I am pleased to participate in the conference discussion of the international dimensions of the recent financial crisis. A striking feature of the crisis was its global character. With markets for financial assets increasingly integrated, often by the activities of globally active banks, no country escaped completely unaffected.

The way the problems in the U.S. subprime mortgage market spread illustrated the interconnections. Underwriting standards for U.S. subprime mortgages had weakened at the same time that non-U.S. investors, including many non-U.S. financial institutions, had eagerly invested in the subprime mortgage market by purchasing subprime-backed securities. When house prices leveled out and then began to decline, default rates on subprime mortgages started to rise rapidly. Both U.S. and foreign banks suffered losses, along with other investors.

Many of those losses affected asset-backed commercial paper (ABCP) conduits and similar structures that had invested in subprime-backed securities. Many of these conduits were sponsored by non-U.S. entities. The conduits had funded illiquid long-term assets with short-term liabilities, creating a substantial maturity mismatch. When a few of these conduits began to report subprime-related losses, investors ran from many conduits. The flight was broadly based because investors were uncertain about the incidence of losses and liquidity pressures arising from nontransparent and poorly understood exposures.

Integrated bank funding markets were an important source of contagion. Short-term funding markets in both the United States and Europe were disrupted when conduits drew on bank lines of credit to replace maturing ABCP, and banks turned to dollar-denominated money markets to raise the needed funds. As the financial crisis deepened, banks hoarded liquidity and became concerned about the exposure of their counterparties in the interbank market to losses from subprime mortgages. Spreads between the London interbank offered rate and the overnight index swap rate, a measure of interbank market stress, widened in dollars, euro, sterling, and other currencies.

To be sure, the mispricing of assets and risks was not confined to the U.S. subprime mortgage market. Many credit risk spreads across the globe were at historic lows in the period before the crisis, after several decades of mostly mild, infrequent recessions in the industrial economies. The broad incidence of narrow spreads in part reflected the activities of investors and intermediaries who were facing the same perceived incentives in many different markets. And asset prices – especially real estate prices – were unsustainably high in a number of countries.

Liquidity risk had also been mispriced. Investors had paid insufficient attention to the maturity mismatch present in a number of investment vehicles, including ABCP conduits and money funds. And both investors and intermediaries had assumed that the exceptionally liquid conditions in many markets of the pre-crisis period were a permanent part of the financial landscape. Again, with hindsight, we can see that these vehicles were vulnerable to runs once the crisis hit, and these runs did not stop at national borders.

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1 Michael Gibson of the Board's staff contributed to these remarks. The views expressed are my own and not necessarily those of other members of the Board of Governors.
Moreover, even countries where assets weren't obviously mispriced felt the effects of the growing dislocations when global banks were forced to deleverage and conserve liquidity. Their pullback from lending was broad-based and eventually affected many emerging market economies. And the adverse feedback loop between world financial markets and the real economy was exacerbated by the greater global integration of markets for goods and services. Trade and industrial output plunged everywhere as consumers and businesses pulled back from spending.

Notably, although financial institutions in some countries seemed to be more resilient to the growing turmoil than in other countries, all were affected to a degree, and no particular type of regulatory or supervisory system proved itself clearly superior to other designs – either in the buildup or the crisis-response phase. Problems afflicted both the fragmented system of the United States and the unified systems of other countries. They cropped up where the central bank was deeply involved in regulation and where it played only a consultative role. And it occurred both in systems that were principles-based and those that had thick rule books. Clearly, the deficiencies in both private behavior and public oversight were widespread, and both needed to be addressed.

The response to the crisis was global

Given the global factors that helped spread the crisis, the response to the crisis needed to be global as well. And many of the responses were indeed global – or at least were quite similar across various jurisdictions. Everyone was reacting to the same types of problems, but the similarities also reflected a high degree of global consultation and collaboration.

We can see this in the actions of many central banks. Beginning in late 2007, central banks generally reacted to funding problems and incipient runs with similar expansions of their liquidity facilities. They lengthened lending maturities, in many cases broadened acceptable collateral, and in several instances initiated new auction techniques for distributing liquidity to overcome the inertia from stigma. Central banks were in constant contact through this period, although they arrived at many of these actions separately.

However, we did explicitly coordinate to address problems in dollar funding markets. The Federal Reserve entered into foreign exchange swaps with a number of other central banks to make dollar funding available to foreign banks in their own countries. By doing so, we reduced the pressure on dollar funding markets here at home.

Governments also reacted similarly when in late 2008 the turmoil deepened and many countries saw a need to provide broad support to their banking systems. The rescue plans in different countries contain similar elements: expanded deposit insurance, guarantees on nondeposit liabilities, and capital injections. Although most countries wound up in a similar place, the process was not well coordinated, with action by one country sometimes forcing responses by others.

Many countries also took measures to deal with financial distress at systemically important firms. Efforts in this area were much messier. The failure of Lehman Brothers highlighted the lack of a framework that would allow for the orderly resolution of a systemically important nonbank financial institution in the United States. Even where formal crisis-management frameworks existed, such as within the European Union, they were not always used in the heat of the crisis. The reality is that the resolution of failing firms is still a national responsibility, even for institutions that operate globally.

Early on in the crisis, authorities recognized that addressing the deficiencies made apparent by the crisis required an international effort. Many of those deficiencies – for example, in bank capital and liquidity requirements and in accounting systems – were embodied in internationally agreed regulations, standards, and codes of conduct. Addressing them would require working through global bodies of national and international standard setters and they would require broad agreement among national authorities. The Financial Stability Forum
(now renamed the Financial Stability Board) brought central banks, regulators, and finance ministries together to identify the problems, suggest avenues for addressing those problems, and push for timely solutions.

What remains to be done?

The process of addressing the problems is still at an early stage. Now that the crisis seems to be abating, we can better identify the causes of the crisis and work on finding the best solutions. Deficiencies must be fixed on a global basis to forestall gaps and regulatory arbitrage that could undermine the effectiveness of regulation. And countries need to have confidence that others are implementing tighter standards in a consistent way. But at the same time, regulations must be passed and implemented nationally. On one level, this type of action is simply what is required under existing legal structures. On another level, it reflects the reality that taxpayers in individual countries end up bearing much of the cost when home-country institutions need to be stabilized. I'll highlight four of the many areas that require international coordination.

First, we need to identify the global risks that can affect local banks. One obvious issue is cross-border exposures, especially when banks in many countries have similar exposures. On a global level, international groups like the Financial Stability Board have an important role to play in looking for these kinds of vulnerabilities. For individual banks that operate across borders, supervisory colleges bring the key supervisors together and can improve the flow of information. These groups can also help raise supervisors’ awareness of the risks that occur when the business plans of local banks evolve and shift to take on more global exposures.

Of course, we shouldn't expect too much from these exercises. In identifying risks, false positives will be common, and some mispricing of assets is inevitable as people attempt to evaluate the implications of broad economic trends and innovations. But looking in a focused way across markets and institutions may help to identify areas where greater supervisory attention could result in a more resilient system.

A second area that is likely to involve international collaboration is the development of a more macroprudential approach to supervision and regulation. One aspect of such an approach is higher standards for systemically important institutions; another is supervisory and regulatory measures to offset procyclical tendencies of the financial sector. Formulating higher standards for systemically important, globally active institutions will require international coordination to avoid uneven playing fields. And, offsetting procyclical tendencies presents a difficult question: Should authorities aim at damping such tendencies at a global level or at the level of an individual country? If only global risks are addressed, vulnerabilities will persist at the local level; however efforts to address local problems could disadvantage domestic banks relative to those headquartered abroad.

Third, we need to improve our ability to resolve systemically important institutions without generating spillovers that spread systemic risk across firms or across borders. Clearly, each country should have the legal authority to wind down a systemically important institution in an orderly way, taking account of the international dimensions. Beyond this, there is not yet a consensus on exactly what to do, but a range of promising proposals have been suggested to facilitate orderly resolutions. One is for supervisors to press firms to strengthen their ability to quickly provide the information on exposures, funding, and counterparties that would be needed for crisis management. Another would have supervisors recommend changes to simplify the organizational structures of systemically important firms to make it easier to deal with their failure. A related proposal would require firms to maintain a so-called living will, a written contingency plan that provides for an orderly wind-down should severe financial distress lead to failure.
Fourth, we need to address home-host issues that arise in the supervision of cross-border firms. For example, some global banks can expose a host country to a withdrawal of risk-taking caused by problems outside its own borders. This exposure understandably makes host countries uncomfortable with the traditional division of responsibility that restricts a host-country to supervising only the activity of a global bank within its own country. One possible response here would be more information sharing from home to host, to better enable host countries to protect themselves. Another response would be restrictions by host countries on cross-border operations of global banks, perhaps going so far as requiring global banks to operate through separately capitalized subsidiaries. However, this requirement, in addition to imposing costs on the banks, might also impede the ability of the global financial system to channel capital to where it is most likely to enhance productivity and growth.

Conclusion
I’ve touched on only a few of the international aspects of the crisis. We face a difficult set of decisions regarding how best to reform our national regulatory and supervisory frameworks in response to the lessons we have learned. But perhaps chief among the lessons learned from the past two years is that in an integrated global financial system we cannot make those decisions in isolation; we must collaborate internationally if we are to build a more resilient financial system for the future.