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Monetary Policy and Financial Stability

Remarks by

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It is an honor to deliver the inaugural Michel Camdessus Central Banking Lecture. Michel Camdessus served with distinction as governor of the Banque de France and was one of the longest-serving managing directors of the International Monetary Fund (IMF). In these roles, he was well aware of the challenges central banks face in their pursuit of price stability and full employment, and of the interconnections between macroeconomic stability and financial stability. Those interconnections were apparent in the Latin American debt crisis, the Mexican peso crisis, and the East Asian financial crisis, to which the IMF responded under Camdessus's leadership. These episodes took place in emerging market economies, but since then, the global financial crisis and, more recently, the euro crisis have reminded us that no economy is immune from financial instability and the adverse effects on employment, economic activity, and price stability that financial crises cause.

The recent crises have appropriately increased the focus on financial stability at central banks around the world. At the Federal Reserve, we have devoted substantially increased resources to monitoring financial stability and have refocused our regulatory and supervisory efforts to limit the buildup of systemic risk. There have also been calls, from some quarters, for a fundamental reconsideration of the goals and strategy of monetary policy. Today I will focus on a key question spurred by this debate: How should monetary and other policymakers balance macroprudential approaches and monetary policy in the pursuit of financial stability?

In my remarks, I will argue that monetary policy faces significant limitations as a tool to promote financial stability: Its effects on financial vulnerabilities, such as excessive leverage and maturity transformation, are not well understood and are less

direct than a regulatory or supervisory approach; in addition, efforts to promote financial stability through adjustments in interest rates would increase the volatility of inflation and employment. As a result, I believe a macroprudential approach to supervision and regulation needs to play the primary role. Such an approach should focus on “through the cycle” standards that increase the resilience of the financial system to adverse shocks and on efforts to ensure that the regulatory umbrella will cover previously uncovered systemically important institutions and activities. These efforts should be complemented by the use of countercyclical macroprudential tools, a few of which I will describe. But experience with such tools remains limited, and we have much to learn to use these measures effectively.

I am also mindful of the potential for low interest rates to heighten the incentives of financial market participants to reach for yield and take on risk, and of the limits of macroprudential measures to address these and other financial stability concerns. Accordingly, there may be times when an adjustment in monetary policy may be appropriate to ameliorate emerging risks to financial stability. Because of this possibility, and because transparency enhances the effectiveness of monetary policy, it is crucial that policymakers communicate their views clearly on the risks to financial stability and how such risks influence the appropriate monetary policy stance. I will conclude by briefly laying out how financial stability concerns affect my current assessment of the appropriate stance of monetary policy.

### **Balancing Financial Stability with Price Stability: Lessons from the Recent Past**

When considering the connections between financial stability, price stability, and full employment, the discussion often focuses on the potential for conflicts among these

objectives. Such situations are important, since it is only when conflicts arise that policymakers need to weigh the tradeoffs among multiple objectives. But it is important to note that, in many ways, the pursuit of financial stability is complementary to the goals of price stability and full employment. A smoothly operating financial system promotes the efficient allocation of saving and investment, facilitating economic growth and employment. A strong labor market contributes to healthy household and business balance sheets, thereby contributing to financial stability. And price stability contributes not only to the efficient allocation of resources in the real economy, but also to reduced uncertainty and efficient pricing in financial markets, which in turn supports financial stability.

Despite these complementarities, monetary policy has powerful effects on risk taking. Indeed, the accommodative policy stance of recent years has supported the recovery, in part, by providing increased incentives for households and businesses to take on the risk of potentially productive investments. But such risk-taking can go too far, thereby contributing to fragility in the financial system.<sup>1</sup> This possibility does not obviate the need for monetary policy to focus primarily on price stability and full employment--the costs to society in terms of deviations from price stability and full employment that would arise would likely be significant. I will highlight these potential costs and the clear need for a macroprudential policy approach by looking back at the vulnerabilities in the U.S. economy before the crisis. I will also discuss how these

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<sup>1</sup> The possibility that periods of relative economic stability may contribute to risk-taking and the buildup of imbalances that may unwind in a painful manner is often linked to the ideas of Hyman Minsky (see Hyman P. Minsky (1992), “The Financial Instability Hypothesis,” Working Paper 74 (Annandale-on-Hudson, N.Y.: Jerome Levy Economics Institute of Bard College, May), [www.levyinstitute.org/pubs/wp74.pdf](http://www.levyinstitute.org/pubs/wp74.pdf)). For a recent example of an economic model that tries to explore these ideas, see, for example, Markus K. Brunnermeier and Yuliy Sannikov (2014), “A Macroeconomic Model with a Financial Sector,” *American Economic Review*, vol. 104 (February), pp. 379-421.

vulnerabilities might have been affected had the Federal Reserve tightened monetary policy in the mid-2000s to promote financial stability.

### ***Looking Back at the Mid-2000s***

Although it was not recognized at the time, risks to financial stability within the United States escalated to a dangerous level in the mid-2000s. During that period, policymakers--myself included--were aware that homes seemed overvalued by a number of sensible metrics and that home prices might decline, although there was disagreement about how likely such a decline was and how large it might be. What was not appreciated was how serious the fallout from such a decline would be for the financial sector and the macroeconomy. Policymakers failed to anticipate that the reversal of the house price bubble would trigger the most significant financial crisis in the United States since the Great Depression because that reversal interacted with critical vulnerabilities in the financial system and in government regulation.

In the private sector, key vulnerabilities included high levels of leverage, excessive dependence on unstable short-term funding, weak underwriting of loans, deficiencies in risk measurement and risk management, and the use of exotic financial instruments that redistributed risk in nontransparent ways.

In the public sector, vulnerabilities included gaps in the regulatory structure that allowed some systemically important financial institutions (SIFIs) and markets to escape comprehensive supervision, failures of supervisors to effectively use their existing powers, and insufficient attention to threats to the stability of the system as a whole.

It is not uncommon to hear it suggested that the crisis could have been prevented or significantly mitigated by substantially tighter monetary policy in the mid-2000s. At

the very least, however, such an approach would have been insufficient to address the full range of critical vulnerabilities I have just described. A tighter monetary policy would not have closed the gaps in the regulatory structure that allowed some SIFIs and markets to escape comprehensive supervision; a tighter monetary policy would not have shifted supervisory attention to a macroprudential perspective; and a tighter monetary policy would not have increased the transparency of exotic financial instruments or ameliorated deficiencies in risk measurement and risk management within the private sector.

Some advocates of the view that a substantially tighter monetary policy may have helped prevent the crisis might acknowledge these points, but they might also argue that a tighter monetary policy could have limited the rise in house prices, the use of leverage within the private sector, and the excessive reliance on short-term funding, and that each of these channels would have contained--or perhaps even prevented--the worst effects of the crisis.

A review of the empirical evidence suggests that the level of interest rates does influence house prices, leverage, and maturity transformation, but it is also clear that a tighter monetary policy would have been a very blunt tool: Substantially mitigating the emerging financial vulnerabilities through higher interest rates would have had sizable adverse effects in terms of higher unemployment. In particular, a range of studies conclude that tighter monetary policy during the mid-2000s might have contributed to a slower rate of house price appreciation. But the magnitude of this effect would likely have been modest relative to the substantial momentum in these prices over the period; hence, a very significant tightening, with large increases in unemployment, would have

been necessary to halt the housing bubble.<sup>2</sup> Such a slowing in the housing market might have constrained the rise in household leverage, as mortgage debt growth would have been slower. But the job losses and higher interest payments associated with higher interest rates would have directly weakened households' ability to repay previous debts, suggesting that a sizable tightening may have mitigated vulnerabilities in household balance sheets only modestly.<sup>3</sup>

Similar mixed results would have been likely with regard to the effects of tighter monetary policy on leverage and reliance on short-term financing within the financial sector. In particular, the evidence that low interest rates contribute to increased leverage and reliance on short-term funding points toward some ability of higher interest rates to lessen these vulnerabilities, but that evidence is typically consistent with a sizable range

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<sup>2</sup> For a discussion of this issue encompassing experience across a broad range of advanced economies in the 2000s, including the United States, see Jane Dokko, Brian M. Doyle, Michael T. Kiley, Jinill Kim, Shane Sherlund, Jae Sim, and Skander Van Den Heuvel (2011), "Monetary Policy and the Global Housing Bubble," *Economic Policy*, vol. 26 (April), pp. 233-83. Igan and Loungani (2012) highlight how interest rates are an important, but far from the most important, determinant of housing cycles across countries (see Deniz Igan and Prakash Loungani (2012), "Global Housing Cycles," IMF Working Paper Series WP/12/217 (Washington: International Monetary Fund, August), [www.imf.org/external/pubs/cat/longres.aspx?sk=26229.0](http://www.imf.org/external/pubs/cat/longres.aspx?sk=26229.0)). Bean and others (2010), examining the tradeoffs between unemployment, inflation, and stabilization of the housing market in the United Kingdom, imply that reliance on monetary policy to contain a housing boom may be too costly in terms of other monetary policy goals (see Charles Bean, Matthias Paustian, Adrian Penalver, and Tim Taylor (2010), "Monetary Policy after the Fall," paper presented at "Macroeconomic Challenges: The Decade Ahead," a symposium sponsored by the Federal Reserve Bank of Kansas City, held in Jackson Hole, Wyo., August 26-28, [www.kansascityfed.org/publicat/sympos/2010/2010-08-23-bean.pdf](http://www.kansascityfed.org/publicat/sympos/2010/2010-08-23-bean.pdf)). Saiz (2014) suggests that about 50 percent of the variation in house prices during the 2000s boom can be explained by low interest rates, and finds that it was the remaining, "non-fundamental" component that subsequently collapsed--that is, the interest rate component was not a primary factor in what Saiz terms "the bust" (see Albert Saiz (2014), "Interest Rates and Fundamental Fluctuations in Home Values," paper presented at the Public Policy and Economics Spring 2014 Workshops, hosted by the Harris School of Public Policy, University of Chicago, April 8, [http://harrisschool.uchicago.edu/sites/default/files/SAIZ%20FUNDAMENTALS1\\_0.pdf](http://harrisschool.uchicago.edu/sites/default/files/SAIZ%20FUNDAMENTALS1_0.pdf)).

<sup>3</sup> The notion that tighter monetary policy may have ambiguous effects on leverage or repayment capacity is illustrated in, for example, Anton Korinek and Alp Simsek (2014), "Liquidity Trap and Excessive Leverage," NBER Working Paper Series 19970 (Cambridge, Mass.: National Bureau of Economic Research, March).

of quantitative effects or alternative views regarding the causal channels at work.<sup>4</sup>

Furthermore, vulnerabilities from excessive leverage and reliance on short-term funding in the financial sector grew rapidly through the middle of 2007, well after monetary policy had already tightened significantly relative to the accommodative policy stance of 2003 and early 2004. In my assessment, macroprudential policies, such as regulatory limits on leverage and short-term funding, as well as stronger underwriting standards, represent far more direct and likely more effective methods to address these vulnerabilities.<sup>5</sup>

### ***Recent International Experience***

Turning to recent experience outside the United States, a number of foreign economies have seen rapidly rising real estate prices, which has raised financial stability concerns despite, in some cases, high unemployment and shortfalls in inflation relative to the central bank's inflation target.<sup>6</sup> These developments have prompted debate on how to

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<sup>4</sup> See, for example, Tobias Adrian and Hyun Song Shin (2010), "Liquidity and Leverage," *Journal of Financial Intermediation*, vol. 19 (July), pp. 418-37; and Tobias Adrian and Hyun Song Shin (2011), "Financial Intermediaries and Monetary Economics," in Benjamin Friedman and Michael Woodford, eds., *Handbook of Monetary Economics*, vol. 3A (San Diego, Ca.: Elsevier), pp. 601-50. For a study emphasizing how changes in the response of monetary policy to financial vulnerabilities would likely change the relationship between monetary policy and financial vulnerabilities, see Oliver de Groot (2014), "The Risk Channel of Monetary Policy," *International Journal of Central Banking*, vol. 10 (June), pp. 115-60, [www.ijcb.org/journal/ijcb14q2a6.pdf](http://www.ijcb.org/journal/ijcb14q2a6.pdf).

<sup>5</sup> This evidence and experience suggest that a reliance on monetary policy as a primary tool to address the broad range of vulnerabilities that emerged in the mid-2000s would have had uncertain and limited effects on risks to financial stability. Such uncertainty does not imply that a modestly tighter monetary policy may not have been marginally helpful. For example, some research suggests that financial imbalances that became apparent in the mid-2000s may have signaled a tighter labor market and more inflationary pressure than would have been perceived solely from labor market conditions and overall economic activity. Hence, such financial imbalances may have called for a modestly tighter monetary policy through the traditional policy lens focused on inflationary pressure and economic slack. See, for example, David M. Arseneau and Michael Kiley (2014), "The Role of Financial Imbalances in Assessing the State of the Economy," FEDS Notes (Washington: Board of Governors of the Federal Reserve System, April 18), [www.federalreserve.gov/econresdata/notes/feds-notes/2014/the-role-of-financial-imbalances-in-assessing-the-state-of-the-economy-20140418.html](http://www.federalreserve.gov/econresdata/notes/feds-notes/2014/the-role-of-financial-imbalances-in-assessing-the-state-of-the-economy-20140418.html).

<sup>6</sup> For a summary of house price developments across a range of countries through 2013, see International Monetary Fund (2014), "Global Housing Watch," [www.imf.org/external/research/housing/index.htm](http://www.imf.org/external/research/housing/index.htm).

best balance the use of monetary policy and macroprudential tools in promoting financial stability.

For example, Canada, Switzerland, and the United Kingdom have expressed a willingness to use monetary policy to address financial stability concerns in unusual circumstances, but they have similarly concluded that macroprudential policies should serve as the primary tool to pursue financial stability. In Canada, with inflation below target and output growth quite subdued, the Bank of Canada has kept the policy rate at or below 1 percent, but limits on mortgage lending were tightened in each of the years from 2009 through 2012, including changes in loan-to-value and debt-to-income caps, among other measures.<sup>7</sup> In contrast, in Norway and Sweden, monetary policy decisions have been influenced somewhat by financial stability concerns, but the steps taken have been limited. In Norway, policymakers increased the policy interest rate in mid-2010 when they were facing escalating household debt despite inflation below target and output below capacity, in part as a way of “guarding against the risk of future imbalances.”<sup>8</sup> Similarly, Sweden’s Riksbank held its policy rate “slightly higher than we would have done otherwise” because of financial stability concerns.<sup>9</sup> In both cases, macroprudential actions were also either taken or under consideration.

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<sup>7</sup> For a discussion of macroprudential steps taken in Canada, see Ivo Krznar and James Morsink (2014), “With Great Power Comes Great Responsibility: Macroprudential Tools at Work in Canada,” IMF Working Paper Series 14/83 (Washington: International Monetary Fund, May), [www.imf.org/external/pubs/cat/longres.aspx?sk=41551.0](http://www.imf.org/external/pubs/cat/longres.aspx?sk=41551.0).

<sup>8</sup> See Norges Bank (2010), “The Executive Board’s Monetary Policy Decision--Background and General Assessment,” press release, May 5, [www.norges-bank.no/en/about/published/press-releases/2010/press-release-5-may-2010/the-executive-boards-monetary-policy-decision](http://www.norges-bank.no/en/about/published/press-releases/2010/press-release-5-may-2010/the-executive-boards-monetary-policy-decision), paragraph 28.

<sup>9</sup> See Per Jansson (2013), “How Do We Stop the Trend in Household Debt? Work on Several Fronts,” speech delivered at the SVD Bank Summit, Berns Salonger, Stockholm, December 3, [www.riksbank.se/en/Press-and-published/Speeches/2013/Jansson-How-do-we-stop-the-trend-in-household-debt-Work-on-several-fronts](http://www.riksbank.se/en/Press-and-published/Speeches/2013/Jansson-How-do-we-stop-the-trend-in-household-debt-Work-on-several-fronts), p. 2.

In reviewing these experiences, it seems clear that monetary policymakers have perceived significant hurdles to using sizable adjustments in monetary policy to contain financial stability risks. Some proponents of a larger monetary policy response to financial stability concerns might argue that these perceived hurdles have been overblown and that financial stability concerns should be elevated significantly in monetary policy discussions. A more balanced assessment, in my view, would be that increased focus on financial stability risks is appropriate in monetary policy discussions, but the potential cost, in terms of diminished macroeconomic performance, is likely to be too great to give financial stability risks a central role in monetary policy decisions, at least most of the time.

If monetary policy is not to play a central role in addressing financial stability issues, this task must rely on macroprudential policies. In this regard, I would note that here, too, policymakers abroad have made important strides, and not just those in the advanced economies. Emerging market economies have in many ways been leaders in applying macroprudential policy tools, employing in recent years a variety of restrictions on real estate lending or other activities that were perceived to create vulnerabilities.<sup>10</sup> Although it is probably too soon to draw clear conclusions, these experiences will help inform our understanding of these policies and their efficacy.

### **Promoting Financial Stability through a Macroprudential Approach**

If macroprudential tools are to play the primary role in the pursuit of financial stability, questions remain on which macroprudential tools are likely to be most effective,

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<sup>10</sup> For a discussion, see Min Zhu (2014), “Era of Benign Neglect of House Price Booms Is Over,” IMF Direct (blog), June 11, <http://blog-imfdirect.imf.org/2014/06/11/era-of-benign-neglect-of-house-price-booms-is-over>.

what the limits of such tools may be, and when, because of such limits, it may be appropriate to adjust monetary policy to “get in the cracks” that persist in the macroprudential framework.<sup>11</sup>

In weighing these questions, I find it helpful to distinguish between tools that primarily build through-the-cycle resilience against adverse financial developments and those primarily intended to lean against financial excesses.<sup>12</sup>

### ***Building Resilience***

Tools that build resilience aim to make the financial system better able to withstand unexpected adverse developments. For example, requirements to hold sufficient loss-absorbing capital make financial institutions more resilient in the face of unexpected losses. Such requirements take on a macroprudential dimension when they are most stringent for the largest, most systemically important firms, thereby minimizing the risk that losses at such firms will reverberate through the financial system. Resilience against runs can be enhanced both by stronger capital positions and requirements for sufficient liquidity buffers among the most interconnected firms. An effective resolution regime for SIFIs can also enhance resilience by better protecting the financial system from contagion in the event of a SIFI collapse. Further, the stability of the financial system can be enhanced through measures that address interconnectedness between financial firms, such as margin and central clearing requirements for derivatives transactions. Finally, a regulatory umbrella wide enough to cover previous gaps in the

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<sup>11</sup> These questions have been explored in, for example, International Monetary Fund (2013), *The Interaction of Monetary and Macroprudential Policies* (Washington: IMF, January 29), [www.imf.org/external/np/pp/eng/2013/012913.pdf](http://www.imf.org/external/np/pp/eng/2013/012913.pdf).

<sup>12</sup> The IMF recently discussed tools to build resilience and lean against excesses (and provided a broad overview of macroprudential tools and their interaction with other policies, including monetary policy); see International Monetary Fund (2013), *Key Aspects of Macroprudential Policy* (Washington: IMF, June 10), [www.imf.org/external/np/pp/eng/2013/061013b.pdf](http://www.imf.org/external/np/pp/eng/2013/061013b.pdf).

regulation and supervision of systemically important firms and markets can help prevent risks from migrating to areas where they are difficult to detect or address.

In the United States, considerable progress has been made on each of these fronts. Changes in bank capital regulations, which will include a surcharge for systemically important institutions, have significantly increased requirements for loss-absorbing capital at the largest banking firms. The Federal Reserve's stress tests and Comprehensive Capital Analysis and Review process require that large financial institutions maintain sufficient capital to weather severe shocks, and that they demonstrate that their internal capital planning processes are effective, while providing perspective on the loss-absorbing capacity across a large swath of the financial system. The Basel III framework also includes liquidity requirements designed to mitigate excessive reliance by global banks on short-term wholesale funding.

Oversight of the U.S. shadow banking system also has been strengthened. The new Financial Stability Oversight Council has designated some nonbank financial firms as systemically important institutions that are subject to consolidated supervision by the Federal Reserve. In addition, measures are being undertaken to address some of the potential sources of instability in short-term wholesale funding markets, including reforms to the triparty repo market and money market mutual funds--although progress in these areas has, at times, been frustratingly slow.

Additional measures should be taken to address residual risks in the short-term wholesale funding markets. Some of these measures--such as requiring firms to hold larger amounts of capital, stable funding, or highly liquid assets based on use of short-term wholesale funding--would likely apply only to the largest, most complex

organizations. Other measures--such as minimum margin requirements for repurchase agreements and other securities financing transactions--could, at least in principle, apply on a marketwide basis. To the extent that minimum margin requirements lead to more conservative margin levels during normal and exuberant times, they could help avoid potentially destabilizing procyclical margin increases in short-term wholesale funding markets during times of stress.

### ***Leaning Against the Wind***

At this point, it should be clear that I think efforts to build resilience in the financial system are critical to minimizing the chance of financial instability and the potential damage from it. This focus on resilience differs from much of the public discussion, which often concerns whether some particular asset class is experiencing a “bubble” and whether policymakers should attempt to pop the bubble. Because a resilient financial system can withstand unexpected developments, identification of bubbles is less critical.

Nonetheless, some macroprudential tools can be adjusted in a manner that may further enhance resilience as risks emerge. In addition, macroprudential tools can, in some cases, be targeted at areas of concern. For example, the new Basel III regulatory capital framework includes a countercyclical capital buffer, which may help build additional loss-absorbing capacity within the financial sector during periods of rapid credit creation while also leaning against emerging excesses. The stress tests include a scenario design process in which the macroeconomic stresses in the scenario become more severe during buoyant economic expansions and incorporate the possibility of highlighting salient risk scenarios, both of which may contribute to increasing resilience

during periods in which risks are rising.<sup>13</sup> Similarly, minimum margin requirements for securities financing transactions could potentially vary on a countercyclical basis so that they are higher in normal times than in times of stress.

### **Implications for Monetary Policy, Now and in the Future**

In light of the considerable efforts under way to implement a macroprudential approach to enhance financial stability and the increased focus of policymakers on monitoring emerging financial stability risks, I see three key principles that should guide the interaction of monetary policy and macroprudential policy in the United States.

First, it is critical for regulators to complete their efforts at implementing a macroprudential approach to enhance resilience within the financial system, which will minimize the likelihood that monetary policy will need to focus on financial stability issues rather than on price stability and full employment. Key steps along this path include completion of the transition to full implementation of Basel III, including new liquidity requirements; enhanced prudential standards for systemically important firms, including risk-based capital requirements, a leverage ratio, and tighter prudential buffers for firms heavily reliant on short-term wholesale funding; expansion of the regulatory umbrella to incorporate all systemically important firms; the institution of an effective, cross-border resolution regime for systemically important financial institutions; and consideration of regulations, such as minimum margin requirements for securities financing transactions, to limit leverage in sectors beyond the banking sector and SIFIs.

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<sup>13</sup> See the Policy Statement on the Scenario Design Framework for Stress Testing at Regulation YY-- Enhanced Prudential Standards and Early Remediation Requirements for Covered Companies, 12 C.F.R. pt. 252 (2013), Policy Statement on the Scenario Design Framework for Stress Testing, [www.federalreserve.gov/bankinforeg/bcreg20131107a1.pdf](http://www.federalreserve.gov/bankinforeg/bcreg20131107a1.pdf).

Second, policymakers must carefully monitor evolving risks to the financial system and be realistic about the ability of macroprudential tools to influence these developments. The limitations of macroprudential policies reflect the potential for risks to emerge outside sectors subject to regulation, the potential for supervision and regulation to miss emerging risks, the uncertain efficacy of new macroprudential tools such as a countercyclical capital buffer, and the potential for such policy steps to be delayed or to lack public support.<sup>14</sup> Given such limitations, adjustments in monetary policy may, at times, be needed to curb risks to financial stability.<sup>15</sup>

These first two principles will be more effective in helping to address financial stability risks when the public understands how monetary policymakers are weighing such risks in the setting of monetary policy. Because these issues are both new and complex, there is no simple rule that can prescribe, even in a general sense, how monetary policy should adjust in response to shifts in the outlook for financial stability. As a result, policymakers should clearly and consistently communicate their views on the stability of the financial system and how those views are influencing the stance of monetary policy.

To that end, I will briefly lay out my current assessment of financial stability risks and their relevance, at this time, to the stance of monetary policy in the United States. In recent years, accommodative monetary policy has contributed to low interest rates, a flat

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<sup>14</sup> For a related discussion, see Elliott, Feldberg, and Lehnert, “The History of Cyclical Macroprudential Policy in the United States.”

<sup>15</sup> Adam and Woodford (2013) present a model in which macroprudential policies are not present and housing prices experience swings for reasons not driven by “fundamentals.” In this context, adjustments in monetary policy in response to house price booms—even if such adjustments lead to undesirable inflation or employment outcomes—are a component of optimal monetary policy. See Klaus Adam and Michael Woodford (2013), “Housing Prices and Robustly Optimal Monetary Policy,” working paper, June 29, [http://adam.vwl.uni-mannheim.de/fileadmin/user\\_upload/adam/research/AW\\_AssetPrices.pdf](http://adam.vwl.uni-mannheim.de/fileadmin/user_upload/adam/research/AW_AssetPrices.pdf).

yield curve, improved financial conditions more broadly, and a stronger labor market. These effects have contributed to balance sheet repair among households, improved financial conditions among businesses, and hence a strengthening in the health of the financial sector. Moreover, the improvements in household and business balance sheets have been accompanied by the increased safety of the financial sector associated with the macroprudential efforts I have outlined. Overall, nonfinancial credit growth remains moderate, while leverage in the financial system, on balance, is much reduced. Reliance on short-term wholesale funding is also significantly lower than immediately before the crisis, although important structural vulnerabilities remain in short-term funding markets.

Taking all of these factors into consideration, I do not presently see a need for monetary policy to deviate from a primary focus on attaining price stability and maximum employment, in order to address financial stability concerns. That said, I do see pockets of increased risk-taking across the financial system, and an acceleration or broadening of these concerns could necessitate a more robust macroprudential approach. For example, corporate bond spreads, as well as indicators of expected volatility in some asset markets, have fallen to low levels, suggesting that some investors may underappreciate the potential for losses and volatility going forward. In addition, terms and conditions in the leveraged-loan market, which provides credit to lower-rated companies, have eased significantly, reportedly as a result of a “reach for yield” in the face of persistently low interest rates. The Federal Reserve, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation issued guidance regarding leveraged lending practices in early 2013 and followed up on this guidance late last year. To date, we do not see a systemic threat from leveraged lending, since broad

measures of credit outstanding do not suggest that nonfinancial borrowers, in the aggregate, are taking on excessive debt and the improved capital and liquidity positions at lending institutions should ensure resilience against potential losses due to their exposures. But we are mindful of the possibility that credit provision could accelerate, borrower losses could rise unexpectedly sharply, and that leverage and liquidity in the financial system could deteriorate. It is therefore important that we monitor the degree to which the macroprudential steps we have taken have built sufficient resilience, and that we consider the deployment of other tools, including adjustments to the stance of monetary policy, as conditions change in potentially unexpected ways.

## **Conclusion**

In closing, the policy approach to promoting financial stability has changed dramatically in the wake of the global financial crisis. We have made considerable progress in implementing a macroprudential approach in the United States, and these changes have also had a significant effect on our monetary policy discussions. An important contributor to the progress made in the United States has been the lessons we learned from the experience gained by central banks and regulatory authorities all around the world. The IMF plays an important role in this evolving process as a forum for representatives from the world's economies and as an institution charged with promoting financial and economic stability globally. I expect to both contribute to and learn from ongoing discussions on these issues.