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Monetary Policy Research and the Financial Crisis: Strengths and Shortcomings

Remarks by

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on

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The first two volumes of the *Handbook of Monetary Economics* were published in 1990.[1] It is fitting that the Federal Reserve Board should hold a conference showcasing the chapters of the third volume of the *Handbook*. Since 1990, there has been a sharp increase in the degree of interaction between academic economists and central bank economists in the field of monetary analysis. The beginnings of this trend were evident in the author list of volume one of the *Handbook*, which featured two chapters coauthored by economists Athanasios Orphanides and Daniel Sichel, who went on to have long careers at the Federal Reserve Board.[2] It is reflected today in the planned contents for volume three, which feature additional collaborations between central bank and academic economists.

The interaction between researchers at academic and policy institutions is also reflected in the enormous amount of scholarly research on monetary policy that is relevant for policymakers. That subject is the focus of my talk today. I will organize my remarks around the following two questions: First, what aspects of the existing literature in monetary economics have been particularly helpful in formulating the course of monetary policy since the onset of the financial crisis? Second, what are the gaps in this literature that have become particularly evident since the onset of the financial crisis and, therefore, would be fruitful directions for further research that could contribute to the

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[1] See Benjamin M. Friedman and Frank H. Hahn, eds. (1990), *Handbook of Monetary Economics*, vols. 1 and 2 (Amsterdam: North-Holland/Elsevier).

[2] See Athanasios Orphanides and Robert M. Solow (1990), "Money, Inflation and Growth," in Benjamin M. Friedman and Frank H. Hahn, eds., *Handbook of Monetary Economics*, vol. 1 (Amsterdam: North-Holland/Elsevier), pp. 223-61; and Stephen M. Goldfeld and Daniel E. Sichel (1990), "The Demand for Money," in *Handbook of Monetary Economics*, vol. 1, pp. 299-356.

facilitate continued lending by financial institutions. By lending only to solvent firms with sufficient collateral and at a penalty rate, the central bank mitigates the moral hazard problem and other distortionary effects of its provision of assistance. To be sure, these important central banking principles have needed to be interpreted and applied in the real world, where the line between insolvency and illiquidity may be blurry. But the extraordinary actions taken so far during the financial crisis by the Federal Reserve and other central banks have closely adhered to these basic principles of central banking.

Another body of research that I believe has been valuable for the formulation of monetary policy over the past couple of years is the work that has examined the implications of the zero lower bound on nominal interest rates. The zero lower bound challenged monetary policy in Japan during the late 1990s, triggering a large volume of research. One of the main insights from this literature is that even when policy rates already stand at a relatively low level, central banks should cut rates aggressively in face of large contractionary disturbances.[5] This insight influenced the historically large cuts in the federal funds rate during 2008.

One prerequisite for this type of aggressive policy response is a credible commitment to long-term price stability--an important implication of both standard models and experience. The public's understanding of the central bank's commitment to price stability helps to anchor inflation expectations, thereby contributing to stability in both prices and economic activity. The Federal Reserve has acted to enhance that

[5] See, for instance, the analysis in Jeffrey C. Fuhrer and Brian F. Madigan (1997), "Monetary Policy When Interest Rates Are Bounded at Zero," *Review of Economics and Statistics*, vol. 79 (4), 573-85; and the work by David Reifschneider and John C. Williams (2000), "Three Lessons for Monetary Policy in a Low-Inflation Era," *Journal of Money, Credit and Banking*, vol. 32 (4, pt. 2), pp. 936-66. For interesting analysis on the Japanese experience, see Alan Ahearne, Joseph Gagnon, Jane Haltmaier, and Steven Kamin (2002), "Preventing Deflation: Lessons from Japan's Experience in the 1990s," International Finance Discussion Papers 729 (Washington: Board of Governors of the Federal Reserve System, June), www.federalreserve.gov/pubs/ifdp/2002/729/ifdp729.pdf.

interest rate was lowered to about zero, the Committee has provided some guidance about the future path of the federal funds rate.

To be sure, we have not followed the theoretical prescription of promising to keep rates low enough for long enough to create a period of above-normal inflation. The arguments in favor of such a policy hinge on a clear understanding on the part of the public that the central bank will tolerate increased inflation only temporarily--say, for a few years once the economy has recovered--before returning to the original inflation target in the long term. In standard theoretical model environments, long-run inflation expectations are perfectly anchored. In reality, however, the anchoring of inflation expectations has been a hard-won achievement of monetary policy over the past few decades, and we should not take this stability for granted. Models are by their nature only a stylized representation of reality, and a policy of achieving "temporarily" higher inflation over the medium term would run the risk of altering inflation expectations beyond the horizon that is desirable. Were that to happen, the costs of bringing expectations back to their current anchored state might be quite high.

A final strand of literature has contributed to our policy strategy over the past two years by emphasizing the role of credit and financial intermediation for macroeconomic fluctuations and monetary policy transmission, particularly the literature that developed during the 1980s on nonprice aspects of credit restriction and the importance of such factors in severe economic downturns.[9] From the onset of this financial crisis, we were especially alert to the possibility that limits on the availability of credit to financial

[9] See, for example, Ben S. Bernanke (1983), "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression," *The American Economic Review*, vol. 73 (3), pp. 257-76; and Dwight Jaffee and Joseph Stiglitz (1990), "Credit Rationing," in Benjamin M. Friedman and Frank H. Hahn, eds., *Handbook of Monetary Economics*, vol. 2 (Amsterdam: North-Holland/Elsevier), pp. 837-88.

Moreover, that work has tended to concentrate on the intersection between intermediaries and nonfinancial borrowers. A characteristic of the recent crisis, however, was the critical role of interactions within the financial sector. Although rising defaults on subprime mortgages caused the initial turbulence in financial markets, roadblocks to the flow of credit within the financial sector from heightened uncertainty, increases in the asymmetry of information, and questions about the alignment of incentives helped turn a conventional credit event into a full-blown crisis. Recent research has begun to augment core monetary models with heterogeneous agents, multiple interest rates, and risky lending, but even so, it has become obvious that research on the importance of intermediation and supply constraints on credit provision and thus on spending has lagged significantly.[14] An encouraging sign in this regard is the large number of recent studies that add the banking sector and credit creation to standard monetary policy models.[15] Some of these studies emphasize bank capital as a constraint on financial intermediation, while other studies allow for heterogeneity among banks and thereby interbank borrowing and lending.[16] Future research is likely to feature a proliferation of

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Changed?" *Federal Reserve Bulletin,* vol. 76 (12), pp. 985-1008; and David Reifschneider, Robert Tetlow, and John C. Williams (1999), "Aggregate Disturbances, Monetary Policy and the Macroeconomy: The FRB/US Perspective," *Federal Reserve Bulletin*, vol. 85 (1), pp. 1-19, www.federalreserve.gov/pubs/bulletin/1999/0199lead.pdf.

[14] See, for example, Vasco Cúrdia and Michael Woodford (2009), "Credit Frictions and Optimal Monetary Policy," manuscript, Columbia University, May.

[15] See, for example, Marvin Goodfriend and Bennett T. McCallum (2007), "Banking and Interest Rates in Monetary Policy Analysis: A Quantitative Exploration," *Journal of Monetary Economics*, vol. 54 (5), pp. 1480-1507; Matthew Canzoneri, Robert Cumby, Behzad Diba, and J. David López-Salido (2008), "Monetary Aggregates and Liquidity in a Neo-Wicksellian Framework," *Journal of Money, Credit and Banking*, vol. 40 (8), pp. 1667-98; and Lawrence J. Christiano, Roberto Motto, and Massimo Rostagno (2009), "Financial Factors in Economic Fluctuations," paper presented at "Financial Markets and Monetary Policy," a conference sponsored by the Federal Reserve Board and the *Journal of Money, Credit and Banking*, Washington, June 4-5, www.federalreserve.gov/events/conferences/fmmp2009/papers/Christiano-Motto-Rostagno.pdf.

[16] For examples of studies that emphasize bank capital as a constraint on financial intermediation, see Césaire A. Meh and Kevin Moran (2008), "The Role of Bank Capital in the Propagation of Shocks," Bank of Canada Working Paper 2008-36 (Ottawa, Ontario, Canada: Bank of Canada, October),

among those movements, credit supply, and economic activity were not well captured by the models used at most central banks.[17]

Our limited knowledge of the determinants of asset prices and their effects on credit has made it more challenging to respond to the crisis and explain our actions to the public. We have had to relax our standard assumptions that financial assets are highly substitutable, and that their rates of return can be readily arbitraged. For example, the degree to which assets of different types and maturities are imperfect substitutes is central to understanding the large-scale asset purchase, or LSAP, program of the Federal Reserve. Our purchases of longer-term Treasury, agency, and agency-guaranteed mortgage-backed securities were undertaken to support aggregate demand. These actions were designed to lower mortgage and other interest rates by exerting downward pressure on yields on assets that are only imperfectly substitutable for very short-term assets, and whose substitutability for those very short-term assets likely has decreased in the crisis period. In addition, discussions of the effects of the buildup in reserves at the Federal Reserve and other central banks often emphasize the imperfect substitutability of reserves for other bank assets, even when those reserves are remunerated at something like a market interest rate. More generally, while most of the literature on the effects of monetary policy assumes that the federal funds rate is the single relevant tool for monetary policy, the financial crisis has shown that a wide array of policy measures, acting on the prices of different assets, may be needed in extreme circumstances. The

[17] See Frederic S. Mishkin (2008), "Monetary Policy Flexibility, Risk Management, and Financial Disruptions," speech delivered at the Federal Reserve Bank of New York, New York, January 11, www.federalreserve.gov/newsevents/speech/mishkin20080111a.htm.

models to take much better account of nonlinearities and tail events, which played such a prominent role in the rapid deterioration of the global economy last year. The new agenda will require letting go of a number of the simplifications and assumptions that have made our models tractable and delving into literatures related to--but not necessarily considered traditional--monetary economics. But the developments of the past two years have highlighted both the strengths and weaknesses of the previous research agenda. Policymakers will be making judgments based on what we think we have learned in that time. We need your work to organize our thoughts and guide our judgments about the lessons from this experience. The *Handbook of Monetary Economics* has played a critical role in this regard in the past, and I am confident that it will continue to do so in the future.