector firms. In the private sector setting, financial theory suggests firms should select a mix of debt and equity finance that minimizes the weighted average cost of capital while maximizing the firm's value (market value of equity). The greater a firm's reliance on debt the greater the probability it will default on interest payments on debt since interest payments are a contractual obligation, hence interest costs rise with debt levels. While equity shareholders expect to receive periodic dividends, firms can lower and even cease dividend payments should they need to since equity dividends are a discretionary choice for firm management.⁵⁶

Deposit insurers may be able to use debt finance if they have access to contingency funding from the national government. However, contingency funding provided by the government is back-up funding, to be used if there is severe capital stress on the insurer. It is incorrect to think of the deposit insurer's finance problem as deciding on an optimal mix of debt and equity that reduces the weighted average cost of capital and maximizes the market value of the insurer. Rather, the deposit insurer's optimal

⁵⁶ For preferred stock, dividends are fixed and should they be "skipped" by the firm, the firm is still required to pay past dividends when able for cumulative preferred stock.

funding is the appropriate level of equity capital available to absorb bank-failure resolution costs for a time period and loss level commensurate with the insurer's risk tolerance.

SYSTEMIC EVENTS

As a practical matter, jurisdictions do not expect deposit insurers to absorb the full cost of widespread bank failures caused by systemic events. Whether planned or unplanned, it is a historical fact that government intervention has been used to offset deposit insurer losses in virtually all severe banking crises internationally. A rationale for this approach is the opportunity costs of deposit insurer capital requirements should insurers be expected to address systemic banking crises. Diverting large amounts of funds from banks to the insurer through insurance premiums will reduce bank lending. Having those funds available for private sector investment is a strong reason to limit the insurer's risk tolerance.

NON-SYSTEMIC EVENTS

Now we are left with two related questions: what severity of loss is the insurer expected to absorb through capital, and over what time period would these losses occur? The time horizon for insurer losses is an important consideration, since deposit insurer losses, unlike commercial and consumer insurance losses, tend to be serially correlated. Downturns in commodity markets such as oil and real estate have contributed to banking crises in the United States and other countries. Energy markets, whose prices are influenced by cartels, are inherently risky. Further, recent events associated with energy market supply chain disruptions due to the COVID-19 pandemic and the war in Ukraine pose a serious risk to energy market lenders. Commercial and residential real estate development are inherently risky given the time horizon between project funding, completion, and property sale/refinance. The result is that oil and real estate markets tend to follow "boom-bust cycles," wherein banks increase lending to these sectors during the boom phase, providing project finance with deferred interest payments. When real estate markets experience price declines, borrowers are unable to refinance maturing loans and/or sell properties at prices that can reimburse bank lenders. The result is that bank failures tend to be serially correlated, where failure rates increase during sectoral market downturns that can last several years, and failure rates abate as markets recover.

DETERMINING DEPOSIT INSURER RISK TOLERANCE

Some have argued that the deposit insurer's risk tolerance should be aligned with the sovereign debt rating in its jurisdiction when the "full faith and credit" guarantee of the sovereign backs the deposit insurer. Under this approach, if sovereign debt is rated, e.g., Aaa, by credit rating agencies, the default risk of the deposit insurance guarantee could be calibrated to that implied by the Aaa sovereign debt rating. As a hypothetical example, assume credit rating agencies have computed cumulative Aaa sovereign default rates for one-, two- and three-year periods between 1984 and 2010

as follows:

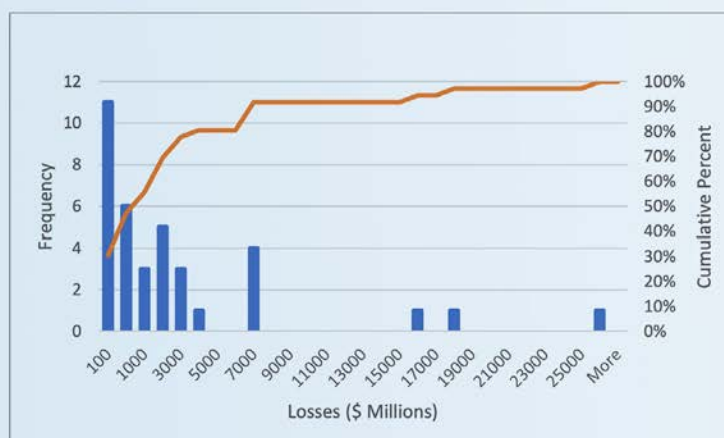
- Cumulative 1-year default rate = 3.00% -- implied confidence level of no default = 97.0
- Cumulative 2-year default rate = 3.80% -- implied confidence level of no default = 96.2
- Cumulative 3-year default rate = 4.40% -- implied confidence level of no default = 95.6

In our hypothetical example, an insurer wishing to maintain credit worthiness equal to that of Aaa-rated sovereign debt and be able to maintain that credit worthiness through a 1-year period could set the confidence level for solvency of the insurance fund at 97 percent. That is, set the target fund level such that the fund could absorb 97 percent of possible bank-failure resolution costs incurred over a 1-year period, calibrated to a chosen historical period.

TARGET FUND CALIBRATION EXAMPLE

As an example of target fund calibration, we use the frequency distribution of FDIC losses between 1984 and 2019, in which approximately 97% of annual losses were less than \$25 billion; implying a target fund of \$25 billion under the earlier hypothetical Aaa credit rating example.⁵⁷ Figure 1 shows the target fund derivation based on a histogram of FDIC losses between 1984 and 2019; this period includes three U.S. banking crises—Southwest 1980-1989, New England 1989-1992, and the U.S. financial crisis of 2007-2009.

Figure 1.
FDIC Annual Losses
1984-2019



⁵⁷ According to Federal Deposit Insurance Corporation [8] the FDIC’s Deposit Insurance Fund was \$17,162 million at year-end 1984. The Depository Institutions Deregulation and Monetary Control Act of 1980 authorized the FDIC board of directors to maintain the insurance fund to between 1.25 and 1.40 percent of estimated insured deposits. The FDIC’s insurance fund was 1.23 percent of insured deposits at year-end 1984.

If the insurer wishes to be able to absorb losses by relying only on capital over longer periods, e.g., 3 years, the cumulative bank failures and insurance losses for a given credit rating group increases compared to a one-year horizon. Again, if targeting a level of creditworthiness (sovereign credit rating) is the insurer's goal, then the variation in confidence levels for fund solvency across different horizons is not an issue. Should the insurer feel raising insurance premium rates during a period of economic stress is counterproductive due to the adverse effect it will have on banks, a longer-term view of fund adequacy is appropriate.

ECONOMIC CONDITIONS

Another consideration for determining the target fund is the economic conditions the insurer feels it should be able to withstand, outside of systemic crises. Insurer losses will vary when estimated over periods that have different underlying economic conditions. If adequate historical data are available, domestically, or for a similar jurisdiction, the insurer can explore the use of periods that exhibit a range of economic conditions—e.g., baseline, adverse and severely adverse. This type of analysis is used in scenario modelling which we discuss in a subsequent section.

7.4 SETTING AND RE-EVALUATING INSURANCE COVERAGE LEVELS (CP 9)

To determine coverage levels jurisdictions should weigh the trade-offs between the benefits and costs of increasing insurance coverage levels. Increases in deposit insurance coverage can aid in attracting depositors to banks thereby expanding the availability of credit through financial intermediation. While deposit insurance mitigates the risk of bank runs, the moral hazard that comes with deposit insurance can de-stabilize banking markets. Jurisdictions should therefore work to ensure some degree of market discipline remains in banking markets by not offering excessively high coverage levels. Further, regulatory discipline of banks should be supported by an effective bank supervision program. Finally, the benefits of deposit insurance can only be realized if there is a bank-failure resolution process that reimburses depositor claims within a reasonable time period, i.e., immediately upon bank closure-to-several days after bank closure.

DEPOSITORS COVERAGE TARGET

Some jurisdictions evaluate nominal deposit insurance coverage levels (i.e., coverage levels measured by the local currency) in terms of the percentage of depositors whose accounts are fully insured, e.g., 90 percent of all depositors in the jurisdiction, which we denote as the “depositors coverage target”. Given a depositors coverage target, the nominal deposit coverage level is adjusted to reach that target. While this target might meet the needs of small depositors, there could be unintended consequences for this type of target. This approach to setting nominal coverage levels might result in

individuals limiting deposits to be within “low” nominal coverage limits. As a consequence, reaching a depositors coverage target can be misleading. That is, achieving a depositors coverage target may be nothing more than maintaining the status quo for an underdeveloped financial system. We next discuss approaches for setting nominal deposit insurance coverage levels that consider goals of deposit insurance beyond protecting “small” depositors—i.e., supporting economic development through a healthy financial system.

MULTIFACTOR COVERAGE APPROACHES

We believe deposit insurers can benefit from considering factors other than the percentage of depositors fully insured when choosing deposit insurance coverage levels. Specifically, factors associated with the financial needs of consumers and small non-financial businesses.⁵⁸

Consumers’ use of financial services is correlated with their income and occupation. In developing countries consumers’ needs for financial services are often met through microfinance institutions rather than banks. In many cases, consumers do not have access to banking services due to the very small amounts of money they wish to deposit or borrow, the high cost of banking services at such institutions and their lack of documented creditworthiness. Adding to the problem of lack of access to banks is the fact that some types of microfinance deposit taking institutions are not covered by a formal deposit insurance scheme but rather rely on no or informal deposit insurance schemes set up by the microfinance institution. Business’ demand for financial services is similarly dependent on the scale and scope of business operations that is reflected in revenues and expenses. As is the case for consumers, in developing countries small firms’ financial service needs are often met through microfinance institutions.

Table 2 provides an example of a list of factors one might consider when selecting deposit insurance coverage levels. We suggest, without proof, that the deposit insurance needs of the population increase for each factor as one moves from the 1st to 5th column of factor values.⁵⁹ The level of detail one might include in this type of analysis would depend on the available information and would likely exceed the several factors and factor levels in our example. One could identify coverage factors and meaningful levels of those factors through statistical regression analysis of bank and other deposit taking institutions’ data, as well as surveys conducted by domestic and international non-governmental organizations, e.g., International Monetary Fund and World Bank Group. The range in factor values in table 2 might be estimated using statistics based on both banks and all other deposit taking institutions, as available.

⁵⁸ We exclude financial businesses, e.g., brokerages and commercial and consumer insurers, since these types of businesses have access to market finance and have other means for offsetting their financial risk that consumers and small businesses do not have.

⁵⁹ Similarly, we anticipate the need for credit by these groups aligns with deposit levels.

Table 2. Example: Factors Influencing Deposit Insurance Coverage

Sector	Factor	Range in Factor Values Based on Population Statistics				
Consumer	Income	1st Quintile	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile
	Education	No formal	Elementary	K12	College	Graduate
	Occupation	Unemployed	Seasonal	Agricultural	Non-agricultural	Other Skilled
	Household Size	1	2 - 4	5 - 6	7 - 8	> 8
Non-financial Businesses	Number of Employees	< 5	6- 10	11 - 100	101 - 500	> 500
	Annual Revenue	1st Quintile	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile
	Industry	Agriculture	Fisheries	Mining	Manufacturing	Other

Using the information provided in table 2 one could evaluate the degree to which sub-segments of consumer and non-financial business sectors, defined by each cell, would be insured at various coverage levels. For example, the median monthly income in India as of 2022 is estimated to be 16,000 rupee (\$211 USD). Hence, a coverage level of 16,000 rupee would fully insure deposits for monthly income up to half of the 3rd income quintile. Similar analysis could be conducted by occupation and other consumer characteristics. The benefit of the multifactor approach to coverage analysis is that it shows who benefits from deposit insurance coverage and who does not. For countries with severe income inequality, the use of ranges of consumer segments is preferred to single statistical measures, such as average monthly income, since averages are misleading when data distributions are skewed. At a minimum, the multifactor coverage approach informs the insurer about which segments of the economy benefit from a specific, nominal coverage level. Further, the insurer can use the multifactor coverage approach to monitor coverage levels over time and adjust coverage, as needed. To directly address the adverse selection and moral hazard problems, however, one needs a more comprehensive solution for determining coverage, which we discuss next.

MARKET-BASED TARGETS

We propose that two problems associated with deposit insurance—adverse selection and moral hazard—can be addressed by changing deposit insurance that is provided by the public sector from a contract with banks to a contract with depositors. The current system of deposit insurance provided

by the public sector in virtually all jurisdictions is a contract with banks that removes the insurance beneficiary—depositors—from insurance market decision makers. If deposit insurance was a public good in the economic sense, i.e., a good for which any one individual’s consumption does not detract from another individual’s consumption and once provided, individuals cannot be excluded from consuming it, the decision to provide the good is a matter of public policy.⁶⁰ The enhanced stability of banking markets that deposit insurance provides (i.e., reduced risk of bank runs) is an argument for the view of deposit insurance as a public good. There is a countervailing view, however, that deposit insurance is not a public good. This latter view points out that individuals and groups can, at times, use deposit insurance to advance their interests over those of others (Calomiris and Jaremski [3]). An example of this latter view is the U.S. S&L crisis of the late 1980s in which many thrifts used the deposit insurance guarantee and “full-faith-and-credit” backing of the U.S. government to engage in unsafe and unsound banking practices in order to reap monetary rewards for thrift owners and managers. The next question is how to include depositors as decision makers in deposit insurance schemes?

We propose as a solution to adverse selection and moral hazard problems of deposit insurance to have deposit insurance offered to depositors who, in turn, pay premiums to the insurer. As a condition of the insurance offering, banks must agree to financial disclosure and onsite safety and soundness examinations by the insurer and/or supervisory authority. Since banks benefit from being able to offer insured deposits, banks would also be required to pay a fee (e.g., co-pay premium) to the insurer. To simplify the process of premium payments, banks could charge depositors for their share of the premium and remit the full premium (bank and consumer premium) to the insurer. Insurance premiums would be used to maintain an insurance fund held by the insurer. The insurer would be authorized to vary premium rates at the bank-level based on a bank’s safety and soundness and potential cost to the deposit insurer should it fail. Depositors would be able to increase insurance coverage, up to some maximum level, where the nominal premium would necessarily increase with coverage.

The potential benefits of the proposed deposit insurance coverage system are reductions in adverse selection and moral hazard through the disclosure of insurance premium rates that are tailored to each bank’s risk profile. Ideally, depositors would have incentives to direct their deposits to well-run banks where insurance premium rates are lower than they are for riskier banks.⁶¹ There has been a historical pattern of banks with risky business strategies offering high interest rates to attract

⁶⁰ Examples of public goods are the protections provided by local law enforcement (police) and national defense.

⁶¹ For deposit insurers that are currently using risk-related premium systems the key difference between their current premium system and the proposed market-based target system is the public disclosure of banks’ premium rates. Currently, many insurers treat banks’ risk related premium rates as non-public, confidential information.

depositors and under fixed, uniform deposit insurance guarantees by the sovereign, this has been a successful funding strategy. Under the proposed market-based coverage target, depositors seeking higher interest rates might face significantly higher insurance premiums should the bank's risk level be high. Similarly, banks offering above market interest rates on deposit accounts could face higher co-pay insurance premiums should their risk level be high.

The costs of the proposed insurance scheme include the possibility that some depositors will forego insurance coverage and assume that the market discipline provided by other depositors, as well as supervisory discipline, will curtail risky bank business strategies—i.e., free riders. To address the free rider problem, a minimal mandatory level of insurance could be provided by the insurer, with coverage calibrated to low-income depositors.

Another cost of the proposed deposit insurance scheme would be the risk of depositor flight from weak banks during periods of economic stress. To mitigate such risks governments could offer support directly to banks through means such as those used in previous banking crises—facilities that support security and loan prices through central bank purchases of these assets, temporary capital injections to banks with viable franchises and insurance for bank loan portfolios.

The market-based coverage target is individually set by each depositor. In this scheme the public sector insurer offers “policies” to consumers and small non-financial businesses and these same groups decide on both the bank and coverage level for their deposits. The premium “burden” of a market-based coverage system is similar to current systems in which insurance premiums are paid by banks. Banks, in turn, pass along some portion of that cost to depositors through service fees and lower deposit account interest rates. The market-based approach makes the premium cost to depositors transparent. We should point out that no deposit insurance system along the lines of our proposed system currently exists.

7.5 ADOPTING RISK-RELATED PREMIUMS (CP9)

There are additional considerations for deposit insurers that wish to adopt a risk-related premium (RRP) system aside from the technical issues discussed in section 7.1. These additional considerations involve the compatibility of the RRP system with supervisory standards for bank safety and soundness, banking laws, and the potential impact of a risk-related premium system on the deposit insurer's ability to meet its target fund.

COMPATIBILITY WITH SUPERVISORY STANDARDS AND BANKING LAWS

One goal of a risk-related premium system is to encourage banks to adopt less risky business practices in the hope of reducing future bank failures and insurance losses. To provide these

incentives the premium system must be sufficiently transparent that banks have a clear understanding of the incentives the system is trying to create. To avoid confusing and/or conflicting regulatory incentives the insurer should ensure compatibility of the risk-related premium system with supervisory standards and banking laws. Box 1 discusses potential incompatibility between a RRP system and supervisory treatment of bank capitalization, as measured by leverage ratios.

BOX 1:

POTENTIAL INCOMPATIBILITY BETWEEN INSURER AND SUPERVISORY STANDARDS FOR LEVERAGE CAPITAL

The United States FDIC adopted a risk-related premium (RRP) system in 2022 that uses a scorecard approach to determining premiums in which various supervisory and financial indicators are weighted and summed to produce a risk score that is linked to a premium rate. The FDIC's RRP system is based on linear regression of the causes of bank failure. Different scorecards are used for complex, large and small banks to capture differences in bank business strategies. Further, there are adjustments, caps and floors to the financial indicators used by the RRP system.

The main concern one might have with this RRP system is the use of linear regression to estimate score weights for financial indicators related to bank failure. Linear regression imposes constant risk weights, i.e., weights that do not vary with explanatory variable size. This means, e.g., that a decline in a bank's Tier 1 capital-to-assets ratio of 5 percentage points results in the same estimated increase in failure risk regardless of the starting Tier 1 capital ratio. It is unrealistic, however, to assume a Tier 1 capital ratio decline from say, 50 percent to 45 percent, results in the same increase in failure probability as a Tier 1 capital ratio decline from 25 percent to 20 percent. Bank supervisors logically expect a 5 percentage point decline in capitalization to be more consequential for lower starting capital ratios than for higher starting capital ratios. To allow for this latter possibility the FDIC could have used logit regression (see Section 7.1) to model the determinants of bank failure and to estimate failure risk. Logit regression does not impose constant risk weights on explanatory variables and will produce results more in line with supervisory expectations. Specifically, for variables that are positively related to the probability of bank failure, the change in failure probability associated with some fixed decrease in an explanatory variable increases the smaller the explanatory variable's starting value. This suggests the use of logit regression for modelling the determinants of bank failure is more in line with supervisory perspectives and is a preferred approach for an RRP system.

INTERACTION WITH ACHIEVING THE TARGET FUND

A second issue with the adoption of a RRP system is how the system might affect bank behavior, premium revenue, and the insurer's plans for achieving a target fund. Upon adoption of an RRP system there is uncertainty about its effect on bank behavior and, consequently, premium revenue. The uncertainty in projections of future premium revenue is greater for a newly implemented RRP system than for a flat-rate premium system. While both flat-rate and RRP premium systems have uncertainty concerning the future assessment bases for banks, number of insured banks and intervening events such as changes in premium rates due to banking crises, the effect of RRP on bank behavior is difficult to anticipate. We recommend the deposit insurer weigh these uncertainties relative to its goals for achieving a target fund. Should achieving a target fund be a primary concern the insurer might consider adopting an RRP system subsequent to achieving the target fund. This would give the insurer a period of time to observe the effects of the RRP system on bank behavior, and by inference, premium revenues when achieving the target fund is no longer an urgent concern.

7.6 MEMORANDA OF UNDERSTANDING

No deposit insurer operates in a vacuum. All such institutions must work as part of the overall financial safety net in a jurisdiction. There should be formal arrangements in place for cooperation and information sharing and the legal framework governing the operations of the safety net structure must allow for the sharing of confidential information subject to appropriate safeguards and operative bank secrecy rules. Such arrangements are often contained in Memoranda of Understanding (MOUs) as discussed below.

7.6.1 WITH OTHER MEMBERS OF THE SAFETY NET

In normal times as well as in times of crisis there can be the need for real-time sharing of detailed information concerning deposit levels, conditions at a particular financial institution or other developments within the country's economy. Such information sharing should be the subject of planning and agreements, with the agreements being as broad and specific as possible to minimize any possibility of delay in information sharing when needed. An example of such an agreement between a deposit insurer and the supervisory authority can be found at Appendix 14.5.

Information sharing should be tested as part of crisis preparedness which can make any shortcomings in the information sharing framework apparent (for example inadequate specificity of deposit information or differences in such information between supervisors and deposit insurers). Agreements should also allow for the sharing of resources, both human and financial, during a payout event as the

deposit insurer may need additional capacity to complete its mission. Supervisors can be candidates for assistance during a payout but there may also be resources at other safety net member agencies (for example IT specialists) that could provide useful service to the deposit insurer as it prepares for and completes its work. It is important, however, for deposit insurers to be prepared to source such assistance from the marketplace and not rely solely on the availability of assistance from other safety net players who themselves may be fully employed in a time of financial distress in a jurisdiction.

7.6.2 WITH OTHER DEPOSIT INSURERS (CROSS-BORDER)

MOUs with foreign deposit insurers should be tailored to the specific circumstances of a given jurisdiction. A general agreement between deposit insurers providing for cooperation and high level information sharing may be sufficient for those deposit insurers without specific connections to the jurisdiction at issue (for example an agreement allowing cross-training opportunities and sharing of information on general deposit insurance initiatives at the MOU signatory agencies). It may also be appropriate to have such agreements allow for the signatory agencies to attend and observe or perhaps assist in insurance events such as payouts in each other's jurisdictions (subject to the necessary confidentiality protocols).

Where there are cross-border institutions involved with two or more deposit insurers the need for more specific cooperation is clear. It is essential in such circumstances that there be robust MOUs in place that provide for the type of information and cooperation that could arise in an insurance event. If a financial institution in jurisdiction A closes and there will be an insurance event in that jurisdiction and that financial institution has either subsidiaries or branches in jurisdiction B the need for information sharing is qualitatively different than the situation where there is no connection between jurisdictions. There is not only the need for specific information about the event in jurisdiction A but there may be a need for information on interconnections between the cross-border institutions (for example, an institution in jurisdiction A is closed because of a fraud by a member of management which may require jurisdiction B to make clear in its communications that such person is or is not involved in the operation of the institution in jurisdiction B). Home-host agreements should be in place in all of these circumstances.

There is also a need for cooperation in communication on the insurance event so that the jurisdictions involved speak with one voice and do not create unnecessary confusion on what the impact in each jurisdiction will be from the regulatory actions. This is especially important in the age of social media where information and more importantly disinformation can spread quickly across borders. If there are different coverage levels of insurance in the jurisdictions involved there will need to be clear communication on what will happen to depositors in each jurisdiction and which deposit insurer will

be responsible for any needed payouts. These issues can be addressed in the MOUs and tested by the affected deposit insurers through the use of crisis simulation exercises. An example of a cross-border MOU is contained in Appendix 13.1.

8 FUND MANAGEMENT

As an introduction to insurance fund management, we first discuss sources and uses of deposit insurance funds, followed by stakeholder interests, investment risks and, finally, investment policies. It should be noted that the determination of an appropriate investment policy should take into account all the expected claims on the fund, including not only operating expenses but also potential payouts or resolution costs that might be incurred.

8.1 SOURCES AND USES OF DEPOSIT INSURANCE FUNDS

The deposit insurer's primary sources of revenue are insurance premiums and returns on the investment portfolio. Primary expenses are losses on failed-bank receiverships and operating expenses (employee salaries and benefits, expenses for fixed assets and other operating expenses). Positive net income (revenues minus expenses) can be distributed in four possible ways: 1) declared to be "excess premiums" that are credited towards future bank premiums, 2) remitted to the Ministry of Finance as "surplus revenue", 3) retained by the insurer to increase capital (i.e., the insurance fund) and in some cases 4) paying taxes on insurer income. Which combination of net income distributions is used by the insurer is determined by government authorities and may be part of the deposit insurance law. We do not debate insurers' approaches to net income distribution, rather, we only wish to acknowledge that there are multiple demands on the insurer's profits and it may also be important to consider that some approaches could present conflicts of interest.

8.2 STAKEHOLDERS VERSUS SHAREHOLDERS

Deposit insurers sometimes refer to insured banks as "stakeholders". This is an acknowledgment of bankers' interest in deposit insurance and bank regulation. A stakeholder is defined as "an interested party", e.g., someone interested in an organization's success (failure). Insured banks have no equity ownership of public sector deposit insurers.⁶² In jurisdictions where deposit insurance is mandatory for deposit taking institutions, however, these institutions are more than interested parties and should

⁶² Private deposit insurers do, of course, have shareholders, but for the above discussion we refer to public deposit insurers which applies to the vast majority of deposit insurers.

be consulted regarding deposit insurance policy and premium setting in order to provide useful information of policy effectiveness and impact on banks. We are not arguing, however, that insured banks be part of the deposit insurer’s governance structure.

8.3 INVESTMENT PORTFOLIO RISK

Deposit insurers’ investment portfolios are exposed to two types of risk—credit and market. Credit risk is due to the possibility that debt security issuers default on interest and principal payments. Market risk includes changes in market prices for securities that adversely affect securities’ market value. Market risk arises from increase in interest rates offered on debt securities which reduces the present discounted value (market value) of promised coupon and principal payments, equity securities’ price reductions and changes in foreign exchange rates that adversely affect investments denominated in foreign currencies.

8.3.1 CREDIT RISK

Given the potential of unexpected demands on an insurance fund to meet insured depositors’ claims, insurers should place emphasis on maintaining fund value. For this reason, deposit insurers typically invest in securities issued by the domestic national government, and, in some cases, securities issued by foreign governments. To the best of our knowledge no public deposit insurer invests in private sector debt and equity securities.

8.3.2 MARKET RISK

Depending on the jurisdiction’s accounting practices, investment portfolio composition in terms of intended uses of securities classified as “held to maturity” (HTM) or “available for sale” (AFS) can affect portfolio value.⁶³ Specifically, should the insurer sell a portion of its HTM securities portfolio, it would be required to restate the value of all HTM securities in the portfolio at fair market value as opposed to amortized cost. If interest rates have increased relative to those at the time of an HTM security’s purchase, its fair market value will be less than amortized cost. Adverse movements in interest rates will also reduce the fair market value of AFS securities. Reductions in debt securities’ fair market value due to market interest rate increases represent interest-rate risk (IRR) to the insurer.

⁶³ For example, in the United States, generally accepted accounting principles (GAAP). International financial reporting standards (IFRS) used in the European Union and many other jurisdictions make similar distinctions between HTM and AFS security classifications.

In some jurisdictions the insurer is required to pay insured deposit claims in the currency in which the account is denominated and this exposes the insurer to foreign exchange rate (FX) "market" risk. To mitigate FX, risk the insurer could maintain a portion of its investment portfolio in foreign currencies and/or securities denominated in foreign currencies. The proportion of the investment portfolio held in foreign currencies should be proportional to insured banks' foreign denominated insured deposits.

Market risk can also be managed through financial hedges such as options and futures contracts. Deposit insurers have not, to the best of our knowledge, used financial hedges to manage market risk, however. This is likely due to strict limits on the types of financial investments deposit insurers are allowed to make. Since financial hedges can present significant risks to the investor if used incorrectly, deposit insurers should ensure they have utilized professional asset management services to assure they have access to sufficient expertise in the use of financial hedges before considering using such instruments.

8.3.3 LIQUIDITY RISK

In addition to credit and market risks, deposit insurers also face liquidity risk, i.e., the risk the insurer cannot pay incurring liabilities from maturing assets (the investment portfolio). Liquidity risk for deposit insurers is primarily due to the need for immediate, liquid funds to pay insured depositor claims. The insurer's liquidity needs should be viewed from several perspectives—current, long term and economically stressful perspectives. Should current banking market conditions be benign, the insurer can anticipate few bank failures and low-to-moderate needs for liquidity. Conversely, should current market conditions indicate a high level of overall bank-failure risk, the insurer's liquidity needs are heightened, and liquidity needs should be gauged relative to previous (or simulated) needs.

8.4 INVESTMENT POLICY

As a consequence of these several risks—credit, market and liquidity—the insurer's investment policy should state investment priorities and consequently limits on portfolio composition in terms of security type, remaining maturity, issuer or credit rating. Further, portfolio performance and risk metrics should be specified, thresholds set and regularly monitored and reported to the insurer's chief financial officer and Board of Directors.

Investment portfolio performance can be measured by portfolio yield (weighted average of securities' yields), and portfolio value (amortized cost or fair value, as applicable). Default risk can be measured by the credit ratings of issuers, as provided by credit rating agencies. Interest-rate risk can be measured by duration gap analysis and interest rate stress simulations. Similarly, foreign exchange rate risk can be measured through FX stress simulations.

9 PREPARING FOR INSURED DEPOSITOR PAY OUTS (CORE PRINCIPLE 15)

The reimbursement of insured depositors is a core function of any deposit insurer no matter its mandate. If it is not handled well, it can undermine confidence not only in the effectiveness of the deposit insurance system but potentially in the country's entire financial sector. A well-executed reimbursement process can also limit the possibility of contagion risk to healthy banks.

There are certain prerequisites to the conduct of an effective reimbursement process. First, the deposit insurer must have the ability on a real-time basis to determine which deposits are insured and which are not using deposit records at each member institution that are maintained in a format agreed to between the deposit insurer and its member institutions (a single customer view format or its equivalent) (see Table 3 below). Second, there should be a focus on how best to facilitate quick access to depositors' insured deposits, thereby limiting hardship to such depositors. This will require the deposit insurer to determine which accounts are insured and which accounts are excluded (for example accounts associated with criminal activity). Third, there is a need to provide real-time, ongoing accurate communication through multiple communication channels (for example, websites, print, radio, digital and other media) so as to meet all depositors' expectations on the reimbursement process. There should also be a process in place for addressing claims by depositors whose deposits cannot be immediately paid out because of the lack of or inconsistent information on account records. Data cleaning and verification along with internal controls (for example, four-eyes process, logging of all critical information) are also essential to the conduct of a secure and accurate payout process.

Each work process should be tested in advance of any payout with back-up systems in place to avoid the risk of failure to the greatest extent possible. One way to test such systems is to do a payout simulation exercise. It may be possible to perform such a simulation using masked real banking data on depositors' accounts in partnership with one of the member banks for the deposit insurance system.

Effective and efficient reimbursement to insured depositors requires coordination between the supervisory authority and deposit insurer. Such coordination can be the subject of a Memorandum Of Understanding between the parties (see example of such an agreement at Appendix 14.5). It is essential to have advance notification and agreement on critical issues (for example on which accounts should be excluded in the reimbursement process) and early access to depositor information which is crucial to the payout process. This allows the deposit insurer to assess the financial institution's data quality at the time of payout.⁶⁴ It is

⁶⁴ Data quality should have been monitored in advance of any payout, with enforcement action taken where rules governing data quality have not been followed. Even with robust data quality enforcement in place, however, real-time monitoring in advance of a payout is necessary to ensure that standards had not been compromised as problems at the institution increased.

also essential that all information related to a payout is archived at the end of the process for future use and in compliance with record retention rules in place in the jurisdiction.

There can be some challenges to completing an efficient process that should be addressed in advance of any payout if possible.⁶⁵ Most jurisdictions have unique customer identifier numbers (for example Social Security numbers in the United States) that can be used by financial institutions when opening accounts. In the absence of such a system it is important to be sure that accounts opened by the same individual at a financial institution can be aggregated at the time of payout to be able to properly apply payment limits. Authorities should issue guidelines or regulations to ensure that all member institutions, including the smallest ones, can provide accurate deposit liability records, within a specific timeframe, for aggregation of depositors' funds and when required by law or regulation (i.e., a "single customer view").

The poor quality of an institution's records or the systems supporting such records can hinder the ability of the deposit insurer to efficiently perform a payout⁶⁶ as can the complexity of the rules governing netting requirements in place in the jurisdiction.⁶⁷ The deposit insurer should also be able to use whatever IT systems are in use at the member institutions and be able to integrate the information in those systems with the IT payout infrastructure in use. For deposit insurers that do not act as receiver or liquidator arrangements should be in place that allow the receiver or liquidator to assist the deposit insurer in the payout process (see Appendix 14.6 for an example of an agreement documenting such arrangements). There is also the need to be sure that impediments to prompt reimbursement are eliminated to the greatest extent possible. For example, elimination of the need for every depositor to file a claim for reimbursement should be considered as the deposit records of the institution itself should in most circumstances be sufficient to establish ownership issues for the purpose of reimbursement.⁶⁸ Requiring the filing of claims for reimbursement may in some circumstances disadvantage depositors in more remote areas. Complex set-off rules can also be a potential obstacle to a prompt payout while the use of interim payments can be a tool to speed at least a partial payment to insured depositors if delays in making complete payments arise. Where set-off is required in the payment process it should be clear that the application of such rules can be

⁶⁵ Some of these challenges may need to be addressed through legal changes to governing laws.

⁶⁶ In fact, poor recordkeeping at a financial institution is perhaps a deposit insurer's biggest operational risk as it contributes to delay and the ultimate cost of completing a payout, dissatisfaction of depositors in the reimbursement process and ultimately the possibility of damage to the reputation of the deposit insurer as to its ability to competently and effectively meet its mission.

⁶⁷ For example, it can be much more time consuming to complete a payout if every loan held by a depositor must be set-off or netted out against deposits held by that depositor as opposed to having set-off against only past due obligations or no requirement of set-off at all.

⁶⁸ There will always be some situations that would require further documentation of a claim of ownership before completing a payout on a specific account but the majority of accounts should be able to be processed for payout based on the records at the institution itself. A deposit insurer should rely on technology based solutions to the greatest extent possible in completing a payout.

fully accommodated by both the banking system and deposit insurer's IT systems.

It is essential that post-reimbursement processes be in place. An audit of the reimbursement process should be conducted by an independent party to confirm that appropriate internal controls have been applied during the reimbursement process, that reimbursements are accurate to the greatest extent possible and that accurate records of the reimbursement process are maintained. See IADI Core Principle 15, Reimbursing Depositors. Post-reimbursement processes may also include surveys of depositors to assess the degree of satisfaction or dissatisfaction with the handling of their insured accounts.

Table 3 is indicative only and should be completed using the governing laws, regulations and policies of the deposit insurer. It is a table designed for use in designing a Single Customer View (SCV) protocol with member institutions. It reflects information on insured accounts, but a similar table could be developed for calculating uninsured accounts and/or amounts or other non-compensable deposits

TABLE 3 - INDICATES FIELDS FOR ALLOWING DEPOSIT INSURER TO DETERMINE INSURED ACCOUNTS PAYOUT FROM MEMBER INSTITUTION'S RECORDS

Depositor Information For Insured Accounts	Description
Bank ID number	Code assigned to bank by deposit insurer
Branch code for bank	Identifies specific branch if applicable
Customer identification number	Unique customer number (can be national identification number, or if jurisdiction does not have such a system, then a unique customer number assigned by the bank)
Type of depositor	Depositor type as defined by deposit insurer (examples: individual, enterprise)
Name	Individual name as shown on official identification (given name, surname); legal enterprise name as show on official documentation
Sex	Male, female, NA (for enterprises)
Date of birth	Month, day, year
Email address	If applicable
Citizenship	Use code for country of citizenship as provided by deposit insurer
Common business name	If different from official enterprise name
Registration number	If jurisdiction provides registration numbers for enterprises, that should be entered here
Name of official opening account	For enterprises, an official or officials must be designated to act for account purposes

Address	Must contain all information on the address of depositor as defined by deposit insurer (for example, street number, street name, apartment number, city name, province name if applicable, country name). Enterprises may designate headquarters address if more than one location
Telephone number and type (land line, mobile)	International code plus regional code plus telephone number plus extension code plus contact name/title
Deposit account type	Account types (for example, individual, joint, trust) should be chosen from list of account types provided by the deposit insurer
Account number	For each separate account
Currency code	Indicates currency in which the account is denominated (for example USD, EUR, etc.)
Account balance	Daily balance on account reflected in denominated currency for account
Account balance in local currency	Daily balance on account reflected in local currency using official daily exchange rate
Account status	Active or dormant. Dormant accounts should be defined by deposit insurer with reference if applicable to relevant laws
Term on account (if applicable)	This entry would apply to accounts with specific terms such as certificates of deposit (for example, 12 months)
Date account opened	As reflected on the books and records of the institution
Interest rate on account	Define as simple or compound
Effective annual interest rate	Effective rate on account
Accrued interest	In foreign currency, if applicable; also, in local currency using official daily exchange rate
Interest accumulation date	If different from the account opening date; if same date, indicate that
Interest accumulation end date	Date on which interest accumulation ends/changes for specific deposit product
Ownership on account	Individual, joint, or trust as defined by deposit insurer
Percentage of ownership for multiple account holders	Ownership share as determined by account record or as defined by deposit insurer if no specific allocation
Loan information for account holders	Any loans held by depositors at bank with loan numbers/terms
Name on loans in addition to names of account holders	Identify loan holders/co-borrowers that are not deposit account holders as well as percentage share of loan holdings for each borrower
Past due loans held by depositors	Loans determined to be in default as defined by deposit insurer/supervisor
Currency denominated for loans	Currency code (for example USD, EUR. Local currency)
Amount of loan	Amount at initiation of loan, amount outstanding

9.1 USE OF PAYING AGENTS

The use of paying agent banks can be an effective way to complete a payout.⁶⁹ Clear requirements for approval of agent banks are essential, with such banks being selected in advance for consideration at the time a payout is imminent at which time the specific payout bank will be chosen. Geographical considerations should be taken into account (for example, the paying agent bank has a number of branches in the areas where most depositors of the closed institution were located) as well as adequacy of systems for handling a payout (for example adequate IT infrastructure to take on the payout tasks in addition to normal business operations of the paying agent). The supervisory authority must be consulted before approving a specific institution as a paying agent to be sure there are no supervisory concerns that would be implicated in the choice of a specific institution for that role. In consultation with the paying agent the deposit insurer should itself determine what payout methods will be used and plan all the logistics of the operation (for example how will cash deliveries be set up), including how the payout process will be monitored and all the reports to be required of the paying agent. It will also be necessary for the deposit insurer to establish appropriate financial sub-accounts to accurately account for all the costs associated with a particular payout including compensation to paying agent bank and to keep those costs separate from the overall account of the deposit insurer.⁷⁰ There should be testing of the transmission of payout data from the deposit insurer to the paying agent bank which can be completed in advance of any need for a payout using dummy or masked files.

9.2 ALTERNATIVE METHODS FOR PAYING CLAIMS

Payment through agent banks can be made to a depositor in a number of ways, either by an electronic transfer, a cash payout, the use of a cheque or the transfer or opening of a new account. Increasingly electronic transfer of funds should be available using a web-based platform specifically established for such purpose or by making use of secure web-based tools already in use in the jurisdiction for payment. It may be necessary in some unusual situations to set up a way to deliver cash to a depositor and if such circumstances exist (for example many depositors unable to physically access their cash payments by traveling to a paying agent bank) there should be a system established to facilitate a safe delivery of cash to affected persons. Cheques can be mailed to depositors or be made available at the paying agent bank or payment cards can be used as a form of payment. In the case

⁶⁹ For an example of a paying agent agreement see McGuire [20]. The Paying Agent Agreement is also included as Template 14.12.

⁷⁰ In addition to contracting with a paying agent bank a deposit insurer may need to outsource other aspects of its operations to conduct a payout. An example of a confidentiality agreement to be executed in connection with such functions can be found at Template 13.13.

of small balance accounts, it may be possible to use e-wallet technology or other automatic transfer options if available within a jurisdiction.

The paying agent bank can also make a new deposit account or an existing account at the paying agent institution available to the claimant.⁷¹ It is also possible for a transfer to be made directly to a depositor's account at a bank other than the paying agent bank if requested.

9.3 DETERMINING INSURED AMOUNT (ISSUES OF SET-OFF, AGGREGATION OF ACCOUNTS INCLUDING TREATMENT OF JOINT ACCOUNTS)

The determination of the insured amount due to an individual depositor is most often determined by the legal framework in place. However, there are situations where, although the law governing the deposit insurer's operations may specify that a certain type of account is insured, there is no specific guidance in the law as to how to appropriately calculate the insurance payment that would be due to a depositor if a member institution is closed. In such circumstances, then, it is essential that the deposit insurer establish clear rules to be applied in various situations for the benefit of member institutions as well as depositors.⁷²

RULES GOVERNING SET-OFF

Set-off or netting is the process of determining what obligations are owed to a member institution by a depositor with an insured account and then, depending on the rules in effect, either reducing the amount of any insured deposit payout by the full or some lesser amount of such obligations. In a jurisdiction where it is common for a depositor to have all banking relationships with just one institution it may be that a depositor would have various accounts, e.g., a mortgage, a car loan or a line of credit in place at the institution that houses all their accounts. In such cases the process of set-off can be time consuming and may in fact be inconsistent with a depositor's expectations about their accounts. An example of the complexities surrounding set-off follows.

Mary has all her accounts at First Bank. She has a savings account, a car loan, a mortgage and a line of credit. At the time of the closing of First Bank she has a balance in her savings account of \$100,000 USD (the amount of the insurance limit) as well as a car loan of \$5,000, a mortgage of \$50,000 and a line of credit of \$1,000. She has been saving for tuition payments for her children as well as a planned vacation in the next few months. All of her loans are current, i.e., there are no past due payments.

⁷¹ The deposit insurance limits must be considered when adding a payout amount to an existing account at the paying agent bank to be sure that the payout does not result in the depositor inadvertently holding an account that exceeds the deposit insurance limit.

⁷² Depending on how the base for calculating deposit insurance premiums is defined (i.e., total deposits, insured deposits or eligible deposits) the rules for determining insurance limits may have an impact on deposit insurance premiums as well.

First Bank is closed and the deposit insurer has to do a pay-out to insured depositors. Assuming that full set-off is in place for Mary's accounts, the deposit insurer would have to gather all the information on the balances not only on Mary's savings account as of the date of closure but also all the loans in place. In determining the amount of the pay-out, the deposit insurer would look at the amount of the savings account and then subtract all the loans Mary has to arrive at a payout to her of 44,000. Although all her loans would now be paid in full, she would no longer have access to her savings in the amount prior to the bank's closure of 100,000. This might significantly impact Mary's plan for how she would pay tuition or pay for her planned vacation which could be contrary to her expectations and thus create some dissatisfaction with the deposit insurer. If no set-off was in place the deposit insurer would pay Mary 100,000 without even having to consider whether she had any loans at the closed institution.

Let's assume Mary was past due on her car loan in the amount of 1,000 but was current on her other loans. If the deposit insurer was required to subtract past due loans from Mary's insurance payment, then only that loan would have to be taken into account in determining the deposit insurer's obligation. It would also not be unreasonable for Mary to expect that any past due obligations at the bank would be collected by the authority closing the bank before making payment on her insured account. Importantly, unlike past-due loans, the resolution authority may well be able to make use of Mary's performing loans in its completion of the closing of First Bank by selling those loans to another financial institution thus reducing the amount of funds that would have to be paid out in its resolution of the institution.

If no set-off is in place then the deposit insurer does not have to consider anything other than the deposit records associated with an insured depositor. However, in a jurisdiction where the payment of troubled loans after a bank closing is challenging it may be that the closing authority would want to collect as much as possible on such loans to lower its cost of resolution. This would involve a policy judgment depending on the situation in effect in a given institution.⁷³ Regardless of whether set-off is used in a jurisdiction it is essential that the rules governing such a process be clearly set forth in the law or by regulation.

AGGREGATION OF ACCOUNTS

In its simplest formulation deposit insurance is most often per depositor, requiring the aggregation of all accounts held by a depositor in determining the application of the insurance limit to that depositor's accounts. Thus, if the insurance limit is 100,000 and the depositor has three accounts each with a balance of 100,000 the amount to be paid to the depositor if the financial institution closes is 100,000, with the remaining 200,000 uninsured, entitling the depositor to a claim in that

⁷³ In some situations, it might be possible for a depositor who would end up with a large uninsured amount after closing to opt to pay an obligation to the closed institution rather than accept a claim in the receivership. This would depend on the priority scheme in place in the jurisdiction and the ability of the resolution authority to ensure that any such voluntary set-off would not create an undue preference over other claimants.

amount in the liquidation of the bank's assets.⁷⁴

However, it is not uncommon for deposit insurance limits to apply per depositor per account held in a separate capacity. For example, Mary could have a savings account insured up to \$100,000 and then an account in a separate capacity such as a retirement account that would be insured without aggregation with her savings account, thereby providing her with \$200,000 of insurance. All such rules governing the treatment of specific types of accounts under the deposit insurance scheme should be clearly understood by the member institutions themselves whose staff most likely will be the in-person contact for a depositor seeking to open an account.

Joint accounts are a common situation where the rules of aggregation should be clear. This is necessary to avoid any confusion on the part of depositors or member institutions. There are several ways to treat joint accounts for purposes of applying the insurance limit. Such accounts could be deemed separately insured without limit, thereby allowing a depositor to open multiple joint accounts and thereby avoid the insurance limit for such accounts. Thus, using the example of Mary at First Bank, she could have an individual account and then multiple joint accounts with each such account being separately insured. This would, however, have the effect of allowing a depositor to by-pass the insurance limits easily by use of a simple deposit structure.

More commonly joint accounts are insured separately from individual accounts but only up to the insurance limit for each joint account holder. Thus if Mary in the example above had an individual account of 100,000 and two joint accounts with her interest in the two accounts totaling 150,000 (i.e. Mary and John with a balance of 100,000 and Mary and Paul with a balance of 200,000) then Mary would have a total of 200,000 in insured deposits, with 50,000 being uninsured (100,000 of individual coverage and 100,000 of insured coverage in the two joint accounts, leaving Mary with uninsured funds of 50,000; John would have 50,000 and Paul would have 100,000 of insured funds in the joint accounts).⁷⁵

As these examples illustrate, aggregation requires that the deposit insurance limit be applied once the total of deposits to be aggregated is calculated.

⁷⁴ The amount the depositor would receive on such a claim for uninsured funds is largely a function of the priority scheme in place, particularly whether there is a priority for depositors that allows for uninsured depositors to recover ahead of general creditors (uninsured depositor preference).

⁷⁵ For a discussion of how the rules for deposit insurance on joint accounts work in the United States see Joint Accounts, <https://www.fdic.gov/deposit/diguidebankers/documents/joint-accounts.pdf>.

9.4 ACCESS TO REAL-TIME INFORMATION

As has been stated previously it is necessary that a deposit insurer have access to information on the structure of accounts at member institutions on an ongoing basis. This is essential to allow a deposit insurer to understand not only what its obligations might be for purposes of completing a payout but also to understand and verify the calculation of the deposit insurance premiums paid by member institutions. During a payout there is also the need to be able to update information promptly to inform depositors of the status of the payout of their insured funds.

The information provided by member institutions should be verified by the deposit insurer working closely with the supervisory authority. It is also a good practice to test the payout capability of the deposit insurer by using information from a member institution even if the laws in place may require the masking of individual depositors' names for such a test. A cooperative effort with one or more member institutions to test payout capability is an essential element of preparedness for a deposit insurer. Development of a framework for such testing may require preparation of a payout simulation handbook.

9.5 USE OF LEGAL IDENTIFIERS

As noted previously the use of legal identifiers is essential to the conduct of an efficient and effective payout. Each account that is opened at a member institution should be associated with a legal identifier (where such systems exist this could be a national identification number) that allows the identification of the account holder for all purposes, including the aggregation of accounts. If there is not a universal legal identifier system in place in a jurisdiction then the deposit insurer and member institutions must agree on a system that will allow for such aggregation in an individual member institution.

10 PUBLIC AWARENESS STRATEGIES (CP 10)

A significant responsibility of a deposit insurer is to make the public aware of the benefits and limitations of deposit insurance and to periodically measure the level of such awareness as set forth in Core Principle 10:

PRINCIPLE 10 – PUBLIC AWARENESS

In order to protect depositors and contribute to financial stability, it is essential that the public be informed on an ongoing basis about the benefits and limitations of the deposit insurance system.

10.1 ESSENTIAL CRITERIA

1. The deposit insurer is responsible for promoting public awareness of the deposit insurance system, using a variety of communication tools on an ongoing basis as part of a comprehensive communication programme.
2. In the event of a bank failure, the deposit insurer must notify depositors, as appropriate and as described in law, via media such as press releases, print advertising, websites and other media outlets, of the following details:
 - a. where, how and when insured depositors will be provided with access to their funds;
 - b. the information that an insured depositor must provide in order to obtain payment;
 - c. if advance or interim payments are being made; and
 - d. whether any depositors will lose funds, and procedures whereby uninsured depositors can make claims to the liquidator for their uninsured portion.
3. The public awareness programme or activities convey information about the following:
 - a. the scope (i.e., which types of financial instruments and depositors are covered by deposit insurance, and which are not);
 - b. a list of which banks are members and how they can be identified;
 - c. deposit insurance coverage level limits; and
 - d. other information, such as the mandate of the deposit insurer.
4. The objectives of the public awareness programme (e.g. target awareness levels) are clearly defined and consistent with the public policy objectives and mandate of the deposit insurance system.

5. The deposit insurer sets a long-term strategy to meet its public awareness objectives, and makes budget allocations to build and maintain a target level of public awareness about deposit insurance.
6. The deposit insurer works closely with banks and other safety-net participants to ensure the consistency and accuracy of the information provided to depositors and to maximise awareness on an ongoing basis. Law or regulation requires banks to provide information about deposit insurance in a format/language prescribed by the deposit insurer
7. The deposit insurer monitors, on an ongoing basis, its public awareness activities and arranges, on a periodic basis, independent evaluations of the effectiveness of its public awareness programme or activities.
8. Depositors in jurisdictions affected by cross-border banking arrangements conducted through foreign bank branches or subsidiaries are provided with clear information on the existence and identification of the deposit insurer legally responsible for reimbursement, and the limits and scope of coverage.

Achieving an appropriate level of public awareness requires the deposit insurer to have a strategy in place to inform different members of the public on a continuous basis of the elements of the deposit insurance scheme and to increase the awareness generally of the existence of the deposit insurer and its role in the financial safety net. The strategy should distinguish between ongoing efforts in normal times and the extraordinary efforts that will be undertaken in times of stress, including the efforts that will be undertaken if there is a payout of insured deposits. (See Outline of a Public Awareness Strategy and Sample Survey Questions, Appendix 14.3). As noted in the Outline, public awareness is handled differently in times of a crisis or insured deposit payout. During such times there may be a need for specific webpage entries on the payout, an increased capacity for the deposit insurer to handle calls and inquiries and the development of specific messaging around the crisis situation.

A public awareness strategy should define the target groups for the strategy (e.g. men, women, youth, the elderly), define the methods the strategy will use to achieve its goals, adopt a plan for how often periodic messages on the scheme should be undertaken and determine how the effectiveness of the strategy will be measured. In addition to periodic messages such as public service announcements

or other forms of public outreach such as contests or appearances at relevant public events, there should be a robust public awareness presence on the deposit insurer's website with the capability to provide answers on coverage levels and rules for the general public as well as employees of member institutions.

Financial institution employees are often the first introduction a depositor may have to the particulars of a country's deposit insurance scheme. For that reason a public awareness strategy should include a plan for training those employees and providing detailed, easy to read brochures for use by the financial institutions with their customers. Such a plan could be developed in partnership with the local banker's association.

A plan for depositor outreach that goes beyond the deposit insurer's website should also be developed in order to reach all depositors. Such outreach can make use of the brochures developed for use by financial institution employees as well as public service announcements on social media, television, radio and print media. Depositor outreach should be an ongoing effort and should be increased in times of financial sector stress to counter the possibility that a lack of confidence in the financial sector might encourage depositor runs.

Financial literacy efforts that target all members of society should include information about deposit insurance and can be undertaken with the help of other financial regulatory bodies as well as schools serving all ages. The deposit insurer can contribute to a financial literacy curriculum with targeted materials that can be used by educators at all levels.⁷⁶ Groups or public agencies involved in consumer protection efforts can also be part of a deposit insurer's public awareness strategy.

10.2 MEASURING THE EFFECTIVENESS OF PUBLIC AWARENESS STRATEGIES

Assessing the effectiveness of the deposit insurer's public awareness efforts is an important part of implementing an effective strategy. The deposit insurer can undertake periodic public wide surveys of depositors and other key stakeholders but also engage regularly in surveys of member institution employees and visitors to the deposit insurer's website to gauge the level of knowledge of the rules applicable to the deposit insurance scheme as well as the role and functioning of the deposit insurer. The public surveys should be conducted on a periodic basis on a schedule adopted by the Board. The surveys should measure general public awareness and knowledge of the deposit insurance scheme, identify target groups where there is a need for increased awareness and identify the most effective

⁷⁶ An example of a comprehensive financial literacy program that incorporates lessons for a variety of interest groups and ages can be found in the Money Smart program developed by the Federal Deposit Insurance Corporation, <https://www.fdic.gov/resources/consumers/money-smart/index.html>.

methods for communicating with the public about deposit insurance.

If there is a payout or transfer of insured deposits the deposit insurer can ask depositors about their experience with the process. The feedback on the process should inform future public awareness efforts and contribute to improvements in the messaging undertaken by the deposit insurer going forward.

10.3 DEVELOPING COMMUNICATION PROTOCOLS

Communication protocols should be developed for ongoing communication and for periods of stress in the financial sector. In addition, protocols for communicating during a payout or resolution action should also be developed. The target groups for the two types of communication have some overlap but also will vary in that specific information will have to be provided during the payout process to the depositors of the failed bank along with continuing the ongoing information to depositors generally. A call center may have to be activated or enhanced during a payout and guidance to those answering telephone inquiries will have to be developed to ensure that accurate, uniform responses are being provided to all those who call. Media will be important partners in any communication strategy but they play a particularly important role in times of crisis when the need for correct and timely responses to depositors is essential.

The deposit insurer's website should be kept up to date and should allow visitors to access the information needed to determine if their deposits are insured. Depending on the complexity of the rules governing coverage this may require the development of a tool that would allow a depositor to input various pieces of information about accounts held at a member institution to calculate any uninsured amounts. Frequently Asked Questions (FAQs)⁷⁷ should be developed that would provide accessible answers to common deposit insurance inquiries such as the level of coverage and whether such coverage applies separately to accounts held in different capacities.

If there is a payout there will most likely be a need for one or more press conferences as well as periodic press releases. There can be a separate section of the deposit insurer's webpage devoted to information about the payout, including the compensation process, that can be accessed by interested parties. The progress of the compensation process should be regularly updated.

⁷⁷ See McGuire [20] for an example of a FAQ.

11 REFERENCES

1. Adema, Joop, Christa Hainz, and Carla Rhode. 2019. Deposit Insurance: System Design And Implementation Across Countries. Available at www.econstor.eu.
2. Basel Committee on Banking Supervision, The Joint Forum. 2006. High-level principles for business continuity.
3. Calomiris, Charles W. and Matthew Jaremski. 2016. Deposit Insurance: Theories and Facts. National Bureau of Economic Research Working Paper 22223.
4. Croitoru, Oana, Marc Dobler, and Johan Molin. 2018. Resolution Funding: Who Pays When Financial Institutions Fail? IMF Technical Notes and Manuals.
5. Dahl, Drew, John O’Keefe, and Gerald A. Hanweck. 1998. The Influence of Examiners and Auditors on Loan-Loss Recognition. FDIC Banking Review, 11 (4): 10-25.
6. Dobler, Marc C., Jose Garrido, Dirk Jan Grolleman, Tanai Khiaonarong and Jan Nolte. 2021. E Money Prudential Supervision, Oversight and Protection. 2021. International Monetary Fund Departmental Papers.
7. Dobler, Marc C., Emre, Endre, Gullo, Alessandro and Kale, Deeksha. The Case For Depositor Preference, 2020, International Monetary Fund Technical Notes And Manuals.
8. Federal Deposit Insurance Corporation. 1984. Annual Report, FDIC , Washington, DC.
9. Financial Stability Board. 2014. Key Attributes of Effective Resolution Regimes for Financial Institutions. Available at https://www.fsb.org/wp-content/uploads/r_141015.pdf
10. FitchRatings. 2013. Global Bank Rating Performance Study: 1990-2012, FitchRatings.
11. Fissel, Gary. 1994. Risk Measurement, Actuarially-Fair Deposit Insurance Premiums and the FDIG’s Risk-Related Premium System. FDIC Banking Review, 7 (1): 16-27.
12. Garcia, Gillian. 1999. Deposit insurance: a survey of actual and best practices. Washington: International Monetary Fund.

13. Garnett, Edward, Youssef, Rachel & Hoople, Daniel. 2022. FINTECH BRIEF, Introductory Brief (Part II), Opportunities For Deposit Insurers (DepTech), International Association of Deposit Insurers No. 8.
14. Hardy, Daniel C. 2013. Bank Resolution Costs, Depositor Preference, and Asset Encumbrance, IMF Working Paper WP/13/72.
15. International Association of Deposit Insurers. 2022. Deposit Insurance in 2022 Global Trends and Key Emerging Issues.
16. International Association of Deposit Insurers. 2014. IADI Core Principles for Effective Deposit Insurance Systems.
17. International Association of Deposit Insurers. 2009. Governance of Deposit Insurance Systems: Guidance Paper. Prepared by the Research and Guidance Committee International Association of Deposit Insurers.
18. Kusaya, Charles and John P. O’Keefe. 2020. Insider Abuse and Fraud Prediction for U.S. Banks: A Comparison of Machine Learning Approaches.
19. Kusaya, Charles, John P. O’Keefe and Alex A. Ufier. 2023. Bridging the Gap between the Deposit Insurance Fund Target Level and the Current Fund Level. The Quarterly Review of Economics and Finance, 88: 148–157.
20. McGuire, Claire L. 2012. Simple Tools To Assist In The Resolution Of Troubled Banks. The World Bank. Available at <https://openknowledge.worldbank.org/handle/10986/12342>.
21. Merton, Robert C. 1974. On The Pricing of Corporate Debt: The Risk Structure of Interest Rates. Journal of Finance, 29 (2): 449–470.
22. O’Keefe, John P. 2022. The Use of Machine Learning for Bank Financial Stress Tests. Prepared for the 3rd Annual Marcus Evans Conference - Best Practices for Stress Testing in Financial Institutions, New York USA. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4019533
23. O’Keefe, John and Alex Ufier. 2016. Nigeria: A Methodological Approach for Development of a Target Deposit Insurance Fund Model. Prepared for the Nigeria Deposit Insurance Corporation and World Bank Group. See <https://openknowledge.worldbank.org/handle/10986/25776>.

24. O’Keefe, John and Alex Ufier. 2017. Determining the Target Deposit Insurance Fund: Practical Approaches for Data-Poor Deposit Insurers. FDIC Center for Financial Research Working Paper 2017-04.
25. Palermo, Danilo and Juan Buchenau. 2021. The need to extend deposit insurance to financial cooperatives. World Bank Blogs.
26. Salama, Bruno Meyerhof and Vicente P. Braga. 2021. The Case For Private Administration Of Deposit Insurance Schemes. Journal of Banking Regulation. Available at <https://doi.org/10.1057/s41261-021-00188-8>.
27. Seelig, Steven A., Nataliya Mylenko, Claire McGuire and Sebnem Sener. 2013. Enhancement of Insurance Reserves: Targeting Framework. Philippine Deposit Insurance Corporation.
28. Shijn, Hyun Song. 2009. Reflections on Northern Rock: The Bank Run that Heralded the Global Financial Crisis. Journal of Economic Perspectives 23 (1): 101–119.
29. Tiwari, Ajay. 2020. Modeling Insurance Claim Severity. Published in The Startup, an online blog provided by Medium. Available at [Modeling Insurance Claim Severity | by Ajay Tiwari | The Startup | Medium](#).
30. Tiwari, Ajay. 2020. Modeling Insurance Claim Frequency. Published in The Startup, an online blog provided by Medium. Available at [Modeling Insurance Claim Frequency | by Ajay Tiwari | The Startup | Medium](#).
31. Tober, Samuel. 2020. Basics of Insurance Pricing. A Towards Science Direct Blog. Available at <https://towardsdatascience.com/basics-of-insurance-pricing-47243c2630b9>.
32. Vasicek, Oldrich A. 2002. Loan Portfolio Value. Risk (December 2002), pp. 160-162.
33. Vasicek, Oldrich A. 1991. Limiting Loan Loss Probability Distribution. Technical Document, KMV Corporation (August 9, 1991).
34. Vasicek, Oldrich A. 1987. Probability of Loss on Loan Portfolio. Technical Document, KMV.

12 RECOMMENDED READINGS

1. Agudelo, María Inés, Juan Carlos Quintero, Camilo José Hernández, and Olga Esperanza Sern. 2013. *A Methodology for Determining the Target Funding Level of a Deposit Insurer*. Bogotá: Fogafin.
2. Basel Committee on Banking Supervision and International Association of Deposit Insurers. 2009. *Core Principles for Effective Deposit Insurance Systems*.
3. Baudino, Patrizia, Antonella Gagliano, Edoardo Rulli and Ruth Walters. 2018. *How to manage failures of non-systemic banks? A review of country practices*. Financial Stability Institute, FSI Insights on policy implementation No 10.
4. Baxter, William R., Ryan D. Sheller and Robert F. Storch. 2010. *FDIC Loss-Sharing Agreements: A Primer*. Federal Deposit Insurance Corporation Supervisory Insights.
5. Beck, T., and Laeven, L. 2006. *Resolution of Failed Banks by Deposit Insurers*. World Bank Policy Research.
6. Bennett, Rosalind L., and Haluk Unal. 2015. *Understanding the Components of Bank Failure Resolution Costs*. *Financial Markets, Institutions, and Instruments*, 24: 349-389.
7. Bennett, Rosalind L., and Haluk Unal. 2014. *The effects of resolutions methods and industry stress on the loss on assets from bank failures*. *Journal of Financial Stability*, 15: 18-31.
8. Bennett, Rosalind L. 2001. *Evaluating the Adequacy of the Deposit Insurance Fund: A Credit-Risk Modeling Approach*. FDIC Working Paper 2001-02.
9. Beck, Thorsten. 2003. *The incentive-compatible design of deposit insurance and bank failure resolution: concepts and country studies*. The World Bank Group.
10. Bernet, Beat, and Susanna Walter. 2009. *Design, Structure, and Implementation of a Modern Deposit Insurance Scheme*. The European Money & Finance Forum (SUERF) Studies: 2009/5.
11. Board of Governors of the Federal Reserve System and Comptroller of the Currency. 2011. *Supervisory Guidance on Model Risk Management*, SR-Letter 11-7.
12. Bradley, Christine and Valentine V. Craig. 2007. *Privatizing Deposit Insurance: Results of the 2006 FDIC Study*. *FDIC Quarterly* 2007, 1 (2): 23-32.

13. Brierley, Peter. 2009. The UK Special Resolution Regime for failing banks in an international context. Bank of England, Financial Stability Paper No. 5.
14. Canada Deposit Insurance Corporation. 2011. Premium Assessment Approach and Target Fund Level. Ottawa: Consultation Paper.
15. Cowan, Arnold R. and Valentina Salotti. 2015. The resolution of failed banks during the crisis: Acquirer performance and FDIC guarantees, 2008-2013. *Journal of Banking and Finance*, 54 :222-238.
16. Davison, Lee K. and Ashley M. Carreon. 2010. Toward a Long-Term Strategy for Deposit Insurance Fund Management. *The FDIC Quarterly*, 4 (4): 29-39
17. De Lisa, Riccardo, Stefano Zedda, Francesco Vallascas, Francesca Campolongo and Massimo Marchesi. 2011. Modelling Deposit Insurance Scheme Losses in a Basel 2 Framework. *Journal of Financial Services Research* 40: 123–141.
18. Dev, Ashish., Sen Li, and Zailong Wan. 2006. An Analytical Model for the FDIC Deposit Insurance Premium. Working paper. doi:10.2139/ssrn.964622.
19. Deposit Insurance Corporation of Ontario. 2013. Deposit Insurance Reserve Fund Strategy.
20. Dobler, Marc C., Marina Moretti and Alvaro Piris. 2020. Managing Systemic Banking Crises, New Lessons and Lesson Relearned, IMF No. 20/05.
21. Dodd-Frank Wall Street Reform and Consumer Protection Act. 2010. Pub. L. No. 111-203, § 929-Z, 124 Stat. 1376, 1871 (codified at 15 U.S.C. § 78o) [Bluebook R. 12.4].
22. Federal Deposit Insurance Corporation. 2017. Crisis and Response: An FDIC History, 2008–2013. FDIC, Washington, DC.
23. Federal Deposit Insurance Corporation. 2010. Designated Reserve Ratio. *Federal Register*, 75 (243): 79286–79293.
24. Federal Deposit Insurance Corporation. 2007. Accounting for Loss Contingencies: The FDIC’s Policies and Practices 1992–2004: Staff Study. This study was requested by the U.S. Congress as part of the Federal Deposit Insurance Reform Conforming Amendments Act of 2005. Available at <https://www.fdic.gov/deposit/insurance/reserving-board.pdf>.
25. Federal Financial Institutions Examination Council. 2015. Business Continuity Planning IT Examination Booklet.

26. Financial Stability Forum. 2001. Guidance for Developing Effective Deposit Insurance Systems. Working Group on Deposit Insurance.
27. Fogafin. 2013. A Methodology for Determining the Target Funding Level of a Deposit Insurer, Paper No. 4.
28. Garcia, Gillian. 2000. Deposit Insurance and Crisis Management. International Monetary Fund E Library.
29. Garnett, Edward, LaVaughn Henry, Daniel Hoople, and Ashley Mihalik. 2020. A History of Risk-Based Premiums at the FDIC. FDIC Staff Studies Series 2020-1. FDIC, Washington, DC.
30. Gordy, Michael B. 2002. A Risk-Factor Model Foundation for Ratings-Based Bank Capital Rules, Working Paper, Board of Governors of the Federal Reserve System.
31. Gordy, Michael B. 2000. A Comparative Anatomy of Credit Risk Models, Journal of Banking & Finance Vol. 24, pp. 119 -149.
32. Hellwig, M. 2012. Forbearance, resolution, and deposit insurance. Frankfurt: European Systemic Risk Board.
33. International Association of Deposit Insurers. 2021. Deposit Insurance Coverage Level And Scope (December 2021), IADI Research Paper.
34. International Association of Deposit Insurers. 2021. Fintech Brief: E-Money and Deposit Insurance in Kenya 2021.
35. International Association of Deposit Insurers. 2019. Deposit Insurers' Role in Contingency Planning And System-wide Crisis Preparedness and Contingency Planning. International Association of Deposit Insurers Guidance Paper.
36. International Association of Deposit Insurers. 2019. Purchase and Assumption. Core Principles and Research Council Committee Research Paper.
37. International Association of Deposit Insurers. 2018. Deposit Insurance Fund Target Ratio. Deposit Insurance Fund Target Ratio Technical Committee.
38. International Association of Deposit Insurers. 2016. A Handbook for the Assessment of Compliance with the Core Principles for Effective Deposit Insurance Systems.
39. International Association of Deposit Insurers. 2013. Enhanced guidance for effective deposit insurance systems: deposit insurance coverage. Research and Guidance Committee Guidance Paper.

40. International Association of Deposit Insurers. 2011. General Guidance for Developing Differential Premium Systems. Research and Guidance Committee.
41. International Association of Deposit Insurers. 2009. Funding of Deposit Insurance Systems. Guidance Paper Prepared by the Research and Guidance Committee.
42. International Association of Deposit Insurers. 2009. Core Principles for Effective Deposit Insurance Systems.
43. Instituto para la Protección al Ahorro. 2015. Determining a deposit insurance fund target: a practical methodology based on the credit risk model. Latin America Regional Committee. Basel: IADI.
44. International Monetary Fund and World Bank. 2013. Financial Stability Assessment Program: Crisis Management and Crisis Preparedness Frameworks Technical Note.
45. Jarrow, Robert. A., Rosalind R. Bennett, L., Michael C. Fu, Daniel Nuxoll, A., and Huiju Zhang. 2003. A General Martingale Approach to Measuring and Valuing the Risk to the FDIC Deposit Insurance Funds. FDIC Conference on Finance and Banking: New Perspectives. FDIC, Washington, DC.
46. Jarrow, Robert. A., Dilip B. Madan, and Haluk Unal. 2007. Designing Countercyclical and Risk Based Aggregate Deposit Insurance Premia. FDIC Center for Financial Research Working Paper No. 2007 - 02.
47. Kenneth D. Jones and Robert C. Oshinsky. 2007. The effect of industry consolidation and deposit insurance reform on the resiliency of the U.S. bank insurance fund. *Journal of Financial Stability*, 5 (1): 57-88.
48. Koyluoglu, H. Ugur and Andrew Hickman. 1998. A Generalized Framework for Credit Risk Portfolio Models. Working Paper (September 14, 1998).
49. Kaufman, George G. 2003. Depository Liquidity and Loss-Sharing in Bank Failure Resolutions. Federal Reserve Bank of Chicago Working Paper 2003 - 02.
50. Kuritzkes, Andrew, Til Schuermann, and Scott M. Weiner. 2005. Deposit Insurance and Risk Management of the U.S. Banking System: What is the Loss Distribution Faced by the FDIC. *Journal of Financial Services Research*, 27 (3): 217-242.
51. Lee, Shih-Cheng, Chien-Ting Lin, and Ming Shann Tsai. 2015. The pricing of deposit insurance in the presence of systematic risk. *Journal of Banking and Finance*, 51: 1-11.

52. Maccaferri, Sara, Jessica Cariboni, and Wim Schoutens. 2011. Applying Credit Risk Techniques to Design an Effective Deposit Guarantee Schemes' Funds. Proceedings of the Actuarial and Financial Mathematics Conference Interplay between finance and insurance - ISBN 978-90-6569-087-6. Brussels (Belgium): Royal Flemish Academy of Belgium for Science and Arts (KVAB); pp. 107-112.
53. Maccario, Aurelio, Andrea Sironi, and Cristiano Zazzara. 2004. Applying credit risk models to deposit insurance pricing: Empirical evidence from the Italian banking system. *Journal of Banking Regulation*, 6: 10-32.
54. Mao, Hong, Krzysztof M. Ostaszewski, James M. Carson, and Yuling Wang. 2013. Pricing of deposit insurance considering investment, deductibles, and policy limit. *Journal of Insurance Issues*, 36 (2): 149-174.
55. McDill, Kathleen. 2004. Resolution Costs and the Business Cycle. FDIC Working Paper 2004-01.
56. Nolte, Jan Philipp and David Hoelscher. 2020. Using the FSB Key Attributes to Design Bank Resolution Frameworks for Non-FSB Members: Proportionality and Implementation Challenges. World Bank Group Working Paper.
57. Oliver, Wyman & Company. 2002. Deposit Insurance Scheme: Technical Addendum (for the Monetary Authority of Singapore).
58. O'Keefe, John. 2021. Supervision of Bank Model Risk Management. Toronto Centre Technical Note.
59. O'Keefe, John and Chiwon Yom. 2017. Offsite Detection of Insider Abuse and Bank Fraud among U.S. Failed Banks 1989 – 2015. FDIC Center for Financial Research Working Paper 2017-06.
60. Pennacchi, George. 2005. Risk-based capital standards, deposit insurance, and procyclicality. *Journal of Financial Intermediation*, 14: 432-465.
61. Pennacchi, George. 2000. The Effects of Setting Deposit Insurance Premiums to Target Insurance Fund Reserves. *Journal of Financial Services Research*, 17 (1): 153-180.
62. Rosenberg, Joshua A., and Til Schuermann. 2004. A General Approach to Integrated Risk Management with Skewed, Fat-Tailed Risks. Federal Reserve Bank of New York Staff Report no.185.
63. Žilinskas, Raimundas and Lionius Gaižauskas. 2015. The investment policy of deposit guarantee funds under conditions of limited domestic securities markets. *Ekonomika*, 94 (1): 131-142.

13 ANALYSIS TOOLS

There is an extensive literature that offers principles for deposit insurers. These principles include assumptions, beliefs, facts and propositions that are offered to guide deposit insurers' policies, e.g., IADI [16]. Much of this literature is cited in this document. While this literature is helpful to those tasked with preparing deposit insurance policies and laws, there is a wide gap between principles and the implementation of those principles through practices and procedures. The analysis tools and papers discussed in this section are designed to fill the gap between principles for deposit insurers and the implementation of those principles. These tools were developed by the authors as part of technical assistance provided to deposit insurers seeking to implement recommended practices for deposit insurance pricing and funding. The analysis tools use data on United States insured banks and the financial statements of the United States Federal Deposit Insurance Corporation in case studies. All analysis tools rely on public information and the techniques used for insurance pricing and fund management rely on published research. We discuss technical aspects of insurance pricing and funding, and included case studies and related analytical tools (Excel workbooks and R computer code) as embedded objects in this section.

An important consideration for how an insurer might approach insurance pricing and fund management is the availability of information that is required by pricing and fund management approaches. We address the data availability issue by approaching each topic from three perspectives—high, moderate and low availability of information for implementing pricing and fund management recommendations.

13.1 PROBABILITY OF DEFAULT

The probability of bank failure is typically associated with the likelihood the bank licensing authority revokes the bank's license (closes the bank) after determining the bank is insolvent or critically undercapitalized. In some jurisdictions banks can be also closed if the chartering authority determines the bank is severely illiquid. Which bank closure criteria, or combination of criteria, applies—insolvency, critically undercapitalized, and severe illiquidity—depends on banking law in the jurisdiction.

INSOLVENT AND CRITICALLY UNDERCAPITALIZED BANKS

Insolvency is a determination that the bank's equity capital is negative, i.e., the value of its assets is less than that of its liabilities. For the purposes of this document bank failure is synonymous with bank

default on debt obligations and we use the terms failure and default interchangeably. Asset valuations are based on the jurisdiction's accounting treatment for assets held-to-maturity (historical cost/book value) and assets available for sale (market value or fair value treatment for infrequently traded assets). Liabilities are valued at their book value.

Critically undercapitalized banks are banks that fail to meet capital thresholds specified by the jurisdiction. The capital thresholds that apply to bank closure laws can be based on book equity-to-asset ratios (leverage ratios) and risk-based capital adequacy measures under Basel capital adequacy standards.

In the United States a 2 percent threshold for the book equity-to-assets ratio is used for the “prompt corrective action” (PCA) bank closure rule. The United States also applies insolvency standards and liquidity standards in its bank closure laws.

LOAN LOSS RECOGNITION

A limitation of bank capital adequacy standards is the credibility of reported bank equity capital. As banks incur loan losses it has been shown that there is a reluctance by bank management to recognize loan losses in a timely manner.⁷⁸ The incentives for banks to delay recognizing loan losses are increased during periods of economic stress. Delayed recognition of loan losses will result in overstated equity capital. To address this issue, jurisdictions should consider the accuracy of reported equity capital when setting capital thresholds for bank closure policies. In the United States, the prompt corrective action closure policy uses a 2 percent book capital threshold, in part because loan losses in failing banks are typically more severe than those recognized in bank financial statements.

MODELLING BANK DEFAULT

Given a history of bank closures jurisdictions can model the probability of bank default by relating incidences of bank closure to variables thought to influence bank condition and performance. Equation 9 presents the default model in general form where the natural logarithm of the probability bank k fails-to-probability of not failing between periods t and $t + 1$ (dependent variable) is assumed to be a function of the factors thought to influence failure risk for bank k , $X_{i,t}^k$ (explanatory variables), weighted by the coefficients, $\beta_{i,t}$ plus a constant term, αt . The residual term, ϵt , represents model estimation error, i.e., the difference between the model prediction of the dependent variable and actual outcomes. In equation 9 the dependent variable range is between zero and one, hence, binary logistic regression

⁷⁸.Dahl, et. al. [5]

is an appropriate technique for model estimation. For predictive models one typically uses explanatory variable values from a period prior to failure, here t , and failures may occur any time between period t and $t + 1$, e.g., the following year.

$$\ln\left(\frac{p}{1-p}\right)_{t,t+1}^k = \alpha_t + \sum_{i=1}^N \beta_{i,t} * X_{1,t}^k + \varepsilon_t \quad 9$$

The estimated probability of failure for bank k can be derived from equation 9, as shown by equation 10, where $\widehat{\alpha}_t$, and $\widehat{\beta}_{i,t}$ represent estimated values for default model parameters:

$$\widehat{p}_{t,t+1}^k = \frac{1}{1 + e^{-(\widehat{\alpha}_t + \sum_{i=1}^N \widehat{\beta}_{i,t} * X_{i,t}^k)}} \quad 10$$

In practice, the logistic default model is estimated by relating observed incidences of bank default and non-default, measured by a binary indicator (1, 0) respectively, to the explanatory variables. Statistical packages typically use the method of maximum likelihood to estimate the model and assume the model form shown by equation 9.

To implement the logit model of bank default risk one estimates the model (equation 9) using data from an initial time span, e.g., December 2007 to December 2008, wherein explanatory variables are measured as of December 2007 and failures occur during 2008. Next using estimated values for the model parameters, $\widehat{\alpha}$ and $\widehat{\beta}$, and explanatory variables' values from a subsequent period, e.g., December 2008, one can use equation 9 to estimate bank failure probabilities for 2009.

DATA OUTLIERS

Outliers in model estimation data, i.e., extremely small and large values for explanatory variables, can bias model results as the regression will try to find the best fitting line [hyperplane] to explain the data. To avoid this bias, we removed extreme outliers. We consider observations where one or more model inputs are approximately 3 times or more larger than the 99th percentile values for variables and approximately 3 times or more smaller than the 1st percentile value for variables to be anomalous. We delete all anomalous observations as part of data preparation; this resulted in the deletion of 2.4 percent of the 2007–2008 observations on banks.⁷⁹

Table 4 presents an example of an estimated logit default model. In table 4 the input for the dependent variable is the binary indicator of default during 2009. The explanatory variables in table 4, measured

⁷⁹ See O'Keefe [22] for a discussion of alternative techniques for dealing with outliers in model estimation data.

as of December 2008, are values for bank loan-loss provisions (PROV1), net operating income (NOI), noncore funds dependent (NONCORE), restructured loans, past due and nonaccrual loans (TOTALBAD), and equity capital (capital), all measured as a percentage of bank assets. Coefficient estimates in table 4 indicate that default risk is related to asset quality, as shown by the positive coefficients on total “bad” assets and loan loss provisions. Default risk is negatively related to starting period capitalization and net operating income. Finally, default risk is positively related to noncore funds dependence. These results are intuitively appealing and consistent with previous studies on bank default risk.

Table 4. Logit Bank Default Model Example

Stepwise Logit Regression of Determinants of Bank Failure (December 2008 Data Used to Predict 2009 Failures)				
Variable	Coefficient Estimate	Std.Error	z value	Pr(> z)
Intercept	(3.0261)	0.6924	(4.3704)	0.0000
PROV1	0.1913	0.1018	1.8787	0.0603
NOI	(0.2124)	0.0543	(3.9136)	0.0001
NONCORE	0.0222	0.0070	3.1753	0.0015
TOTALBAD	0.0202	0.0029	7.0870	0.0000
capital	(0.4478)	0.0680	(6.5853)	0.0000
Number of Observations 7,150 Pseudo Adjusted R-Square 0.50				

ATTACHMENTS FOR FAILURE MODEL:

Attached are the data, R computer code for logistic default model estimation and an excel file that implements model in a transparent manner:

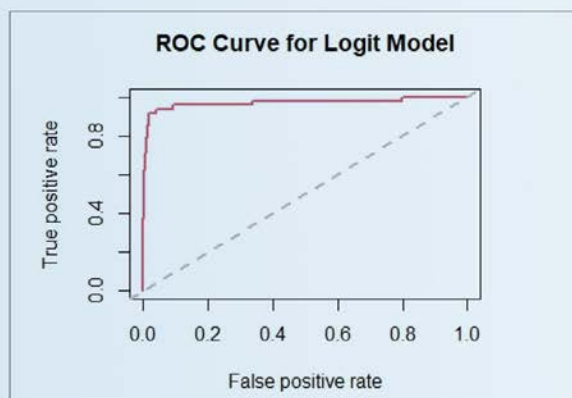
MACHINE LEARNING MODELS OF DEFAULT

Logistic regression is a traditional technique for modelling bank default, however, in recent years banks have used other approaches for modelling credit default that can be applied to bank default—artificial neural networks, gradient boosting and random forests. Collectively, these modelling techniques are known as machine learning models (ML) because the functional form of the model is

driven by the model input data. ML techniques frequently outperform regression models in terms of predictive accuracy and deposit insurers should consider ML when modelling bank default.⁸⁰

To illustrate the predictive accuracy of ML techniques we developed ML models of bank default and compare model predictive accuracy for out-of-sample predictions for 2010 failures using December 2009 input data and a model fitted using December 2008 input data and 2009 failures. Rank order accuracy measures are the most appropriate measures of model performance for our purposes. We use the area under the receiver operating characteristic curve (ROC curve), also known as the AUC measure, to gauge model performance. To obtain the AUC one begins by measuring the model's ability to predict a binary event, such as failing within a certain year or not. The predictive model output is a probability bound between zero and one, hence, one can measure model predictive accuracy at alternative thresholds for classifying probabilities as indicating that an event (non-event) will occur, e.g., if the probability of an event is greater than 60 percent the probability is classified as "the event will occur". Next, graph the model's ability to predict events correctly at alternative thresholds for classifying event probabilities as an event prediction, comparing the true positive rate to the false positive rate.⁸¹ This is illustrated in figure 2. The AUC is the area under the solid-red curve comparing the true positive rate to the false positive rate at alternative classification thresholds.⁸² The dashed-gray diagonal line in figure 2 has an AUC of 50 percent, representing a random guess. As a rule of thumb, the larger the AUC the better the prediction. There is no standard for what AUC values indicate an acceptable predictive model other than the comparison to random guesses, however, AUC's in the 90 percent range have been achieved by external fraud prediction models for bank credit-cards.⁸³

FIGURE 2.



⁸⁰ ML model performance relative to regression models is discussed in O'Keefe [22], and Kusaya and O'Keefe [18].

⁸¹ The true positive rate (TPR) is the percentage of positive events correctly predicted out of all actual positive events (e.g., 50 out of 80 fraud events correctly predicted or 62.5 percent). The false positive rate is the percentage of negative events (e.g., no fraud) mistakenly predicted to be positive events (e.g., fraud).

⁸² Hence the acronym for the measure of the area under the curve (AUC).

⁸³ See "Data Science Project – Detect Credit Card Fraud with Machine Learning in R" by DataFlair Team · Updated · July 31, 2019 <https://data-flair.training/blogs/data-science-machine-learning-project-credit-card-fraud-detection/> for an example of ML model for prediction of external credit card fraud.

Table 5 presents the AUC statistics for out-of-sample 2010 failure predictions for the 4 models tested. In this case all models performed similarly in terms of predictive accuracy. Interestingly, the logit model performed as well as all ML models tested. One possible reason for this result is that there are no significant nonlinear relationships that ML approaches can model and logistic regression cannot model. Further, we removed highly collinear explanatory variables, data outliers and normalized the data using min-max normalization as part of data preparation. These preparation steps improve the performance of regression and ML models, putting all approaches on a more even footing.⁸⁴

TABLE 5. FAILURE MODEL 2010 OUT-OF-SAMPLE PREDICTIVE ACCURACY

Model	AUC
Linear Regression	0.97
Gradient Boosting	0.96
Random Forest	0.97
Neural Network	0.96

ATTACHMENTS FOR ML FAILURE MODELS:

Attached is the R computer code for estimating the 4 ML models using min-max scaling of data. The input data is the same as that used by the unscaled logit model (previously attached):

NON-MODELLED DEFAULT RISK ESTIMATES

Jurisdictions need not rely on forecasts of bank default risk from statistical and ML approaches, especially when bank defaults have been infrequent historically. In these circumstances it is appropriate to use information on banks' credit risk ratings assigned by credit rating agencies and the historical default rate of banks by credit rating. Ideally, the historical default rates by credit rating

⁸⁴ A review of ML modelling techniques and data preparation is beyond the scope of this document, however, interested readers can refer to O'Keefe [22] for a discussion of these topics within the context of bank liquidity stress tests.

would be from the jurisdiction's region and/or similar regions in terms of economic and political regimes. Since default rates vary with underlying economic conditions, the jurisdiction should select default data from a period where economic conditions best reflect the current risk exposures of banks it is insuring. Table 6 presents the current, average long-term and crisis period one year bank default rates from a 2013 Fitch study on global bank defaults.⁸⁵ In table 5 we see that bank default rates increased dramatically for the 2008 – 2009 period.⁸⁶

TABLE 6. FITCH CREDIT RATINGS AND GLOBAL BANK FAILURE RATES

Individual Rating	Long-term IDR	Most Current Available	Long-term Average	Crisis Period Average
Fitch Individual Rating Bands	Fitch Long-Term Individual Default Rating Bands	2011 failure rate (%)	1990 – 2011 average annual failure rate (%)	2008 – 2009 average annual failure rate (%)
A	AAA, AA+, AA	0	1.05	30.0
A/B	AA+, AA, AA-, A+, A	0	1.03	9.60
B	AA-, A+, A, A-	0	0.77	6.26
B/C	A, A-, BBB+, BBB	0	0.90	4.55
C	BBB+, BBB, BBB-, BB+	0.42	1.59	3.58
C/D	BBB-, BB+, BB, BB-	1.16	2.03	2.01
D	BB, BB-, B+, B, B-	4.60	2.96	2.09
D/E	B+, B, B-, CCC	1.72	3.93	7.93
E	CCC, CC, C	13.33	7.38	18.16
All Banks		1.82	1.71	4.92

“Note that the average bank failure rates in table [5] do not always increase the poorer the Fitch individual ratings (IRs). Specifically, table [5] shows that average failure rate for A-rated banks exceeds that for B- rated banks for the 1990–2011 period and the average failure rates for A, B, and C-rated banks exceeds that for D-rated banks for the 2008–2009 period. The non-monotonic relationship between Fitch IRs and bank failure rates is not necessarily inconsistent with the definitions of IRs and bank failures in the Fitch 2013 study. Recall that Fitch classified some banks as failed due to reliance on extraordinary support even though these same banks made debt payments.”⁸⁷

⁸⁵ FitchRatings [10] p. 9.

⁸⁶ O'Keefe and Ufier [23].

⁸⁷ O'Keefe and Ufier [23].

A limitation of this approach to estimating bank default risk is that typically only the largest banks in a jurisdiction issue publicly traded debt and have been assigned credit ratings. To address this limitation jurisdictions can use bank safety and soundness ratings assigned by bank supervisors as indicators of default risk. Supervisory ratings of bank safety and soundness are based on bank capital adequacy, asset quality, management, earnings, liquidity and sensitivity to market prices, generally referred to as bank CAMELS attributes. The historical default rates of banks by CAMELS rating can be applied in much the same manner as default rates by credit rating.

13.2 RISK-RELATED PREMIUMS

A jurisdiction's deposit insurance premium system should be related to the default risk of insured banks and losses to the deposit insurer given default. In this way, insurance premiums might be set to cover expected insurance losses. As expressed in equation 4, insurer expected losses are the product of PD, LGD and EAD for banks. Deposit insurers cannot know when banks might fail, a priori, and must work with the uncertainties of banking markets when establishing insurance premium rates. We discuss approaches for setting deposit insurance premium rates in the following section.

13.3 SETTING DEPOSIT INSURANCE PREMIUM RATES

There are five important questions when setting risk-related deposit insurance premiums. First, what will be the basis for risk ranking banks? Second, what are the expected deposit insurance losses each period? Third, what time horizon will be used for insurer loss measurement? Fourth, how will premiums vary for banks over this time horizon? Finally, what is the insurer's objective when setting premium rates? We begin our discussion with the last and most important question.

DEPOSIT INSURERS' OBJECTIVES WHEN SETTING PREMIUMS

For private sector consumer and commercial insurers, the answer to the question of insurer objective(s) is maximize profit. This implies premium rates include coverage of expected insurance losses plus coverage of the costs of providing insurance and an additional premium for the risks insurer equity shareholders bear.

For public sector deposit insurers there are no equity shareholders, hence, risk premiums for shareholders is a moot point. As a consequence, public sector deposit insurers focus on coverage of expected insurance losses. Expected insurance losses for a bank are the product of its probability of default and failure-resolution costs (insurer losses) given default for the same period.

ACTUARIALLY FAIR PREMIUMS

Equation 11 shows the criteria for setting actuarially fair deposit insurance premiums for an individual bank i .⁸⁸ Actuarially fair premiums are set such that the expected premium revenue equals the expected insurance payments. In the left hand side of equation 11 we measure the present discounted value of expected insurance premiums between periods 1 and N ; $PD_{i,t}$ is the probability of default for bank i in period t , hence $1 - PD_{i,t}$ is the probability the bank will not fail in period t , $y_{i,t}$ is the premium rate for the bank and $ID_{i,t}$ is its insured deposits. To account for the time value of money, each revenue (expense) stream is discounted by an appropriate discount rate, r_t . The right hand side of equation 11 measures the insurer's expected losses between periods 1 and N from bank i ; $\delta_{i,t}$ is the insurer's loss rate on insured deposits given bank default.

$$\sum_{t=1}^N (1 - PD_{i,t}) * y_{i,t} * ID_{i,t} / \sum_{t=0}^N (1 + r_t)^t = \sum_{t=1}^N PD_{i,t} * \delta_{i,t} * ID_{i,t} / \sum_{t=0}^N (1 + r_t)^t \quad 11$$

Equation 12 shows the condition for actuarially fair premiums for all insured banks by summing equation 11 over all banks $i = 1$ to I :

$$\sum_{i=1}^I \left(\sum_{t=1}^N (1 - PD_{i,t}) * y_{i,t} * ID_{i,t} / \sum_{t=0}^N (1 + r_t)^t \right) = \sum_{i=1}^I \left(\sum_{t=1}^N PD_{i,t} * \delta_{i,t} * ID_{i,t} / \sum_{t=0}^N (1 + r_t)^t \right) \quad 12$$

In equations 11 and 12 the periodic premium rates, $y_{i,t}$, vary across banks and time, i.e., are risk-related premiums.

In practice, private sector consumer and commercial insurance premiums are not actuarially fair because insurers require an additional premium for bearing insurance risk, and need to cover the administrative and fixed costs of providing insurance. Further, moral hazard on the part of the insured individual (organization) can lead to mispriced insurance premiums that are not actuarially fair. Public sector deposit insurers do not require an additional premium for bearing insurance risk but do incur administrative and other operating costs for providing insurance and do face moral hazard.

OPERATING EXPENSE COVERAGE

Equations 11 and 12 omit the operating costs of providing deposit insurance to banks. These latter costs are operating expenses for insurance-related activities, i.e., expenses for personnel, property, equipment and other insurance-related operating expenses. There is an expectation that more insurer resources are devoted to large and complex banks than to smaller non-complex banks. For

⁸⁸ See Fissel [11] for an application of actuarially fair premiums to deposit insurance.

example, the amount of time and resources devoted to bank risk assessments is likely to increase with bank size and complexity. Further, administrative and legal costs are likely to be higher for large and complex banks than for small, non-complex banks. Depending on the insurer’s ability to allocate operating expenses, these expenses can be associated with individual banks. At the least, the insurer can consider allocating operating expenses to banks on a pro-rata basis based on each bank’s share of banking market insured deposits. Recovery of operating expenses can be treated as an “add-on” to revenue neutral premiums. For example, table 7 presents an example of a risk-related premium rate of 24 basis points that might apply to banks in the highest risk category and 8 basis points for banks in the lowest risk category. The insurer might add a 5 basis point charge for regular operating expenses to all banks. For convenience, we assume the base to which premium rates apply is insured deposits.

TABLE 7. HYPOTHETICAL ANNUAL PREMIUM RATE SCHEDULE

Premium Category	Revenue Neutral Premium	Pro Rata Share of Operating Expenses
A	0.24%	0.05%
B	0.20%	0.05%
C	0.16%	0.05%
D	0.12%	0.05%
E	0.08%	0.05%

While risk-related premiums rise and fall with banking market stress, regular operating expenses are likely to be relatively constant over time. To avoid undue burden on banks insurers could choose to recover operating expenses from returns on the investment portfolio. This latter approach is reasonable once the insurer has reached its optimal or “target” capital level, which we discuss next.

13.4 METHODOLOGIES FOR DETERMINING THE TARGET FUND

Once the insurer has quantified its risk tolerance, economic conditions and loss period, the process of determining the target fund is relatively straightforward. Conceptually, the insurer needs to determine the level of losses it is willing to occur over a period of time under certain conditions and the likelihood those losses would be incurred; this is essentially value-at-risk (VaR) modelling. The result can be displayed as an empirical frequency distribution of insurer losses (histogram). There are a number of ways the insurer could estimate this loss distribution:

- Loss Distribution Approach
- Credit Portfolio Approach
- Risk Aggregation Model (Copula)
- Stress Scenario Approach

We next discuss each approach for estimating an insurer's frequency distribution of losses. In the discussion of insurer loss distribution, we focus on the methodology and provide detailed examples of model implementation in the analysis tools section of the toolkit.

In the **loss distribution approach (LDA)** the insurer uses historical information on deposit insurance losses for their jurisdiction and analyzes the distribution of loss levels and loss frequencies (LDA histogram). The LDA histogram for deposit insurers is typically skewed to the left (leptokurtic), with the frequencies of losses declining as loss levels increase. Given a LDA histogram, the insurer can set the target fund to be that which will absorb losses up to a chosen confidence level, as explained in the previous hypothetical example (figure 1).

The **credit portfolio approach** is based on the work of Merton [21] and Vasicek [32, 33, 34]. Merton models a firm financed with a single bond and equity. Merton argues bond holders have a call option on the firm's assets that can be exercised when the market value of its assets is less than that of liabilities (the bond), implying the firm fails. This situation is modelled in terms of asset returns; failure occurs when firm losses (negative returns) fall below a threshold in which the market value of a firm's assets are reduced by the loss and are now less in total value than that of liabilities. Vasicek broadens the Merton model to apply to a portfolio of loans. The Vasicek model adds the drivers of asset returns to a portfolio loss model. According to Vasicek asset returns are assumed to be determined by two factors—idiosyncratic and systematic. Idiosyncratic asset return drivers are, as the name implies, specific to each firm, e.g., the retirement of a chief executive officer (CEO). Systematic return drivers are common to all firms, i.e., impact all firms. While there can be multiple systematic risk drivers, Gordy [28] shows these systematic risk factors can be incorporated into a single, asymptotic risk factor or common systematic return driver.

The credit portfolio approach to determining insurer losses combines the Merton and Vasicek models into what is commonly known as the Merton-Vasicek model. In this model, expected bank failure losses of the deposit insurer are modeled as the product of banks' PD, LGD and EAD as discussed previously. Equation 13 repeats that approach to insurer loss estimation, showing expected losses to an insurer from the failure of bank j:

$$\text{Insurer Loss}_j = PD_j * LGD_j * EAD_j \quad 13$$

In the Merton-Vasicek model asset returns are determined by the idiosyncratic risk factor, E_j , and common risk factor, X . A single period return on bank j 's assets, R_j , is a linear combination of idiosyncratic and systematic risk factors (return drivers), where w_j is the weight placed on the systematic factor and n_j is the weight placed on the idiosyncratic factor, as shown in equation 14:

$$R_j = w_j * X + n_j * E_j \quad 14$$

In the Merton-Vasicek model banks fail when their asset return is less than or equal to a threshold value specified by the modeler, C (equation 15).

$$w_j * X + n_j * E_j \leq C \quad 15$$

It can be shown that the weights on risk drivers can be stated in terms of the correlation coefficient between any two bank's asset returns, ρ_{ij} , as shown in equation 16:⁸⁹

$$R_j = \sqrt{\rho} * X + \sqrt{1 - \rho} * E_j \quad 16$$

To implement the Merton-Vasicek model one can use Monte Carlo simulations to generate bank asset returns and then determine the frequency of bank failures by comparing returns to a threshold return. The return risk factors can be generated from two standard normal variable distributions whose mean and standard deviation are calibrated to the sovereign economy. Next, an estimate of bank net income correlation is used to provide weights for the risk factors and a weighted sum of risk factors. i.e., bank asset returns. The random samples of returns are compared to the threshold return in order to determine whether a bank fails or not. The return threshold can be set at a level commensurate with the industry bank failure rate experienced during a chosen time period. This is straightforward once the risk factors and return have been converted to standard normal variables, i.e., simply pick a return threshold where the probability of returns of that level or less is the same as the chosen bank failure rate. Historical data on LGD and current data of EAD can be used to complete the expected

⁸⁹See O'Keefe and Ufier [23] for an explanation of the weights used in equation 16.

insurance loss model. O’Keefe and Ufier [23, 24] provide examples of the application of the credit portfolio approach to target fund estimation for the Nigeria Deposit Insurance Corporation and FDIC, respectively.

An advantage of the credit portfolio approach compared to the LDA is the ability to explicitly model the correlation of asset returns. Further, the choice of an asset return threshold for failure events allows the modeler to calibrate the model to historical and/or future expected failure rates. Given the model’s features, the Merton-Vasicek model can be applied in stress tests that provide a range of potential insurer loss distributions under different assumptions about underlying banking industry conditions.

The **risk aggregation approach (copula)** while often applied to private-sector financial institutions has, with the exception of Kusaya, O’Keefe and Ufier [19], not been applied to public-sector deposit insurers to the best of our knowledge. In the risk aggregation approach, one first determines the sources of revenues and expenses for the deposit insurer—e.g., insurance premium and investment revenue, as well as operating and bank-failure resolution expenses. These revenues and expenses determine the insurer’s net income (loss), which in turn, augments (depletes) the insurer’s capital. In this approach to modelling optimal capital (target fund) one uses copulas to combine the income and expense streams into a multivariate distribution. Monte Carlo simulations are used to make random draws from the insurer’s multivariate income and expense distribution are summed to estimate the probability distribution of net income (loss) for the insurer. This income (loss) distribution can be used to determine the target fund level for the insurer in a manner similar to that explained in the previous example. The copula approach is used by Kusaya, O’Keefe and Ufier [19] to determine the target fund level for the FDIC in a case study.

“To model the insurer’s joint revenue and expense distribution we will use risk aggregation functions commonly used in finance—copulas. We chose copulas because they make it possible to model the dependence structure of various risks in a manner that allows for both diversification benefits and nonlinear relationships between risks. In simple terms, copulas are linking functions that relate univariate probability distributions to the multivariate distribution of the same variables. An advantage of copulas is their ability to separate the dependence structure of the multivariate distribution from the univariate distributions for each variable.

According to Sklar’s Theorem if univariate distribution functions are continuous, there exists a unique cumulative distribution function that can combine them—a copula—that maintains the dependence structure of the original cumulative

multivariate distribution. A requirement of copulas is that the variables from the multivariate distribution be transformed to cumulative uniformly distributed univariate distributions before aggregation. [Equation 17] shows the relationship between the cumulative distribution function $F(x,y)$ for two random variables, x and y , and the copula function, $C(\cdot)$, of the inverse of the uniform, cumulative univariate distributions for x and y .⁹⁰

$$F(x, y) = C(\theta^{-1}(x), \theta^{-1}(y))$$

17

To implement the copula approach to target fund estimation one finds the best fitting univariate distribution for each key revenue and expense category; this can be done by testing the similarity of historical distributions of annual revenues and expenses, by categories, to theoretical distributions and conducting distribution fit tests. Next, the revenue and expense data are used to find the best fitting copula function. In the final step, a multivariate copula is calibrated to the univariate distributions, e.g., sample mean and standard deviation are used to calibrate a normal distribution for a revenue category, and the copula function is calibrated to the best fitting copula based on historical data for key revenue and expense categories.

Since there may be gaps in the historical data for some portions of univariate distributions a Monte Carlo simulation is used to make random draws from the calibrated copula function for each revenue and expense category. Revenues and expenses from each random draw from the copula are summed to provide a random draw of net income. Finally, draws of net income from say, 50,000 simulations, are used to form an empirical frequency distribution of net income. The frequency distribution of annual net income (histogram) will range from positive to negative values. The insurer decides on the level of annual losses it wishes to absorb, e.g., -\$129 billion, which will have a corresponding confidence level, e.g., 99.97 percent of annual losses are -\$129 billion or less.

The **stress scenario approach** to determining the target fund is a pragmatic approach. Rather than modelling the insurer's loss distribution from historical data (LDA) or relying on Monte Carlo simulations based on assumed probability distributions (Merton-Vasicek and Copula Approaches) the stress scenario approach uses an approach that does not rely on statistical probability distributions. Rather it asks whether the deposit insurer has sufficient capital to withstand the losses that will result from the failure of banks in response to a specific economic scenario. For example, a scenario might

⁹⁰ Kusaya, O'Keefe and Ufier [19].

test whether a deposit insurer can absorb the cost of a number and type of bank failures the scenario might generate, (e.g., the failure of 20 small banks and 3 medium size banks within a 3-year period). The specifications for small and medium size banks would be part of the scenario information, as well as the expected failure-resolutions costs for banks. The stress scenario approach is useful in jurisdictions where few, if any, bank closings have occurred. In that situation one lacks sufficient information to model the components of insurer losses from bank failures, hence, all one is left to work with is assumptions about a bank's total failure costs. The stress scenario approach can use "worst-case" scenarios to get around the thorny questions about the drivers of failure-resolution costs. For example, in a worst-case scenario one can estimate failure-resolution costs as the value of insured deposits of the sample of small and medium size banks used by the scenario, assuming zero recoveries from failed-bank receiverships.⁹¹ The stress-scenario approach offers a sort of transparency in that insurer losses can be traced to a specific event and set of assumptions that are easy to understand and communicate. The approach, however, makes strong assumptions in scenario design.

13.4.1 LOSS DISTRIBUTION APPROACH

As discussed in section 7.3 given a history of insurance losses the insurer can determine the empirical frequency distribution (histogram) of annual losses and determine a target fund level sufficient to cover a chosen range of losses, e.g., \$0 to \$25 billion. The Excel workbook attached below contains data on the FDIC's annual losses from bank failures between 1984 and 2019. These data are used to find the frequency distribution of losses and a target fund associated with a 97 percent confidence level of funding losses.

13.4.2 MERTON-VASICEK APPROACH

O'Keefe and Ufier [23, 24] develop Monte Carlo simulation models that implement a Merton-Vasicek credit risk model for deposit insurers in Nigeria and the United States, respectively. The models are used to estimate the target fund ratio for these insurers. An Excel file that implements the target fund ratio model for the United States FDIC is attached below. Users should be familiar with Excel Visual Basic code.

⁹¹ An example of this approach is Seelig, et. al. [27].

13.4.3 COPULA APPROACH

Kusaya, O’Keefe and Ufier [19] develop a risk aggregation model that combines the annual revenues and expenses of the United States FDIC using a copula wherein the probability distributions of revenues and expenses have been calibrated to different historical periods. The copula model produces a probability distribution for FDIC annual net income that include the possibility of high expenses for deposit insurance outlays. Kusaya, O’Keefe and Ufier [19] also apply insurer ruin theory to the FDIC to estimate the probability of insurer insolvency under alternative economic conditions and insurer approaches for achieving a target fund. As far as we know Kusaya, O’Keefe and Ufier are the first to apply copula risk measures and ruin theory, as developed by actuarial science for consumer and commercial insurers, to a bank deposit insurer.

ATTACHMENTS FOR COPULA APPROACH:

The following attachments are the R code and data used by Kusaya, O’Keefe and Ufier [19] to estimate the FDIC’s target fund and probability of ruin.

13.4.4 STRESS SCENARIO APPROACH

Absent adequate data on historical bank failures and insurance losses that could be used in the target fund models discussed previously—loss distribution approach, Merton-Vasicek Model, and Copula Model—deposit insurers can use a hypothetical stress scenario approach as a supplement to their current approach for setting the target fund ratio.⁹² There are numerous methods for developing hypothetical stress scenarios:

⁹² This section assumes the insurer has some discretion on setting the target fund and/or contributes to a recommended change in statutory target fund ratios.

- Top-level, assumption-based approaches that use available historical data on the insurer's losses and current loss exposure. For example, Seelig, et al. [27] recommend an approach for determining the target fund ratio to the Philippine Deposit Insurance Corporation (PDIC) that involves three steps:

- First, determine insurance losses for two contiguous years wherein losses are higher than for all other two-year periods.
- Second, include losses from one "large" bank that can be considered a non-systemic failure under normal market conditions. This can be an assumed failure.
- Finally, an additional risk buffer can be incorporated by adding yet another year of failure losses and/or losses from another large bank that can be an assumed failure.

This top-level approach to setting the target fund relies on aggregate data for insurance losses over a historical period, and assumed losses on an arbitrarily chosen large bank that is assumed to fail. There is considerable uncertainty in the insurance loss rate assumed for the large bank failure absent historical experience with large bank failures, however.

- Alternatives to top-level, assumption-based stress scenarios are bank-level, simulation-based stress scenario approaches for projecting bank failures and insurance losses. These latter stress scenarios can be applied to credit, operational, market or any other type of risk the insurer believes is most relevant to its current risk profile. Examples of bank-level simulation-based stress scenarios are:

- Proforma simulations of an organization's income statements and balance sheets. Proforma models can be used to project future earnings and capital based on initial financial statements and assumptions about future revenues, expenses and credit losses. If the projected capital over say one year is below minimum regulatory standards the bank can be assumed to be a potential future failed bank to which the insurer can apply an historical and assumed insurance loss rate.

- Macroeconomic stress scenarios applied to organizations income statements and balance sheets to project the impact of such stress on future earnings and capital. This approach is used by the annual bank stress tests regulators require banks to complete in the United States and European Union.⁹³ Regulatory stress tests are organized in three stages. Stage one involved the bank regulator preparing a macroeconomic scenario that projects the paths of a set of macroeconomic indicators thought to be related to bank condition and performance. The indicators can be projected for two years or more. Stage two involves banks developing models that relate these indicators to the banks financial statements. Typically, the most important part of the stress-test model is the impact of economic stress on bank credit losses. The third and final stage in the regulatory review of banks' stress test models and projected earnings and capital. The review is used to ensure the stress-test models are developed using sound model development practices and yield reasonable projections of earnings and capital. Regulators use the results of the stress tests to evaluate banks' ability to withstand a severe economic shock. As is the case for the proforma scenario, if projected capital is below minimum regulatory standards the bank is assumed to be a potential future failed bank

- Attachments for Stress-scenario Models:

⁹³. The United States macroeconomic stress test for large banks is the Comprehensive Capital Analysis and Review (CCAR). The European Banking Authority (EBA) coordinates and enforces European-Union wide bank stress tests.

14 TEMPLATES OF DEPOSIT INSURANCE LAWS, OPERATIONS, POLICIES AND AGREEMENTS

14.1 MEMORANDUM OF UNDERSTANDING BETWEEN THE DEPOSIT INSURANCE AGENCY AND THE FOREIGN DEPOSIT INSURANCE AGENCY

1. ARTICLE ONE: INTRODUCTION

In view of the globalization of the world's financial markets and the increase in the cross-border banking operations in Europe, the Deposit Insurance Agency (DIA) and the Foreign Deposit Insurance Agency (FDIA) (collectively, "the Authorities"), have entered into this Memorandum of Understanding ("MOU") on the exchange of information related to cross-border oversight of their banking markets. The Authorities have developed this MOU in order to enhance their respective capabilities to address potential disruptions in the banking markets in their respective countries.

2. ARTICLE TWO: DEFINITIONS

For the purposes of this MOU,

1. "Authority" means the DIA or the FDIA.
 - a) "Requested Authority" means the Authority to whom a request is made under this MoU; and
 - b) "Requesting Authority" means the Authority making a request under this MoU.
2. "Emergency Situation" means an on-going or threatened situation such as one that may impair the integrity of the banking markets or have an impact on depositors in either of country.
3. "Person" means a natural person, unincorporated association, partnership, trust, investment company or corporation.

3. ARTICLE THREE: GENERAL PROVISIONS

4. This MOU is a statement of intent to consult, cooperate and exchange information in connection with the routine operations of the Authorities, in a manner consistent with, and as permitted by, the laws and requirements that govern the Authorities. It also encompasses cooperation in emergency situations that might arise in connection with a threat to financial stability within their respective countries. The Authorities contemplate that cooperation would be achieved primarily through ongoing, informal, oral consultations, but would be supplemented by more in-depth information-sharing as implemented by the Authorities to address situations involving

deposit insurance operations affecting their mutual interests.

5. This MOU does not create any legally binding obligations, confer any rights, or supersede domestic laws. This MOU does not confer upon any person or organization the right or ability directly or indirectly to obtain, suppress, or exclude any information or to challenge the execution of a request for assistance under this MOU.
6. This MOU does not limit an Authority to taking solely those measures described herein in fulfillment of its deposit insurance functions. In particular, this MOU does not affect the right of any Authority to communicate with, or obtain information or documents from, any Person subject to its jurisdiction that is located in the territory of the other Authority.
7. This MOU is intended to complement, but does not alter, the terms and conditions of any existing arrangements and statements of policy concerning cooperation and information-sharing between the Authorities or other supervisory authorities within their respective jurisdictions.
8. The Authorities intend in particular, and to the maximum extent possible, that the cooperation and information-sharing arrangements under this MOU should be implemented in a manner which is compatible with the obligations and commitments which an Authority may have under its respective statutes and regulations.
9. The Authorities intend to review periodically the functioning and effectiveness of this arrangement between the DIA and the FDIA with a view, among other things, to expanding or altering the scope of operation of this MOU, or altering the MOU to take into consideration significant changes in legal, market or business conditions, should that be judged necessary by the Authorities.
10. In any dispute, the English version of this MOU will govern.
11. To facilitate cooperation and communication under this MOU, the Authorities hereby designate contact persons as set forth in Appendix A.
12. The Authorities intend in particular, and to the maximum extent possible, that the cooperation and information-sharing arrangements under this MOU should be implemented in a manner which is compatible with the obligations and commitments which an Authority may have under its respective statutes and regulations.
13. The Authorities intend to review periodically the functioning and effectiveness of this arrangement between the DIA and the FDIA with a view, among other things, to expanding or altering the scope of operation of this MOU, or altering the MOU to take into consideration significant changes in legal, market or business conditions, should that be judged necessary by the Authorities.

14. To facilitate cooperation and communication under this MOU, the Authorities hereby designate contact persons as set forth in Appendix A.

ARTICLE THREE: SCOPE OF CONSULTATION, COOPERATION AND EXCHANGE OF INFORMATION

Ongoing consultations

15. The Authorities recognize the importance of close communication concerning cross-border banking operations for institutions operating in their respective countries and intend to consult regularly regarding general developments and issues relevant to the cross-border operations of their banking markets.
16. Each Authority endeavors to inform the other Authority of activities taking place in the banking market in the Authority's jurisdiction that may assist the other Authority in understanding and responding appropriately to problems arising in these markets.

Information to be Shared

17. To the extent necessary to supplement periodic and ad hoc oral consultations, each Authority intends to provide the other Authority the fullest cooperation in assisting with the identification of problems in their banking markets. Both Authorities recognize that there may be situations where information should be shared relating to these markets that are not necessarily dually authorized as defined in Paragraph 2 of this MOU. Without limiting the scope of possible cooperation, to the extent practicable and as appropriate in the particular circumstances, each Authority intends to provide, upon request, the following types of information:
- a) terms and conditions of deposit accounts;
 - b) details of banking regulations such as reporting obligations, rules and practices relating to insurance coverage and deposit payouts;
 - c) general details about market information collected and analyzed;
 - d) details of deposit inflows and outflows in general and in particular at problem institutions;
 - f) details of cross-border deposit inflows and outflows in general and at individual institutions;
 - g) details of the financial balances and financial obligations of the deposit insurance funds;
 - h) details of large insurance obligations to member institutions;
18. It is anticipated that such requests will relate to information that is not otherwise available to the Requesting Authority.

Periodic Monitoring

19. The Authorities recognize that there may be deterrent value in instituting periodic monitoring of deposit flows with cross-border implications to identify whether suspected runs may actually be occurring. Because the circumstances that may give rise to deposit inflows and outflows may vary, the Authorities intend to institute programs periodically to share information to assist in the detection of disruptive deposit flows.
20. The Authorities may, as appropriate, institute a program of a specified scope and duration to share relevant information for the purpose of detecting instability in their banking markets that may have an impact on the operations of the respective deposit insurers.

ARTICLE FOUR: EXECUTION OF REQUESTS FOR ASSISTANCE

21. To the extent possible, a request for information pursuant to Article Three should be made in writing, and addressed to the relevant contact person in Appendix A. A request generally should specify the following:
 - a) The information sought by the Requesting Authority;
 - b) A general description of the purpose for which the information is sought; and
 - c) The desired time period for reply and, where appropriate, the urgency thereof.
22. In order to be adequately prepared and anticipate crises, the Authorities may request receipt of the information specified in Article 3 on a routine basis. The duration and frequency of sharing information on a routine basis is determined by mutual understanding of the Authorities.
23. Prior to making a Request, an Authority should use reasonable efforts, consistent with the urgency of the Request, to obtain through other means any of the information referred to in Article Three that is publicly and readily available.
24. Notwithstanding the above, the Authorities understand that publicly available information may be requested under this Arrangement, and each Authority intends to assist the other Authority to obtain such publicly available information expeditiously.
25. In Emergency Situations, the Authorities will endeavor to notify each other of the Emergency Situation and communicate information to the other as would be appropriate in the particular circumstances, taking into account all relevant factors, including the status of efforts to address the Emergency Situation. During Emergency Situations, requests for information may be made in any form, including orally, provided such communication is confirmed in writing.

ARTICLE FIVE: PERMISSIBLE USES AND CONFIDENTIALITY OF INFORMATION

26. Except for disclosures in accordance with this MOU, each Authority intends to keep confidential to the extent permitted by law information shared under this MOU, requests made under this MOU, the contents of such request, and any other matters arising under this MOU.
27. Information received in response to a Request is intended, consistent with applicable law, to be used by the Requesting Authority solely for the purpose of enabling or assisting it to exercise its legal obligations under its charter.
28. The Authorities recognize that the purpose of this MOU is primarily to obtain information for the purposes of protecting depositors and maintaining financial stability, although the Authorities subsequently may want to use the information obtained under this MOU for the purposes of conducting the payout of insured deposits in a failed bank.
29. To the extent possible, the Requesting Authority intends to notify the Requested Authority of any legally enforceable demand for non-public information furnished under this MOU. Prior to compliance with the demand, the Requesting Authority intends to assert all appropriate legal exemptions or privileges with respect to such information as may be available.
30. The Authorities intend that the sharing or disclosure of such non-public information, including but not limited to deliberative and consultative materials, pursuant to the terms of this MOU, will not constitute a waiver of privilege or confidentiality of such information.

ARTICLE SIX: TERMINATION

31. Cooperation in accordance with this MOU will continue until the expiration of 30 days after either Authority gives written notice to the other Authority of its intention to terminate its cooperation under the MOU. If either Authority gives such notice, cooperation will continue with respect to all requests for assistance that were made under the MOU before the effective date of notification until the Requesting Authority terminates the matter for which assistance was requested. In the event of termination of this MOU, information obtained under this MOU will continue to be treated in the manner prescribed under Article Five.

This MOU is executed in duplicate in [Countries] on [date].

Signed

APPENDIX “A” CONTACT OFFICERS

DIA

Name

Title

Contact information

FDIA

Name

Title

Contact information

14.2 OUTLINE FOR A BUSINESS CONTINUITY PLAN (BCP)

- Responsibilities of the Board of Directors
 - a. Establish a BCP
 - b. Assign responsibilities for the BCP
 - c. Oversee testing of the BCP
- Responsibilities of senior management
 - a. IT management
 - b. Facilities management
 - c. Personnel management
 - d. Internal audit
- Identifying critical functions
- Identifying possible impacts of a threat to business continuity – examples:
 - a. Critical personnel are unavailable and they cannot be contacted;
 - b. Critical buildings, facilities, or geographic regions are not accessible;
 - c. Equipment (hardware) has malfunctioned or is destroyed;
 - d. Software and data are not accessible or are corrupted;
 - e. Third-party services are not available;
 - f. Utilities are not available (power, telecommunications, etc.)
- Identifying possible mitigation measures in advance of a threat to business continuity (for example backup systems, redundancies)

- Identifying procedures to recover, resume and maintain critical functions
- Process for implementing the BCP
- Training on the use of the BCP by employees
- Testing the BCP
- Assigning responsibility for updating the BCP

14.3 OUTLINE FOR A PUBLIC AWARENESS STRATEGY

1. Objectives
 - Increasing public awareness
 - Measuring public awareness
 - Increasing confidence in the deposit insurance system
2. Public awareness in normal times
 - Target groups for communication (e.g., youth, the elderly, rural populations)
 - Developing appropriate messaging
 - Tools and methods to be utilized
 - How will effectiveness be measured and how often
3. Public awareness in an insurance event
 - Target groups for communications (e.g., depositors at insured institution, general population)
 - Developing needed messages
 - Measurement of effectiveness during and after the event
4. Appendices
 - Form press release for an insurance event
 - Example of a survey form for measuring public awareness

14.4 EVALUATION OF EFFECTIVENESS OF PUBLIC AWARENESS STRATEGY

This evaluation of the Public Awareness Strategy of the Deposit Insurance Authority (DIA) is designed to measure the public's knowledge of the deposit insurance system in [country] and to determine how best to focus the efforts of the DIA in the future to increase the public's understanding of the system. The survey can be done in person, by telephone or through the internet. Surveys are repeated

periodically to measure whether the public's knowledge of the deposit insurance system is increasing to inform the public awareness efforts of the DIA going forward.

The evaluation should be targeted to different groups to better design an effective public awareness strategy. Such groups be men, women, older individuals, university graduates, high school students, college students, those who speak different languages, the disabled, the unemployed or those below a certain income level.

The DIA has identified the following areas of focus for the survey:

1. Do you have a bank account?
2. If the answer to the above question is yes do you know that bank deposits are insured?
3. If the answer to the above question is yes do you know what the coverage limit for such deposits is?
4. Where do you get your information about deposit insurance for your bank accounts?
5. Do you know what types of deposits are covered by deposit insurance?
6. Do you know which types of bank accounts are not covered by deposit insurance?
7. Do you know which agency is responsible for deposit insurance in [name of country]?
8. Do you know how to determine which banks are part of the deposit insurance system?
9. Do you know how coverage is determined for joint accounts? [may also ask this question about trust accounts if appropriate]
10. Do you know how coverage is calculated at one bank when the account owner has more than one account at that bank?
11. Do you understand when deposit insurance would be paid to you for their insured accounts?
12. Do you understand what the compensation procedure would be for your deposits if your bank were closed?

14.5 MEMORANDUM OF UNDERSTANDING BETWEEN THE DEPOSIT INSURER AND THE SUPERVISORY AUTHORITY

[State the legal basis for the cooperation agreement in the laws governing both parties]

- A. The purpose of this Memorandum Of Understanding (MOU) is to document the areas of cooperation between the Supervisory Authority [or Central Bank if appropriate] and the Deposit Insurance Agency (DIA) to allow each party to carry out its mandate effectively and efficiently.

The Supervisory Authority and the DIA are both parts of the financial safety net in [country].

This MOU reflects the commitment of the two authorities to work together and cooperate to promote stability and public confidence in the financial system of [country].

- B. The terms used in this MOU have the same meaning as the terms used in the legislation that forms the legal basis of this MOU [alternatively could include list of terms here].
- C. The parties to this MOU agree to cooperate and exchange information relating to the licensing, financial condition and deposits of insured financial institutions.
- D. In cooperating on the granting of new licenses to financial institutions the parties agree to jointly consider the applicant's risk profile, the proposed ownership structure and the profile of owners and senior management to assure that all such persons are fit and proper. The ability of such owners to provide additional financial support to the institution if needed shall also be considered. Such cooperation shall include consultation between the parties before the issuance of any license and the approval by the DIA of any request for deposit insurance after issuance of a license.
- E. The parties shall cooperate to facilitate membership of a bridge bank in the deposit insurance system if approved by the relevant authority [if relevant in the jurisdiction].
- F. The Supervisory Authority shall share information on enforcement actions it takes against insured financial institutions and promptly inform the DIA of any institution deemed to be a "problem institution" [or appropriate term in the jurisdiction perhaps by reference to an examination rating].
- G. [Need to provide for sharing of information on decision to close a financial institution and information on deposit records with appropriate reference to the Resolution Authority if that is appropriate]
- H. The Supervisory Authority shall promptly make available to the DIA the following information on insured banks:

[reference here all relevant materials such as monthly and quarterly financial statements, quarterly analyses of individual banks, exam reports, Early Warning System information on individual banks, analyses of the condition of the financial system and emerging risks to the system (these may be prepared by an authority other than the Supervisory Authority) and banks to which liquidity support has been provided]
- I. The Supervisory Authority and the DIA notify each other of any information indicating that an

account at an insured financial institution has been used for criminal activities or when either party has been informed by a third party of such a possibility.

- J. The parties to this MOU agree to cooperate in carrying out any verifications of information when either party deems such verification necessary.
- K. The parties to this MOU agree to cooperate in the examination process to the fullest extent possible including regularly conducting joint examinations on issues of importance to both parties such as account information verification.
- L. The Supervisory Authority and the DIA shall consult regularly on issues of importance to insured financial institutions generally or to the [association for banks as in existence in the jurisdiction].
- M. The Supervisory Authority and the DIA shall work cooperatively to enhance cooperation among supervisory authorities and deposit insurers across borders as needed.
- N. The Supervisory Authority and the DIA may enter into an agreement to share resources and provide each other with operational support as needed.
- O. Information obtained in the course of implementation of this MOU shall be deemed confidential and treated as such with the provisions of the governing law [may reference such provisions in the law here].
- P. Amendments to this MOU in writing may be made by the parties as needed and will be made if the laws governing this MOU are amended or revised so as to require additional or different provisions.
- Q. This MOU shall be deemed in force as of the date both parties have signed below.

Signed:

Date:

Signed:

14.6 AGREEMENT BETWEEN THE RECEIVER/LIQUIDATOR FOR [FAILED BANK] AND THE DEPOSIT INSURANCE AGENCY

This Agreement is entered into between the Receiver/Liquidator for [name of failed bank] [hereinafter Liquidator] and the Deposit Insurance Agency [hereinafter DIA] in furtherance of the work of both entities with regard to the former [name of failed bank].

The parties to this Agreement have the power to enter into this Agreement and the full capacity to implement its terms. The signatories to this Agreement may specify in writing other persons authorized to take action to implement its terms.

PURPOSE

The purpose of this agreement is to complete the [winding up] of the affairs of the former [name of failed bank] in an orderly and efficient manner while protecting the rights of all insured depositors at [the name of the failed bank]. The terms of this Agreement may only be amended with the written agreement of both parties. This Agreement remains in existence until terminated in writing by both parties.

COOPERATION

The parties agree to cooperate on all aspects of the work of winding up the operations of the [name of failed bank], completing the payment of insured depositors of such bank and recovering on any assets of the failed bank for the benefit of the failed bank's creditors including the DIA. Such work includes but is not limited to the following tasks:

- Validating records of the [name of failed bank] on customers with deposit accounts of any type as quickly as possible after appointment and updating such records as required upon receipt of information from the DIA or any customer of the [name of failed bank] after communication with the DIA;
- Providing the DIA with the names and account records of any customer of [name of failed bank] that the DIA determines is an excluded person [hereinafter excluded person] for purposes of deposit insurance coverage as specified in [name and citation to legal authority specifying depositors whose accounts are excluded from coverage];
- Providing the DIA with the names and account records of any customer that may be deemed a "related party" as that term is defined in [citation to law defining related party] of any such excluded person;

- Cooperating with the DIA in the preparation of a list of payouts to all eligible depositors in the amount of such depositor's insured accounts including, if required, a list of interim or partial payouts;
- Ensuring that the DIA is properly subrogated on any claims it makes to insured depositors in accordance with the law;
- Communicating with the public, the legislature or the media about the process of paying insured depositors of [name of failed bank] including communication about documentation requirements, exclusions from coverage and timeframes for reimbursement and if needed the appointment of an official spokesperson;
- Providing the DIA with any records related to loans made to deposit customers [specify here whether only loans that are in arrears need to be provided] that were in effect as of the date of the closing of [the name of the failed bank];
- Establishing a roster of filed, approved, denied and pending claims on the assets of the failed bank's estate;
- Making interim and final payments to the DIA on its filed claims and providing information on an ongoing basis about the recovery process and any estimates of future recoveries; and
- Any other information relating to [name of failed bank] as requested by the DIA.

IMPLEMENTATION OF AGREEMENT

The parties to this Agreement may share any relevant information about the former [name of failed bank] as needed in implementing its terms subject only to a requirement that any such information remain confidential as required under [cite provisions of applicable law].⁹⁴ The parties shall develop a list of persons authorized by each of them to take any actions necessary in the implementation of this Agreement.

Signed:

Receiver for [name of failed bank]

Date:

⁹⁴ For example, the controlling law may allow for sharing certain otherwise confidential information in court proceedings or otherwise.

Signed:

Deposit Insurance Agency

Date:

14.7 CRISIS MANAGEMENT OUTLINE

Contact Information

1. Contacts – Key Government Decision Makers (e mail addresses, office, home and mobile numbers)
 - a. Governor of Central Bank
 - b. Minister of Finance
 - c. Other government officials
2. Contacts – Deposit Insurance Agency And Key Supervisors (e mail addresses, office, home and mobile numbers)
 - a. Board of Directors of the deposit insurance agency
 - b. Chief Executive Officer of the deposit insurance agency
 - c. Key deposit insurance agency staff (IT, Communications, Legal)
 - d. Key supervisory agency employees
3. Contacts – Key Private Sector Individuals (e mail addresses, office, home and mobile numbers)
 - a. Heads of local and foreign banking institutions
 - b. CEOs of parent financial institutions
4. Contacts – Relevant Regional Supervisors And Central Bank Governors (e mail addresses,

office, home and mobile numbers)

Crisis Decision Making

5. Procedures For Crisis Decision Making
 - a. Who can call a meeting (note this may be the crisis committee or other financial sector interagency committee if one is in place)
 - b. Will minutes be kept and if so by whom?
 - c. Each participant agency should identify relevant staff to provide:
 - i. Supervisory assessments for individual institutions and groups
 - ii. A clear analysis of interlinkages and contagion potential
 - iii. A summary of insured and uninsured deposits by group and amount
 - iv. Possible macroeconomic consequences of actions
 - v. A full analysis of the liquidity situation of financial institutions including the available eligible collateral to support central bank borrowing
6. Make a determination as to whether there is a liquidity crisis, a solvency crisis or both
7. Is there a need for a determination of whether any potentially involved institution is of systemic importance? If so what information will be needed and who will take the lead in providing the necessary information?
8. Is there a need for a blanket guarantee? If so what should be covered (for example, all deposits, all deposits and senior creditors, bond holders, all senior debt?)
9. What are the options for liquidity support? Will a government guarantee be needed (for example if the institution is approaching insolvency)? Are there implications for monetary operations and/or policy?
10. List of resolution options available for financial institutions (reference to appropriate legal provisions for each)
 - a. Analysis of the costs and benefits
 - b. Who will be responsible for preparing this analysis and all necessary inputs?

- c. How will resolution be funded?
- d. Will any guarantees/indemnities be needed?

11. Communications with the public

- a. Designate lead spokesperson
- b. Designate spokesperson for each involved agency and establish procedures to insure coordination

12. Communications with relevant regional regulators/deposit insurers

- a. Who should make the contact?
- b. Who should develop the messaging?

14.8 FORM FUNDING AGREEMENT AMONG THE DEPOSIT INSURER, THE CENTRAL BANK AND THE MINISTER OF FINANCE

This Memorandum of Understanding (MOU) and [any required attachments such as documentation of amount of funds needed] encompasses the agreement between the parties to provide emergency assistance funds and ongoing government funds (if needed) to the Deposit Insurance Agency (DIA) to support the fulfilment of the responsibilities of the DIA concerning the Deposit Insurance Scheme. Taking into consideration the responsibilities of the DIA and the Central Bank and the Ministry of Finance (MOF) in insuring financial stability and based on the laws governing the deposit insurance function, this MOU is a result of discussions between the parties.

The parties have agreed to the following:

This MOU governs the fundamental cooperation between the Central Bank, the MOF and the DIA in granting emergency assistance funds and/or government subsidies to the DIA in order to support its deposit insurance responsibilities as defined within applicable legislation and regulations. It is intended to provide support if other legal opportunities for financing the needs of the DIA have been exhausted or are otherwise unavailable in order to ensure payment of compensation for insured deposits and other legitimate liabilities of the DIA so as to maintain public confidence in the financial sector of the [country].

If the DIA, despite its best efforts, has exhausted all other financial sources in compliance with the deposit insurance laws or such sources are otherwise unavailable (for example due to market

conditions), the MOF agrees to provide to the DIA a loan or subsidies from the state budget to cover insured deposits and other legitimate liabilities of the DIA. This shall be done in accordance with the responsibilities of the government to support the fulfilment of the DIA’s deposit insurance responsibilities. The amount of the assistance funds or government subsidies shall not exceed the required balance of the loan amount agreed to by the parties. [Specify here how such funding shall be provided for example through a credit to the DIA account at the Central Bank].

The parties have agreed to give each other timely and complete information on any event or situation that would compromise the validity of this MOU. The parties have also agreed that all necessary documents as defined by the Central Bank or the MOF to support a request by the DIA for backup funding as specified in this agreement will be provided to [specify office and contact at MOF].

Signed:

Date:

The Central Bank

Ministry of Finance

Deposit Insurance Agency

This form funding agreement should be supplemented if needed by a repurchase agreement between the Central Bank and the DIA for securities held by the DIA. This may be needed if the markets would not on short notice be available to the DIA and/or to avoid any possible signaling effect the sale of such securities on the open market might have on financial institutions.

14.9 MODEL DEPOSIT INSURANCE ACT

PART I: GENERAL PROVISIONS

1. This Act may be cited as the Deposit Insurance Act of 20__ (“the Act”).
2. In this Act, unless the context requires otherwise, the following definitions shall apply:
 - a. “Bank” shall mean the Central Bank of [country name] established under [cite the Act establishing the Central Bank];
 - b. “Board” means the Board of Directors of the Deposit Insurance Corporation as established by section ___ of this Act;
 - c. “Chief Executive Officer” means the Chief Executive Officer of the Deposit Insurance Corporation appointed under Section ___ of this Act;
 - d. “Chairperson” means the Chairperson of the Board of the Deposit Insurance Corporation appointed under Section ___ of this Act;
 - e. “Corporation” means the Deposit Insurance Corporation established under Section ___ of this Act;
 - f. “Deposit” means a deposit [within the meaning of another Act such as the country’s banking act] [within the meaning of a provision of this Act];
 - g. “Depositor” means a natural [or legal person] who owns a deposit;
 - h. “Director” means a member of the Board of the Deposit Insurance Corporation appointed under Section ___ of this Act;
 - i. “Financial Institution” means [a bank or financial institution] engaged in receiving deposits from the public licensed under [reference to the country’s law providing for the licensing of financial institutions] [this term should be clear on which institutions are encompassed within the definition or provide other definitions for institutions such as savings associations];
 - j. “Fund” means the Deposit Insurance Fund established under Section ___ of this Act;
 - k. “Insured deposit” means a deposit or any part of a deposit which is insured under this Act;
 - l. “Insured depositor” means a depositor who holds an insured deposit;

- m. “Insured event” means [defined by reference to another act or if defined in this law reference to the appropriate section such as Article 84];
- n. “Insured limit” means the maximum amount that is reimbursable in respect of an insured deposit;
- o. “Liquidation” means [refer to the appropriate definition under the relevant banking or other act] or [define the term here];
- p. “Member Financial Institution” means a financial institution which is a member of the deposit insurance scheme;
- q. “Minister” means the Minister responsible for Finance;
- r. “Officer” means [define to include current or former employees and agents];
- s. “Resolution” means the resolution of a financial institution as defined [here or by reference to another relevant law];
- t. “Scheme” means the deposit insurance scheme established under this Act to insure depositors.

PART II: SCOPE OF THE ACT AND OBJECTIVES OF THE DEPOSIT INSURANCE SCHEME (CP 1)

- 3. (a) This Act establishes the Deposit Insurance Scheme, the Deposit Insurance Corporation and the Deposit Insurance Fund and sets forth the authority and governance of the Corporation and for the administration of the Fund.
- (b) All licensed financial institutions shall immediately be deemed to be members of the Scheme.
- (c) A financial institution ceases to be a member of the Scheme upon revocation of its license.
- (d) [Specify whether overseas branches of financial institutions are/are not covered by the Scheme].
- 4. The objectives of the Scheme are to contribute to the financial stability of the financial sector of [country] by protecting depositors of financial institutions operating in [the country] as outlined in this Act by paying insured depositors when a financial institution is liquidated and by contributing resources to the resolution of member financial institutions.

PART III: ESTABLISHMENT, MANDATE AND INDEPENDENCE OF THE DEPOSIT INSURANCE CORPORATION (CP 2)

5. (a) This Act establishes a body corporate to be known as the Deposit Insurance Corporation.
(b) The Corporation shall be responsible for the administration of this Act.
(c) The Corporation shall have its principal place of business in [specify city].
(d) The Corporation shall have an authorized capital of [specify amount] which shall be fully subscribed and paid up [specify how] within three months of the establishment of the Corporation.
(e) [Specify how the capital of the Corporation can be increased if needed].
6. The Corporation shall be authorized to:
 - (a) Collect premiums from member financial institutions;
 - (b) Manage the assets of the Fund;
 - (c) Reimburse insured depositors up to the insured limit upon the occurrence of an insured event;
 - (d) Contribute funds for the resolution of member financial institutions; and
 - (e) Promote public awareness and education on the deposit insurance scheme.
7. The Corporation shall have the power to do all necessary acts to discharge its functions under this Act as well as the power to take any actions that are incidental or conducive to the discharge of such functions.
8. The Corporation shall be independent in performing its functions and managing its operations. No entity or governmental authority shall interfere with the Corporation's exercise of its functions.
9. The Corporation shall have sufficient financial and human resources to ensure its operational independence. [Staff of the Corporation shall be remunerated consistently with staff of the Central Bank].
10. [The Central Bank shall provide the necessary technical and information technology facilities to allow for the functioning of the Corporation. The Bank may provide staff as needed to the Corporation].
11. The Corporation shall have an account at the Central Bank.

12. The Corporation may request [the supervisory authority] [or it may itself] at any time to conduct an examination of a member financial institution that is not in compliance with its duties to the Corporation or where the Corporation requires information from the member institution to properly perform its responsibilities under this Act. Employees of the Corporation may participate in any such examination [undertaken by the supervisory authority]. The [supervisory authority] shall provide the Corporation with all findings from any examination it conducts.
13. The Corporation shall be entitled to receive from [the supervisory authority] the final examination reports and all material information relating to the safety and financial condition of a member financial institution including but not limited to reports and returns submitted by them and any directives issued by the [supervisory authority] to such institutions that the Corporation may require for the administration of this Act.
14. All licensed financial institutions automatically become members of the deposit insurance scheme upon entry into force of this Act. A financial institution applying for a license after such time shall simultaneously apply for membership in the deposit insurance scheme. No license will be issued to any financial institution until it is approved for membership in the scheme.

PART IV: GOVERNANCE OF THE CORPORATION (CP 3)

15. There shall be a Board of Directors of the Corporation which shall be responsible for (a) the general direction of the operations of the Corporation, (b) the development of internal regulations, policies and the adoption of decisions in accordance with the legal authorities governing the Corporation's operations and (c) the supervision of the daily operations of the Corporation.
16. The Chief Executive Officer of the Corporation shall be responsible for the conduct of the daily operations of the Corporation as directed by the Board. The Chief Executive Officer shall also be responsible for proposing and executing the internal policies, regulations and decisions of the Board.
17. The Board of the Corporation shall consist of five persons appointed by [the Central Bank] [the Minister of Finance].
18. There shall be two ex officio members of the Board, one representing the Central Bank and one representing the Minister of Finance. There shall be three independent members of the Board with qualifications and experience in accounting, auditing, banking, finance, insurance, law or a related discipline. Each independent member of the Board shall meet all fit and proper requirements established by law and shall not be active Board members or

employees of any deposit insurance member financial institution or otherwise have any conflict of interest that would be inconsistent with their service on the Board as set forth in Article 23 of this Act.

19. The Chairperson of the Board shall be chosen by the Board members from among the independent members of the Board.
20. The independent Directors shall be appointed by [the Central Bank] [the Minister of Finance] for terms of up to three years, with such terms being non-coincidental. The independent directors shall be eligible for reappointment.
21. The Board shall have the authority to:
 - (a) adopt a strategic plan for the Corporation;
 - (b) act as the policy-making body of the Corporation and establish committees to oversee the management, operations and administration of the Scheme;
 - (c) ensure compliance with internal controls, internal audit procedures and required financial reporting;
 - (d) adopt a risk management framework for the Corporation;
 - (e) approve and issue regulations, by-laws, rules of procedure, internal policies and decisions as necessary for the effective discharge of the responsibilities of the Corporation;
 - (f) establish a human resource management system that governs the selection, hiring, appointment, transfer, promotion and dismissal of the staff of the Corporation;
 - (g) approve the compensation and benefits structure for the staff of the Corporation;
 - (h) approve the annual budget of the Corporation and authorize such expenditures as are necessary for the effective administration and operation of the Corporation;
 - (i) appoint the Chief Executive Officer of the Corporation;
 - (j) appoint the internal auditor of the Corporation;
 - (k) appoint the external auditors of the Corporation;
 - (l) approve the audited financial statements and the annual report of the Corporation;
 - (m) approve the minimum target level of the Fund [and the insured limit for deposits];

- (n) establish a methodology for the calculation and collection of insurance premiums;
- (o) adopt an investment policy and an annual investment plan for the Fund;
- (p) approve the level of initial, regular and extraordinary insurance premiums;
- (q) establish all necessary procedures for the reimbursement of insured depositors;
- (r) approve the reimbursement of insured depositors upon the occurrence of an insured event;
- (s) approve contributions to the funding of resolution of a member financial institution;
- (t) approve a public awareness and education program on the benefits and limitations of the Scheme;
- (u) approve and adopt a Code of Ethics and Conduct for the Corporation;
- (v) constitute committees of the Board for the discharge of its duties;
- (w) impose administrative penalties in accordance with the provisions of this Act;
- (x) adopt rules of procedure for the Board;
- (y) perform all other duties not assigned to the Chief Executive Officer under this Act.

22. The Chief Executive Officer shall serve on a full-time basis and have the following responsibilities:

- (a) manage the daily operations of the Corporation;
- (b) identify and assess the various risks to which the Corporation may be exposed and insure against those risks;
- (c) propose regulations, by-laws, rules of procedure, internal policies and directives to the Board;
- (d) implement the policies, procedures and decisions adopted by the Board;
- (e) manage the staff of the Corporation;
- (f) develop the compensation and benefits structure for the employees of the Corporation;
- (g) prepare the annual budget of the Corporation for adoption by the Board;
- (h) prepare the financial statements and annual report of the Corporation;

- (i) propose for Board approval the target level of the fund [and the insured deposit limit];
 - (j) develop the investment policy and annual investment plan for the Fund;
 - (k) develop the methodology for calculation of and the procedure for collection of premiums;
 - (l) propose the level of initial, regular and extraordinary premiums;
 - (m) develop the procedure for reimbursement of insured depositors;
 - (n) propose the reimbursement of insured depositors to the Board upon occurrence of an insured event;
 - (o) propose the amount of the contribution of funding to the resolution of a member financial institution to the Board;
 - (p) develop a public awareness and education program on the benefits and limitations of the Scheme;
 - (q) develop a Code of Ethics and Conduct for the Corporation;
 - (r) propose the imposition of administrative penalties in accordance with the provisions of this Act;
 - (s) represent the Corporation in its interactions with third parties; and
 - (t) perform all other duties assigned to the Chief Executive Officer under this Act.
23. The Chief Executive Officer shall be appointed by the Board for a term of five years and shall have professional or academic experience in the fields of economics, finance, banking or law. The Chief Executive Officer may be reappointed once.
24. The Chief Executive Officer and the Independent Directors of the Board shall be persons of recognized integrity. [The Central Bank shall review the backgrounds of nominees for these positions to assure that they are fit and proper persons].
25. A person shall not be eligible to be appointed or remain a Chief Executive Officer or Independent Director if that person:
- (a) is or becomes a member of [the legislature];
 - (b) is or becomes a member of the judiciary;

- (c) holds an office or position in a political party;
 - (d) is or becomes a member of the Government or an employee of the Government;
 - (e) is or becomes a director or officer of a financial institution;
 - (f) is or becomes a shareholder holding more than five percent of the voting rights in a financial institution;
 - (g) has been a member of the Board or senior management of an institution which was placed under liquidation or resolution;
 - (h) has been or is convicted of a felony or offence involving fraud, dishonesty or breach of trust;
 - (i) has been or is convicted of a crime and sentenced to a term of imprisonment;
 - (j) is an undischarged bankrupt;
 - (k) has been disqualified or suspended from practicing a profession on grounds of personal misconduct or has been prohibited from serving as a director or officer of any public or commercial entity;
 - (l) is or becomes mentally incompetent or unable to perform the duties of a job by reason of ill health; or
 - (m) has been absent without leave from three consecutive meetings of the Board.
26. The appointment of the Chief Executive Officer shall be terminated by the Board (a) on a determination that any of the disqualifying grounds specified in Article 23 exist or (b) on the request of the Chief Executive Officer in writing to the Board.
27. The [appointing authority] may terminate the appointment of an independent director (a) on a determination that any of the disqualifying grounds specified in Article 23 exist or (b) on the Independent Director's own request in writing to [the appointing authority].
28. The Chief Executive Officer, Directors, Officers, employees and any other persons in the service of the Corporation shall have a fiduciary duty to the Corporation to place its interest before their own and shall avoid any situation likely to give rise to a conflict of interest. The Chief Executive officer shall prepare a conflict of interest policy for the Corporation to be adopted by the Board.
29. Where an Independent Director or employee of the Corporation fails to disclose a material

conflict of interest that person may be suspended from the Corporation for a period of one year.

30. The Board shall hold ordinary meetings at least once every calendar quarter. The Chairperson may convene extraordinary meetings of the Board whenever it is necessary for the transaction of the business of the Corporation or at the written request of at least two Directors. The Board may convene through electronic means if approved by a quorum of the Board which shall consist of four Directors, including the Chairperson.
31. The Board shall appoint a Secretary from among the staff of the Corporation who shall be responsible for (a) arranging the business of the Board, (b) keeping records of the proceedings of the Board and (c) performing such other duties as the Board may from time to time determine. The Secretary of the Board shall be present at the meetings of the Board without the right to vote.
32. The Chairperson shall decide on the agenda of the meetings which shall be communicated to the members of the Board at least ten days prior to the date set for the meeting. In the case of an emergency the meeting may be convened on shorter notice.
33. The decisions of the Board shall be adopted by a majority of votes with the Chairperson having a casting vote.
34. The minutes of the meetings of the Board shall be kept in proper form by the Secretary and signed by the Chairperson.
35. The Board may establish such committees as it deems appropriate to assist with the proper discharge of its functions. No decision of a Committee is enforceable until ratification by the Board.
36. The Board may appoint advisory committees made up of members from the private sector, the Government and academia for specific purposes and periods of time.

PART V: ACCOUNTABILITY AND TRANSPARENCY OF THE CORPORATION [CP 3]

37. The Corporation shall submit its certified financial statements and annual report to [the Minister of Finance] [and/or] [the Central Bank] within three months of the close of the financial year. The financial year shall coincide with the calendar year [or otherwise].
38. The Corporation's Annual Report shall describe the financial situation and premium income of the Corporation with specific reference to the administrative expenses of the Corporation as a percentage of its premium income.
39. The Corporation shall make its financial statements and Annual Report available on its website.

40. The Corporation shall maintain proper accounts and records in accordance with International Financial Reporting Standards.
41. The Corporation shall develop an internal audit function which shall report directly to the Board and make use of proper risk management tools.
42. The accounts of the Corporation shall be audited at least annually by an independent external auditor that shall not be appointed for a period exceeding [five] [seven] years. [Describe any additional audit requirements that may be in place by a government audit agency].

PART VI: DEPOSIT INSURANCE FUND (CP 9)

43. The Corporation shall establish and maintain a fund to be known as the Deposit Insurance Fund.
44. The Fund shall be financed by:
 - (a) [an initial contribution] provided by [the government, the Central Bank, the Minister of Finance] and [member institutions];
 - (b) regular and extraordinary premiums paid by member financial institutions;
 - (c) funds borrowed from the government;
 - (d) funds borrowed from the Central Bank and guaranteed by the Government;
 - (e) funds from private financial institutions or public international financial institutions [either borrowed or granted];
 - (f) any interest, dividend or other income derived from the investments of the Fund;
 - (g) funds that may accrue from fees or the operation of the Fund;
 - (h) funds realized from the resolution or liquidation of a member financial institution;
 - (i) all other funds lawfully paid into the Fund.
45. The target size of the Fund [shall be a certain percentage of insured deposits or the percentage shall be set by the Board] to be reached with [number of years] of the establishment of the Fund. The Board shall report the size of the target fund to the Minister of Finance.
46. The Board shall review the size of the Fund periodically and at least once per year with regard to its actual and potential liabilities. Based on such a review the Board may set a higher

minimum target size for the Fund commensurate with the objectives of protecting the interests of depositors and contributing to the resolution of member financial institutions. The results of any such review shall be reported to the Minister of Finance.

47. Where the Board determines that the Fund has reached the minimum target level and all outstanding funding provided by [the government or others if required] has been fully repaid it may refund any excess amounts paid by member institutions pro rata.
48. [The government] shall make an initial contribution to the Fund. [The Central Bank shall make an initial contribution to the Fund with a guarantee by the Government]. All such initial contributions must be fully repaid through the assessment of regular or extraordinary premiums before the Corporation may reduce the rate at which regular premiums are assessed on member financial institutions.
49. Within three months of the establishment of the Fund each member financial institution shall pay into the Fund an initial contribution of [up to 1.5% of the average amount of insured deposits held at the start and the end of the calendar year preceding the entry into force of this Act] [an amount to be set by regulation set by the Board].
50. Each member financial institution licensed after the entry into force of this Act shall pay into the Fund an initial contribution calculated as a percentage of the average amount of insured deposits held at the start and end of its first year of operations as determined by the Board.
51. Each member financial institution shall pay regular premiums into the Fund on a biannual basis. The assessment periods shall start on the first day of January and July each year. The Board shall make regulations on the method for calculation and collection of the regular premiums.
52. The regular premiums shall be calculated at a percentage ranging between [0.2 and 1.5 percent [a range to be set by regulation of the Board] of the average amount of insured deposits held by each member financial institution over the preceding assessment period. The Board shall determine and announce the rate at which regular premiums shall be set prior to the commencement of each assessment period.
53. After consultation, the Board may increase the rate at which regular premiums are assessed. The Board may only decrease such rate provided the Fund has reached its target level and all outstanding funding provided by [the government] [the Central Bank] has been fully repaid.
54. The regular premium and any extraordinary premium assessed shall be paid to the Corporation by drawing from the accounts of the member financial institutions at the Bank.

55. The Corporation may impose extraordinary premiums on member financial institutions in addition to the regular premiums where the Corporation has made or is likely to make payments to depositors which have exhausted or are likely to exhaust the Fund. Any such decision to assess extraordinary premiums shall be reported to the Minister of Finance.
56. The Board shall determine the rate of the extraordinary premium in an amount not to exceed 1.0 percent of the average amount of insured deposits held by each member financial institution over the preceding assessment period. The level of such extraordinary premiums shall be such that the Fund can return to its minimum target size within a reasonable period of time.
57. If the Fund is not able to be restored to its minimum target size within a reasonable period of time the Corporation may borrow funds from the Government or from the Central Bank with a government guarantee at an interest rate equivalent to that charged on Government securities of similar maturity. The government and the Central Bank shall enter into any necessary contractual arrangements with the Corporation to give effect to this provision.
58. Where any amount payable to the Fund by a member financial institution is outstanding that member is liable for the payment of interest as the Board may determine.
59. All funds due and payable to the Fund under this Act may be recovered summarily by the Corporation in a civil action without prejudice to any other remedy that may exist.
60. The Corporation shall manage the resources of the Fund consistent with international best practices, prioritizing safety and liquidity over return, and ensuring adequate risk management and internal control safeguards. The resources of the Fund shall be invested in low-risk securities in such a manner as to maintain an adequate level of liquidity to protect the resources of the Fund while generating a level of income that is likely to maintain or increase the real value of the Fund.
61. The Fund shall be managed in accordance with an investment policy and annual investment plan adopted by the Board.
62. The Fund may invest its resources in the following assets:
 - (a) debt securities issued by the government;
 - (b) banknotes and coins denominated in freely convertible foreign currencies; and
 - (c) readily marketable financial securities issued by governments, central banks or public international financial institutions denominated in freely convertible currencies with a high credit rating as determined by the Board in the investment policy adopted for the Corporation.

63. The Fund shall not invest in member financial institutions.
64. The investment of the resources of the Fund may be managed by the Central Bank.
65. The resources of the Fund may be used to:
- (a) reimburse insured deposits upon the occurrence of an insured event;
 - (b) contribute to the resolution of a member financial institution;
 - (c) repay any borrowings;
 - (d) pay for expenses incurred in or incidental to the establishment and maintenance of the Scheme and the administration and management of the Corporation and the Fund; and
 - (e) pay for any other expenses considered necessary in accordance with this Act.

PART VII: INSURANCE LIMIT AND LIQUIDATION OF A MEMBER INSTITUTION (CP 8, 14)

66. The Corporation shall insure every deposit held [by a depositor as such term is defined in this Act on a per depositor basis] [by a depositor as defined in this Act on a per depositor, per capacity basis] at a member financial institution in an amount not exceeding [], including principal and interest, unless such deposit is excluded from coverage under this Act.
67. The Corporation shall review the adequacy of the insured limit at least every [] years and may increase the insured limit with the approval of [the Minister of Finance] and/or [the Central Bank] after an appropriate review.
68. A joint account shall be considered [as one account] [as separate accounts of each of the joint account holders] and shall be insured up to the insured limit [state whether such accounts are aggregated with other accounts held by the accountholders].
69. The following deposits shall not be reimbursed under the Scheme:
- (a) deposits above the insured limit as calculated in accordance with the provisions of this Act and any governing regulation;
 - (b) deposits of financial institutions, including insurance companies and [pension funds];
 - (c) deposits of central and local government authorities;

- (d) deposits of financial institutions operating outside of the country;
- (e) deposits of [members of the Board or their relatives or third parties acting on their behalf];
- (f) [deposits of members of the financial institution's accounting firm];
- (g) [deposits of shareholders, their relatives or third parties acting on their behalf];
- (h) deposits of person under criminal investigation or who are suspected of being involved in money laundering or terrorist financing.

70. In a case where [the resolution authority] decides that the liquidation of a member financial institution is imminent the [resolution authority] shall begin preparations for the payout of insured deposits.
71. Upon the public notification of the liquidation of a member financial institution the Corporation shall notify the public of this event through its website and other means such as notices in newspapers of general circulation. In addition, the Corporation shall notify each depositor of this event in writing at the address shown on the records of the member financial institution.
72. The notifications shall state that all deposit accounts at the member institution will cease to accrue interest from the time of the insured event.
73. The Corporation shall have the following data at its disposal to be provided at the time of liquidation:
- (a) a final balance of the books of the member financial institution and an update of all its deposit accounts;
 - (b) [a list of the assets of the member financial institution];
 - (c) a list of all depositors and the amount owed to each such depositor;
 - (d) a list of depositors who have outstanding loans from the member financial institution [including the amount that can be set off against their deposits];
 - (e) a list of depositors with deposits in excess of the insured limit;
 - (f) a list of other uninsured obligations of the member financial institution and an estimate of the amount of such obligations; and
 - (g) any other statements or forms necessary for the records of the Corporation.

PART VIII: REIMBURSEMENT OF INSURED DEPOSITS (CP 15)

74. The Corporation shall reimburse the aggregated amount of each [natural or legal] person at a member financial institution up to the insured limit, which amount shall include interest accrued up to the time of the insured event.
75. Funds held in a trust account shall not be combined with the individual accounts of a trustee, settlor [or beneficiary] under the trust. [option would also be to aggregate funds of a beneficiary with other accounts of that person held in different capacities]
76. In the case of a joint account, the ownership shares in the account will be assumed to be equal unless the documentation at the member financial institution indicates otherwise. [Must state how such ownership shares will or will not be aggregated, for example with other accounts held by a person in another capacity, just aggregated with all other funds held in joint accounts and then separately insured from accounts held in another capacity or separately for each joint account up to the insured limit).
77. In the event of a merger of member financial institutions, depositors at the merged financial institution who hold accounts at the financial institution that takes over that financial institution will continue to have their accounts separately insured at the resulting financial institution for a period of six months following the merger after which time the resulting financial institution will inform such depositors of the termination of the separate insurance coverage.
78. The Corporation shall reimburse insured depositors within [seven] calendar days after the insured event.
79. Insured depositors shall be reimbursed [in local currency] [in the currency in which the deposits are denominated] [and for foreign currency deposits the exchange rate set by the Central Bank at the date of the insured event governs the amount of the payout in local currency].
80. The Corporation may reimburse insured depositors by any method approved by the Board, including in cash or electronic form or by making an account available at another member financial institution.
81. The deposit account records of a member financial institution are determinative of the existence, validity, nature and ownership of the insured deposits and control the decision as to the amount of any insured deposit. The Board shall adopt a rule governing all aspects of the reimbursement process.

82. The Corporation shall be discharged from any liability to an insured depositor upon reimbursement to the extent of such reimbursement.
83. The reimbursement process shall be subject to an independent audit and the results of such an audit will be reported to the Corporation.
84. The Corporation shall be subrogated to the rights of the depositors that it reimburses to the extent of such reimbursement.
85. The claims of the Corporation and depositors who are not fully reimbursed for their deposits shall have priority in accordance with the ranking of claims in liquidation [set forth here] [set forth in another law].

PART IX: CONTRIBUTION TO RESOLUTION (CP 9, 14)

86. The Corporation may contribute funds to the resolution of a member financial institution in the event that [the resolution authority] decides to transfer some or all of the assets and liabilities of the member financial institution under resolution [to a purchaser] [and] [a bridge bank] if the value of the liabilities is greater than the value of the assets. Such a resolution will be considered to be an insured event as defined in Article 2 of this Act.
87. In making such contribution to resolution as set forth in Article 84 the Corporation shall be subject to the following conditions:
- (a) the depositors whose deposits are transferred continue to have access to their deposits;
 - (b) the contribution of the Corporation shall not be greater than the cost to the Corporation of paying insured depositors in the event of liquidation [as determined by the Corporation] [state here whether there will be an exception to such rule in the case of the resolution of a systemically important member financial institution]; and
 - (c) the contribution of the Corporation shall not be greater than [some percentage] of the minimum target size of the Fund.

PART X: OTHER PROVISIONS REGARDING THE DEPOSIT INSURANCE SCHEME [CP 4, 10, 11, 13]

88. Any information made available to or otherwise obtained by The Corporation in the course of its work shall be confidential and shall be used by the Corporation solely for the performance of its functions under this Act.
89. No director, officer, employee or person working at the direction of the Corporation shall

disclose any confidential information obtained in the course of their employment unless required to by the provisions of law, court order, or to perform their duties and functions. This section shall not apply to any document or information that has already lawfully been made public.

90. The Corporation shall enter into agreements for the sharing of information and cooperation with:
 - (a) The Central Bank [the Supervisory Authority] [the Resolution Authority];
 - (b) other domestic financial authorities contributing to the stability of the financial system; and
 - (c) relevant foreign supervisory, resolution, deposit insurance or regulatory authorities.
91. The Corporation shall only enter into such agreements if it is satisfied that the institutions listed in Article 88 are subject to requirements of confidentiality that are equivalent to the requirements in this Act and that the information is needed for the purposes of the performance of the official duties of such institutions.
92. The Corporation or any person authorized by it may require from any member financial institution or any director, manager, auditor, officer, employee or agent of a member financial institution any information relating to the business of the member that is needed to achieve the objectives and functions of the Corporation.
93. The member financial institutions shall maintain their deposit records in a format prescribed by the Corporation in order to expedite the reimbursement of insured deposits.
94. The [Supervisory Authority] shall provide the Corporation with information regarding member financial institutions on its own initiative or at the request of the Corporation in accordance with an agreement entered into between [the Supervisory Authority] and the Corporation.
95. The [Supervisory Authority, the Resolution Authority and the Central Bank] shall inform the Corporation immediately should an insured event be likely or should the stability of the financial system be threatened.
96. The Corporation may, independently or in cooperation with [the Supervisory Authority], undertake on-site and off-site examinations to verify the reliability of the depositor records of member financial institutions and to examine the capability of the member financial institutions to provide accurate information.
97. Where a member financial institution or an officer of a member financial institution fails to comply with a request by the Corporation for information pursuant to Article 90 within the time stipulated or provides false or misleading information to the Corporation that institution

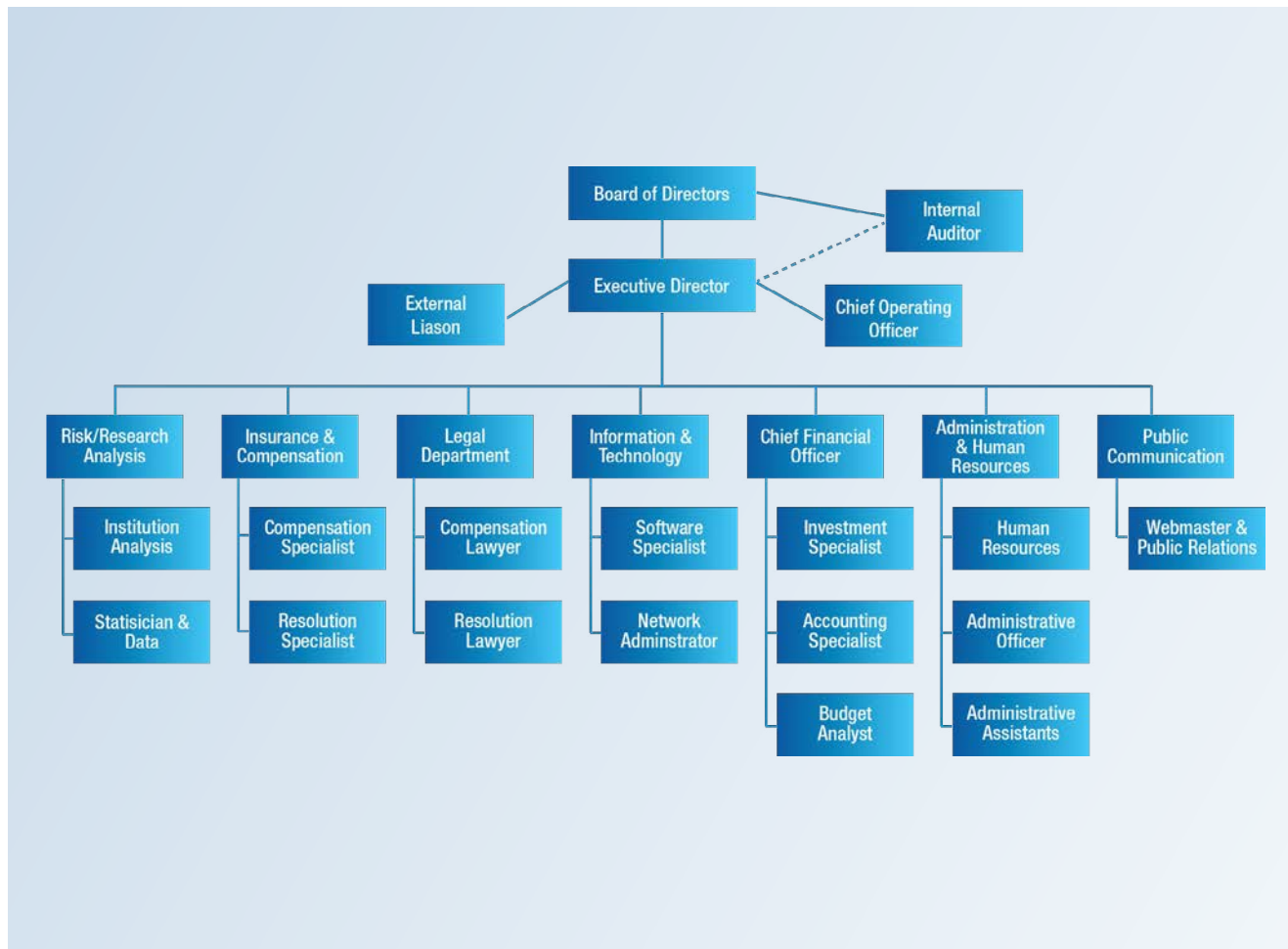
or officer commits an offence under this Act. [specify penalty for such an offence or refer to other statute setting forth such a penalty]

98. Current or former directors, officers, employees and any other persons in service of the Corporation shall not be personally liable for actions or omissions in the discharge of their duties under this Act unless it is proven that such actions or omissions were committed in bad faith.
99. The Corporation shall indemnify all such persons covered by Article 96 for all costs, charges and expenses reasonably incurred in respect of any proceedings arising from the discharge of their duties under this Act, including costs incurred in the defense of a legal action brought against such persons and costs to settle an action or to satisfy a court ruling. No such indemnification shall occur where such person has been determined to have acted in bad faith.
100. After consultation with [the Supervisory Authority] the Board may impose administrative sanctions in the form of written warnings, orders to comply or pecuniary penalties on a member financial institution or on a natural or legal person for a violation of this Act or any regulations or decisions of the Corporation under this Act.
101. The Corporation shall develop and promote a comprehensive deposit insurance public awareness and education program using a variety of activities and communication channels to inform the public about
- (a) where, how and when insured depositors will be provided with access to their funds after an insured event;
 - (b) what type of deposits are insured and how as well as the applicable insured limit;
 - (c) the financial institutions that are members of the deposit insurance scheme;
 - (d) the information that an insured depositor must provide in order to obtain reimbursement; and
 - (e) any other relevant information.
102. Upon the occurrence of an insured event the Corporation shall provide public notice of all information relevant to insured depositors.
103. The member financial institutions shall inform their clients on the deposit insurance coverage of their deposits in accordance with the regulations of the Corporation.
104. The Corporation may make regulations, orders, by-laws, notices or guidelines as required to

carry out the purposes of this Act. The Corporation may also issue binding directives to a member financial institution.

PART XI: EFFECTIVE DATE OF THE ACT AND TRANSITIONAL PROVISIONS [AS NECESSARY]

14.10 SAMPLE ORGANIZATIONAL CHART FOR PAYBOX PLUS DEPOSIT INSURER SHOWING POSITIONS FOR RESOLUTION SPECIALISTS



14.11 SAMPLE DEPOSIT BASE PROFILE TO ASSIST IN BANK CLOSURE

If the bank must be closed, it will be necessary to perform an analysis of the deposit base. That analysis would have to include:

1. A determination of the actual number of depositors by eliminating duplicates for customers with more than one account. Note discussion of treatment of joint accounts below.
2. Stratify by customer to determine total deposits by customer. Determine the treatment of joint accounts (i.e., whether they will be aggregated by depositor with other accounts of that depositor or treated entirely separately) and calculate insured amounts accordingly.
3. Stratify by size and by customer to enable scenario planning on payment of deposits by current value of quick assets such as cash and securities and potential other sources.
4. Compare deposit base to loan portfolio to determine potential offsets of deposits to past due loans. [This assumes that there will be offset – either full offset of deposits against loans or the better practice of just offset against past due loans]
5. Provide an initial estimate of insurance losses for those deposit insurers that can contribute to resolution actions specifying gross versus net contribution amounts (i.e., before and after estimated recoveries to the deposit insurer).

Below is an example of a simple reporting format:

INSURED/UNINSURED DEPOSITS	
Number of Insured Deposit Accounts	
Number of Insured Depositors	
Number of Uninsured Deposit Accounts	
Number of Uninsured Depositors	
Potential Uninsured Amount	
Amount of Uninsured belonging to Individuals	
Amount of Uninsured belonging to Financial Institutions	
Amount of Uninsured belonging to Domestic Companies	
Amount of Uninsured belonging to Public Enterprises	
Foreign Deposits	
Other Deposits Requiring Special Handling (for example guardianship accounts)	
Estimate of potential contribution by deposit insurer to resolution (including gross and net calculations)	
[Consider disaggregating number of accounts based on sex if such information would be helpful to decisionmakers]	

14.12 SAMPLE PAYING AGENT AGREEMENT

FORM 14.12 PAYING AGENT AGREEMENT

PAYING AGENT AGREEMENT

BETWEEN

THE [APPROPRIATE AGENCY]

**ON BEHALF OF DEPOSITORS OF [NAME OF FORMER BANK]
[LOCATION OF FORMER BANK]**

and

[NAME AND LOCATION OF PAYING AGENT BANK]

DATED AS OF

**INSURED DEPOSIT TRANSFER AGREEMENT
(Must be reviewed by local lawyer)**

THIS AGREEMENT, is made and entered into as of the ___ day of ____, 20__, between the **[APPROPRIATE AGENCY] ON BEHALF OF THE [INSURED DEPOSITORS] [DEPOSITORS]** of **[NAME AND LOCATION OF BANK]** (the “Fund”), and **[NAME AND LOCATION OF PAYING AGENT BANK]** (the “Agent Bank”).

WHEREAS, the [name of failed bank] was declared insolvent and was placed into bankruptcy proceedings; and

WHEREAS, pursuant to [statutory citation] payment of the deposits in such institution may be made by the Fund by making available to each depositor a transferred deposit in another insured depository institution (hereinafter the “Agent Bank”) in an amount equal to the Insured Deposit of each such depositor, as determined by the Fund; and

WHEREAS, pursuant to this Agreement, the Agent Bank (i) accepts certain limited duties, responsibilities and obligations as the agent of the Fund, (ii) accepts the transfer of the Received Deposits of the Failed Bank made available by the Fund, and (iii) will commence payment of or otherwise make available to the depositors of the Failed Bank such

transferred Received Deposits to the Failed Bank’s depositors; and

WHEREAS, pursuant to [statutory citation], the Fund may provide assistance to the Agent Bank which may include [define assistance that may be provided] to facilitate the transaction contemplated by this Agreement; and

WHEREAS, the Fund has determined that such transfer of Received Deposits to the Agent Bank and provision of indemnification to the Indemnitees is necessary to discharge the obligation of the Fund to provide insurance coverage for the Received Deposits of the Failed Bank under [statutory citation].

NOW THEREFORE, in consideration of the mutual promises herein set forth and other valuable consideration, the parties hereto agree as follows:

ARTICLE I DEFINITIONS

“Agreement” means this Insured Deposit Transfer Agreement by and among the Agent Bank and the Fund, as amended or otherwise modified from time to time.

“Bank Closing” means the [define this term in accordance with statutory provisions].

“Business Day” means a day other than a Saturday, Sunday or legal holiday.

“Deposit” means a deposit as defined in [cite statutory section defining deposit], including, without limitation, outstanding checks and all uncollected items included in the depositors’ balances and credited on the books and records of the Failed Bank as of [define date for determining deposit amounts or by reference to defined term Payment Date below]; provided, that the term “Deposit” shall not include all or any portion of those deposit balances [define any exceptions from deposits such as deposits of shareholders or deposits resulting from unlawful activity].

“Indemnitees” means (i) the Agent Bank and (ii) the directors, officers, employees and agents of the Agent Bank who are not also present or former directors, officers, employees or agents of the Failed Bank.

“Insured Deposits” means the net amount due to any depositor with respect to its Deposits as determined by the Fund pursuant to [statutory citation].

“Payment Date” means the first Business Day after [define when the Payment Date will occur].

“Person” means any individual, corporation, partnership, joint venture, association, joint-stock company, trust, unincorporated organization, or government or any agency or political subdivision thereof, excluding the Fund.

“Received Deposits” means [define what deposits will be included in the deposits received by the Agent Bank].

In the event that a depositor’s aggregate Deposits in the Failed Bank are in excess of its Insured Deposit, the Fund, in accordance with its standard policies and procedures, shall determine which Deposits are assumed.

“Record” means any document, microfiche, microfilm and computer records (including but not limited to magnetic tape, disc storage, card forms and printed copy) of the Failed Bank generated or maintained by the Failed Bank that is owned by or in the possession of the Fund [define the point in time to be referenced here].

“Settlement Date” means the first Business Day immediately prior to the day which is [define the effective date for settlement purposes]. The Fund, in its discretion, may extend the Settlement Date.

“Transferred Deposits” means the Received Deposits made available at the Agent Bank to the depositors of the Failed Bank and which are transferred to the Agent Bank pursuant to Section 2.1.

ARTICLE II TRANSFER OF RECEIVED DEPOSITS

2.1 Transfer of Received Deposits. The Fund transfers to the Agent Bank and the Agent Bank accepts the transfer of the Received Deposits as stated on the books of the [name the bank] as of Bank Closing as set forth in Schedule 2.1 attached hereto and incorporated herein. The Agent Bank agrees to commence payment of or otherwise make available such Transferred Deposit upon demand to each such depositor (or to such other Person who can establish to the Agent Bank’s satisfaction that such Person is the owner thereof), subject to the provisions of Section 2.5. Schedule 2.1 is based upon the best information available to the Fund and may be adjusted as provided in Article ____.

2.2 Interest on Transferred Deposits. The Agent Bank agrees that, from and after the Payment Date, it will accrue and pay interest on Transferred Deposits transferred pursuant to Section 2.1 at a rate(s) it shall determine; provided, that for nontransaction Transferred Deposits such rate(s) shall not be less than the lowest rate offered by the Agent Bank to its depositors for nontransaction deposit accounts. The Agent Bank shall permit each depositor to withdraw, without penalty for early withdrawal, all or any portion of such depositor's Transferred Deposit, whether or not the Agent Bank elects to pay interest in accordance with any deposit agreement formerly existing between the Failed Bank and such depositor; and further provided, that if such Transferred Deposit has been pledged to secure an obligation of the depositor to the Failed Bank, any withdrawal thereof shall be subject to the terms of the agreement governing such pledge. The Agent Bank shall give notice to such depositors as provided in Section ____ of the rate(s) of interest which it has determined to pay and of such withdrawal rights.

2.3 Schedule of Discharged Deposit Liabilities. The Agent Bank shall provide to the Fund a "Schedule of Discharged Deposit Liabilities" at intervals of ninety (90) days from Bank Closing setting forth those Transferred Deposits with respect to which the Fund's liability for an Insured Deposit of the Failed Bank has been discharged by either (i) payment by the Agent Bank of a Transferred Deposit to the depositor, or (ii) confirmation of a new deposit agreement between each such depositor and the Agent Bank during such ninety (90)-day period and thereafter until the Fund's liability for Received Deposits has been discharged or until unclaimed Received Deposits have been paid to the Fund pursuant to Section 2.4. Each such Schedule shall set forth such information as the Fund may request, including the number and names of the Transferred Deposit accounts paid or assumed by the Agent Bank, the manner of settlement and efforts of the Agent Bank to contact depositors.

2.4 Unclaimed Deposits. If, within eighteen (18) months after Bank Closing, any depositor of the Failed Bank does not claim or arrange to continue such depositor's Transferred Deposit at the Agent Bank, the Agent Bank shall, within fifteen (15) Business Days after the end of such eighteen (18)-month period, (i) refund to the Fund the full amount of each such Transferred Deposit (without reduction for service charges), (ii) provide to the Fund a schedule of all such refunded Transferred Deposits in such form as may be prescribed by the Fund, and (iii) assign, transfer, convey and deliver to the Fund all right, title and interest of the Agent Bank in and to Records previously transferred to the Agent Bank and other records generated or maintained by the Agent Bank pertaining to such Transferred Deposits. During such eighteen (18)-month period, at the request of the Fund, the Agent Bank promptly shall provide to the Fund schedules of unclaimed Transferred Deposits in such form as may be prescribed by the Fund.

2.5 Withheld Payments. At any time, the Fund may, in its discretion, determine that all or any portion of any deposit balance transferred to the Agent Bank pursuant to this Agreement does not constitute a “Deposit” (or otherwise, in its discretion, determine that it is in the best interest of the Fund to withhold all or any portion of any deposit), and may direct the Agent Bank to withhold payment of all or any portion of any such deposit balance. Upon such direction, the Agent Bank agrees to hold such deposit and not to make any payment of such deposit balance to or on behalf of the depositor, or to itself, whether by way of transfer, set-off, or otherwise. The Agent Bank agrees to maintain the “withheld payment” status of any such deposit balance until directed in writing by the Fund as to its disposition. At the direction of the Fund, the Agent Bank shall return all or any portion of such deposit balance to the Fund, as appropriate, and thereupon the Agent Bank shall be discharged from any further liability to such depositor with respect to such returned deposit balance. If such deposit balance has been paid to the depositor prior to a demand for return by the Fund, and payment of such deposit balance had not been previously withheld pursuant to this Section, the Agent Bank shall not be obligated to return such deposit balance to the Fund. The Agent Bank shall be obligated to reimburse the Fund for the amount of any deposit balance or portion thereof paid by the Agent Bank in contravention of any previous direction to withhold payment of such deposit balance or return such deposit balance, the payment of which was withheld pursuant to this Section.

2.6 Payment of Deposits. In the event any depositor does not accept the obligation of the Agent Bank to pay any Transferred Deposit transferred to the Agent Bank pursuant to this Agreement and asserts a claim against the Fund for all or any portion of any such Deposit liability, the Agent Bank agrees on demand to provide to the Fund funds sufficient to pay such claim in an amount not in excess of the Deposit liability reflected on the books of the Agent Bank at the time such claim is made. Upon payment by the Agent Bank to the Fund of such amount, the Agent Bank shall be discharged from any further obligation under this Agreement to pay to any such depositor the amount of such Transferred Deposit paid to the Fund.

ARTICLE III ASSUMPTION OF CERTAIN DUTIES AND OBLIGATIONS

The Agent Bank agrees with the Fund as follows:

3.1 Continuation of Banking Business. The Agent Bank agrees to provide such banking

services as it chooses in the trade area of the Failed Bank.

3.2 Agreement with Respect to Safe Deposit Business. (May be outside scope of authority given to the Fund under its operating law – need to check with local lawyer) The Agent Bank agrees to discharge, in the usual course of conducting a banking business, the duties and obligations of the Failed Bank with respect to all Safe Deposit Boxes, if any, of the Failed Bank and to maintain all of the necessary facilities for the use of such boxes by the renters thereof, subject to the provisions of the rental agreements between the Failed Bank and the respective renters of such boxes; provided, that the Agent Bank may relocate the Safe Deposit Boxes of the Failed Bank to any office of the Agent Bank located in the trade area of the Failed Bank. At the end of such thirty (30) day period, the Agent Bank shall treat any unclaimed safe deposit box in accordance with its normal and customary procedures. **(Not sure this is necessary – depends on whether such services were offered by the failed bank).**

3.3 Agreement with Respect to Safekeeping Business. (May be outside scope of authority given to Fund under its operating law – need to check with local lawyer) The Agent Bank accepts all securities and other items, if any, held by the Failed Bank in safekeeping for its customers as of the Bank Closing Date. For a period of thirty (30) days following Bank Closing, the Agent Bank assumes and agrees to honor and discharge the duties and obligations of the Failed Bank with respect to such securities and items held in safekeeping. At the end of such thirty (30) day period, the Agent Bank shall treat any unclaimed safekeeping items in accordance with its normal and customary procedures. **(Not sure this is necessary – depends on the services of the failed bank).**

3.4 Agreement with Respect to Certain Existing Agreements.

(May be outside scope of authority given to Fund under its operating law – need to check with local lawyer) With respect to agreements existing as of the Bank Closing Date which provide for the rendering of services by or to the Failed Bank, within thirty (30) days after the Bank Closing Date, the Agent Bank shall give the Fund written notice specifying whether it elects to assume or not to assume each such agreement. If no such notice is given, the Agent Bank shall be deemed to have not elected to assume such agreement. The Fund agrees to assign, transfer, convey, and deliver to the Agent Bank all right, title and interest of the Fund, if any, in and to agreements the Agent Bank assumes hereunder. **(Not sure this is necessary – depends on particular circumstances of bank failure).**

3.5 Office Space for the Fund. The Agent Bank agrees to provide to the Fund, without charge, adequate and suitable office space (including parking facilities and vault space),

furniture, equipment (including photocopying and telecopying machines) and utilities (including local telephone service) at the Agent Bank's premises for their use in the discharge of their respective functions with respect to the Failed Bank.

3.6 Agreement with Respect to Expenses. Notwithstanding anything to the contrary in this Agreement, for the period of one hundred twenty (120) days commencing the day after the Payment Date, the Fund agrees to pay all expenses, up to a maximum reimbursement of _____, incurred by the Agent Bank in the performance of its duties and obligations under this Agreement, including, but not limited to, costs associated with obtaining data processing, travel, compensation and all other expenses of personnel of the Agent Bank, postage, overnight delivery, drilling of safe deposit boxes, waived wire transfer fees, legal fees, and interest paid on Transferred Deposits in excess of market rates prior to the time new rates can be set on the data processing system of the Failed Bank by the Agent Bank. Agent Bank shall submit such expenses in accordance with the procedures set forth in Article _____. Any extraordinary expenses incurred by the Agent Bank shall be considered on a case by case basis. **(Should be adjusted to consider any costs not reflected or to delete types of costs that might not be incurred).**

3.7 Continuing Cooperation. The parties hereto agree that they will, in good faith and with their best efforts, cooperate with each other to carry out the transactions contemplated by this Agreement and to effect the purposes hereof.

ARTICLE IV DUTIES WITH RESPECT TO DEPOSITORS OF THE FAILED BANK

4.1 Payment of Checks, Drafts and Orders. Subject to Section 2.5, the Agent Bank agrees to pay all properly drawn checks, drafts and withdrawal orders of depositors of the Failed Bank presented for payment, whether drawn on the check or draft forms provided by the Failed Bank or by the Agent Bank, to the extent that the Transferred Deposit balances to the credit of the respective makers or drawers transferred to the Agent Bank under this Agreement are sufficient to permit the payment thereof, and in all other respects to discharge, in the usual course of conducting a banking business, the duties and obligations of the Failed Bank with respect to the Transferred Deposit balances due and owing to the depositors of the Failed Bank transferred to the Agent Bank under this Agreement. **(May need to be adjusted to reflect actual conditions present in the failed bank including types of accounts).**

4.2 Notice to Depositors.

- (a) Within seven (7) days after the Payment Date, the Agent Bank shall give (i) notice to depositors of the Failed Bank of the transfer to it of the Transferred Deposits, and (ii) any notice required under Section 2.2, by mailing to each such depositor a notice with respect to such transfer and by advertising in a newspaper of general circulation where the Failed Bank was located. **(Is this the most effective way to give notice or should there be a posting or some other method of notice?)** The Agent Bank agrees that it will obtain prior approval of all such notices and advertisements from the Fund and that such notices and advertisements shall not be mailed or published until such approval is received.
- (b) The Agent Bank shall give notice by mail to depositors of the Failed Bank concerning the procedures to claim their deposits, which notice shall be provided to the Agent Bank by the Fund. **(Notice needs to be drafted reflecting process for claiming deposits).** Such notice shall be included with the notice to depositors to be mailed by the Agent Bank pursuant to Section 4.2(a). Notices required by Sections 4.3(a) and (b) shall be mailed by the Agent Bank not later than seven (7) days after Bank Closing.
- (c) If the Agent Bank proposes to charge fees different from those charged by the Failed Bank before it establishes new deposit account relationships with the depositors of the Failed Bank, the Agent Bank shall give notice by mail of such changed fees to such depositors.

4.3 Deposits not Claimed within 30 Days.

- (a) For Transferred Deposit accounts which were not paid out or converted to a new account within thirty (30) days of the Payment Date, the Agent Bank shall either (i) mail a check to each such depositor to the last known address as reflected on the books and records of the Failed Bank; (ii) hold such Transferred Deposit until such time as the Agent Bank must comply with Section 2.4 of this Agreement; or (iii) establish an account with the Agent Bank, to the extent the Agent Bank may legally do so, on behalf of such depositor and transfer the unclaimed Transferred Deposit into such account. In connection with this Section 4.3(a)(iii), the Agent Bank may rely on the accuracy of the records of the Failed Bank in establishing the accounts and to the extent such records are not accurate, the indemnification provisions of Article ____ shall apply.
- (b) The Agent Bank shall not be responsible for performing any informational reporting, or maintaining account records or histories (such as check images, statement images or records of debits or credits) **(needs to reflect situation of Failed Bank on**

recordkeeping) or providing any such account information to depositors, with respect to the Transferred Deposit accounts that were originated by the Failed Bank. The Agent Bank shall perform such obligations only with respect to those deposit accounts established with the Agent Bank pursuant to Section 4.4(a) above and only on and after the time such deposit accounts are established.

- (c) If any amount deposited and credited to a Transferred Deposit Account and paid out to a depositor by the Agent Bank under Section 4.3(a) is later returned, rejected or otherwise not paid to the Agent Bank, the Fund shall reimburse the Agent Bank for such unpaid amount within ten (10) business days after the Agent Bank provides the Fund notice thereof together with reasonable documentation of the unpaid amount.

ARTICLE V INITIAL PAYMENT

On the Payment Date, the Fund will pay to the Agent Bank an amount equal to the Transferred Deposits, together with interest on such amount (if the Payment Date is not the day following the day of Bank Closing) from and including the day following Bank Closing to and including the day preceding the Payment Date at the rate per annum provided in this agreement.

ARTICLE VI ADJUSTMENTS

6.1 New Schedule. It is understood that the descriptions of the Transferred Deposits may not be accurately reflected on one or more schedules provided to the Agent Bank as of Bank Closing. The Fund, as soon as practicable after Bank Closing and before the Payment Date, in accordance with the best information then available, shall provide to the Agent Bank an updated schedule reflecting any adjustments of such Transferred Deposits as may be necessary, taking into account differences in accounts, suspense items, unposted debits and credits, and similar adjustments or corrections.

6.2 Correction of Errors and Omissions; Expenses.

- (a) In the event any bookkeeping omissions or errors are discovered in preparing any schedules or in completing the transfers contemplated hereby, the parties hereto agree to correct such errors and omissions.
- (b) If the Fund or the Agent Bank discovers at any time subsequent to the Settlement Date

that any errors or omissions exist of the type contemplated in Section 6.2(a), or any error with respect to the payment made on Settlement Date, the Fund and the Agent Bank agree to promptly correct any such errors or omissions, make any payments, and effect any transfers as may be necessary to reflect such correction; provided, that interest shall not be paid with respect to any such payments.

- (c) The Agent Bank shall submit its claim for reimbursement of all expenses to which the Agent Bank is entitled to pursuant to Section 3.6, with appropriate supporting documentation, in accordance with the provisions of this Article VI.

6.3 Payments. The Fund agrees to cause to be paid to the Agent Bank, or the Agent Bank agrees to pay to the Fund, as the case may be, on the Settlement Date, a payment in an amount which reflects net adjustments made on or before the Settlement Date pursuant to Section 6.1 or Section 6.2, plus interest as provided in Section 6.4. The Fund and the Agent Bank agree to effect on the Settlement Date any additional transfers as may be necessary in accordance with Section 6.1 or Section 6.2.

6.4 Interest. Any amounts paid under Section 6.3 shall bear interest for the period from and including the day following Bank Closing to and including the day preceding the payment. The interest rate per annum for the first calendar quarter or portion thereof during which interest accrues shall be the rate determined by the Fund (specify formula for determining interest rate).

ARTICLE VII CONDITION PRECEDENT

The obligations of the parties to this Agreement are subject to the Fund having received at or before Bank Closing evidence reasonably satisfactory of any necessary approval, waiver, or other action by any governmental authority, the board of directors of the Agent Bank, or other third party, with respect to this Agreement and the transactions contemplated hereby.

ARTICLE VIII REPRESENTATIONS AND WARRANTIES OF THE AGENT BANK

The Agent Bank represents and warrants to the Fund as follows:

- (a) Corporate Existence and Authority.** The Agent Bank (i) is duly organized, validly existing and in good standing under the law and has full power and authority to own and operate its properties and to conduct its business as now conducted by it, and (ii)

has full power and authority to execute and deliver this Agreement and to perform its obligations hereunder. The Agent Bank has taken all necessary corporate action to authorize the execution, delivery and performance of this Agreement and the performance of the transactions contemplated hereby.

- (b) Third Party Consents.** No governmental authority or other third party consents (including but not limited to approvals, licenses, registrations or declarations) are required in connection with the execution, delivery or performance by the Agent Bank of this Agreement, other than such consents as have been duly obtained and are in full force and effect.
- (c) Execution and Enforceability.** This Agreement has been duly executed and delivered by the Agent Bank and when this Agreement has been duly authorized, executed and delivered by the Fund, this Agreement will constitute the legal, valid and binding obligation of the Agent Bank, enforceable in accordance with its terms.
- (d) Compliance with Law.**
- (i) The Agent Bank is not in violation of any law or regulation or any restriction imposed upon it by any agency or any court or other tribunal having jurisdiction over the Agent Bank, or any foreign government or agency thereof having such jurisdiction, with respect to the conduct of the business of the Agent Bank, or the ownership of the properties of the Agent Bank, which, either individually or in the aggregate with all other such violations, would materially and adversely affect the business, operations or condition (financial or otherwise) of the Agent Bank or the ability of the Agent Bank to perform, satisfy or observe any obligation or condition under this Agreement.
- (ii) Neither the execution and delivery nor the performance by the Agent Bank of this Agreement will result in any violation by the Agent Bank of, or be in conflict with, any provision of any applicable law or regulation, or any order, writ or decree of any court or governmental authority.

ARTICLE IX INDEMNIFICATION

9.1 Indemnification of Indemnitees. From and after Bank Closing and subject to the limitations set forth in this agreement, the Fund agrees to indemnify and hold harmless the Indemnitees against any and all costs, losses, liabilities, expenses, judgments, fines and

amounts paid in settlement actually and reasonably incurred in connection with claims against any Indemnitee based on liabilities of the Failed Bank that are not assumed by the Agent Bank pursuant to this Agreement or subsequent to the execution hereof by the Agent Bank, which unassumed liabilities remain with the Fund.

Provided, that, with respect to this Agreement, no indemnification will be provided under this Agreement for any:

- (1) claims with respect to any liability or obligation of the Failed Bank that is expressly assumed by the Agent Bank pursuant to this Agreement or subsequent to the execution hereof by the Agent Bank or any Subsidiary or Affiliate of the Agent Bank;
- (2) claims with respect to any liability of the Failed Bank to any present or former employee as such of the Failed Bank or of any Subsidiary or Affiliate of the Failed Bank, which liability is expressly assumed by the Agent Bank pursuant to this Agreement or subsequent to the execution hereof by the Agent Bank or any Subsidiary or Affiliate of the Agent Bank;
- (3) claims based on the failure of any Indemnitee to seek recovery of damages from the Fund for any claims based upon any action or inaction of the Failed Bank, its directors, officers, employees or agents as fiduciary, agent or custodian prior to Bank Closing;
- (4) claims based on the rights of any present or former creditor, customer, or supplier as such of the Agent Bank or any Subsidiary or Affiliate of the Agent Bank;
- (5) claims based on any liability for taxes or fees assessed with respect to the consummation of the transactions contemplated by this Agreement, including without limitation any subsequent transfer of any Transferred Deposit to any Subsidiary or Affiliate of the Agent Bank;
- (6) claims or actions which constitute a breach by the Agent Bank of the representations and warranties contained in this agreement.

9.2 Conditions Precedent to Indemnification. It shall be a condition precedent to the obligation of the Fund to indemnify any Person pursuant to this Article IX that such Person shall, with respect to any claim made or threatened against such Person for which such Person is or may be entitled to indemnification hereunder:

- (a) give written notice to the (specify who is the proper party to receive notice of a claim under the agreement) of such claim as soon as practicable after such claim is made or

threatened;

- (b) provide to the Fund such information and cooperation with respect to such claim as the Fund may reasonably require;
- (c) cooperate and take all steps, as the Fund may reasonably require, to preserve and protect any defense to such claim;
- (d) in the event suit is brought with respect to such claim, upon reasonable prior notice, afford to the Fund the right, which the Fund may exercise in its sole discretion, to conduct the investigation, control the defense and effect settlement of such claim, including without limitation the right to designate counsel and to control all negotiations, litigation, arbitration, settlements, compromises and appeals of any such claim, all of which shall be at the expense of the Fund provided that such claim is a claim with respect to which the Person claiming indemnification is entitled to indemnification under this agreement.
- (e) not incur any costs or expenses in connection with any response or suit with respect to such claim after the Fund has assumed the defense thereof, unless such costs or expenses were incurred upon the direction of the Fund; provided, that the Fund shall not be obligated to reimburse the amount of any such costs or expenses unless such costs or expenses were incurred upon the direction of the Fund;
- (f) not release or settle such claim or make any payment or admission with respect thereto, unless the Fund consents in writing thereto, which consent shall not be unreasonably withheld; provided, that the Fund shall not be obligated to reimburse the amount of any such settlement or payment unless such settlement or payment was effected upon the written direction of the Fund; and
- (g) take reasonable action as the Fund may request in writing as necessary to preserve, protect or enforce the rights of the indemnified Person against any Primary Indemnitor.

9.3 Indemnification of Fund. From and after Bank Closing, the Agent Bank agrees to indemnify and hold harmless the Fund and their respective directors, officers, employees and agents from and against any and all costs, losses, liabilities, expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with any of the following:

- (a) claims based on any and all liabilities or obligations of the Failed Bank expressly assumed by the Agent Bank in this Agreement or subsequent to the execution hereof in

writing by the Agent Bank or any Subsidiary or Affiliate of the Agent Bank; and

(b) claims based on any act or omission of any Indemnitee.

9.4 Criminal Claims. Notwithstanding any provision of this agreement to the contrary, in the event that any Person being indemnified under this agreement shall become involved in any criminal action, suit or proceeding, whether judicial, administrative or investigative, the Fund shall have no obligation hereunder to indemnify such Person for liability with respect to any criminal act or to the extent any costs or expenses are attributable to the defense against the allegation of any criminal act, unless (i) the Person is successful on the merits or otherwise in the defense against any such action, suit or proceeding, or (ii) such action, suit or proceeding is terminated without the imposition of liability on such Person.

9.5 Subrogation. Upon payment by the Fund as guarantor to any Indemnitee for any claims indemnified by the Fund under this Article IX, the Fund shall become subrogated to all rights of the Indemnitee against any other Person to the extent of such payment.

ARTICLE X MISCELLANEOUS

10.1 Entire Agreement. This Agreement embodies the entire agreement of the parties hereto in relation to the subject matter herein and supersedes all prior understandings or agreements, oral or written, between the parties.

10.2 No Other Assets Purchased or Liabilities Assumed. Except as specifically provided for in this Agreement, the Agent Bank does not assume any liability, or purchase any assets, of the Failed Bank.

10.3 Successors. All terms and conditions of this Agreement shall be binding on the successors and assigns of the Fund and the Agent Bank. Except as otherwise specifically provided in this Agreement, nothing expressed or referred to in this Agreement is intended or shall be construed to give any Person other than the Fund and the Agent Bank any legal or equitable right, remedy or claim under or with respect to this Agreement or any provisions contained herein, it being the intention of the parties hereto that this Agreement, the obligations and statements of responsibilities hereunder, and all other conditions and provisions hereof are for the sole and exclusive benefit of the Fund and the Agent Bank and for the benefit of no other Person.

10.4 Notice. Any notice, request, demand, consent, approval or other communication to any

party hereto shall be effective when received and shall be given in writing, and delivered in person against receipt therefor, or sent by certified mail, postage prepaid, courier service, telex or facsimile transmission to such party (with copies as indicated below) at its address set forth below or at such other address as it shall hereafter furnish in writing to the other parties. All such notices and other communications shall be deemed given on the date received by the addressee.

Agent Bank

(Name and address of agent bank)

Attention:

[Appropriate Government Agency]

(Name and address of Fund)

Attention:

10.5 Manner of Payment. All payments due under this Agreement shall be in lawful money of the Republic of Tajikistan in immediately available funds as each party hereto may specify to the other parties.

10.6 Costs, Fees and Expenses. Except as otherwise specifically provided herein, each party hereto agrees to pay all costs, fees and expenses which it has incurred in connection with or incidental to the matters contained in this Agreement, including without limitation any fees and disbursements to its accountants and counsel.

10.7 Term of Agreement. This Agreement shall continue in full force and effect until the sixth (6th) anniversary of Bank Closing. Expiration of the term of this Agreement shall not affect any claim or liability of any party with respect to any (i) amount which is owing at the time of such expiration, regardless of when such amount becomes payable, (ii) breach of this Agreement occurring prior to such expiration, regardless of when such breach is discovered: or (iii) claim for indemnification made on or prior to the sixth anniversary of Bank Closing.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the date first above written.

[Appropriate Government Agency]

BY: _____

TITLE: _____

Attest:

AGENT BANK

BY: _____

TITLE: _____

Attest:

SCHEDULE 2.1 - RECEIVED DEPOSITS TRANSFERRED

14.13 SAMPLE CONFIDENTIALITY AGREEMENT

FORM 14.13 CONFIDENTIALITY AGREEMENT

CONFIDENTIALITY AGREEMENT (MUST BE REVIEWED BY LOCAL LAWYER)

This Confidentiality Agreement is executed this _____ day of _____, 20____, by _____ [“Bidder”, “Contractor”] in connection with [bidding on failed bank assets/work for appropriate government authority/contract for services] agrees as follows:

1. [Bidder/Contractor] may be given access to confidential information during the course of [bidding on/working on] the [bid/contract] with the [appropriate government authority]. Confidential information is defined as all information relating to any financial institution that is the subject of this [bidding process/contract].
2. [Bidder/Contractor] will protect the confidentiality of any information seen by/received by [Bidder/Contractor] from the [appropriate government authority] in connection with [define project].
3. [If applicable] [Bidder/Contractor] has been given Guidelines for Protection of Confidential Information and agrees to abide by those guidelines.
4. [Bidder/Contractor] will use confidential information only as authorized by the [appropriate government authority]. [Bidder/Contractor] will not disclose, release, transfer or disseminate any confidential information to any other person or entity except as required in the performance of its work on the [bid/contract] or with the express written consent of the [appropriate government authority].
5. The provisions of this Confidentiality Agreement apply to all officers, directors, partners, employees or agents of the [Bidder/Contractor]. [Bidder/Contractor] is responsible for the compliance of these parties with the terms of this Confidentiality Agreement.
6. At the request of the [appropriate government authority] the [Bidder/Contractor] will return or destroy, at the election of the [appropriate government authority] any confidential material or notes containing information from any confidential material upon completion of the [define project].
7. This Confidentiality Agreement is made part of any contract executed between the [Bidder/Contractor] and the [appropriate government authority].

14.14 SAMPLE FINANCIAL CRISIS COMMITTEE OPERATIONAL MEMORANDUM

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE DEPOSIT PROTECTION FUND

AND

THE FINANCIAL SECTOR CRISIS MANAGEMENT COMMITTEE

This Memorandum of Understanding (MOU) is made between the Deposit Protection Fund (DPF) and the Financial Sector Crisis Management Committee (FSCMC).⁹⁵

1. This MOU is in furtherance of the collaboration of the relevant financial sector regulatory authorities within the jurisdiction of [country] to support financial sector stability.
2. The parties to this MOU recognize the increasing importance of systemic risk to the stability of the financial sector and agree that they share a common interest in supporting the safety and soundness of the financial sector as well as the enhancement of financial sector development and the maintenance of market confidence in [country].
3. The parties further recognize the importance of open communication and cooperation in advancing an effective, efficient and collaborative approach in the supervision of the financial sector within [country].
4. The parties agree to formally record the terms and conditions of their cooperation in furtherance of the above-stated goals and hereby state as follows:

5. Objective of the MOU

The objective is to spell out the detailed obligations of the parties to this MOU regarding supervision and information sharing.

5.1 Scope of the Cooperation

In their cooperation, the parties to this MOU shall pay special attention to the following areas:

⁹⁵ There may be multiple parties to such an agreement including but not limited to the Central Bank, the Supervision Authority, the Minister of Finance and any other relevant regulatory authorities within the jurisdiction.

- a) Coordination of the actions of the two parties to this agreement that, by virtue of their legal powers, have a mandate over certain aspects of the regulation and supervision of the financial sector.
- b) Coordination of policies for financial market development.
- c) Analysis of systemic risks to the stability of the financial system and advise on the design and implementation, by the relevant agencies, of the measures to mitigate the risks identified.
- d) Adequate preparation to face financial crises and to recommend measures to manage systemic crises.
- e) Exchange of data and information.
- f) Capacity Building.
- g) Other areas of mutual interest as may be agreed upon by the signatories and which are permissible by the laws, regulations and rules of [country].

5.2 Structures and Governance under the MOU

The Signatories agree to [establish/implement] ⁹⁶ the following structures for purposes of implementing this MOU:

- a) The MoU establishes the Financial Sector Crisis Management Committee (FSCMC) as an inter-institutional advisory body responsible for the coordination of regulation, supervision and market development of the financial sector, evaluation and mitigation of the risks to the stability of the financial sector and preparation to face and manage crisis situations in the financial sector.⁹⁷
- a) The structure of the FSCMC will comprise an Executive Committee (EC), a Technical Sub-Committee and Working Groups (WG), which support the development of the work program of and are designated by the EC.
- b) The Central Bank will be the Secretariat for both the EC and the WGs.

⁹⁶ A jurisdiction may already have in place a Financial Sector Crisis Committee that would be established by law or regulation and if so, such provision should be cited here. This MOU is designed to reflect the addition of the deposit insurer to such a structure either existing or established by this MOU.

⁹⁷ This should reflect the mandate of any existing FSCC

- c) The Agencies agree to meet between any or all of them on a mutually agreed schedule or as required to discuss issues concerning the functioning of this MOU and other matters of mutual interest.
- d) All decisions will be by consensus and negotiation.
- e) The detailed Terms of Reference (TOR) and meeting schedule for the FSCMC and Working Groups are set forth in an appendix to this MOU.

5.3 Guiding Principles for Cooperation

To ensure that each party fulfils its responsibilities, they will be guided by the following principles;

- a) **Promotion of financial sector stability:** This MOU will serve to promote the integrity, efficiency and soundness of the financial services sector.
- b) **Cooperation:** The Parties will use their best efforts to meet the terms of the MOU to the extent permissible by the applicable laws and use reasonable efforts to provide adequate support and information to any other authorities that will assist them in the effective performance of their statutory, regulatory and supervisory functions.
- c) **Accountability:** The Parties to this MOU shall be accountable for their actions, with regard to the responsibilities set out herein, individually as institutions. Cooperation between the agencies will be on the basis of and due respect for their own areas of responsibility. This MOU does not create any binding legal obligations or liabilities enforceable between the parties or by any third party, shall not override the party's area of responsibility nor shall limit the statutory prerogative of their decision making under all relevant laws. This MOU does not amount to a delegation of any of the powers, duties or obligations of the parties. Each of the parties retains all rights and obligations under their respective existing laws and this MOU will not restrict the statutory prerogative of any party.
- d) **Funding:** The parties shall budget for the activities under the MOU, including quarterly meetings, any planned crisis simulation exercises and capacity building programs.
- e) **Inconsistencies of Laws:** In the event of a conflict between this MOU and the laws applicable to any party the relevant laws shall prevail.

- f) Capacity to enter MOU: Each of the parties hereto gives express assurance that under applicable laws it has the legal capacity to enter into and comply fully with the conditions of the MOU.
- g) Dispute Resolution: Any dispute or controversy arising from the implementation or application of this MOU will be settled by negotiations, with a view to an amicable settlement.
- h) Confidentiality: In accordance with the provisions of all applicable laws and regulations, each member of the Committee shall maintain confidentiality of information and data obtained from any other member in fulfilment of this MOU in accordance with the principles of professional secrecy. The level of confidentiality of information and data will be determined and stated by the member who provided it. Confidential supervisory information remains the property of the Originating Authority or Providing Party and shall not be disclosed by the Receiving Party to any other individual or entity without the prior written permission of the Originating Authority and/or Providing Party, as applicable. The Confidential Information received shall be used exclusively for matters pertaining to this MOU. In the event of a court order or other process which requires the recipient to Confidential Information to deliver, testify about or otherwise disclose such confidential supervisory information, the receiving Party shall immediately notify the providing Party and afford the providing Party the opportunity to take whatever action it deems appropriate to protect the information and notify the party seeking production of the Supervisory Information that such information is confidential and that it belongs to the providing Party.
- i) Avoidance of Duplication: The parties to this MOU shall ensure that as far as is reasonably possible, duplication particularly in the areas of information gathering and analysis or market development and campaigns does not occur. In joint tasks, the parties will assign the lead role and the format for reporting on the progress of tasks as appropriate.
- j) Termination: This MOU shall be in full force and effect as from the date of its signing until terminated by either of the parties. Either party may withdraw and revoke its participation in this MOU by providing 60 days written notice to the other party; provided, however, that such withdrawal shall not affect the rights and obligations of the parties with respect to Confidential Supervisory Information shared pursuant to this MOU. The withdrawal of a party shall not affect the validity of this MOU in respect to the remaining party or parties.

6. Detailed Areas of Cooperation

The cooperation under this MOU will include the following areas:

a. Approvals And Licensing

- Each party will promptly notify the relevant party whose supervised institutions or affiliates apply for license or approval and notify the relevant party in writing about its decision.
- Each party will, upon request, assist the relevant party by verifying or supplementing any information submitted by an entity for regulatory approval or license.
- To the extent permitted by law, the parties will share information on the fitness and probity of prospective directors, trustees, managers or significant or controlling shareholders of an entity with cross-sector establishment, upon receipt of such requests.

b. Violations and Enforcement Actions

Responsibility for enforcing compliance with supervisory regulations rests with each party in line with its legal mandate.

- Each party may, at its own discretion, share with other agencies their material findings from supervisory actions.
- As soon as possible, the parties shall notify one another of any enforcement action that may have cross sector implications.

c. Market Development

- The parties agree to cooperate on policies for promoting financial market development including coordinated review of emerging products, influencing policy and legislation affecting the financial sector, review of legal and regulatory frameworks, joint capacity building and knowledge sharing in support services, raising funding for critical areas and program coordination for development assistance.
- Each party shall forward to the other party complaints that it receives relating to entities that the latter regulates and advise the other party of the ultimate resolution of the complaint.
- The parties will undertake joint public education campaigns for financial inclusion, new products, consumer protection and market development as may be agreed.

d. Crisis Preparedness and Resolution

- The parties will strive to continuously develop and strengthen the financial safety net, including the development and testing of regulator specific and sector wide crisis management plans and resolution plans in order to manage any crises in a way that serves the public interest in financial stability at the lowest overall cost.
- The parties will cooperate and collectively consider possible issues and options to effective management of a systemic crisis (once it is declared).
- The parties shall endeavor to inform their counterparts, on a timely basis, to the extent permissible and appropriate, of the arrangements for crisis management developed for a specific cross-sector issue, including at a minimum the following information for a systemic entity with cross-sector implications: assessment of systemic impact, liquidity, solvency, contingency plans and liquidation arrangements in the event of insolvency.
- Under this MOU, a financial crisis is defined as a systemic threat that might deserve the declaration by the [name party who is empowered to declare a systemic threat] of a systemic crisis and could be defined as an event or situation that poses a significant risk for the stability of the [country's] financial system, and/or the functioning of its real economy.

e. Compilation and Exchange of Information and data

- The parties shall ensure the collection of data covering the whole financial sector, in order to facilitate any necessary financial stability analysis.
- To the extent required or permitted under the law, regulation or practice, the parties agree to share Supervisory Information received or gathered by each party regarding the party's licensed persons in furtherance of the supervision of entities in the financial sector operating under their jurisdiction.
- The parties therefore commit to exchange information through the FSCMC and its Working Groups with respect to licensing, supervision, enforcement and regulatory aspects of the entities under their supervision and other matters of mutual interest.
- The parties further commit to exchange information on a bilateral basis. Such requests for information or assistance shall be in writing and shall be reasonably specific as to the documents requested. A party that receives a request for Supervisory Information shall respond within the time period stipulated in the request and where the period is not sufficient as soon as practicable.

- Each party shall prepare and share periodic reports identifying unresolved exceptions during the examination of the supervised entities and shall submit this report to the other agencies for future supervisory guidance and recommendations.
- Requests for assistance will be made in writing and addressed to the chief executive of the relevant party. To facilitate smooth communication and ensure continuity in the collaboration among the parties hereto, each party shall designate a contact person to follow up on such requests.
- In accordance with the provisions of the relevant regulations, each party shall maintain confidentiality of information and data obtained from any other party.
- The level of confidentiality of information and data will be determined and communicated in writing by the party who provided it.

7. Coordination of Public Information on Financial Stability and Crises

- The parties will jointly discuss financial stability with regard to their respective mandates and the whole financial sector will be analyzed through the periodic reports issued by [the Central Bank and/or other agencies].
- The FSCMC will have discretion to issue a public statement after any meeting and may select a spokesperson.

8. Capacity Building

- The parties will, to the extent possible, pursue opportunities for staff exchanges, joint capacity building, joint research and any other activities to contribute to sound regulatory practices.

9. Miscellaneous

9.1 Amendments

The terms and conditions contained in this MOU and the Appendices may be amended or further annexures added by mutual agreement in writing signed by all parties to the MOU.

9.2 Entire agreement

Subject to the applicable laws, this MoU read together with appendices hereto and any other agreements signed between the parties shall govern the relationship between the parties.

9.3 Effective date

This MOU shall come into effect on the date of its execution by the parties hereto:

IN WITNESS whereof this Memorandum of Understanding has been signed on behalf of the parties.

Dated this day of20--.

Signature:

Signature:

Acknowledgments

We would like to thank the people who provided comments and suggestions on earlier drafts of this document. These individuals have worked at a variety of deposit insurers internationally, and offered their unique perspectives: Kevin Chew, András Fekete-Győr, Hugo Libonatti, Lee Yee Ming, Cristina Orbeta, Steven Seelig, and Silvana Sejko. We benefited greatly from these individuals' suggestions. Any remaining errors are ours alone.