



***Could a Systemic Regulator Have Seen  
the Current Crisis?***

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I would like to thank the organizers of this important forum for inviting me to speak with you today.<sup>1</sup> It is a great pleasure to return to Korea. On my last visit I had the opportunity to speak about the information that central banks need to make informed decisions during periods of financial turmoil. My regret is that one year later this period of financial difficulty continues. Considering the downstream economic hardships that so many people are encountering, these matters of regulatory frameworks and supervisory policies are both urgent and imperative.

Most of the world is currently experiencing what has already been a long and severe recession. As in several previous episodes, crises at leveraged financial institutions have been at the center of

problems that eventually rippled across and profoundly impacted the global economy. So, realizing the importance of a well-functioning financial sector to economic activity, many countries have taken extensive steps to stabilize financial systems, including providing additional capital in their banking system, guaranteeing debt, expanding deposit insurance, and guaranteeing (or limiting losses on) some banking assets. These policy actions were taken to support the functioning of financial institutions and markets so that problems do not derail banks' ability to continue lending to creditworthy individuals and firms, hampering economic activity.

The need for such extensive government intervention on an essentially worldwide basis highlights the importance of creating a more stable financial infrastructure – and, I believe, to have organizations with explicit responsibility for financial stability. As you know, policymakers in the U.S. and many other countries are right now working through the intricate and challenging issues associated with the creation of a more effective regulatory structure. So I believe this forum is both timely and important.

### **Defining Financial Stability Supervision and Regulation**

In my remarks today, I plan to explore a somewhat simple-sounding question that, when fully considered, has broad implications for the wider policy debate. The question is, could an effective systemic regulator have spotted the roots of the current crisis, identifying the problems and anticipating their ramifications *early enough* for action to be taken?

To explore this question, I think we need to consider the issue of *what data* an effective regulator or supervisor with explicit financial-stability responsibilities might have been examining over the past 5 years – and *what questions* they might have been asking as they studied these data. Keep in mind that unlike most prudential supervisors that focus on the solvency of individual

financial institutions, a financial-stability regulator would clearly need to take more of a “macro” perspective on financial trends (and their crosscurrents and unintended consequences).

Financial stability is often cited but rarely defined, so for the purposes of this talk let us assume that a financial-stability regulator would be charged with making sure that what I will call “contagious” failures of financial institutions do not occur. Such failures could involve a large group of financial intermediaries, all with a prominent shared risk exposure, or could involve one key player becoming insolvent but many other financial institutions failing because of their exposure as counterparties to that institution. Please note that this definition does not require that the involved organizations are depository institutions, nor does it hinge on the presence of deposit insurance.

One – but not the only<sup>2</sup> – important “warning flag” a systemic regulator would watch for would be any significant divergence of financial trends from those of past experience. This would not necessarily compel action by a systemic regulator, but should trigger more careful questioning. For example: How are the financial trends being financed? Are financial institutions taken together – thus, the financial system – becoming more leveraged, or significantly increasing maturity mismatches? Are prudent underwriting standards still in use across the financial system, and by potentially-contagious institutions – or are prudent standards being abandoned? In short, do these novel financial trends seem likely to hold up over time and be part of a healthy financial system, or not? What are the risks to the financial system if an institution or a “trending” asset type becomes illiquid, or valueless?

Upon exploring such questions, if a systemic regulator concludes that the financial trends that diverge from past experience are indeed being generated by unsafe and unsound practices at highly leveraged institutions, and concludes that the practices could indeed result in highly correlated financial problems across the landscape of financial institutions, a fundamental issue would still

remain. The systemic regulator would need to have the *powers* necessary to stop the unsafe practices. The issue of the powers needed to effectively mitigate such problems is very important and deserves careful thought. I plan to make it a question for another talk, another day.

A key point is that the systemic regulator cannot just look institution by institution, but needs to think about the potentially difficult trends emerging across a swath of interconnected institutions and their counterparties. And while it may go without saying, for a systemic regulator to be effective, the regulator needs to be able to identify whether *actual* systemic problems are emerging. This involves, in part, assessing the “feedback effects” that might result from initial problems.

So I think it is instructive to ask whether a systemic regulator would have been able to identify the problems that we are currently grappling with. So far today I have put what I think are key issues in front of you. Now I would like to flesh them out a bit through a brief discussion of some of the financial trends leading up to the current problems, and then consider whether these trends might have generated more actions if there had been a systemic regulator focused on these issues. I will conclude with some thoughts on the international challenges to addressing systemic concerns.

### **The Development of Current Financial Problems: A Brief Review**

In the United States, the initial trigger to the current financial crisis was deterioration in the housing market. Because our time today is short, I will discuss mainly these housing-related trends – although it should be noted that questionable practices certainly extended beyond housing markets.<sup>3</sup>

Between 2004 and the early part of 2007, the housing market had experienced significant price appreciation, rapid expansion of construction of new houses and condominiums in some markets, and a willingness by many investors to provide financing to higher-risk borrowers (using reduced underwriting standards). The willingness to lend to borrowers who represented higher credit risks –

generally by largely unregulated mortgage companies, not traditional banks – was fueled by the increased ability to securitize subprime loans.

The securitization process took pools of subprime mortgages and split the income streams into tranches that would bear the first losses in the event of payment disruption, and tranches that would bear losses only after the lower tranches were wiped out. Because the odds were viewed as very small that losses would be so severe as to wipe out the lower tranches and affect the upper tranches, sellers of subprime mortgage-backed securities could market the tranches protected from most losses as Triple-A rated securities.

The result was that lenders that normally would not have been interested in riskier subprime mortgage loans in the United States, including many foreign investors, were willing to purchase such securities primarily based on their Triple A ratings, rather than by careful credit analysis involving the characteristics of the underlying collateral.<sup>4</sup>

While the ability to finance mortgages with securitization helped fuel the housing boom in the United States, other countries that did not have substantial subprime lending also saw rapid increases in their real estate prices. As shown in **Figure 1**, Ireland, the United Kingdom, and Spain all saw residential house prices expand more rapidly than did the United States. However, there were countries where residential real estate prices did not experience rapid appreciation – such as Japan and South Korea. **Figure 2** shows that in some countries the growth in housing prices was much more rapid than the growth in incomes. One explanation for the rapid increase in some countries' house prices is that during this period, nations that enjoyed significant trade surpluses or were the beneficiaries of the commodity-price boom looked for investment opportunities; they gravitated to countries where real assets were appreciating and where financial institutions or financial markets were readily able to convert large pools of savings into investment opportunities.

In the United States, there existed significant demand for houses, including among low- and moderate-income households that looked to participate in the housing boom. The securitization of subprime mortgages provided a large pool of high-grade securities that paid higher returns than Treasury securities. These securities were attractive not only to U.S. investors but also to investors around the world looking for highly-rated securities.

As shown in **Figure 3**, beginning in 2003 subprime mortgages accounted for an increasing share of new mortgages in the United States. As the supply of low- and moderate-income borrowers with some capital and reasonable credit scores dwindled, there emerged an increased willingness to provide loans to borrowers with little or no money down. With rating agencies not sufficiently differentiating their ratings to take into account worsening underwriting standards, and housing prices in some markets beginning to decline as the economy slowed, the default rates on many pools of mortgages began to increase. As the extent of the problems became apparent in the summer of 2007, financial markets became increasingly unwilling to hold securities backed by mortgages, became wary of the reliability of ratings, and began to question the size of the direct and indirect exposure of financial institutions.

### **The Role of a Systemic Regulator**

A starting point for an effective systemic regulator would be to carefully monitor any rapid appreciation of a particular asset class, and any rapid expansion of particular financial institutions or financial markets. While rapid growth in asset prices would not in and of itself necessitate any direct actions, it should cause a systemic regulator to ask several questions.

*First, can one develop a plausible fundamentals-based explanation of the rapid rise in prices?*

Many if not all past financial crises were associated with bubbles in asset prices, and in many cases

careful observers could eventually identify the appreciation as suspiciously detached from fundamentals. But there also will be cases in which the introduction of a new technology or the opening of new markets will justify a fairly rapid appreciation in an asset price that may not need to be viewed as worrisome.

*Second, is the rapid growth in an asset class financed by leveraged institutions?* Losses at leveraged institutions tend to have a disproportionate negative impact because the deleveraging process (in shorthand, reigning in assets like loans to maintain a reasonable capital-to-assets ratio at the institution) has a broad impact on the borrowers who depend on the financial intermediary for loans. In addition, most leveraged financial institutions have extensive counterparty exposures to other financial institutions, raising the risk that counterparties will call for additional collateral from interconnected institutions they see faltering, which can exacerbate problems with capitalization.

*Third, has the rapid expansion of the financing caused any financial institutions to increase their leverage?* Increases in leverage make a financial intermediary more at risk should losses be incurred.

*Fourth, has there been a significant change in the mismatch involved in funding long-term assets with short-term liabilities?* While the transformation of funding is an integral role for many financial intermediaries, significant changes in asset-liability maturity structure can make the financial intermediary susceptible to liquidity problems, particularly if falling asset prices reduce confidence in the financial intermediary.

In the most recent experience, all of these questions would need to be answered in the affirmative. As I mentioned earlier, real estate prices rose rapidly. A more subtle dynamic involved how leveraged financial institutions financed the growth. Many large commercial banks held Triple-A rated securities, or held these securities in off-balance sheet conduits. While it was well understood

that these financial institutions were involved in the originate-to-distribute model of mortgage lending and securitization, what was less understood was the nature and extent of the holdings within the Triple-A securities.

Because of their perceived low credit risk, Triple-A rated securities received relatively little attention by bank examiners, particularly as real estate prices were appreciating. In addition, I think it is important to note that three of the largest exposures were held by a commercial bank, an investment bank, and a foreign bank, which likely made the potential problem less obvious to any single regulator.

The increase in leverage was most obvious for the investment banks, which had become very large players in securitizing assets. In part, the securitization was financed by holding large pools of mortgage assets and financing them through short-term repurchase agreements. The result was that investment banks had not only increased their leverage significantly (see **Figure 4**) but they had also increased the mismatch of the terms of their assets and liabilities. This made the investment banks that were actively originating and distributing mortgages at greater risk should investors become less confident in their organizations.

Because no one was charged with systemic regulation, the problematic links among an array of key factors were largely missed, until the problems had become quite severe. Those factors included rising real estate prices, changes in underwriting standards by largely unregulated mortgage brokers, the rapid rise in securitization outside of supervisors' purview, the dependence on credit ratings that are largely unregulated, the increased holdings of highly rated securities both off and on balance sheets, and the change in leverage and asset-liability composition of investment banks. A systemic regulator charged with taking an "aerial view" – understanding changes in markets and how they impact leveraged institutions – would likely have intervened earlier, if operating effectively.



This brings up a related point. Recent events suggest that an effective systemic regulator must have very detailed understanding of institutional practices and products – simply put, how things really work, in good times and bad. For example, securitization grew rapidly, and while many observers did take note, it took much longer to come to understand the complexities of the servicing business model and the reasons why it presents challenges in a declining market. Another example is the market for credit default swaps, which ballooned but still seems less well understood than is desirable.

In sum, you might say that a systemic regulator must connect potential dots – not just actual dots. Assuming the systemic regulator has the ability to monitor solvency risk, liquidity risk, and risk management practices, and react to practices viewed as unsafe or unsound, some of the most serious financial problems might have been identified, and their severity lessened.

### **International Coordination**

Financial problems at leveraged institutions increasingly require international coordination. While the subprime market was largely a U.S. phenomenon, the run-up in real estate prices was not unique to the United States. Other countries experienced rapid appreciation in real estate, though the financing vehicles were different.

In the United States both domestic and foreign financial institutions were involved. In addition, many of the American institutions had a significant global footprint. Thus, the aforementioned deleveraging process impacts any country where the leveraged institutions are active. The financial assets were also being sold worldwide. The result was that losses were correlated without much regard to national borders, and exposures to the subprime market appeared in a

surprising variety of financial intermediaries. Thus, the actions of intermediaries in one country can have a significant spillover to other countries' financial systems.

As financial intermediaries become more global, resolution becomes more difficult. The resolution of a large global player is quite different than resolution of a purely domestic institution. A globally active institution placed into receivership in the home country may quickly find that its ability to transfer deposits, cash, and capital is hampered as host countries impose controls to protect liability holders in their own country. So, until global resolution policies are adopted, resolution of internationally active organizations will remain problematic.

Beyond this issue of the resolution of individual organizations, it seems clear that effective systemic regulators will need to understand how the actions of financial intermediaries in one country affect other countries' financial systems. This will be both extremely important and, potentially, very challenging.

### **Summary Observations**

Most countries, including the United States, do not currently have a systemic regulator. In order for a systemic regulator to be effective, the regulator clearly needs to be able to identify problematic situations like those I have described today. Had there been some entity charged with such responsibilities, my hope is that sufficient "red flags" would have emerged to give such an entity the opportunity to prevent, or at least mitigate, some of the problems. At the same time, my remarks today should also convey the profound challenges that a systemic regulator would face. Of course, the next time a crisis begins, the patterns may be very different.

And while the ability to identify emerging systemic problems is critical, it is not enough. To have an effective systemic regulator, obviously having sufficient authority to change behavior is also

critically important. The issue of authority is, however, too large a topic to be covered today. I know that I, and many of you, will be exploring that topic in the days and weeks ahead.

I want to conclude by reiterating my strong hope that the recent crisis will provide not only the opportunity but also the urgency and will for a thorough, global reexamination of how we think about systemic problems and their mitigation and resolution. And of course, as our nations consider the role of a systemic regulator it will be important that they have the ability to interact in a coordinated way with their regulatory counterparts around the world.

Thank you.

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**NOTES:**

<sup>1</sup> The views I express today are my own, not necessarily those of my colleagues on the Board of Governors or the Federal Open Market Committee (the FOMC).

<sup>2</sup> Other warning flags might include the emergence of exceptionally complicated or otherwise opaque financial instruments with contractual terms that are not widely understood.

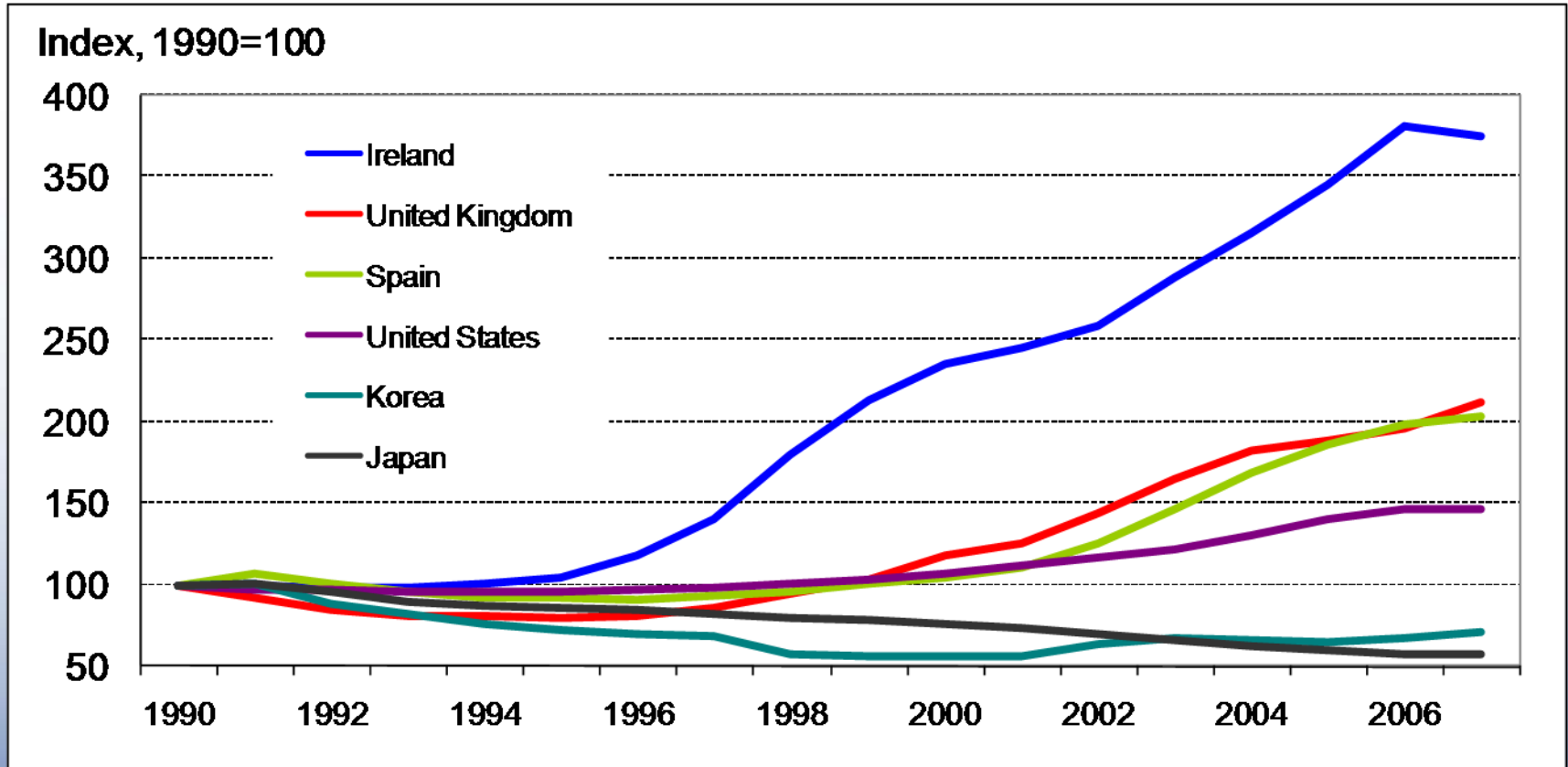
<sup>3</sup> For example, participation in auction-rate markets represented a good-faith effort by municipalities to achieve lower interest rates on their borrowings, but in essence financed longer-term assets with short-term liabilities. The complexity of some such arrangements obscured such problems and, unfortunately, when the crisis emerged there was a negative effect on such markets and some municipalities.

<sup>4</sup> I discussed some of the shortcomings surrounding ratings and their role in the crisis in a speech in March 2008 available at <http://www.bos.frb.org/news/speeches/rosengren/2008/030608.htm>.

# Figure 1

## Real Home Price Appreciation

1990 - 2007

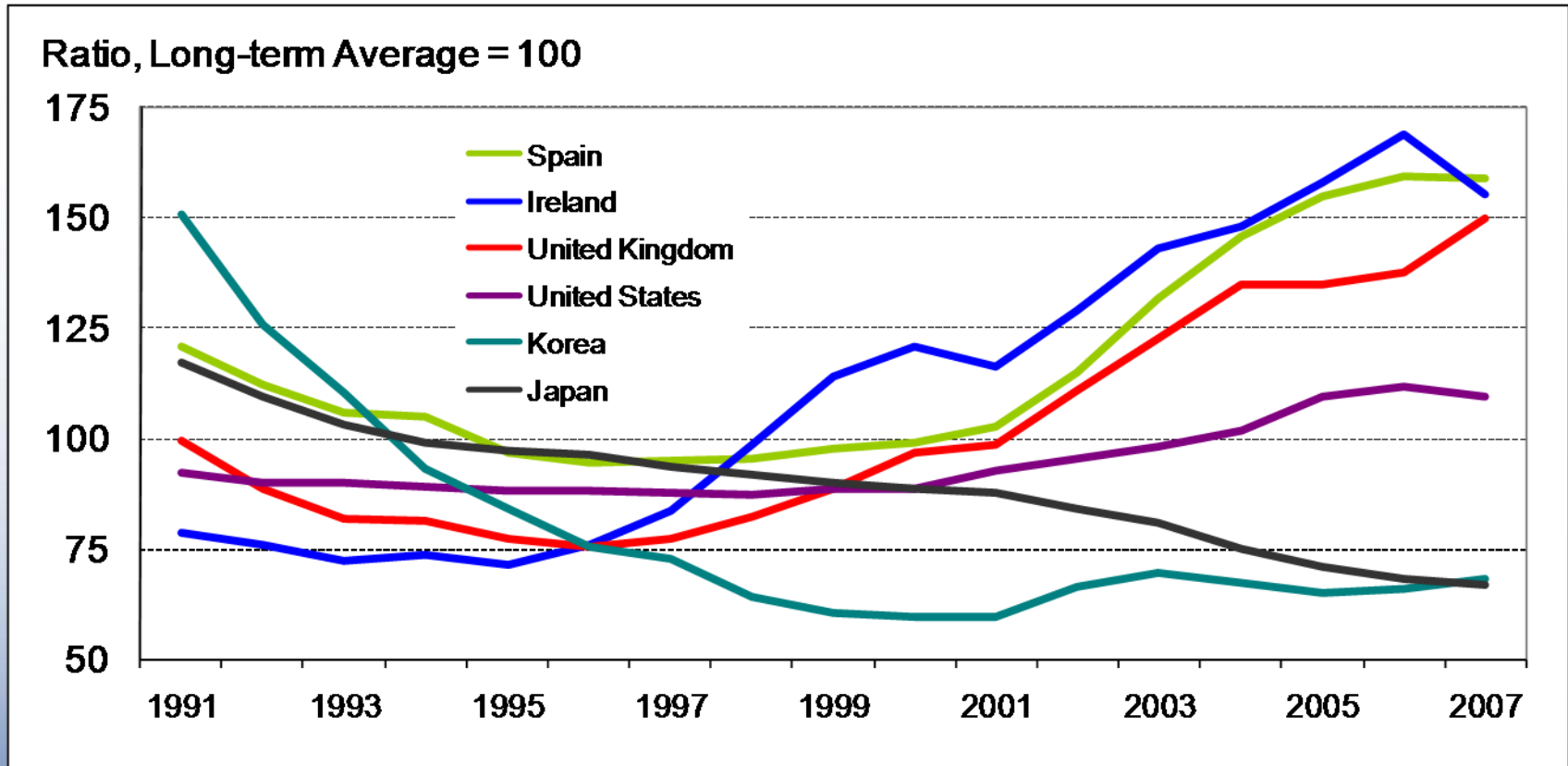


Source: OECD

# Figure 2

## Ratio of Nominal House Price to Per Capita Disposable Income

1991 - 2007

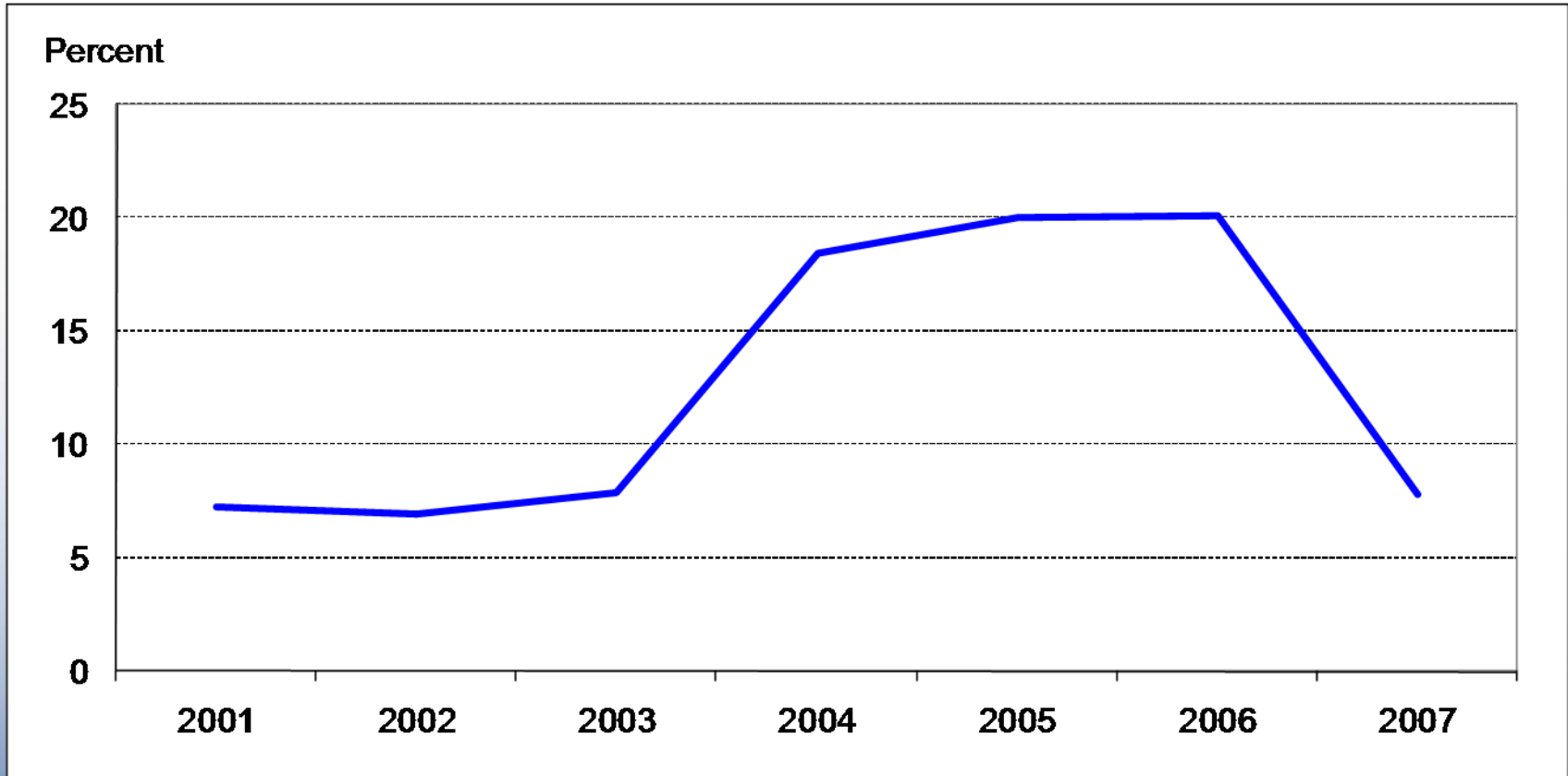


Source: OECD

# Figure 3

## Subprime Share of Dollar Volume of Mortgage Loan Originations in the United States

2001 - 2007

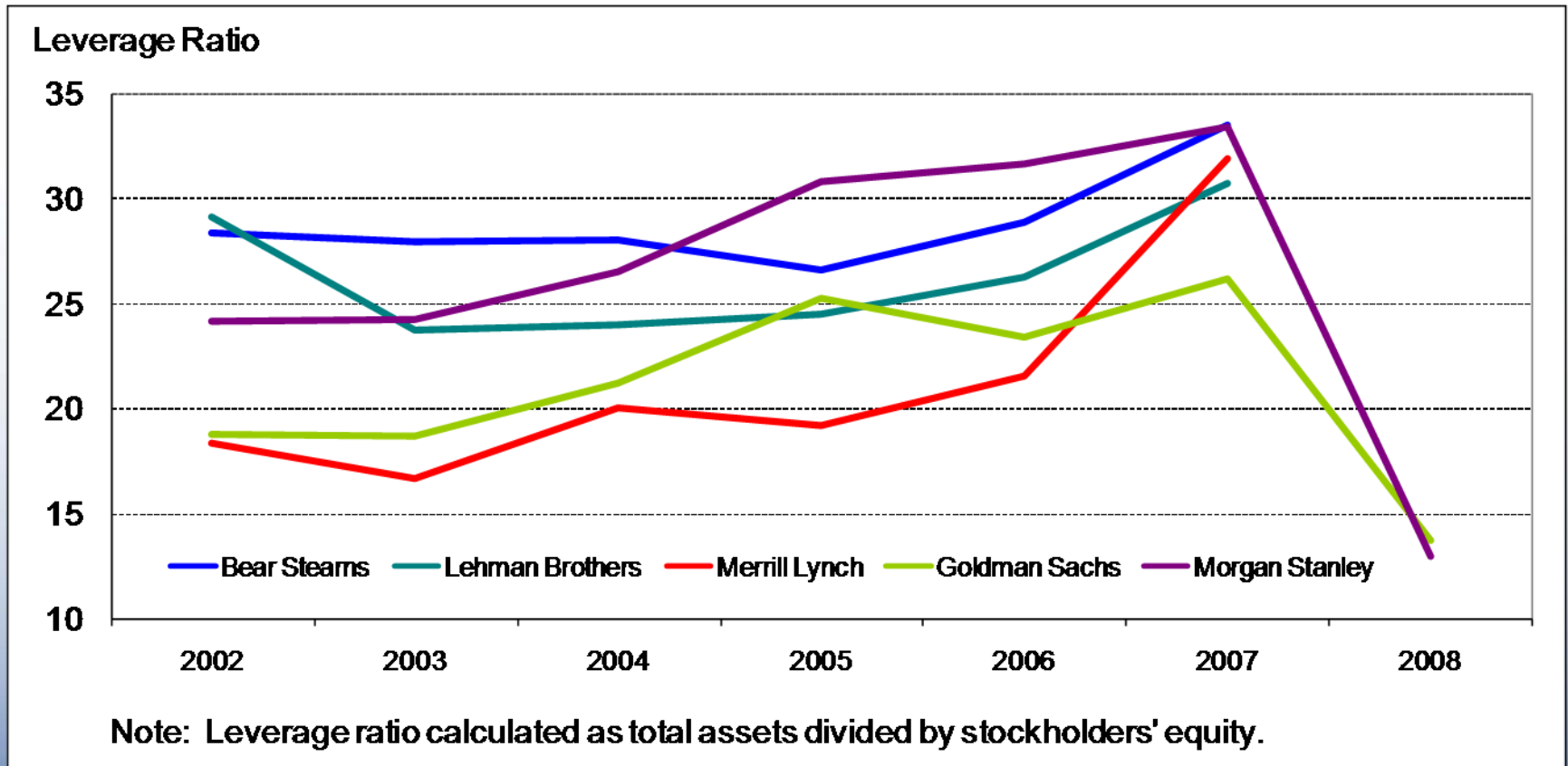


Source: The 2008 Mortgage Market Statistical Annual

# Figure 4

## Leverage Ratio for Investment Banks

as of Fiscal Year End, 2002 - 2008



Source: Company 10-K SEC filings