

Daniel K Tarullo: Monetary policy and financial stability

Speech by Mr Daniel K Tarullo, Member of the Board of Governors of the Federal Reserve System, at the 30th Annual National Association for Business Economics Economic Policy Conference, Arlington, Virginia, 25 February 2014.

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The financial crisis and its aftermath prompted an almost immediate call for change in financial regulation. Beyond the basic reaction that prudential regulation needed to be stronger and less subject to arbitrage, considerable support grew for the formerly minority view that regulation also needed to be firmly grounded in a macroprudential perspective explicitly directed at the stability of the financial system as a whole, not just at each regulated firm individually. The crisis also prompted increased attention to the relationship between monetary policy and financial stability. Here the lines of debate seem more sharply drawn than in the area of financial regulation. While few today would take the pre-crisis view common among central bankers that financial stability should not be an explicit concern of monetary policy, there is considerable disagreement over – among other things – the weight that financial stability concerns should carry compared with traditional monetary policy goals of price stability and maximum employment.

This morning I will offer some comments on this ongoing debate. In part, these remarks will give my perspective on some of the familiar points of contention, such as the relative priority and role of nonmonetary, compared with monetary, policy instruments in responding to risks to financial stability. I also want to suggest that the cumulative effect over the past few decades of changes in financial technology, financial regulation, monetary policy itself, and perhaps the real economy have significantly altered the ways in which monetary instruments transmit through to the real economy. These changes may argue for refinement of monetary policy tools. They may also indicate the need for regulatory measures that are neither time varying nor limited to prudentially regulated firms, so as to provide a more stable financial foundation within which monetary policy will operate.

The role of monetary policy in restoring financial stability

The Federal Reserve, as we have been reminded by many accounts on the occasion of its centennial, was created largely in response to what we would now call financial stability concerns, as specifically revealed by the Panic of 1907. When confronted with an even deeper financial panic a hundred years later, the Federal Reserve deployed its full range of policy tools – monetary policy, lender of last resort, and supervision – in an effort to stabilize the U.S. financial system. The Federal Reserve cut the federal funds rate to nearly zero by the end of 2008. It developed an innovative set of programs to provide liquidity to financial institutions and to restore confidence in the markets. These tools provided liquidity not only to commercial banks, but also to other financial institutions such as investment banks and money market funds, as well as to key financial markets such as those for commercial paper and asset-backed securities.¹ This provision of liquidity was instrumental in helping restore

¹ Liquidity tools employed by the Federal Reserve that were closely tied to the central bank's traditional role as lender of last resort involved the provision of short-term liquidity to depository and other financial institutions and included the traditional discount window; the Term Auction Facility, or TAF; the Primary Dealer Credit Facility, or PDCF; and the Term Securities Lending Facility, or TSLF. A second set of tools involved the provision of liquidity directly to borrowers and investors in those credit markets key to households and businesses where the expanding crisis threatened to materially impede the availability of financing. The tools that fall into that category are the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, or AMLF; the Commercial Paper Funding Facility, or CPFF; the Money Market Investor Funding Facility, or MIFF; and the Term Asset-Backed Securities Loan Facility, or TALF.

market confidence. Similarly, the development of the first supervisory stress test in 2009 helped to stabilize and restore confidence in the financial system as a whole by helping to ensure that the 19 largest bank holding companies were sufficiently capitalized so that they could continue serving as viable financial intermediaries.

The combination of these tools was effective in restoring financial stability. The Great Recession that followed the crisis posed a new set of challenges. Given the constraint imposed by the effective lower bound on the federal funds rate, the Federal Reserve took unconventional measures to provide additional monetary accommodation during the recession and the subsequent protracted recovery. These alternative policy tools included large-scale purchases of longer-term Treasury and mortgage-backed securities for the Federal Reserve's portfolio and enhanced communication about its anticipated future policy, or "forward guidance," regarding the likely path of the federal funds rate.

Large-scale asset purchases provided additional monetary accommodation by putting downward pressure on longer-term interest rates through a portfolio-balance channel. First used in November 2008, the Federal Open Market Committee (FOMC) subsequently initiated a series of purchase programs during the next several years and, in September 2012, implemented an open-ended program that would continue until there was a substantial improvement in the outlook for the labor market. With evidence accumulating that the labor market is improving materially, the Committee has begun to scale back the rate of these purchases.

The Committee's forward guidance is also intended to put downward pressure on longer-term interest rates by influencing market expectations about the future path of short-term rates. Initially, the Committee relied on date-based descriptions of the likely path of interest rate policy. But in December 2012 the Committee shifted to quantitative, state-contingent guidance to provide greater clarity about the likely course of the federal funds rate under different paths for the economy. At that time, the Committee indicated that no increase in the federal funds rate target should be anticipated so long as unemployment remained above 6-1/2 percent and inflation was projected to be no more than 2-1/2 percent one-to-two years ahead.

These unconventional tools appear to have been effective in helping promote the economic recovery. In particular, research largely supports the conclusion that changes in guidance influenced interest rate expectations, that asset purchases pushed down longer-term interest rates and boosted asset prices, and that these improvements in financial conditions contributed to the economic recovery in recent years.² The unemployment rate has fallen from 10 percent at its 2009 peak to 6.6 percent today, although debate continues over whether significantly lower labor force participation rates and other labor market indicators should be read to indicate somewhat less progress than the unemployment rate alone would suggest. But, while the recovery has been frustratingly slow and remains incomplete, there has been real progress, despite the fact that in the past couple of years a restrictive fiscal policy has been working at cross-purposes to monetary policy, and that balance sheet repair and financial strains in Europe have made it more difficult for the economy to muster much self-sustaining momentum.

² On the effects of large-scale asset purchases, see, for example, Canlin Li and Min Wei (2013), "[Term Structure Modeling with Supply Factors and the Federal Reserve's Large Scale Asset Purchase Programs](#)," *International Journal of Central Banking*, vol. 9 (1), pp. 3–39; Stefania D'Amico and Thomas B. King (2013), "[Flow and Stock Effects of Large-Scale Treasury Purchases: Evidence on the Importance of Local Supply](#)," *Journal of Financial Economics*, vol. 108 (May), pp. 425–48; and Arvind Krishnamurthy and Annette Vissing-Jorgensen (2011), "[The Effects of Quantitative Easing on Interest Rates: Channels and Implications for Policy \(PDF\)](#)," *Brookings Papers on Economic Activity*, Fall, pp. 215–87. For a recent study of the effectiveness of forward guidance, see Katherine Femia, Steven Friedman, and Brian Sack (2013), "[The Effects of Policy Guidance on Perceptions of the Fed's Reaction Function \(PDF\)](#)," Federal Reserve Bank of New York Staff Reports 652 (New York: Federal Reserve Bank of New York, November).

Monetary policy and risks to financial stability

I hardly need remind this audience that the monetary policy pursued by the Federal Reserve in the past five years has occasioned considerable debate and controversy. Much of the debate revolves around the degree of efficacy of the unconventional instruments, particularly large-scale asset purchases, and particularly whether there might be diminishing returns to these purchases in some circumstances. I am certain that analysis of these issues will continue not only in the near term, but also in academic circles for years to come.

A good bit of criticism has focused on the large expansion of the balance sheet and the sizable amount of excess reserves in the banking system. One oft-stated worry is that when it is time to normalize policy, we will be unable to withdraw reserves as quickly as needed to prevent an unwanted rise in inflation. Under the operating procedures used prior to the crisis, the presence of large quantities of excess reserves could well have impeded the FOMC's ability to raise short-term interest rates. But we have a variety of tools to neutralize the effects of our balance sheet without selling assets. For example, we now pay interest on reserves; raising that rate would put upward pressure on short-term rates. In addition, we can drain reserves by employing fixed-rate overnight reverse repurchase agreements, term deposits, and term repurchase agreements. We will continue to develop and, as appropriate, test these tools to allow normalization of the balance sheet without unwanted inflationary consequences.

The area of concern about recent monetary policy that I want to address at greater length relates to financial stability. The worry is that the actual extended period of low interest rates, along with expectations fostered by forward guidance of continued low rates, may be incentivizing financial market actors to take on additional risks to boost margins, thereby contributing to unsustainable increases in asset prices and a consequent buildup of systemic vulnerabilities. Indeed, in the years preceding the crisis, a few prescient observers swam against the tide of conventional wisdom to argue that a sustained period of low rates was inducing investors to "reach for yield" and thereby endangering the financial system.³

The incentive to reach for yield can be a real and significant concern in some circumstances. A low rate environment tends to squeeze the profitability of financial intermediaries of many types as they reinvest in assets with lower yields.⁴ Because these institutions can be driven by a variety of agency and accounting concerns to target high returns or place undue weight on the short-term performance of their portfolios, the pressure to maintain current yield can create incentives for these firms to take on excessive risk.⁵ This risk can manifest itself as excessive leverage, or greater credit or duration risk in portfolio choices, with the potential for large losses under adverse conditions. In addition, to the extent that investors crowd into similar asset classes, low rates can potentially inflate a speculative bubble, the ultimate unwinding of which could have negative consequences for economic activity.

Here, then, is the potential quandary: The very accommodative monetary policy that contributed to the restoration of financial stability could, if maintained long enough in the face

³ One of the most notable such expositions was provided in 2005 at the Jackson Hole symposium by Raghuram Rajan, a distinguished academic economist who has since become Governor of the Reserve Bank of India (see Raghuram G. Rajan (2005), "[Has Financial Development Made the World Riskier? \(PDF\)](#)" paper presented at "The Greenspan Era: Lessons for the Future," a symposium sponsored by the Federal Reserve Bank of Kansas City, held in Jackson Hole, Wyo., August 25–27).

⁴ Low interest rates depress net interest margins for banks as the value of their deposit franchise falls, and they boost the present value of liabilities for insurers and pension funds while reducing their prospective returns from fixed-income investments.

⁵ For instance, inflows into mutual funds, a key determinant of an investment manager's compensation, are strongly positively correlated with recent fund performance. For example, see Judith Chevalier and Glenn Ellison (1997), "[Risk Taking by Mutual Funds as a Response to Incentives](#)," *Journal of Political Economy*, vol. 105 (6), pp. 1167–200.

of slow recovery in the real economy, eventually sow the seeds of renewed financial instability. Yet removal of accommodation could choke off the recovery just as it seems poised to gain at least a bit more momentum. Such a situation requires assessment of the extent of this risk and, of particular importance to my topic today, the appropriate role of monetary policy in containing it.

Protecting financial stability

In presenting the mix of salient considerations in reacting to possible financial stability risks arising from extended periods of accommodative monetary policy, I should state at the outset something that will not likely come as a surprise to any of you. My observation has been that people's views on these risks tend to be at least generally correlated with their views on the effectiveness of monetary policy over the past few years and on the size of the output gap that remains today. Having said that, I have also observed that most people engaging in these discussions – whether in policy circles, commentary, or academic work – would agree on the basic policy instruments available for systemic risk containment, even as they would disagree on the extent of the threat and the relative utility of those instruments. So let me now present some of my own thoughts on both the specifics of the present situation and on some of the ongoing policy issues raised by these discussions.

As a preliminary matter, it is important to note that incorporating financial stability considerations into monetary policy decisions need not imply the creation of an additional mandate for monetary policy. The potentially huge effect on price stability and employment associated with bouts of serious financial instability gives ample justification. Of course, this preliminary observation underscores the fact that the identification of systemic risks, especially those based on the putative emergence of asset bubbles, is not a straightforward exercise. The eventual impact of the bursting of the pre-crisis housing bubble on financial stability went famously underdiagnosed by policymakers and many private analysts. But there would be considerable economic downside in reacting with policy measures each time a case could be made that a bubble was developing. That is, there is ample opportunity for both Type 1 and Type 2 errors. As the metrics for assessing systemic risks continue to improve, this problem may be alleviated, but I suspect it will never be eliminated.

We are paying close attention to the macroprudential risks posed by the low interest rate environment, particularly given the possibility that interest rates may remain historically low for some time even after the FOMC begins to increase its target for the federal funds rate. The Federal Reserve has, as a result of a number of organizational changes made since the crisis, a more focused structure for monitoring potential risks to financial stability and using the information we glean from this monitoring to shape our supervisory and regulatory actions. One prominent change has been the reorientation of our supervision of large bank holding companies through the creation of the Large Institution Supervision Coordinating Committee, or LISCC, to specifically incorporate systemic risk considerations. Another has been the creation of the Office of Financial Stability Policy and Research, which is charged with monitoring financial risks, analyzing the implications for financial stability, and identifying macroprudential policies for mitigating detected risks.

At present, our monitoring does find some evidence of increased duration and credit risk, but the increases appear relatively moderate to date – particularly at the largest banks and life insurers. Moreover, valuations for broad categories of assets such as real estate and corporate equities remain within historical norms, suggesting that valuation pressures, if present, are confined to narrower segments of assets. For example, valuations do appear stretched for farmland, although recent data are suggesting some slowing, and for the equity prices of some small technology firms.

Still, there are areas where investors appear to have been very sanguine regarding certain types of exposure and modest in their demands for compensation to assume such risk. High-yield corporate bond and leveraged loan funds, for instance, have seen strong inflows,

reflecting greater investor appetite for risky corporate credits, while underwriting standards have deteriorated, raising the possibility of large losses going forward.

In these circumstances, it has to date seemed appropriate to rely on supervisory responses. For example, in the face of substantial growth in the volume of leveraged lending and the deterioration in underwriting standards, the Federal Reserve, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation issued updated guidance on leverage lending in March 2013.⁶ This guidance outlined principles related to safe and sound leveraged lending activities, including the expectation that banks and thrifts originate leveraged loans using prudent underwriting standards regardless of their intent to hold or distribute them.

In addition, the Federal Reserve, alongside other regulators, has been working with the firms we supervise to increase their resilience to possible interest rate shocks. For instance, in both the 2013 and 2014 stress test and capital planning exercises, we incorporated various combinations of interest rate shocks in the adverse scenarios. Supervisors have also been working to estimate the implications of a wider variety of interest rate shocks. Our analysis to this point (undertaken outside of our annual stress test program) suggests that banking firms are capitalized to withstand the losses in asset valuations that would arise from large spikes in rates, which, moreover, would see an offset from the increase in the value of bank deposit franchises. This finding is consistent with the lack of widespread stress during the period of May through June 2013 when interest rates increased considerably.⁷ The next set of stress-test results, which we will release next month, will provide further insight on this point, both to regulators and to markets.

While ad hoc supervisory action aimed at specific lending or risks is surely a useful tool, it has its limitations. First, it is a bit too soon to judge precisely how effective these supervisory actions – such as last year’s leveraged lending guidance – have been. Second, even if they prove effective in containing discrete excesses, it is not clear that the somewhat deliberate supervisory process would be adequate to deal with a more pervasive reach for yield affecting many areas of credit extension. Third, and perhaps most important, the extent to which supervisory practice can either lean against the wind or increase the overall resiliency of the financial system is limited by the fact that it applies only to prudentially regulated firms. This circumstance creates an incentive for intermediation activities to migrate outside of the regulated sector.

Should this shift occur in significant ways, the financial system could ultimately be exposed again to the very risks against which much post-crisis regulatory reform has been directed. To be sure, it is not a trivial task for unregulated financial-sector participants to move into activities in which regulated institutions have traditionally operated. But if the potential gains were high enough, unregulated actors could have sufficient incentive to do so. Indeed, it must be recognized that regular recourse to supervisory measures in response to nascent financial stability concerns would likely be perceived as increasing the payoff from this form of regulatory arbitrage.

The limitations of supervision as a tool for managing the risks to financial stability that could arise from protracted periods of low interest rates have intensified interest in time-varying macroprudential policies – that is, measures that can be calibrated to changing economic or financial conditions. The appeal of such requirements is that they could, at least in principle, be adopted reasonably quickly as risks increased, implemented in a straightforward way, and

⁶ See Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, and Office of the Comptroller of the Currency (2013), “[Agencies Issue Updated Leveraged Lending Guidance](#),” joint press release, March 21.

⁷ The FSOC staff with the regulatory agencies also have been assessing whether other financial institutions, such as insurance companies and pension funds, may be susceptible to a large spike in interest rates.

applied to all market actors engaged in the covered activities, not just prudentially regulated firms. A frequently cited example is increased loan-to-value requirements for certain types of lending such as residential or commercial mortgages.

Having just recently addressed at some length the promise and limitations of such time-varying macroprudential tools, I will not repeat those views at length today.⁸ I can summarize by saying that, in practice, such policies face a number of challenges, including questions about the reliability of measures to guide policy actions, which officials should make macroprudential decisions, the speed with which policies might realistically be implemented and take effect, and the appropriate calibration of policies that will be effective in damping excesses while not unnecessarily reducing well-underwritten credit flows.⁹ And, as with supervisory policies, there is reason to doubt how effective they would be in circumstances where credit growth had been excessive across wide parts of the economy.

As I have said previously, however, given that procyclicality is an important contributor to systemic risk, there is good reason to continue work on developing time-varying policies. I would devote particular attention to policies that can act as the rough equivalent of an increase in interest rates for particular sources of funding. Such policies would be more responsive to problems that were building quickly because of certain kinds of credit, without regard to whether they were being deployed in one or many sectors of the economy. In that respect, such policies should be more effective (and perhaps less controversial) in slowing the buildup of excess credit than a measure directed squarely at one sector, which might be quickly met by the redirection of a reach for yield to other asset classes.

One example is the countercyclical capital buffer in Basel III, which provides for an increase in the risk-weighted capital requirements of prudentially regulated banking organizations of up to 2-1/2 percentage points when “credit growth is excessive and is leading to the buildup of system-wide risk.”¹⁰ Because stricter capital requirements lead to higher levels of bank equity – which is typically more expensive than debt – they would likely result in higher funding costs for the bank-intermediated credit utilized by other market participants. In this regard, time-varying macroprudential policies can be thought of as addressing cyclical systemic risks via interest rates in a manner somewhat akin to a tightening of monetary policy, which by raising benchmark interest rates affects a similar increase in funding costs.

Clearly, time-varying macroprudential policies could not be viewed as a substitute for monetary policy. Like ad hoc supervisory policies, they would influence a narrower set of transactions and, as such, would not “get in all the cracks” of the financial system, to use a phrase coined by my colleague Jeremy Stein. But, to shift metaphors, they could potentially provide something of a speed bump, while not producing the much broader effect on the economy that a federal funds rate increase would. Moreover, time-varying macroprudential policies may also give monetary policymakers more of an opportunity to assess whether the asset inflation is generalized and sustained enough to warrant a change in monetary policy.¹¹

⁸ See Daniel K. Tarullo (2013), “[Macroprudential Regulation](#),” speech delivered at the Conference on Challenges in Global Financial Services, Yale Law School, New Haven, Conn., September 20.

⁹ Note that this issue of shared or complementary authorities, grounded in constitutional considerations such as democratic accountability and avoiding too much concentration of power in any one part of government, is already a factor. While the Financial Stability Oversight Council was created in part to allow for coordination of the authorities of its constituent agencies, it cannot assure coordination among independent entities, most of which have a number of independent members. Even within the Federal Reserve, there is not a unity of relevant authority, in that regulatory and supervisory powers are lodged only in the Board of Governors, whereas monetary policymaking rests with the entire FOMC.

¹⁰ Basel Committee on Banking Supervision (2011), “[Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems](#),” (Basel, Switzerland: Bank for International Settlements, June), p. 57.

¹¹ It is worth noting that time-varying macroprudential policies like the countercyclical capital buffer also bolster resilience in the financial sector by increasing bank and dealer loss absorbency. Countercyclical or even

Although the three federal banking agencies included a countercyclical capital provision in the capital regulation to implement Basel III adopted last summer, the provision will not take effect in the United States until 2016. However, when the countercyclical capital buffer provision of Basel III does come into effect in the United States, we will have the benefit of experience for this tool from other countries. Over the past year, the Norges Bank, the Reserve Bank of New Zealand, and the Financial Policy Committee at the Bank of England have all finalized general statements on how this policy lever will operate in their jurisdictions, with implementation in each case proceeding in advance of when the policy will come into effect under Basel III.¹² Moreover, in December, the Norwegian Ministry of Finance accepted the advice of the Norges Bank to activate a countercyclical capital buffer in the face of rising financial imbalances. The level of the buffer will be set at 1 percent of risk-weighted assets, starting July 1, 2015.¹³

The foregoing discussion has considered the ways in which existing supervisory authority and new forms of macroprudential authority may allow monetary policymakers to avoid, or at least defer, raising interest rates to contain growing systemic risks under circumstances in which policy is falling well short of achieving one or both elements of the dual mandate. However, as has doubtless been apparent, I believe these alternative policy instruments have real limitations. As I noted earlier, I do not think that at present we are confronted with a situation that would warrant a change in the monetary policy we have been pursuing. But for that very reason, now is a good time to consider these issues more actively. One useful step would be development of a framework that would allow us to make a more analytic, less instinctual judgment on the potential tradeoffs between enhanced financial stability and reduced economic activity. This will be an intellectually challenging exercise, but in itself does not entail any changes in policy.

Monetary policy and financial system

I have to this point described the possible need to balance longer-term financial stability and shorter-term economic growth considerations in the implicit context of a specific point in time, with the decision on use of supervisory, macroprudential, or monetary policy tools dependent on the level and nature of the potential systemic risk, the likely efficacy of each tool in containing that risk, and the expected side effects of each tool on growth. But in thinking about the relationship between monetary policy and financial stability, it is also worth taking a view less focused on decisions at a specific point in time.

Changes in financial technology, regulation, and perhaps the real economy over the past few decades have profoundly affected the channels by which credit is created in the economy, and thus the potential for financial instability. The progressive integration of traditional lending and capital markets activities has created a fundamentally different financial system from that which existed from the mid-1930s through the mid-1970s, during which strict activities restrictions, limitations on competition, and deposit interest rate caps had shaped a banking system that was very stable and reasonably profitable, but not particularly innovative in meeting the needs of either savers or borrowers. The extensive deregulation of banking in the 30 years preceding the crisis, while understandable as a response to the threat posed

through-the-cycle minimum haircuts on SFTs bolster resilience by reducing the amount that haircuts might jump when conditions weaken.

¹² See Norges Bank (2013), "[Criteria for an Appropriate Countercyclical Capital Buffer](#)," Norges Bank Papers 1 (Oslo: Norges Bank, March); Reserve Bank of New Zealand (2013), [A New Macroprudential Policy Framework for New Zealand – Final Policy Position](#) (Wellington: Reserve Bank of New Zealand, May); and Bank of England (2014), [The Financial Policy Committee's Powers to Supplement Capital Requirements](#) (London: Bank of England, January).

¹³ See Norwegian Ministry of Finance Press Release No.: 62/2013 (December, 12, 2013). [Countercyclical buffer at 1 percent](#).

by capital markets and unregulated financial firms to the franchise of regulated firms, left the financial system without a basic framework to contain the risks posed in the new environment.

The explosive growth of short-term wholesale funding in the years preceding the crisis is the exemplary case of how the regulatory system has not kept pace with the integration of traditional lending and capital market activities. The amount of credit created through those channels meant that aggregate credit growth in the economy relative to GDP was much higher than just a few decades earlier, a development that may itself be connected to a greater likelihood of financial crises.¹⁴ Moreover, this funding was peculiarly susceptible to runs that can prompt fire sales and the sudden withdrawal of credit from counterparties.

These direct financial stability concerns have been my principal motivation in devoting so much attention to measures such as minimum margins on securities financing transactions, a version of which are currently under development internationally under the auspices of the Financial Stability Board.¹⁵ But these kinds of changes might also make the trade-off between systemic risk and near-term growth aims a bit easier, since a financial system with more ballast will be less prone to listing in response to accommodative monetary policies directed at the dual mandate goals of price stability and maximum employment. Were such a regime of minimum margins in place, one could also see the potential for enhancing the effectiveness of monetary policy by adding a time-varying, countercyclical component.

Finally, it may also be worth considering some refinements to our monetary policy tools. Central banks must always be cognizant of important changes that may result in different responses of households, firms, and financial markets to monetary policy actions. There is little doubt that the conduct of monetary policy has become a good deal more complicated in recent years. Some of these complications may diminish as economic and financial conditions normalize, but others may be more persistent. Central banks, in turn, may want to build on some recent experience, adapted for more normal times, in addressing the desire to contain systemic risk without removing monetary policy accommodation to advance one or both dual mandate goals.

One example would be altering the composition of a central bank's balance sheet so as to add a second policy instrument to changes in the targeted interest rate. The central bank might under some conditions want to use a combination of the two instruments to respond to concurrent concerns about macroeconomic sluggishness and excessive maturity transformation by lowering the target (short-term) interest rate and simultaneously flattening the yield curve through swapping shorter duration assets for longer-term ones.

Conclusion

In reviewing the relationship between financial stability considerations and monetary policy, I have suggested that monetary policy action cannot be taken off the table as a response to the build-up of broad and sustained systemic risk. But I have also tried to suggest that the development of existing supervisory tools, the judicious use of macroprudential measures, the adoption of some structural measures affecting certain forms of financing, and perhaps some refinements of monetary policy tools can together reduce the number of occasions on

¹⁴ See Moritz Schularick and Alan M. Taylor (2012), "[Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870–2008](#)", *American Economic Review*, vol. 102(2), pp 1029–61.

¹⁵ See Financial Stability Board (2012), [Consultative Document: Strengthening Oversight and Regulation of Shadow Banking: A Policy Framework for Addressing Shadow Banking Risks in Securities Lending and Repos \(PDF\)](#) (Basel: Financial Stability Board, November); and Financial Stability Board (2013), [Strengthening Oversight and Regulation of Shadow Banking: Policy Framework for Addressing Shadow Banking Risks in Securities Lending and Repos \(PDF\)](#) (Basel: Financial Stability Board, August).

which a difficult tradeoff between financial stability considerations and near-term growth or price stability aims will need to be made.