
Market-based Systemic Risks and Safety Nets

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I. Dealing with market-based systemic risks

1. What is market-based systemic risk?

Systemic risk refers to the risk of a system-wide malfunctioning triggered by problems in a subset of the financial system, the weakening of the ability of even financially sound economic actors to obtain access to funds as a result of funding sources shifting their financial assets into safe asset classes, and other risks that wind up having a grave impact on overall economic activity.

Systemic risk has thus far been understood, and dealt with, as a classic problem for the banking sector wherein a bank's failure or wave of bank failures harms confidence to the point that even sound banks suffer an irrational run on their deposits. Banks hold liabilities in the form of deposits that can be withdrawn at any time while holding many of their assets in long-term maturities that cannot be quickly liquidated, thereby playing the critical role of intermediating the supply and demand for funds. As we explain later, however, this maturity transformation function makes the problem of bank runs a fateful one.

Nevertheless, this latest financial crisis was characterized by a major outbreak of a new type of systemic risk, what could be termed "market-based systemic risk," turning the conventional wisdom on its head. Financial market liquidity quickly dried up, with 1) trading grounding to a halt for lack of pricing information, 2) market participants becoming very sensitive to counterparty risk, and more selective of counterparties, and 3) prices changing rapidly and driving up volatility¹.

One factor behind this was that the investment banks had obtained their funding through repo transactions backed by securities and through issuing CP, and had increased their lending to hedge funds. This is a function similar to the maturity transformation by the banks, and once confidence is lost in the securities brokers' management and in the securities used as collateral, they suffer a similar run on their deposits. Once market participants are forced to sell securities in order to maintain liquidity, mark-to-market rules cause losses at ostensibly unrelated parties, exposing

¹ Masaaki Shirakawa, *Modern Monetary Policy in Theory and Practice: Central Banking and Financial Markets*, *Nihon Keizai Shimbun-sha*, 2008 (in Japanese). For an overview of market-based systemic risks that arose in the recent financial crisis, see Yasuyuki Fuchita, *Guroubaru Kin'yu Shinchitsujo* (New Global Financial Order), *Nihon Keizai Shimbun-sha*, 2009 (in Japanese).

the entire market to the crisis' growing momentum. As we show below, securitization, securities lending, and the growth of OTC derivatives also played a major role in the spread of market-based systemic risk.

2. The different stages of panic

Unlike traditional systemic risk in which numerous bank branches suffer a run on their deposits, market-based systemic risks start to emerge in a way that is difficult to understand for all but participants in certain segments of the market, but plain to see by all, creating friction for overall markets while also having a serious impact on the real economy.

During the most recent financial crisis, panic conditions were particularly intense in the sectors outlined below.

- The subprime loan problem greatly reduced the number of investors in securitized products, leaving the banks and other originators with inventories of both the underlying loans and the securitization that they could no longer finance. In addition, price declines on those loans and securitized products cause them to suffer substantial losses.
- Structured investment vehicles (SIVs) obtained funding by issuing asset-backed CP (ABCP) and then invested those funds in mortgage securities, profiting from the spread between the two, but the subprime loan problem prevented investors from reinvesting in ABCP, making it difficult for the SIVs to raise funds. The banks that established these SIVs were forced to not only enhance their liquidity but also to move assets onto their balance sheets to avoid reputational risk, and the problem grew into one that threatened those banks' financial position.
- Lack of confidence in the soundness of banks and investment banks spread, making it difficult for them to get financing in the interbank and repo markets. There was a sharp increase in haircuts on collateral, and it became almost impossible to get funding from a repo backed by securitization.
- In the London market, the investment banks that customarily provided funding to the hedge funds through securities lending had been getting their funding through repo transactions that used securities they were holding as collateral, but not only did the crisis make it difficult to get funding through repos, the investment banks were unable to respond to the rush of demands to return collateral from their hedge fund customers, who had become concerned over the viability of the investment banks. Lehman Brothers' London subsidiary was a notable example of this.
- In the securities lending market, the borrowers of securities increasingly started to collect on the cash deposited as collateral with the lender (or the intermediary institution), but this cash had been invested in securitized products that had subsequently gone down in price, making it difficult for the lender to pay back the cash. A typical example here was AIG.

- With it now more difficult to get funding (funding liquidity having dried up), financial institutions started selling their securities holdings, but the lack of buyers turned the market into a fire sale (market liquidity having dried up). Under mark-to-market rules, this caused widespread losses, or the fear of such losses, at financial institutions holding securities that had dropped substantially in price or become unpriceable.
- In the OTC derivatives market, as well, the increase in counterparty risk necessitated a substantial increase in collateral.
- In the CDS market, the failure of Lehman Brothers created concern that many sellers of CDS protection would be forced into paying large amounts, and this reduced transactions with counterparty financial institutions.
- The Lehman failure caused money market funds, the primary investors in CP issued by Lehman, to "break the buck." This sharply amplified the exodus of funds out of money market funds overall, and made it more difficult for CP issuers, including nonfinancial companies and their finance arms, to issue CP.
- In the US market for auction rate securities (ARS), the underwriting institutions that manage the auctions were saddled with losses as a result of the subprime loan problem, causing them to quit providing ARS buying support, and creating concern over the monoline insurers that provided ARS guarantees. This resulted in a series of failed auctions, and caused the market to freeze up. Although many municipalities had issued ARS, failed auctions pushed the maximum yield to as high as 20%, in some cases making it impossible for them to raise new funds. Investors who had bought ARS as a short-term investment were unable to sell them.

3. The need for a new response

Fed Governor Daniel Tarullo posited two causes for systemic risk, the spread of business deterioration and failure of a major financial institution to other financial institutions, and the collapse of markets used for short-term funding by many market participants². These two causes correspond to the two types of systemic risk referred to earlier: traditional and market.

He also noted that although the reforms of financial regulations and oversight crafted thus far, such as Basel III, have primarily focused on the former, which results from the excessive risk taking of large financial institutions, there remain many areas in need of reform to deal with the latter. Dealing with market-based systemic risks becomes that much more important when considering that the problems caused by the plethora of market types do not emanate solely from large financial institutions, and there is a risk that these other markets will grow as a consequence of market

² Tarullo, K. Daniel, "Comments on "Regulating the shadow banking system"," a speech at the Brookings Panel on Economic Activity in Washington DC on 17 September 2010.

participants seeking to avoid the tighter regulations imposed on large financial institutions.

Of course, measures are already being considered, and implemented, to deal with many of the problems arising in the various market segments noted above. This is particularly true for the securitization and OTC derivative markets, where various regulations have been tightened in a number of different countries. There has been a tightening of rules on investing in money market funds in both Europe and the US, while repo market reforms are being considered in the US.

We think such a segment-by-segment response is insufficient, however, and see a need for a more comprehensive approach. This is because a common thread underlying the problems in each segment is that a variety of financial intermediation markets other than the traditional one of converting deposits into lending have become important to the banks, and the liquidity panics akin to runs on bank deposits that occur in those markets have a serious impact on the overall economy. Even if the problems in existing segments are dealt with, another route for financial intermediation could spring up and develop the same problems.

This financial intermediation apart from traditional banking, known as shadow banking or parallel banking, has drawn much attention for its strong connection to the latest financial crisis, but there has yet to be any serious effort to come to grips with it.

II. Shadow banks and a new approach to regulation and supervision

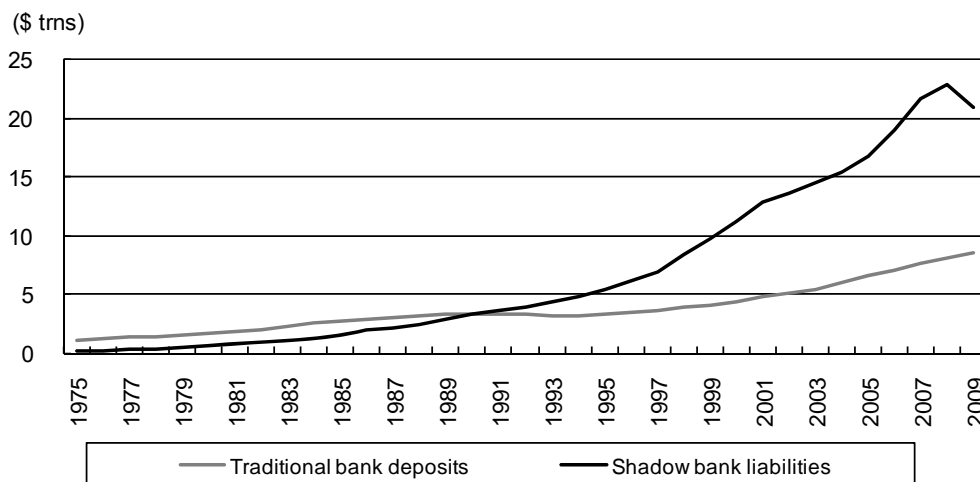
1. Banks versus shadow banks

In July 2010, the New York FRB released a survey of the shadow banking sector in the form of a staff report³. The report defined shadow banks as financial intermediaries that conduct maturity, credit, and liquidity transformation without access to central bank liquidity or public sector credit guarantees. Its examples of shadow banks included finance companies, asset-backed commercial paper (ABCP) conduits, limited-purpose finance companies, structured investment vehicles, credit hedge funds, money market mutual funds, securities lenders, and government-sponsored enterprises.

In contrast, the banks have been able to access central bank liquidity and public sector credit guarantees when they transform maturities (by matching short-term liabilities with long-term assets), transform credit (matching safe liabilities with risky assets), and transform liquidity (matching highly liquid liabilities with illiquid assets). As we describe later, the banks have been granted central bank access and the benefit of deposit insurance precisely because they engage in these risky transformations of maturity, credit, and liquidity.

³ Pozsar, Zoltan, Tobias Adrian, Adam Ashcraft, and Hayley Boesky, "Shadow Banking," Federal Reserve Bank of New York, Staff Reports, No.458, July 2010.

Figure 1: Shadow banks grow rapidly



Notes: Bank deposits are the total of deposits at commercial banks, savings and loan institutions, and credit unions. Shadow bank liabilities are the total of money market fund balances and the liabilities held by the GSEs, mortgage pools, issuers of ABS, broker dealers, and funding companies.

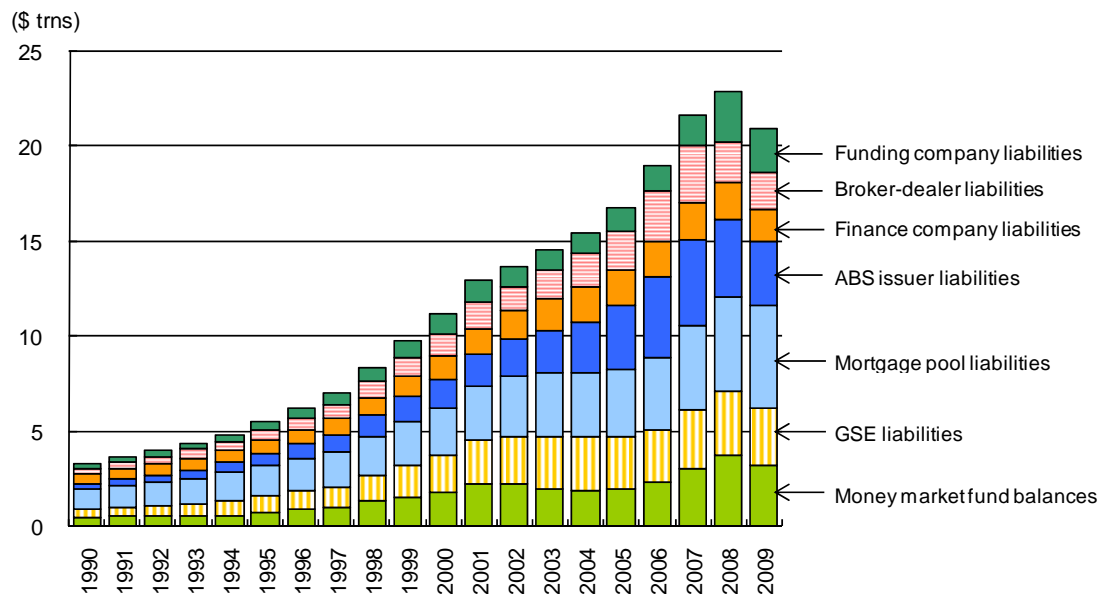
Source: Nomura Institute of Capital Markets Research, based on the Flow of Funds Accounts of the United States from the Board of Governors of the Federal Reserve System.

For the past 20 years in the US, however, funds that had been ostensibly collected for investment in low-risk, highly liquid short-term instruments were aggressively moved, via the shadow banking system, into relatively more risky and illiquid long-term instruments. Figure 1 shows the approximate size of the shadow banking system, and indicates that shadow bank liabilities overtook the amount of bank deposits in the early 1990s. The difference between the two has only gotten larger since then⁴.

Figure 2 provides a detailed breakdown of these liabilities. These numbers include money market fund balances and the liabilities held by brokerage firms, the GSEs, and ABS issuers. There are reasons to argue against using simple totals here, since money market funds wind up lending to brokerage houses through repos, and also

⁴ Figures 1 and 2 are based on the New York Federal Reserve Bank survey, which noted that the size of the shadow banking system, comprising open market paper outstanding, repo liabilities outstanding, net securities loans, the liabilities of GSEs, mortgage pools, and ABS issuers, and the amount of money market funds outstanding, peaked at \$20 trillion, and stood at \$16 trillion in Q1 2010. This method of calculation results in the double counting of ABS issuer liabilities, since the amount of open market paper outstanding is already included in the amount of CP issued by ABS issuers. In this paper, we total the liabilities of financial companies other than banks, including only money market funds in the case of investment trusts. The numbers get somewhat larger when counting corporate bonds and other long-term liabilities. The estimates as of July 2007 used by Ricks (2010), a paper referred to below, were a total of \$11.2 trillion, comprising ABCP (\$1.2 trillion) securities lending (\$0.6 trillion) broker-dealer repos (\$2.5 trillion) finance company CP (\$0.4 trillion), liquid puts (tender option bonds, variable rate demand notes, and auction rate securities; \$0.7 trillion), deposits not covered by deposit insurance (\$2.7 trillion), and money market funds (\$3.1 trillion). This is considerably more than the \$4.8 trillion of deposits covered by the FDIC's deposit insurance.

Figure 2: Breakdown for shadow banks



Notes: See Figure 1.

Source: Same as Figure 1.

have holdings of ABCP. Nevertheless, if the turmoil from a run by depositors on money market funds were to occur at the same time that brokerage firms found it more difficult to get funding through repos, it could compound that turmoil, and thus we think it makes sense when estimating the systemic impact to add the two together, rather than net them out.

Figures 1 and 2 are not exhaustive, given the presence of auction rate securities and other products for which brokerage firms supply liquidity, as well as activities by hedge funds, which have shadow bank-like aspects. On the other hand, not all activities by brokerage firms have shadow bank characteristics, and thus these figures are only rough approximations.

Furthermore, shadow banks do not limit themselves to investing and procuring funds, but, as explained in our section on the stages of panic, also engage in activities that lead to systemic risk, including transactions tied to derivative risk and securities lending using cash as collateral. Financial intermediation outside of traditional bank deposits and lending, including the transactions described above, has grown by leaps and bounds, even compared with when disintermediation was getting all the media attention.

2. Are shadow banks the villains of this drama?

One factor behind the creation of the asset bubble in the US was the growth in residential mortgages enabled by securitization. The large number of highly rated securitized products that resulted were used as collateral in repo transactions, with money market funds serving as the lender in many cases. SIVs aggressively bought securitized products and used them as collateral to issue ABCP, which in turn were bought by the money market funds. The financial crisis made it imperative to respond to the turmoil surrounding the shadow banks, and the result was a decision to offer them the same central bank access and public sector credit guarantees offered to the banks.

The term "shadow banking system" was first used by PIMCO's managing director Paul McCulley in 2007. Although the word itself suggests that these financial intermediaries are a real problem, it was not until shadow banks were connected with the outbreak and spreading of the financial crisis that they came under criticism.

Looking back at the history of money market funds in the US, they were initially implemented as products nearly as safe and liquid as deposits but offering market yields, as opposed to the regulated yields offered by bank deposits. In certain respects, money market funds were seen by the shadow banks as a product of regulatory arbitrage.

Likewise, growth in the use of repos for managing assets came about because, with limits on deposit insurance, they aligned perfectly with the need for corporations and institutional investors to invest in very safe and liquid instruments with highly credible securities as collateral. For the brokerage houses, which needed a source of funding, financing through repos became an essential means for developing their securities underwriting business, where demand was growing. Also growing as a result of actual demand were derivatives and hedge funds, although some market participants argued vehemently that these were not of any significance.

The survey by the New York Federal Reserve Bank argued that the better term to use for shadow banks was "parallel banking system," given that it provided important economic value outside of the traditional banking system⁵. The survey noted that money market funds offered greater transparency than banks, and that shadow banks have the advantage of offering more specialized services. It also noted that although the size of the shadow banking system is down from its peak, it remains an important source of credit for the real economy.

3. A new approach to preventing and responding to crises

While dealing with the market-based systemic risks of each segment on a segment-by-segment basis also makes sense, it has been noted that a more comprehensive approach is needed in light of the aforementioned special characteristics of shadow

⁵ In a speech he made in June 2008 when President of the New York Fed, US Treasury Secretary Tim Geithner spoke of the rapid increase in financial assets outside of the traditional banking system, using the expression "parallel system."

banks, and such an approach has been followed to some extent thus far. This is basically a two-pronged approach relying on both prevention and response. Specifically, this includes, from the standpoint of preventing systemic risk, establishing a mechanism, like that for banks, to regulate and supervise those systemically important financial institutions that are not banks, and on the response side, implementing a special framework for bankruptcy that is different from that for nonfinancial firms.

On the prevention side, the "Declaration on Strengthening the Financial System" adopted at the London G20 financial summit in April 2009 proposed changing financial regulations so as to limit the build up of systemic risks, including within the shadow banking system. Specifically, it proposed establishing councils, boards, or other organizations to handle macro-prudential supervision of system-wide risks.

The policy of properly regulating and supervising systemically important financial institutions (SIFIs), whether they are banks or not, had already been proposed at the first G20 financial summit held in Washington D.C. in November 2008. The plan was further debated at the Financial Stability Board (FSB) and the latest recommendation was submitted at the G20 summit in Seoul in November 2010. It recommends that in particular financial institutions that are clearly systemic in a global context (G-SIFIs) should have higher loss-absorbency capacity than the minimum levels agreed in Basel III.

Regarding bankruptcy resolution, the June 2010 G20 Toronto Summit Declaration included this: "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, and adopted principles that will guide implementation." These principles were developed by the FSB and further proposals were presented at the Seoul summit.

The US has gotten ahead of the global debate by passing the Dodd-Frank Act in July 2010. This legislation includes a framework for preventing crises at non-bank SIFIs while also providing for specific bankruptcy rules for nonbank financial institutions whose failure presents a threat to the overall system⁶.

4. Problems identified thus far

1) Overemphasis on a tightening of regulations for crisis prevention

Regulatory reform informed by the financial crisis appears to be moving toward including more regulation of the shadow banks, but there are a number of problems associated with this.

First of all, the debate has tended to focus on strengthening traditional banking regulation starting with the Basel rules, but has not progressed to looking at and

⁶ See Yasuyuki Fuchita, *Sisutemikku Risuku to Kin'yu Kisei to Kantoku* (Systemic risk and financial regulation & oversight), Summer 2010 edition, Capital Market Quarterly (in Japanese).

dealing head on with market-based systemic risk. This has also been pointed out by FRB Governor Tarullo⁷.

Furthermore, although the debate has centered on strengthening regulations to prevent crises, taxpayer opposition to bank bailouts has led to a trend, particularly in the US and UK, to introduce draconian regulations. There is reason to be concerned that implementing regulations shaped by this hard-line stance may block the smooth functioning of financial intermediation and have an adverse impact on the real economy.

We think it is a reasonable concept to try to regulate based on whether a financial institution is systemically important, rather than on whether it is a bank or securities firm. It is also understandable that the thinking would emerge of assessing a capital surcharge on these financial institutions as a way of bearing the negative externalities. It is important to note, however, that unlike the problem of pollution, negative externalities in finance are in certain aspects tied to positive externalities.

For example, network economies during normal times can turn into contagion risk brought by interconnectedness during a crisis. Any measures that put a price on (charge a fee for) network economies in order to contain the contagion would inevitably raise social costs.

2) Bankruptcy resolution that is liable to trigger a crisis

In addition, any tightening of regulations is certain to raise regulatory costs, but the effects from regulatory restraints are uncertain. This is why the debate must go beyond discussions of strengthening regulations to include response in the event of crisis. At this point, however, the debate over how to respond in the event of a crisis does not appear to have progressed as far as the debate over regulatory tightening, and judging from the frameworks proposed thus far, a number of problems remain in the area of crisis response.

In the US, for example, the only approved method to deal with financial institutions, whether banks or nonbanks (including bank holding companies and securities firms), that have gotten into trouble that poses systemic risks is through liquidation, a process that also imposes losses on unsecured creditors⁸. The problem here is that depending on the types of creditors that must bear losses, and the extent of those losses, there is a likelihood that the losses will spread to other financial institutions and wind up destabilizing credit markets.

Another lesson learned regarding market-based systemic risk is that there is a risk that a sharp increase in concerns over counterparty risk within the market overall could freeze up a variety of other markets and transactions. This is especially true under the Dodd-Frank Act, which makes it more difficult to make the same use of the

⁷ Tarullo (2010).

⁸ The Financial Stability Oversight Council (FSOC) is also studying whether it may improve market discipline and protect taxpayers by imposing a haircut on secured creditors, as well. It has committed to completing its research and making a proposal within a year.

emergency loans from the FRB stipulated in Article 13 Paragraph 3 of the Federal Reserve Act, which played a critical role in the last financial crisis⁹. This paragraph in the Act made it possible for the FRB to extend special financing to a variety of economic agents, including individuals, at the sole discretion of the Board of Governors of the Federal Reserve System, but under Dodd-Frank, such lending requires prior approval from the Treasury Secretary, and must be in order to supply liquidity to the financial system through the use of liquidity facilities and programs. In addition, only solvent financial institutions can make use of those facilities and programs.

This new framework in the US may be effective when certain financial institutions fail under idiosyncratic circumstances, but there are multiple financial institutions with the same business model, and when the failure occurs under market conditions where they are all dealing with similar problems, big or small, or where there is a broad-based collapse of asset prices, there is a risk that it will trigger systemic risk¹⁰¹¹. It also does not appear that the US has fully thought through how such a response might affect global financial markets.

Separate from this, a staff report from the New York Federal Reserve Bank presented a theoretical analysis suggesting that prohibiting financial institution bailouts may not be a good idea, contrary to the main idea in the Dodd-Frank Act of forcing them into liquidation without using tax revenues¹². This is because such a prohibition would not only ensure that financial intermediary institutions had only sub-optimal maturity transformation capabilities and non-optimized resource allocation, it would give investors an incentive to withdraw their funds early, and thus make the economy more vulnerable to a crisis.

⁹ Under exigent or unusual circumstances, the Federal Reserve's Board of Governors may determine, by the affirmative vote of not less than five members, to provide such financing to individuals, corporations, or partnerships. Reporting to the Congress would be ex post. During the latest financial crisis, the Federal reserve system supplied loans to primary dealers and loans aimed at ensuring that the CP market, asset backed securities market, and money market funds continued to function. It also supplied loans to the Maiden Lane LLC, a special purpose vehicle established to purchase illiquid assets at the time of the Bear Stearns crisis, to the Maiden Lane II LLC, established to purchase RMBS from AIG, and to the Maiden Lane III LLC, established to purchase the CDOs referenced by the counterparties in CDS transactions with AIG. The program was created in 1932, but the only loans based on it were made in the 1930s. See Fed Chairman Ben Bernanke's testimony to congress on 10 February 2009.

¹⁰ Gordon, Jeffrey N. and Christopher Muller, "Confronting Financial Crisis: Dodd-Frank's Dangers and the Case for a Systemic Emergency Insurance Fund" Columbia Law and Economics Working Paper No. 374. The Center for Law and Economic Studies, Columbia University School of Law, August 2010. Available at <http://ssrn.com/abstract=1636456>. The authors remarked that the "resolution straightjacket" of the Dodd-Frank Act "is a prescription for a future disaster. "

¹¹ Another criticism of the new bankruptcy resolution rules in Dodd-Frank is that the authorities are expropriating property without following the proper procedures as required by the constitution. See Scott, Kenneth E., "Dodd-Frank: Resolution or Expropriation?," 25 August 2010. Available at SSRN: <http://ssrn.com/abstract=1673849>

¹² Keister, Todd, "Bailouts and Financial Fragility", Federal Reserve Bank of New York, Staff Report No. 473, September 2010.

The Dodd-Frank Act strengthens the deposit insurance regime, permanently raising the deposit insurance cap to \$250,000 from \$100,000. It also leaves intact the FDIC's authority to provide debt guarantees to solvent banks¹³. There is also no change in the ability of banks to receive normal loans from the FRB.

In contrast, systemically important nonbanks will be newly subject to regulations as strict as those for banks as well as to resolution through liquidation, but will not be offered the safety nets that banks enjoy.

III. The argument for extending the safety net to shadow banks

1. The significance of deposit insurance and the central bank discount window

There are some who argue that in order to deal with the new systemic risks brought by the shadow banking system, instead of the liquidation approach of Dodd-Frank, it is necessary to extend to the shadow banks the same safety net currently only available to traditional banks.

Banks that conduct financial intermediation through a balance sheet structure of short-term liabilities combined with long-term assets have always been vulnerable to a run on their deposits. This is an age-old problem for mankind, but theoretically makes sense¹⁴. According to this line of thinking, deposit insurance and the central bank discount window are effective to the extent that they prevent bank runs. In fact, since the deposit insurance and central bank discounting programs were established, runs on bank deposits largely quit happening.

Although the shadow banking system had become quite large, as noted earlier, it was not regulated like the banking system, nor did it benefit from the same safety net of deposit insurance and central bank discounting, despite engaging in maturity transformation similar to that of the banks. Given this, it is not at all surprising that the shadow banks experienced the equivalent of a bank run.

The survey by the New York Fed touched on the important role played in the last financial crisis by public program support for the shadow banking system, including the markets for CP and money market funds and broker dealers, noting that shadow banks remain large, and given the weakness created by their exposure to a run by their wholesale funding providers, "it is imperative for policymakers to assess whether

¹³ The FDIC previously had a tool called open bank assistance that allowed it to help financial institutions in crisis because of systemic risk, but its only option now is resolution through liquidation.

¹⁴ Diamond, Douglas W. and Philip H. Dybvig, "Bank Runs, Deposit Insurance, and Liquidity" *Journal of Political Economy* 91, 401-19, 1983.

shadow banks should have access to official backstops permanently, or be regulated out of existence.”¹⁵

2. Proposal for a Systemic Emergency Insurance Fund

Based on a functional approach under which similar rules should be applied to similar functions, irrespective of whether bank deposits are involved, Ricks (2010) argues that the shadow banks, which perform the same transformations as traditional banks, need to have the same access to deposit insurance that the banks do¹⁶.

Likewise, Gordon & Muller (2010) have proposed establishing a Systemic Emergency Insurance Fund (SEIF). Upon agreement by the Treasury Department, FRB, and FDIC that a financial crisis that could seriously disrupt the US economy has occurred and that the usual measures would be insufficient, this fund would be used in support of a resolution plan from the FDIC, for various assistance to the financial sector including capital injections, and to support the FRB's liquidity and asset purchasing programs.

The size of the fund would be \$1 trillion, about 7% of US GDP. One fourth of this would be paid in by large financial institutions (including hedge funds and money market funds), in accordance with their level of risk, over a period of 20 years. When reserves are insufficient, it would be possible to borrow from the Treasury Department. Additional charges would be assessed if losses are incurred on these loans. This scheme avoids any criticism of taxpayer-funded bailouts. Although the authors are not opposed to the Dodd-Frank approach of liquidating rather than bailing out problem financial institutions, they propose the SEIF as a necessary means to prevent the crisis from spreading to numerous other financial institutions and markets.

3. Arguments against the moral hazard criticism

1) The need for a broad and flexible crisis response option

Moral hazard is consistently pointed out as a problem with bailouts, namely, the possibility that financial institutions will take excessive risks on the expectation that they will be bailed out. Likewise, the expectation that credit claims will be protected

¹⁵ For an example of a solution based on tighter regulations, see Gorton, Gary and Andrew Metrick, “Regulating the Shadow Banking System”, September 10, 2010. Available at SSRN:<http://ssrn.com/abstract=1676947>

The authors say the problem with shadow banks is that their funding comes largely from repos backed by securitized products. They propose that all securitized products be purchased by narrow funding banks (NFB), that investors invest in securities issued by NFB, that the repo market be tightly regulated, and that money market funds invest in the short-term debt of NFBs. Tarullo (2010), mentioned in footnote 2, argues that such regulation would only deal with some of the problems with shadow banks, and doubts that it would be feasible.

¹⁶ Ricks, Morgan, “Shadow Banking and Financial Regulation” Columbia Law and Economics Working Paper No. 370, August 30, 2010. Available at <http://ssrn.com/abstract=1571290>

makes it more difficult to instill market discipline in financial institutions through creditor behavior. In fact, there is reason to worry that the more a financial institution is considered too big to fail (and thus more likely to be bailed out), the stronger its credit rating and the lower its relative capital costs, which in turn makes it larger and encourages it to take more risks.

The beginning stage of a crisis is not the time to agonize over moral hazard, however. A defense of the Fed crafted by Alan Blinder at Jackson Hole in 2008 is worth noting in regards to criticism of loans from the Fed during the Bear Stearns crisis. Blinder gave an analogy of a boy who discovers a leak in the dyke and is about to plug it with his finger, but then recalls what he learned about moral hazard at school and decides against it. His thinking was that he would just be bailing out the company that built the dyke, and that the people should not have been foolish enough to build their home on a flood plain anyway. So he went home without doing anything, but before he arrived the dyke gave way, killing everyone in the area, including the little boy¹⁷.

No matter how much regulations are tightened, there will eventually be another financial crisis, and the country must implement effective measures to deal with it, even if that means making exceptions to the rules. If such measures cannot be taken without waiting for Congress to debate them, the damage will only get worse. Just as this time there was an outbreak of market-based systemic risk as opposed to traditional systemic risk, future financial crises may have new characteristics, and thus require a different response than in the past. In light of this, it is probably essential to create a framework that allows a broad-based, flexible, and dynamic response, rather than narrowly defining ahead of time those crisis measures that financial authorities are allowed to take.

2) Dealing with moral hazard during normal times

The problem is that establishing a framework that is obviously necessary to deal with a crisis inevitably leads to moral hazard during normal times. Keister (2010), who showed that prohibiting bailouts is welfare lowering and makes a crisis more likely, presents a theory that shows this can be solved by charging a suitable tax rate on the short-term liabilities (or on the maturity transformation activities) of financial intermediary institutions.

The SEIF concept of Gordon & Muller (2010) proposes using a partially prefunded insurance fund rather than government funds for the bailout, thereby avoiding to some degree criticism from taxpayers. That paper distinguishes between moral hazard at a micro level, i.e., at each financial institutions, and moral hazard at a macro level.

The former is a problem of financial institutions taking excessive risk and large financial institutions gaining an advantage over their smaller rivals in the area of capital costs. Their proposal, already noted, of allowing the liquidation of problem

¹⁷ Blinder, S. Alan, "Discussion of Willem Buiter's "Central banks and financial crises"", Jackson Hole, August 2008

financial institutions and then preventing knock-on adverse impacts by investing funds from the SEIF is an attempt to lower moral hazard at the micro level.

The latter problem of moral hazard at a macro level is one in which a sense of security from the existence of facilities for crisis response encourages risk-taking by investors and financial institutions overall. In addition, regulators may be tempted, knowing that a backup is in place, to regulate less tightly than they really should.

In this regard, it has not been easy to initiate facilities at times of crisis in the US. The only time that the FRB has used its emergency lending facility throughout its 70 year history was during the crisis of 2008. Furthermore, under a system in which insurance premiums are charged, individual market participants have an incentive to warn the authorities about other participants' risk-taking. The thinking is that even when moral hazard at a macro level becomes inevitable, it is still less of a problem than a bank run across the entire financial system.

IV. Japan's experience and lessons learned

1. Depositor haircut positioned as extraordinary measures

On 10 September 2010, the Incubator Bank of Japan filed a report with the Financial Services Agency (FSA) to the effect that its assets were insufficient to pay all of its debts, pursuant to Article 74, Paragraph 5 of the Deposit Insurance Act. The FSA, based on the Banking Act, ordered that the business and assets be managed by a receiver pursuant to the Deposit Insurance Act, and named the Deposit Insurance Corporation of Japan (DICJ) as that receiver. With this order, the execution of the Incubator Bank of Japan's business, and the right to manage and dispose of its assets, was assigned to the DICJ. The bank, while initiating civil rehabilitation procedures, began making preparations, under its receiver, for repaying that portion of its deposits not covered by deposit insurance and for transferring its business to The Second Bridge Bank of Japan. This represented the first time that deposits were reduced since the deposit insurance program was created in 1971.

When invoking the deposit insurance cap in this case, the authorities emphasized that because the Incubator Bank of Japan was different from other financial institutions in that it was not a clearing institution and did not obtain funding from the interbank market, its bankruptcy would have almost no impact on the financial system¹⁸.

Some observers conversely understood this to mean that those regular banks with a settlement function, because they would have an impact on the financial system, were likely to benefit from special measures to deal with the financial crisis (Article 102, Paragraph 1 of the Deposit Insurance Act), including a guarantee of all deposits. This

¹⁸ See the press conference held by Minister of State Shozaburo Jimi on 10 September 2010.

was actually an exception, and Article 102 Paragraph 1, supposedly an exceptional measure, is actually the norm.

2. Japan's level of progress in dealing with financial crises and future challenges

In response to the financial crisis, Europe and the US have focused on somehow ending the too-big-to-fail (TBTF) concept, while Japan seems to be taking a different path, giving the impression, without actually making it a national policy, that it wants to maintain TBTF. Nevertheless, Japan's current mechanisms for dealing with financial crises were built with the benefit of the valuable experience Japan gained from having to respond to financial crises since the 1990s.

Japan responded to the string of housing lender (*jusen*) failures in 1996 by injecting the lenders with public funds, but this engendered strong opposition from taxpayers, and consequently Japan had been very reluctant and slow to initiate bailouts, even for more serious crises that occurred in the late 90s. This only made the crises worse, and wound up costing taxpayers even more in the end. Hence Japan has already experienced the problems brought by excluding bailouts from the policy toolkit.

Japan was also the first country to directly experience the market-based systemic risk originating in the shadow banking system with the failure of Sanyo Securities and Yamaichi Securities. When Yamaichi Securities failed, the Japanese government devised emergency measures, including special loans from the BOJ, and deftly prevented any contagion from spreading to global markets.

In light of the analysis noted earlier, which concludes that allowing for the possibility of bailouts, as opposed to ruling them out, increases the economy's welfare and reduces the possibility of a financial system crisis, it can probably be argued that Japan's deposit insurance program and the way it has dealt with crises in the nonbanks sector thus far are justifiable, including from a theoretical standpoint.

From Japan's standpoint, the current debate in Europe and the US over a resolution regime for financial institutions puts too much emphasis on avoiding too great of a burden on taxpayers, while treating too lightly the effectiveness of the crisis measures themselves. Japan's resolution regime recognizes the importance of first providing the necessary and effective measures, including the injection of public funds. After several twists and turns, the US eventually settled upon a system in which the cost of bailouts is assessed after the fact, although it was Japan that led the way in introducing a regime built around the ex-post assessment of bailout costs (Article 122 of the Deposit Insurance Act).

As long as defects remain in the regimes for dealing with crises in Europe and the US, the stability of Japan's financial markets is also at grave risk, in light of the linkages connecting global financial markets. Accordingly, Japan's experience and lessons learned should probably be used to point out problem areas in the debate taking place in Europe and the US. As already noted, there are also some academics

overseas that have pointed out problems in the debate by European and US authorities, although these are no more than minority opinions at this time.

Nevertheless, we think much of the debate in Europe and US, including the need for implementing a fast crisis recovery and bankruptcy resolution process, the need to establish a resolution regime for nonbanks, and the need for a framework for resolving the failure of cross-border financial institutions, are also issues well worth debating in Japan.

Financial markets have become more global, and the financial industry has undergone substantial structural change, since Japan first dealt with its financial crisis. There is also a possibility that, in part owing to the revision of the Bank of Japan Act, it has become more difficult to extend special loans as dynamically and flexibly as before. It is probably desirable to reassess, and further improve, Japan's current regime for dealing with financial crises, a regime we think has proven quite robust on an international comparison, particularly given the lessons learned from the latest financial crisis in Europe and the US.