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Fed Intervention: Managing Moral Hazard in Financial Crises

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Editor's note: *Federal agencies and regulators have taken decisive steps to combat the financial crisis that began in the summer of 2007 and continued into the fall of this year. This* Economic Letter *focuses on key Federal Reserve actions through early October.*

At the end of September 2008, U.S. policymakers had been working for more than a year to contain the shock waves from plunging home prices and the subsequent financial market turmoil. For the Federal Reserve, the crisis has given new meaning to the adage that extraordinary times call for extraordinary measures. The central bank has dusted off Depression-era powers and rewritten old rules to address serious risks to the global financial system.

The spreading financial crisis has led the Fed to pump liquidity into the economy and expand its lending beyond the commercial banking sector. In March, it assisted with J.P. Morgan Chase's buyout of Bear Stearns, a cash-strapped investment bank and brokerage. Six months later, the Fed took direct action again, with an $85 billion bridge loan to prevent the disorderly failure of American International Group (AIG), a giant global company heavily involved in insuring against debt defaults.[1]

These Fed actions—part of a broader U.S. government effort to contain the financial crisis—call to mind two earlier financial interventions: in the case of Long-Term Capital Management (LTCM) in 1998 and in the aftermath of the Sept. 11, 2001, terrorist attacks.

In both episodes, the Fed felt compelled to protect the financial system from severe shocks and the overall economy from spillovers that might produce serious downturns. Inherent in the Fed's moves was a natural by-product of intervention—moral hazard and the controversy that flows from it.

Concern about moral hazard helps explain why the Fed has traditionally intervened only rarely and reluctantly, trying to do what's necessary, but as little as necessary, to achieve financial stability. Markets generally should and do self-correct. When potential financial problems arise, the Fed's default reaction has usually been to do nothing and let the markets work their way through the difficulties.

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On rare occasions, however, the markets themselves are at risk of failure. In such cases, the Fed can't fulfill its obligation to promote financial stability without direct action. Two factors have strengthened the case for central bank intervention in the past decade—the financial system's increased globalization and the untested nature of the new and complex financial instruments that have come under stress.

The escalation of what's now recognized as a global financial crisis has changed the modus operandi of Fed interventions. The guiding principle of do what is necessary, but as little as necessary, has been replaced by the recognition—reinforced by actions—of the importance of doing whatever it takes to break the downward spiral in the financial and credit markets that has contaminated the overall economy. With a broad understanding of the consequences of inaction, the Fed has taken a hard turn toward intervention in an atmosphere in which fear of moral hazard has been displaced by the reality of systemic risk's unacceptable consequences.

Fed intervention helped defuse threats to the financial system from LTCM's failure and the 9/11 terrorist attacks. The central bank accepted the moral hazard from intervention as the price for avoiding larger financial breakdowns. In the current crisis, the Fed's actions have no doubt mitigated damage to the financial system and economy. Doing so, however, required developing new tactics to address the crisis, going far beyond the traditional instruments of monetary policy.

Intervention's By-Product

Moral hazard, a term first used by the insurance industry, captures the unfortunate paradox of efforts to mitigate the adverse consequences of risk: They may encourage the very behaviors they're intended to prevent. For example, individuals insured against automobile theft may be less vigilant about locking their cars because losses due to carelessness are partly borne by the insurance company.

Moral hazard occurs whenever an institution like the Fed cushions the adverse impact of events. More to the point, lessening the consequences of risky financial behavior encourages greater carelessness about risk down the road as investors come to count on benign intervention. Moral hazard must be weighed carefully in responding to financial crises.

In the cases of Bear Stearns and AIG, some argue that the greater good would have been served had the Fed stood back and allowed the firms to fail, immediately taking all management, shareholders and creditors down with them. This course would avoid moral hazard entirely—and satisfy the general public's desire for seeing Wall Street highfliers brought low.

The Fed, however, must be ever vigilant in its mission. The Federal Reserve Act explicitly and implicitly sets out several mandates to guide Fed actions. The most important are

- Full employment and sustainable economic growth;
- Price stability;
- Banking and financial system stability.

By intervening in a financial crisis, the Fed doesn't allow markets to play their natural role of judge, jury and executioner. This raises the specter of setting a dangerous precedent that could prompt private-sector entities to take additional risk, assuming the Fed will cushion the impact of reckless decisionmaking. So when intervention is the only option, the Fed has the duty to minimize micro moral hazard—that is, the benefit to any specific firm or industry.

Minimizing micro moral hazard starts with imposing tough terms—generally the orderly closure of the troubled firms that benefit from intervention. The Fed didn't just shovel money at Bear Stearns' and AIG's problems. It demanded collateral for the loans and charged interest—in AIG's case, at high rates.

Minimizing micro moral hazard means keeping information about the targets, timing and terms of any potential intervention as vague as possible, a tactic sometimes called "constructive ambiguity."

Minimizing micro moral hazard also means aiding selected firms only as a last resort. Federal authorities found alternative solutions short of direct intervention for some financial giants. The Fed expedited the reclassification of investment banks Goldman Sachs and Morgan Stanley to bank holding companies. Private-sector buyers acquired Merrill Lynch, Washington Mutual and Wachovia.

When direct intervention does take place, the Fed's duty goes beyond minimizing micro moral hazard. The central bank has the equally important responsibility to maximize macro moral hazard—a somewhat counterintuitive term that captures the greater good of preventing unnecessary damage to financial markets and the economy.[2]

Maximizing macro moral hazard recognizes the Fed's obligation to reduce the risks of recession and price instability and the risks stemming from an unstable banking and financial system. By fostering a more stable macroeconomic environment, the Fed's policy actions reduce the private sector's pain from bad decisionmaking.

The outright, uncontrolled collapse of Bear Stearns or AIG could have harmed millions of households and companies as financial market troubles brutalized retirement accounts, paralyzed the flow of capital, and ultimately led to layoffs, stunted consumption and a severe recession. The goal of Fed intervention is to prevent, or at least forestall, such macroeconomic spillovers.[3]

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Hedge Fund on the Edge

Long-Term Capital Management provides an apt starting point for a discussion of Fed intervention because it involved the first financial disruption after the rapid expansion of the shadow banking system, a shorthand term for the financial services segment that includes big brokerage firms, hedge funds and innovative financial products like structured investment vehicles.[4] These entities aren't subject to the same supervision as banks, so they don't hold as much capital to cushion themselves against losses.

A high-profile hedge fund founded in 1993, LTCM brought together the best minds of academia and Wall Street. John W. Meriwether, former manager of one of Salomon Brothers' most profitable bond divisions, recruited renowned Ph.D.'s such as Myron Scholes and Robert Merton, soon-to-be winners of the 1997 Nobel Prize in economics, and former Fed Vice Chairman David Mullins. The partners' aim was to profit from market-price anomalies using complex mathematical models.

At its peak, the fund earned stunning returns of more than 40 percent. In 1997, as increased competition began squeezing margins, LTCM reached for high returns by leveraging its capital through risky securities repurchase contracts and derivatives transactions. By some accounts, the fund used capital of $2.3 billion to support investments of $125 billion.

The first sign that LTCM might be in trouble came when the fund lost 10 percent on its investments in June 1998. The situation worsened in mid-August, when a deep decline in oil prices left the economies of Russia and other oil-exporting countries in a precarious state. Russia's debt default and devaluation of the ruble prompted a massive flight of investors from risky securities to U.S. Treasuries and a dramatic widening in interest rate spreads.

Global bond markets plunged, and in August alone, LTCM lost $1.8 billion—44 percent of its capital. Losses piled upon losses and reached $4.8 billion. As LTCM faced increasing margin calls, default was imminent.

The speed with which LTCM spiraled out of control recalls an old saying in financial circles: If I owe a bank a million dollars and I can't pay, I'm in trouble. If I owe a bank a billion dollars and I can't pay, the bank's in trouble. If I owe a dozen banks billions of dollars each and I can't pay, the banking system could be in trouble.

The threat of systemic risk led the Fed to help arrange a managed unwinding of LTCM's affairs, which would let the fund fail and avoid a fire sale of its assets. On Sept. 23, the New York Fed facilitated a meeting with top executives from 14 Wall Street and international banking firms. With the exception of Bear Stearns, which declined to participate, the financial institutions agreed to back a capital infusion of $3.5 billion. The deal transferred oversight and veto power and a 90 percent equity stake to the consortium, leaving a 10 percent stake for the LTCM partners as an incentive to close down operations in an orderly fashion.[5]

In his Oct. 1, 1998, congressional testimony, Fed Chairman Alan Greenspan explained why the Fed decided to intervene: "Had the failure of LTCM triggered the seizing up of markets, substantial damage could have been inflicted on many market participants, including some not directly involved with the firm, and could have potentially impaired the economies of many nations, including our own."

The Fed's action helped contain possible spillovers, but it didn't preserve LTCM. The hedge fund failed, but in a way that minimized the impact on financial markets and the economy—at the cost of both micro and macro moral hazard.

Financial Crisis Averted

On Sept. 11, 2001, terrorists hijacked four planes, crashed two into New York's World Trade Center, a third into the Pentagon and a fourth in a field in Pennsylvania. The nation watched in horror as both WTC towers collapsed. The financial system wasn't the target per se, but it was thrown into disarray. The most direct impact was the closure of U.S. financial markets for four days—only the seventh time they'd shut down for such a long stretch. A secondary impact came from the closure of U.S. airspace, which stopped the movement of mail and checks around the country.

Exacerbating the situation was the backdrop against which the events occurred. The U.S. economy was in the sixth month of a recession, although this wasn't widely recognized at the time, not even within the Fed. And financial markets were skittish, mired in the biggest bear market since the Great Depression. By early September, the Standard & Poor's 500 Index was down 29 percent from its March 2000 peak and the Nasdaq had lost 67 percent of its value.

Immediately after the attacks, the S&P 500 futures declined precipitously, and chaos reigned on the streets near the New York Fed, the New York Stock Exchange and elsewhere in the financial district—all within blocks of the fallen towers. It became apparent that U.S. financial markets couldn't

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open. At 10 a.m., 74 minutes after the first plane hit the World Trade Center and 30 minutes after the stock market's scheduled opening, the Fed released a statement: "The Federal Reserve System is open and operating. The discount window is available to meet liquidity needs."

Though the financial markets would remain closed for the rest of the week, the Fed did indeed remain open. In the days after the terrorists struck:[6]

- The discount window lent $45.5 billion on Sept. 12, compared with the Wednesday average of $59 million the previous two months.
- Check float jumped to $22.9 billion that day, well above the two-month average of $720 million.
- The New York Fed used open market operations to inject $61 billion in liquidity into the economy on Sept. 12, then added another $38 billion on Sept. 19.
- The Fed arranged foreign exchange swap lines with the European Central Bank, the Bank of England and the Bank of Canada to provide dollar liquidity to global markets.

When the markets reopened Sept. 17, the Federal Open Market Committee (FOMC) held an emergency conference call and cut the fed funds rate, which applies to banks' short-term borrowing from one another, from 3.5 percent to 3 percent. As other short-term rates fell in response to the Fed's move, many businesses and individuals saw their borrowing costs decline. The statement the Fed released in announcing its action reiterated the central bank's commitment to providing liquidity and keeping the fed funds rate below target, as needed.

Although the Dow Jones industrials suffered what was, until the current crisis, its worst one-day point loss on Sept. 17, panic was averted.[7] The payments system returned to normal within days, and the recession ended two months later.

In the wake of 9/11, the Fed cast a wide and deep safety net to prevent the systemic risk that could have resulted from a meltdown of the financial system spreading to the U.S. and other economies around the globe. Despite the obvious need for intervention, the Fed's actions entailed some degree of moral hazard.

The Current Crisis

Signs of trouble began surfacing in February 2007, when a handful of financial companies took losses on assets related to U.S. subprime mortgages. What would become the worst financial crisis since the Depression wasn't widely acknowledged for six more months—not by financial markets, not by policymakers.[8]

Since then, banks, brokerages, investment houses and hedge funds worldwide have revealed a seemingly endless succession of losses, write-downs and outright failures. Behind the crisis is the collapse of a five-year boom in housing prices that had been fueled by risky and exotic mortgage financing backed by unprecedented levels of leverage.

Some subprime loans offered low initial interest rates; others only required interest payments, needed no down payment or were made with no proof of income. The mortgages were bundled into multilayered securities graded by risk, then sold to hedge funds, investment banks, insurance companies and other investors, many of which sought to reduce risks associated with the mortgages by purchasing credit default swaps (CDS).

A relatively new entry in the financial derivatives market, these instruments committed one party to cover its counterparty's losses should an investment go sour. In 2000, the CDS market was $1 trillion; by 2008, it was $62 trillion, roughly 4.5 times U.S. gross domestic product. These derivatives helped fuel the surge in mortgage-backed securities by reducing perceived default risk.

When the housing bubble burst,

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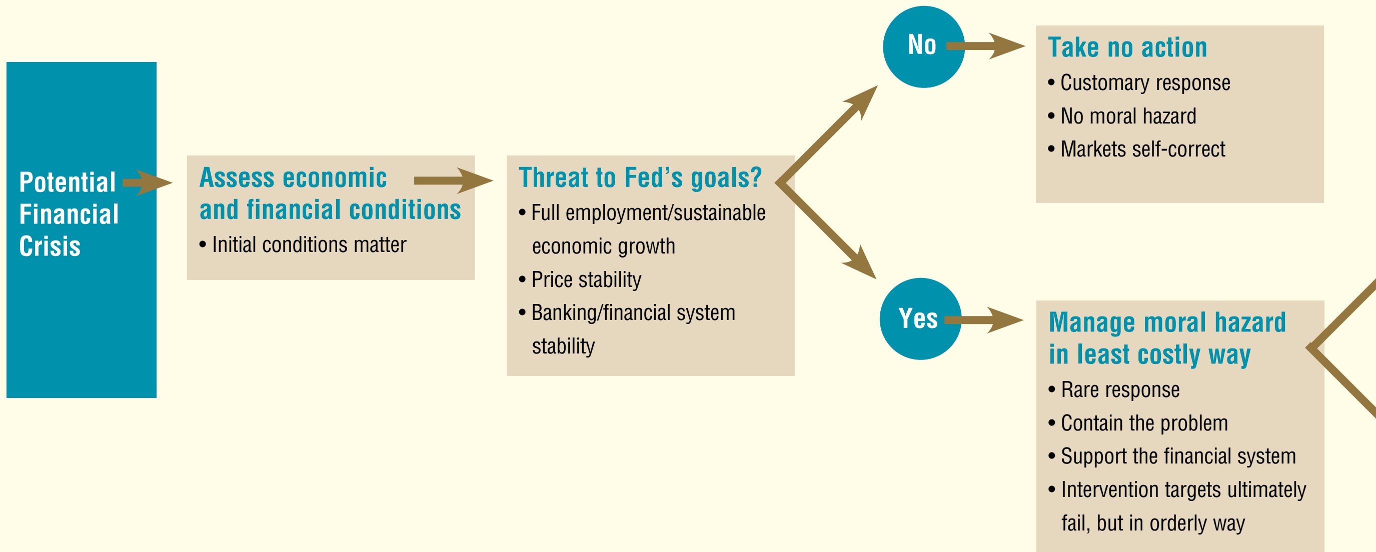
default risk far exceeded what investors had anticipated, and the market for mortgage-backed securities cratered. Financial institutions found themselves holding large portfolios of hard-to-value assets that could only be sold at fire-sale prices.

As assets deteriorated, we began to hear a lot about counterparty risk. What if CDS sellers couldn't fulfill their obligation to insure assets against losses? If a major player in the vast, tangled credit derivatives market were to collapse, it could start a chain reaction in which one counterparty's default undermines the ability of other firms to fulfill their obligations. Markets would begin doubting the counterparties, and investors would flee these companies, leaving them to face the grim task of attracting new capital in skeptical markets. If they can't, they sink into trouble. A significant number of troubled firms would trigger systemic risk.

Credit default swaps and other financial innovations hadn't been tested under adverse conditions. What's more, they took off at a time when markets and the economy had become more globalized and technology-driv-

Minimizing Micro Moral Hazard: The Fed Rarely Intervenes



This decision tree summarizes how the Fed responds to potential financial crises. After getting a reading on the economy's vital signs, the Fed determines whether the threat at hand might compromise the central bank's three primary goals.

If the Fed sees little risk, no action is taken, avoiding moral hazard and leaving the markets to sort out the difficulties. The Fed reacts this way to nearly all potential troubles in the financial sector.

A pervasive threat to the overall economy or the financial system can justify direct action. The Fed rarely makes these interventions; when it does, it strives to manage the resulting moral hazard in the least costly way.

The first choice entails the Fed's acting as an outside coordinator to bring together private institutions to defuse the threat. It's a strategy that minimizes public-sector risk, and the central bank used it with the Long-Term Capital Management hedge fund in 1998.

When this option isn't feasible, the Federal Reserve Act provides the authority to deal directly with pressing threats. The preferred strategy involves forging partnerships with private institutions, a course the Fed took in March 2008 with Bear Stearns, a troubled investment bank and brokerage with sufficient remaining collateral to support the intervention.

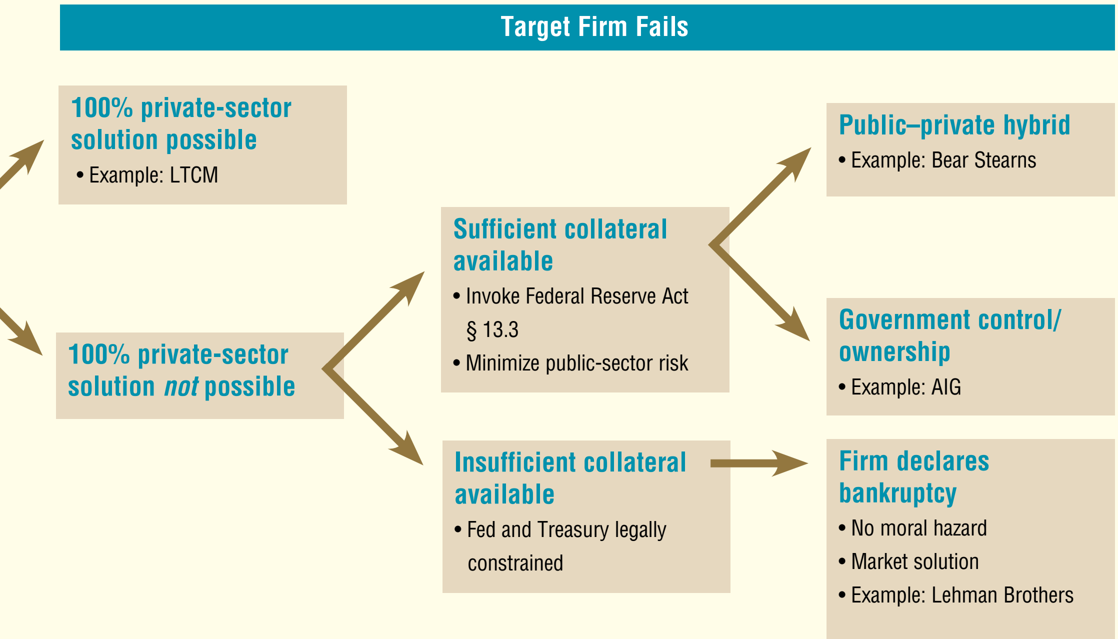
When private partners aren't willing to step up, the Fed can act alone if troubled firms still have sufficient collateral. In September 2008, the Fed arranged a purely public intervention for AIG, a huge financial services company.

If remaining collateral is insufficient to support taxpayer-financed actions, the Fed under current law is obliged to let the markets decide a troubled firm's fate. The Fed accepted this outcome with Lehman Brothers in 2008.

en, factors that both made the financial universe more complex and increased uncertainty about how to respond to potentially widespread failures of these new instruments.

The Fed didn't sit idly by as tremors shook the financial markets. As with the 9/11 threat, its initial response focused on injecting liquidity into the financial system. On Aug. 17, 2007, the Federal Reserve Board cut a half percentage point off the discount rate, making it cheaper for commercial banks to borrow short-term funds from the Fed. On Sept. 18, the FOMC surprised financial markets by reducing the fed funds rate to 4.75 percent. The Board also cut the discount rate a half point. Over the next year, the FOMC cut the fed funds rate eight more times, dropping it to 1 percent at the end of October.[9] The Board gradually reduced the discount rate from 5.75 percent on Sept. 18, 2007, to 1.25 percent on Oct. 29, 2008.

Unlike the Long-Term Capital Management and 9/11 episodes, which resolved themselves quickly, the latest financial turmoil continued to bubble throughout 2008, leading the Fed to



take unorthodox steps to make money available to the financial system. The central bank opened its lending operations to different kinds of financial institutions, granted longer-term loans and accepted a broader range of collateral.

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In December 2007, the Fed introduced the first of several new lending mechanisms—the term auction facility, which lends to banks for longer periods and usually at a lower rate than they could secure via the discount window. Part of the reasoning behind the new facility was to avoid the perception that discount window borrowing is a sign of financial weakness.

A stickier issue was capital constraints at primary dealers, a class of lenders not regulated by the Fed and without access to its credit facilities. (*See box titled "Primary Dealers' Critical Role."*) The term securities lending facility, established in March 2008, provides extra liquidity through a 28-day program that allows, for a fee, primary dealers to acquire Treasury-grade assets by using riskier assets as collateral.

The primary dealer credit facility, also created in March, extends the Fed's safety net by opening discount window loans to primary dealers.

As the financial crisis deepened, the Fed created lending programs to add liquidity to other segments of the financial markets. In September, for example, the central bank made money available to foreign central banks, commercial paper investors and money market funds.

No lending facility could effectively address the kind of crisis of confidence that befell Bear Stearns, an investment bank and brokerage that had been a Wall Street fixture since 1923, surviving even the stock market crash of 1929 without laying off employees.

On Monday, March 10, 2008, rumors hit European trading floors that Bear Stearns might be unable to fulfill commitments for its trades. The company's management was quick to address the reports but couldn't quash the mounting speculation. The rumors became self-reinforcing, compelling some trading partners to pull back from doing business with Bear Stearns. A de facto run had begun.

On Thursday, Bear Stearns' CEO reached out to the New York Fed and the Treasury Department, setting into motion a whirlwind that would bring an end to an institution that had accumulated $1.6 billion in losses and write-downs. Two days later, a firm that had a peak market value of $25 billion in January 2007 was offered to J.P. Morgan Chase for $236 million, a mere 3 cents on the dollar.

When Bear Stearns sought help, the New York Fed could have done what the Fed usually does when a ship is at risk of sinking on its watch: nothing. Bear Stearns would have been allowed to fail, and the Fed would have stood witness to a company reaping what its missteps had sown. The tale would have been tragic in the same vein as the fates suffered by Drexel Burnham Lambert, the Wall Street brokerage that fell victim to the junk bond bust of the 1980s, and Enron, the energy giant that toppled in 2001.

The Fed did nothing for Drexel or Enron. However, it supported the J.P. Morgan deal with an unprecedented $29 billion loan to an entity created to purchase largely mortgage-related Bear Stearns assets. The agreement calls for the loan, made at the discount rate for up to 10 years, to be repaid as the assets are sold. If they appreciate by more than operating expenses, the Fed stands to make a profit. It will bear any losses beyond the $1.15 billion contributed to the entity by J.P. Morgan.

The Fed decided to facilitate the Bear Stearns sale because it feared dire consequences for the financial system. Bear Stearns had open trades with no fewer than 5,000 other firms. On a much grander scale, the firm was one of the world's largest counterparties, reporting in a Nov. 30, 2007, Securities and Exchange Commission filing that its derivative holdings had total leverage of $13.4 billion. The company was involved in 750,000 contracts in

March 2008, according to the New York Fed. Allowing the company to default would have triggered the first stress test of the fast-growing, interwoven derivatives market, an event that would undermine the Fed's ability to meet its legal mandates for growth, price stability and financial stability.

The Fed actions were aimed at reducing risks to the financial system, not helping Bear Stearns' owners. The company's stock price peaked above $171 a share in January 2007, representing a market capitalization of some $25 billion. Despite the financial turmoil of early 2008, it was at $70 a share just before the ill-fated week of March 10–17. It's difficult to fathom how much more the Fed could have adhered to its commitment to minimize micro moral hazard, considering the $2 a share price reached during the negotiations. To keep Bear Stearns out of bankruptcy court, J.P. Morgan Chase eventually raised its offer to $10 a share, or $1.4 billion, still a faint shadow of where the market had valued Bear a year earlier.

The authority to intervene in Bear Stearns can be found in a 1932 amendment to the Federal Reserve Act, allowing the central bank to make direct loans outside the banking system "in unusual and exigent circumstances." The power was last used in the Great Depression.[10]

The Fed used this authority again when AIG appeared on the brink. The company's sound businesses were being threatened by the excessive CDS risks taken by its London-based AIG Financial Products unit. After a year in which AIG took $18 billion in losses, the company faced a cash crunch after mid-September downgrades to its credit rating. It needed a $13 billion capital infusion in a week in which investors showed their lack of confidence in the company by driving down its stock price 80 percent.

When AIG couldn't raise money in the private sector, it turned to the Fed and the Treasury. The central bank provided a two-year, $85 billion line of credit, secured by warrants, to purchase nearly 80 percent of the company if AIG fails to raise enough money through asset sales or other means to repay the loan. The Sept. 16 agreement's interest rate was steep—indeed, punitive—at 8.5 percent above the London interbank offered rate (Libor), an industry benchmark.[11]

Primary Dealers' Critical Role

Primary dealers are banks and securities broker-dealers that trade in U.S. government securities with the Federal Reserve Bank of New York. They're vital to monetary policy because the New York Fed's Open Market Desk trades on behalf of the Federal Reserve System. Purchasing government securities in the secondary market adds reserves to the banking system; selling securities drains them.

The New York Fed established the system in 1960 with 18 primary dealers. The number peaked at 46 in 1988 before starting to decline in the mid-1990s. By 2007, it was down to 20. The main reason for the dwindling number of dealers has been consolidation, as firms have merged or refocused their core lines of business. (A list of primary dealers can be found on the New York Fed's website at www.newyorkfed.org/aboutthefed/fedpoint/fed02.html.)

In addition to their role in monetary policy, primary dealers are important in keeping the nation's fiscal house in order. The federal government tends to spend more each year than it takes in from tax revenue. To keep Washington open and operating, and the government functioning around the world, the Treasury raises money by selling bills, notes and bonds to investors. In recent years, more than half the money raised has come from foreigners.

Primary dealers handle the bulk of the underwriting—that is, the buying, handling and distribution of the U.S. debt. In addition to distributing new Treasury securities, the dealer network makes a deep, broad and liquid secondary market for previously issued Treasury securities.

A liquid secondary market enhances the marketability of Treasury debt and lessens the burden of financing government operations for taxpayers. Without this network of dealers, the Treasury would be hard-pressed to reliably finance essential government services.

An efficient primary dealer network is important for other reasons. Nearly all debt is priced off of interest rates on similar maturity Treasury securities. The Treasury rate is the so-called risk-free rate in the economy. Private-sector borrowers pay the risk-free rate, plus a premium to compensate for potential default risk.

The U.S. and global financial systems, not to mention the U.S. economy and its millions of businesses and households, are absolutely dependent upon a smoothly functioning and reliable Treasury market for financing their credit needs. If the Treasury market is closed or not working properly because of problems with the primary dealer network, credit can't be priced and can't flow, leaving the private sector starved for credit.

With the primary dealers' pivotal role in mind, on March 16 the Federal Reserve Board invoked the emergency provisions of the Federal Reserve Act, authorizing the New York Fed to extend the discount window's safety net to primary dealers. In its announcement, the Fed said it created the primary dealer credit facility to "bolster market liquidity and promote orderly market functioning." The action left no doubt about primary dealers' important role: "Liquid, well-functioning markets are essential for the promotion of economic growth."

Like Bear Stearns, AIG had invested heavily in CDS markets. At the end of September 2007, its Financial Products unit had $505 billion in exposure, stretching into many parts of the world. A year later, AIG had written down a fifth of its exposure but still stood on the precipice. In announcing its decision on Sept. 16, the Fed said it saw enough risk to conclude that "a disorderly failure of AIG could add to already significant levels of financial market fragility and lead to substantially higher borrowing costs, reduced household wealth and materially weaker economic performance."

Interestingly, some critics who chastised the Fed for creating moral hazard with Bear Stearns declared that moral hazard should have been disregarded in the case of Lehman.

Many critics contend that Bear Stearns and AIG were "bailed out." Former Treasury Secretary Paul O'Neill refuted this notion in a *New York Times* exchange on Bear Stearns:[12]

Times: Do you think it was appropriate for the Federal Reserve to lend a helping hand to Bear Stearns and save a private investment company from its own bad decisions?

O'Neill: I would say they didn't save Bear Stearns. They saved the financial system from a panic collapse. I reject the notion they helped Bear Stearns. *Bear Stearns was destroyed.* [Emphasis added]

Times: No it wasn't. It was purchased by J.P. Morgan, which will keep it alive.

O'Neill: They're going to keep the book alive. But the institution of Bear Stearns has been destroyed. They've gone from $158 to $2 of equity. It's wallpaper. It's not even good wallpaper. It's butcher paper.

The Lehman Decision

Roughly six months after the Bear Stearns intervention and amid AIG's unraveling, another Wall Street investment bank and primary dealer found itself on the brink. Round-the-clock efforts by the Fed and Treasury to find a buyer for Lehman Brothers Holdings over the weekend of Sept. 13–14 fell apart. On Monday, Lehman became the largest bankruptcy in U.S. history, listing liabilities of $613 billion in its filing.

The impact—both predictable and unpredictable—of Lehman's failure reverberated immediately through global financial markets. The fallout spread to individuals and businesses with seemingly no connection to Lehman.

In the LTCM and Bear Stearns interventions, the Fed contended its actions were necessary to keep financial markets from seizing up and to minimize the negative spillovers on the broad economy. The Fed feared that the quick and disorderly failures of some financial enterprises would have systemic effects on the nation and likely, around the globe.

In April 3, 2008, testimony to Congress about the Fed's intervention in Bear Stearns, New York Fed President Timothy Geithner described the adverse consequence the Fed sought to avoid: "Asset price declines … led to a reduction in the willingness to bear risk and to margin calls … [resulting in] a self-reinforcing downward spiral of … forced sales, lower prices, higher volatility and still lower prices."

Geithner cataloged the possible spillover effects from Bear Stearns' collapse—protracted damage to the financial system, widespread insolvencies and ultimately higher unemployment and borrowing costs, and a lower standard of living because of losses to retirement savings.

Why didn't similar arguments persuade the Fed to prevent the collapse of Lehman, an investment bank and primary dealer comparable to Bear Stearns in size and importance? The answer, according to Fed Chairman Ben Bernanke and Treasury Secretary Henry Paulson, came down to untenable taxpayer losses and doubts about the legal authority to intervene in this particular case.

A few weeks after Lehman's bankruptcy, Bernanke addressed the issue: "Facilitating the sale of Lehman … would have required a very sizeable injection of public funds … and would have involved the assumption by taxpayers of billions of dollars of expected losses…. Neither the Treasury nor the Federal Reserve had the authority to commit public money in that way; in particular, the Federal Reserve's loans must be sufficiently secured to provide reasonable assurance that the loan will be fully repaid. Such collateral was not available in this case."[13]

Lehman had months to find private buyers for all or parts of its enterprise. None could be found, not even with the help of the Fed and the Treasury. And the firm's condition had deteriorated to the point where the Fed couldn't find sufficient collateral for a primary dealer credit facility loan.

Within hours of Lehman's bankruptcy filing, the negative consequences contemplated by Geithner in Bear Stearns' case began to unfold. Losses tied to holdings of Lehman debt forced one of the oldest money market funds to sink below the purchase price of $1 a share, financial markets seized up, stock markets around the world plunged, and governments were eventually forced to inject capital directly into their banking systems and extend deposit insurance safety nets.

In some ways, the Lehman episode was as close as possible to a controlled experiment in the realm of economics. By not intervening, the Fed created no moral hazard. Interestingly, some critics who chastised the Fed for creating moral hazard with Bear Stearns declared that moral hazard should have been disregarded in the case of Lehman.

Little will be gained by debating the what-ifs surrounding Lehman. By the time Lehman filed for bankruptcy, the cost to insure the debt of other investment banks had also skyrocketed. A prohibitively expensive Lehman rescue would have merely forestalled one failure, but many other at-risk investment banks would have remained as the financial system buckled under intense leverage. What Lehman revealed was the need to give authorities better tools to manage the threats to firms considered key to the nation's and the world's financial infrastructure.[14]

What are the lessons of Lehman's demise? In particular, should moral hazard be categorically and systematically avoided? With the interconnectedness of the global economic and financial systems, it's clear that fire sales can spread to distant places and impact economic entities far removed from the initial calamity. It took the collateral damage from Lehman's bankruptcy for this to be widely appreciated by those who have invoked moral hazard to argue against Fed interventions. Moral hazard has its costs, but it also has its benefits.

The Fed's Hippocratic Oath

A basic precept taught in medical schools is first, do no harm. All interventions—whether they involve medicine or finance—have potential costs, benefits and unintended consequences. These are often difficult to anticipate, especially in the financial realm, where crises occur infrequently and each differs from its predecessors in important ways.

In keeping with the principle of doing no harm, it is ideal to leave markets to work their magic. When the Fed does intervene, it tries to do what's necessary—but as little as necessary—to achieve financial stability.

This is as it should be. Unfortunately, defining "as little as necessary" is rarely easy. In turbulent times, the challenge regulators face is that maps charted during past crises are all but irrelevant. Each crisis requires judgment calls that must be executed in real time, often using incomplete and partly accurate information.

In the current financial crisis' first year, the Fed's response has been measured, reflecting the commitment to doing only what's necessary. The central bank began with the hope that the routine tools of monetary policy would be sufficient to lessen the danger to the markets and the economy. The Fed turned to unorthodox solutions—the new lending facilities and direct intervention—only when faced with a deepening crisis. Direct intervention has been rare, taken only

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when stakes were high and other options were exhausted.

Intervention in the financial markets in general, or in the affairs of a single financial institution, remains a red-button option, reserved solely for tangible threats to the Fed's primary goals. The Fed prefers to rely on the self-correcting mechanisms of market forces. This discipline flows from a guiding principle: No one entity is too big to fail; only the financial system is too big to fail. Some entities may be so caught in the intricate weave of the financial system that their problems can't be resolved quickly. Using this metaphor, Bear Stearns and AIG were single threads that, if pulled, could have unraveled the entire financial system.

As ideal as it would be to eliminate moral hazard, the Fed—the central bank for the world's largest economy—can't do that and fulfill its legal mandates. Like it or not, central bankers face the reality that managing moral hazard is an inescapable part of their job description. Seeking to minimize micro moral hazard during tumultuous times is as far as they can go.

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Notes

[1] The Fed has worked closely with the Treasury Department to mitigate the financial crisis. In early September, for example, Treasury took control of the Federal National Mortgage Association and Federal Home Mortgage Corp., two federally sponsored investors in the housing sector.

[2] For more on this subject, see "Fed Policy and Moral Hazard," by Harvey Rosenblum, *Wall Street Journal*, Oct. 18, 2007.

[3] Timothy Geithner, testimony before the Senate Committee on Banking, Housing and Urban Affairs, April 3, 2008.

[4] See Geithner's remarks in "Brokers Threatened by Run on Shadow Bank System," MarketWatch, June 20, 2008. The term *shadow banking system* was coined by Paul McCulley, who used it for the "whole alphabet soup of levered up non-bank investment conduits, vehicles, and structures." See "Teton Reflections," *Global Central Bank Focus*, August/September 2007.

[5] Alan Greenspan, testimony before the House Committee on Banking and Financial Services, Oct. 1, 1998. One solution to the problem of so-called too-big-to-fail banks would be forced recapitalization by competitors. See "What Reforms Are Needed to Improve the Safety and Soundness of the Banking System?" by Harvey Rosenblum, Federal Reserve Bank of Atlanta *Economic Review*, First and Second Quarters, 2007.

[6] "Taking Stock in America: Resiliency, Redundancy and Recovery in the U.S. Economy," by W. Michael Cox and Richard Alm, Federal Reserve Bank of Dallas 2001 Annual Report.

[7] The Dow suffered its worst one-day point loss on Sept. 29, 2008, when it lost 777.68 points.

[8] For more on this, see "From Complacency to Crisis: Financial Risk Taking in the Early 21st Century," by Danielle DiMartino, John V. Duca and Harvey Rosenblum, Federal Reserve Bank of Dallas *Economic Letter*, December 2007.

[9] One of these cuts, made at the depth of the crisis on Oct. 8, was unprecedented in that the FOMC acted in coordination with five other central banks. The FOMC cut the fed funds rate by a half point—from 2.25 percent to 1.75 percent.

[10] "The History of a Powerful Paragraph," by David Fettig, Federal Reserve Bank of Minneapolis *The Region*, June 2008.

[11] The Fed and U.S. Treasury later modified the terms of the government's financial support for AIG. The new terms included a lower interest rate at 3 percent over Libor and reduced fees on undrawn funds. They also included a lengthening of the lending facility from two to five years.

[12] "Market Leader," *New York Times Magazine*, March 30, 2008.

[13] "Current Economic and Financial Conditions," Ben Bernanke speech to the National Association for Business Economics 50th Annual Meeting, Washington, D.C., Oct. 7, 2008.

[14] "Reducing Systemic Risk," Ben Bernanke speech at the Federal Reserve Bank of Kansas City's Annual Economic Symposium, Jackson Hole, Wyo., Aug. 22, 2008.

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