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Bank of Japan

"The Past Does Not Repeat Itself, But It Rhymes": Four Lessons Learned from the Financial Crises

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Thank you, Chairman. It is always pleasant to come to Chicago, even when the topic of the discussion is challenging, and I am grateful to the Chicago Fed for inviting me to this esteemed conference.

Needless to say, we have already learned many hard lessons from the current crisis. For the sake of better financial regulation, I would like to focus on four lessons in particular.

1. Lesson One

The first lesson is encapsulated in Mark Twain's famous line, "The past does not repeat itself, but it rhymes". It is now fair to say that many thought Japan's so-called "lost decade" was a problem peculiar to Japan, and also, by learning well from that problem, it was not going to be repeated elsewhere. Unfortunately, this has turned out not to be the case.

In fact, we can see a remarkable resemblance in the development of the financial crises and subsequent policy responses between the current US situation and Japan's lost decade. Chart 1 shows a rough mapping of events in the time line between the current US crisis and Japan's lost decade.

In both countries, the problem had its root cause in the property markets. In the US, the legacy or toxic assets were sub-prime RMBS and their related securitized products; in Japan, they were commercial properties in central business districts, particularly in Tokyo. It was these toxic assets that gradually began to hurt banks' balance sheets.

We then saw an adverse feedback loop develop between financial distress and economic activity. The subsequent policy responses by both Japan and the US also bear a marked resemblance.

However, the past does not repeat itself exactly, as the "time scale" and the degree of "acceleration" in the two crises were different. In the early stages, one month in the development of the US crisis seemed to be equivalent to three months in the development of Japan's, but the pace later accelerated, and it now appears that one US month is equal to

five or six months in Japan of the 1990s.

What made the difference to the time scale and acceleration? Innovations and structural changes over the last two decades have no doubt played an important role, namely globalization, advances in information communication technology, and financial innovations and sophistication. Indeed, compared with Japan in the 1990s, the current crisis is far more complex, interconnected and global.

Accordingly, the velocity of market dysfunction has been much faster and its contagion much more widespread than in Japan's case, and the damage inflicted on the global financial system and economy has been far more devastating than Japan's non-performing loan problem.

2. Lesson Two

The second lesson we have learned from the crises is that once an adverse feedback loop has been started, it is extremely difficult and costly to stop it and to restore confidence.

This was the essence of Japan's experience; a series of fiscal stimulus packages and an accommodative monetary policy could not generate sustained economic growth, as the financial system was severely impaired and market confidence continued to be eroded. Injections of public capital in 1998 and 1999 were also, in retrospect, not sufficient to convince the market to jump-start the economy.

This is evident in Chart 2. At the same time, it was clear that the Japanese economy was suffering from a significant productivity slowdown from its peak in the 1980s.

So when and how did Japan's adverse feedback loop stop? With hindsight, perhaps the turning point was October 2002, when the Financial Services Agency urged major banks to halve their NPL ratios by the end of March 2005, and pledged to monitor their efforts continuously and rigorously. The Bank of Japan also urged banks to carry out more rigorous evaluations of NPLs, and to dispose of them promptly based on those evaluations.

In retrospect, the timing coincided with the reflection point at which the economy had just passed the trough of the 2001 recession, and began to recover, thanks to strong export demand due to the vigorous world economy.

This was also the time when substantial progress was being made in corporate restructuring with respect to the so-called "three excesses": debt, employment and production capacity. This restructuring helped the final pick up. In this way, the Japanese economy was, in general, out of the woods around 2005, although some regional economies lagged behind, having benefited less from the global growth.

3. Lesson Three

I will move on to the third lesson and ask the following question: "Is it possible to solve problems with troubled assets at an early stage?" I find the answer is unfortunately negative: "It is very difficult".

This is because when the valuation of troubled assets becomes highly uncertain, in the way Frank Knight described here in Chicago eighty-some years ago, a "wait and see" strategy may be the natural reaction for both sellers and buyers[1]. So, private initiatives alone may not be sufficient to solve the problem. We have a list of such private attempts, with the fate of the M-LEC among them, as well as the Cooperative Credit Purchase Corporation in Japan in 1993.

At the same time, it becomes increasingly difficult and costly for financial institutions with troubled assets to raise capital once the market becomes suspicious.
However, governments usually face severe difficulty gaining public support for intervention in the early stages of a crisis, as we have seen recently, while the financial institutions themselves seek to avoid stigma and government interference.

4. Lesson Four

What is the core of the problem? Lesson Four of the crises is that it is the difficulty in getting "reasonable estimates" of losses and a "reasonable pricing" of troubled assets, on

[1] See Nishimura, K. G., and H. Ozaki, "Irreversible investment and Knightian uncertainty" *Journal of Economic Theory* 136 (2007), pp668 – 694.

which both sellers and buyers can agree, that leads to erosion in confidence. It is this erosion in confidence which then leads to an "excessive" aversion to uncertainty.
There are a number of related factors which have contributed to the current erosion in confidence. Firstly, troubled assets have had macro-systemic effects, including unprecedented levels of downside-correlation.

Secondly, these troubled assets' losses were dynamic and evolved over time. The "estimated losses" increased continuously as the economy slid into stagnation. Valuation of these assets, based on pre-crisis norms, grossly and consistently underestimated the losses, leading to an erosion of confidence in valuation methods and ultimately in the solvency of the institutions with these assets.

Moreover, troubled assets were very heterogeneous, and the erosion of confidence in existing valuation methods set an adverse selection mechanism in motion, leading to a marked deterioration in market liquidity.

Let me briefly summarize the implications of erosion (or contamination) of investors' confidence in financial institutions. Once they lose confidence, these investors face "unknown unknowns" that they never dreamed of before. They then become "excessively" averse to uncertainty surrounding the future prospects of financial institutions. That is, they make decisions based on the "worst possible case scenario" and try to minimize the losses they would incur in this worst possible case[2]. Their valuation of these financial institutions thereby turns out to be "excessively" pessimistic, and they become very sensitive to any news that supposedly has some bearing on the worst possible case scenario. Moreover, they tend to "wait and see," until they feel more confident about the valuation of troubled assets. The result of these factors and their erosion of confidence is a significant undervaluation of financial institutions at the trough of an economic downturn.

5. Concluding remarks: So what should we do?

Having seen the devastating effects of the adverse feedback loop and erosion of confidence,

[2] See Nishimura, K. G., and H. Ozaki, "An axiomatic approach to ε-contamination" *Economic Theory* 27 (2006), pp333–340.

the natural reaction or desire would be to make every effort to avoid macro-systemic financial distress, and thus to regulate macro-systemically important financial institutions more closely and comprehensively, as was agreed at the G20 London summit, in order to prevent another crisis from developing.
However, at the same time, it is also important to bear in mind the following three points:

Firstly, we should avoid any "pro-cyclicality" of reforming zeal, such as strengthening regulations in the downturn when it may further exacerbate the slump, or deregulating the industry in the upturn when vigilance is called for. Past experience, as exemplified in Lesson One, suggests we are very much prone to this tendency.

Secondly, we should also bear in mind that no regulation is perfect. The origins of financial crises often lie in financial institutions' regulatory arbitrages and investors' complacent behavior based on "plausible deniability". Also, we live in a dynamic world and are always subject to innovations and structural changes so that, as we have just learned, it is virtually impossible to identify and eliminate in advance all possible causes of financial distress.

Thus, thirdly, we should prepare for the conceivably worst case in "normal" times, when confidence is still maintained. Lessons Three and Four show the fundamental problem of the financial crises is the difficulty in raising capital when it is most needed, because of the adverse feedback loop and erosion of confidence. It is worth exploring the feasibility of macroeconomic pre-committed or pre-paid "safety-net" schemes to complement ex-ante regulations. In this regard, contingent capital schemes and their variants are particularly worth exploring when designing regulatory reforms for macro-systemically important financial institutions.

Several such schemes have been proposed within the framework of private initiatives: capital insurance by Kashyap, Rajan, and Stein; reverse convertible debenture by the Squam Lake Working Group; and "margin calls" on shareholders by Hart and Zingales. For example, in the capital insurance scheme, participating institutions pay "systemic-risk insurance" premiums to insurers in good times, and get capital from them in bad times

when a systemic risk materializes. Since what we are preparing for is macro-systemic risk, the trigger should be a macroeconomic event. Other proposed schemes also rely on private incentives to supply capital to financial institutions when they need it.

However, private initiatives are not likely to be sufficient to cope with financial institutions' capital shortages in macro-systemic events, since insurers may find themselves in distress and unable to provide the necessary capital[3]. Moreover, a large-scale systemic risk is very rare, and its probability is very hard to measure, if not impossible. Insurers would demand much higher premiums than usual to take on such almost totally unknown risk ("uncertainty" in the spirit of Frank Knight, as mentioned before). In that case, it may be reasonable to have a public-private partnership capital insurance scheme in which private insurers insure the risk up to a certain point and a government takes the rest (up to a pre-specified limit). This is in fact quite similar to earthquake insurance in Japan.

These schemes, however, have their own problems. When insured, an institution may find it attractive to take further risk. We need appropriate supervision to prevent this moral hazard behavior. A non-participating institution may benefit from financial stability without paying its fair share of the costs. To avoid this free-rider problem, all systemically important institutions are required to participate. And so on. Although contingent capital schemes need further elaboration, they deserve discussion as a complement to the regulatory reforms currently under consideration.

Let me stop here for the time being. Thank you for your attention.

[3] This is not a remote possibility. In fact, a similar event happened in the current financial crisis. See Augstums, Ieva M., "Berkshire Hathaway subsidiary in Kansas to stop insuring bank deposits above FDIC limit", Associated Press, September 10, 2008.

Chart 1: Rough mapping of events between US and Japan

red bracket: major events, blue: monetary policy, yellow: fiscal policy, pink: bank rescues

Japan		U.S.	
4Q 1990	Commercial land price started to decline sharply	Feb. 2007	26% decline in ABX-HE (BBB) in one month
July 1991	First Policy Rate Cut	Sept. 2007	First Policy Rate Cut
2Q 1992	20% decline in commercial land price in one quarter	Oct. 2007	18% decline in ABX-HE (AAA) in four months
Aug. 1992	Govt. announces first significant fiscal stimulus package	Oct. 2007	Citigroup, BoA and JPMC announce plans for $80 billion Master Liquidity Enhancement Conduit (to be abandoned in Dec. 07)
Jan. 1993	Financial institutions collectively establish Cooperative Credit Purchase Corporation	Feb. 2008	President Bush signs the Economic Stimulus Act of 2008
'93, '94, '95	fiscal stimulus packages		
Jun. 1995	Govt. announces full protection for deposits for five years (to be extended further)	Sep. 2008	FHFA places Fannie Mae and Fredie Mac in government conservatorship.
Jun. 1996	Government establishes Resolution and Collection Bank (later to be reorganized as Resolution and Collection Corporation)	Sep. 2008	Lehman Brothers Holdings files for Chapter 11 bankruptcy protection
Nov. 1997	Failure of Sanyo Securities, Hokkaido Takushoku Bank, Tokuyo City Bank and Yamaicihi Securities	Sep. 2008	FRB authorizes FRB NY to lend up to $85 billion to AIG
Mar. 1998	Public capital fund injection to 21 major banks (1.8 trillion yen)	Oct. 2008	Establishment of $700 billion TARP
Oct. 1998	Introduction of temporary nationalization scheme, new scheme for public capital fund injection and etc. Temporary nationalization of Long Term Credit Bank of Japan.	Oct. 2008	Treasury Dept. purchases a total of $125 billion in preferred stock in 9 U.S. banks (more to follow)
'98, '99	fiscal stimulus packages	Nov. 2008	Treasury, FRB and FDIC jointly announce an agreement with Citigroup to provide a package of guarantees, liquidity access and capital
Feb. 1999	BoJ introduces zero interest rate policy	Dec. 2008	FOMC votes to establish a target range for the effective federal fund rate of 0 to 0.25 percent
Mar. 1999	Public capital fund injection to 15 major banks (7.5 trillion yen)		

Chart 2: Japan's Real GDP Growth and Fiscal and Monetary Policy