The Fed and the Credit Crisis

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The liquidity crisis in U.S. credit markets originated in the rapid deterioration of the market for asset-backed securities and credit derivatives tied to sub-prime home loans. In the spring of 2007 leading regulators and financial market observers concluded that disruptions in the sub-prime market would have minor effects on other credit markets and posed little risk for a system-wide financial crisis (see, for example, Bernanke 2007a). Within one year the Federal Reserve System (the Fed) would be compelled to take extraordinary steps to stem financial contagion as the sub-prime market disruption spread to other asset-backed securities and across the financial system – from hedge funds to commercial banks, investment banks and insurance companies. The Fed's response to the unfolding credit crisis raises a number of questions. Why did the Fed choose not to pursue regulation of unconventional mortgage lending before 2008? What was the Fed's role in the growth of private secondary mortgage market securities? Why did the Fed choose to facilitate the acquisition of investment bank Bear Stearns by JPMorgan Chase? The first and second questions largely raise issues specific to the role of the Fed in the mortgage market. The final question raises much broader issues about the appropriate role of the Fed in preempting and containing financial market crises. The Fed seems poorly suited, given its historical and statutory mission, to either regulate mortgage origination or retard the pace of innovations in securitization and finance. The critical policy choices facing the Fed instead relate to the management or control of financial market crises.

Under what conditions should the Fed place taxpayer money at risk to contain financial crises? What new regulatory functions are implied by this role? Industry and regulator attention was directed to the problem of systemic risk ten years ago with the failure of Long Term Capital Management (LTCM), but lessons from the LTCM failure did not prepare the Fed for the rapid collapse of Bear. The public policy problem created by the failure of investment banks and hedge funds - systemic financial crisis - creates a pair of specific challenges for the Fed. First, the actors with a stake in solutions to problems of systemic risk form a huge and unwieldy international network largely dominated by investment bankers who prefer voluntary and unobtrusive regulation (*a network challenge)*. Second, the core mission of the Fed is made more expansive and somewhat ambiguous with the explicit recognition of the Fed as lender of last resort for the entire financial system. Addressing broad systemic financial market risk is at odds with one of the primary mandates of the Fed - price stability - and could also undermine the Fed's role as safety and soundness regulator for commercial banks (*a mission challenge)*.

After reviewing Fed actions and reform prescriptions to either rein in sub-prime lending or take steps to slow the pace of mortgage securitization, I focus on the rationale and

implications for the actions that Fed ultimately did take – facilitating the acquisition of Bear Stearns by JPMorgan Chase and expanding credit facilities for commercial and investment banks. How did these actions reflect the evolving network of actors with a stake in Fed choices? How will these choices refine or distort the core mission of the Fed? One popular solution offered for the crisis – consolidating regulatory authority under the Fed – sidesteps these questions and draws the Fed away from the core bank supervisory and monetary policy expertise cultivated by agency leaders since the 1950 Federal Reserve-Treasury Accord.

Fed regulation of mortgage origination

The goal of broadening homeownership has been a cornerstone of U.S. housing policy for decades. Bank lenders developed new forms of loans - initially adjustable rate mortgages and later sub-prime loans – to find ways to permit riskier borrowers to purchase a home. The Fed embraced a variety of innovations to improve access to credit for marginal borrowers, specifically low income and minority borrowers. In 2005, Chairman Greenspan discussed the ongoing "constructive innovations" in credit risk evaluation and sub-prime lending:

> "Where once more-marginal applicants would simply have been denied credit, lenders are now able to quite efficiently judge the risk posed by individual applicants and to price that risk appropriately. (Greenspan, 2005a)

Fed leaders were cognizant of the potential for predatory lending in the sub-prime market and considered a number of steps to reduce fraud and abuse (Gramlich, 2000). Under 1994 legislation that expanded the Truth in Lending Act – the Home Ownership and Equity Protection Act or HOEPA - the Fed was charged to give special scrutiny to high cost mortgages originated by any lender. But, as new loan products and alternatives emerged on the market, there was limited supervision of the sub-prime market and active resistance to broader regulation. Federal regulators – especially the Office of the Comptroller of the Currency (OCC) – blocked efforts by state regulators to police mortgage lending (OCC 2004a). Further, a 2007 Supreme Court decision, *Watters v. Wachovia,* repudiated Michigan efforts to regulate the mortgage lending activities of the subsidiary of a national bank (see Miller, 2008).

The reluctance of Fed leadership to aggressively regulate sub-prime mortgage originations is not surprising given the Fed's historical experience with selective credit controls – specifically mortgage lending restraints attempted under Regulation X in the 1950s. Anticipating that the Veterans Administration and the Federal Housing Administration would attempt to expand home ownership among veterans, the Fed elected to discontinue efforts to reduce bank mortgage lending. The Fed recognized that resistance from prospective home owners and home builders would invite Congressional scrutiny of Fed actions and possibly interfere with broader monetary policy choices (Corder, 1998). The Fed faced a similar dilemma with HOEPA authority. Technical innovation in the assessment of credit risk and a variety of new lending products opened up the possibility of homeownership for a wide class of borrowers. The Fed could have

employed either direct regulation or moral suasion to tighten lending standards employed by banks and restrict access to credit. The Fed was not inclined to undermine gains in minority and low income homeownership by placing a regulatory brake on sub-prime mortgage originations. This was especially the case since the, through innovations in securitization, there was a huge amount of capital available for mortgage lending.

Although early supervisory sub-prime lending guidelines cautioned against predatory behavior by lenders, specific consumer protection principles were not added to the guidance until June, 2007. (OCC, 2007) The Fed and other federal regulators have recently endorsed more restraints on mortgage originators, but this action largely followed, rather than initiated, a reduction in sub-prime lending activity (FRS, 2008). Historical experience suggests that the Fed will not relish enforcement of new restraints, especially if, in the future, monetary or other policy considerations create incentives for banks to expand lending to consumers. Consider the fundamental statutory charge of the Fed:

> "The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates." (Federal Reserve Act)

The Fed's statutory mission is neither to direct credit and capital to residential mortgage markets, nor to supervise lenders outside the banking system, where most sub-prime mortgage originations take place. More importantly, the Fed may adequately police mortgage originations, but bank and non-bank lenders could instead find innovative ways to extend credit to risky borrowers in the form of securitized auto loans or credit cards or extend credit to commercial property owners. In short, it is not clear that Fed is well-suited to police mortgage originations, nor is it clear that effective regulation of mortgage origination will address the broader problem of financial market disruption.

Fed oversight of private label securitization and other financial innovations

Collateralized Mortgage Obligations (CMOs) are financial instruments that bundle and sell the stream of principal and interest tied to large number of mortgages. CMOs can be engineered ("tranched") in ways that permit risk-taking investors to purchase high yield high risk mortgage income streams. The housing GSEs originated these instruments in the 1980s but the level of privately marketed CMOs grew at an astounding rate – from under $20 billion in 1989 to over $1.1 trillion in 2005 (see England 2006). Several related policy goals led decision makers 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 home building sector from monetary policy restraint.

As investors embraced the new securities, banks faced strong incentives to make loans available to broader and riskier categories of borrowers, reinforcing the link between

securitization and the ownership society. The GAO warned in 2006 that the growing private secondary market for home mortgages was exacerbating the decline of mortgage lending standards (GAO, 2006). The success of private CMOs also undermined the rationale for the housing GSEs. In 2005 Chairman Greenspan advocated stronger statutory restraints on the growth of the housing GSEs (Greenspan, 2005b). Greenspan argued that the housing GSEs should only purchase and securitize mortgages that were so unattractive that private offerings would fail. As long as the private CMO market continued to expand, the government could gradually withdraw from the secondary mortgage market. From 2003 to 2005 Fannie Mae and Freddie Mac mortgage and asset security issues contracted from a peak of $2.1 trillion to $879 billion.

In 2007 Chairman Bernanke highlighted the implications of a robust secondary mortgage market for the implementation of monetary policy. Historically the housing market has absorbed much of the shock of monetary restraint – building and construction activity and related residential mortgage lending activity decline more rapidly than other sectors as the Fed increases the federal funds rate. By enhancing credit flows from investors to lenders and borrows via private CMOs, the impact of monetary policy on the housing sector is blunted. The favorable result is that housing finance and construction may be countercyclical – contributing to economic growth during a recession (Bernanke, 2007b).

The 2007 collapse of the private CMO market suggests, of course, that enthusiastic Fed assessments of the long-term breadth and resilience of the market were radically overstated. A number of poor assumptions by private and public actors contributed to the severity of the credit crisis triggered by the collapse of private CMOs. Consumers and investors underestimated the probability of a prolonged and rapid decline in housing prices. Public and private actors underestimated the vulnerability of CMOs to a decline in housing prices. Public and private actors failed to anticipate the ripple effects of the plunge in the value of CMOs – specifically the deterioration of other asset-backed securities.

Ironically, Chairman Greenspan anticipated that the growth of private label CMO would stabilize financial markets – transferring “risk from highly leveraged originators of credit--especially banks and thrifts--to less-leveraged insurance companies and pension and mutual funds, among other investors.” (Greenspan, 2005b) This reflects the historic justification for securitization via the housing GSEs – to draw in mortgage market capital from life insurance companies and pension funds. But private actors were clearly concerned about the rapid pace of technical innovation in securitization. A 2006 real estate finance industry report cautioned against the systemic risk introduced by synthetic debt instruments- CMOs- in an otherwise upbeat assessment of developments in the private label market (Council to Shape Change, 2006).

Via moral suasion or supervisory guidelines, the Fed could have retarded the growth of the private label secondary mortgage market. Or, working with the Securities and Exchange Commission (SEC), federal regulators could have increased the transparency of CMOs so that potential investors were aware of the risks involved in sub-prime and alt-a lending. For at least seventy years economists have recognized that financial

innovation will subvert narrowly tailored regulations of the types or form of credit and borrowing that are permitted by banks and other borrowers (see, classically, Minsky 1980). If there are few opportunities to profit in originating or packaging home mortgage debt, then investors and entrepreneurs will turn to other segments of the capital markets. The source of the next financial contagion may be related not to CMOs but to derivates developed to package and exploit risky investments in energy, commercial property, commodities, or currency. This suggests that, with the exception of fraud, regulatory attention should be directed not to lending activity or securitization practices, but to rules or actions that can mitigate the risks of financial disruption in the event that overzealous innovation results in the failure of individual financial institutions – hedge funds, commercial banks, insurance companies, or investment banks.

Counterparty credit risk and financial contagion

The collapse of two Bear Stearns hedge funds triggered the events that led to acquisition of Bear Stearns by JPMorgan Chase. The Bear funds were highly leveraged - $1.8 billion in investments was supported by borrowing from major creditors totaling nearly $15 billion (Business Week, 2007). As the funds' assets deteriorated, creditors demanded (and apparently liquidated) CMO collateral, further driving down the value of the funds. The story of the Bear funds is in one sense just about fraud - managers of the Bear funds told investors that the funds had roughly 7% of sub-prime assets but the stake was closer to 60% (SEC, 2008a). But the contagion of the collapse – first from the hedge funds to the investment bank and then, prospectively, from the investment bank to a myriad of investment and commercial banks – took regulators by surprise. The Fed facilitated the acquisition of Bear Stearns by JPMorgan Chase, subsidizing the purchase of $30 billion of Bear assets via a new quasi public entity ("Maiden Lane LLC").

One compelling reason to avert a Bear Stearns bankruptcy was the myriad of commercial bank and other financial institutions that had counterparty relationships with Bear. *Financial Week* reported that Bear was a derivative counterparty with over 5,000 institutions. Derivatives permit corporations – financial and non-financial –to manage risk but also generate a financial relationship – with the counterparty that is obligated to pay if a defined event triggers the contract. The mitigation of one form of risk – interest rate, currency fluctuation, or default - introduces another form of risk – *counterparty credit risk*.

Counterparty credit risk can be a source of broader financial contagion. In particular, the bankruptcy of a firm with a large number of counterparties can amplify a financial crisis. Derivative contracts are treated differently than other claims in bankruptcy proceedings – safe harbor provisions permit counterparties to sell collateral assets. If many counterparties exercise such a right then prices of the collateral assets may fall dramatically, affecting the balance sheets of financial institutions that are not parties to the original transaction (see Haubrich, 2007). Edwards (1999) presciently identified this indirect contagion as the core public policy lesson from the failure of LTCM. The rapid and disorderly liquidation of Bear's assets pledged as collateral could have triggered a financial crisis.

In the spring of 2007, leadership of the Federal Reserve Bank of New York identified counterparty credit risk management as the key tool to insulate the real economy from the collapse of hedge funds (Kambhu, Schuermann, and Stiroh, 2007). Writing prior to the spillover of the Bear funds collapse into the broader financial markets, Kambhu et al noted a number of industry developments since the 1998 collapse of LTCM: "improved risk management techniques by counterparties, improved supervision, more effective disclosure and transparency, and more effective hedging and risk distribution techniques."(2007, 14) In a similar assessment of risks posed by hedge funds, Fed Governor Randall Krozsner claimed that "unregulated or less regulated entities should in principle be subject to more-effective market discipline than banks because, without a safety net supporting them, their creditors have stronger incentives to monitor and limit their risk-taking." (Krozsner, 2007). Neither technical improvements nor market discipline were sufficient to preempt or contain the financial market disruption triggered by the collapse of the Bear funds.

Kamblu et al provide a comprehensive review of regulatory alternatives – outright prudential supervision of hedge funds, improved information disclosure supervised by a public sector regulator, or, more meaningful best-practice efforts to help improve risk management. Regulators have also considered a central counterparty clearinghouse – where a regulated entity acts as clearinghouse for derivatives contracts, containing the impact of the failure of a counterparty (see Krozsner, 2006). Given the collapse of Bear Stearns and the Fed's role in the liquidation, investigation of regulatory alternatives has clearly taken on a new urgency. The Fed and other regulators have two basic options: prudential regulation – intended to enhance risk management and prevent the collapse of banks and hedge funds – or enhancements in credit facilities that limit the contagion effects produced by bankruptcies.

Preempting financial market crisis: broader prudential regulation

One straightforward step to preempt financial market disruption would be prudential regulation of investment banks and hedge funds – regulation designed to insure that financial institutions take on appropriate levels of risk. Both the Securities Exchange Commission (SEC) and the Fed have recently requested greater legal authority to supervise investment banks (Sirri, 2008, Geithner, 2008) – although it remains unclear which agency will ultimately be assigned the function. Hedge funds present an altogether different challenge and legacy. Hedge funds are specifically intended as vehicles to permit sophisticated investors – institutions or affluent households - to engage in risky financial transactions (see Edwards 1999). The expectation of regulators is that market discipline brought to bear by these investors will reign in hedge fund risk. Consistent with this expectation, Fed decision makers have recently focused on improving supervision of "core" institutions (Geithner, 2006) The Fed and other regulators of large depository institutions have embraced innovations in prudential regulation, most recently a set of recommendations from the Basel Committee on Bank Supervision, *Basel II*. (see BIS, 2008). As late as the spring of 2008 the Treasury adopted the "core" approach, advocating prudential regulation only for institutions backed by some form of explicit

government guarantee, a distinction that excludes investment banks and hedge funds (Treasury, 2008).

Prudential regulation is complex – blending conflicting goals of encouraging innovation, competitiveness, consumer protection, and safety and soundness of individual institutions (see Khademian 1995). Investment banks face extraordinary international competitive pressures. Hedge funds are legally structured to encourage and permit high levels of risk and innovation. Grafting new prudential oversight responsibilities onto the existing Fed structure would require a substantial realignment of Fed resources and introduce a variety of new interests to policy choices that influence both bank supervisory and monetary policy responsibilities. Historically the Fed's core constituents were member commercial banks and the Fed's core expertise was related to the behavior and actions of banks as lenders – expertise acquired directly via the task of bank supervision, expertise that complemented the task of implementing monetary policy. The regional structure of the Fed and specific concerns about the geographic distribution of credit that motivated the federal structure ensured that a variety of credit needs were addressed via the banking system. Over time, the extent of financial activity outside of the banking system expanded and the relative importance of banks in the transmission of monetary policy diminished (see Bernanke and Gertler 1995). The adoption of broader explicit prudential regulatory functions creates two specific challenges for the Fed – an expanded network of public and private actors with a stake in Fed regulatory choices and a challenge to the Fed's core missions of bank supervision and monetary policy.

The network of actors with a voice in proposed solutions to the problem of systemic financial risk is large and complex. U.S. actors include a variety of public sector agencies and interagency working groups (most visibly, The President's Working Group on Financial Markets) as well as private sector associations (notably the Counter Party Risk Management Policy Group – CRMPG - chaired by Gerald Corrigan). The Financial Stability Forum represents interests of wide range of international actors: the Basel Committee, the International Organization of Securities Commissions, the International Association of Insurance Supervisors, the International Accounting Standards Board, the International Monetary Fund, and the Bank for International Settlements (FSF, 2007a).

In one sense the creation of formal and informal networks of public and private sector experts addressing the problem of systemic financial risk reflects a broader trend toward public private "co-production" of public policy outcomes. The proliferation of networked approaches to governance is typically described in laudable terms – as ways to economize on scarce public sector resources and direct private sector innovation to public policy ends (for a blend of optimism and an elaboration of management challenges, see Goldsmith and Eggers, 2004). Although the label of networked governance has recently been applied to formal arrangements partnering nonprofit and public agencies, the ties between public agencies and their private constituents has long been a central concern of academic and applied work on public organizations (Landis 1961, Selznick 1949, Bernstein 1955). Described as "cooptation" or "industry orientation," or the "institutionalization of favoritism," the basic premise of this work is that regulators must caution against privileging the powerful private actors they interact with. O'Toole and

Meier and (2004) offer a compelling empirical treatment of the network problem, reinforcing the general result that the most privileged actors in the networks gain a disproportionate share of the benefits produced by network activity. In the case of the Fed and systemic risk, large financial institutions – like JPMorgan Chase and Bank of America – and other institutions that engage in both investment and commercial banking - would be in a unique and new position to exert influence over Fed regulatory and monetary policy choices. The private actors are predisposed to rely principally on market discipline to manage risks or, at best, weak and ad hoc official sector involvement (see CRMPG 2008 for a representative set of private sector prescriptions). Further, the geographic distribution of Fed power and influence across the Reserve Banks would be highly distorted by new oversight functions since most of the targets of oversight are located in or near the City of New York.

Of course, the choices of elected officials are limited – prudential regulation could be taken on by the Fed, the SEC, or an entirely new federal entity. Congress has been tempted in the past to adapt the human and technical resources of a high performance agency to a new and expansive task – and the results have not always been positive. 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 well-established programs. Derthick concludes that elected officials may see capable agencies as "infinitely pliable" and neglect how new functions may conspire to complicate traditional or core agency functions. To successfully engage in broader prudential oversight, the Fed would require substantial new staff and, further, staff with expertise beyond that of existing commercial bank supervisors. Khademian (1995) describes how the Fed managed to successfully integrate consumer protection or compliance oversight in the 1970s - hedge fund or investment bank oversight would present a similar technical and personnel challenge. It is not clear that the particular expertise and unique geographic structure of the Fed complement the new task of prudential oversight of investment banks or hedge funds.

Responding to financial market crisis: broadening access to Fed credit facilities

Instead of pursuing broader oversight authority, the Fed could explicate a set of principles governing its role as lender of last resort. In addition to the Bear Stearns transaction, the Fed took the novel steps of extending credit to non-depository institutions with the creation of a Term Securities Lending Facility (TSLF) and extending long term loans to banks thru the Term Auction Facility. These tools imply a new and broader role for the Fed –especially the Federal Reserve Bank of New York - in providing liquidity to particular sectors of the economy. The Fed's early September decision to permit Lehman Bros. to fall into bankruptcy highlights the uncertainty about the extent of this new role.

The Fed was formally designated as a lender of last resort for non-banks in 1991. The statutory change reflected two decades of liberalization of uses of the discount window, beginning with the opening of the discount window to banks with client firms placed in

financial jeopardy by the bankruptcy of Penn Central in 1970. Walker Todd of the Federal Reserve Bank of Cleveland presciently warned that the implicit taxpayer guarantee of non-bank losses implied by the 1991 statute would erode market discipline (Todd, 1993). The recapitalization of LTCM in 1998 reinforced the sentiment that the Fed would not permit the outright failure of large financial firms – hedge funds or investment banks (see Haubrich 2007). The Fed is acutely sensitive to this problem of moral hazard – financial institutions can exploit the existence of a safety net by taking excessive risks – realizing large gains privately but passing large losses on to taxpayers. Schwartz (1992) argues that the Fed confront the problem of moral hazard by responding to financial crises exclusively via open market operations – providing liquidity broadly – rather than discount window lending to selective firms – most likely troubled or failing firms.

If the Fed chooses to engage in broader lender of last resort activities – serving as a source of short and medium term liquidity for vulnerable firms – new threats to Fed autonomy and capacity will emerge. The Fed has historically struggled with the political implications of expanded authority to selectively direct credit to particular sectors of the economy. In the late 1960s Fed Chair William Martin resisted congressional authority to purchase mortgage-related securities of federal agencies in the conduct of open market operations. Martin feared purchase of agency issues would result in broader and more expansive demands from the Congress to purchase other types of agency securities and thereby channel credit to other vulnerable sectors of the economy. Arthur Burns ultimately chose to ignore Martin's warning and routinely purchased agency issues at a large volume (Corder 1998). The use of the discount window or other credit facilities to channel credit to firms raises similar challenges – should the Fed extend credit – via open market purchases or credit facilities – to transportation authorities, student loan authorities, municipal governments, agricultural cooperatives? What will be the Fed's new role in determining what sectors of the economy get special borrowing privileges? Answers to these questions invite (appropriately) oversight from elected officials in the Congress and the White House – scrutiny that the Fed has sought to avoid by relying on general changes in the level of interest rates, rather than aid directed to specific sectors.

In addition to the prospect of increased oversight, the provision of short-term liquidity undermines the mission of the Fed to pursue price stability. The Fed can offset loans to particular firms with open market sales, but the two missions – to pump liquidity into the financial system via loans to individual firms and to limit upward movement in prices by increasing the cost of capital – can be fundamentally at odds. In 1979-84 the Fed initiated a campaign of interest rate hikes designed to reverse and stabilize inflation. At the same time, the number of annual bank failures rose dramatically – mostly Savings and Loan Associations. If the Fed takes on broad lender of last resort functions, then monetary policy choices become entangled with the Fed balance sheet. Increases in the federal funds rate to contain inflation could impact the Fed's bottom line in a negative way if firms who hold outstanding Fed lines or loans are financially vulnerable. Since the assets of the Federal Deposit Insurance Corporation not the Fed, are diminished by member bank failures, the provision of credit to non-banks would introduce a new complication monetary policy deliberations.

Re-forming the Fed

The expansion of Fed facilities for the provision of credit to and oversight of non-bank financial institutions brings the practices and authority of the Fed into alignment with the contemporary U.S. financial markets, but introduces new and competing interests to the bank supervisory and monetary policy choices that are at the core of the Fed's mission. The Fed has cultivated a geographically widespread network of banking and macroeconomic expertise that complements the monetary policy functions of the Board of Governors. The incorporation of new responsibilities transforms both the network of actors and primary mission of the Fed. The Fed has proven to be a highly capable and politically resilient organization – widely credited with a major role in the exceptional economic performance of the late 1990s and the reduction of inflation in the 1980s. Major efforts to reform the Fed – either via more Congressional oversight or reduced Fed discretion – have held little interest for Washington since the early 1980s. Extension of Fed supervisory authorities beyond depository institutions and extension of Fed lending activity to a broad spectrum of financial institutions re-forms the Fed in ways that will both tax the Fed's expertise and open Fed practices to heightened political scrutiny. Elected officials face precious few alternatives – to expand the role of the Fed or other market regulators (like the SEC) or craft a new entity. But, given the Fed's core monetary policy function and its long track record of success with this particular role, the prudent course may be to devise a regulatory scheme that leaves those core functions – and those real successes- intact.

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