Financial Stability Framework

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Introduction

I thank Diana Hancock and Wayne Passmore for inviting me to speak today. I will use my time to discuss four topics: the relationship between financial stability and monetary policy, the Federal Reserve's current framework for assessing and monitoring financial stability risks, an exercise aimed to assess possible policy responses to such risk, and some of the governance issues we face in addressing these risks. The views I'll present are my own and not necessarily those of the Federal Reserve System or my colleagues on the Federal Open Market Committee.

Financial Stability and Central Banks

The global financial crisis and the deep recession that followed were a rude awakening that much more needed to be done to assess and address vulnerabilities in the financial system. In the U.S., significant resources have been brought to bear to improve financial system resiliency, both to lower the probability that financial instability will arise and to limit the damage when financial shocks occur. Financial stability matters to central banks. One reason is that monetary policy affects the real economy by affecting financial conditions. During the financial crisis, we saw that when financial markets are not functioning well, the transmission of monetary policy to the economy can be disrupted. Another reason central banks care about financial stability is that the goals of monetary policy and financial stability are interconnected. Indeed, the definition of financial stability is often framed in terms of a financial system that is able to provide its valuable credit, risk-management, and liquidity services to businesses and households in the face of economic and financial shocks. Disruptions to the financial system that could interfere with its ability to provide these services include fire sales of assets, runs on financial firms, shortages of liquid assets, and contraction of credit in the face of unknown counterparty risk. We saw all of these during the global financial crisis.

Because central banks care about financial stability to the extent that it affects the health of the real economy, volatility or minor disruptions in financial markets that represent the ebb and flow of a dynamic

economy but do not threaten the health of the economy are not something monetary policy should respond to. In most circumstances, the goals of monetary policy and financial stability are complementary. For example, price stability helps businesses, households, and financial institutions make better decisions, thereby fostering the stability of the financial system. And a stable financial system allows for more effective transmission of monetary policy throughout the economy. But in the short run, at times there may be trade-offs between monetary policy and financial stability, as macroprudential actions may slow the economy for a while. If such actions are needed to maintain the stability of the financial system, then these actions would also foster the monetary policy goals of price stability and maximum employment over the medium run, and would be complementary to economic growth.[1]

The first line of defense against financial instability should involve making the structure of the financial system more resilient. Structural resiliency is promoted by requiring higher levels and quality of capital (including a minimum non-risk-based leverage ratio, as well as risk-based capital standards), liquidity standards, stress tests, living wills, effective resolution methods for systemically important banks and nonbank financial institutions, and reforms to improve the stability of certain nonbank markets. The latter include changes to regulations governing money market mutual funds to reduce the chance of investor runs on these funds, rules requiring standardized over-the-counter derivatives contracts to be cleared through central counterparties, and limiting interday credit exposures in the tri-party repo market.[2] In contrast to structural tools, which apply regardless of the level of vulnerability, the countercyclical capital

[1] Of course, even with an optimally designed regime to foster financial stability, there could be a trade-off between the average level of economic growth over the longer run and the desired degree of financial system resilience, because risk-taking and risk management are at the heart of the financial system. Indeed, in the U.K., the Financial Services Act recognizes this potential trade-off and indicates that the act does not authorize the Financial Policy Committee to operate in a way that the committee feels is "likely to have a significant adverse effect on the capacity of the financial sector to contribute to the growth of the U.K. economy in the medium or long term." See U.K. Financial Services Act 2012, Section 9C(4).

[2] The Securities and Exchange Commission implemented revisions to the regulations governing money market mutual funds in 2014 and 2016. The G20 countries agreed in 2009 that standardized over-the-counter derivatives contracts should be cleared by central counterparties.

buffer is an example of a cyclical tool that can be varied with the perceived level of vulnerabilities in the financial system. The Federal Reserve Board has indicated that it will use this tool only when systemic vulnerabilities are "meaningfully above normal" and that, when using the tool, it intends to increase the buffer in a gradual way.[3] The U.S. has not had much experience with this tool, so the focus on increasing the resiliency of the structure of the financial system seems well-founded.

I believe monetary policy should remain focused on promoting price stability and maximum employment and not be given a third objective of financial stability. But I also recognize that monetary policy and financial stability goals and actions are interrelated and that if we assessed the risks to financial stability to be sufficiently great, achieving our dual-mandate monetary policy goals would also be in jeopardy. In this situation, the distinction between financial stability goals and monetary policy goals would be blurry, and to the extent that financial instability affects macroeconomic stability, those using a risk-management approach to monetary policy might be compelled to act, even though financial stability is not an explicit part of the FOMC's monetary policy mandate.

The FOMC recognizes these linkages. It has acknowledged that nonconventional monetary policy, including large-scale asset purchases and the extended period of essentially zero interest rates, could pose potential risks to financial stability by affecting market functioning and spurring risk-taking in a search for yield.[4] One study using Spanish data found that a lower overnight policy rate induced low-capitalized banks to lend more to ex ante riskier firms and to require less collateral compared to high-capitalized

[3] See Board of Governors of the Federal Reserve System (2016). Other countries have used limits on loan-to-value ratios and debt-to-income ratios that vary over the cycle and are targeted to particular sectors like housing or household credit to control leverage. See Liang (2013) and Fischer (2014).

[4] See Board of Governors of the Federal Reserve System (2014), p. 25.

banks, direct evidence of monetary policy's effect on risk-taking.[5] The low-interest-rate environment has also posed challenges for bank profitability. In addition, to the extent that asset valuations have been elevated relative to historical standards because of the low level of interest rates (which means a low discount rate), as interest rates rise, valuations might be expected to fall, which would pose some risks to financial stability.[6]

Effects also run in the reverse direction, from macroprudential policy to monetary policy: Tight macroprudential policy can tighten financial conditions more generally, thereby increasing the likelihood that a monetary policy response will be needed.

So when we are making monetary policy decisions, we need to be cognizant of the linkages between our monetary policy actions and financial stability and we need to monitor financial system conditions and developments as part of the economic environment. Well before the financial crisis, the FOMC discussed financial stability considerations at its meetings when setting monetary policy.[7] But since the financial crisis, the Federal Reserve has developed a framework for systematically tracking risks, and financial stability surveillance is receiving regular attention at FOMC meetings. This regular attention is important because, as we learned during the financial crisis, even in periods when conditions look benign, vulnerabilities may be building.

[5] Jiménez, Ongena, Peydró, and Saurina (2014) use data on 23 million bank loans from the Spanish credit registry and separately identify how a change in the monetary policy rate affects the demand for credit and the volume and composition of credit supplied, in particular, the supply to riskier borrowers.

[6] See FSOC (2017) for further discussion.

[7] Peek, Rosengren, and Tootell's (2015) textual analysis of the transcripts of FOMC meetings from 1982 through 2009 suggests that the FOMC does consider financial stability when setting monetary policy.

The Fed's Framework for Monitoring Financial Stability

The basic framework used by Federal Reserve staff to monitor financial stability risks is described in Adrian, Covitz, and Liang (2013, 2015). The framework recognizes the complex nature of the financial system in the U.S., with its mix of bank-based finance and market-based finance and its multiplicity of regulatory and supervisory bodies. The framework is informed by experience during the financial crisis, as well as the theoretical and empirical literature on financial stability.

This literature demonstrates that systemic risk is endogenous, determined by the choices of financial market participants, and that it varies across the cycle. When the economy is performing well, collateral values increase, which supports further borrowing. Funding constraints fall, and with credit amply available to borrowers, the volatility of output and the volatility of asset prices fall. This induces banks to increase their leverage and lend even more. Leverage and maturity mismatch build up, the price of risk falls, and asset values rise. But these developments mean the system is more vulnerable, so that when a negative shock hits the economy and output declines, collateral values also fall, lenders become risk-averse, and credit contracts. This causes households and businesses to pull back on their spending, which depresses output even further, thereby propagating the shock to the real economy.

On a conceptual level, the Fed's framework is based on an understanding of these mechanisms through which shocks can be amplified and propagated throughout the financial system and to the real economy.[8] The framework tracks a standard set of financial system vulnerabilities that could amplify and propagate shocks using a set of indicators on various financial activities in four categories: asset valuation pressures (reflecting the price of risk and risk appetites among investors), leverage, maturity and liquidity

[8] Important research on the propagation and amplification of shocks throughout the financial system includes Kiyotaki and Moore (1997), Brunnermeier and Sannikov (2014), and Gorton and Ordoñez (2014).

transformation, and interconnectedness and complexity. Tools like heat maps and data-visualization techniques aid in the tracking over time.[9]

The financial crisis underscored the importance of assessing and monitoring risks more broadly than just in individual regulated banks, so these vulnerabilities are assessed across four sectors of the economy: the banking sector; the nonbank financial sector, including capital markets, nonbanks, and shadow banks; the nonfinancial business sector; and the household sector.

The framework makes a distinction between shocks and vulnerabilities.[10] Shocks are difficult to predict and arise from various sources, whereas vulnerabilities are characteristics of the financial system and depend on the behavior of providers of financial services, their customers, and their regulators. Some of these vulnerabilities, like leverage, vary over the business and financial cycles; others, like complexity, are more structural in nature, reflecting the design of markets and intermediaries.

To see the distinction between shocks and vulnerabilities, consider the financial crisis. Developments in the subprime mortgage market constituted a shock that precipitated the crisis. Recall that, at the time, many thought that the subprime market was too small to pose major problems in the financial system. That view turned out to be terribly wrong because it failed to recognize both the interconnectedness across markets and institutions and the fact that, at the time, the financial system was highly vulnerable to a shock due to high leverage and reliance on short-term funding. The easing of underwriting standards and the demand for securitized subprime mortgage assets led to a build-up in leverage before the crisis. When house prices fell, losses on subprime mortgages were amplified because the loans were funded by short-term funding sources, such as asset-backed commercial paper. Banks that sponsored these funds

[9] See Aikman, et al. (2015a, 2015b).

[10] See Adrian, Covitz, and Liang (2013, 2015) and Bernanke (2012).

felt compelled to support these vehicles, diverting funds from other types of lending; they pulled back on risk because of the drop in the value of mortgages and other assets. The drop in the value of asset-backed securities caused problems in other markets, such as the repo market, where these assets were used as collateral. Thus, leverage and reliance on short-term funding were vulnerabilities that allowed the original shock to propagate across the financial system, becoming amplified and wreaking much destruction as it went. Another distinction between vulnerabilities and shocks is that, unlike with shocks, it is feasible that policies could be designed to limit the build-up of vulnerabilities, thereby promoting financial stability.

Using the framework helps the Fed be systematic in its analysis of the financial system's vulnerability to a range of possible shocks. Systematic analysis means we can better identify changes in vulnerabilities over time and compare the level of vulnerabilities to historical experience at similar stages of the business cycle. An assessment of individual vulnerabilities is then combined to get an assessment of the overall vulnerability of the financial system. For example, when asset valuations are high and leverage is high, the financial system is likely more vulnerable to shocks because the combination can lead to rapid credit growth and excessive risk-taking that can reverse quickly when a negative shock hits.

The minutes of the FOMC meetings indicate the types of discussions of financial conditions that regularly take place. At each meeting, the staff briefs the Committee on developments in financial markets over the intermeeting period. This discussion includes movements in equity prices; government and corporate bond yields; availability of credit to households and businesses; credit standards, loan growth, and financing conditions in various sectors, including the business, consumer, and residential and commercial real estate sectors; conditions in short-run funding markets; foreign exchange movements; and financial conditions abroad. At every other meeting, the staff reports on its assessment of the vulnerabilities in the U.S. financial system, discussing how the vulnerabilities have changed since the last report and over time.

Recognizing the global interconnectedness of financial systems, the staff has developed tools to assess foreign financial stability as well.[11]

An evaluation of developments related to financial stability and the assessment of the financial system's vulnerabilities have also become a regular section in the Board of Governors' monetary policy report. The report occasionally includes additional in-depth information on particular sectors. For example, the latest report included a section discussing liquidity in the corporate bond market.[12] Although market participants had been expressing concerns about reduced liquidity in the market, the Board's analysis suggested that liquidity strains in the market were minimal. And as a member of the Financial Stability Oversight Council (FSOC), the Federal Reserve contributes to the FSOC's annual report that identifies potential risks to financial stability and makes recommendations about what can be done to mitigate those risks.[13]

The Fed has made a lot of progress on building a system to monitor and assess changes in the financial system's vulnerabilities. Analysis suggests that the vulnerabilities now being tracked had, indeed, been building up for several years before the onset of the financial crisis.[14] As discussed in the minutes of the October FOMC meeting, the Fed staff assessed that overall vulnerabilities in the U.S. financial system remained moderate. Valuation pressures were elevated but vulnerabilities stemming from leverage in the nonfinancial sector were moderate; those stemming from leverage in the financial sector and from maturity and liquidity mismatch remained low. The staff also assessed that overall vulnerabilities to foreign financial stability were moderate.

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[11] For example, see FOMC (November 2017).

[12] See Board of Governors (July 2017).

[13] See FSOC (2017).

[14] See Aikman, et al. (2015a, 2015b).

Ongoing work at the Fed continues to evaluate what changes in vulnerabilities may signal about financial stability and how policy should respond to signs of emerging financial stability risks and, in particular, how financial stability concerns should be incorporated into monetary policymaking.

A Financial Stability Tabletop Exercise

Included in these efforts is the tabletop exercise that was undertaken by the Financial Stability Subcommittee of the Conference of Presidents of the Federal Reserve System in June 2015.[15] This exercise involved working through a plausible scenario of loose financial conditions, reflected by falling term and risk premia, leading to pressures on valuations in the commercial property market and increasing leverage in the form of higher corporate debt issuance and leveraged lending that was funded by short-term wholesale funding. The context included monetary policy that was gradually removing accommodation, as in 2015-2016, with inflation below the FOMC's 2 percent goal but the economy at full employment. The scenario reflected some historical episodes of financial market instability, including the real estate boom and bust in New England in the mid-1980s and in Sweden in 1989-1990, but with the incorporation of increased leverage in the nonfinancial sector, as well as in banking, and a focus on commercial real estate as opposed to residential real estate.

Within this scenario, financial conditions were judged to be too loose given macroeconomic conditions and despite the gradual withdrawal of monetary accommodation. A sharp reversal in the pricing of risk would have adverse effects on the corporate bond market and a sharp drop in commercial real estate prices could adversely affect the banking sector. Either would have implications for the real economy. The reliance on short-term wholesale funding could exacerbate the problems, and with many of the

[15] The participating presidents were Eric Rosengren (FRB Boston and chair of the subcommittee at the time of the exercise), William Dudley (FRB New York), Esther George (FRB Kansas City), Narayana Kocherlakota (FRB Minneapolis), and Loretta Mester (FRB Cleveland). See Adrian, et al. (2015).

providers of this funding outside of the supervisory purview of the Federal Reserve, it would be difficult to directly address this issue.

The objective of the exercise was for the policymaker participants to use available macroprudential tools and/or monetary policy to reduce the probability of and the severity of financial disruptions associated with the scenario. The macroprudential tools considered included leverage ratios; countercyclical capital buffers, which could vary across sectors; liquidity requirements; limits on loan-to-value and debt-to-income ratios; capital and liquidity stress testing; supervisory guidance; and moral suasion.

As the scenario played out, the limits to the macroprudential tools were illuminated. The macroprudential tools that ended up being favored were stress testing, margins on repo funding, and supervisory guidance. Capital-based, liquidity-based, and loan-to-value and debt-to-income limits, while good in theory, were deemed to have implementation challenges, such as having to coordinate across multiple regulators or, in some cases, to follow administrative procedures like public comment periods, which would slow down the process. Another limitation to some tools is that they applied to regulated banking firms but not necessarily to shadow banks or other types of institutions.

While my preference going into the exercise was, and continues to be, to start with the macroprudential tools that can be implemented more promptly, the limits on these tools suggest that, in some circumstances, monetary policy might have to be used to address financial stability concerns. This is all the more reason to take steps to ensure that the financial system is structurally resilient, as increased resiliency would lessen the need to shift some of monetary policy's focus away from its macroeconomic goals of price stability and maximum employment. In addition, we must continue to hone our methods of assessing financial system vulnerabilities – in both the regulated and unregulated sectors and between the two. We don't want to over-identify such risks. Finding risks around every corner where none exist would stifle productivity and innovation in the financial services sector and markets, and thereby

undermine longer-run economic growth.[16] This leads me to my final topic: the governance of financial stability policy.

The Governance of Financial Stability Policy

The complexity of the U.S. financial system, with multiple types of financial services providers and multiple regulators, complicates the application of macroprudential policy. The multiple financial regulators in the U.S. include the Federal Reserve, the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency, the National Credit Union Administration, the U.S. Treasury, the Securities and Exchange Commission, the Commodity Futures Trading Commission, the Consumer Financial Protection Bureau, and the Federal Housing Finance Agency. In addition, there are regulatory agencies at the state level. In many cases, the regulatory authority of these agencies is defined by type of institution rather than by instrument. The Financial Stability Oversight Council (FSOC) was created by the Dodd-Frank Act to promote coordination and information sharing across these financial system regulators. Its membership includes the heads of the regulatory agencies, with the Secretary of the Treasury as chair. The Office of Financial Research (OFR), also established by the Dodd-Frank Act, supports the FSOC and has been working to improve the data resources available to assess financial stability risks. This is particularly important as some segments of the financial system are less regulated than others, e.g., hedge funds, and without data, it is difficult to ascertain emerging risks in these sectors. Moreover, even when data are collected, it is harder to track emerging risks to the extent that data aren't standardized across segments.[17]

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[16] Using a large group of countries, Rancière, Tornell, and Westermann (2008) find that average growth over 1960-2000 was higher in countries that have experienced occasional financial crises, as measured by the negative skewness of credit growth. They provide a model in which the enforceability of contracts plays an important role in engendering risk-taking and investment, which leads to higher growth.

[17] One of the FSOC's priorities is to broaden the adoption by financial market participants of the Legal Entity Identifier, which is a unique identifier for any entity participating in a financial transaction. See FSOC (2017).

Establishing the FSOC and the OFR, and the regulatory changes to increase the structural resiliency of the financial system, including higher capital requirements and liquidity requirements, were important steps. Still, it has to be recognized that other than the ability to designate firms as systemically important financial institutions and, therefore, subject to enhanced regulation by the Fed, the FSOC does not have the authority to take actions to mitigate emerging risks. Instead, it can make recommendations to the agencies and to Congress, who can then decide to act or not.[18]

As the tabletop exercise I just spoke of illuminated, regulatory and financial system complexity and the need for coordination impose some limits on the efficacy of countercyclical macroprudential policy to mitigate financial stability risks that build up over time. If implementation is delayed so much that the policies take effect after the risks are realized, at best, they would be ineffective and, at worst, they would exacerbate the situation rather than shore up the financial system. Moreover, unless the policies are coordinated across the entire financial services landscape, they could result in regulatory arbitrage whereby activities move to the sector with less stringent rules.

The need to be preemptive when wielding countercyclical macroprudential tools poses another challenge: that of communication. The tools will have to be used well before there are clear signs of instability. This might be difficult to explain, and there may be various interests that would prefer the tools not be invoked in seemingly good times. Thus, it's important that policymakers have some independence in setting macroprudential policy, with appropriate accountability to elected officials and the public.[19] This argues for transparency and regular testimony before Congress to explain the rationale behind policies.

[18] Kohn (2014) compares and contrasts the financial stability structure in the U.S. with that in the U.K.

[19] Kohn (2014) discusses the importance of the financial stability authority being able to pursue its goals independent of short-run political considerations even when the actions taken aren't popular.

The FSOC and OFR annual reports, as well the materials included in the minutes of FOMC meetings and the Board's monetary policy report, all contribute to needed transparency.[20]

Finally, it is important to have a clearer understanding of how monetary policy and financial stability policy should interact. Loose monetary policy, to the extent that it allows financial vulnerabilities to build up, can pose risks to financial stability when the monetary policy is reversed. And tightening macroprudential rules to counteract growing imbalances can impede the flow of credit, thereby dampening economic growth.

Tabletop exercises like the one I described can be helpful in clarifying strategies for both monetary policy and financial stability policy. We are still some distance away from being able to articulate a clear strategy about the circumstances under which monetary policy should be used as a tool for financial stability. But progress on this will be important to provide clarity not only to the public but also to ourselves as policymakers. As Kohn (2014) describes, the institutional structure in the U.K. has allowed it to be further along in this respect. In August 2013, the Bank of England's Monetary Policy Committee initiated forward guidance that it would hold interest rates low and consider additional asset purchases at least until the unemployment rate had fallen to 7 percent.[21] But it also said that one of the conditions that would vacate this guidance would be if the Bank of England's Financial Policy Committee found that the stance of monetary policy was threatening financial stability in a way that couldn't be contained by the available macroprudential tools. Note that both policy committees are within the Bank of England. The committees are independent but they also share members, which allows for good communication and information sharing between the two committees.

[20] For examples, see FOMC (2017), Board of Governors (2017), FSOC (2017) and OFR (2017a, 2017b).

[21] See Bank of England (2013).

In the U.S., the FSOC should not play a similar role, as this would compromise the independence of monetary policy decisions. This independence must be preserved because, as shown by a substantial body of research and actual practice, when a central bank formulates monetary policy free from short-run political interference and is held accountable for its decisions, better economic outcomes result. Instead, the Federal Reserve, itself, should work to make further progress on clarifying the strategies for the interactions between monetary policy and financial stability policy. With the continued focus throughout the Federal Reserve System on improving our ability to monitor emerging financial stability risks and on developing tools and policies to address those risks, I am confident that such progress will be made.

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