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Handling of Systemic Crises

Research Paper

Prepared by the Research and Guidance Committee
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TABLE OF CONTENTS

List of Acronyms

BCBS	Basel Committee on Banking Supervision
DIS	Deposit Insurance System
EFDI	European Forum of Deposit Insurers
EU	European Union
FDIC	Federal Deposit Insurance Corporation
FSB	Financial Stability Board
FSN	Financial Safety Net
IMF	International Monetary Fund
MOU	Memorandum of Understanding
M&A	Merges and Acquisitions
OBA	Open Bank Assistance
PCA	Prompt Corrective Action
P&A	Purchases and Acquisitions
SIFI	Significantly Important Financial Institution
SPV	Special Purpose Vehicle
SRR	Special Resolution Regime
TARP	Troubled Asset Relief Program
TLGP	Temporary Liquidity Guarantee Program

I. Executive Summary

The 2007/08 global financial crisis is said to be the severest after the Great Depression in the 1930's. Based on the survey results from 51 deposit insurers around the world and the previous literatures, this paper takes a look at the crisis responses taken by deposit insurers to deal with systemic risks and systemic crises during the 2007/08 global financial crisis. It also induces lessons and implications for deposit insurers and deposit insurance systems to effectively prevent and overcome future crises.

The responses made by deposit insurers during the recent crisis include expansion of coverage limit or scope, faster deposit payouts and liquidity support. First, our survey found that 32 of the 51 respondents said that they had increased the coverage limit. Second, survey results showed that ten jurisdictions – Australia, Bulgaria, Croatia, Estonia, Hong Kong, Italy, Korea, Malaysia, Serbia and Taiwan – expanded the scope of deposit insurance during the crisis. Third, efforts were made to shorten the payout time. Finally, eight deposit insurers were reported to have provided liquidity support to financial institutions. However, it was learned that deposit insurers provided only limited liquidity support. The liquidity support provided by the U.S. FDIC and the DICJ in Japan took the form of debt guarantees (through the Temporary Liquidity Guarantee Program) or capital injections, respectively.

Since it has been demonstrated that any one of the FSN players cannot single-handedly deal with a systemic crisis, this paper provides an overview of financial safety net framework, crisis prevention, management and resolution mechanisms and funding. This paper singles out the following areas for special attention.

First, a well coordinated FSN and a legal framework are essential for promoting financial stability. In our survey, 18 out of 51 respondents answered to have provisions in their laws or regulations prescribing how to handle a systemic crisis. The survey also shows that the central bank (26) and the government (21) are the leading agencies in systemic crisis management. Only eight countries said that the deposit insurer is the leading agency for systemic crisis handling. However, 12 jurisdictions do not have a particular agency responsible for systemic crisis declaration and six jurisdictions answered that they did not assign the responsibility for systemic crisis handling to any specific agency. For effective prevention and resolution of systemic crises, it would be good to establish a legal framework for systemic risk management composed of FSN participants.

Second, there is little disagreement that prevention is better than management when it comes to systemic crises. For the deposit insurer, the information-sharing framework with other FSN players, appropriate level of coverage, public awareness, early detection of risk and timely intervention are regarded as necessary tools to prevent a systemic crisis. The survey results showed that 38 respondents had such an information-sharing framework while 32 took actions to increase deposit insurance coverage limits. Public awareness is essential to enhancing public confidence in the deposit insurance system, thus preventing bank runs in crisis times. Regarding early detection of risk and timely intervention, our survey indicated that 19 deposit insurers have powers for risk assessment and intervention aimed at early detection of insolvency risk.

Third, an overview of crisis response measures taken by FSN participants during the recent crisis and their resolution mechanisms is provided in this paper. The recent crisis has brought about recognition of the importance of speedy and orderly resolution as well as effective crisis management. During the recent crisis, 27 jurisdictions answered that they had adopted a special resolution regime for failed financial institutions in our survey.

Fourth, a deposit insurance system should have sound funding arrangements to make prompt deposit payouts in the event of failure of an insured financial institution and maintain public confidence in deposit insurance. Five deposit insurers reported a deficit in their deposit insurance funds while 30 responded that they had two or more methods to finance any shortfall in the deposit insurance fund in our survey.

In conclusion, this paper will shed light on the recent call for more powers and mandates to be given to deposit insurers to prevent, manage and resolve crises, and ensure the adequacy of the deposit insurance fund and back-up funding with a well-coordinated FSN framework put in place beforehand.

II. Introduction

Financial instability can range on a large spectrum at one end of which there is a temporary minor disruption that does not affect the financial market or the financial industry, and at the other end of which there is a systemic crisis which negatively shocks not only the financial system but the overall real economy.[1] Since the recent global financial crisis is viewed as a systemic one given its scale, there has been lively discussion of the causes and impacts of systemic crises and how to handle them. A variety of measures have been developed both at national and international levels. Furthermore, international organizations including the International Monetary Fund (IMF), Basel Committee on Banking Supervision (BCBS) and the International Association of Deposit Insurers (IADI), led by the G20 Summit leaders and Financial Stability Board (FSB), are now actively engaged in international efforts aimed at the prevention and resolution of systemic crises.

In particular, the IADI has developed the *Core Principles for Effective Deposit Insurance Systems* (Core Principles) in June 2009 and *the Core Principles for Effective Deposit Insurance Systems – A Methodology for Compliance Assessment* (CP Methodology) in December 2010, jointly with the BCBS, in a bid to provide effective guidelines for deposit insurers regarding how to respond to and resolve a crisis which can be used during a systemic crisis as well as during normal times. The Core Principles and CP Methodology were reported to the FSB and adopted as one of FSB's 12 Key Standards for sound financial systems in April 2011. Deposit insurers around the world will be recommended to formally adopt the Principles.

This paper takes a look at the crisis responses taken by deposit insurers around the world to deal with systemic risks and systemic crises during the 2007/08 global financial crisis. It also explores ways to effectively prevent and overcome future crises. In particular, countries which were at the epicenter of the crisis had taken unprecedented and wide-ranging measures to deal with systemic issues. Other economies that were not impacted directly but were exposed to the second round effects of the crisis, had also taken policy measures to ensure financial and economic stability. There is, thus, an urgent need to catalogue lessons learned and develop a comprehensive framework for systemic crisis prevention and management for future references.

There are largely two types of responses to handle a systemic crisis: ex ante measures to prevent a systemic crisis and ex post measures to effectively contain a crisis. Financial crises are bound to repeat, with only the degree of

[1] The definition of systemic crisis will be discussed in detail in the next chapter.

severity varying. Therefore, the most important consideration in devising ex ante measures is to establish the most effective prevention system that would make the crisis less painful. In other words, the focus of the ex ante financial safety net should be to minimize the negative effects of a repeat of a crisis by monitoring systemic risks, strengthening micro-prudential supervision, managing macro-economic fundamentals in a sound manner and effectively operating the deposit insurance system.

Should a crisis occur despite best efforts for crisis prevention, financial safety net (FSN) participants should focus on a speedy recovery by keeping the crisis from escalating any further and resolving insolvent financial institutions or impaired assets promptly. For this to happen, a crisis response mechanism should be specified in advance, and a speedy resolution of failed financial institutions should be carried out under the mechanism. Also, for viable financial institutions, financial support should be provided to prevent any contagion. Another important issue is how to pay for the costs of handling a systemic crisis. In principle, the costs of recovery should be first borne by the responsible parties, i.e., shareholders, creditors and depositors of failed financial institutions. However, as shown in past cases of systemic crises, all the recovery costs cannot be paid by the responsible parties alone. More often than not, the government injects funds raised with taxpayers' money to stabilize the financial system. As a result, there are now discussions about whether an ex ante or an ex post fund (including the deposit insurance fund) is needed to pay for the costs of systemic crisis containment and, if so, how to raise such a fund.[2] If taxpayers' money is to be used to resolve a systemic crisis, there should be a pre-established legal framework that would allow for a timely injection of public fund. In addition, financial assistance should be followed by accountability investigations aimed at recovering the taxpayers' money in order to prevent moral hazard and ensure market discipline.

This paper examines the policy responses implemented by deposit insurers around the world to deal with the recent global financial crisis and discusses what an effective financial safety net and funding mechanisms should look like to prevent and respond to a systemic crisis, with a focus on the deposit insurance system. This paper was written drawing on responses to a survey conducted on 51 deposit insurers in 50 jurisdictions and other relevant literature on the subject.[3] This paper focuses on the deposit insurers that submitted a response to the survey and, thus, cannot cover the deposit insurers that didn't.

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[2] During the recent financial crisis, the fund for systemic crisis management has been discussed in various names such as the resolution fund and bank levy, especially in discussion of the G20.
[3] In the case of Canada, two agencies – CDIC and AMF Quebec – replied to the survey.

III. Background

It is true that there is no single, indisputable definition of systemic risk.[4] Yet, there seems to be a consensus that systemic risk is a concept that refers to a risk that affects the whole financial or economic system and the expected losses from it. Among others, the Group of Ten countries (2001) on financial sector consolidations defines systemic risk as “the risk that an event will trigger a loss of economic value or confidence in, and attendant increases in uncertainty about, a substantial portion of the financial system that is serious enough to quite probably have significant adverse effects on the real economy."[5] Recently, Claessens et.al(2011) defined a systemic crisis as an episode of stress in the banking sector followed by significant policy interventions.[6]

During the 2007/2008 global financial crisis, some countries like the U.S. and the U.K. witnessed a systemic crisis in which the real economy as well as the financial system was negatively affected. In response, the financial safety-net (FSN) players - the government, central bank, financial supervisory authorities, resolution authorities and the deposit insurer - in those countries took sweeping measures to deal with the crisis. The measures taken to restore stability to the financial system and nurture the real economy back to healthy growth include economic stimulus programs funded by government spending, lender of last resort facilities for liquidity provision, and supervision and failure resolution of financial institutions by financial supervisory authorities or the deposit insurer. Nevertheless, with the globalization of economic and financial activities, a systemic crisis that broke out in one country did not stay within its borders, but spread rapidly to other countries and became global in a very short period of time. Therefore, there has been an increasing focus on the need for not only comprehensive responses by FSN participants of relevant countries but also a well-established framework for coordination of crisis management efforts among countries.

Since the onset of the global financial crisis in 2007, many reports have been written to analyze its causes, impacts and appropriate policy actions. These reports pointed to inefficient financial regulation and supervision as the primary cause of the recent financial crisis. They suggested that, in order to prevent a repeat of the crisis, countries should take steps to strengthen the health of financial institutions and enhance both micro- and macro-prudential supervision. Secondly, these reports took stock of liquidity support measures aimed at

[4] There is no disagreement that defining systemic risk in advance is absolutely necessary for any agency to identify systemic risk during financial or economic turbulence in practice.
[5] Hendricks et.al(2006)
[6] Since stress is difficult to measure, “a crisis is defined to be systemic when any three out of five commonly used crisis resolution policies are applied extensively: liquidity support, restructuring, asset purchases, significant guarantees, and nationalizations.”(Claessens et.al, 2011)

stabilizing the financial market and economic stimulus programs including fiscal and monetary policies, and analyzed their effects. Thirdly, they looked at the financial institutions that failed during the crisis and suggested what an efficient failure resolution mechanism should look like. In the meantime, the G20 has also engaged in a discussion of a resolution fund to cover costs of resolving failed financial institutions.

Regarding the deposit insurance system (DIS), a variety of measures from coverage expansion, to the use of the deposit insurance fund for depositor reimbursement or failure resolution, and to liquidity injection into ailing financial institutions were employed by deposit insurers around the world, which definitely raised awareness of the role and importance of the DIS in crisis management. However, there are still few reports that look at the efforts to prevent and overcome financial or systemic crises and system improvement measures from the perspective of the deposit insurer or the deposit insurance system.

One of the most notable international efforts being made in relation to the DIS is the development of Core Principles and the CP Methodology stated in the Chapter II before. On top of the joint effort for the Core Principles, the IADI is conducting research to produce various reports on the role and responsibilities of the deposit insurer in depositor protection and financial stability. The issues being researched include the sufficiency of the Deposit Insurance Fund, transitioning from a blanket guarantee or extended coverage to a limited coverage system, early detection and timely intervention, payout process and other cross-border deposit insurance issues.

However, as mentioned above, there have been only a very small number of reports that discuss the role of the deposit insurer or the DIS in preventing and overcoming systemic crises in a comprehensive manner. The primary source of information for this paper was the responses of 51 deposit insurers provided to a questionnaire about the preventive measures, crisis management actions and failure resolution activities a deposit insurer can take in response to a financial crisis, especially a systemic one.[7] This paper will first take a look at the various crisis response measures countries took during the crisis, focusing on the experiences of countries like the U.S. and the U.K., analyze regulatory framework relating to systemic risks and draw preliminary lessons on structural and institutional arrangements that a deposit insurer must have in place to minimize the impact of future systemic crisis and promote financial stability.

[7] The survey questionnaire was distributed in June 2010 and collected responses by the end of November 2010. However, some late responses were received by June 2011 while revising the draft.

IV. Deposit Insurer's Response to the Recent Global Financial Crisis

As was clearly shown in the recent global financial crisis as well as past crises, any one of the financial safety net participants cannot resolve a crisis by itself. In particular, if the crisis is much more than a temporary financial instability and threatens to become a systemic one, all members of the financial safety net will need to mount an all-round response since the negative impact will not only affect the financial industry but the real economy as well.

Economic stimulus through the government's fiscal policies, the central bank's lender of last resort function for liquidity injection and financial supervision or failure resolution by the supervisory authority and the deposit insurer all combine to enable an efficient liquidation of failed financial institutions and maintenance of financial stability, thus resolving the crisis. During systemic crises, deposit insurers took a variety of measures ranging from the use of the deposit insurance fund for depositor reimbursement or failure resolution, to the adoption of blanket guarantees, to expansion of coverage limit or scope, and to the implementation of a temporary debt or liquidity guarantee program. This paper reviews the crisis response measures that deposit insurers took during the recent crisis.

First of all, the general view is that it was only the U.S., U.K., and some EU members including Iceland that went through systemic crises during the latest round of global turbulence. Other countries managed to avoid systemic crisis.[8] In the survey, only 17 jurisdictions, out of a total of 51 respondents, said they used the deposit insurance fund to resolve insured financial institutions that became insolvent between 2007 and the first half of 2010, though it is hard to determine at this stage that any of them had faced a systemic crisis. During the same period, the number of insured financial institutions that were wound down among respondents was the highest in the U.S. at 254, followed by 76 in Russia, 74 in Indonesia, and 12 in Zimbabwe. The comparative figures for Korea, Taiwan, the U.K., Macedonia, Vietnam, Finland and Norway were 8, 8, 7, 4, 4, 2 and 2, respectively. Argentina, Guatemala, Hungary, Kazakhstan, Nicaragua and Portugal each resolved one financial institution during that period.[9]

[8] Laeven and Valencia (2010) analyze that 13 countries experienced a systemic banking crisis during 2007-09. Among them, with the exception of the U.S. and Mongolia, all are in the European region.

[9] In Portugal, there was a deposit payout for one failure of an insured institution, rather than resolution of an institution.

Table 1. Actions Relating to Deposit Insurance Coverage Limit

Full Depositor Guarantees	Deposit Insurance Coverage Increase	
	Permanent	Temporary
Austria	Albania	Australia
Denmark	Belgium	Brazil
Germany 1/	Bulgaria	Netherlands
Greece 1/	Croatia	New Zealand
Hong Kong, SAR	Cyprus	Switzerland
Hungary 1/	Czech Republic	Ukraine
Iceland 1/	Estonia	United States 4/
Ireland 2/	Finland	
Jordan	Indonesia	
Kuwait	Kazakhstan	
Malaysia	Latvia	
Montenegro 5/	Lithuania	
Mongolia	Luxembourg	
Portugal 1/	Malta	
Singapore 1/	Philippines	
Slovak Republic	Poland	
Slovenia	Romania	
Thailand 3/	Russia	
United Arab Emirates	Serbia 5/	
	Spain	
	Sweden	
	United Kingdom	
19	22	7

Notes: Full depositor guarantee consists of guarantees covering all deposits or the majority of all deposits in the banking system. In the case of Italy, no actual coverage increase has occurred; however, Law N.190 passed in December 2008 as a result of the international crisis, gives the minister for economy and finance power to introduce a state guarantee for depositors for a period of 36 months. In the case of Saudi Arabia, a full guarantee in effect prior to the crisis was reaffirmed in October 2008 in response to the crisis.

1/ Political commitments by government.
2/ Full guarantee for seven specific banks representing 80 percent of the banking system.
3/ Existing full guarantee in effect since 1997, originally set to expire in August 2009. During the 2008 crisis, full guarantee was extended by two years.
4/ Does not take into consideration program providing for temporary unlimited guarantee for non-interest-bearing transaction accounts.
5/ Not included in 2009 Unwinding report.
Source : IADI and IMF (2010)

The responses made by deposit insurers during the recent crisis include expansion of coverage limit or scope, faster deposit payouts and liquidity support. First, the most decisive action taken by deposit insurers during the recent global financial crisis was to strengthen depositor protection by adopting blanket guarantees or expanding coverage limit. Data from a survey conducted by the IADI and IMF (2010) showed that 48 jurisdictions raised coverage limit during the recent global financial crisis. As shown in Table 1, the survey found that 19 jurisdictions including Austria and Germany adopted blanket protection on a temporary basis,[10] 22 raised the insurance limit permanently while 7 others issued a temporary increase in insurance coverage.

Our survey also found that 32 of the 51 respondents said that they had increased the coverage limit. For EU members, pursuant to the EU Directive 2009/14/EC, the minimum coverage level should be increased from €20,000 to €50,000 by 30 October 2008 and be set at €100,000 by 31 December 2010. Outside the EU, the US FDIC increased its coverage limit from US$100,000 to US$250,000, while the UK also increased their coverage limit from £35,000 to £50,000. In the case of Indonesia, the new increased limit is 20 times that before the crisis at IDR 2 billion. Hong Kong raised the limit five times from HK$100,000 to HK$500,000 and Taiwan doubled the insurance limit to NT$ 3 million after providing temporary blanket guarantees in 2010.[11]

Second, another important measure taken by deposit insurers during the recent crisis was the expansion of the scope of deposit insurance. Survey results showed that ten jurisdictions – Australia, Bulgaria, Croatia, Estonia, Hong Kong, Italy, Korea, Malaysia, Serbia and Taiwan – expanded the scope of deposit insurance during the crisis. Among them, Korea and Malaysia expanded coverage to include foreign currency deposits.

Box 1. Expansion of scope of deposit insurance during the 2007/2008 crisis

Bulgaria: Supplementary compulsory pension insurance funds (Nov. 2008)

Canada-Quebec: Tax Free Savings Accounts

Hong Kong: Pledged deposits(from 2011)

Korea: Foreign currency deposits held by domestic banks(Nov. 3, 2008)

Malaysia: The Government Deposit Guarantee (GDG) is a temporary measure, effective from 16 October 2008 to 31 December 2010. Under the GDG, the scope of coverage was expanded as follows:

[10] Though not in Table 1, the UK government offered full guarantees to depositors of Northern Rock when the bank's failure in September 2007 caused a bank run.
[11] The IADI and BCBS(2010) present that increases in coverage limit during the recent crisis in the countries surveyed ranged from 75 to 400%.

Pre GDG	GDG
Covered only Ringgit denominated deposits	Expanded to cover all Ringgit and foreign currency deposits
Covered only commercial and Islamic banks	Expanded to cover commercial Islamic and investment banks

Serbia: Entrepreneurs' and small and medium sized legal entities' deposits

Singapore: Non-bank corporate depositors in 2011

Taiwan: Under the blanket guarantee(Oct. 2008 ~ Dec. 2010), the scope of coverage extends to:

(1) Principal and interest on deposits, foreign deposits, inter-bank deposits, government deposits, other deposits that have been approved as insurable by the competent authority

(2) Inter-bank call loans

(3) Any expenses, which under the CDIC's conservatorship are necessary to sustain the business operations of insured institutions, as well as pension payments, redundancy pay and related tax payments in accordance with law

(4) Bank debentures issued before or on June 23, 2005. The coverage scope will be expanded to include deposit interest and foreign currency deposits for a smooth transition.

Third, efforts were made to shorten the payout time. Any delay in payouts, which can halt economic activities and cause a financial disorder through contagion effects, can hamper the public's trust in the deposit insurance system. In EU, before the crisis, the EU Directive 1994/19/EC allowed deposit insurers to take from three up to nine months before they reimbursed depositors. However, in a revised Directive announced in 2010, the timeline was significantly reduced to 20 business days. Moreover, the EC recommended in 2010 that the timeline be further reduced to one week.[12] On the other hand, the FDIC can begin payouts within one business day of the bank failure since it has authorities for supervision and resolution of failed member institutions.

Fourth, some deposit insurers reported to have provided liquidity support to financial institutions. The number of survey respondents that said their deposit insurers had provided such liquidity support was eight - Brazil, Japan,

[12] Hoelscher (2011) argues that rapid payout will require reforms in deposit insurance systems: single customer view on deposit level; rapid data collection capacity; and close coordination between deposit insurer and insolvency agency.

Kazakhstan, Norway, Portugal, Russia, Taiwan and the U.S.[13] The FDIC adopted the Temporary Liquidity Guarantee Program (TLGP) in October 2008 for banks and holding companies after a resolution of the Board of Directors. The TLGP consists of two components: (1) the Debt Guarantee Program – an FDIC guarantee of certain senior unsecured debts issued by member institutions and holding companies; and (2) the Transaction Account Guarantee Program – an FDIC guarantee in full of transaction accounts used for payroll and business transactions mainly. It is believed that the FDIC helped to stabilize the financial market through these programs.[14]

[13] There are two DIS in Portugal and that only the Mutual Agricultural Credit Fund provided liquidity support to one of its members.
[14] At their peak, the DGP and the TAGP guaranteed US$350 billion and US$834 billion, respectively.

V. Systemic Crisis and Regulatory Framework for Financial Stability

This chapter is devoted to the description of laws and regulations related to systemic crisis management and the framework for crisis prevention and resolution. It has already been demonstrated that any one of the FSN players cannot single-handedly deal with a systemic crisis. So, in the following section, an overview of systemic crisis management framework that defines which of the FSN participants will be responsible for the declaration and resolution of a systemic crisis is provided. Then, the mechanisms for systemic crisis management and resolution are set out. Lastly, the importance of funding to cover the costs of resolving a systemic crisis is discussed.

Table 2. Preventive and Managing Measures for a Systemic Crisis

Systemic Crisis	Measures
Prevention	1) establishment of effective regulation and supervision that monitors and acts on economy-wide systemic risk; 2) a sound macroeconomic management framework (for monetary, fiscal, and exchange rate policies) that can counteract the buildup of systemic vulnerabilities such as asset price bubbles; and 3) creation of a strong international financial architecture that can send pointed early warnings and induce effective international policy coordination to reduce systemic risk internationally.
Management	1) provision of timely and adequate liquidity; 2) rigorous examination of financial institutions' balance sheets, including through stress tests; 3) support of viable but ailing financial institutions through guarantees, nonperforming loan removal, and recapitalization; and 4) adoption of appropriate macroeconomic policies to mitigate the adverse feedback loop between the financial sector and the real economy, reflecting the specific conditions and reality of the economy.
Resolution	1) use of mechanisms for restructuring financial institutions' impaired assets and, hence, corporate and household debt; 2) use of well-functioning domestic insolvency procedures for nonviable financial institutions; and 3) use of international mechanisms for resolving nonviable internationally active financial institutions, including clear burden sharing mechanisms.

Source: Kawai and Pomerleano(2010)

1. Financial Safety Net Framework

In general, preventing systemic risks can be approached from the following three aspects: The first is the strengthening of micro-prudential regulation and supervision. This will require stronger capital adequacy requirements, liquidity requirements, leverage regulation, employee compensation standards and derivatives market control.[15] The second is more robust macro-prudential regulation and supervision to deal with increased risk of systemic crisis driven by changes in the macro-environment. The third is more broad-based improvements of the macro-prudential policy framework. This is a framework for coordination of roles and responsibilities among FSN players including the lender of last resort function of the central bank, deposit insurance and resolution of failed financial institutions as well as macro-prudential supervisory functions.

A well-coordinated FSN and structural arrangements like a legal framework are essential for promoting financial stability, especially confidence during normal times. However, once failures of financial institutions throw the market into chaos and cause a crisis, the other FSN players are called to play a larger part in maintaining the stability of the market. Experience from past financial crises shows that, to successfully prevent and handle a financial crisis, there must be a framework that clearly defines each FSN player's roles and responsibilities and ensures close coordination among them. However, at times of crisis, there is precious little time to design and build such a framework. Therefore, it is desirable that such a framework for crisis prevention, management and resolution be formally specified through legislation or regulation in advance.

In particular, experience during the recent crisis led to calls for deposit insurance agencies to play a more prominent role in maintaining financial stability, rather than just making deposit payouts for failed member institutions (Hoelscher, 2011; Gerhardt and Lannoo, 2011). Indeed, a significant number of deposit insurers including the FDIC, CDIC, DIA Russia, and others are given authorities to provide liquidity to cash-strapped member institutions or resolve failed financial institutions. There is even an argument that some of financial supervisory functions may be attributed to the deposit insurer as supervisory authorities have incentives for regulatory forbearance, which slows the failure resolution process and increases the costs (Gerhardt and Lannoo, 2011).[16]

[15] Although deposit insurers are generally not responsible for formulating regulations on these issues, they could incorporate these factors in their risk assessment of insured financial institutions and provide disincentives for risk-taking through risk-based premium pricing.

[16] Beck and Laeven (2006) argues that the deposit insurer with powers for both supervision and

This section outlines the FSN frameworks for financial crisis management, especially for detecting and handling systemic crises, found in the responses to the survey. First of all, 19 jurisdictions responded that they have provisions in their laws or regulations prescribing how to handle a systemic crisis.[17] The U.S. (the FDI Act), Indonesia (the IDIC Law), Japan (the Deposit Insurance Act), Nicaragua (the Law on Deposit Insurance System) and Taiwan (the DI Act) have such provisions in the deposit insurance law while other jurisdictions have included such provisions in the central bank law (Malaysia, the Central Bank of Malaysia Act; Thailand, the Bank of Thailand Act) or finance-related legislation (Bulgaria, the Currency Board Arrangements; Peru, the General Law of the Financial and Insurance Systems and Organic Law of the Superintendency of Banking and Insurance). Still others have established systemic crisis handling arrangements in the form of a FSN players' committee or an MOU (Romania, Portugal, Serbia and Turkey).

On the other hand, only a small number of countries, eight to be specific, answered to the question that asked if the country's law provides a definition and/or the declaring procedures for systemic crisis. They were the Czech Republic, Indonesia, Japan, Macedonia, Nicaragua, Slovenia, Turkey, and U.S. In Turkey, the Banking Law stipulates that the Savings Deposit Insurance Fund, the Undersecretariat of Treasury, the Central Bank and the Banking Regulation and Supervision Agency should jointly make a declaration of systemic crisis and that the cabinet should determine the necessary measures which will be carried out by relevant agencies. In the case of the Czech Republic, it is provided that the Czech National Bank should take necessary steps when a bank or the financial system faces a risk. In Japan, after deliberation by the Council for Financial Crisis, Prime Minister makes decisions as to what measures should be taken to deal with the financial crisis. As for the U.S., the Treasury Secretary used to make the declaration of systemic crisis after consultation with the President at the recommendations from the Federal Deposit Insurance Corporation and the Federal Reserve Board. However, since the Dodd-Frank Act (The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010) took effect on July 21, 2010, the Financial Stability Oversight Council has been charged with responsibilities of managing systemic crises.[18]

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failure resolution has more positive implications for financial stability compared to those without such powers.

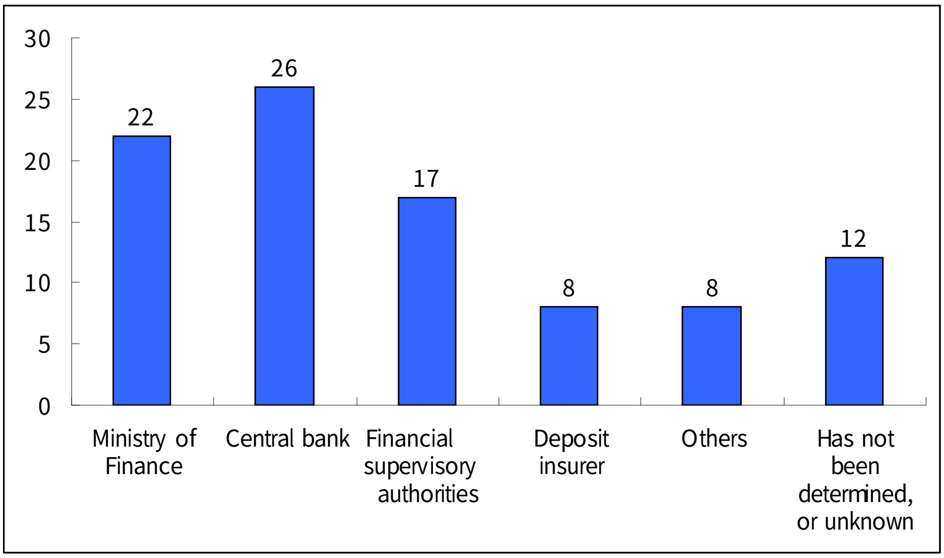
[17] Bulgaria, Canada-Quebec, Czech Republic, Estonia, Greece, Hungary, Indonesia, Kazakhstan, Malaysia, Nicaragua, Peru, Portugal, Romania, Serbia, Taiwan, Thailand, Turkey, and the U.S.

[18] The determination of systemic risk by the Secretary of the Treasury, following consultation with the President, and supported by recommendations from the FDIC and the FRB, is required in order for the FDIC to deviate from statutory requirements for least-cost resolutions. The process is defined by Section 13(c)(4)(G)(i) of the Federal Deposit Insurance Act, Emergency Determination By Secretary of the Treasury. The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, effective July 21, 2010, specifically requires the determination of systemic risk for the

It was shown that while less than half of the respondents to the survey had legal basis for defining and declaring a systemic crisis, others still had arrangements for dealing with a systemic crisis, should one occur, under the leadership of the government and the central bank.

Next is how survey respondents answered questions regarding which of the FSN players makes the decision to declare a systemic. The largest number of respondents cited “the central bank” as the leading agency, followed by the government (Ministry of Finance) and regulatory and supervisory authorities. To take a closer look, 26 chose the central bank, 22 the Ministry of Finance and 17 regulatory and supervisory authorities. In the meantime, eight jurisdictions (Barbados, Canada-Quebec, Indonesia, Jamaica, Nicaragua, Serbia, Taiwan and the U.S.) chose the deposit insurer while eight countries answered that other agencies like the Prime Minister’s Office or a joint committee are responsible for deciding whether there is a systemic crisis. However, it was also found that as many as 12 jurisdictions had not instituted any separate authority to make a systemic crisis declaration. In 23 jurisdictions including eight that chose the deposit insurer as the responsible agency for systemic crisis declaration, two or more FSN players jointly make a decision on whether a systemic crisis exists.

Figure 1. Decision making agency on declaration of a systemic crisis



Concerning which agency leads the efforts to manage a systemic crisis, 31 respondents answered “the central bank,” 26 “the Ministry of Finance”, 21 “regulatory and supervisory authorities,” nine “a special committee”, eight “the

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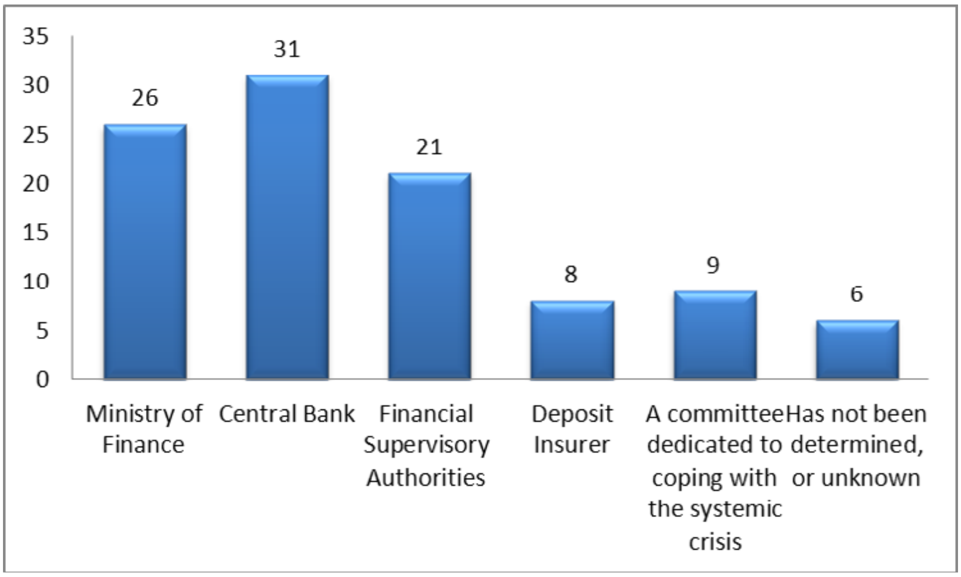
orderly liquidation of systemically-important failing financial companies by the FDIC, which involves a consultative process similar to that described earlier. Refer to Title II – Orderly Liquidation Authority under the Dodd-Frank Act.

deposit insurer," and three "other." Six jurisdictions had no particular agency to lead such efforts. It was shown that, in 30 jurisdictions, multiple agencies are given a leading role in systemic crisis handling. The countries where a special committee is the leading agency include Brazil (Financial Stability Committee), Bulgaria (Financial Stability Advisory Council), Colombia (Coordination Committee for the Financial System Oversight), Poland (Financial Stability Committee), Romania (National Committee for Financial Stability), Taiwan (Financial Supervisory Liaison Committee), Uruguay (Financial Stability Committee), and the U.S. (Financial Stability Oversight Council).

Figure 2. Leading agency to manage a systemic crisis



In a nutshell, most of the survey respondents have arrangements for systemic crisis declaration and management specified in legal provisions and have the central bank or the Ministry of Finance as the leading agency in crisis resolution. However, 12 jurisdictions do not have a particular agency responsible for systemic crisis declaration and six jurisdictions answered that they did not assign the responsibility for systemic crisis handling to any specific agency. For effective prevention and resolution of systemic crises, it would be good to establish a legal framework of systemic risk regulators composed of FSN participants.[19] Even though it may be impossible to produce an internationally-agreed definition of systemic crisis, there is a need to develop some criteria to detect and manage a systemic crisis taking into account unique country circumstances. This will surely help to reduce the disruption arising from a crisis

[19] Aside from macro- and micro-supervisory authorities, the IMF(2010) suggested the need to establish systemic risk regulators whose responsibility is to detect systemic risks at an early stage and supervise them. Kawai and Pomerleano(2010) also emphasized that a systemic stability regulator with sufficient powers should be established at the national level that focuses on all three dimensions: crisis prevention, management, and resolution.

and subsequent costs.

2. Crisis Prevention

As Kawai and Pomerleano (2010) pointed out, there is little disagreement that prevention is better than management when it comes to systemic crises. As was discussed in the previous section, the presence of a legal framework for cooperation among FSN players in times of systemic crisis does itself help to prevent a crisis. Also, the IADI and BCBS (2010)'s CP Methodology, along with its accompanying set of preconditions, will play a positive role in ensuring that the public's knowledge of effective deposit insurance will have positive implications for the prevention of a systemic crisis.

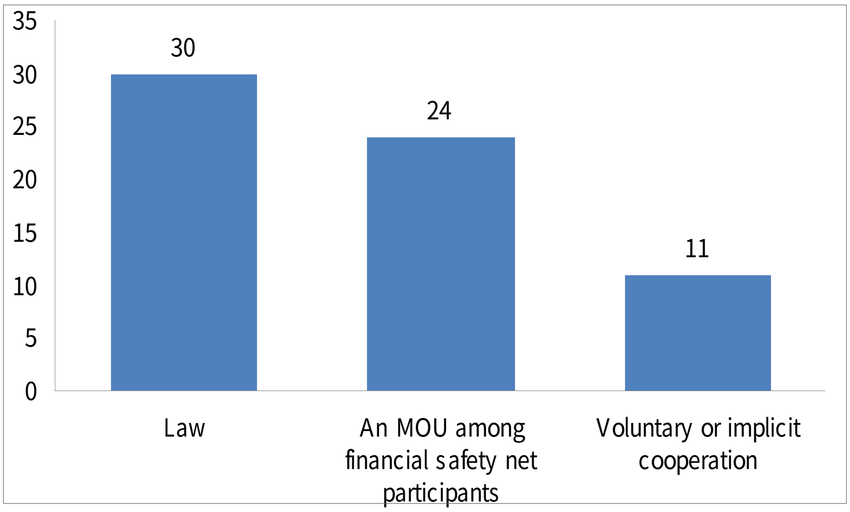
This section takes a look at the information-sharing framework among FSN players, appropriate level of coverage, public awareness, early detection of risk and timely intervention as necessary tools for the deposit insurer to prevent a systemic crisis.

First, there must be a framework for information sharing among FSN players not only for systemic crisis prevention but for effective handling of bank failures.[20] The IADI and BCBS (2010) argues that quick exchange of information within the FSN is essential to ensure prompt payouts in the event of a bank failure and to detect early signs of failure and intervene.[21]

The survey results showed that 38 respondents had such an information-sharing framework. As for the basis for establishing that framework, 30 cited "law", 24 "an MOU", 11 "voluntary or implicit cooperation" and 19 said they had a combination of two of them or more. On the other hand, Malaysia (MDIC and Central Bank of Malaysia) and Poland (Central Bank and Financial Supervisor) answered that, though not an MOU, an inter-agency agreement is signed to facilitate information sharing.

[20] Bernet and Walter (2009) provides a detailed explanation of the need for coordination and cooperation among the DI, financial supervisory authority, central bank and the government.
[21] The need for coordination mechanisms among financial safety net players for systemic crisis handling is already stressed in the *Core Principles for Effective Deposit Insurance Systems* and the *Methodology for Compliance Assessment.*

Figure 3. Basis for the deposit insurer's information sharing with other FSN players



Meanwhile, the number of countries with an IT system for information sharing was 15. Deposit insurers in countries like Canada – where a Tri-Agency data Sharing System (TDS) is in place for the deposit insurer, supervisor and central bank -, Taiwan, Thailand and Turkey have a shared database or direct access to the central bank's or financial authority's database. In Korea, each FSN player has its own IT system, but shares information with each other. The U.S. FDIC manages a database storing quarterly reports filed by all member institutions. For quick information sharing, the mere presence of databases is not enough. All FSN players must be given access to information. Therefore, there seems to be a need for the improvement of the IT infrastructure.

Six jurisdictions - El Salvador, Finland, Indonesia, Korea, the U.K. and the U.S. - said that there were changes in the information sharing system during the recent global crisis. El Salvador set up a Risk Committee. Finland established a consultation system with the supervisory authority (FSA). Indonesia's IDIC was given an authority to examine individual banks with problem under special surveillance of bank supervisor.[22] In Korea, in September 2009, a new MOU was signed to replace the old one among the central bank, supervisory authority and the KDIC and to include the Ministry of Strategy and Finance and the Financial Services Commission as new members. In the U.K., in accordance with the EU Deposit Guarantee Schemes Directive, the FSCS was allowed to have access to information necessary for deposit payouts and stress tests on banks. The U.S. took steps to require substantial information sharing and collaboration among FSN participants with the establishment of the Financial Stability Oversight Council.

[22] IDIC can also examine bank in the event of the verification of premium payment.

Box 2. Changes in information sharing among FSN players during 2007/2008 crisis

El Salvador: Creation of the Risk Committee.

Finland: Once a potential payout case becomes likely, the FSA shall ask the Deposit Guarantee Fund to "increase its state of readiness" or "place itself on standby".

Indonesia: Bank Indonesia (the Central Bank) will share information/data under special surveillance status and allow IDIC to perform a due diligence /examination on the bank.

Korea: There were calls for more information sharing and cooperation among finance-related government organizations in order to minimize systemic risk by quickly detecting and responding to risk factors in financial markets. In response, it was decided to update the MOU among three organizations in January 2004. In September 2009, the MOU was expanded to include five organizations with the MOSF and the FSC as new members.

UK(FSCS): Proposed changes to the European DGSD: Member States shall ensure that Deposit Guarantee Schemes, at any time and at their request, receive from their members all information necessary to prepare a repayment of depositors, including markings under Article 4(2). Information necessary to perform stress tests shall be submitted to Deposit Guarantee Schemes on an ongoing basis. Such information shall be rendered anonymous. The information obtained may only be used for the performance of stress tests or the preparation of repayments and shall be kept no longer than is necessary for those purposes.

US(FDIC): The Financial Stability Oversight Council recently created under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 will require substantial information sharing and collaboration among safety net participants for council purposes.

Second, having an appropriate coverage level can be part of the deposit insurer's ability to prevent a crisis as it discourages depositors from running on banks. During the recent financial crisis, many jurisdictions significantly raised their coverage limits, compared to pre-crisis levels.[23]

[23] A survey conducted by the IADI and the BCBS (2010) revealed that, during the recent crisis, 19 jurisdictions adopted temporary blanket guarantees and 21 jurisdictions increased the coverage limit permanently. In the survey carried out for this paper, 31 jurisdictions answered that they adopted insurance coverage enhancement measures during the crisis.

Table 3. Changes in the Deposit Insurance Coverage Levels

	Coverage 1/		Ratio 2/	
	Old	New	Old	New
Europe			**1.4**	**4.8**
Albania	LEK700	2,500	2.0	6.9
Austria	€20	50	0.6	1.5
Belgium	€20	100	0.6	3.2
Bulgaria	LEV40	196	4.6	11.4
Croatia	HRK100	400	1.3	5.3
Cyprus	€20	100	0.9	4.7
Czech Republic	€25	50	1.8	3.8
Estonia	€20	50	1.7	4.9
Finland	€25	50	0.7	1.6
France	€70	100	2.0	2.9
Germany	€20	50	0.7	1.7
Greece	€20	100	0.9	4.7
Hungary	FT6,000	13,668	2.3	5.3
Ireland	€20	100	0.5	2.7
Latvia	€20	50	2.0	6.0
Lithuania	€22	100	2.3	12.5
Luxembourg	…	100	…	1.3
Malta	€20	100	1.4	7.3
Netherlands	€20	100	…	2.9
Poland	€23	50	2.4	6.2
Portugal	€25	100	1.6	6.5
Romania	…	50	…	9.2
Russia	RUB400	700	1.4	2.5
Spain	€20	100	0.8	4.4
Sweden	€25	50	0.7	1.6
Switzerland	SWF30	100	0.4	1.4
Ukraine	UAH50	150	2.4	7.6
United Kingdom	£35	50	1.5	2.2

Table 3. Changes in the Deposit Insurance Coverage Levels(Continued)

	Coverage 1/		Ratio 2/	
	Old	**New**	**Old**	**New**
Asia/Pacific region			**2.2**	**26.8**
Australia	⋯	AU$1,000	⋯	17.4
Indonesia	RP100,000	2,000,000	4.6	82.5
Kazakhstan	T700	5,000	0.7	4.8
New Zealand	⋯	NZ$1,000	⋯	23.3
Philippines	PHLP250	500	3.0	6.0
Western Hemisphere				
United States	$100	250	2.1	5.4

1/In thousands.

2/Ratio of coverage level to per capita GDP: Old(2008) and New(2009)

Note: For EU member jurisdictions, the level of coverage has been set at EUR 100,000 to be implemented by 31 December 2010 in view of the EU Directive requirements.
Source: Hoelscher (2011) reprinted from IADI and IMF (2010)

According to Hoelscher (2011) the EU announced a Directive to expand the coverage limit to 100,000 euro, which is estimated to cover 98% of all depositors and 60% of the value of all deposits. In the U.S. where the coverage limit was raised from 100,000 dollars to 250,000 dollars, 99.8% of depositors and 78% of the value of deposits will be provided protection.

Such increases in the coverage limit might lead to moral hazard of financial institutions and depositors if not mitigated through other measures. In other words, a high coverage limit might induce bank managers to invest in high-risk assets while reducing the incentives for depositors to monitor the health of their banks and encouraging them to move their money to higher-interest-paying banks. Therefore, it is important to find an appropriate level of coverage to maintain the public's confidence in the deposit insurance system and prevent a bank run without causing moral hazard. Also, additional considerations have to be made for potential premium increases or a build-up in the government's contingent liabilities due to funding requirements for the deposit insurance fund.

The IADI and BCBS (2010) suggested that, on top of the overall FSN structure, more factors need to be taken into account when choosing the appropriate coverage level in consideration of the free flow of money around the world: the coverage levels in neighboring countries; any history of banking crises; and high coverage levels to support financial reform.

Third, public awareness can also play an important role in preventing a crisis by informing the public of the deposit insurance system for depositor protection and financial stability. The presence of deposit insurance itself enables the public to have confidence in the financial system. As part of their efforts to raise public awareness of deposit insurance, deposit insurers around the world are engaged in various public relations activities: making speeches; publishing press releases and brochures; establishing telephone lines and hot lines; building websites; and running advertisements on television and over the internet. All these efforts are needed because public awareness is essential to enhancing public confidence in the deposit insurance system, thus preventing bank runs in crises. The deposit insurer should have continued communication with the public to keep them informed of any changes and reflect their opinions in the deposit insurance system so that it can adapt to changes in the environment and continue to develop.

Box 3. Selective enhancement of public awareness during 2007/2008 crisis

Bulgaria: In 2008 and 2009 BDIF printed and distributed for free its updated Q&A Brochure about Deposit Insurance to its member institutions, the majority of which uploaded it on their websites and/or printed additional copies; articles and interviews in the media; distribution of excerpt of the IADI Core Principles for Effective Deposit Insurance Systems along with 2009 BDIF Annual Report; printed for distribution to depositors Introductory Leaflet for Depositors and Introductory Leaflet about Bank Bankruptcy. In addition, amendment to LCI was made requiring banks to inform depositors in their deposit contract. Public awareness activities undertaken were more of preventive nature as there have been no bank failures in Bulgaria after 2005.

Czech: There has been a special public awareness program launched, however not as a part of crisis management

Hong Kong: Since the launch of the Deposit Protection Scheme (DPS) in 2006, the HKDPB has been running various publicity campaigns to promote the public awareness of the scheme and its protection features. These include advertisement in multiple media channels such as TV, newspaper, radio, internet and public transport, roving exhibitions and publication of information leaflets. During 2008 and 2010, additional publicity effort was made to promote the public awareness of the temporary deposit guarantee offered by the Government that was in force until the end of 2010. Extensive publicity programs were also launched to ensure a smooth transition to the enhanced explicit DPS upon the expiry of the Government's deposit guarantee.

Malaysia: MDIC published new public information brochures, which were distributed to all bank branches in six languages and revamped the official website which provides information in four main languages, to reflect the features of the temporary GDG that is effective until 31 December 2010. Our toll free enquiry Call Centre also responded to public queries on deposit insurance and the GDG. MDIC continued to carry out training sessions for bank employees, particularly the front-line customer service officers, to ensure consistency and accuracy of information provided by bank to depositors, as well as briefings to Government agencies, universities, professional bodies and associations, and the general public.

Romania: Bank Deposit Guarantee Fund - together with the Romanian Banking Association– has issued a series of communications to depositors, through banks' branch network. In 2010, the Fund has set-up a Communication and Public Relations Department, in order to meet the need for a better dissemination of information about the deposit guarantee scheme. The Fund also contributed to the enhancement of public awareness through its own publications and website, published articles, presentations made in conferences, radio and TV programs.

Taiwan: In line with the government's temporary blanket guarantee measure, the CDIC quickly organized all kinds of publicity activities to strengthen the awareness of the public about its rights and to achieve the goal of stabilizing financial order. The measures included:
(a)CDIC invited former Premier to film a 30-second advertisement to publicize the blanket guarantee. The film was aired on 11 TV channels and public-interest slots from late December 2008 to the end of January in2009. Financial institutions were also informed that they could download the film for showing at their business premises and broadcasting on the Internet.
(b)Publicity posters for blanket guarantee were produced and sent to all insured institutions, which were requested to post them in conspicuous places at all their business locations to inform all depositors of the blanket-guarantee policy.
(c)Advertisements were placed in popular economic and finance magazines, and light-boxes and bus body advertisements were placed on public transportation to reach the target audience and places with large concentrations of people.
(d)CDIC commissioned a professional institution to conduct a questionnaire survey to understand how much the public knows about the concept of deposit insurance, and the channels through which they gain information about deposit insurance and financial safety so as to provide a reference in publicity work and the formulation of follow-up measures.

UK(FSCS): Banks now have a specific consumer disclosure requirement in relation to FSCS coverage and this is done via bank statements or website for internet accounts(introduced 2010). The FSCS also has plans for a wider public awareness campaign and this will commence during 2011.

US(FDIC): Deposit insurance was temporarily increased (2008) and later extended (2009) and recently made permanent (2010) through three major pieces of economic legislation that were widely publicized and discussed. FDIC formally notified all insured financial institutions via Financial Institution Letters describing the changes in deposit insurance coverage and directing the institutions to notify individual depositors. FDIC also issued formal press releases and posted extensive depositor information and tools on the agency web site, and senior agency officials spoke frequently to the public-at-large in high-profile appearances, interviews and testimony on television and radio. FDIC has also quickly resolved a significant number of failed financial institutions through efficient, effective and transparent operations, making depositor funds readily available in a virtually seamless manner and strengthening and maintaining public confidence in the process.

Fourth, establishing an FSN framework for early detection of failure risk, timely intervention and orderly resolution is another important crisis prevention measure. In particular, when the deposit insurer has the authority for bank failure resolution, early detection of risk and timely intervention become necessary preconditions for minimizing resolution costs and loss to the deposit insurance fund. Moreover, when the deposit insurer can assess the risk profile of individual financial institutions, it can effectively reduce insolvency risks by charging risk-based premiums, providing checks and balances against financial supervisory authorities to prevent regulatory forbearance, and strengthening financial institutions' risk management systems. In case of a pay-box deposit insurer, the role of failure resolution should be embedded into another FSN player.

It was found in the survey that the number of jurisdictions in which the deposit insurer has powers for risk assessment and intervention aimed at early detection of insolvency risk was 19. In most cases, risk assessments are conducted by financial regulatory authorities. Deposit insurers that are pure pay-box systems like the Hong Kong Deposit Insurance Board (HKDPB) and the Singapore Deposit Insurance Corporation (SDIC) do not have powers for ongoing risk assessment and early intervention. In Italy, though the deposit insurer does not have any supervisory authority, it is allowed to obtain financial data from the supervisory authorities to generate risk indicators and adjust insurance premiums accordingly. On the other hand, 19 deposit insurers like the Central Deposit Insurance Corporation (CDIC) in Taiwan and the FDIC in the U.S. are given various tools for risk assessment and early intervention, for example, examination of financial statements of insured financial institutions, on-site inspections and early warning systems.

During the recent financial crisis, Kazakhstan, Malaysia, Taiwan, the U.K., the U.S. and seven other jurisdictions enhanced their deposit insurers' powers for risk assessment and intervention. Among them, the Kazakhstan Deposit Insurance Fund (KDIF) was given the authority to conduct on-site inspections to assess the accuracy of depositor information held by failed banks and evaluate their accounting systems. In Serbia, the deposit insurer is now able to conduct on-site inspections, too, after the revision of the Deposit Insurance Law. Taiwan introduced prompt corrective action (PCA) measures on December 9, 2008 in the revised Banking Law, which allows the CDIC to have consultations with related agencies in accordance with the principles for early intervention for risk management.

Box 4. Strengthened mandates to conduct risk assessment and intervention during 2007/2008 crisis

Australia: APRA's statutory powers have been strengthened to respond to financial distress (reflected in the 2008 and 2010 Acts). APRA is also working on further statutory proposals.

Canada-CDIC: CDIC's statutory powers were strengthened to include a full bridge institution framework and an increase in emergency back-up funding provisions.

Canada-Quebec: Reviewing our Intervention Plan by adding new tools such as:
- Crisis stages; from potential lack of liquidity to Insolvency
- Key signals and indicators(at micro and macro-prudential levels) to establish an Early Warning System that can detect issues before they become problems

Kazakhstan: During the recent global financial crisis the KDIF acquired the right to conduct an on-site inspection of a problem bank with a view to check its individual depositors' records for accuracy and completeness and to verify the adequacy of the bank's accounting system. Also, the KDIF significantly enhanced and updated its Differential Premium System. Finally, the Fund also reestablished the maximum recommended interest rates on the individuals' deposits in national and foreign currency.

Malaysia: MDIC heightened its risk assessment oversight of its member institutions and other guaranteed financial institutions covered under the

GDG.[24]

Taiwan: In order to provide a mechanism for the competent authorities to weed out poorly capitalized financial institutions based on specified benchmark, the Parliament passed an amendment to the Banking Act on December 9, 2008 and the PCA mechanism has been formally established. CDIC will coordinate with the competent authority to follow the principle of "early intervention" to manage insured risk.

Uruguay: Early Detection Mechanisms

US(FDIC): Under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, effective July 21, 2010, FDIC was given conditional authorities for (1) special backup examinations at systemic nonbank financial companies and bank holding companies, and (2) backup supervisory enforcement actions at any bank holding company.

3. Crisis Management and Resolution

Though prevention is better than cure, financial crises are bound to occur periodically with varying intensity and duration. Once a systemic crisis does occur, all FSN players become engaged in crisis management. This section provides an overview of crisis response measures taken by FSN participants during the recent crisis and their resolution mechanisms.[25]

One of the first crisis responses was to provide liquidity support and guarantees on bank liabilities. The recent financial crisis caused acute liquidity shortages along with capital losses when asset prices plunged and credit ratings took a nosedive. In order to stabilize the financial market and prevent bank failures, central banks promptly announced large-scale liquidity support measures. Unlike in past crises, the liquidity support was provided not only to banks but to non-bank institutions. To do this, on top of traditional support mechanisms used by central banks, new facilities were developed and used. For example, the Federal Reserve Board of the U.S. extended the discount window, which used to be reserved for banks, to primary broker-dealers as well. The European Central Bank introduced covered bonds. And currency swap facilities were signed among central banks of major countries.

[24] MDIC's risk assessment and intervention powers were enhanced after the new MDIC Act 2011 was put in place effective 31 December 2010.

[25] Claessens et. al (2011) present the following three phases of crisis management: 1) containment to deal with acute liquidity stress and financial liabilities; 2) resolution and balance sheet restructuring to remove insolvent financial institutions from the system and recapitalize viable ones; and (3) operational restructuring to restore the financial soundness and profitability of financial institutions and asset management.

Also, unconventional liquidity measures through which central banks directly bought assets in specific markets with liquidity problems were adopted. The US Federal Reserve Board purchased mortgage-backed securities issued by non-bank, government-sponsored entities like Freddie Mac and Fannie Mae and commercial papers through the Commercial Paper Funding Facility (CPFF). Other examples include the Bank of England's Asset Purchase Facility and, in Ireland, a new agency was created to take ownership of poorly-performing real estate-related assets from Irish banks.

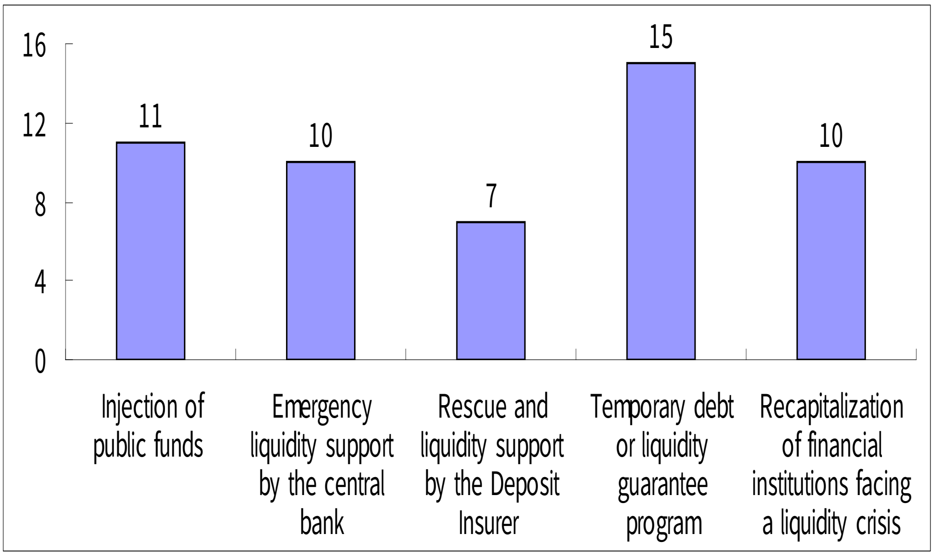
Guarantees were widely deployed as an effective way to support financial institutions that were having trouble in financing without incurring an immediate cash burden. The Citigroup and the Bank of America in the U.S. were provided with guarantees for real estate assets. Banks in the United Kingdom (RBS, Lloyds), the Netherlands (ING), Germany (West LB, Bayern LB, LBBW) and Belgium (Dexia, KBC, Fortis) were also offered guarantees on a variety of assets including mortgages and structured securities. In the meantime, the chief mechanism used by deposit insurers during the crisis to avoid bank failures and prevent bank runs was expansion of coverage and, in some cases, even to unlimited coverage.[26] In the survey, eight respondents - Brazil, Indonesia, Japan, Kazakhstan, Norway, Portugal, Russia and the U.S. – said that the deposit insurer did provide liquidity support through guarantees, etc. as described in Chapter IV.

Other than central bank measures to supply liquidity, government authorities also took action by making direct injections of public funds into at-risk financial institutions. In return, the government received equity shares and the insolvent financial institution became nationalized. Chief examples include AIG in the U.S., Northern Rock and RBS in the United Kingdom, Fortis in Belgium, Hypo Real Estate in Germany and Kaupthing·Landsbanki·Glitnir in Iceland. The U.S. government implemented the Troubled Asset Relief Program (TARP) worth US$700 billion to purchase non-performing assets including AIG's preferred shares and provide liquidity support to the troubled automotive sector. The EU also spent US$196 billion to recapitalize financial institutions.

According to the survey, liquidity support and guarantee measures used by FSN players during the recent crisis include: injection of public funds (11); emergency liquidity support by the central bank (10); temporary debt or liability guarantee program (15); and recapitalization of financial institutions (10).

Figure 4. Liquidity support and guarantee tools used 2007/2008 crises incidents

[26] For details about expansion of coverage, see Chapter IV.



A detailed description of crisis responses made by deposit insurers during the recent crisis has been provided in Chapter IV. In many countries, the deposit insurer was given extended powers and mandates to increase the limit or scope of coverage, shorten the payout period and prevent a bank run by enhancing public awareness of deposit insurance. Furthermore, eight countries answered in the survey that the deposit insurer provided liquidity support as well. In particular, the US FDIC's case is a good illustration of the range of measures in the deposit insurer's toolkit available to handle a financial crisis. The FDIC's policy responses – expansion of coverage, stronger resolution authority, shift in premium assessment from being calculated on deposits to a formula calculated on total liabilities, greater facility for borrowing in case of shortage in the deposit insurance fund and the TLGP – are examples of crisis handling by the deposit insurer.

In the meantime, the recognition that the failure of large multinational financial institutions like Lehman Brothers spread the crisis throughout the world led to a heightened sense of urgency for international or regional cooperation for systemic crisis response. In the survey, we found that several regions including Australia – New Zealand, and Hong Kong – Malaysia – Singapore had cooperation arrangements in place.

Box 5. Selective global or regional cooperation efforts by the deposit insurers to respond a systemic crisis during 2007/2008 crisis

Australia: A particularly close relationship exists between Australia and New Zealand where the 4 major Australian banks subsidiaries in New Zealand dominate the New Zealand banking market. This relationship has been in place for some time. By legislation, the Australian Prudential Regulation Authority is required to take into account the systemic impacts on New Zealand of its actions.

Hong Kong: A tripartite working group was formed by the Hong Kong Monetary Authority, the Bank Negara Malaysia and the Monetary Authority of Singapore in July 2009 with a view to mapping out a coordinated strategy for the three jurisdictions to exit from their respective full deposit guarantees by the end of 2010.

Hungary: The EU Commission has launched several initiatives to enhance EU-wide crisis management mechanism and legal framework, as well as measures to be implemented are underway. Among those, increase and harmonization of coverage level across the EU, putting up a resolution fund, establishing EU-wide network of supervisory authorities, restructuring of the deposit insurance schemes with introduction of solidarity element in financing of the schemes to mention a few examples are underway.

Jamaica: The Central Bank is a member of the Caribbean Group of Banking Supervisors (CGBS). The CGBS has established two technical working groups to discuss: “Development of a Regional Crisis Management” and “Consolidated Supervision.”

Nicaragua: In the case of Central America, was established by the Central American Bank for Economic Integration, a regional fund of one billion dollars (US$ 200 million for each country), to deal with a possible financial crisis. On the other hand, remains, likewise, a permanent exchange of supervisory information through the Council's Superintendents of Banks of the region.

Poland: Measures taken by the European Union: Expansion of the coverage limit to 50,000 EUR and by the end of 2010 to 100,000 EUR, faster payout time up to 20 working days, plans to establish an European Systemic Risk Board and an European System of Financial Supervisors, an EU network of bank-funded resolution schemes. Moreover the European Stabilization Mechanism was established. The mechanism is about granting financial assistance to a member state in difficulties or seriously threatened with severe difficulties caused by exceptional occurrences beyond its control. The amount of loans or credit lines available via this facility to all member states was set at EUR 60 billion.

In addition, a special purpose vehicle (SPV) available only for euro area member states will guarantee on a pro-rata basis lending up to EUR 440 billion. A standard has been also set for EU-wide stress tests (results were published in July 2010). It was the first analysis of soundness of the European financial system done by national supervisors across the EU.

US(FDIC): US regulators, including the FDIC, have entered into a significant number of bilateral memorandums of understanding with foreign counterparts around the world to facilitate cross-border cooperation and information sharing for risk management supervision. FDIC is building on a similar approach to memorandums of understanding for cross-border resolutions. FDIC is also a member and active participant in the supervisory colleges, or multilateral working groups, established by the Basel Committee, which play an important role in the supervision of large and complex internationally-active banks and banking groups, and which have become an important means for strengthening supervisory cooperation and coordination among national regulatory authorities.

The recent crisis has brought about recognition of the importance of speedy and orderly resolution as well as effective crisis management. Due to the characteristics of financial institutions, in wide-spread bank failures, asset values plunge and a negative externality happens, which rapidly affects other institutions. Therefore, there needs to be a resolution scheme that enables a speedy and orderly resolution of failed banks. However, as was shown during the recent crisis, the general bankruptcy procedures under the bankruptcy law are not suited at times of systemic crises. Thus, deposit insurers need to adopt a special resolution scheme aimed at the speedy and orderly wind-down of failed financial institutions in crises, outside general bankruptcy procedures. [27] Different countries assign different resolution powers to their deposit insurers, but, to ensure a prompt response in a crisis situation, there must be a clear demarcation line of roles and responsibilities so that each FSN player can understand what is expected of it with regard to failure resolution.

When asked how many financial institutions they resolved during 2007 and June 2010, 17 of the survey respondents answered one or more. During the period, the U.S. spent US$74 billion to close 267 insolvent financial institutions. Russia resolved 97 financial institutions, which cost more than US$10 billion. In the UK, seven failed financial institutions received nearly US$37 billion in assistance, all of which was incurred in 2008. In the case of Korea, only eight small mutual savings banks were resolved during the period. As for resolution

[27] Bernet and Walter (2009) present the three pillars of a Special Resolution Regime: (1) timely recognition of a looming illiquidity or insolvency; (2) timely initiation of preventive measures to secure existing assets and liquidity; and (3) timely shutdown or recapitalization of insolvent financial institutions.

methods, the survey found that a variety of options were used including deposit payouts, purchase of assets and assumption of liabilities (P&A), bridge bank, open bank assistance (OBA) and mergers and acquisitions (M&A). In the U.S. where the largest number of resolutions occurred during 2007 and June 2010, 237, or 90% of the total, failed financial institutions were resolved through P&A transactions. And 77% of the total costs, or US$57 billion, was paid for with assistance from the government. Taiwan also wound down eight failed institutions through P&As. In Russia, 79 financial institutions were closed after deposit payouts. Finland, Hungary, Norway, Vietnam, the United Kingdom and the U.S. provided protection to depositors by making payouts as well.[28] In the case of Korea, all eight failed banks were resolved through bridge bank arrangements.

Meanwhile, seven of the survey respondents – Austria, France, Kazakhstan, Nicaragua, Portugal, Taiwan and the U.K. – said that another safety net member, not the deposit insurer, was responsible for resolution of failed financial institutions. In Austria, the Finance Ministry provided assistance to two banks for their recapitalization while a government committee decided to inject public funds into Dexia in France. In the case of Kazakhstan, Samruk-Kazyna, a state wealth fund, bought 20 to 80 percent of shares from each of the five failed banks. In the U.K., the Tripartite Authorities made a decision to transfer the deposit business of Bradford and Bingley, Heritable and KS&F according to the provisions of the Banking Special Provisions Act 2008 and the FSCS provided funding only.[29]

[28] In Russia, the resolution costs were paid with government assistance (RUB200 billion) and borrowing from commercial banks.
[29] For Icesave and London Scottish, the FSCS made deposit payouts.

Table 4. Resolution Actions Taken by Deposit Insurer

Country	Resolutions	Total
Argentina	1(Other)	1(9)
Finland	1(Payout), 1(Other)	2(20.7)
Hungary	1(Payout)	1(15)
Indonesia	1(OBA)	1(750)
Korea	8(Bridge Bank)	8(2,414)
Macedonia	3(Other)	3(29.7)
Norway	1(Payout)	1(-)
Russia	79(Payout), 3(P&A), 12(M&A), 3(Nationalization)	97(10,760)
Taiwan	8(P&A)	8(-)
UK	7(Payout)	7(37,476)
US	15(Payout), 237(P&A), 13(OBA) 2(Bridge Bank)	267(74,000)
Vietnam	4(Payout)	4(129)

Note: The unit is US$ million. The resolution costs have been converted into US dollars using the exchange rate for the concerned year.

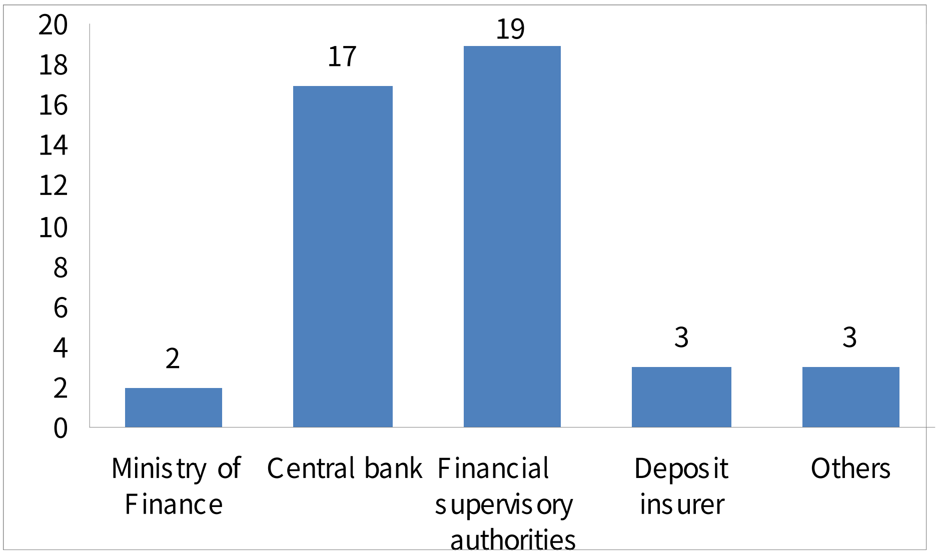
Source: Survey responses

As shown in the above Table 4, there are various methods to resolve a failed financial institution. Which one of them minimizes resolution costs and impacts the financial system in the least negative way can differ depending on country circumstances. It was found in the survey that the number of jurisdictions where the deposit insurer has the authority for determining failure resolution was 25, nearly half of all survey participants. Among them, 11 said that their deposit insurers had the responsibility to take a leading role in resolving failed insured financial institutions after non-viability notification triggered by the prudential regulator.[30] With regard to the determination of failure of an insured financial institution, the agencies that were most frequently mentioned were the financial supervisory authority (19) and the central bank (17). Only two jurisdictions – Australia and Canada[31] – chose the deposit insurer. In Italy and Norway, it is the Finance Ministry or the Treasury that has the failure determination authority while the court has such an authority in Austria, Azerbaijan and Vietnam.

[30] Australia, Canada(CDIC and Quebec), Indonesia, Malaysia, Nicaragua, Serbia, Slovenia, Taiwan, Turkey, Uruguay, and U.S.

[31] CDIC and Quebec

Figure 5. Decision making agency of the failure of an insured institution



Meanwhile, 20 jurisdictions said that the deposit insurer acts or may act as the liquidator of a failed financial institution and the court appoints the liquidator in 28 jurisdictions, except for Italy.[32] However, only the U.S. saw any change in the deposit insurer's authority as the liquidator during the recent crisis: Under the *Dodd-Frank Wall Street Reform and Consumer Protection Act* (Dodd-Frank Act), the FDIC was given broader authority to become the receiver of systemically important financial institutions including bank-holding companies and non-bank financial institutions.

It was also found that there was little difference in the resolution of ordinary banks and systemically important ones during the crisis in terms of resolution methods. However, in the U.K., when Royal Bank of Scotland (RBS) and Lloyds Group face failure, the government provided assistance from the recapitalization fund and bought their shares since their failures would have posed systemic risks to the financial system. The U.S. also provided assistance to Citigroup and Bank of America in an OBA arrangement.[33] Other special arrangements available for the resolution of large financial institutions include: nationalization in Colombia; capital injection, financial assistance beyond insurance payment costs and special crisis management (acquisition of stocks) in Japan; exception from the least-cost test in Korea; and exchange of covered bonds with government securities in Norway. Russia answered in the survey that the deposit insurer is now allowed to make capital injections into systemically

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[32] It is the Finance Ministry in Italy that appoints the liquidator. It is reported that the supervisor also appoints a banking liquidator in France.
[33] The FDIC should resolve failed financial institutions at the least cost under the FDI Act, but in the face of systemic risk, exceptions can be made. When considering an open bank assistance plan, the FDIC should make judgments about whether there are systemic risks.

important financial institutions, provide assistance to acquirers of failing banks and arrange P&A transactions from October 2008 to the end of 2011.

During the recent crisis, 26 jurisdictions adopted a special resolution regime for failed financial institutions. Among them, Canada [34], Finland, Kazakhstan, Norway, Russia and Serbia introduced a whole new type of resolution scheme. Especially, the CDIC in Canada was given the power to establish a bridge bank, and the deposit insurer in Kazakhstan was allowed to nationalize and restructure failed banks by purchasing their shares.

Box 6. Selective special resolution regimes to deal with failures of financial institutions during 2007/2008 crisis

Bulgaria: Law on Bank Bankruptcy (end-2002), where bankruptcy bodies are the trustee, central bank, BDIF, court. The central bank revokes the license of a bank and files a petition to open bankruptcy proceedings to the court; BDIF appoints a trustee and oversees his performance throughout the bankruptcy proceedings; BDIF and central bank sanction the resolution method (sale as whole enterprise, etc.). In bankruptcy proceeding of a bank no meeting of creditors may be conducted, and no rehabilitation plan may be proposed.

Finland: Act on the Suspension of Operations of a Deposit Bank, whereby the FSA acquires specific powers.

France: Supervisory authorities can take some decisions (forbid various operations, fire management, name special administrator...) on their own, without any prior permission or ex post validation by a court. This regime was put in place before the recent financial crisis.

Italy: The Italian Banking Law (legislative Decree 385 of 1 September 1993) provides for a special bankruptcy regime for banks. It consists of two procedures: special administration and compulsory administrative liquidation.

Korea: Under a normal bankruptcy, after being declared bankrupt by the court, the failed company forms a bankruptcy estate, pays bankruptcy dividends to relevant creditors. Then, the company is liquidated. However, under a special resolution regime, it is an administrative body of the government or a resolution authority that oversees the recovery or liquidation/bankruptcy procedure of a financial institution. The company is either put back into viable condition with fund support (e.g.

[34] Prior to the financial crisis, the CDIC had in place a limited special resolution regime which relied on a partial bridge institution authority under Financial Institution Restructuring Provisions in its legislation.

equity participation) or put under a bankruptcy procedure in which the KDIC acts as a representative of many small creditors.

Russia: The Deposit Insurance Agency is the only receiver/liquidator of failed DIS member banks. It can also inject capital to systemically important banks, provide assistance to acquirers of failing banks, arrange purchase and assumption transactions.

Taiwan: 1. The government set up the Financial Restructuring Fund to provide a 4-year blanket guarantee (2001-2005) and entrusted the CDIC to handle problem financial institutions through the following methods: (1) to pay off the debts of financial institutions and assume their assets. (2) to pay off the debts that exceed the amount of assets to the assuming bank. 2. According to the DI Act, CDIC can adopt cash payout, deposits transfer and financial assistance methods to handle failed institutions. In addition, CDIC may set up a bridge bank to assume all or part of the business, assets and liabilities of the closed insured institution or provide open bank assistance to the closed institution when there is a concern of a systemic crisis.

UK(FSCS): The SRR was introduced in the UK under the Banking Act 2009. Whilst the Banking Act introduced new Banking Insolvency and Administration Procedures the SRR also introduced stabilisation options including; (1) Transfer to a private sector purchaser, (2) Transfer to a bridge bank, (3) Transfer to temporary public ownership.

US(FDIC): FDIC as receiver of failed institutions is not subject to court supervision, nor is it as receiver subject to the direction or oversight of any other agency, department or executive office of the US government. FDIC also holds special statutory powers to provide for the timely resolution of failed institutions at the least cost to the deposit insurance fund, including powers to determine claims, repudiate burdensome contracts, place litigation on hold, avoid fraudulent conveyances, and raise special defenses against intervention, among other things.

Aside from countries that implemented a special resolution regime, 13 others implemented changes in the resolution authority and roles of the deposit insurer. Among them, Malaysia revised the MDIC Act to give the deposit insurer an authority to establish a bridge bank and lend to uninsured financial institutions. In Poland, the deposit insurer now has new powers for capital injection. And the Serbian deposit insurer was enabled to manage banks' business, create a bridge bank, arrange P&A transactions and support bank acquisitions in accordance with the new Law on Deposit Insurance Agency enacted in 2010.

4. Funding

A deposit insurance system should have sound funding arrangements to make prompt deposit payouts in the event of failure of an insured financial institution and maintain public confidence in deposit insurance. The IMF (2000) recommends that sufficient funds should be maintained to enhance the reliability of the deposit insurance system to ensure the reimbursement of insured deposits and resolution of failed banks.[35] Whether funds are raised ex ante, ex post or via a hybrid combination of ex ante and ex post mechanisms and how to provide back-up financing (in case of tight money) should be determined by law or regulations.

All countries with deposit insurance have raised a fund, whether ex ante, ex post or hybrid, to be used for deposit payouts or assistance to failing financial institutions. In general, an ex ante financing model is considered to be more beneficial in terms of depositor confidence or system efficiency although an ex post model does help to enhance market discipline by encouraging market participants to monitor each other (IADI, 2009; Bernet and Walter, 2009; Gerhardt and Lannoo, 2011).

[35] A sufficient level of funding means guaranteeing protection for depositors of two small-to-mid-sized banks or one large bank at normal times.

Table 5. Advantages and Disadvantages of the Two Funding Mechanisms

	Advantages	Disadvantages
Ex-post	• **Market discipline**: Induces banks to monitor each other's activities.	• **Potential payout-delays**: The funds are not collected beforehand. • **Pro-cyclical effects** : Commitments in poor economic situations may lead to a domino effect of bank failures, a renegotiation of conditions and/ or a collapse of the DIS • **Inequitable and unfair**: Failed institutions never contribute to their resolution costs.
Ex-ante	• **Public confidence**: Prompt reimbursement of depositors possible. • **Smoothened premium payments** : Reduced pro-cyclical effects. • **Reduces moral hazard**: Ex-ante funding could incorporate risk-adjusted premiums. • **Equitable and fair**: All member institutions (including prospective failed institutions) contribute.	• **Adequate fund-size**: Difficult to establish a fund of sufficient size. • **Adequate premium calculation**: Difficulties in defining a 'fair' calculation method. • **Administrative complexity**: Organizational and strategic intricacy.

Source: Bernet and Walter(2009)

The survey revealed that, as of the end of 2009, five nations (U.K., U.S., Taiwan, Korea and Japan) reported a deficit in the deposit insurance fund. In the U.K. where an ex post funding mechanism is used, the deposit insurance fund has run up a deficit because it had to reimburse claims of depositors of seven failed banks including Northern Rock that experienced a bank run in 2007.[36] Even in the U.S. where the fund is raised ex ante, more than 250 bank failures since 2007 have pushed the fund into the red. In the case of Taiwan, there are two deposit insurance funds: the Banking Financial Deposit Insurance Fund and the Agricultural Financial Deposit Insurance Fund. The former has been running a deficit for four years due to bank failure resolution costs. Korea's deposit insurance fund which has six accounts for different financial sectors (e.g. banking, insurance) has recorded a deficit in the savings bank account as well. The financial assistance for bank resolutions between late 1990s and early 2000s

[36] In the Banking Act 2009, it is specified that the FSCS may request a loan from the National Loan Fund, charge 1.84 billion pounds per annum to all insured financial institutions in ex post levies, and access a credit facility of 75 million pounds and an overdraft facility of two million pounds from the private sector.

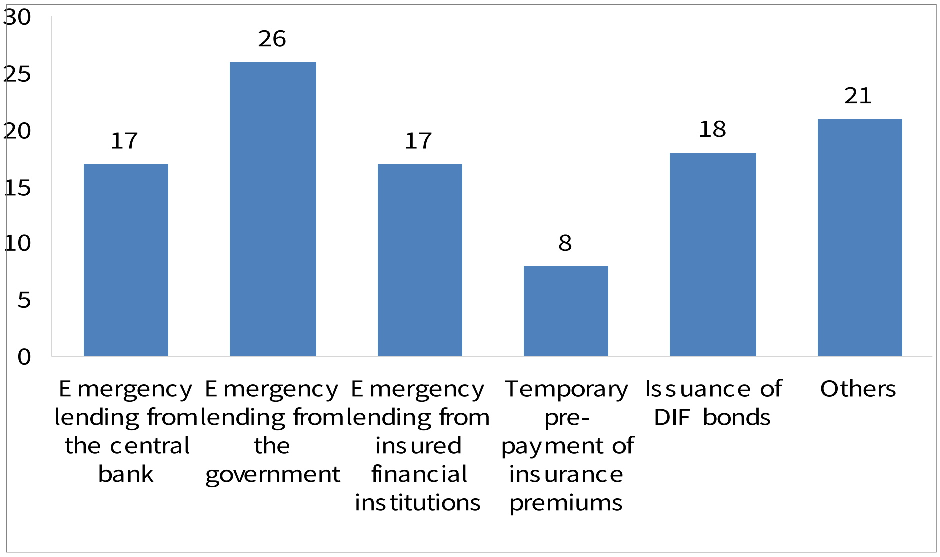
left the DICJ Fund in a deficit.

However, there may be cases where it is impossible for the deposit insurer to cover all the costs of depositor reimbursement or bank failure resolution, should a financial turbulence occur. To prepare for such instances, governments should establish a backup financing mechanism in advance. During past systemic crises, the funding for crisis recovery could not be met by the deposit insurance fund alone, but also had to rely on liquidity injections by the central bank or provision of public funds by the government.[37]

In an answer to a question regarding the backup funding that may be needed should the insurer not have sufficient funds in place to cover deposit insurance claims, many of the survey respondents said that they get the emergency funding by borrowing funds from the government, central bank or financial institutions: 17 respondents checked the box for borrowing from the central bank; 26 lending from the government; and 17 lending from other insured financial institutions. In the meantime, 18 jurisdictions chose issuance of deposit insurance fund bonds as their source of emergency funding and 8 chose temporary pre-payments of insurance premium. 30 out of 51 respondents said they used two or more methods to finance any shortfall in the deposit insurance fund. When asked how they plan to repay the emergency loans, 15 respondents answered that they would raise deposit insurance premiums; 14 said they would levy special assessments or contributions; two (Nicaragua and Serbia) said they would use money from its own treasury; 10 indicated that they would resort to other methods; and as many as 12 said they would not take any measures.

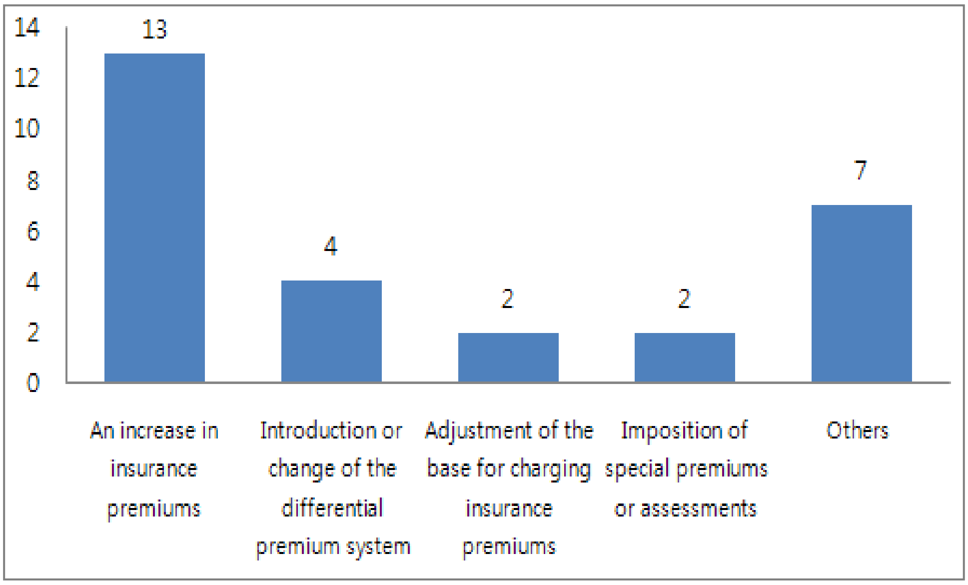
[37] Stated in The *Core Principles for Effective Deposit Insurance Systems.*

Figure 6. Emergency funding measures for the shortfall in the deposit insurance fund



Regarding the changes, if any, in the premium assessment criteria during the recent crisis, 13 respondents chose increasing insurance premiums; 4 (Brazil, Greece, Kazakhstan and the U.S.) adopting a differential premium system; 2 (Hong Kong and the U.S.) changing premium assessment criteria; 2 (Taiwan and the U.S.) levying special assessments; and 7 others. Hong Kong cut insurance premiums by 65% to prevent banks from passing the costs of providing higher protection onto depositors effective from 2011. In Russia, quarterly premium rates were reduced from 0.13% to 0.1% in October 2008. The U.S. FDIC raised annual premiums by 0.03% permanently on September 29, 2009, to be effective on January 1, 2011, imposed one-time special assessments of 5 basis points on September 30, 2009 and required insured financial institutions to prepay three years of estimated insurance assessments on November 12, 2009.

Figure 7. Changes to the standards on charging insurance premiums during 2007/2008 crisis



Box 7. Selective changes to the standards on charging insurance premiums during 2007/2008 crisis

Hong Kong: The premium rates were reduced by 65% across the board to mitigate the possibility of cost transfer from banks to depositors due to a five-fold increase of the protection limit and the expansion of the scope of coverage.

Kazakhstan: Two new qualitative indicators were introduced within the differential premium system: assessment of management quality and banks' compliance with the recommended limits on the deposit interest rates. In addition, thresholds and weights of several quantitative indicators were adjusted while some of the other ones were seriously reconsidered and updated. And equal proportionate decrease in all differential insurance premium rates by 25% to alleviate the burden on the banks' liquidity

Korea: In the wake of the financial crisis, savings banks have faced difficulties in sales activities and their profitability has decreased. As a result, there have been a string of failures and the deficits in the Deposit Insurance Fund's savings bank account reached such levels that the sector had to bear part of the responsibility and share the costs. In June 2009, the premium rate for savings banks was raised by 5bp.

Malaysia: The Government charged a guarantee fee to all member institutions protected under the GDG. In the case of banks which are members of MDIC, the Government imposed a guarantee fee on deposits above

RM60,000. MDIC continued to assess premiums on deposits insured under the RM60,000 limit under its Differential Premium Systems.

Russia: Premium rate was decreased in October 2008 from 0.13% per quarter to 0.1% per quarter

US(FDIC): (A) On September 29, 2009, FDIC permanently increased annual deposit insurance assessment rates by 3 basis points effective January 1, 2011 to help restore the deposit insurance fund over the longer term. One basis point equals $0.01 (1 cent) for every $100 in domestic deposits.
(B) FDIC issued a Notice of Proposed Rulemaking on April 13, 2010 to revise the deposit insurance assessment system for both large and highly-complex institutions.
(C) The assessment base was recently changed from average total deposits to average total consolidated assets less average tangible equity under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, effective July 21, 2010.
(D) On May 22, 2009, FDIC imposed a special one-time deposit insurance assessment of 5 basis points payable September 30, 2009 to raise additional funds.
(E) On November 12, 2009, FDIC required insured institutions to prepay on December 30, 2009 all quarterly risk-based deposit insurance assessments for 2010, 2011 and 2012 to help meet the costs of projected bank failures.

VI. Conclusions

In the midst of the 2007/08 financial crisis which is said to the most serious since the Great Depression in the 1930's, countries world over engaged in crisis response efforts to promptly stabilize the financial market and resolve failed financial institutions by providing liquidity, purchasing assets, offering guarantees and recapitalizing banks. Moreover, they increased the deposit insurance coverage and shortened the payout period to protect depositors and enhance public confidence in the financial system. It seems that the recent crisis heightened awareness about how important the deposit insurance system is as a part of the financial safety net.

This paper, which draws on a survey conducted on IADI and EFDI members and a review of literature on systemic crisis, has reviewed the roles and responsibilities of a deposit insurer regarding how to handle a systemic crisis. From analyzing responses from 51 deposit insurers of 50 jurisdictions, the study has yielded the following implications for the deposit insurance agency's effective handling of a systemic crisis.

1) It is clear that any one of the FSN players cannot prevent or manage a systemic crisis by itself. Therefore, to ensure effective crisis prevention and containment, a framework should be established in advance by law or regulation that prescribes the roles and responsibilities of each FSN player. It would also be desirable to have a regular meeting of FSN players so that they can review the state of the financial system on a regular basis and take appropriate measures accordingly. The U.S. Financial Stability Oversight Council is a good example.

2) Monitoring the financial market and detecting signs of failure early is critical to preventing a systemic crisis. To make that happen, the FSN players should be enabled to share information quickly and easily and make timely interventions at the earliest sign of trouble. The deposit insurance system should have sufficient coverage levels to prevent a bank run, and maintain public confidence in the system through strong public awareness programs at normal times. One good idea would be to review and improve the deposit insurance system to make it more closely aligned with the *Core Principles for Effective Deposit Insurance Systems – A Methodology for Compliance Assessment*, developed by the IADI and the BCBS in consideration of each jurisdiction's economic and financial circumstances.

3) Providing full guarantees or a significant increase in coverage to depositors of failed banks helps to contain a systemic crisis. Also, there

should be a special resolution regime for financial institutions outside the general bankruptcy procedures. In particular, an international framework for cooperation in dealing with failures of systemically important financial institutions and large financial institutions that engage in cross-border operations should be developed. This issue has drawn considerable attention since the onset of the recent crisis.

4) There is little disagreement about the importance of funding to pay for the costs of systemic crisis management. A deposit insurance fund should have sufficient reserves to ensure prompt reimbursement of deposits. An ex ante financing model is seen to be more efficient than an ex post one to maintain public confidence in the deposit insurance system and to reduce moral hazard. In addition, a plan to acquire emergency financing to make up for any shortage of funds needs to be developed in advance.[38] Moreover, given the nature of a systemic crisis, there is a need for additional resources that can be used to provide liquidity or purchase impaired assets. However, a further and more detailed discussion is necessary regarding sharing of the costs and funding for future systemic crisis prevention and management.

[38] The IADI Guidance on Funding and the Core Principles also stress similar points.

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Appendix 1: Countries Responding to the Questionnaire

1	Argentina	26	Jamaica
2	Armenia	27	Japan
3	Australia	28	Kazakhstan
4	Austria	29	Korea
5	Azerbaijan	30	Macedonia
6	Bahamas	31	Malaysia
7	Barbados	32	Montenegro
8	Brazil	33	Nicaragua
9	Bulgaria	34	Norway
10	Canada-CDIC	35	Peru
11	Canada-Quebec	36	Poland
12	Colombia	37	Portugal
13	Croatia	38	Romania
14	Cyprus	39	Russia
15	Czech Republic	40	Serbia
16	El Salvador	41	Singapore
17	Estonia	42	Slovakia
18	Finland	43	Slovenia
19	France	44	Taiwan
20	Greece	45	Thailand
21	Guatemala	46	Turkey
22	Hong Kong	47	U.K.
23	Hungary	48	Uruguay
24	Indonesia	49	U.S.
25	Italy	50	Vietnam
		51	Zimbabwe

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