

# Financial Regulation Going Forward\*

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## **Abstract**

The financial sector is heavily regulated in order to prevent financial crises. The recent crisis showed how ineffective this regulation and other types of government intervention were in achieving this aim. We argue that the crisis was primarily caused by housing price bubbles. These occurred because of too loose monetary policies and the easy availability of credit resulting from the build up of large foreign exchange reserves by Asian central banks. A number of regulatory reforms are suggested. It is also argued that central banks need to have more checks and balances. Finally, the international financial architecture needs to be changed so that Asian countries do not feel the need to accumulate large foreign exchange reserves.

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## **1. Introduction**

In the majority of countries the financial sector is the most regulated part of the economy. The primary purpose of this regulation is to prevent financial crises. The Crisis of 2007-09 has shown the inability of current regulation to achieve this goal. The Basel Agreements provide a good illustration of the problem. Despite the large amount of resources devoted to designing and implementing these in the last two decades, and the extensive international cooperation involved, these agreements did very little to prevent the crisis or lessen its effects. The problem is that unlike other areas of regulation there is no coherent theoretical framework underpinning the measures. In contrast, with environmental regulation, for example, it is widely agreed that the problem is a missing market. Polluters do not need to compensate anybody for the damage that they cause. As a result it is necessary for the government to step in and regulate emissions and so forth. Similarly, with antitrust regulation everybody agrees the problem that is being solved is a lack of competition.

But with financial regulation, what are the market failures that justify intervention? The Basel Agreements do not provide an answer to this question. In fact there is no wide agreement among academics, practitioners or regulators on this issue. One view is that financial crises are mainly due to panics as argued by Friedman and Schwarz (1963) for the U.S. in the nineteenth and early twentieth centuries. As the seminal theoretical contributions by Bryant (1980) and Diamond and Dybvig (1983) have shown, if everybody believes there will be a panic, then the panic is self-fulfilling. Everybody will find it worthwhile to take their money out of the banking system.

However, if everybody believes there will be no panic they will keep their money in. Another view is that crises are caused by the business cycle. If people expect a recession then they will withdraw their money from the banking system in anticipation of loans going sour and the banks being unable to repay them. Gorton (1988) and Calomiris and Gorton (1991) have provided evidence for this view using data from the U.S. in the late nineteenth and early twentieth centuries. A third view is that financial contagion is a fundamental problem and provides a rationale for government intervention. If one financial institution fails then other institutions holding claims on it may also fail. Allen and Gale (2007) consider these and a number of other possible causes of financial crises.

The current structure of banking regulation is a patchwork of measures resulting from the historical sequence of events rather than the implementation of a clear regulatory design. In the Great Depression, the economic situation was so bad that governments adopted a whole range of measures to stop any kind of problem. In the U.S., legislators passed the Glass-Steagall Act separating investment and commercial banking, they founded the Securities and Exchange Commission (SEC), they put in place all the SEC Acts,<sup>1</sup> and the financial system became heavily regulated. In other countries, regulation was also increased and in some such as France, financial institutions were nationalized. This regulation and government ownership was successful in terms of stopping banking crises. From 1945 until 1971, there were no banking crises, except for one in Brazil in 1962 that occurred together

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<sup>1</sup> The seven acts are: The Securities Act of 1933; The Securities Exchange Act of 1934; The Public Utility Holding Act of 1935; The 1939 Trust Indenture Act of 1939; The Investment Company Act of 1940; The Investment Advisers Act of 1940; The Securities Investor Protection Act of 1970.

with a currency crisis (see Bordo et al. (2001)). So it is possible to stop crises by stopping financial institutions from taking risks.

However, the alternative to the private sector taking decisions about risks and the allocation of resources is essentially that the government determines who gets credit. This was done in different ways. In countries like France with nationalized banks, the government directly made decisions. In the U.S., the government introduced so many regulations that banks couldn't take many risks and so low risk industries were allocated credit. As a result, the financial system stopped fulfilling its basic purpose of allocating resources where they are needed. In the 1970s it became clearer how inefficient this was and financial liberalization started in many countries. However, this led to a revival of crises. Since then, there have been crises all around the world (see, e.g., Boyd, De Nicolo, and Loukoianova (2009)). This historical evolution has led to a patchwork of regulations designed to stop particular problems rather than a well thought out way of reversing market failures in the financial system.

In this paper we start in Section 2 by discussing the origins of the recent crisis and argue that the general pattern is similar to other major crises. As Herring and Wachter (2003) and Reinhart and Rogoff (2009) document, crises are usually the result of asset price bubbles, particularly in residential and commercial property. When these bubbles burst, the real economy and the financial sector are adversely affected. The current crisis provides a good example of this. We argue that the property bubbles in the U.S., Spain, Ireland, and elsewhere were the result of two main factors. The first was that central banks set interest rates that were too low during the period 2003-2004 at a time when

house prices were already rising quite fast. This set off the bubbles. The second was that global imbalances, and in particular the acquisition of reserves by Asian central banks after the Asian Crisis of 1997 led to the easy availability of funds.

In Section 3 we discuss how regulation and government intervention in the financial system should be reformed going forward. Capital regulation is the major form regulation used internationally and this is discussed at length. It is suggested that interest deductibility of debt for the corporate income tax should be eliminated as this would largely eliminate the social cost of requiring high equity buffers. We argue that “Too big to fail” should not mean “Too big to liquidate”. Ways of eliminating the problems posed by large complex cross-border financial institutions are proposed.

Financial regulation is only one part of the intervention that is required to prevent crises and ameliorate their effects should they occur. Section 4 discusses the role of central banks in causing the crisis through low interest rate policies and the reforms necessary to prevent this going forward. Central banks need to be much more focused on controlling asset price inflation. In addition their design needs to be changed to ensure that there are more checks and balances.

Section 5 discusses how the international financial architecture needs to be redesigned to reduce the desire of Asian central banks to hold large reserves. This will reduce the easy availability of funds that together with low interest rates played such a large role in creating the bubble.

Finally, Section 6 concludes.

## **2. The origins of the recent crisis**

Despite its severity and its ample effects, the recent crisis is similar to past crises in many dimensions. There have been crises in many other parts of the world in the last few decades. Many of these were in emerging or middle income countries such as Argentina, Mexico, and Turkey, but many were in higher income countries. The crises in Japan, Scandinavia, and Asia in the 1990's stand out as being particularly severe. Reinhart and Rogoff (2009) document the effects of banking crises using an extensive data set of high and middle-to-low income countries over a long period of time. They find that systemic banking crises are typically preceded by credit booms and asset price bubbles. This is consistent with Herring and Wachter (2003) who show that many financial crises are the result of bubbles in real estate markets. In addition, Reinhart and Rogoff find that crises result, on average, in a 35% real drop in housing prices spread over a period of 6 years. Equity prices fall 55% over 3 ½ years. Output falls by 9% over two years, while unemployment rises 7% over a period of 4 years. Central government debt rises 86% compared to its pre-crisis level. These averages are not that dissimilar from what happened in many countries in the recent crisis.

This evidence from a wide array of financial crises suggests that the problems with subprime mortgages that marked start of the current crisis in August of 2007 were a symptom of the bursting of the property bubble rather than the cause of the crisis as many people initially believed. No doubt they considerably exacerbated the crisis, though. It was widely argued that what had happened was that the way the mortgage industry worked had changed significantly over the years. Traditionally, banks would raise funds, screen

borrowers, and then lend out the money to those approved. If the borrowers defaulted, the banks would bear the losses. This system provided good incentives for banks to carefully assess the creditworthiness of borrowers. Over time, that process changed and incentives were altered. Instead of banks originating mortgages and holding on to them, brokers and also some banks started originating them and selling them to be securitized. The quality of the securitized mortgages was certified by the ratings agencies. This process is termed the “originate to distribute model.” According to this mortgage incentives view of the crisis, the whole procedure for checking the quality of the borrowers, and the mortgages underlying the securitizations broke down. This analysis suggested that it would be fairly simple to solve the crisis and stop it from reoccurring. If the government regulated the mortgage industry to ensure everybody had the correct incentives, then this would prevent the problem in the future. There seems little doubt that the changes in the mortgage industry exacerbated the crisis. However, their absence in many other similar crises over the years suggests that they were not the primary cause.

We shall argue that the basic problem that caused the crisis was that there was a bubble in real estate in the U.S. and also in a number of other countries such as Spain and Ireland. What happened is that the bubble burst, and this caused the huge problems in the securitized mortgage market and in the real economy. The bubble was large and global in many ways. Figure 1 shows the Case-Shiller 10-city index since 1990. The figure illustrates the dramatic acceleration in house price increases in the early 2000s and their fall since July 2006. Figure 2 shows

the year-on-year change in this index. It can be seen that the rise in house prices started in the late 1990's and then took off in 2003 and 2004.

What caused the bubble? We argue that there were two main causes. The most important reason that the bubble was so big in the U.S. was the policies of the Federal Reserve in 2003-2004. What they did to avoid a recession after the collapse of the tech bubble in 2000 and the 9/11 terrorist attacks in 2001 was to cut interest rates to the very low level of one percent. Taylor (2008) has argued that this was much lower than in previous U.S. recessions relative to the economic indicators at the time captured by the "Taylor rule". During this period housing prices were already rising quite rapidly. For example, it can be seen from Figure 2 that the Case-Shiller 10-City composite index was growing at a rate above 10 percent throughout this period.

The Federal Reserve created a significant incentive for people in many parts of the U.S. to borrow at one percent and buy houses going up at a much higher rate. Unlike stock prices, which follow random walks, Englund, Quigley and Redfearn (1998) have found that house prices are positively serially correlated. This means that if housing has been going up recently then this may continue for some time to come. Lowering interest rates significantly below the current rate of house price appreciation thus created a profitable opportunity to buy property.

In addition there were various other public policies that made it advantageous to buy. These included the tax advantages of being able to deduct interest on mortgages compared to the non-deductibility of rent payments, plus a number of other policies to encourage poor people to buy houses. All these factors created a large demand for houses that led to



increases in house prices as shown in Figure 2. Even when the Federal Reserve eventually started to raise interest rates in June of 2004, it was still worth borrowing because house prices continued to rise at a rate above 10 percent until 2006 as shown in Figure 2. Thus the Federal Reserve's low interest rate policy was the first factor that really caused property prices to take off.

The U.S. was not the only country that experienced a bubble in property prices. Spain and Ireland also had very large run ups in property prices. Taylor (2008) argues that these countries also had loose monetary policies relative to the Taylor rule. He points out that Spain, which had the largest deviation from the rule, also had the biggest housing boom as measured by the change in housing investment as a share of GDP. Other countries in the Eurozone such as Germany did not have a housing boom because their inflation rates and other economic indicators were such that for them the European Central Bank's interest rates did not correspond to a loose monetary policy.

Loose monetary policy was not the only factor. As Allen and Gale (2000, 2007) have argued, growth in credit is important for asset price bubbles. The second important element in addition to low interest rates in the U.S., was global imbalances. These helped cause a growth in lending in the countries with a loose monetary policy.

Why are there global imbalances? This is a complex issue. However, we will argue that an important factor was the Asian Crisis of 1997. Many Asian economies, which had done very well, like South Korea, Thailand, and Indonesia, fell into serious difficulties. In the case of South Korea it was because its firms and banks had borrowed too much in foreign

currency. The country turned to the International Monetary Fund (IMF) for help to see them through these difficult times.

In exchange for providing financial assistance, the IMF required South Korea to raise interest rates and to cut government spending. That is the exact opposite of what the U.S. and Europe have done when faced with a very difficult crisis. One potential reason why this happened is that the IMF is a European and U.S. dominated institution. The head of the IMF up to now has always been a European while the head of the World Bank has always been an American. Asian countries are not represented at the highest levels. That was part of the arrangements that were made when the Bretton Woods agreement was negotiated at the end of the Second World War, even though it is not explicitly stated anywhere in the treaty. The Asian countries did not have much weight in the governance process and their quotas (i.e. effectively their shareholdings) were small. All this implied that when the IMF imposed harsh policies on the Asian countries at the end of the 1990s, there was no effective mechanism for these countries to protest and argue that they had fundamentally sound economies.

The consequence was that many Asian countries such as South Korea realized they had to become economically independent so that they would not need to go to the IMF to obtain relief from a crisis in the future. To achieve this independence, these countries accumulated trillions of dollars of assets. Figure 3 shows this accumulation of reserves by Asian countries (here China, Hong Kong, Japan, Singapore, South Korea and Taiwan). In contrast, Latin American and Central and Eastern European countries did not increase their reserves during this period.

The motivation for accumulating reserves of China, which is the largest holder, is probably more complex than this. First, although they were not so directly affected by the Asian crisis, similarly to other Asian countries China realized that it would be risky to seek help from the IMF if they should need it in the future. Second, and perhaps more importantly, it seems that China started accumulating reserves to avoid allowing its currency to strengthen and damage its exports. Over time China's reserves have continued to increase. As of the end of the first quarter of 2010, they stood at the level of \$2,447 billion. One reason for the growth in reserves is the potential political influence this gives China, particularly with the U.S. China has been increasing its military spending over the last few years. Acquiring such large reserves gives them an alternative means of security.

How were the Asian countries to invest these reserves? One possibility could have been firms' equity. However, it became difficult in particular for the Chinese to buy companies. For example, when the Chinese state oil company CNOOC wanted to buy Unocal in 2005 the transaction was blocked by the U.S. authorities on the grounds that Unocal was a strategic firm. This happened on a number of other occasions. Thus, the Chinese ended up having to invest mainly in debt instruments. They bought a large amount of Treasuries, Fannie and Freddie mortgage-backed securities, and many other debt securities. Similarly, other countries acquiring reserves also invested large amounts in debt securities. It can be argued that the large supply of debt helped to drive down lending standards to ensure that there was enough demand for debt from house buyers and other borrowers.

Loose monetary policies and the increase in debt instruments available because of global imbalances were in our view two important factors responsible for the real estate bubbles. However, various other factors also contributed to the bubble. One of these was the yen carry trade. This involved investors borrowing at zero interest rates in Japan and investing somewhere else such as in Australia and New Zealand at much higher rates. The carry trade involved an exchange rate risk, but most of the time it was possible to earn a significant return. There is not much information on how large the outflow of funds the yen carry trade involved but it may well have helped contribute to the rise in property prices in Australia, for example. Currently, there is the question as to how much the carry trade from the U.S. is contributing to property bubbles in China and other parts of Asia.

One important issue is the extent to which the problems in the real economy have been caused by the collapse of the bubble as opposed to spillovers to the real sector from the problems in the financial sector. Spain provides an interesting example here. It had a very large property bubble. Its real economy has been very badly damaged with unemployment doubling. However, its financial system is arguably the best regulated in the world. The Bank of Spain implemented countercyclical loan loss ratios some time ago. As a result its banks have come through the crisis much better than banks in other countries. For example, Santander and BBVA were both able to expand their operations through mergers. While the other banks did not do as well, they still did not require the large bailouts observed in many other countries. The savings banks or Cajas had more problems but again these have been relatively limited. Thus Spain provides an example where it seems that the bursting of the bubble has caused the most important damage to the economy. Figures 4 and 5 illustrate

this. Figure 4 shows the changes in GDP quarter by quarter. It can be seen that Japan and Germany had much larger GDP falls than the U.S., France and Spain. Figure 5 shows that despite their large falls in GDP, Germany and Japan's unemployment rates have not changed very much since the start of the crisis. However, unemployment in the U.S. and Spain, which had property bubbles, has approximately doubled. This observation emphasizes the important need to prevent bubbles.

### **3. Regulation and government intervention in the financial system**

In order to design effective financial regulation it is necessary to have a clear idea of the market failures that make intervention necessary. The benefit of regulation is that it can correct market failures and potentially stop very damaging crises but the cost is that the regulation needed to prevent these crises may prevent the financial system from doing its task of allocating resources. In turn that slows down growth, innovation and ultimately damages efficiency. The task of good regulation is to reduce the frequency of crises without impairing the operation of the financial system.

The main market failures in the financial system are panics, contagion, and mispricing due to limits to arbitrage. We next consider the various types of regulation that have been used to correct these failures.

#### *Designing capital regulation*

Capital regulations have been the main tool for regulating banks in recent years. These have been coordinated internationally through the Basel agreements. They are the

main tool for ensuring stability in the international financial system. The traditional justification in the academic literature for capital regulation has been that it is needed to offset moral hazard from deposit insurance (for an exception, see Hellman, Murdock and Stiglitz (2000)). Because banks have access to low cost funds guaranteed by the government, they have an incentive to take significant risks. If the risks pay off they receive the upside, while if they do not the losses are borne by the government. The argument is that capital regulation that ensures shareholders will lose significantly if losses are incurred is needed to offset this incentive for banks to take risks.

This rationale raises the issue of why there is deposit insurance. The usual answer is that this is needed to prevent bank runs that result from panics. If people know that the government will cover any losses, it becomes rational for everybody to leave their money in the banking system thus eliminating panics. However, in practice deposit insurance is only for small deposits, it does not cover large deposits or wholesale funding. As a result it does not solve the problem of panics. One possibility would be to guarantee all forms of short term debt. In this case there would again be a moral hazard problem. A better solution to prevent risk taking may be to remove deposit insurance and deal with the problem of runs through lender of last resort policies. If depositors know that the central bank will provide the needed liquidity if they attempt to withdraw early, they won't withdraw and there won't be a run. Another view is provided by Skeie (2008). He argues that in modern economies bank runs involve transfers of funds to other banks rather than withdrawals from the banking system. As a result, the funds transferred out can be borrowed back through the interbank markets. Skeie is able to show that for this reason there are no panics.

Prevention of contagion is another rationale for capital regulation (see, e.g., Allen, Babus, and Carletti (2009) for a survey of the literature on contagion). Contagion is the market failure that central banks often use to justify intervention, as, for example, in the case of the arranged takeover of Bear Stearns in March 2008. As Chairman Bernanke stressed in his speech at Jackson Hole in August 2008 (Bernanke (2008)), Bear Stearns would have defaulted if the Federal Reserve had not saved it. That would have led to a whole chain reaction where many other financial institutions would have gone bankrupt. There might have been a complete collapse of the financial system.

New theories of capital regulation based on preventing contagion are necessary. We need to understand the determinants of the optimal capital levels to prevent contagion. At the moment the literature on contagion is growing rapidly. However, as yet there are few theories of capital regulation to prevent it.

*What is the cost of equity capital?*

One of the major problems in designing capital regulation is in modeling the costs of equity finance for financial institutions. It is usually simply assumed in the literature that equity is more costly than other forms of finance (see, for example, Gorton and Winton (2003)). However, it is not at all clear what this higher cost is due to. One simple answer is that it is privately more costly because in many countries debt interest is tax deductible at the corporate level but dividends are not. If this is why there is a desire to use debt rather than equity, then the simple solution is to remove debt interest deductibility. We do not know of any good public policy rationale for having this deductibility. It seems to have arisen as an

historical accident. When the corporate income tax was introduced interest was regarded as a cost of doing business in the same way that paying wages to workers was a cost. However, from a modern corporate finance perspective, this is not the correct way to think about it. Equity and debt are just alternative ways of financing the firm. If removing interest deductibility means financial institutions are willing or can be induced through regulation at little social cost to use more equity, then financial stability would be considerably enhanced.

Other possible rationales for the high cost of equity are agency problems within the firm. According to this rationale the cost of equity is that it does not provide the correct incentives to shareholders or managers to provide the right monitoring. High leverage is needed to ensure this. There is little empirical evidence that this is in fact a severe problem. For example, leverage in private equity and venture capital firms where the agency problem seems much greater is typically less than in banks. This lack of a convincing rationale for the social cost of equity suggests regulation should ensure capital buffers are made large since there is little social cost to doing this. For example, if required capital ratios were 20 percent, the financial system would be considerably more stable than is currently the case and many more large shocks could be withstood.

#### *Contingent convertible debt (CoCos)*

It has been widely suggested that convertible debt should be issued by banks that could be converted into equity in the event of a crisis. In this case it would not be necessary for banks to raise capital in difficult times as it would already be available. The issue of this kind of security by Lloyds in the U.K. is an example. This certainly sounds attractive but the



securities suffer from a number of potential problems. First, there will be the issue of whether moral hazard is increased by such instruments. Second, why not use equity from the start instead? As we have argued above, there is no good evidence that equity is costly except for the interest deductibility of interest for the corporate interest tax and this should be removed.

*Capital adequacy regulation using accounting and market capital*

Another important issue concerning current capital regulation is that it is based on accounting book values rather than market values. When Wachovia failed during the recent crisis its accounting capital was well above regulatory limits even though the market was no longer willing to provide funds. There is no existing theory that we are aware of that suggests why capital regulation should be based entirely on accounting book values and not at all on market values. We clearly need to investigate the extent to which capital adequacy regulation should be based on market capital rather than accounting capital.

*“Too big to fail” is not “Too big to liquidate”*

As long as a financial institution can maintain its required regulatory capital and funding from the market, then it will survive. An important issue is what happens when it cannot do so. Should it be allowed to fail or be bailed out? One of the most important principles guiding policy during the recent crisis has been that large institutions are “Too big to fail.” The notion is that if a large financial institution is allowed to fail, this is going to cause many other institutions to fail all through the financial system. This is the contagion

problem discussed earlier. The way that this policy has been implemented is that governments have bought warrants, preferred shares and common stock in many institutions that would otherwise have failed. They have made it clear that these institutions will be provided with the capital that they need in order to survive. The effect of this type of intervention has been to provide a guarantee to long term bondholders as well. There is very little in the way of current theory to justify these policies.

It can be argued that current approaches are the wrong way to deal with the “Too big to fail” problem. As Lehman Brothers’ bankruptcy in September 2008 illustrated, contagion is a very real problem and large banks and non-bank financial institutions should not be allowed to simply go bankrupt. However, “Too big to fail” does not mean that these institutions should be allowed to survive.

It is a very bad precedent to provide failing banks with the funds they need to survive. In the future, it is likely that banks and other financial institutions will grow and become large knowing that they will not be allowed to fail. These banks will be willing to take large risks since they receive the payoffs if the gambles are successful while the government bears any losses.

“Too big to fail” does not mean “Too big to liquidate.” Financial institutions should definitely be prevented from failing in a chaotic way. The government should step in, take them over and guarantee their short term liabilities in order to prevent contagion. The top executives should be removed and pensions cancelled just as though the institution had gone bankrupt. Rather than allowing them to continue, these institutions should be liquidated in an orderly manner, even if this may take several years. That would allow the other

institutions that did not fail and that were well-run to expand and take over the failed institution's market share. Propping up the weak ones that did badly is not a good idea in the long term. It rewards risk taking and, perhaps more importantly, it prevents prudence from being rewarded. Well-run banks that took limited risks and survived should be allowed to benefit.

An important aspect of the scheme needed for the government to prevent contagion by temporarily taking over failing institutions before liquidating them is to have bankruptcy rules for all financial institutions that allow the equivalent of prompt corrective action for banks. With a bank, the government can step in before it goes bankrupt and take control. There doesn't have to be a vote of the shareholders. Such a mechanism is needed for all financial institutions.

#### *Resolution of large complex cross-border financial institutions*

A major difficulty in designing a framework that allows financial institutions to be liquidated is how to deal with large complex cross-border institutions. In particular, there is the problem of which countries should bear any losses from an international mismatch of assets and liabilities. This has proved a thorny problem for the European Union in designing a cross border regime to support its desire for a single market in financial services. For countries without the EU's political ties, it is an even more difficult problem. Designing such a system is one of the most urgent tasks facing governments.

One possible way to proceed would be to eliminate cross border branching. Then any subsidiaries would be regulated by the host country. These regulators would be charged

with ensuring that they were comfortable with any imbalances between assets and liabilities in their country. They could require collateral in the form of securities to be posted to cover any excess of liabilities over assets within the country. The regulators would be responsible for intervening should a foreign subsidiary or home institution come close to failing and would be responsible for covering any shortfalls of cross border assets and liabilities that failure would lead to.

If capital regulation is designed so that large capital buffers are required, then institutions can be resolved when they hit thresholds of equity value that are also high, say 5 or 10 percent. This should ensure that the short and long term debt liabilities are more than covered by the assets. Any remaining funds can be paid to shareholders. Using large thresholds in this way will help to minimize the likelihood that the assets of foreign subsidiaries, including any collateral, are unable to cover the liabilities within the country.

A significant advantage of this type of scheme is that there is no need for international agreement on it. Each country can unilaterally impose it. This is not true of other types of scheme where any gaps between assets and liabilities must be covered from other countries. In this case there must be agreement not to “ring fence” assets.

#### *Limited government debt guarantees for financial institutions*

In the current crisis holders of long term bank debt have effectively had a government guarantee. An important issue is whether this is desirable. Such a guarantee prevents disorder in bond markets, but again the guarantee provides undesirable long term precedents. Going forward holders of bank debt will know it is guaranteed and will not have any

incentive to exert market discipline. If failing banks are taken over and liquidated in an orderly manner as discussed above, it should be possible to impose losses on long term bondholders. This should provide incentives for market discipline by bondholders.

#### *Limits on leverage of financial institutions*

Many financial institutions started the crisis with very high levels of leverage. It has been widely argued that the deleveraging of these institutions during the first stages of the financial crisis considerably exacerbated the effects of the crisis (see, e.g., Adrian and Shin (2009) and Greenlaw et al. (2008)). We agree with this view. Some limitations on the leverage of financial institutions seem desirable. However, implementing such restrictions in practice may be problematic. The issue will be exactly what should be included in debt and what should be included in equity. Financial innovation will undoubtedly be used to try and circumvent any restrictions.

#### *Implementation of competition policy in the financial services sector*

There has long been a tension between competition policy and financial stability (see Carletti and Vives (2009)). It is only in recent years that competition policies have been implemented in many countries. Often for stability reasons, countries have avoided implementing competition in the banking sector as rigorously as in other sectors.

An interesting question that has been raised during the crisis is why is it that in normal times financial services firms make such large profits. One possibility is that it is because competition policy is not enforced properly. Although on the face of it financial

markets are very competitive, the nature of deviations from perfect competition is rather different than in markets for goods. One illustration is “front running”. This is based on knowledge of order flow by brokers and other participants in the market, which is extremely valuable. For example, if a large buy order is executed then this will typically drive up prices because market participants will deduce that the buyer has good information. If the processor of the order can trade before the large buy order is executed then it is possible to make money. Aggregated over time this front running can be extremely profitable. In the equity markets in the U.S. this is illegal. There are very careful records kept of when orders are received and brokers can’t trade on their own account before they execute customers’ orders. However, front running is not illegal in the U.S. bond markets.<sup>2</sup> The large investment banks have set up trading platforms for bonds that give them an advantage in terms of knowledge of order flow. This has the potential to allow large profits from front running.

It is important that deviations from perfect competition such as front running be carefully investigated and regulated. Front running in the bond markets should be made illegal just as it is in the equity markets. However, this is just one example where deviations from perfect competition are different in financial services. There are many others that need to be understood and prevented.

Restrictions on the size of financial institutions and their activities (the so-called “Volcker Rule”) have the potential to increase competition. Such limitations would have done little to prevent the recent crisis but may nevertheless be desirable.

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<sup>2</sup> We are grateful to Krishna Ramaswamy for pointing this out to us.

### *Macroprudential measures*

As argued in Section 2, the basic cause of the recent crisis and many other crises is a bubble in real estate prices. Perhaps the best way to prevent such bubbles is to avoid having very low interest rates at a time when property prices are surging. Once they have started, the question is whether interest rates should be raised to prick them. It may be possible and desirable to do this in economies with a high degree of homogeneity. However, doing this may be difficult for political reasons. At least initially when such policies are first introduced, it will be difficult to explain why it is worth causing a recession to burst a property bubble. In heterogeneous economies like the U.S. and Eurozone, where there may be a large amount of divergence in the rate of property price increases, using interest rates to prick bubbles will not be so desirable because of the areas that do not have bubbles. In this case it may be better to use other forms of macroprudential regulation to prevent bubbles. One example would be limits on loan-to-value ratios that would be lowered as property prices increase at a faster pace. This can be effective for residential property but may be difficult to enforce for commercial property. The reason is that firms may be able to use pyramids of companies that effectively increase leverage. Another measure is to have property transfer taxes that are greater the higher is the rate of property price increases.

### *Mark-to-market or historic cost accounting?*

Financial institutions have traditionally used historic cost accounting for many of their assets. This is problematic if assets fall in value as they may be able to hide this fact for

significant periods of time. A good example is the S&L crisis in the U.S. in the 1980's. This kind of episode encouraged a move to mark-to-market accounting in by the IASB and U.S. FASB (see, e.g., Allen and Carletti (2008a) and Plantin, Sapra, and Shin (2008)). During the recent crisis it was not at all clear that market prices reflect fundamental values. It has been widely suggested that limits to arbitrage allowed many asset prices, particularly those of securitized products, to break free from fundamentals. As a result, mark-to-market accounting came under severe criticism by financial institutions and was relaxed by the FASB under political pressure from Congress.

How should the advantages and disadvantages of mark-to-market accounting be balanced? As long as markets are efficient, mark-to-market accounting dominates. However, if as during times of crisis they cease to be efficient, market prices do not provide a good guide for regulators and investors. The key issue then becomes how to identify whether financial markets are working properly or not. Allen and Carletti (2008b) suggest that when market prices and model based prices diverge significantly (more than 2% say), financial institutions should publish both. If regulators and investors see many financial institutions independently publishing different valuations they can deduce that financial markets may no longer be efficient and can act accordingly.

#### *A role for public sector banks in a mixed system*

Some countries such as Chile with its Banco Estado have a publicly owned commercial bank that competes with private sector banks. In times of crisis, such a bank can expand and help stabilize the market as all market participants know that it is backed by the



state and will not fail. That's what many central banks have effectively been doing by buying large quantities of commercial paper. These central banks have become like large commercial banks. But the officials in charge of central banks do not usually have much expertise in running a commercial bank or know much about credit risk. It would be better to have expertise in the public sector which allows the state to perform commercial banking functions during times of crisis. These state institutions would also act as firebreaks and limit the damage that can be done by contagion.

#### *Reform of market structures*

A number of commentators have argued that the over-the-counter markets for many derivative contracts such as credit default swaps are opaque so that it is difficult to assess counterparty risk. The suggestion is that these markets should be moved onto exchanges so that the counterparty risk can be more systematically dealt with and eliminated. These suggestions have a lot of merit. The problem is whether socially valuable niche markets for derivatives that do not have sufficient volumes to trade on exchanges will be eliminated as a result of such measures. Reforms of over-the-counter markets should be carefully considered.

#### *Other measures*

In the U.S. much has been made of the issue of consumer protection. While there does seem evidence that consumers are taken advantage of by financial institutions, there is not much evidence this was a major cause of the crisis. Much of the regulation that was put

in place in the 1930s and 1940s with the SEC Acts was similarly meant to protect consumers. Strengthening this protection seems desirable. In other countries such measures would be even more desirable. In many European countries, for example, there seems to be very little in the way of consumer protection.

We have argued above that the removal of tax deductibility of interest will allow large equity buffers at small social cost. Such equity buffers would make it unnecessary to have countercyclical loan reserves. With low equity buffers such countercyclical loan reserves are desirable.

#### **4. Checks and balances on central banks**

Going forward, what else should governments do to minimize the risk of a future financial crisis? What reforms in addition to changes in financial regulation and the other types of intervention discussed above should be undertaken? There has been a tremendous focus on the private sector and what the private sector did wrong in terms of taking excessive risk. However, if the basic cause of the crisis was the real estate bubble and central banks played a role in creating this, it is really the public sector that took the main risks. If there had not been a bubble in real estate prices there would not have been a problem with subprime mortgages. If property prices had remained stable or continued to rise at a slower rate the default rate would have been manageable. It is therefore important to try to prevent central banks from creating a similar problem going forward. In particular, we need to develop a system that provides a check on central banks to lessen the chance that they take

risks in the way that the Federal Reserve did when it set interest rates so low in 2003 and 2004.

In a report on the Second Bank of the United States, John Quincy Adams wrote “Power for good, is power for evil, even in the hands of Omnipotence.”<sup>3</sup> This statement reflected the considerable distrust of the concentration of power that central banks represented. The controversy over whether a central bank was desirable came to a head in the debate on the re-chartering of the Second Bank in 1832. Although the bill was passed by Congress it was vetoed by President Jackson and the veto was not overturned. There was no central bank in the U.S. from 1836 until 1914.

There were many serious financial crises during the period the U.S. had no central bank. The severity of the recession following the 1907 banking panic led to a debate on whether or not a central bank should be established in the U.S. The National Monetary Commission investigated this issue and finally in 1914 the Federal Reserve System was established. The initial organization of the Federal Reserve System differed from that of a traditional central bank like the Bank of England. It had a regional structure and decision making power was decentralized. This meant it was ineffective at managing crises. In 1933 there was another major banking panic which led to the closing of banks for an extended period just after President Roosevelt took office. As a result of this, the Federal Reserve was reformed in the Banking Act of 1935, which centralized power in the Board of Governors.

During the recent episode the Federal Reserve System managed the crisis well. However, they did not do a good job in terms of preventing the crisis. In fact, as argued

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<sup>3</sup> Timberlake (1978, p. 39).

above, the case can be made that they were to a large extent to blame for the bubble that caused the crisis by setting interest rates so low at a time of rapidly rising real estate prices. The centralization of power particularly in the Board of Governors and the Chairman means that there are very few constraints on what they can do.

After the inflationary experiences of the 1970s, many countries made their central banks independent. The rationale was that if they are independent, they will not succumb to political pressure to cut interest rates and cause an inflationary boom every time there is an election. This independence has worked very well for preventing inflation. However, this crisis has demonstrated that central bank independence may not be good for financial stability. There are a few people making decisions that are very important and there is very little in the way of checks and balances. For example, it seems that one person, Alan Greenspan, played a large role in the decision to cut interest rates to one percent in 2003 and to maintain them there until 2004 so as to minimize the effects of the recession. According to reports at the time there was not much dissension within the Board of Governors in terms of votes against the position he took. The low interest rate policy worked in the short run, but at the cost of a financial crisis and an enormous recession several years later. There should at least have been more public debate about the wisdom of the low interest rate policy at the time.

It is important to stress that we are not advocating a return to political control of central banks. There are other alternatives to provide checks on the system. One possible reform is to impose a mandate of financial stability on the Federal Reserve. This might help to ensure the risks involved for financial stability in undertaking various policies would be

more thoroughly discussed and assessed. Ensuring that there is a staff that focuses on financial stability issues may help to achieve this.

Another possibility is to create a Financial Stability Board with its own staff and resources separate from the Federal Reserve that would not be dependent in any way on them. Representatives from this Board could participate in Federal Open Market Committee meetings and could be given several votes. Since their focus would be on financial stability issues they would necessarily focus on the risk created by the public sector. The Federal Reserve and monetary policy would be independent from politicians but there would be checks and balances. We believe some kind of reform along these lines would be helpful going forward.

## **5. Reforming the international financial architecture**

As mentioned above, the IMF arguably exacerbated the problem of global imbalances through the harsh policies that a number of countries were forced to undertake in the 1997 Asian Crisis. There was no reliable mechanism to stop this because the Asians are underrepresented in the IMF governance process. In the last decade the Asian countries have produced a large proportion of global GDP. They are the ones with very large reserves amounting to several trillion dollars. These are the countries with the economic power and arguably this should be reflected in the governance process of the important international organizations. In the recent crisis Asian countries such as South Korea have done much better than they did in 1997. Rather than raising interest rates and cutting government expenditure as the IMF forced them to do then, South Korea cut interest rates and allowed a

large fall in the value of their currency. In contrast to the 1997 crisis when unemployment rose to more than 9 percent, it has only changed slightly in the current crisis. The reason that they were able to pursue these policies is that their large reserves meant they could make their own decisions and did not have to approach the IMF. They ran their reserves down but they always maintained a large balance of reserves.

While it is individually advantageous for countries to self-insure by accumulating reserves, this is an inefficient mechanism from a global perspective. One method of accumulating foreign exchange reserves is for a country to lower the consumption of its people so that it can run a surplus. In this case there must be other countries that run deficits to offset these surpluses. In practice the U.S. was the main country that did this. Another way for a country to accumulate foreign exchange reserves is to borrow funds using long term debt and invest them in short term debt. The buildup of reserves and short term debt through both mechanisms and their role in triggering the crisis meant that this was very undesirable. This raises the question of what are the alternatives to self-insurance through the accumulation of reserves.

The IMF can perform an important role by providing funds to countries that are hit by shocks. If countries could always rely on being treated fairly and equitably and not being forced to implement harsh measures, there would not be a need to accumulate large levels of reserves. In order for this to happen the IMF needs to reform its governance structure so that Asian countries play a much larger role. This should be accompanied by an increase in Asian staff at all levels. Unfortunately, current proposals do not go far enough in this regard

and it seems unlikely that the IMF will be sufficiently reformed to make large reserves in Asia unnecessary in the short to medium run.

A number of Chinese officials have made proposals for a global currency to replace the dollar. This kind of approach has the great long run advantage that reserves can be created initially without large transfers of resources and the attendant risk of a crisis. All countries could be allocated enough reserves in the event of a crisis so that they could survive shocks. The problem with this proposal is that there would be a need for an institution to implement the currency. It would need to be like the IMF. There would again be the issue of whether Asian countries would be properly represented in the governance process.

A more likely medium term scenario is that the Chinese Rmb becomes fully convertible and joins the U.S. dollar and the euro as the third major reserve currency. With three reserve currencies there would be more scope for diversification of risks and China itself would have very little need of reserves in just the same way that the U.S. and Eurozone countries do not need significant reserves. In our view this is one of the most practical solutions to the global imbalances problem. China should start moving in the direction of making the Rmb fully convertible as soon as possible.

One of the innovations that occurred during the crisis was the introduction of bilateral swap agreements between central banks for foreign exchange. This had the great advantage of allowing many countries to obtain U.S. dollars, in particular. However, these were one-off agreements. What many countries have argued is that these swap facilities need to be made automatic so that they can rely on accessing them in times of crisis. Since these

countries could then rely on this foreign exchange safety net, they would no longer need to hold such large reserves. There would of who would bear the credit risk in such agreements. One possibility is for both sides to be required to post collateral. This foreign exchange safety net would appear to be another important way to change the international financial architecture to reduce the need for countries to hold foreign exchange reserves. Moreover, this scheme has the great advantage that it can be implemented in the short run.

## **6. Concluding remarks**

We have suggested three important reforms. The first is that financial regulation and government intervention should be based on a coherent intellectual framework of correcting market failures and balancing its costs and benefits. The second is that central banks need to be subject to more checks and balances than is currently the case. The third is that the international financial architecture needs to be reformed so that Asian countries can rely on having access to foreign exchange in times of crisis.

Many reforms in a wide range of areas are needed to prevent another crisis from occurring. Unfortunately, there is very little consensus on what was the cause of the crisis and what needs to be done to prevent another one occurring. In this paper we have outlined the view that the crisis was caused by loose monetary policy and global imbalances and have suggested a number of reforms. Much work remains to be done in detailing these policies.



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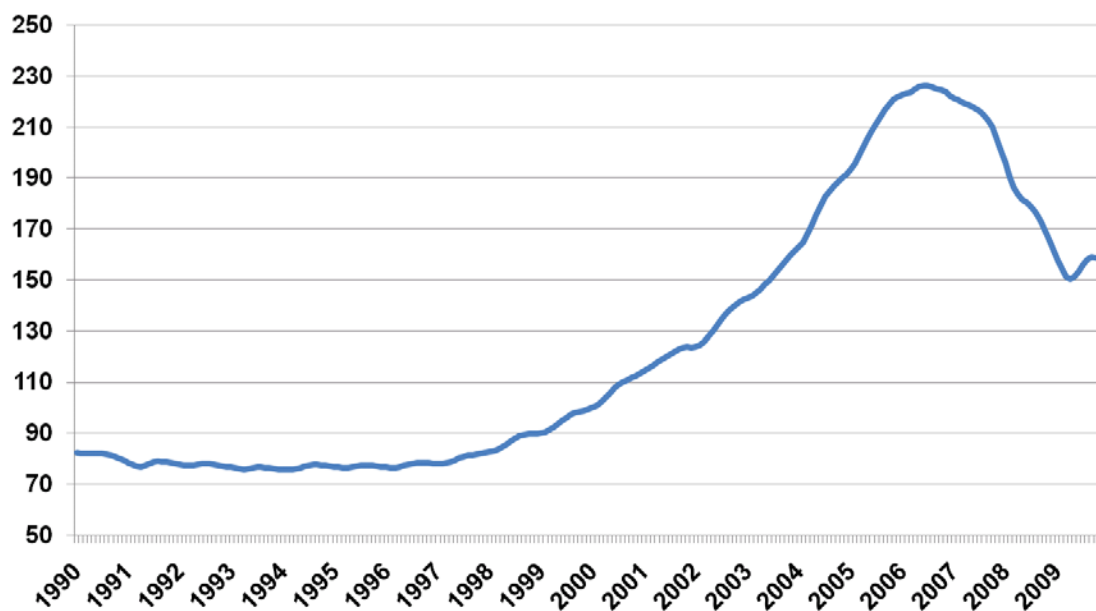
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# Figure 1

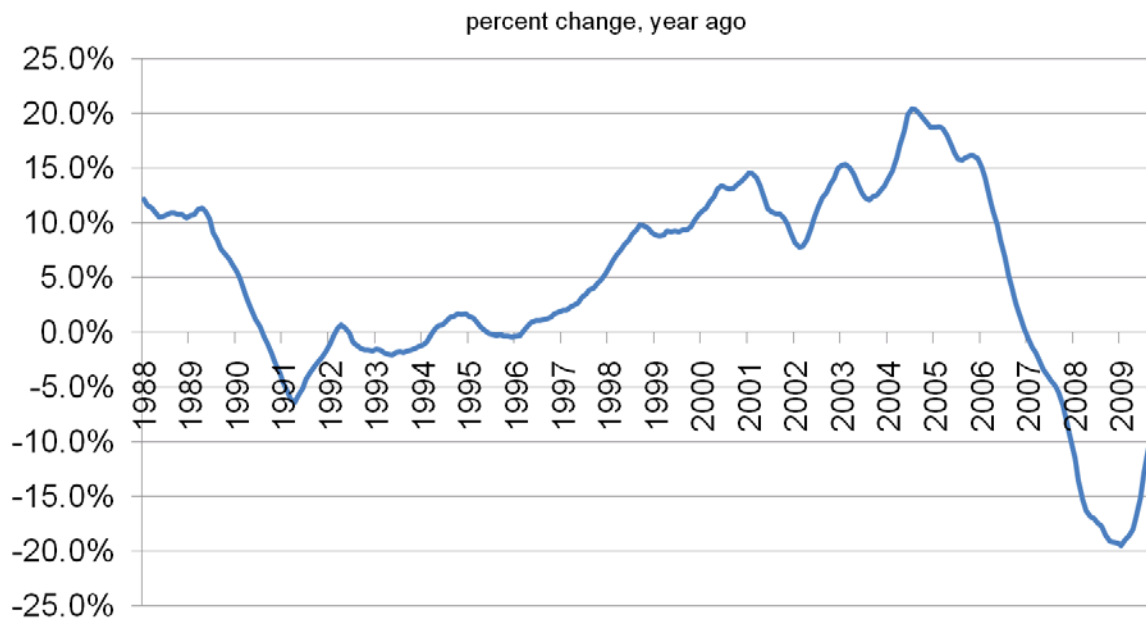
## The Case-Shiller 10 Cities Composite Index



Source: S&P

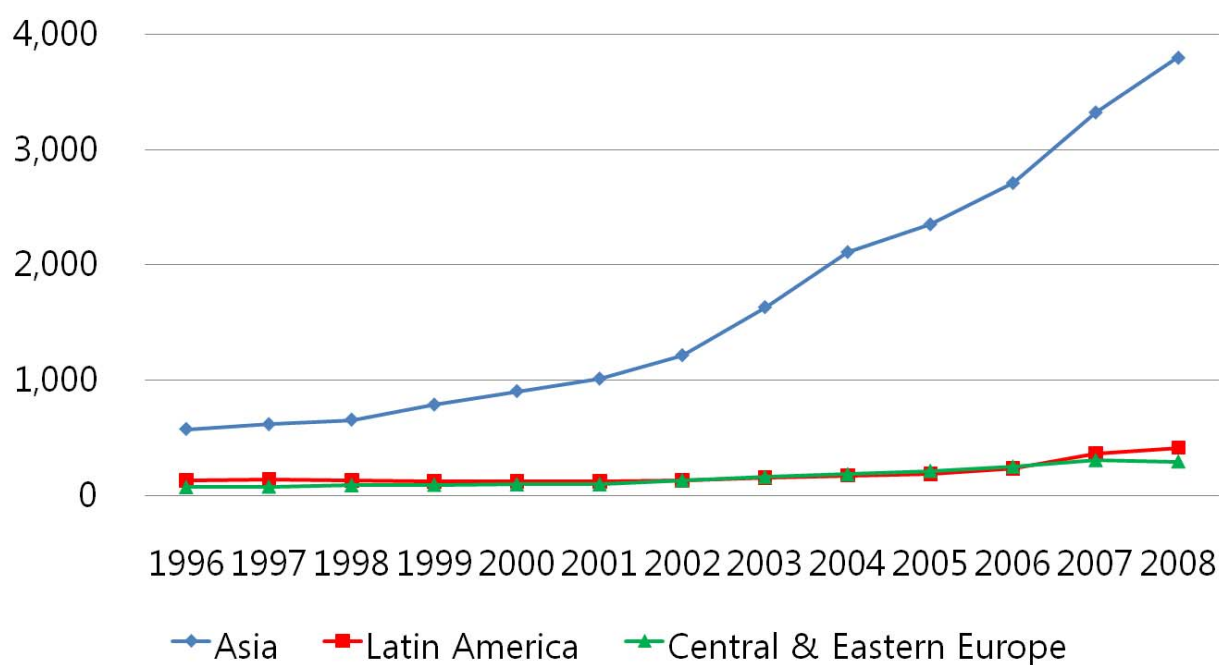
## Figure 2

Changes in the Case-Shiller 10-City Composite Index Year-on-Year



### Figure 3

#### A Comparison of Foreign Exchange Reserves in Different Regions

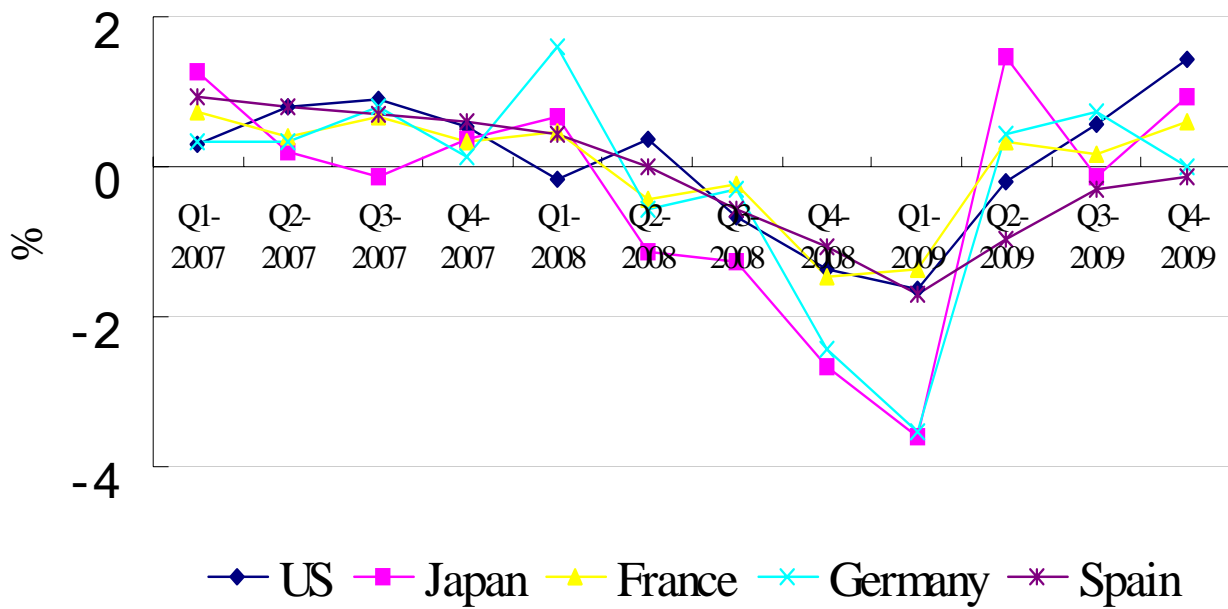


Source: IMF website.

Asia is the six East Asian countries China, Hong Kong, Japan, Singapore, South Korea, Taiwan – province of China.

**Figure 4**

Percentage change in quarterly GDP



# Figure 5

## Unemployment

