

The Cause and the Cure of the Current U.S. Financial Crisis

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**Prof. Yoshinori Shimizu, Ph. D.
Graduate School of Commerce and Management
Hitotsubashi University
y.shimizu@srv.cc.hit-u.ac.jp**

1. Introduction

One of the biggest concerns of the world economy at present is the financial market turmoil initiated by sub-prime loan problems in the U.S. In the last two decades, the two largest economies in the world, the U.S. and Japan, have both experienced burst of real estate bubbles. What lessons should we learn out of these repeated events. What are the causes and what should we do to avoid these cases to repeat?

We believe that the fundamental cause of the recent financial crisis in the U.S. that stemmed from sub-prime loan problems is a global regulation on bank capital adequacy in the world of rapid technical progress. After reviewing Japanese experience, we propose an alternative “market valued capital ratio” as a better criteria for bank soundness.

2. The BIS Bank Capital Regulation

The global regulation on bank capital by the Bank of International Settlement (BIS) requires all international banks to keep their own capital at least 8% of their total assets. This regulation on bank capital adequacy was first announced by the Basel Committee on Bank Supervision in July 1988, aiming to enhance soundness of internationally active banks, and is still in effect now in a revised form called “Basel II” which was announced in July 2004.

This bank capital regulation practically limits the amount of bank’s profit by restricting the size of their assets only 12.5 times of its own capital. Banks were forced either to reduce their loans or to increase their own capital. The U.S. banks were quick to respond to this regulation by reducing their asset sizes by means of “securitization.” They focused their activities on originating loans to obtain fees rather than interests payment on held loans. After originating loans, they created securities that include number of loans with diversified risks, obtaining AAA rating, and sold them off to third parties to hold for long term. This process is known as “unbundling of banking activities,” an example of new financial technology.

This financial technology spread all over the world quickly, especially to the countries with large capital markets. In such countries as in Asia where capital markets are small and hard to securities their loans, banks were far behind to catch up to this new financial technology, and forced to reduce their loans as well as profits. This forced reduction of bank loans was an important cause of Japan’s prolonged recession and deflation in 1990s.¹ An international regulation that aimed to establish a level playing field ironically created competitive inequality due to the different pattern of financial system of each country.

3. Reactions of Financial Institutions

One of the most striking movements in the financial markets in the 1990s is a rapid integration of financial, capital and real estate markets. Due to rapid technical progress in the field of finance followed by financial deregulations, all three markets are now practically became a borderless single market.

The biggest drawback of the BIS regulation is that it regulates only the capital of banks in the world of borderless financial markets. Naturally, financial markets responded to evade the regulation not only in the form of securitization, but also creating or giving money to special investment vehicles (SIVs) as well as investment

¹ See; Yoshinori Shimizu, “Impacts of the BIS regulation on the Japanese Economy,” *Journal of Asian Economics*, Vol. 18, No. 1, February 2007, pp. 42-62.

funds that are not regulated. When banks sell off their securitized loans they need to find buyers who can hold them until their maturities. Since the buyers also need money to do so, banks gave loans to them and even created many SIVs by themselves. But, the SIVs were independent entities and not consolidated the parent bank's balance sheet. The consolidation standard is so obscure and discretionary at present.

For example, Citigroup strongly denied to consolidate its SIV in the financial statement of the 3rd quarter in 2007, claiming that they do not have any obligation to supply liquidity and do not have the equities of the SIV. In December 2007, however, they announced to consolidate the SIV on the ground that they have committed to supply liquidity to the SIV that were in a financial difficulty and that its bond rating had been downgraded. This is a cause of a large loss to Citygroup.

There are no clear standard or rule for consolidating SIVs at present. When consolidation standard is discretionary, how the bank's capital adequacy regulation be effective? The BIS capital regulation has been revealed to have many big loopholes especially in countries with large capital markets. This is the essential reason why sub-prime loan problems has led to a financial crisis in the U.S., while problems stemmed from securitized loans in domestic markets does not present in Asian countries.

Nevertheless, securitized loans created in the U.S. were sold globally to numerous financial institutions of the rest of the world. The international spread of financial risks in this form are one of new concerns of the world economy. The sub-prime loan problem quickly spread to European countries through downgrading of securitized loan assets such as CDB (collateralized Debt Obligations) or MBS (Mortgage Backed Securities). Especially when real estate government guaranteed bonds like Ginnie Mae and Fannie Mae became an issue, the scale of the problem is truly global and . Since the global financial markets are highly integrated, international spread of technology, new financial commodities, as well as financial risks are instantaneous.

This problem is, however, exactly the same with the experience that Japan had in 1990s. In this case of the U.S., financial institutions are quick to recapitalize themselves and the government are ready to bail them out. The difficulty of the current U.S. financial crisis is that the problem is "too public to fail" or "too international to fail."

So, the roots of the recent financial crisis in the U.S. is the BIS bank capital regulation, which is already obsolete in a global world of rapid financial innovation.

4. Reality of the BIS Regulation

As shown in the comprehensive survey by Santos (2000)², the BIS regulation has practically no evidence that it is effective to improve the bank soundness. Its theoretical background is weak as well. In addition, the actual BIS regulation now in force called “Basel II” is largely different from what theoretically intended, due to a diversion of the definition of bank’s capital from what it should be.

The BIS’s official definition of capital is composed of Tier I, globally uniform basic items, and Tier II, items that each country can define arbitrarily up to the amount less than Tier I. From the beginning, the inclusion of 45% of hidden assets, in the form of unrealized profit from held equities, into Tier II admitted for Japan was a political compromise, since the 8% criteria was hard to achieve without it at the time of its introduction in 1988. The definition has been revised successively once the 8% criteria became hard to achieve due to the aggravated financial market conditions. In 1990, subordinate debts are allowed to be included in Tier II, which was the major factor that helped the Japanese banks to meet the regulation.

In 1998, Tier II definition was enlarged to include 45% of revaluation of land properties allowing the inclusion of hidden assets held in the form of real estates. From March 1999, “deferred tax assets” was included in Tier I, with its maximum of the effective tax rate (about 40%) times their future expected taxable income for over 5 years. Finally, in 1998 and 1999, public money were injected to all major banks to help them to achieve the BIS criteria. The public money injection, letting all banks to clear the BIS criteria, is not different from the world where there is no BIS regulation from the beginning. Without the BIS regulation, it would be possible to bailout banks only by financial supports to run their business rather than an injection of public money to achieve the 8% criteria.

Nevertheless, the effort of Japan’s regulatory authority deserves credit, since they successfully saved the financial system from the destruction. Without their effort to adjust the actual implementation of the BIS regulation, the Japanese economy in the 1990s must have been much worse. Why Japan’s regulatory authority had to do this much of adjustment in practice. If this much of adjustment could be made, what the globally uniform regulations means?

This is because the major cause of the Japan’s financial crisis is a macro-shock

² See; Santos, J. A. C. (2000), “Bank Capital Regulation in Contemporary Banking Theory: A Review of the Literature,” BIS working paper, No. 90, September, Monetary and Economic Department, BIS.

that the BIS regulation did not explicitly take into account. It presupposed an unchanged risk level of a macro economy and intends to enhance the soundness of individual banks. When, some macro shocks occurred on which individual banks has no means to control, the BIS regulation should aggravate the macro economic conditions. This is a lesson we can learn from Japan's experience in the 1990s.

In more general terms, this is "the pro-cyclical problem of the BIS regulation."³ It stems from the fact that the BIS regulation is based on an unchanged and unique risk level of the financial market. Then, how should we cope with this pro-cyclicality?

The original intention to use capital ratio as a criteria of the regulation is to use the market evaluation as a vehicle to enhancing bank's soundness. When the market value of their stock is high, their capital ratio is high as well. So, the BIS regulation enforces bank managers to manage banks in a way that their banks are highly valued in the stock market. If it is the original intention, then, the use of the stock market valuation per se should be the base of the regulation. Once the full disclosure of bank performances were enforced by the regulatory authority, all the risks and soundness of individual banks should be evaluated in the stock market. The capital ratio is one of indices of management along with the rate of return, bad loan ratio as well as some other indices. In this sense, the artificially calculated minimum capital ratio is not the necessary condition in enhancing the soundness of banks.

In fact, it is not easy for the regulatory authority to assess the correct amount of the capital. For example, Hokkaido Takushoku Bank, which failed in November 1997, was announced to have the highest capital ratio among all city banks of 9.34% in March 1997. Japan Long-Term Credit Bank, which failed in October 1998, had the ratio of 10.34% in March of the same year. Japan Credit Bank, which failed in December 1998 was said to have the capital ratio of 8.19% at the end of September of the same year. In the case of Ashikaga Bank, the said capital ratio of 4.5% suddenly dropped to minus 0.7% due to the denial of deferred tax assets by auditing company and immediately failed in 2003. The nationalization of Risona Bank was initiated by the stricter assessment of the deferred tax assets.

The fact that the level of the capital is highly susceptible to the opinion of an auditing company clearly shows the fact that the BIS definition of the capital ratio has

³ See; Kasyap, A. K. and Stein, J. C. (2004), "Cyclical Implications of the Basel-II Capital Standard," *Economic Perspectives*, Federal Reserve Bank of Chicago, First Quarter, pp. 18-31.

already economically meaningless as a criteria of a regulation to enhance bank soundness. Although the capital is said to be useful in promoting bank soundness as a buffer of loss in a case of failure, in practice, it is already completely lost when it failed.

Fig. 1 shows the ratio of Tier I and Tier II of major banks average. The reason of the increases in the both ratios from 1997 to 1999 is the injections of the public money to all major banks. Tier II ratio seems to be stable in Fig. 1. However, Fig. 2 shows the movements of each component of Tier II, i.e., the ratio from hidden assets and the ratio from debts. The former stems from the increased prices of stock holdings and the latter from the issues of subordinate debts. Over the course of the 1990s, there is a steady tendency of the reduced share of assets and the increased share of the debts, reflecting the falling prices of stocks and increased amounts of the subordinate debts of banks. The quality of capital, in other words, the real soundness of banks had deteriorated, while this reality was not visible in terms of the announced BIS capital ratio.

5. The Market-valued Capital Ratio

Then, what is a better measure of bank's soundness? We propose to calculate the market-valued capital ratio as a simple ratio of total market value of stocks over total asset of a bank. This is a very simple and straightforward measure that anyone can observe easily and closest to the theoretical concept of a capital ratio.

In this section, we compare the announced capital ratio based on the BIS standard with the market valued ratio mentioned above. Fig. 3 shows the BIS ratio of all city banks individually.⁴ All of them clear the 8% minimum ratio, except for Risona bank in 2003. Risona's ratio rebounded in 2004 due to its bailout by the injection of the public money in 2003. The hike of the ratio of all banks in 1998 and 1999 is due to the injection of the public money to all city banks.

Fig. 4 shows the market-valued capital ratio of all individual city banks. The value is generally very high in the late 1980s. All the ratios were on a downward trend, however, after the burst of the bubbles in the 1990s up until 2003. Then, from 2004 on, all the ratios started to rise quickly up to the present. Fig. 5 is the weighted average ratios of both the BIS and the market-valued ratio of all city banks. This figure shows the clear contrast between the two ratios. Judged by the market-valued ratio, all city banks capital ratios have fallen short of 8% during the period from 1997 to 2005.

⁴ All 21 large banks existed until first half of 1990s were now merged only to four Mega bank groups in Japan.

Fig. 6-9 show the same ratios for the four Mega banks individually. In Fig. 6, the BIS ratio of Mizuho financial group has been rather stable at a level higher than 8%. On the other hand, the market-valued ratio shows large fluctuations. For example, in Fig. 4, Japan Development Bank (JDB) used to have a market-valued capital ratio of as high as 26% in the late 1980s. The value, however, has fallen continuously to less than 8% and merged to Mizuho bank at that time. Mizuho's average market-valued ratio has fallen to 0.91 in 2003 when the BIS ratio still kept the level of 9.71. The market-valued ratio approached towards the BIS ratio in march 2006, but still the difference of 3.7 percentage point exists between the two ratios. The similar trends are observed for Mitsubishi UFJ group and Sumitomo Mitusi banking corporation in Fig. 7-9.

In Fig. 9, Risona bank practically failed in 2003 at the time when the BIS ratio fell suddenly to 2.93% from 8.60% in the previous year. But, the market-valued ratio had already fallen short of 8% since 1997, implying that the market knew the high risk of Risona bank. The market-valued ratio fell to the level as low as 0.90% at 2003. On the other hand, the market-valued ratio quickly hiked to 9.09% immediately after Risona was bailed out by the injection of the public money in 2003. In 2006, it reached to 20.8%, the highest ratio among all city banks. Since the public money injection to Risona was regarded as a government policy to bailout big banks when they failed, it had a positive effect to the rest of Mega city banks.

The market-valued capital ratio is a far more accurate measure of bank's soundness than the BIS capital ratio. The former is easily observable for outsiders compared to the sophisticated BIS capital ratio that only insiders can calculate.

6. The BIS Ratio and the Market-valued Ratio of Failed Banks

It is interesting to know how the both ratios responded to failed banks. Fig. 10 shows the both ratios for Hokkaido Takushoku Bank that failed in Nov. 1997. Although the BIS ratio was consistently more than 8% up until it failed, the market-valued ratio had already started to fall below 8% in March 1991 and continued to fall to 1.58% in March 1997. On the contrary, its BIS ratio at March 1997 was announced to be 9.34%, the highest ratio among all city banks at that time. It failed soon after the market-valued ratio fell below 2%.

In Fig. 11, Japan Long-term Credit Bank's BIS ratio was 10.32% in March 1998, but failed seven months later. Its market-valued ratio started to fall below 8% in 1993 and continued to fall to 2.20% in March 1998.

In Fig. 12, Japan Credit Bank failed in Nov. 1998. Its BIS ratio was consistently

over 8% except for March 1997. Its market-valued ratio started to fall below 8% in 1992 and continued to fall to 3.66% in March 1998, nine months before its failure.

Fig. 13 shows Ashikaga Bank's ratios. The BIS ratio kept more than 8% up until its bank run in Autumn 1997 and the following public money injection. On the other hand, the market-valued ratio fell below 8% in 1993 and reached to 2.36% in 1997.

It is clear that the BIS ratio did not reflect the bank's soundness even just before the failure of these banks. On the contrary, the market-valued ratio is sensitive to the soundness at a very early stage. Banks tend to fail when the market-valued ratio approaches to the 2% level.

7. How the BIS and the Market-valued Capital Ratio respond to Bad Loans?

Fig. 14 is the bad loan ratios of all city banks. Fig. 15 shows the BIS ratio, the market-valued capital ratio, and the bad loan ratio of all city banks weighted average. The market-valued ratio is clearly negatively correlated with the bad loan ratio. We run the following regression to know the relationship between both capital ratios and the bad loan ratio. The results are as follows:

$$\text{Market-valued capital ratio} = 12.69 - 1.26 \text{ Bad loan ratio} + u$$

$$(-3.24)^*$$

$$\text{Market-valued capital ratio} = 9.83 + 7.34 \text{ ROA} + \varepsilon$$

$$(3.74)^{**}$$

t-Value in parenthesis.

*: Significant at 1% level. **: Significant at 0.1% level

The result shows that the market-valued capital ratio has highly significant relationships with bad loan ratio and the ROA of each bank. The BIS ratio does not have any significant relationship with both variables.

8. Conclusion

A fundamental cause of the current U.S. financial crisis originated from the sub-prime loan problem is an international bank capital regulation that regulates only banks in a world of integrated financial markets. The sub-prime loan problem quickly spread to the European countries through downgrading of securitized loan assets such as CDB (collateralized Debt Obligations) or MBS (Mortgage Backed Securities) forcing the holders into financial difficulties.

It became evident now that ever developing financial technologies had made the BIS capital regulation obsolete. This regulation has created a competitive inequality

among countries depending on the size and the depth of capital markets, giving a chance for western financial institutions with larger capital markets to get higher profits. In the end, however, it turned out that the risks supposed to be diversified and isolated from the originating bank have actually come back to the originator of the securitized loans.

Moreover, the effect of a financial crisis in a country easily and quickly spread globally. Financial authorities have no choice other than bailing out financial institutions that originated the sub-prime loans who got huge profits during the last decade. Although financial authorities seem to be reluctant to do so, moral hazard in the financial markets is inevitable at this stage.

The sub-prime loan problems are often accused as an example of bad outcomes of free market global capitalism. We should not forget, however, that it has been created fundamentally by a global regulation that is easily evaded through financial innovation. Once a negative shock occurs in some country, its negative effects spread quickly to the rest of the world. The market valuations that see through true soundness of financial institutions are far better and more transparent measure in regulating financial institutions.