Managing System-wide Financial Crises:

A Macro Approach— Some lessons from Japan since 1990

(preliminary draft)

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Abstract

Doubts are often expressed over whether it may be difficult to achieve the orderly liquidation stipulated in Title II of Dodd-Frank as intended, because no international resolution regime for large and complex cross-border financial firms has been established. This paper starts with emphasizing that the pursuit of orderly liquidation without taxpayer money itself acts as a barrier to reaching global agreement on such a framework.

Some argue that the business lines and group structures of financial firms need to be modified to give them higher resolvability. We have doubts, however, as to whether supervisory authorities can actually force financial firms to make major changes to their business and their organizational structures during normal times or in the beginning stages of a crisis, and even if they could whether such changes would be appropriate.

Our emphasis in this is paper is that even if the above problems are solved, there is a case when Title II is infeasible. When there is a system-wide financial crisis, i.e., when many financial institutions all suffer major losses at once owing to a shared event such as the bursting of a bubble, an attempt to orderly liquidate individual financial institutions without using taxpayer money may actually propagate disorder throughout the financial system.

In this paper, we outline the lessons learned from previous system-wide financial crises, using the financial crisis that began Japan in the mid-1990s as our reference point. These lessons show that although the system-wide stress tests stipulated in the Dodd-Frank Act are an effective means of gaining a big picture of the crisis, prior to running the tests provisions must be made for backstops, including public capital injections.

When backstops and the provision of emergency liquidity are required to maintain system stability, we think it is a mistake to treat nonbank SIFIs subject to the enhanced supervision similar to banks less favorably than the banks.

The latest global financial crisis proved that pursuing micro prudence at individual financial institutions does not necessarily lead to prudence for the financial system as a whole. This realization has led to the introduction of a macro prudence approach. Our emphasis in this paper is that pursuing orderly resolution at individual financial institutions does not necessarily lead to the orderly resolution of the financial system as a whole. A macro approach is needed not only for prudential regulations but also in the area of crisis management policy.

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1. Feasibility of new resolution regimes for financial firms

(1) Reform in the financial crisis management framework – progress so far

Little progress establishing a framework for managing financial crises in any country

Three years have passed since the Lehman bankruptcy sent shockwaves through global financial markets. During this time, the G20, the Basel committee, and the FSB have been considering future global frameworks for both preventing financial crises and managing them once they occur.

The headline preventative measures are Basel III and the regulation of global SIFIs, but measures aimed at preventing the recurrence of financial crisis are being introduced in a broad range of areas, including securitization, OTC derivatives, hedge funds, credit ratings, and compensation. Individual countries are also establishing domestic rules largely consistent with these global regulatory efforts.

In contrast, measures to deal with crises once they occur are still a work in progress as was explained in the report by the Basel Committee's Cross-border Resolution Group (CBRG) in July 2011[1].

The CBRG was organized to study how to cope with the failure of cross-border financial firms, a problem that emerged with the Lehman bankruptcy. It issued 10 recommendations in March 2010[2]. In its latest report, however, it identified as a problem the many countries that have made little headway in establishing domestic rules prior to the creation of a cross-border framework.

Delays in introducing SRR

The CBRG noted, for example, that although financial firms require a special resolution regime (SRR) different from the usual regime for resolving bankruptcies, many countries have yet to establish an SRR. An SRR gives the competent authorities such powers as to suspend the early termination of agreements and to quickly transfer assets to a bridge company.

[1] Basel Committee on Banking Supervision, Resolution policies and frameworks – progress so far, July 2011
[2] Basel Committee on Banking Supervision, Report and Recommendations of the Cross-border Bank Resolution Group, March 2010

This is because when a financial firm is in crisis, the value of its assets declines rapidly, and its large number of transaction partners causes the crisis to spread. An important goal of a normal resolution regime is the fair and orderly resolution of creditor claims, but an SRR also requires financial firms to meet public interest objectives, namely maintaining financial stability and protecting retail account holders. In many countries, however, there is no SRR for nonbanks, even if there is one for banks. There is also a problem in that among those countries that do have an SRR, the threshold conditions for their use may differ.

Providing for temporary funding

In addition, although temporary funding is needed in the resolution process to prevent chaos and ensure that the financial firm in crisis is able to continue providing critical functions and honoring contracts, in many countries there is no clear provision for such funding. Many countries have deposit insurance funds set aside for depository institutions, but most jurisdictions do not have resolution funds and seem instead to still rely on ad hoc arrangements by the government or central bank to fund broader resolution efforts that are not narrowly confined to protecting depositors.

Establishing a cross-border framework

The fact that many countries do not have adequate national resolution toolkits makes it that much more difficult to achieve orderly resolution across borders.

Furthermore, according to the CBRG report, there has been no progress towards the development of a framework for cross-border enforcement of resolution actions, such as cross-border mutual recognition and enforcement of resolution powers between home and host jurisdictions.

Because there are no prospects of achieving agreement on a cross-border crisis management framework in the near future, the Financial Stability Board (FSB) has proposed a plan that puts the priority on establishing a framework for dealing with crises of global systemically important financial institutions (G-SIFIs). This entails preparing a recovery and resolution plan (RRP) under the direction of each G-SIFI's home national authorities and improving resolvability, as well as establishing a Cross-border Crisis Management Group comprising the competent authorities from each G-SIFI's home country and primary host

countries in order to share information on and prepare for potential crises, deal with crises that have occurred, and review RRPs[3].

(2) Ending TBTF would hamper the creation of a cross-border resolution framework

Global agreement on avoiding the rescue of financial firms using public funds

Although these efforts are admirable, they may make it even more difficult to achieve agreement among countries on cross-border bankruptcy resolution for financial firms, the importance of which should have been driven home by the global financial crisis. This is because of the increased popularity since the financial crisis of the idea that public bailouts of financial firms should be ruled out.

Governments in Europe and the US were compelled to use public funds to rescue financial firms during the recent financial crisis. This created a major backlash from voters, and made it politically expedient to push financial regulatory reform in the direction of not allowing a repeat of taxpayer-financed bailouts. Avoiding public bailouts also has economic significance, because of the fear that financial firms' expectation of a bailout creates a moral hazard, encourages excessive risk-taking, and leads to the next crisis. Too-big-to-fail and too-interconnected-to-fail financial firms have been particularly large beneficiaries of the low cost of capital resulting from the potential for a bailout, resulting in their becoming even bigger and more interconnected, which increases the potential damage to the economy in the event of their failure.

At the G20 Toronto Summit in June 2010, leaders agreed on the statement "We are committed to design and implement a system where we have the powers and tools to restructure or resolve all types of financial institutions in crisis, without taxpayers ultimately bearing the burden,"

The US already prohibits financial firm bailouts by law

US law clearly prohibits the bailout of financial firms using taxpayer funds. The Dodd-Frank Wall Street Reform and Consumer Protection Act passed in July 2010 regulates the orderly liquidation of financial companies. Section 214 (a)

[3] Financial Stability Board, Consultative Document, "Effective Resolution of Systemically Important financial firms, Recommendations and Timelines," July 19, 2011

states "All financial companies put into receivership under this title shall be liquidated. No taxpayer funds shall be used to prevent the liquidation of any financial company under this title.” In Section 214(b): "All funds expended in the liquidation of a financial company under this title shall be recovered from the disposition of assets of such financial company, or shall be the responsibility of the financial sector, through assessments." And in Section 214(c): "Taxpayers shall bear no losses from the exercise of any authority under this title." In addition, Section 212(b) states that "No governmental entity may take any action to circumvent the purposes of this title.

Section 13(c)(4)(G) of the Federal Deposit Insurance Act had allowed in the event of systemic risk for capital injections, debt guarantees and other support of insured depository institutions that goes beyond the principle of least cost resolution. In the latest financial crisis, systemic risk determinations were made when providing assistance to Wachovia and Citigroup and when establishing the Temporary Liquidity Guarantee Program, which guaranteed certain debt issued through 31 October, 2009 and certain uninsured deposits of participating institutions through 31 December 2010.

Section 1106(b) of Dodd-Frank modifies that section of the Federal Deposit Insurance Act, however, and requires that assistance in the event of systemic risk be provided "for the purpose of winding up the insured depository institution for which the Corporation has been appointed receiver," thus disallowing "open bank assistance" transactions.

Under Dodd-Frank, the FDIC is allowed to create a widely available program to guarantee obligations of solvent insured depository institutions or solvent depository institution holding companies in order to avoid or mitigate potential adverse effects on the United States financial system or economic conditions, but this may not include the provision of equity in any form (Sections 1104 and 1105).

Dodd Frank also revised Section 13(3) of the Federal Reserve Act regarding Emergency Lending from the Federal Reserve Bank, a program that was used in the latest financial crisis, including in JPMorgan Chase's acquisition of Bear Stearns in March 2008. That relevant paragraph, which was added in 1932 as part of the Emergency Relief and Construction Act, allowed for loans from the Federal Reserve Bank to individuals, partnerships, or corporations "in unusual and exigent circumstances," but Section 1101 of Dodd-Frank requires the loans to be part of a "program or facility with broad-based eligibility for the purpose of providing liquidity to the financial system, and not to aid a failing financial company," and also requires that "the security for emergency loans be sufficient to protect taxpayers from losses and that any such program be

terminated in a timely and orderly fashion." In addition, it states that "the Board shall establish procedures to prohibit borrowing from programs and facilities by borrowers that are insolvent," and requires that the program and facility report to Congress and receive the prior approval of the Secretary of the Treasury. Previously, the FRB was able to flexibly fulfill its function as lender of last resort to individual companies, but it is now much more limited in this regard.

Ruling out assisted resolution worsens the problem of cross-border bankruptcy resolution

Of course, if a global financial firm headquartered in its home country is at risk of bankruptcy, whether that home country implements emergency fiscal and financial measures to constrain the turmoil will make a big difference in the ultimate size of the losses suffered by the counterparties and creditors of both the head office and overseas operations. This is clear when one considers the differences in the international impact from the Lehman bankruptcy compared with that from the crises precipitated by Bear Stearns, Fannie Mae, Freddie Mac, and AIG.

If each country contains the crisis at home, differences among the countries in their cross-border bankruptcy resolution will not pose a major problem. Because bankruptcy would not occur in the event of a bailout, there would be no need to worry about problems with cross-border bankruptcy resolution. Nevertheless, the increase in the number of countries that are not allowing public bailouts has greatly increased the seriousness of problems with cross-border resolutions, while simultaneously making it that much more difficult to agree on a solution.

(3) Japan keeps its systemic risk exception

At least one of the G20 countries has chosen not to disallow public bailouts of financial firms, that country being Japan. As we show in Chapter 2, under the system established by Japan following its financial crises in the 1990s, when systemic risk is a concern, it is possible to provide Open Bank Assistance to solvent financial firms, i. e. inject them with public funds without wiping out shareholders, in order to prevent the crisis from developing into a bankruptcy and causing substantial systemic impacts. If the institution is insolvent, it is possible to temporarily nationalize it while providing protection to some creditors other than insured deposit holders. In all cases, the Bank of Japan (BOJ) is able to

provide the necessary liquidity through special loans. Japan participated in the debate at the CBRG and FSB over cross-border bank resolution and in the G20's adoption of the FSB recommendations, but is not currently considering eliminating the system described above.

These differences extend to important components of policy tools, even in regards to the technical workings of bankruptcy resolution regimes. Although the G20 agreement proposes resolution without the use of taxpayers' money, there are countries like the US that go beyond that and disallow other forms of resolution by law, and countries like Japan that clearly leave open the possibility of using tax money. Public support is not completely barred under rules in the EU or UK, either. These differences across countries in their stance on crucial components of resolution regimes also suggest that forging an agreement will not be easy.

(4) All countries adopted an homogenous approach to crises following the Lehman bankruptcy

TBTF institutions were rescued using various methods

We think the fact that it is taking time to build a unified approach to cross-border resolution and has actually become more difficult to forge an agreement is exactly opposite to the situation when the actual crisis erupted and each country took almost same actions in the last financial crisis.

In the G7 Finance Ministers and Central Bank Governors Plan of Action announced on 10 October 2008, shortly after the failure of Lehman Brothers, there was agreement to "take decisive action and use all available tools to support systemically important financial firms and prevent their failure," and the idea of ending too big to fail (TBTF) was nowhere to be found in that document.

In addition, each country was following the same macro policies of increasing government spending and monetary easing, while injecting capital into, guaranteeing the loans of, and providing liquidity to not only the banks but to a wide range of financial firms, including nonbanks. In the US, special programs were established to channel funding support from the Treasury Department and the central bank to specific markets and products, including money market funds, commercial paper, and asset-backed securities.

The measures introduced by the US to deal with new financial crises and the cross-border resolution framework currently targeted by the G20 rule out

public support, but the fact that such measures proved necessary in the last financial crisis raises doubts over the feasibility of this new approach.

Japan has learned that ruling out bailouts is not realistic.

In 1996 in Japan, public funds totaling ¥685 billion (US$6.3 billion using the exchange rate back) were injected in the process of resolving the bankruptcies of home mortgage lenders (*jusen*) in order to limit the losses suffered by the agricultural financial firms that had equity in them. This caused a public backlash, however, and made it impossible for Japan to flexibly implement measures to facilitate recapitalization or the purchase of nonperforming loans (NPLs) that year or the next, even while its economic bubble was imploding further, NPLs were growing even at the major banks, and its financial system was becoming less stable. As a result, the crisis only worsened until it got to the point where there was a need for an injection of public funds 100 times as large as the one that caused the uproar in 1996.

Japan learned that injecting public funds into a financial firm leads to a taxpayer revolt. It also learned that it is unwise to shut down this policy option because of such opposition, because that inevitably winds up increasing the taxpayer burden.

What sets Japan apart is that not only does it use public funds to achieve an orderly resolution of insolvent financial firms, it has a mechanism for preventively injecting public funds into solvent financial firms that are weak and at risk of destabilizing the financial system. This is in alignment with the October 1998 statement of G7 Finance Ministers and Central Bank Governors that was directed at Japan[4].

The fact that governments in Europe and the US rescued a variety of financial firms during the last financial crisis seems to be consistent with the lesson Japan learned that such rescues are at times unavoidable, and the weight of opinion in Japan is that ruling out rescues as a policy option, while an understandable response, is not a good idea.

(5) Skepticism over Dodd-Frank's Title II

[4] Statement of G7 Finance ministers and Central bank governors (October 3, 1988, Washington, DC): "We stress the importance that we attach to the swift and effective action to strengthen the financial system, including the prompt enactment of measures to support viable banks with public assistance in sufficient amounts to be provided swiftly with appropriate conditions."

Credit rating agencies confident there will be systemic support

This skepticism is not unique to commentators in Japan, but shared by many others, in our opinion. For example, MIT professor Simon Johnson comments, "In some official minds, Dodd-Frank has made it impossible for "too big to fail" banks to exist – meaning that if any such bank got into trouble, it would be shut down without any significant costs being incurred by taxpayers. Most independent analysts and many people active in financial markets regard this proposition as unproven at best and, most likely, simply incorrect[5]."

Professor Johnson argues that for that reason, banks should be split up so that they are no longer "too big," but given the lack of support for, and poor prospects of realizing such a plan, it is natural to expect that bailing out financial firms as well as some of their creditors may be unavoidable.

For example, the credit rating agencies "uplift" their ratings of the major US banks based on their assumption of systemic support. This uplift has been amplified by the fact that support was actually provided during the financial crisis. This uplift has not completely disappeared, even though the enactment of Dodd-Frank proclaimed the end of TBTF.

Before the revision in September 2011, the uplift of the holding company's long-term debt rating for Bank of America was two notches from S&P and four notches from Moody's. The uplift for Citibank was two notches from S&P and three from Moody's[6].

In June 2011, Moody's announced that it would revise this uplift in the event of a financial crisis and review the potential of a downgrade for Bank of America, Citibank, and Wells Fargo, but it was referring to an adjustment of the unusual uplift applied as a result of the public assistance rendered at the height of the financial crisis; the uplift reflecting a pre-crisis level of government support would remain. In addition, it would not be revising the uplift of those financial firms for which the uplift during the financial crisis was not unusual. Moody's senior management noted in regards to this that, despite the passage of the Dodd-Frank act, "Moody's continues to believe that such a group could not be resolved without risking a disorderly disruption of the marketplace and the broader economy."[7]

Moody's downgraded all three of these banks in September 2011, dropping its long-term debt rating by two notches for Bank of America and by one notch

[5] Johnson, Simon "Three Questions for the Financial Stability Oversight Council," The Baseline Scenario, September 3, 2011
[6] Financial Stability Oversight Council, 2011 Annual Report
[7] Moody's, Global Credit Research, June 2, 2011

for Wells Fargo. For Citigroup, it left its long-term debt rating the same, but lowered its short-term debt rating to P2 from P1. Commenting on its downgrade of Bank of America, Moody's noted that it "continues to see the probability of support for highly interconnected, systemically important institutions as very high, although that probability is lower than it was during the financial crisis." It added that "the final form of several critical components of Dodd-Frank intended to reduce such interconnectedness, such as resolution plans or changes to the over-the-counter derivatives market, are still pending. There is also no global process yet in place whereby regulators could resolve a global financial company such as Bank of America in an orderly fashion. As a result, Moody's believes that it would be very difficult for the US government to utilize the orderly liquidation authority to resolve a systemically important bank without a disruption of the marketplace and the broader economy."

S&P has written "we believe that under certain circumstances and with selected systemically important financial firms, future extraordinary government support is still possible[8]." Congressman Barney Frank, co-author of the Dodd-Frank Act, criticized this S&P report as misleading in regards to Title II of the Act, because it omitted the fact that Dodd-Frank repealed section 13(3) of the Federal Reserve Act. He commented, "Any fair reading of the American public and the appetite of Congress suggests that there is absolutely no support for more bank bailouts[9]."

This may be the current mood, but there is a possibility that those currently arguing against a bailout during the next crisis may quickly change their tune to demanding a bailout, as occurred in Japan from 1997. The people can change their mind fairly quickly, as can politicians in a reflection of the people's mood.

Can and should we make SIFIs sufficiently resolvable?

Previous FDIC Chairman Sheila Bair admitted that there are doubts over the new resolution framework[10]. She noted that "many large banks and nonbank SIFIs maintain thousands of subsidiaries and manage their activities within business lines that cross many different organizational structures and regulatory jurisdictions. This can make it very difficult to implement an orderly resolution of

[8] Standard & Poor's, "The U.S. Government says support for Banks will be different "next time"—but will it?", July 12, 2011
[9] Barney Frank's open letter to Deven Sharma, President, Standard & Poor's, dated July 14, 2011
[10] Remarks by FDIC Chairman Sheila C. Bair, "We must resolve to end too big to fail," before the 47th Annual Conference on Bank Structure and Competition sponsored by the Federal Reserve Bank of Chicago, May 5, 2011

one part of the company without triggering a costly collapse of the entire company."

Ms. Bair proposed a similar solution, albeit not as radical, to that proposed by Professor Johnson. In that regard, she said that the FDIC and the Fed "must be willing to insist on organizational changes that better align business lines and legal entities well before a crisis occurs. Unless these structures are rationalized and simplified in advance, there is a real danger that their complexity could make a SIFI resolution far more costly and more difficult than it needs to be."

This brings with it new reasons to be skeptical, in our view. Namely, is it really possible for the FDIC and Fed to change SIFIs' global structure in a way that they become easily resolvable just by making them submit a resolution plan? Can they reach a consensus on the most appropriate size and organizational structure for achieving true financial stability? Is this an example of bureaucratic overreach through the exercise of excessive authority and discretionary powers? And finally, can the new global financial firms that result properly support the economic activity of their customers?

In this regards, FRB Governor Tarullo's recent speech is worth noting. He said, "(a)t least some advocates of orderly liquidation regimes seem to favor resolution plans that silo activities as much as possible. However, in the presence of significant economies of scope, this approach might result in loss of efficient forms of organization. In these circumstances, resolution plans that seek to preserve the scope economies even as a firm is dismembered might result in better liquidation outcomes. In addition, siloing activities in the context of a resolution plan could affect day-to-day operations during normal times and might reduce efficiency by preventing firms from realizing economies of scope, resulting in increased costs of financial services for households and businesses."

As long as such doubts and concerns remain, it will be difficult for people to believe that future financial firm failures will be orderly, and thus impossible to have confidence that there will not be any bailouts. We have the same doubts and concerns at the global level, including in regards to the FSB's proposal to improve the resolvability of SIFIs via the implementation of RRPs and resolvability assessments.

(6) The rationale and potential defects of the new resolution regime in the US

Improvements based on the Lehman lesson

Given taxpayers' opposition to bailing out large financial firms and the problems of moral hazard, it is understandable that the US and other countries want to end TBTF. The problem is whether an orderly bankruptcy process is possible if they do. An insistence on no government rescue and priority on preventing moral hazard is meaningless unless the larger goal of avoiding an expansion of the systemic crisis can be met. It is important not to forget, as experienced following the Lehman bankruptcy, that a crisis is very costly and places a huge burden on the overall global economy.

An FDIC report released in April 2011 argued that under Dodd-Frank, Lehman would not have sparked systemic turmoil but would have been liquidated in an orderly fashion[11]. It is true that the US is equipped with policy measures that were unavailable at the time, namely,

- Nonbank financial companies supervised by the Fed and large bank holding companies are required to prepare and submit resolution plans meant to enable them to be rapidly and orderly liquidated under Title 11 of United State Code. The Fed and FDIC review the plans and may notify and impose measures to correct deficiencies. This makes both the Fed and the FDIC well-prepared for the event of material financial distress or failure.
- A special resolution regime is introduced for bank holding companies and non-banks designated as covered financial companies where the FDIC can be a receiver.
- As a receiver of a covered financial company, the FDIC has a number of special powers, the most critical of which are the following four.
    i. an immediate source of liquidity for an orderly liquidation, which allows continuation of essential functions and maintains asset values;
    ii. the ability to make advance dividends and prompt distributions to creditors based upon expected recoveries;
    iii. the ability to continue key, systemically important operations, including through the formation of one or more bridge financial companies;
    iv. the ability to transfer all qualified financial contracts with a given counterparty to another entity (such as a bridge financial company) and avoid their immediate termination and liquidation to preserve value and promote stability.

[11] FDIC "The Orderly Liquidation of Lehman Brothers Holdings Inc. under the Dodd-Frank Act", FDIC Quarterly, Volume 5, No.2, 2011

These improvements are reasonable and should be seen as positives that have substantially reduced the potential for bankruptcy resolution to lead to major turmoil. The FSB's cross-border resolution proposal includes the introduction of a special resolution regime, RRPs, temporary funding, and bridge companies, putting the US framework at the forefront of the global trend.

Can SIFIs truly be resolved orderly?

The report by FDIC argues what would have been happened if the authority given the FDIC by Dodd-Frank had been available after the Bear Stearns crisis in March 2008, and thus in time for the Lehman Brothers failure in September 2008. The FDIC estimates that if it had started looking at resolution during the six months between the two crises and stationed personnel inside Lehman Brothers to gather and analyze detailed information on its operations while looking for a potential buyer, it probably would have been able to continue Lehman's business, honor its agreements, and find a buyer in a timely manner, and by ensuring that the shareholders and unsecured creditors bore losses, the losses of creditors would have been only minimal.

Nevertheless, the crisis would not even wait six months from the initial signs before it would develop overnight into a grave situation, and a buyer may not be found that quickly. Losses would already become huge by the time the authorities intervened, creating a situation in which a large number of counterparties would experience losses unless there was an injection of public funds. There was probably no guarantee that that would not cause the crisis to spread.

The US may have been better off because it had the FDIC, an institution with considerable power. In other countries, it may be difficult to achieve the sort of rapid intervention by a resolution authority that the FDIC is capable of. There is a risk that it would be hard to justify, just because of the Bear Stearns crisis, the intervention of regulators and use of the authority to mandate an early capital increase for Lehman Brothers, which had an A rating, a Tier 1 capital ratio of 10.7%, and total capital ratio of 16.1% as of end-March 2008.

There are reasons to question whether even US regulators would be able to intervene suitably and in a timely manner. Problems with regulatory forbearance have long been pointed out, even in the US. In contrast, although a mechanism for prompt corrective action (PCA) has been implemented, the capital ratios that serve as the trigger for that action are lagging indicators.

Section 166 of Dodd-Frank stipulates early remediation requirements for SIFIs, and allows for the introduction of forward-looking indicators as a basis for action. It is also possible, as already noted, to correct potential risks using a resolution plan. In addition, Section 172 of Dodd-Frank allows for the FDIC to conduct special examinations of SIFIs for purposes of orderly liquidation. Even given this authority, however, as with prompt corrective action there is no objective numerical trigger, and the questions of when to take action as well as the type of action are left to the discretion of the regulators. This may mean that the problem of regulatory forbearance is unavoidable[12].

(7) Is it possible to cope with a system-wide financial crisis?

Defining a system-wide financial crisis

The above suggests that even under an improved set of rules it may be difficult to achieve the orderly resolution of an international financial firm as large and complex as Lehman Brothers. Likewise, it would not be easy to turn a large and complex financial firm into a smaller, simpler one. Accordingly, as pointed out by the rating agencies, public bailouts are likely to be necessary to prevent turmoil.

It is important to focus not only on the nature of financial firms, i.e., their large size and complexity. but also on the nature of crises. Particular in the case of financial crises that are system wide rather than triggered by particular companies as was the shock generated by Lehman Brothers, i.e., within an environment of macroeconomic and financial instability conducive to the outbreak of multiple systemic risk events, it would likely become that much more difficult to implement Title II.

Normally, systemic risk refers to risks triggered by externalities of the financial industry, whereby a crisis rooted in particular financial firms spreads to other financial firms. This is different from the term "system-wide financial crisis" used in this paper, which we use to refer to significant part of financial industry becoming unsound as a result of most firms' shared exposure to a serious economic contraction resulting, for example, from the collapse of a bubble, with some event triggering a broad increase in uncertainty among market participants that leads to a run on deposits and freezing up of market transactions that make it difficult for financial firms to get funding, as well as to the panic selling of assets, to the point where there is the fear of large number of financial firms going

[12] See Edwards (2011)

bankrupt. In addition, this serious contraction of the overall economy associates with huge damage on the balance sheets of not only financial firms but also households, corporations, and the government. Recovery from this takes time, during which the financial system overall remains in an unstable state, and systemic risk events continue to occur in waves over an extended period.

It is not only large and interconnected financial firms that are capable of triggering this sort of financial crisis. Accordingly, even if it were possible to successfully make these financial firms into smaller, simpler ones, it would not prevent such crisis. This is because the definition of a system-wide financial crisis is that, irrespective of the interconnectedness of financial firms or their size, a large number of financial firms suffer significant losses, greatly reducing the confidence that depositors and investors have in financial firms in general and making it impossible for the overall financial system to function.

This is what happened during the great depression of the 1930s, during the collapse of Japan's bubble economy in the 1990s, and during the latest global financial crisis, making it appropriate to make a distinction between those period of crises and more limited systemic risk events[13].

The appropriate analogy is not to an orderly row of dominoes in which if one falls adjacent ones also fall, but rather to a table scattered with many dominoes, whereby the table itself becomes unstable and it is impossible to tell which dominoes are going to fall as a result of a shock to that table. Furthermore, the table is not just exposed to a single shock, but rather to repeated shocks over an extended period. Prudential regulation seeks to make each domino less likely to fall. Orderly resolution seeks to improve resolvability starting in normal times, including measures designed to ensure that if a domino does fall it does not take other dominoes with it, and setting up an early detection and intervention system so that signs that a domino is about fall can trigger its quick removal from the table. Nevertheless, although these measures may be effective in preventing a typical Domino-like succession of failures, none are effective if it is the table itself that has become very unstable[14].

[13] The fact that this crisis is often referred to as the Great Recession suggests that it was not as deep as the Great Depression of the 1930s. Reinhart and Rogoff (2009), however, refer to the 1930s crisis as the "Great Contractions and to the latest crisis as the "Second Great Contraction."

[14] Bunnermeier et. al. (2009) refer to a financial crisis in which losses at one bank lead to losses at other banks as the domino model of contagion. They argue that the focus should not be on the chain reaction of losses, but rather on the problem caused by banks becoming concerned over the losses at other banks and reducing their transactions and increasing their haircuts as a way to maintain their own micro-prudence, behavior that leads to a drying up of market liquidity by way of a worsening of interbank liquidity and the fire sale of assets. The domino model mentioned in this paper refers to the type of crisis that originates in one financial firm and spreads throughout the entire system through a chain-reaction of losses and contraction of liquidity. This stands in contrast with a system-wide financial crisis, which is when a crisis of the overall economy, rather than a crisis emanating from a single financial firm, results

In fact, there is a real possibility that early intervention, such as the FDIC making serious preparations for the bankruptcy resolution of a financial firm, will be the catalyst that destabilizes the table. News of such an FDIC action would be difficult to keep secret, and would probably be leaked immediately. The FDIC argues that "while it is possible in this situation or in other situations that the FDIC's on-site presence could create signaling concerns, this argues for the FDIC having a continuous on-site presence for resolution planning during good times," but fooling the market is no easy task. Previously, the possibility of a systemic risk exception made it conceivable that the market would not be overcome by panic, but Dodd-Frank rules out that possibility and makes losses on equity and subordinated debt certain, creating the risk that panic will set in early in the crisis and cause the market to stop functioning. In this situation, the FDIC would be hard pressed to find a buyer, given that market participants would probably have all lost trust in each other.

Bankruptcy resolution under Dodd-Frank makes it more difficult to find a solution

In this regard, Gordon and Muller (2010) point out that FDIC's new resolution authority "works best in the case of financial firms that fail because of idiosyncratic reasons and whose failure produces only isolated consequences. Resolution authority will be inadequate to address serious financial sector distress if single firm failure spreads systemically because of counterparty exposure or similarity risk." They argue that "this resolution straitjacket is a prescription for a future disaster." They make another important point in noting that "The international impact would be much aggravated by multiple close-in-time receiverships. This 'nuclear option' thus in place..."

In a system-wide crisis, we think in some cases it may be impossible to avoid providing individual financial firms, be they banks or nonbanks, with central bank credit or capital injections. This is because a rapid freezing of

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in a large number of financial firms suffering losses. In this case, contagion among financial firms brought by a contraction of liquidity is a key element responsible for the deepening of a system-wide financial crisis, but a system-wide financial crisis can include cases where there is no contagion spreading among financial firms, but rather simply when retail depositors initiate a bank run at a large number of banks. Brunnermeier et al argue that preventing financial crises caused by a reduction of liquidity require not only micro-prudential but also macro-prudential regulation. In this paper, as detailed later, we argue that in place of a micro approach based on achieving the orderly liquidation of individual financial firms, there is a need for a macro approach, not only to prevent financial crises, but also to deal with a financial crisis that has already begun in order to prevent it from worsening into a system-wide crisis.

markets makes access to funding suddenly difficult for a large number of financial firms, including those that were perfectly sound, and this could eventually cause them to successively become insolvent.

Although Dodd-Frank allows for a facility to supply liquidity to solvent financial firms, at the height of a crisis it becomes difficult to determine which institutions are solvent and which are not. This would probably force a situation in which liquidity must be supplied through the facility to financial firms without knowing whether they are solvent. This is also true because one of the causes of insufficient liquidity is a mutual lack of trust in solvency between counterparties. It is difficult to solve the problem of insufficient liquidity without dealing with insolvency and with situations in which there is a risk of solvent financial firms becoming insolvent.

In the case of a system-wide crisis, even the supplying of liquidity or capital injections to individual financial firms, both of which are prohibited under Dodd-Frank, may be insufficient to ease overall market uncertainty. This is not just speculation, but rather what was actually experienced during the latest crisis, Japan's financial crisis in the 1990s and in 1930s.

Based on the lessons learned then, the resolution regime under Dodd-Frank in the US and the framework proposed by the FSB represent major progress, but remain incomplete. Even after the latest crisis, Japan has no intention of changing its resolution regime, which it built based on its experiences in the 1990s and which allows for bailouts using public funds. Rather, the experiences in the latest crisis further validated Japan's existing regime.

In this context, we look back at Japan's crisis in the 1990s to ascertain in greater detail the lessons learned from that experience with system-wide crisis.

2. Japan's system-wide financial crisis

(1) The system-wide crisis that spanned a decade

The nature of Japan's 1990s financial crisis

The bubble that was inflating in Japan in the late 1980s burst in 1990, and led to a period of financial system instability that lasted for over a decade. Japan's bubble was financed by the growth of loans backed by land and stocks that had increased in price. The most visible recipients of these loans were golf

courses, resorts, and commercial real estate developments. It was not only banks and financial co-ops that made these loans, but also affiliated housing lenders, insurance companies, and the financial subsidiaries of brokerage firms. Consequently, nearly every subsector of the financial industry suffered major losses when the bubble collapsed. In that sense, the financial system was in a system-wide crisis during that period.

The system-wide crisis brought by the collapse of a major bubble and other common macro factors spread across a wide range of sectors and created large realized and potential losses. Because of the enormity of scale, the tendency was to opt for the time-consuming approach of putting together a combination of micro and macroeconomic policies instead of realizing the potential losses quickly and expediting the recovery. Because this long-term process was accompanied by deleveraging on a wide scale, it was difficult to stimulate the economy. Each time during this period that domestic or overseas factors worsened more than expected, the financial system's instability was brought to the surface and led to the failure of more financial firms. Another defining feature of Japan's system-wide crisis is that it was experienced over a period lasting more than a decade.

Resolution regime established following waves of crises

In the early 1990s, shortly after the bubble burst, there was a succession of business crises at and failures of small and mid-size financial firms. These were initially resolved through "rescue mergers," but with conditions becoming challenging at other financial firms, it became steadily more difficult to find financial firms to do the rescuing[15]. Although deposit insurance existed, the people already had confidence in the safety of bank deposits, making it difficult to opt to inflict losses on the amount of deposits that exceeded the maximum insured amount, which in turn made it difficult to resolve failures with a rescue merger. In 1995, the BOJ and private-sector financial firms chose to jointly capitalize and establish a bridge bank and use a resolution approach in which local governments also bore some of the losses. This decision to use public funds in the resolution of a financial firm caused a major political furor, however. This came to a head when public funds were injected into seven housing mortgage lenders (*jusens*).

Japan's postwar financial firms were primarily focused on meeting the demand for funds from corporations and proved insufficient to provide home loan services. The *jusen* were established to fill this need. During the bubble, the *jusen*

[15] For more on Japan's financial crisis and the policy response, see Nishimura (2011).

also expanded their lending to real estate projects outside of housing, and this led to losses after the bubble's collapse. A crisis emerged in 1995 when 48% of their loan portfolios became unrecoverable, and it became evident that losses were equivalent to the size of the Philippines' GDP at the time. Nevertheless, there was major resistance to allowing the financial co-ops, partners in the joint venture, to bear these losses, because the smaller financial firms were already struggling, and the financial co-ops served as financial intermediaries for the politically powerful agricultural sector. This resulted in the injection of public funds, and the parties to the joint venture wound up suffering only minor losses. As already noted, this decision evoked a major political backlash, closing off for a while the avenue of rescuing financial firms with public funds.

In 1996, Japan entered a recession that some attribute in part to a hike in the consumption tax rate, to fiscal retrenchment policies advanced by the Hashimoto administration then in power, and to an increase in the portion of health care costs borne by the people. The 1997 Asian monetary crisis also had a big impact, and wound up causing a financial crisis that included the bankruptcy of some large financial firms from 1997 to 1998. After this crisis, Japan instituted a bankruptcy resolution regime that allowed the injection of public funds, while also coming to recognize the need for the orderly resolution of non-banks.

During the recession triggered by the collapse of the IT bubble in 2000, as well, there were rising concerns globally over Japan's overhang of NPLs. Japan implemented a comprehensive "special" audit in the fall of 2002 and injected public funds into large banks that were solvent but weak in May 2003. Around this time, helped in part by a robust economic recovery in the US (that wound up leading to the subprime loan crisis), Japan's decade-plus system-wide crisis came to an end. Next, we turn our focus to the period from 1997 when the crisis became more serious, and look at how Japan responded.

(2) Systemic risk brought by small default amounts

Application of the Corporate Reorganization Act to second-tier brokerage firms

The first casualty of Japan's financial crisis in 1997–98 was the failure of Sanyo Securities in November 1997. Sanyo Securities, whose business had deteriorated primarily owing to the write-off of NPLs held by an affiliated firm, filed for bankruptcy protection under the Corporate Reorganization Act on 3 November and had its bankruptcy resolved through a court-ordered liquidation. This resulted in the first default ever in Japan's money market. That default

caused the market to lose confidence, and the situation developed into a serious financial crisis. Sanyo Securities had assets in custody of approximately ¥2.7 trillion ($25 billion), ranking it as a second-tier brokerage firm in Japan. It was not big enough to be deemed "too big to fail." In addition, the deterioration of Sanyo Securities' business was already in the news and widely known, and in that sense was not really an example of "sudden death." Nevertheless, the money market defaults that occurred as a result of the brokerage firm's failure caused financial market disruptions that Japan had never before experienced, and wound up triggering a financial crisis.

While receiving assistance from the Ministry of Finance and the Bank of Japan at the time, Sanyo Securities tried to rebuild its business through a rescue merger with another brokerage firm. Its efforts to restructure with another brokerage firm failed, however. With its financial position worsening, Sanyo Securities' equity capital ratio was expected to drop below Japan's 120% minimum regulatory requirement. Consequently, regulators abandoned their plans to orchestrate a rescue merger with another brokerage firm, and changed course to a court-ordered liquidation of the firm. Upon learning of this change in plans of the regulators, Sanyo Securities became Japan's first listed securities company to file for bankruptcy in a district court under the Corporate Reorganization Act.

Because Japan's brokerage firms are non-depository institutions and thus not covered by the Deposit Insurance Act, they cannot use the SRR prescribed in that Act for depository institutions (including banks). Furthermore, Japan has no SRR framework for brokerage firms and other nonbank financial firms to avoid systemic risk and ensure their orderly resolution. Consequently, Sanyo Securities elected to resolve its bankruptcy through a court-ordered liquidation under the Corporate Reorganization Act, which is similar to Chapter 11 bankruptcy in the US.

We think it chose the Corporate Reorganization Act because (1) unlike banks, brokerage firms do not provide payment services, and thus it was thought that resolving Sanyo Securities under that Act would only have a limited impact on the financial system and (2) Japan was in the process at the time of changing the way it regulated the financial sector, moving away from the "convoy system"(*goso sendan*) [16] and toward one based on market mechanisms, and court-ordered liquidation placed a greater emphasis on market discipline[17].

[16] The convoy system refers to the form of government administration previously used in Japan. In the context of a military strategy, a convoy of ships adjusts its speed to the slowest ship in the convoy, thereby allowing unified control of the entire group. In the business context, designated industries in Japan are kept under control by bureaucrats, who exercise their authority to provide permits and approvals so as to ensure the survival of the weakest and least competitive.
[17] Karube (1999)

Simultaneous with filing for protection under the Corporate Reorganization Act with the Tokyo District Court, Sanyo Securities also filed for a protective order prohibiting the repayment of debt, the disposition of property, and new borrowing in order to fund the smooth return of client assets, and that protective order was immediately granted by the court. Because of the protective order, the company became unable to repay ¥1 billion ($7.8 million) in unsecured call loans obtained from shinkin banks (credit association) in the interbank market and ¥8.3 billion ($65million) in funds borrowed from an agricultural cooperative in the repo markets, resulting in the first ever default in Japan's money market.

Triggers major financial market turmoil and financial firm failures

Sanyo Securities' default was not a large amount and therefore did not directly cause large losses in the financial sector. As the first-ever default in Japan's money market, however, it reduced market confidence, made market participants less willing to provide credit, and developed into a serious crisis. The default in the money market radically reduced the provision of credit to market participants and shrank liquidity throughout the financial system. In other words, the default triggered severe market liquidity crisis.

With Sanyo Securities' default having destroyed market confidence and tightened liquidity in the money market, Hokkaido Takushoku Bank, one of the 20 largest banks at the time and in the process of rebuilding its business hurt by NPLs, became unable to secure funding in the interbank market. Unable to maintain the requisite level of reserves deposits at the Bank of Japan required under the Bank of Japan Act because of this difficulty in obtaining funding from the markets, Hokkaido Takushoku Bank experienced a liquidity-induced bankruptcy, and announced its bankruptcy on 17 November. Sanyo Securities' small default wound up leading to the failure of a major bank.

This turmoil in financial markets spread to Yamaichi Securities, one of the big four brokerage firms. Yamaichi, in the process of restructuring, had sought help from its main bank, Fuji Bank (now Mizuho Financial Group), but Fuji Bank refused, and Yamaichi's capital became insufficient. The brokerage firm subsequently sought an equity investment from Credit Suisse and then tried to negotiate the sale of its business to Merrill Lynch, but both efforts failed, eliminating any possibility for Yamaichi to restructure in the private sector. Overcome by the financial market turmoil triggered by Sanyo Securities' default, Yamaichi became targeted by market participants, found it difficult to get funding, and ultimately became unable to meet its funding targets. This resulted in

Yamaichi announcing on 24 November a voluntary closure pursuant to the Securities and Exchange Act in force at the time (that law has since been superseded by the Financial Instruments and Exchange Act).

The stock prices dropped sharply on news of Yamaichi's failure, while currency markets experienced heavy selling of the yen. Although the BOJ supplied the market with ample liquidity, short-term yields rose and long-term yields declined as a result of a flight to safety. Market participants lost trust in each other, and with rumors flying about other financial firms going bankrupt, market turmoil reached its peak. On 26 November, the regional bank Tokuyo City Bank declared bankruptcy, the fourth such failure since the beginning of November. This minor default by Sanyo Securities thus triggered bankruptcies at a major bank, a major brokerage firm, and a regional bank and led to an unprecedented financial crisis.

In the recent global financial crisis, as well, Lehman Brothers' Chapter 11 filing on 15 September 2008 dried up market liquidity worldwide and triggered a financial crisis on a global scale. Because Lehman Brothers was both too big to fail and too interconnected to fail, its failure pushed the entire world into crisis. In contrast, the default resulting from Sanyo Securities' failure in November 1997 was about ¥9.3 billion ($72.8 million), an extremely small amount relative to the size of Japan's money market. The mere fact of a default, however, greatly reduced the supply of credit to market participants and destroyed market confidence, thereby drying up liquidity and triggering a financial crisis. When there exists the potential for major losses suffered by financial firms as a whole and for market participants to lose trust in each other, it is possible that a crisis can result from even a small default or even just the possibility of a restructuring or haircut on a claim.

(3) The orderly resolution of a large nonbank (avoiding court-ordered bankruptcy while providing liquidity)

Avoiding application of the Corporate Reorganization Act

We now take a closer look at Yamaichi Securities' bankruptcy resolution process. As already noted, the financial market turmoil triggered by Sanyo Securities' failure shut off funding to Yamaichi Securities, which then announced a voluntary closure on 24 November 1997. Because Yamaichi was not a depository institution, like Sanyo it did not have access to the SRR provided for under the Deposit Insurance Act.

Yamaichi had client assets of ¥22 trillion ($172 billion) and operated internationally as a brokerage firm, with overseas offices in various parts of the world, including the US, the UK, the Netherlands, Germany, Switzerland, Hong Kong, and Singapore. It also had 2.8 million client accounts, compared with only 200,000 client accounts at Sanyo. Although Yamaichi was smaller than Lehman Brothers and had a lower degree of interconnectedness, it was apparently still too big and too interconnected to achieve an orderly resolution with financial markets in turmoil.

Although Sanyo chose resolution under the Corporate Reorganization Act, Yamaichi opted for voluntary closure, for several reasons. First, its over ¥200 billion of unlawful off-balance-sheet debt made it difficult to reorganize under the Corporate Reorganization Act, and second, there was concern that a court ordered liquidation of Yamaichi would have forced it to cease operations and made an orderly wind-down difficult. Another aspect of Yamaichi's resolution process was that although the BOJ provided emergency liquidity as a lender of last resort to Yamaichi, even though it was a non-bank, in order to head off financial market turmoil, there was a possibility of losses if the BOJ had provided liquidity to a company being resolved under the Corporate Reorganization Act.

The biggest difference between the bankruptcy resolutions of Yamaichi and Sanyo was that Sanyo temporarily suspended operations while Yamaichi continued operating. Because Sanyo closed down under the bankruptcy laws, it suspended operations, including its debt payments, based on a protective order from the court, and defaulted in the money market. In contrast, Yamaichi resolved its bankruptcy through voluntary closure, a liquidation process that includes the continuation of operations and the settlement of various types of financial agreements.

The financial crisis had become substantially more serious at the time because of Sanyo's failure. If Yamaichi had chosen court-ordered liquidation under these conditions, it would have immediately ceased operations and failed to perform various financial agreements, and this could have caused even greater turmoil in the markets. Because of Yamaichi's size and interconnectedness, this was expected to result in a major default in both domestic and overseas markets, and there was concern that if that had led to a chain reaction of financial firm failures, it would not only have deepened the crisis in Japan's financial system, it may have caused the financial crisis to spread to overseas markets.

In fact, a statement by the BOJ Governor on the day that Yamaichi announced its voluntary closure noted "when we consider the fact that the firm conducts a wide range of business in domestic and overseas markets and that it has a large number of customers, we believe it extremely important for the

stability of the Japanese and overseas financial markets to bring about a smooth closure of the firm."

Funding from the BOJ in the liquidation process

Furthermore, in order to fund the liquidation process of its voluntary closure, the BOJ provided "special loans (*tokuyu*)" to Yamaichi totaling over ¥1.2 trillion at the peak, and this appears to have made an orderly wind-down possible. This loan was unsecured and unlimited emergency loan under the Bank of Japan Act. The BOJ decided, with permission of the finance minister, that it was necessary to provide special loans with brokerage firms acting as lender of last resort[18]. In Japan, not only depository institutions but also brokerage firms are eligible to hold current account deposits at the central bank (the BOJ).

There was concern that Yamaichi was insolvent, because one of the causes of its failure was ¥264.8 billion of debt that was off its books, but even including that unrecorded debt it was solvent with shareholders' equity at the time of ¥100 billion, and the BOJ, as a temporary measure, provided Yamaichi with the funds needed for the liquidation process pursuant to Article 25 of the Bank of Japan Act then in force (Article 38 under the current version of the Act).

The statement by the BOJ governor mentioned above went on to say, "the Bank of Japan, as the nation's central bank, in order to fulfill its responsibility of maintaining stability of the financial system, has decided to take the extraordinary measure of providing necessary liquidity pursuant to Article 25 of the Bank of Japan Act, in cooperation with the main bank of the firm so that it may return customer assets, orderly settle outstanding transactions and withdraw from overseas activities." Because the BOJ provided liquidity as a lender of last resort, Yamaichi's voluntary closure did not put any further stress on the financial system, and an orderly resolution was possible.

It was during the liquidation process of its voluntary disclosure that Yamaichi became insolvent. Yamaichi had planned to cancel ¥43 billion of subordinated loans it had borrowed from 14 insurance companies to eliminate its excess of debt over assets, but the insurance companies filed suit, and wound up settling on a 50% reduction in the subordinated loans. In addition, the BOJ ultimately wound up taking a loss of approximately ¥100 billion on the special loans that it extended to Yamaichi.

[18] This is similar to Section 13(3) loans by FRB (before the amendments by Dodd Frank Act). But !3(3) loans are made to non-financial corporations, individuals, and partnerships, whereas special loans from the BOJ are only meant for the banks and brokerage firms with which it transacts. In addition, Section 13(3) loans require collateral, whereas special loans from the BOJ can be unsecured.

An orderly resolution by itself does not end a financial crisis

Although Yamaichi Securities did not propagate the financial crisis globally and was generally liquidated in an orderly manner, this by itself did not serve to stop the financial crisis that was already in train. The fact that a major brokerage firm suffered large losses and closed its business, even though it continued operations for the time being and avoided causing any turmoil from the sudden cancellations of transactions, inevitably caused a major shock to the system.

As already noted, news of Yamaichi's bankruptcy further worsened the market conditions that had already been hurt by the failure of Sanyo Securities, and was followed two days later by the failure of a regional bank. That day, depositors were queued for a bank run in eight different locations nationwide, and the major banks also saw a record-high outflow of deposits. Both bank and brokerage firms stocks dropped sharply, the supply of funds to money markets shrank, and short-term yields rose despite substantial liquidity supplying operations from the BOJ. The premium demanded by overseas financial firms of Japanese banks (the "Japan premium") rose to 1.1 percentage points.

The regional bank did not fail because of its transactions with Yamaichi, but because market participants were reminded of the seriousness of the system-wide financial crisis that was already in progress, resulting in a substantial reduction in the overall amount of financial transactions.

The Minister of Finance and the BOJ Governor held emergency meetings and announced they would do everything in their power to maintain financial system stability, while the Securities and Exchange Surveillance Commission clamped down on speculators aiming to profit from market rumors, and this eased the turmoil.

This was followed by critical policy shifts aimed at further stabilizing the financial system. One of these was the injection of public funds into financial firms. In the November 1997 financial crisis, no public funds were used because of lingering regret over the resolution of the *jusen*, and special loans from the BOJ carried most of the weight instead. Nevertheless, both the IMF and the US were strongly in favor of the use of public funds. Because the Asian monetary crisis was still going on, there was concern that letting Japan continue as it was could trigger a global depression. This led to the drafting of legislation authorizing the injection of public funds at end-1997. In addition, the Ministry of Finance announced it would provide guarantees for the full amount of deposits and bank debentures, including those not covered by deposit insurance, until March 2001.

Macroeconomic policies were also mobilized, with Prime Minister Hashimoto altering course on his fiscal reforms and announcing a major tax cut.

As we show below, however, even this did not get the financial crisis under control.

(4) Temporary nationalization of insolvent banks

Under the new laws, insolvent banks would receive capital injections and insolvent banks would be temporarily nationalized

In March 1998, 21 major banks were given capital injections of public funds totaling ¥1.8 trillion$13.4 billion), and this temporarily stabilized the market. This amount was spread throughout the banks, however, and the total capital injection was insufficient relative to the amount of their NPLs, primarily because the banks were hesitant to apply for public funds. In addition, the injected capital was primarily Tier 2 capital (subordinated bonds and loans), and thus had insufficient loss-absorbing capacity.

Although prompt corrective action (PCA) were implemented in April 1998, concerns over the stability of financial system in Japan were widespread as a whole from November 1997, and based on the belief that publicizing unfavorable facts would make things more difficult for the financial sector, regulators became less inclined to assess and disclose business conditions at individual financial firms. Financial firms were also pressed to maintain their capital ratios, but because conditions made it difficult to increase capital, they tended to refrain from making loans. This created concerns that the overall economy would suffer a credit crunch.

In mid-1998 because it was discovered that the affiliated nonbanks had large amounts of NPLs, the market started targeting a major bank, the Long-Term Credit Bank of Japan (LTCB), as a problem bank that did not receive a sufficient capital injection, and this once again destabilized Japan's financial system. The LTCB and the government tried to arrange a merger with Sumitomo Trust & Banking (STB), but negotiations broke down when STB indicating concern over LTCB's NPLs, making it evident that there was no longer a private-sector solution and exposing LTCB to the market as a problem bank.

From summer to fall of 1998 was also a period of political instability. The ruling party lost the upper house in July 1998, and this was followed by a change in Prime Minister from Ryutaro Hashimoto to Keizo Obuchi. The now energized

opposition party advocated a hard landing via the resolution of troubled financial firms. In contrast, the ruling party emphasized the need to respond prior to the point of bankruptcy.

In October 1998, temporary legislation providing emergency measures was passed to stabilize the financial system. There were two laws, the Financial Revitalization Act, which incorporated the opposition party's proposals nearly word for word and in principle called for the "special public administration" (temporary nationalization) of insolvent banks, and the Early Strengthening Act, which reflected the ruling party's proposal and called for injecting public capital into solvent banks.

An additional provision in the Financial Revitalization Act, however, allows for the nationalization of a bank that is not yet insolvent, but whose failure is at risk of causing serious harm to the financial function through a chain reaction of failures, and also at risk of having a grave impact on international financial markets. It was under this provision that LTCB was resolved. As we see later, however, LTCB was treated as insolvent.

An approach that emphasizes the resolution of problem financial firms is referred to as the RTC approach, referencing the approach used by the Resolution Trust Corporation, which was established in 1989 to resolve the bankruptcies of US S&Ls. Another approach that emphasizes measures, including capital injections, that are more oriented toward preventing bankruptcy rather than resolving bankruptcy is referred to as the RFC approach, referencing the approach used by the Reconstruction Finance Corporation[19], which was established to rescue banks during the Great Depression in the 1930s. The former is so-called a hard landing approach, but is designed so as not to constitute an event of default in order not to destabilize the financial system.

Resolution of the LTCB and the NCB

In the case of the LTCB, an inspection by the Financial Supervisory Agency (the predecessor of the Financial Services Agency (FSA)), which took over the supervisory authority from the Ministry of Finance, found that the bank's liabilities exceeded its assets by ¥2.6 trillion, and upon passage of the Financial Revitalization Act, on 23 October 1998 it invoked that Act and announced authorities would begin bankruptcy resolution by temporarily nationalizing the bank. Because the LTCB was insolvent, the government wiped out shareholders

[19] More precisely, the Emergency Banking Act passed in March 1933 authorizes the RFC to purchase the capital stock of banks, railways, and other institutions.

by taking over the common shares at a value of ¥0, while protecting subordinated and other credit claims. The resolution was structured such that the remaining losses would be covered by the Deposit Insurance Corporation of Japan (DICJ).

One reason why the temporarily nationalization approach was used is that the LTCB was too big, with total assets of ¥26 trillion ($223 billion). It also had outstanding derivative positions totaling ¥50 trillion ($430 billion) on a notional principal basis. The counterparties to its derivative portfolio, consisting primarily of interest rate swaps and currency swaps, were major financial firms both in and outside of Japan, and there was concern that LTCB's failure would have a great impact on domestic and overseas markets. If the initiation of temporary nationalization under the Financial Revitalization Act were deemed an event of default under the ISDA master agreement, counterparties would initiate close out clauses, create turmoil in financial markets, and make an orderly resolution difficult. Consequently, the authorities were very careful in confirming whether temporary nationalization constituted an ISDA event of default prior to nationalizing LTCB[20].

The Nippon Credit Bank (NCB), another large bank like the LTCB, had trouble obtaining funding because of a credit downgrade, and this prompted the Ministry of Finance to lead a consortium of private-sector financial firms to infuse capital into the bank in 1997. Nevertheless, the Financial Supervisory Agency conducted an inspection, found that NCB's liabilities exceeded its assets by ¥3 trillion, and announced on 13 December 1998 that it would temporarily nationalize the bank. NCB's shares were also forcefully taken at a value of ¥0, completely wiping out shareholders.

Both LTCB and NCB, after having the problem assets on their balance sheets disposed of while they were temporarily nationalized, were sold to the private-sector and stayed in business, LTCB becoming Shinsei Bank in March 2000, and NCB becoming Aozora Bank in September 2000.

(5) Blanket capital infusion into multiple solvent banks

Policies for solvent banks in a financial crisis

In the fall of 1998, solvent major banks were recipients of open bank assistance. As already noted, insolvent banks like LTCB and NCB were resolved under the Financial Revitalization Act, while solvent banks were treated

[20] Nakaso (2001) says that the translation of the Japanese term used in the Financial Reconstruction Act is "special public administration," but because that term was listed as an event of default in the ISDA master agreement, the term "temporary nationalization" was used, with the understanding of the ISDA.

differently, given capital injections under the Early Strengthening Act. The Financial Reconstruction Commission (FRC) announced the following policy guidelines.

i. Financial firms will be asked to ensure the soundness and reliability of their financial positions through rigorous assessment of asset quality and reserve provisions at the financial firms and through timely and appropriate disclosures. They will also be required to carry out appropriate write-offs and provisioning so as to complete the bad debt clean up as quickly as possible.
ii. Financial firms will be encouraged to seek capital injections of sufficient size, so that they can proceed with the disposal of bad debts, provide smooth flows of credit, and cope with risks that may be encountered in the future.
iii. Financial firms that fail to make such efforts as the rebuilding of businesses, the rationalization of their management, and the realignment of their institutions will not be provided with capital injections, while those which do endeavor to boldly undertake such efforts will be given priority in the size and terms of capital injections. This will improve the competitiveness and profitability of individual financial firms so that the government will be able to recover invested funds by selling preferred shares and other capital instruments in the markets.
iv. Failed institutions, those which are judged to be unable to achieve sound management, will not be allowed to continue to exist in the market.

Broad range of financial firms receive capital injections

Upon receiving applications for capital injections from banks, the FRC made an assessment based on the results of an inspection by the Financial Supervisory Agency (and an examination by the BOJ), and in March 1999 injected capital totaling ¥7.5 trillion ($62.5 billion) of which ¥6.2 trillion ($51.6 billion) was Tier 1 capital, into 15 major banks it deemed to be solvent. Based on lessons learned from the capital injection of the year prior, this injection of capital was primarily composed of Tier 1 preferred stock, which has a relatively high loss-absorption capacity.

When a system-wide financial crisis occurs, it is insufficient to focus the policy response only on individual banks' solvency problems; what is needed is a policy response for the financial system as a whole. During the latest financial

crisis, as well, the US government used TARP to inject public capital into 19 bank holding companies to keep the financial system from destabilizing following the failure of Lehman Brothers. Likewise during Japan's financial crisis of 1997–98, because it was a system-wide crisis, capital was injected into a large number of banks in order to stabilize Japan's financial system.

(6) Special inspections and use of the systemic risk exception for major solvent banks

Resolution regime established, crisis returns

Based on the experience of the 1997–98 financial crisis, the Deposit Insurance Act was revised in 2000, and both temporary nationalization and capital injections using public funds, which until then were temporary extraordinary measures, were introduced as permanent exceptional measures. Specifically, under the Deposit Insurance Act, insured deposit holders of a failed bank were protected, while shareholders, creditors, and uninsured deposit holders were required to bear losses under deposit payoffs and purchase and assumption (P&A) transactions. When no successor is found, the DICJ establishes a bridge bank as the bank SRR[21].

Under Article 102 of the Deposit Insurance Act, when there is deemed to be a risk of an extremely serious obstacle to maintaining stability of financial system, a resolution by the Council for Financial Crises Response, chaired by the Prime Minister and comprising the Minister for Financial Services, the Minister of Finance, and the BOJ Governor, may grant a systemic risk exception, allowing solvent banks to be rescued with capital injections (Article 102(1)(i)) and insolvent banks to be temporarily nationalized (Article 102(1)(iii)). The 2000 revisions to the Deposit Insurance Act allowed for an additional levy to be collected from financial firms separate and apart from the deposit insurance premium, with the purpose being to avoid burdening taxpayers in the event there is a public capital injection or temporary nationalization in response to a financial crisis.

Japan's financial system became unstable again when it was hit by the collapse of the IT bubble before the NPL disposition process had been completed. The Koizumi administration, which entered office in April 2001, aimed for aggressive structural reform of the economy, and speeding up the disposition of

[21] In Japan, the Deposit Insurance Corporation of Japan (DICJ), which operates the deposit insurance program, is the resolution authority for the banking sector.

NPLs was high on its agenda. This hard-landing approach became particularly evident in September 2002, when Heizo Takenaka took over as Minister for Financial Services. Specifically, in October 2002 the government attempted a radical solution to the NPL problem in order to restore confidence in Japan's financial system and financial administration, announcing Financial Revival Program, targeting a 50% reduction in the NPL ratios of the major banks over a two-year period. Under this program, the FSA conducted special inspections focused on examining credit risk, requiring the major banks to rapidly complete their disposal of bad loans. This led to widening concerns in the market that the major banks would be resolved based on the RTC approach, and bank shares led the stock market lower.

Preventative capital injection into Resona Bank

It was within this context that one of the major banks subject to the FSA's special inspection, Resona Holdings (formerly Daiwa Bank and Asahi Bank), announced that after reflecting the cost of disposing of NPLs discovered in the inspection, Resona Bank's capital ratio had fallen below the regulatory minimum[22]. The government responded by convening a meeting of the Council for Financial Crises Response on 17 May 2003 and decided to inject approximately ¥2 trillion ($16.8 billion) of capital into Resona with a combination of common shares and preferred shares[23]. Because the Council deemed Resona solvent, in order to maintain financial system stability it decided to invoke that systemic risk exception under the Deposit Insurance Act allowing for a capital injection using public funds without wiping out shareholders.

In explaining its decision to apply the systemic risk exception, the Council for Financial Crises Response declared "currently, we do not perceive the bank is experiencing an exodus of deposits or difficulty in getting market funding, but we recognize that if it is put in such a situation, there is a risk of an extremely serious obstacle to maintaining the stability of financial system, as per the Deposit Insurance Act." In other words, it made the decision to apply the exceptional measure of a capital injection in order to prevent a financial crisis that had yet to occur. To prevent the moral hazard created by using public funds to support solvency under the Deposit Insurance Act, the recipient institution is required to streamline its business and clarify the responsibility of both management and

[22] It was learned that Resona Bank's capital ratio at end-March 2003 had dropped to approximately 2%, below the minimum 4% requirement for domestic banks.

[23] Capital was strengthened with approximately ¥300 billion of common shares and approximately ¥1.6 trillion of preferred shares. The amount of new common shares was kept small to avoid exceeding the limits set forth in the delisting criteria.

shareholders, and Resona was also required to bring in new management, formulate a business improvement plan, and then execute that plan.

The rescue of Resona with a public capital injection helped to stabilize Japan's financial system, and subsequently led to an exit from the system instability that began in the 1990s and eventual restoration of stability. We view this as evidence that when the financial system becomes unstable, establishing mechanisms to support the solvency, without wiping out shareholders, of at least those financial firms that are deemed solvent – the approach that the G7 recommended to Japan in 1998 – is an effective way to stabilize the financial system.

With roughly a ¥2 trillion public recapitalization backstop, Resona brought in a new management team, put its assets through a strict due diligence process, and after receiving a ¥2 trillion Tier 1 capital injection, quickly disposed of ¥1.3 trillion of NPLs. This enabled Resona to restore its business back to health. As of March 2011, the government had recovered ¥1.2 trillion of the ¥2 trillion in public funds it invested in Resona, and with the remaining ¥700 billion currently generating valuation gains, the expectation is that the taxpayers will not be left with any bills to pay.

3. Managing system-wide financial crises

(1) Will next time be different?

Summarizing Japan's experiences

Let us summarize the lessons learned from the system-wide financial crises experienced by Japan described above, specifically the ongoing instability of the financial system brought by large realized and unrealized losses spread widely throughout the financial sector and triggered by the bursting of Japan's economic bubble and other shared macroeconomic factors.

- Because market participants across the board suffered serious losses in an atmosphere of strongly rooted mutual distrust between counterparties, there existed the possibility that even an ostensibly small catalyst could lead to a freezing up of the overall market and succession of financial firm failures.

- Under these conditions, the adverse impact on the overall system from a single financial firm becoming insolvent is greater than it would be if there were no system-wide financial crisis, and a solvent financial firm could becomes insolvent. This leads to a vicious cycle in which a contraction of credit weakens the macro economy and amplifies the losses on economic agents' balance sheets.
- It is not just bank failures that exert negative shocks on the market, but also the distress of a wide range of market participants, including nonbanks.
- In a system-wide financial crisis, a large number of players suffer losses, harbor substantial uncertainty over the future, and become risk averse, and this makes it difficult to find a private-sector player willing to acquire an ailing institution for purely economic reasons.
- Within this environment, to prevent a bankruptcy crisis from spreading to a wide range of participants, including global counterparties, it is to some extent effective to rescue some creditors, and provide temporary funding, in the process of resolving insolvent financial firms (including nonbanks). Not only that, we think it is also important to leave open the possibility of preventative public capital injections and the provision of liquidity from the central bank for those solvent financial firms that may be at risk of becoming insolvent if conditions remain bad.
- There is a need to conduct rigorous inspections or stress tests of a wide range of market participants, and then gauge the degree of solvency, decide on and implement either a rescue or a smooth bankruptcy resolution. Confirming the soundness of participants using such inspections or test reduces to some extent the mutual distrust among market participants and is essential to the market regaining its function.
- Nevertheless, although such rescue measures are a necessary condition to easing the shock, a system-wide financial crisis is not a problem of losses on the balance sheet of individual financial firms, but rather one of losses on balance sheets in aggregate. Accordingly, the crisis will not completely end until there is progress in reducing the debt overhang of the corporate, household, and public sectors, as well as the amount of nonperforming loans at financial firms. Every time some event causes an economic contraction or deterioration in market sentiment during the interim, there is a possibility that new threats will emerge of the failure of yet another financial firm. Although Japan's bubble burst in 1990, it did not have a financial crisis until the mid-1990s, and its major financial crises were in 1997, 1998, and 2003 (Chart 1).

– Keep in mind that a sense of urgency in introducing measures to restore soundness to government finances or the banking sector puts additional stress on the market and on financial firms, and can actually make the crisis worse.

Only yesterday

We framed the above as lessons learned from Japan, but it goes without saying that these lessons apply to other system-wide financial crises that have occurred, including the Great Contraction of the 1930s and the Great Recession (or Second Great Contraction) that began in 2007 (Chart 2 and Table 1). In the latter crisis, the percentage increase in share prices leading up to the peak of the bubble was not as large as it was in the late 1920s or in late 1980s Japan, nor was the subsequent decline as great, in part because governments were relatively quicker to apply fiscal and monetary stimulus and to inject public funds. As evident from the ongoing turmoil in Europe, however, the crises are similar in that they have lasted for a prolonged period. Another similarity is that the priority has been on restoring fiscal soundness, normalizing monetary policy, and introducing measures to bring banks back to health.

As shown in the Table 2, the system-wide financial crises thus far have included deposit insurance, debt guarantees, public fund injections, the acquisition of and loss sharing in NPLs, temporary nationalizations where creditors are protected, and emergency lending from the central bank. Under Dodd-Frank, a number of these policy tools will be curtailed for the next crisis, or even for the current crisis which has yet to end, with public fund injections in particular being prohibited, but how is it that this is supposed to prove adequate moving forward?

Reinhart and Rogoff (2009) argue that a banking crisis is but one aspect of a financial crisis, and that it can be related to a number of others, including a fiscal crisis (the default of domestically issued government bonds and sovereign bonds), a currency crisis, and hyperinflation. They note, for example, that one economic impact from a banking crisis is a dramatic expansion of public debt. On average, large banking crises during the post-war period have resulted in an 86% increase in the real stock of public debt. Consequently, a banking crisis becomes a public debt crisis, which in turn can lead to a currency crisis and hyperinflation. It is also important to consider whether attempts to minimize the impact of a banking crisis may risk exacerbating the other types of crises.

Conversely, in the Great Depression, the expansion of public debt was minor relative to the other crises because the government hesitated to use fiscal

stimulus out of fear of a fiscal crisis, and this wound up prolonging and deepening the banking crisis.

Three cautionary notes regarding the current system-wide financial crisis

The implementation of macro-prudence supervision, the strengthening of micro-prudence regulations, and the implementation of measures improving resolvability is expected to reduce the probability of a system-wide financial crisis occurring in the future.

We note 3 areas of caution of in this regard, however. The first is that it is important not to forget that the current crisis is still in train. Particularly in the EU, some countries, having experienced a banking crisis, are now also experiencing a sovereign crisis. Because the banks hold a large amount of sovereign bonds, this in turn is reigniting the banking crisis.

The symbolic event that drove home the idea that instead of strengthening regulations to suppress future crises the current crisis must first be dealt with occurred in July 2011, when in order to deal with the rising stress on EU markets from concern over the Greek economy it was agreed to strengthen both the EFSF and the entity slated to be established in 2013 to make it permanent, the ESM. One of the changes is to allow the recapitalization of financial firms to be financed with loans to governments.

This goes against the grain of the FSB proposal as well as the proposed framework for the resolution of European financial firms finalized around the same time, and also differs from Dodd-Frank. It could be interpreted as evidence that the EU, like Japan, recognized the need to institutionalize the bailout of financial firms.

Another event showing that the current crisis was not yet over and that the injection of public funds was essential to dealing with crisis was the speech by IMF president Christine Lagarde at Jackson Hole in August 2011. Her speech emphasized the need to compel European banks to increase their capital, and argued that public funds should be used if necessary.

Treasury Secretary Tim Geithner said that "countries that forced more capital into their banking system early in the crisis are better placed to support the recovery. Those that did not should move more forcefully now.[24]" Although he did not say that public funds should be used early on, that is probably the only

[24] Geithner (2011)

means of providing public support to a private-sector financial firm that is having trouble on its own.

A second note of caution is that, as happened in Japan, there is a risk that pushing financial firms to reduce their exposure to risk through soundness regulations and RRPs can harm macro-prudence and prolong the exit from crisis[25]. The experience in the 1930s and in Japan suggests that tightening fiscal policy can exacerbate the crisis.

Thirdly, even if there is a reduced probability of financial firm failure or of the need to invoke too-big-to-fail treatment in the event of a failure, as long as this probability is above zero there is a need to prepare for its occurrence. This suggests the need to design a system that can cope in the context of the lessons learned noted above. This is because we have already learned, both from Japan's financial crises and from the latest global financial crisis, that designing measures after a crisis has already erupted runs the risk of allowing the crisis to accelerate, given the difficulty in forging an agreement on legislation and the time it takes to do so[26]. We look next at those issues we consider to be especially critical in designing the system.

(2) Having the crisis big picture

System-wide inspections or stress tests

It is important to have a big picture of the crisis at an early stage in order to distinguish between financial firms in serious trouble and those that are relatively sound. This makes it possible to intervene quickly with the former to ensure that the latter do not also get subsumed in crisis and forced to initiate the resolution process. One way to get a big picture of the crisis is to conduct system-wide inspections or stress tests.

Sufficiently credible inspections or stress tests make it clear which financial firms have few problems, and once it is understood that the financial firms with major problems are not simply forced into liquidation, the mutual lack of trust in the market can be eliminated and market transactions resumed. This should also stop the panic selling of financial firm stock by shareholders and reduce the level of speculative short positions.

[25] Haldane (2011) was also concerned about the regulation's impact on macro-prudence.
[26] Laeven and Valencia (2010) found that for the 42 financial crises that occurred from 1970 until 2007, the first priority was on providing liquidity support, and recapitalization on average took about 12 months because of the need for a political consensus and new legislation.

Whether to use inspections or stress tests and their specific content will vary depending on the environment and the factors that are the most likely to create uncertainty in the market. In Japan's financial crisis, the lack of consistency in how each bank assessed its NPLs was a source of uncertainty, and thus rigorous inspections were conducted using uniform measures. During the recent financial crisis in the US, there was concern over the impact on bank balance sheets from the decline in housing prices, hence macro-level stress tests were effective.

New stress tests prescribed by Dodd-Frank

From February until May 2009 in the US, the Supervisory Capital Assessment Program (SCAP) was conducted on 19 major financial firms, and this sparked a turnaround in the market. The systemization of a SCAP-type stress test under Section 165 (i) of Dodd-Frank represents important progress. There will be stress tests by the Fed and by the financial firms themselves. The former are conducted annually by the Fed in coordination with the three appropriate primary financial regulatory agencies and the Federal Insurance Office, on non-bank financial companies supervised by the Fed and bank holding companies with consolidated assets totaling at least $50 billion (referred to as SIFIs below).

The financial firm stress tests are conducted every six months for SIFIs and once a year for all other financial companies that have total consolidated assets of more than $10 billion and are regulated by a primary federal financial regulatory agency. The tests require a report to the Fed and the primary federal financial regulatory agency. The administrators stipulate the methods, scenarios, and formulas used in the stress tests conducted by the financial firms. Summary results of the stress tests are published.

(3) Backstops and measures to make financial firms sound

Backstops are needed in conjunction with the stress tests

Once the market is sufficiently sure that there exists a financial crisis, there is a need to craft policies outlining how to deal with financial firms that have serious problems. Although these policies may be in agreement with the RRP, if many financial firms simultaneously implement an RRP, there will be the risk of a decline in asset prices or other turmoil. In some cases, the direct purchase of

specific assets may be necessary. Furthermore, the recapitalization of financial firms with major problems may require the injection of public capital.

Conversely, blindly injecting public capital without having the big picture of the crisis is not going to prevent the market from becoming spooked. During the latest crisis, as well, there was an injection of funds through TARP in late 2008 and Citigroup was also provided with open bank assistance, but share prices continued to fall until early March 2009. It was not until stress tests were performed and it became clear that public funds would be used when necessary that the market stopped declining, and it was after the results of the stress tests were announced in May 2009 that the market really began to climb.

In the US, there is an expectation that the probability of a deepening crisis at a large number of financial firms is now less than before because the stress tests will be conducted periodically. The problem, however, is that even if the stress tests show that numerous financial firms have serious capital shortfalls, Dodd-Frank does not allow for capital injections.

William Dudley, President and Chief Executive Officer of the Federal Reserve Bank of New York, commented that one implication of SCAP in the US is that there needs to be a credible capital backstop so that market participants can be sure banks will be able to raise the capital that they need under a stress environment, one way or another[27].

The ECB, commenting on the EC's public consultation on the technical details of a possible EU framework for bank recovery and resolutions, noted that "in situations of market uncertainty, stress tests results could be made public, provided that adequate backstop is granted, with the view to restoring market confidence." Prior to the release of the 2011 EU stress test results, the Council of the European Union issued a statement on a backstop mechanism. "The Council confirmed that necessary remedial actions following results of the test will be taken. These measures privilege private sector solutions but also include a solid framework for the provision of government support in case of need, in line with state aid rules." [28]

Thus officials in both the US and Europe acknowledge the need to backstop the stress tests, and want to see a systemization of measures limited to responding to a system-wide crisis.

Backstop should include public capital injections

[27] Dudley (2011)
[28] Council of the European Union, "Council Statement on backstop mechanisms," July 12, 2011.

This backstop should probably include many of the different measures used following the Lehman collapse, including, in addition to direct asset purchases and capital injections, emergency liquidity provision by the central bank and a comprehensive debt guarantee program.

In the US, Dodd-Frank allows for emergency liquidity programs from the Fed and emergency guarantee programs from the FDIC. All of these programs are meant to provide liquidity support to solvent institutions, but as noted earlier, a liquidity shortfall is caused by market participants deciding not to provide funding out of concern over the future solvency of a counterparty. Consequently, it would probably be effective to provide in parallel some open bank assistance, like the preventative capital injections made in Japan.

The counter arguments to the political and economic problems pointed out with such a safety net, particularly the public capital injections, is that their use is only authorized when there is deemed to be a system-wide financial crisis and hence more limited than before. This reduces the probability of such a rescue and makes it harder to expect one ex-ante, thereby alleviating said problems. The fact that it is made possible to place the final burden on the financial firm ex post should also be effective in moderating this criticism.

We have argued, based on Japan's experience, that for system-wide financial crises like we have seen in the past, there will be circumstances when the difficulty of achieving orderly resolution under Dodd-Frank makes the use of public funds unavoidable, but we also want to emphasize that it may not be appropriate to view bank bailouts using public funds as an intrinsically bad option that should be avoided when possible. Keister (2010) noted in his theoretical analysis that the anticipation of a bailout can have positive ex-ante effects, while committing to a no-bailouts policy can actually create fragility in the financial system.

We have already noted the observation from Reinhart and Rogoff (2009) that one impact of a bank crisis on the economy is a dramatic increase in public debt, but they also noted that declines in taxes paid as a result of the economic contraction caused by the crisis have been greater than the increase in tax payments required to pay for the bank bailout. This suggests that the focus should not be on whether to use taxpayer's money to bail out a bank, but rather on how to minimize the total burden on the taxpayer, both present and future, resulting from the financial crisis. Avoiding the use of public money to purchase bank equity will wind up worsening the crisis and increasing the taxpayer's overall burden.

The lack of an injection of public funds can exacerbate the impact through various channels. One channel will be through damages to a bank's lending function. As pointed out in Bernanke (1983), when a given bank fails, it becomes

difficult for smaller firms that obtained loans from that bank through geographical and personal connections to find an alternative source of funding. Consequently, it took a particularly long time for lending to smaller firms to recover following the series of bank failures in the 1930s.

We do not think it is realistic to completely prohibit at the outset the use of public funds, including when limited use is deemed to be effective and essential. An underlying principle of public policy is to look at both costs and benefits, and it is important to have a mechanism that makes use of specialized knowledge of the current circumstances when deciding whether the benefits are large. We doubt whether there is any form of economic activity today that receives absolutely no support from taxes, and we do not think it is wise to rigidly rule out from the outset the use of tax revenues in a particular industry.

No bail-out policy would make it impossible to meet the goal of establishing a cross-border resolution regime as noted before. Accordingly, we think it may be necessary, at least for the time being, to proactively support on a global basis the concept of countries using a variety of tools to contain a crisis once it erupts in order to minimize cross-border contagion.

Both regional and global backing

Nevertheless, the size of the backstop thought to be necessary based on the results of a system-wide stress test may exceed the affected country's resources. A mechanism for providing backstops at both the regional and global level is probably needed to keep a banking crisis from turning into a sovereign crisis.

Immediately after the Lehman failure, based on Japan’s proposal to the World Bank, the International Finance Corporation, together with the Japan Bank for International Cooperation (JBIC), established funds[29] to recapitalize major local banks in small and medium developing countries by providing equity capital or subordinated loans to them, to strengthen their capital bases, thereby helping to stabilize their countries' financial systems. Banks do not have to be in trouble to receive capital. The main objective is to provide capital to banks so they can continue to lend to businesses and individuals who otherwise wouldn't have that money. The World Bank's website notes that "bank recapitalization is a key element in the World Bank group's response to the global financial crisis."

The introduction of a mechanism to recapitalize banks through the EFSF as a response to the crisis now unfolding in Europe is evidence that a multilateral bank recapitalization facility is also needed for developed economies. In fact,

[29] IFC Recapitalization (Equity) Fund, LP and IFC Recapitalization (Subordinated Debt) Fund, LP.

there may be a greater need in the developed economies where major global financial firms do most of their business.

Accordingly, it is conceivable that an international bank recapitalization facility could be established as a final backstop to supplement the facilities in each country and regional facilities such as the EFSF. To deal with the additional moral hazard that results, qualifying for the use of the international recapitalization fund during a crisis could require that country and the bank in question to adhere strictly to an FSB recommendation, to rules established by the Basel Committee or some other international standards setting organization. In addition, at the time of recapitalization the FSB could establish conditionalities for the country and banks. This would make it possible to minimize instances worldwide of a country's financial regulators or individual banks inappropriately limiting, or attempting to avoid, the rules set by the FSB or other international standards setting organizations.

The economic costs of a nonbank's failure

When deciding whether to use public funds as a backstop, nonbanks should not be excluded. We already noted that a bank failure has a major impact on the recovery of lending, particularly to smaller firms, but the failure of a nonbank could also have a serious negative impact on the real economy through several different channels. This has already been proven by the failure of Lehman Brothers, but we consider below further evidence of this.

To start with, the failure of a nonbank can create turmoil in money markets, possibly blocking short-term borrowing by corporations, CP issuance, and trade credits. In the case of Lehman Brothers, the default of CP issued by Lehman caused money market funds to break the buck, suffer an exodus of funds, and sharply reduce their CP investments. As is explained, the default by Sanyo Securities in the interbank and repo markets wound up triggering a subsequent financial crisis in Japan.

When the nonbank is a major investment bank, there is less of a risk that its failure will directly lead to a reduction in corporate lending compared with a bank failure. However, that turmoil can spread well beyond that in the money markets described above, including into securities markets and derivatives markets, and make it difficult for corporations to get medium-term to long-term funding through the markets. In that case, corporations that traditionally relied on markets, many of them large blue-chip companies, would shift their borrowing to banks. Although the banks would loan to large blue-chip companies, because banks also face funding uncertainty, this lending would wind up crowding out smaller firms

from the bank loan market, creating the risk of negative impacts similar to those from a bank failure. When a non-bank specializing in lending to smaller firms fails, it could have a more direct impact on smaller firms' ability to get funding.

(4) Shadow banks and central bank liquidity

Regulatory reform in the US is unfavorable to shadow banks

We think it appropriate that Dodd-Frank's new rules on soundness and orderly resolution also cover nonbanks, given that in a system-wide financial crisis, financial firms other than banks can also trigger a deepening of the crisis. The problem, however, is that public capital injections are ruled out for both banks and nonbanks. Another problem is that non-banks have considerably less favorable access to liquidity than do banks.

In a system-wide financial crisis, it is possible for a large number of financial firms, including nonbanks, to suddenly (virtually overnight) find it difficult to get short-term funding. Banks can potentially receive assistance from the Fed, but nonbanks must wait for the Fed to establish a liquidity program. As noted above, however, only solvent institutions are eligible for such programs.

Given how important it was for the Fed to supply liquidity to nonbanks during this latest financial crisis, the substantial curtailment of this source of liquidity from revision of section 13(3) of the Federal Reserve Act is a concern. When the Fed announced that JPMorgan would merge with and thereby rescue Bear Stearns, which was in liquidity-induced bankruptcy, on 14 March 2008, it also announced the introduction of the Primary Dealer Credit Facility (PDCF) pursuant to section 13(3)[30].

Another important difference between banks and nonbanks in their treatment in the US during times of severe economic distress is that, in addition to deposit insurance, the FDIC provides its debt guarantee program to solvent insured depository institutions or solvent depository institution holding companies (including any affiliates thereof). Although this could be viewed as a social contract-based privilege given to banks that take deposits and offer settlement services, the fact that shadow banks play a larger role in financial intermediation than they used to also needs to be considered.

When short-term markets were under extreme stress following the Lehman failure, not only was there growth in the level of funding from PDCF, TSLF, and

[30] Prior to implementation of the PDCF, the Fed offered primary dealers 28-day loans of treasury securities under its Term Securities Lending Facility (TSLF).

single tranche market operations, Goldman Sachs and Morgan Stanley converted to bank holding companies in September 2008, enabling them to borrow from the Fed's discount window, and they also used the Temporary Liquidity Guarantee Program (TGLP) introduced by the FDIC under the systemic risk exception and issued FDIC-guaranteed bonds in November 2008[31].

The FDIC released a report arguing that Lehman could have been orderly liquidated under Dodd-Frank. It would be interesting, however, to see how Goldman Sachs and Morgan Stanley would have been dealt with if Dodd-Frank had been the law of the land at the time. Their use of section 13(3) loans would have been limited, and they would not have been able to use facilities like the TGLP because of their lack of affiliation with a bank. Maybe Title II would have been invoked and like Lehman, these two major investment banks, and possibly Merrill Lynch as well, would have been orderly liquidated. Or again, as actually happened, these shadow banks may have received approval to convert into banking groups purely to obtain the privileges afforded only to banks and bank holding companies.

The US now regulates banks and Fed-supervised nonbanks more tightly, and only provides a limited safety net to banks and their affiliates. In certain respects the safety net for banks is stronger than it was, including the maximum coverage for deposit insurance having been permanently raised from $100,000 to $250,000.

Pozsar et all (2010) make an important point, arguing that "given the still significant size of the shadow banking system and its inherent fragility due to exposure to runs by wholesale funding providers, it is imperative for policymakers to assess whether shadow banks should have access to official backstops permanently, or be regulated out of existence." If regulations are going to be tightened from a functional standpoint, it is probably worth considering providing shadow banks with a safety net commensurate with the social role that they perform.

Gordon and Muller (2010), noting that the resolution regime under Dodd-Frank only responds to idiosyncratic crises, have proposed the creation of a Systemic Emergency Insurance Fund (SEIF) to provide a backstop in the event that the financial system cannot be stabilized under Dodd-Frank. The SEIF would also cover shadow banks. They argue that "with the growth of non-bank financial intermediaries in the shadow banking system, the FDIC concept needs to be broadened." Ricks (2010) proposes a government insurance regime for all short-

[31] The first issue that this system was applied to was a $5 billion publicly subscribed bond issued by Goldman Sachs on November 25, 2008.

term liabilities of all maturity-transformation firms, a functional approach that does not discriminate between banks and shadow banks.

The BOJ also provides liquidity to nonbanks

In Japan, not only banks but also some brokerage firms (including foreign brokerage firms with operations in Japan) maintain accounts with the central bank and have access to the discount window. In addition, during the voluntary closure of Yamaichi Securities, the BOJ provided unsecured and nonguaranteed special loans while playing a critical role in achieving an orderly resolution.

Nonbanks in Japan can transact with the BOJ, and are also subject to both off-site and on-site monitoring by the central bank. This monitoring provides an important complement to the FSA's oversight of banks and nonbanks. With its knowledge of activity in these banks' and nonbanks' BOJ current accounts, the BOJ is able to monitor system-wide liquidity positions and quickly provide the necessary liquidity through market operations and its complementary lending facility. Because this system was in place, Japan's financial markets never experienced a serious liquidity crisis during the Great Recession[32]. We think it should also be possible to use such a supervisory approach at the global level, rather than excessively depending on mechanical liquidity rules driven by liquidity ratios.

(5) What the new financial regulatory framework is missing

Two revolutions

The financial regulatory framework has changed greatly as a result of the financial crisis. Thus far, efforts to strengthen regulations related to soundness, including Basel III and the SIFI surcharge, have dominated the conversation and seen the most reforms, but macro prudence and the introduction of an orderly resolution regime have not received the attention they deserve. Paul Tucker, Deputy Governor for Financial Stability at the Bank of England, calls these last two the two revolutions in response to the financial crisis. In contrast, he refers to

[32] BOJ July 02, 2010 "Liquidity Risk Management in Financial Institutions Following the Global Financial Crisis," BOJ June 26, 2009 "The Bank of Japan's Approach to Liquidity Risk Management in Financial Institutions"

efforts to strengthen capital ratios and liquidity rules as nothing more than repairs of the existing regime[33].

The horizontal axis of Chart 3 represents conditions ranging from normal on the left to an increasingly deeper financial crisis to the right, while the vertical axis shows the macro policies above, and the micro policies below, across these conditions.

Chart 3-A shows the situation in the U.S. prior to and during the financial crisis. The focus at that time was mainly on the soundness of individual banks, while insufficient attention was paid to nonbanks as well as to the economy as a whole. The treatment of individual financial firms during the financial crisis was also problematic, in that although there was a special resolution regime for financial firms covered by deposit insurance, bank holding companies and nonbanks could only be resolved using the same bankruptcy laws applied to nonfinancial firms.

Meanwhile, the FDIC's rules for systemic risk exception allowed for a flexible policy, including open bank assistance. In addition, the Fed was able to respond quickly and offer emergency loans, including to nonbanks, on a flexible basis. In that sense, the policy tools needed to respond to a system wide financial crisis existed to some extent. Policies to ensure transparency and prevent moral hazard were not very clear, however.

PCA was a tool available for use during the process of the crisis deepening. Because PCA is based on a capital ratio trigger, however, in most cases it was initiated to late. The FDIC was able to intervene early if there were signs of a pending failure, but only in the case of financial firms covered by deposit insurance.

The new financial regulatory regime in the US makes considerable improvements in all of these areas (Chart 3-B). To start with, it strengthened micro prudential regulations while the same time introducing macro prudential regulations for normal times.

For responding to financial crisis, it introduced a new special resolution regime that includes bank holding companies and other nonbanks.

It also improved the policy tools available during the transition from normal times to financial crisis. In addition to PCA, it introduced system wide stress tests and living wills. Depending on the results of the stress test, a revision to the living will may be encouraged. Government-administered stress tests based

[33] "The lessons of the crisis fall into two broad groups: Repairs and Revolutions. The changes in capital and liquidity regulation, however big, are essentially repairs. They improve on what was there before. There are revolutions on two fronts. Resolution regimes. And macroprudential regimes." Tucker (2011)

on macro scenarios like the SCAP are an important tool in macro prudence policy, while living wills play a key policy role in orderly resolutions. The living wills are designed to be revised based on the stress test results, and it is through this mechanism that the macro and micro prudence policy regimes are linked with the orderly resolution policy regime. In addition, the FDIC's resolution authority was also extended to bank holding companies and nonbanks, making them subject to early intervention, as well.

Insufficiencies in the macro approach to system-wide financial crises

This new regime is lacking in policy tools in the upper-right quadrant of the Figure, however, specifically in measures to deal with a system-wide financial crisis. It was this part of the regime that provided the tools that proved essential when the current financial crisis erupted: broad-based capital injections from TARP, debt guarantees from the FDIC, and emergency loans from the Fed. There is cause to question whether a system-wide crisis could be overcome without these tools. Our main argument is that the programs for emergency loans from the Fed and loan guarantees from the FDIC, both of which have been rolled back substantially in scale and flexibility, may not be sufficient.

We think at the very least there should be a policy option that includes capital injections to provide a backstop when conducting system-wide stress tests. The current orderly resolution regime is overly focused on crises at individual financial firms. As with prudential regulations, there needs to be a crisis response from a macro perspective.

In Japan, although the existence of a policy option for the banks that includes capital injections is a good thing, there has yet to be a formal debate of the FSB's proposals to introduce RRPs and create an SSR for bank holding companies and nonbanks. In this respect, Japan also needs to draw a lesson from the global financial crisis.

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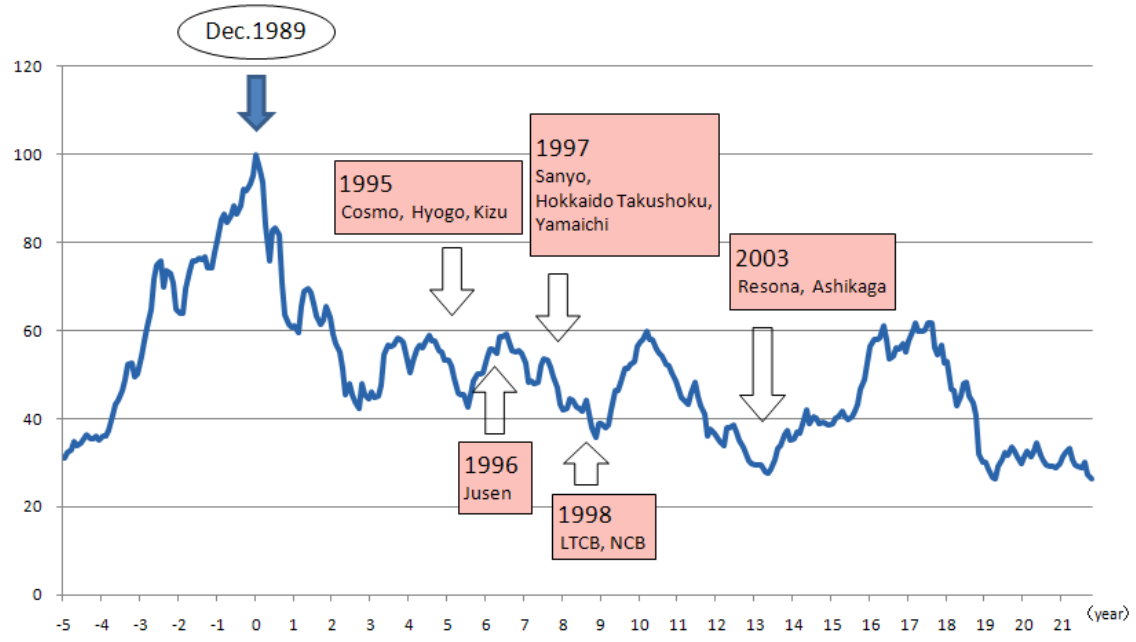
Chart 1. Japan's system wide financial crisis



(Note) TOPIX (December 1989 = 100)

Chart 2. Great Depression and Great Recession

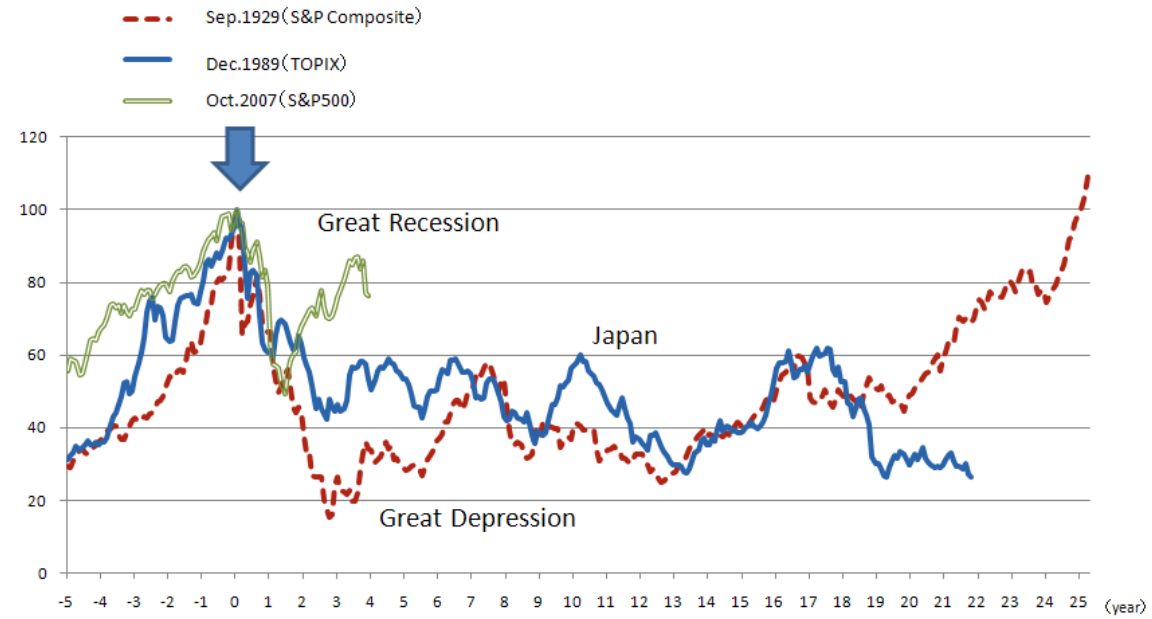


Table 1. Cases of system wide financial crises

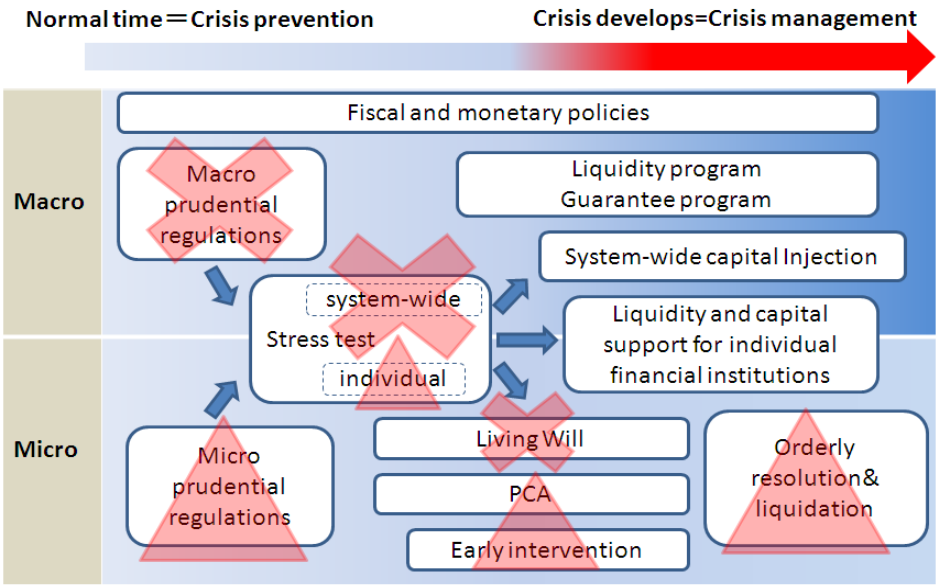
	1930s	**1990s～（Japan)**	**2007～**
Stock Index	S&P composite	TOPIX	S&P 500
Peak	31.30 (Sep. 1929)	2859.57 (Dec. 1989)	1539.66 (Oct. 2007)
5 years to the peak	+238.4%	+221.7%	+80.2%
(the first) Bottom	4.77 (Jun. 1932)	1023.68 (Oct. 1998)	757.13 (Mar. 2009)
Peak to (the first) bottom	-84.8%	-64.2%	-50.8%
New peak	Sep. 1954	not yet	not yet
Prolonged period of crises	①1930～1932 bank runs in the several U.S. States Credit -Anshtalt ②Feb.-Mar. 1933 nation-wide bank runs in the U.S.	①1995, 1996 Several bank runs, Jusen ②1997 Sanyo, Hokkaido-Takushoku, Yamaichi ③1998 LTCB, NCB ④2003 Resona, Ashikaga	①2007 Paribas shock, Northern Rock, SIVs ②2008 Bear Stearns, GSEs, Lehman, AIG ③2010, 2011 PIIGS and European banks
Implementation of restrictive fiscal and monetary policies	Tight monetary policy continued after the crash of 1929. Fed raised interest rate in 1931. Principles of balanced budget observed in early 1930s and 1937.	Increase in consumption tax and medical cost, Introduction of the Sound Budget law in 1996. BOJ terminated zero interest policy in Aug. 2000 .	ECB raised interest rate in Jul. 2008, Apr. 2011 and Jul.2011. Urge for fiscal austerity policy.

Table 2. Is next time different?

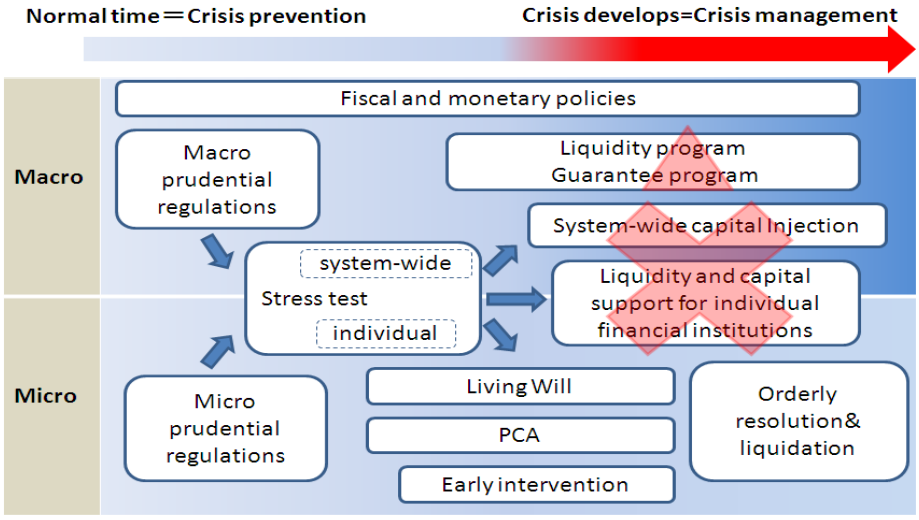
	1930s (U.S.)	1990s (Japan)	2007-2009 (U.S.)	Under DFA
Deposit Insurance	FDIC created	Expanded	Expanded	Expanded
Obligation guarantee		Temporarily introduced (Permanent guarantee of payment & settlement account)	Temporarily introduced	Limited to a program for solvent banks and bank holding companies
Capital injection	Started in Mar. 1933	Implemented in 1996 Restarted in Mar.1998	Started in Oct. 2008	Prohibited
Purchase of bad assets & loss sharing		Oct.1998 ～ Mar.2005	PPIP in 2009	Permitted only for orderly resolution
Temporal nationalization (with protection of creditors)		Oct. 1998: LTCB Dec. 1998: NCB Nov. 2003: Ashikaga	Fannie Mae, Freddie Mac	Prohibited
Emergency funding by the central bank	Introduced	22 cases implemented since 1995	TSLF, PDCF, AMLF, CPFF, MMIFF, TALF, Maiden Lane I-III	Limited to a facility for solvent borrowers

Chart 3. Regulatory Framework

A. Before Dodd-Frank Act



B. After Dodd-Frank Act



(Note) X means unavailable. The triangle means insufficient.