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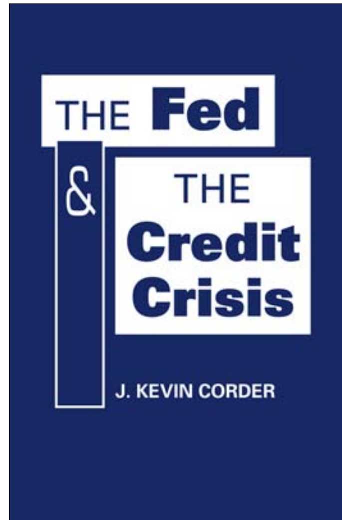
The Fed and the Credit Crisis

J. Kevin Corder



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1

How Will the Credit Crisis Transform the Fed?

The United States and the global economy experienced unprecedented disruption in capital markets and real economic activity in 2008. A number of banks and large complex institutions failed, notably the investment banking firm Lehman Brothers and insurance giant AIG. Policymakers and regulators were surprised by the pace and breadth of the financial market crisis that led to these outcomes. The response was also a staggering shock: the US Congress authorized the extension of nearly $1 trillion in credit to financial institutions to mitigate the effects of the failures. The crisis originated in the rapid deterioration of the market for asset-backed securities and credit derivatives tied to subprime home loans. The Federal Reserve System (the Fed) was compelled to take a number of steps to contain the crisis as the subprime market disruption spread to other asset-backed securities and across the financial system—from hedge funds to commercial and investment banks. How did the Fed respond to the crisis? What are the implications of these actions for Fed performance in the future?

Crisis, Critical Junctures, and Policy Learning

The general problem of crisis, disruption, and learning by government is the focus of a broad political science literature that grapples with the evolution of political institutions and public policy. At the core of this literature is the idea that public policy changes reflect a form of social learning. Rooted in work by Hugh Heclo, the intuition is that governments, particularly public sector experts, face tremendous uncertainty as

they confront technically complex and challenging policy choices (Heclo 1974). Governments puzzle over how to respond to failures and adapt to new problems. Hall (1993) concludes that this form of learning is often relatively uneventful—involving modest changes in policy instruments or tools, subject to little media attention or political scrutiny. But, rarely, experts are confronted with such a radical failure of existing tools that wholesale changes (a paradigm shift) are required. These changes are disruptive, involve a host of diverse actors, and capture the attention and interest of the media and the broader public. Specific work on recent government responses to disasters offers similar expectations: disasters highlight the urgency of action for a broad set of actors and bring about positive opportunities for policy change (Birkland 1997). Some assessments of this process are pessimistic. Pierson (2004), for instance, argues that "complexity of context" and "limits of human cognition" conspire to make adjustment or learning unlikely, even in the face of policy failures. The literature on crisis response embraces elements of the competing optimistic and pessimistic views on agency learning (Boin et al. 2005).

The 2008 credit crisis has the potential to be the type of event that produces sweeping change: public sector experts, elected officials, and the public are confronted with fundamental choices about how the financial sector of the economy will be supported and regulated in the future. At the center of this debate—in areas ranging from consumer protection, to innovations in structured finance, to regulation of hedge funds, to bailouts and loans for large firms—is the Federal Reserve System. The Fed's response to the crisis—and the ways that the Fed is shaped by lawmakers' response to the crisis—will determine whether the existing framework for regulation of financial markets and institutions will be adapted in new ways or subjected to wholesale revision.

Some of the implications of the credit crisis for Fed operating practice are already clear. Beginning in the fall of 2008 the Fed created a dozen new lending programs to extend credit to a wide range of potential borrowers. At the same time, a variety of Washington, DC, actors anticipated sweeping reform of the regulatory and supervisory responsibilities of the Fed and other bank regulators. Specifically, the Fed is likely to acquire new authority that will include some level of supervision of the business of investment banking and perhaps the activities of large hedge funds. At the same time that a new and broader role is envisioned for the Fed, there has been a shift away from the extraordinary deference that Fed decisionmakers enjoyed prior to the crisis—particularly during the tenure of Chairman Alan Greenspan. Elected officials, Wall Street elites, the public, and the

press questioned the capacity of Fed leaders to manage financial markets and the real economy. Members of Congress supported a sweeping audit of Fed organization and governance structures at the same time that the Fed was given new powers. Several 2012 Republican presidential hopefuls were highly critical of Fed leadership for actions before and after the crisis. This broad and intense scrutiny of policy choices is a hallmark of disruptive policy change; existing instruments and arrangements proved grossly insufficient to contain and mitigate financial market problems.

The Fed has clearly been challenged by the crisis—experimenting with new tools for providing capital to credit markets, letting some institutions fail while supporting others, and reluctantly reinvigorating consumer protection measures. Leaders at the Fed have confronted this challenge directly—working closely with the Treasury Department to coordinate policy responses, communicating with members of Congress about the scope and intent of Fed actions, and articulating an "exit strategy" to wind down credit and lending facilities and return to the use of conventional monetary policy instruments as the crisis eases (Bernanke 2009b). But the return to convention and normalcy may itself be problematic. Lawmakers and other actors will scrutinize the effects and implications of the new lending facilities and extraordinary expansion of the Fed's powers. New functions related to financial stability and consumer protection innovations imply long-term changes in the mission of the Fed and the network of actors with a stake in Fed choices. The experience of other agencies during periods of stress and crisis suggests, not surprisingly, that the Fed at the end of the credit crisis may be a much different agency than it was when the crisis emerged.

The Fed's response to the credit crisis was anchored and constrained by decades of operating practice that reinforced two key ideas: first, that the principal threat to US economic stability is inflation and, second, that financial institutions are best subjected to arms' length and unobtrusive regulation. The credit crisis challenged both of these ideas, and elected officials and the public are evaluating the capacity of the Fed to adapt tools and instruments that predated the crisis to the new problem of financial market instability. After reviewing the origins of the crisis in the housing market and the financial sector, this chapter maps out the broad policy options available to and specific choices made by Fed leadership before and during the crisis. I then outline the distinct challenges faced by the Fed as the crisis ends: new aspects of the Fed's mission, new actors with a stake in Fed policy choices, and the need for new forms of expertise (human capital, technology, and ideas).

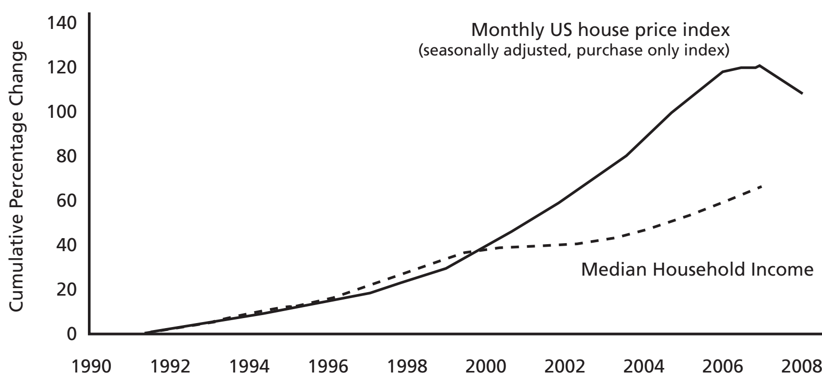
Origins of the Credit Crisis

The Housing Bubble and Subprime Lending

The root cause of the credit crisis is a prolonged (and, in hindsight, unsustainable) increase in the real selling price of single-family homes. Throughout the 1990s, home prices and household income increased at roughly the same rate. But, after 2000, appreciation of home values accelerated at a rate substantially higher than household incomes. The cumulative increase in incomes and home prices is summarized in Figure 1.1. By 2007 the median value of a single-family home in the United States had appreciated nearly 120 percent from 1991, while incomes increased by only 60 percent. The size of the disparity between income and home prices varied substantially by region—with the largest price increases on the West Coast (160 percent) and smaller increases in the Rust Belt states (95 percent).

While a number of skeptics (notably economist Robert Shiller) predicted that home prices would experience a major downward correction, the amount of the decline and the broad impact of the decline on financial markets was largely unanticipated (see Shiller 2008b). As home prices began to decline in 2008, many potential sellers were faced with the stark reality that the value of their outstanding home mortgage and equity lines exceeded the value of their homes. The result was a cascade of foreclosures that triggered further declines in home values, more foreclosures, and a prolonged downward decline in home prices.

Figure 1.1 Increases in Home Prices and Household Incomes Since 1991



Sources: Office of Federal Housing Enterprise Oversight, US Census.

For some, the culpability of the Fed for the credit crisis begins in the absence of a timely response to the housing bubble before 2006. The Fed could have increased the key interest rate under Fed control—the federal funds rate—to reduce upward pressure on home prices in 2003 or 2004. But, at the time, the federal government was engaged in a sustained campaign to broaden homeownership by extending credit to low-income and minority borrowers. Fed actions to counteract the housing bubble would have placed the Fed squarely at odds with this policy objective.

As part of the effort to broaden home ownership, banks and other lenders substantially increased the volume of lending to risky borrowers between 2000 and 2005. The volume of loans to borrowers with weak credit, unreliable income, or poor loan-to-value ratios (a combination of what are known as subprime and alt-A borrowers) increased from about $100 billion in 2000 to over $600 billion in 2005 (Inside Mortgage Finance 2011). Problems related to the subprime mortgage market were visible from a number of sources before the major media outlets began devoting attention to the story in the summer of 2007. Decisionmakers at the Fed, notably Edward Gramlich, warned of predatory lending in the subprime market as early as 2000. The Government Accountability Office (GAO) warned in 2004 that the rapidly expanding supply of capital to finance home loans was exacerbating the decline of mortgage lending standards (see Government Accountability Office 2004). The Fed and other federal regulators chose to ignore these problems.

Innovations in Finance and Financial Markets

Innovations in the operation of the financial markets—the marketing and exchange of complex financial instruments—also precipitated the credit crisis. Residential mortgage-backed securities (MBS) are financial instruments that bundle and sell the stream of principal and interest tied to a large number of residential home loans. The purchase of home loans and the creation of MBS are together known as "securitization." MBS can be engineered (or "tranched") in ways that permit risk-taking investors to purchase high-yield, high-risk mortgage income streams. The origin of these instruments is fairly benign. Starting in 1968 the federal government permitted firms to pool federally guaranteed mortgages and issue the debt with a guarantee from the Government National Mortgage Association (Ginnie Mae). Successful expansion of this secondary market for mortgages led Congress to later authorize two government-sponsored enterprises (GSEs) to pool privately issued mortgages not backed by a federal guarantee: the Federal National Mortgage Association (Fannie

Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac). Securitization of mortgage debt has a number of desirable features: potential investors are exposed to a small level of risk because the pool of mortgages is large and diverse, capital can be directed across regions of the country so that the costs of borrowing are relatively uniform, and the total volume of capital available to finance home purchases can be increased. The housing GSEs entered the secondary market on a large scale in the 1980s, and the securities issued by the housing GSEs transformed the mortgage market, expanding the pool of private capital available to finance the purchases of homes.

Until the early 1990s the housing GSEs issued most if not all MBS. Two developments fundamentally changed the market for MBS. First, MBS issued by private companies ("private-label MBS") grew at an astounding rate—from under $20 billion in 1989 to over $1.1 trillion in 2005 (Inside Mortgage Finance 2011). Chapter 3 outlines several specific and related policy goals that led decisionmakers in the Fed to embrace this growth in private securitization: federal efforts to increase levels of home ownership, a desire to slow the growth of the housing GSEs, and insulation of the homebuilding sector from monetary policy restraint. All of these factors combined to encourage Fed leadership to promote the growing—and apparently thriving—private-label market.

At the same time that private-label MBS began to expand, a second development triggered more investment specifically in subprime MBS. Innovations in structured finance led to a proliferation of new financial instruments. Investment banks created financial products that *resecuritized* existing MBS—packaging a bundle of private-label MBS into asset-backed security collateralized debt obligations (ABS CDO). The risky tranches of subprime MBS were particularly attractive for this type of resecuritization. Demand for ABS CDO was so strong that commercial and investment banks engineered entirely new types of investments—using a particular type of derivative—that replicated the performance of traditional cash-value ABS CDO. These new synthetic debt instruments were popular investments, but investor and industry experience with the performance of these securities was limited. The real estate finance industry—specifically the Mortgage Bankers Association—recognized in 2006 that the rapidly expanding market for synthetic ABS CDO created new and poorly understood risks for financial markets (Council to Shape Change 2006). The Fed and other bank regulators advocated minimal regulation of credit market derivatives and resisted proposals from other federal actors to restrict the growth and proliferation of these instruments

(for an early warning, see Government Accountability Office, 1994). The technical details of these securities, the rationale for the Fed's regulatory approach, and the implications of these choices are explored in Chapters 4 and 5, but the general lesson is that public and private sector actors did not understand the magnitude of the risks introduced by resecuritization and credit market derivatives.

The Credit Market Meltdown

> Why should I care what happens to overconfident hedge funds dabbling in dark corners of the over-engineered derivatives market created in collusion with the overrated credit-rating companies?" I hear you cry. "The Dow Jones Industrial Average is at 14,000, the doom-mongers predicting recession are hushed, and my new Apple Inc. iPhone is just peachy." (Gilbert 2007)

Financial market journalists began to discuss the prospects for credit market disruptions in the summer of 2007. Media scrutiny focused on the failure of two large hedge funds operated by the investment bank Bear Stearns. According to a 2008 Securities and Exchange Commission (SEC) complaint against the managers of the funds, both were incorporated in the Cayman Islands and, as a consequence, were not registered with the SEC in any way. The SEC charged the fund managers with a host of offenses—misrepresenting the proportion of the funds' investment in subprime ABS CDO, misrepresenting the value of funds to current shareholders, and redeeming personal shares while recruiting new investors and falsely representing the state of the funds. Fund investors lost nearly $1.8 billion. Managers of the Bear Stearns funds were also charged with fraud by the SEC; investors were told that the funds had roughly 7 percent of subprime assets, but the stake was closer to 60 percent (Securities and Exchange Commission 2008a). The criminal complaints were dismissed in late 2009, but the SEC maintained a civil case against the managers.

The failure of the Bear Stearns hedge funds could have been simply one more iconic story of fraud, greed, and hubris—with a corollary story about the failure of apathetic or disinterested federal regulators and a highly publicized investigation with compelling tales of investors who suffered large losses—much like the coverage and fallout from the collapse of the investment firm that Bernard Madoff operated. The major difference between the Bear Stearns hedge fund and the Madoff Ponzi scheme was that the Bear hedge funds were highly leveraged—

with capital from the parent company Bear Stearns and other large creditors. Cash losses attributed to Madoff, from a sprawling network of investors, totaled to about $20 billion over two decades (Reuters 2011). On top of roughly $2 billion contributed by investors, the Bear Stearns hedge funds relied on $14 billion in borrowing concentrated in a small network of major creditors, principally investment banks. One of the Bear funds was launched in October 2003, and the second, riskier fund in August 2006—so the pace and scale of the Bear Stearns losses, and the impact on major creditors, was large even compared to the Madoff fraud (*Business Week* 2007).

It is clear from media statements and government responses in the summer of 2007 that key federal policymakers failed to understand how rapidly and broadly the financial market disruption would spread. As late as May 2007, Fed leadership was relatively unconcerned about the subprime mortgage market:

> All that said, given the fundamental factors in place that should support the demand for housing, we believe the effect of the troubles in the subprime sector on the broader housing market will likely be limited, and we do not expect significant spillovers from the subprime market to the rest of the economy or to the financial system. (Bernanke 2007b)

Fed regulators based in New York were also unprepared for the rapid deterioration of US credit markets and financial institutions. In a 2006 address in Hong Kong, the president of the Federal Reserve Bank of New York ("New York Fed"), Timothy Geithner, described the several innovations in regulation, supervision, and bank practices that enhanced the "resiliency" of the US economy after 1998. Geithner identified improvements in risk management within financial institutions, the high levels of capitalization in US financial institutions, and the salutary effects of private leveraged funds as sources of credit insurance for regulated institutions—all in all, "more efficient distribution and more effective management of risk" (Geithner 2006). From this perspective it would almost be unimaginable that, within two years of these remarks, the United States would be on the verge of a systemic financial collapse—and that the largest US financial institutions would fail or be dependent on government financing to survive.

The response of federal regulators to the prospective collapse of three large complex financial institutions—Bear Stearns, Lehman Brothers, and AIG—indicates the uncertain nature of the government's response to the

crisis. In the case of Bear Stearns, the New York Fed intervened to facilitate what at the time seemed to be a spectacularly large and risky transaction—the purchase of Bear Stearns by competitor JPMorgan Chase. The government role in the transaction was to accept or purchase approximately $30 billion in asset-backed securities to be held by a newly created public-private entity under the control of the New York Fed, Maiden Lane LLC. In the case of Lehman Brothers, a firm of similar complexity facing bankruptcy only months later, the New York Fed and Treasury Department officials elected not to intervene, and the firm failed in mid-September. The immediate aftermath of the failure was a precipitous increase in bank-to-bank lending costs, an immediate contraction in credit and capital for business and consumers, and large disruptions in the operation of money market mutual funds. The next business day, the Fed opened an $85 billion credit line for insurer AIG. Within two weeks it was clear that broader action was required. After a tumultuous debate the US Congress acted to authorize the Treasury to lend $750 billion directly to distressed institutions under the Troubled Asset Relief Program (TARP). The debate over the TARP program and revelations about the gravity of the crisis stunned the American public—triggering a steep drop in consumer confidence. The Conference Board Consumer Confidence Index fell from an already weak 61.4 to a then-record low of 38.8, ushering in a deep recession.

What Options Did the Fed Have?

The failure of Fed leadership to anticipate and respond quickly to the credit crisis raises a number of questions about the Fed's regulatory authority and tools for managing risks in individual banks and the broader financial sector of the economy. The Fed had at least three opportunities to preempt the financial market disruption: by regulating the terms of mortgage origination, imposing higher capital requirements for new structured finance products, or limiting exposure of regulated retail banking institutions to risks from hedge funds and investment banks. The Fed made a series of policy choices that failed to prevent the spillover of financial market disruption to the real economy. Current reform efforts and lending programs are designed to reverse these failures. What explains the failure of the Fed to identify and manage the crisis at the outset? What actions did the Fed ultimately take? How will these actions affect the mission and performance of the Fed? The remainder of the book is organized around five distinct sets of policies, ranging from mortgage origination to

lending to distressed firms. The questions are introduced below, and subsequent chapters develop the answers.

Mortgage Origination

Problems in the subprime mortgage business were well known to Fed leaders, community advocates, and housing policy experts. Fraud, abuse, and poor risk management at the point of loan origination laid the groundwork for the broader crisis. Unqualified borrowers ended up with loans they could not afford. The Fed and other federal bank regulators resisted federal and state-level efforts to supervise the origination of subprime and alt-A (“no doc”) loans. Why did the Fed fail to regulate the terms of mortgage origination prior to 2008? Will the creation of the Consumer Finance Protection Bureau remedy this problem?

Securitization and Structured Finance

The proliferation of subprime mortgage-backed securities (and related ABS CDO resecuritizations) overwhelmed credit rating agencies and federal regulators. The growth of the private-label MBS was rapid, and the collapse of that market in 2009 was equally quick. Why did the Fed choose not to slow the growth of the market for private-label MBS? As ABS CDO began to populate the portfolios of regulated and unregulated financial institutions (and a variety of institutional and individual investors), why did the Fed choose not to impose capital requirements that would require banks to adequately manage the risks associated with these new instruments? How will the global regulatory framework—the Basel Accords—confront the regulatory challenges that these new instruments pose?

Systemic Risk

The Fed was aware of the systemic risks associated with large, highly leveraged financial entities engaged in the purchase and sale of derivatives—specifically from experience based on the 1998 failure of a large hedge fund, Long Term Capital Management. The Fed had several opportunities to address regulatory shortcomings related to investment banks and hedge funds and the proliferation of credit derivatives. Why were the Fed and other regulators reluctant to extend prudential regulation to investment banks and highly leveraged hedge funds, or to specifically restrain the growth of the market for credit derivatives? Will the new Financial

Stability Oversight Council enhance or diminish the Fed's ability and willingness to manage the problem of systemic risk?

Lending and Credit Facilities

Confronted with the severe disruption in financial markets after the failure of Lehman Brothers, the Fed created a number of new programs. The expanding Fed balance sheet—representing extensions of credit totaling to over $1 trillion in one year—clearly alleviated some symptoms of the credit crisis. Chapter 6 reviews the scope and structure of these responses. Have these responses addressed the underlying structural problems that generated the crisis? What technical and political challenges emerged as the Fed implemented these lending facilities—particularly tools that introduced new hybrid (public-private) financial arrangements?

Monetary Policy

Conspicuously absent from the policy choices above are questions about monetary policy and the federal funds rate. Should the Fed have increased interest rates in response to the housing bubble? This question is likely to receive substantial attention from economists, and the verdict is still out on the Fed's culpability. Some observers place the blame for the run-up in housing prices and the subsequent financial crisis directly on Fed monetary policy choices. Morris (2008), for instance, describes the "wall of money" that Fed monetary policy created. Under Chairman Alan Greenspan the Fed maintained a prolonged period of very low interest rates in the face of mounting evidence of dramatic increases in asset prices. In contrast, Fed leaders portray the crisis as a function of factors outside the realm of traditional monetary policy. Chairman Bernanke specifically concluded that "the most important source of lower initial monthly payments, which allowed more people to enter the housing market and bid for properties, was not the general level of short-term interest rates, but the increasing use of more exotic types of mortgages and the associated decline of underwriting standards" (Bernanke 2010). There is no doubt that there will be reinvigorated conflict over monetary policy choices going forward—conflict that disturbs what had been a very orderly (and even somewhat boring) policy domain. Even within the Fed, disagreements emerged over the appropriate duration and size of extraordinary Fed intervention. Kansas City Fed President Thomas Hoenig dissented from Federal Open Market

Committee statements at eight consecutive meetings in 2010, sparking speculation about the impact of Fed crisis responses on the long-term inflation rate.

The Reform Agenda

The policy challenges outlined above suggest that the United States will need a combination of housing finance reform and financial regulatory reform to respond to the crisis. The housing finance choices—regulation of mortgage origination and mortgage securitization—are fairly narrow decisions specific to the mortgage market. The Fed will revisit choices to support the expansion of the subprime lending market and to encourage private-label securitization in the 1990s, actions taken well before the crisis emerged. The Obama administration revealed key elements of the broader federal housing finance strategy in a report to Congress in February 2011 (Treasury, Department of, and the US Department of Housing and Urban Development 2011). The financial regulatory choices—about bank supervision and systemic risks—introduce fundamental questions about the role of the Fed in financial markets. Precrisis choices about prudential regulation—decisions about confining regulatory scrutiny mainly to retail or depository institutions and decisions about treatment of the market for credit derivatives—reflect a long-term commitment by the Fed to encourage and facilitate financial innovation. In retrospect, these choices inspired misplaced confidence in the technical ability and willingness of major financial institutions to manage risk. The direct and extraordinary intervention by the Fed to support large and distressed firms opens up new questions about the appropriate role of the Fed as both regulator and lender of last resort when financial markets are disrupted. The comprehensive financial regulatory reform passed by the US Congress, the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank"), impacts the Fed in several ways. The focus in the chapters that follow is on both the shape of the Fed's response to the crisis and the impact of the postcrisis reforms in housing finance and financial regulation—the supervisory authority, lending programs, and other new functions that reveal how the Fed has adapted in the face of failure.

Elements of Adaptation: Mission, Expertise, and Networks

A decade or more of historically informed work on complex policy change (in political science, loosely labeled "historical institutionalism")

has highlighted the way that political choices and agency practices of the past inform or constrain contemporary policy responses. Major developments in US politics—like the expansion of the welfare state—have been the focus of work that considers the role of actors, ideas, and institutions in the sometimes disorderly and unpredictable path of public sector innovation (Skocpol 1992; Weir 2006). One persistent concept that emerges across a number of works in this tradition is *layering*—the idea that existing institutions are adapted to take on new and unforeseen tasks or challenges (Schickler 2001; Thelen 2004). Alternatively, Hacker (2004) describes a particular form of adaptation—*conversion*—to describe situations in which formal rules or laws remain fixed but internal agency practices are updated to manage new problems. The implication of both types of adaptation is that responses to public policy problems will rarely be innovative. Responses will reflect existing norms, resources, and routines. Rose (1990) poses the problem as "inheritance before choice"—elected officials approach a crisis with a set of agencies, actors, and tools at the outset.

A few recent profound tragedies—the September 11, 2001, terrorist attack (9/11) and Hurricane Katrina—triggered renewed interest in the ways that state actors respond to crisis. Boinet et al. (2005) sketch out a framework for tracing the actions of government—from "making sense" of events as the crisis unfolds to, ultimately, the complex process of learning from crisis. The process of learning or adaptation proves to be highly contentious. Various actors seek to use the lessons of the crisis to advance particular solutions or policy instruments, to define a new era or signal the return to normalcy, and to balance demands for sweeping reform and more pragmatic stewardship of existing expertise and instruments to avert future crises. Birkland (2006) also pieces together the links between disasters and learning. Disasters and related media attention mobilize groups with a stake in change and, at the same time, draw attention to particular ideas that may inform solutions or reform. Carpenter and Sin (2007) explore how agency leaders can shape our understanding of tragedy and loss in ways that may translate a crisis into a policy change. That translation—from crisis to action—is not automatic or natural, but requires an actor—an entrepreneur—to construct a story that links consequences to actions: a "coherent and alluring narrative that supports particular policy change" (Carpenter and Sin 2007, 179). Stone (1997) reaches similar conclusions about the general usefulness of "policy stories" for promoting particular policy choices. Taken together, the historical institutional literature and the emerging work on crisis management help us to understand what is at stake as we observe agencies in the face of stress and crisis.

When does a crisis produce meaningful policy change? What accounts for successful adaptation or innovation?

The extensive literature on organizational change and organizational learning in political science and public administration suggests that three particular questions confront agencies that experience failure and face the imperative to adapt: How is the agency mission altered by the crisis? How does the crisis mobilize new interests? How does the agency integrate new skills or technology into agency routines and practice? Existing work—spanning a variety of agencies and policy domains—gives some indication of the scale of the challenges facing leadership in the Fed.

Mission

The types of challenge facing the Fed are not entirely novel. Examples of agency responses to crisis provide alarming findings as well as reasons for optimism. As agencies take on new functions in response to a crisis, these new tasks may undermine performance in traditional areas of agency competence or liberate agency personnel to focus on new areas with new tools.

Khademian (1995a) examines the financial and management challenges that confronted the Federal Deposit Insurance Corporation (FDIC) in the wake of the increasing number of bank failures in the United States in the 1980s. The FDIC relied on a fairly clear bottom line—the solvency of the bank insurance fund—to map out agency responses and provide evidence to external constituents (specifically members of Congress) that the agency was successfully adapting. By contrast, Derthick (1990) describes the stresses experienced by the Social Security Administration in the implementation of Supplemental Security Income in the early 1970s. The new program was fundamentally at odds with key aspects of agency norms and practice, and the result was widespread delays, unforeseen technical challenges, and an erosion of agency performance in existing well-established programs. Derthick concludes that elected officials may see capable agencies as “infinitely pliable” and neglect how new functions may complicate traditional or core agency functions. Reviewing the way that federal banking regulators responded to new consumer protection statutes, Khademian (1995b) highlights the ways that missions can be a constraint on organizations—slowing or distorting the process of adapting to new conditions or mandates.

Roberts (2006) describes the varied performance of the Federal Emergency Management Administration (FEMA). Burdened with a reputation for lackluster performance for nearly twenty years, the agency

was revitalized in the Clinton administration under the leadership of James Lee Witt. When FEMA was transferred into the Department of Homeland Security after 9/11, the mission of disaster preparedness—a hallmark of the revitalized FEMA—was subordinated to the new threat of terrorism (Birkland and Waterman 2008). The catastrophic failure of the agency to adequately and quickly respond to Hurricane Katrina was both a human disaster and a blow to the agency's reputation. In the face of crisis and change, some agencies thrive while other agencies struggle. In all cases, agencies with multiple and competing missions are confronted with unexpected challenges, shortage of key personnel and resources, and unanticipated consequences of deliberate choices.

There are examples of agency transformation that suggest change can be successful. Mazmanian and Nienaber (1979) describe a comprehensive reorientation within the Corps of Engineers to incorporate values of environmental preservation. Changes in the corps reached deep into internal agency practices and procedures. Hoffmann and Cassell (2005) describe this dynamic within the Federal Home Loan Bank (FHLB) system—to expand the mission of the FHLB to include preservation of and support for small banks. They characterize the emergence of new components of the agency's mission as part of a "social problem-solving process" (Hoffman and Cassell 2005, 701).

Constituents or Networks

Existing work on the financial sector suggests that changes in the Fed's network of supervised institutions could have profound effects on the orientation or policy choices of Fed actors. Hoffmann and Cassell (2005) describe how changes in the membership of the FHLB directed the attention of FHLB policymakers to different types of policy problems. Specifically, a combination of changes initiated by Congress in 1999 coupled with FHLB changes to membership rules increased the number of small bank members. FHLB policymakers developed new expertise to provide assistance to these small bank members, shifting the principal mission of the FHLB from housing finance to community banking, particularly the challenges facing and tools for improving small rural banks. The obvious implication for the Fed is that as the number and size of regulated bank holding companies grows, the Fed will adapt the supervisory function to serve and monitor these large constituent firms.

Before 1980, Fed supervisory authority was directed to state-chartered member banks. The Office of the Comptroller of the Currency (OCC) supervised the largest and most powerful federally chartered banks. As

financial institutions consolidated in the 1980s and 1990s and many large banks took on the status of bank holding companies, the Fed took on some types of supervisory responsibilities for large banks. The 2008 credit crisis moved the last remaining investment banks under the supervision of the Fed, leaving the Fed with some authority to supervise all of the nation's large and complex financial institutions. The enormous economic and political power of this network of financial institutions has been directly implicated in the origins of the financial crisis (Johnson and Kwak 2010).

The financial crisis highlighted both the formal links that bind together financial institutions and the wide-ranging network of federal and state agencies that oversee these institutions. Although the contemporary idea of networks is generally applied to formal arrangements partnering nonprofit and public agencies, the ties between public agencies and their private constituents has been a central concern of academic and applied work on public organizations (Landis 1960; Selznick 1949; Bernstein 1955). Described as "cooptation," "industry orientation," or the "institutionalization of favoritism," the basic premise is that regulators must caution against privileging the powerful private actors they interact with. O'Toole and Meier (2004) offer a compelling empirical treatment of the network problem, demonstrating how the frequency of interaction with various types of actors affected the behavior of local school executives. The general result is that the most privileged actors in the networks gain a disproportionate share of the benefits produced by network activity.

Networks are also an important part of our understanding of policy change. Hall (1993) argues that paradigmatic change involves a broader network of actors than incremental response or adaptation. Birkland (2006) claims that disasters highlight policy failures for a broad audience; this is one important source of policy change. Elaborating an "advocacy coalition framework," Sabatier (1993) suggests that long-term policy change—and the process of learning—is best understood as a contest between a wide range of more or less attentive government, public, and private actors. A policy failure or crisis challenges the dominant coalition and can permit an opportunity for new interests or new ideas to influence policy choices. Weir (1992) is less optimistic, concluding that networks in US politics narrow the "range of ideas likely to receive a hearing" as alternatives are considered. In any case, changes in the network of actors with a stake in agency choices will clearly produce pressure on agencies to shift priorities, revisit policy choices, and accommodate new constituents.

The financial crisis confronts the Fed with network challenges. The transition of the largest investment banks to the legal status of bank holding companies places these firms under the supervision of the Fed, continuing a long-term shift of Fed supervisory focus from a geographically widespread network of small state-chartered banks to a geographically concentrated small number of very large financial institutions. This transition disturbs or alters the balance of power between the regional Reserve Banks, concentrating power in the hands of the Federal Reserve Bank of New York, the bank with the closest ties—spatially and ideologically—to Wall Street. Management of the crisis also highlighted the power and impact of the Federal Reserve Bank of New York, as the bank implemented many of the lending and credit facilities instrumental to the Fed response and negotiated transactions related to AIG and Bear Stearns. The Fed's new role as market stability regulator, institutionalized in the new Financial Stability Oversight Council, also carries network implication as the Fed establishes supervisory relationships with large hedge funds, insurance companies, money market mutual funds, and any other element of the financial sector that could represent a "systemic" risk.

Expertise (Skills and Technology)

How do agencies acquire the expertise to solve problems and, equally important, the discretion to apply that expertise? Carpenter (2001) highlights the way that early-twentieth-century bureaucratic entrepreneurs responded to demands for government solutions to a variety of political and economic challenges. Public sector experts identified solutions to problems that elected officials were under pressure to address, and elected officials gave these bureaucrats formal authority and power to put these solutions in place. This perspective gives us compelling contemporary insights as well. Roberts (2006) traces the precarious attempts of leaders in FEMA to link agency reputation to expertise rooted in the emergency management profession. In a similar way (and more successfully) the Fed has carefully cultivated autonomy and expertise for core monetary policy functions related to price stability and economic growth. The Fed has unique structural features that free Fed leadership from political constraints—a limited scope of political appointments and sources of revenue that liberate the agency from the congressional budget process. These political choices are reversible and contingent on the ability of Fed to deliver economic growth (and stability). The credit crisis threatens Fed autonomy if Fed leaders are unable to put the right

human capital and information technology in place to learn how to anticipate and mitigate financial crises. Boin et al. (2005) label this particular task "skill-based learning," a form of adaptation that becomes critical when crises reveal a deficit of information or technology.

The human capital and information technology resources within agencies are key components of the learning process. This insight spans work on multiple agencies in diverse policy domains. Examining the *Columbia* and *Challenger* shuttle losses, Mahler and Casamayou (2009) argue that the outsourcing of critical tasks to contractors degraded the capacity of NASA engineers to recognize and respond to risky practices. Poor communication between contractors and NASA personnel coupled with incentives for contractors to minimize risks led to poor launch choices with tragic consequences. In a blunt assessment, Mahler and Casamayou conclude that "organizational learning was compromised because information needed to identity hazardous conditions and analyze their consequences was misdirected, filtered, misinterpreted, and ignored" (2009, 163). Also focusing on decisionmaking in NASA, Vaughn (1996) describes how specific features of the organization—at the level of small engineering workgroups—led to high levels of risk associated with specific shuttle components, what she labels the "normalization of deviance." Khademian (1995a) describes how the FDIC invested in expertise and training to reduce costs associated with the resolution of failing financial institutions, rather than relying on contractors or vendors. Case studies of disaster response find similar organizational features. One key lesson from the failure of the response to Hurricane Katrina was that emergency managers require training in collaborative management skills to better understand and deploy the unique sets of expertise in particular agencies linked in complex governance networks (see Koliba, Mills, and Zia 2011). In each case, learning hinges on the ability of the members of the organization to both integrate the collection of vital information into routine agency practice and to accommodate "dynamic problem-solving," the incorporation of new information or the search for new interpretations of existing information (see Hoffmann and Cassell 2005).

The Fed clearly needs to take a new approach to supervising banks, monitoring systemwide risks, protecting consumers, and responding to firms in distress, but the public management literature reminds us that the costs of new approaches can be large. Boyne and Meier (2009) find that organizations that "stick" with a stable internal organization weather disruption better than organizations that "twist" by restructuring. These results reflect what is known as the "liability of newness": organi-

zational change destabilizes internal routines and increases uncertainty (both within and outside the agency). In addition to the overt costs of additional staff and investments in technology, new tasks create new challenges in communication with critical stakeholders about the directions and pace of change. These costs increase the chances of organizational failure (Amburgey, Kelly, and Barnett 1993). The Fed faces a diverse set of new responsibilities that will require new staff, technology, and ideas; incorporation of this expertise into Fed operating practice is a crucial part of learning from the crisis.

What Happens to the Fed Now?

The policy tools that the Fed has created to manage the credit crisis are untested and reflect a departure from over fifty years of Fed operating practice. In the early 1950s, the Fed segregated the functions of monetary policy from the debt financing activity of the US Treasury; the "Treasury Accord" is regarded as an administrative and political revolution in the conduct of monetary policy. At that time, Fed Chair William Martin began a successful campaign to depoliticize monetary policy—to move the Fed away from selective credit controls and credit allocation toward the use of narrow short-term intervention in US treasury markets (see Corder 1998). The Fed engaged in more direct capital market intervention under the leadership of Arthur Burns in the 1970s, adopting strategies that led to intense congressional scrutiny of Fed behavior. Under Burns the Fed experienced a tumultuous period in which conservatives (led by Milton Friedman) and progressives (like William Greider) advocated strict oversight or constraints on Fed actions. A combination of factors—the appointment of Paul Volcker, a dramatic (and wrenching) decline in inflation, and a period of financial and economic stability that spanned nearly twenty years—muted most of these critics.

During the tenure of Alan Greenspan, from 1987 to 2006, the Fed enjoyed a high level of autonomy and independence. Fed leaders routinely framed monetary policy choices as fundamentally apolitical, adjusting interest rates to bring about the widely shared goal of stable inflation consistent with long-term economic growth. During this period, Fed decision-makers enjoyed an extraordinary deference from elected officials and adapted central bank practices in ways that inspired confidence in monetary policy choices. In what Alan Blinder labels the "quiet revolution" in monetary policy, Fed leadership responded to demands for transparency

and openness by providing more immediate access to meeting statements and minutes and took other steps to explain and clarify monetary policy choices (Blinder 2004). Many economists credit Alan Greenspan with setting the stage for the robust economic growth that the United States experienced in the 1990s (see, for instance, Blinder and Yellen 2001). Under these circumstances, neither Democrats nor Republicans in Congress advocated rules or constraints that would bring the Fed under more direct representative control.

By 2000 it was inconceivable that any political actor would challenge a sitting Fed chairman or that the Fed would actually fail to solve an economic policy challenge. In a 2004 address Fed Governor Bernanke described the "Great Moderation"—how the global economy had experienced nearly twenty years of progressively more stable macroeconomic outcomes. Bernanke specifically argued that the main explanation for this success was the increasing effectiveness of monetary policy (Bernanke 2004). Looking forward from 2004 it was inconceivable that the US economy and financial markets would approach near collapse in less than five years. Now that financial markets and the real economy have suffered tremendous shocks, confidence in the Fed and deference to Fed decision-makers has diminished if not evaporated entirely. Just as the technical environment for conducting monetary policy is becoming more complex, the political environment is becoming more hostile.

As the immediate crisis in credit markets recedes and elected officials search for ways to prevent the next crisis, the Fed confronts several difficult choices. The challenges are somewhat technical as there are few guidelines for managing a $2 trillion Fed balance sheet, but the challenges are also (and more perniciously) political. The Fed has clearly lost the ability to claim superior competence and foresight in regulation of financial markets; the deference that Chairman Greenspan enjoyed has been replaced by skepticism and even scorn for Chairman Bernanke. The broader span of regulatory control outlined by the Congress in Dodd-Frank brings the largest and most powerful interests in the financial services sector into the regulatory orbit of the Fed. Many of these Wall Street firms have been important advocates of Fed independence, but the Fed faces new pressures to confront and rein in risky practices across the financial sector. Finally, the Fed has made clear that it has the power to pick winners and losers: members of Congress have and will press the Fed to explain why aid was directed to some firms (AIG) but not others (Lehman Brothers) and will attempt to expand the use of auction and lending facilities to direct aid to particular firms (why not lend

to this firm—an automaker, for example—or a struggling municipal government in *my* district?).

The credit crisis and the Fed's initial response disrupted agency practice—and degraded performance—in several ways. Routine operating practices (federal funds rate targeting) were replaced with novel and untested tools (credit and lending facilities). The fairly stable network of traditional depository institutions and bank holding companies that was the core of the Fed's regulatory authority was expanded to include bank holding companies with large investment banking operations. This process culminated with the designation of several large financial institutions (GMAC, Goldman Sachs) as bank holding companies in late 2008. Finally, the public confidence in the Fed's ability to manage the crisis was undermined as the credit crisis impacted the real economy and the Bush administration turned to the secretary of the treasury to provide huge capital infusions to the financial sector under the Troubled Asset Relief Program (TARP). The mere idea that the Fed was incapacitated—that quick action by Congress was immediately necessary to prevent the collapse of financial markets in the fall of 2008—challenged our basic understanding of Fed infallibility cultivated by Alan Greenspan and his predecessors.

In the chapters below, the focus turns to the response of the Fed at each stage of the crisis—the expansion and relatively loose regulation of lending to subprime borrowers, the rapid growth of private-label MBS, changes in the structure of capital requirements applied to financial institutions, the proliferation of hedge funds and other new financial entities, and the rapid expansion of the Fed's lending and credit facilities as the urgency of the crisis became apparent. Answers to questions about the adequacy of the Fed's response to the unfolding crisis obviously invite some scrutiny of Fed history, in order to understand how or why the Fed approached the crisis so delicately in 2007.

I draw on a number of sources to frame the Fed response to the crisis: financial market reporting about the crisis (especially in the early stages), a variety of archival sources (to compare Fed responses to this crisis to earlier periods of economic and political stress), and the public pronouncements of Fed actors addressing the crisis (particularly Chairman Ben Bernanke, then-president of the Federal Reserve Bank of New York Tim Geithner, and Fed board members Donald Kohn, Randall Kroszner, and, later, Daniel Tarullo). The Arthur Burns Papers at the Gerald R. Ford Library were a valuable resource because the Fed faced similar political pressures in the 1970s—to transform regulation, to support housing finance, and to respond to financial market disruptions. Fed

leadership was highly sensitive to the implications of its choices for long-term Fed independence, and the period is also a lesson in how enhanced scrutiny of the Fed can be associated with high and sustained inflation. To understand how the crisis response will impact the Fed, I draw on financial market reporting about financial regulatory reform, Fed leadership statements and actions related to reform, official reports from domestic and federal banking regulators about changes in bank supervision and consumer protection, and industry responses to proposed rules—published comments that transmit industry preferences to implementing agencies.

Chapters 2 and 3 focus on the regulatory and policy choices that apply specifically to housing finance: origination and securitization of mortgages. How will the creation of the Consumer Financial Protection Bureau and 2010 housing finance reform initiatives impact the Fed? Chapters 4 and 5 address innovations in the structure and regulation of the financial sector—the growth of lending activity and credit outside of the traditional banks and the complex regulatory and supervisory choices introduced by innovations in structured finance. How will new regulatory missions—implied by the Financial Stability Oversight Council—and new international rules regarding bank capital and liquidity impact the Fed? Chapter 6 outlines the structure of the credit and lending facilities the Fed created to provide credit to specific firms, the implications of the Fed's purchases of mortgages and commercial paper, and the huge volume of medium-term lending to depository institutions. Chapter 7 revisits the basic questions suggested by the Fed's actions before and during the credit crisis. How do these choices reshape the mission of the Fed? How have new policy choices altered the network of actors with a stake in Fed policy choices? What types of technical challenges do the Fed's choices introduce? How will these challenges impact the core mission of monetary policy and the mandate to pursue price stability?

In short, in what ways has the credit crisis undermined or enhanced the Fed's power and reputation? In one sense, even three years after the crisis, an attempt to answer these questions is premature. The implementation of financial regulatory reform has been slow and contested. The housing market remains extremely fragile. But one aspect of the crisis is clear: the pace and extent of government learning is slow. Any expectation of nimble and fast-paced regulatory responses to crisis has been replaced with the more sober realization that intense conflict and technical uncertainty can obstruct even basic reform and change. In just the type of instance where we might expect disjuncture, disruption, or rapid change, we observe slow, incremental, and deliberate adaptation. These

changes nevertheless have profound implications for the Federal Reserve System. Some implications are already clear: higher levels of scrutiny by elected officials and uncertainty among investors about Fed intentions and future action. More importantly, there is a heightened sense of the tension between a legacy of unobtrusive regulation and deference to Wall Street and the types of reforms that may be necessary to prevent the next financial crisis. The credit crisis compels leaders at the Fed to refine the agency's mission, enlist new types of skills and technology, and negotiate an increasingly complex political environment. Yet, at the same time, Fed leadership must preserve the core monetary policy function that is the heart of the Fed's power and reputation.