Replacing *Humpty Dumpty*

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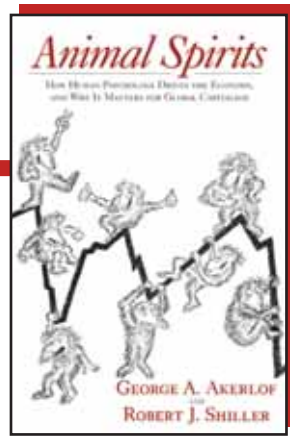
The new role of central bank credit targets.

The Fed has a way other than open market operations to prevent economic crises—which is what it was set up to do long ago. We here present an alternative view of central bank power that has more to do with systemic effects, and with animal spirits as well. When the Fed was initially set up in 1913, in imitation of European central banks, direct lending by the Federal Reserve banks in times of crisis—in times of special need for liquidity—was thought to be its major tool. The Fed was supposed to be dealing with systemic effects—the contagion of failure from one business to another.

Throughout the nineteenth century there were periodic banking panics. The depositors would literally line up in front of their bank, fearful that those ahead of them in line would be the last to make their withdrawals and that the bank would then be out of money. Such runs on banks were contagious. Word that one bank had failed its obligations led depositors at other banks to line up as well. Even banks that were solvent prior to the crisis could have a hard time meeting their obligations. Indeed when everyone was withdrawing their deposits out of fear, there might not be enough currency to meet their demands.

For the public, the banking panic of 1907 was the last straw. Once again the same pattern had repeated itself. The financial crisis appears to have gone out of control with the suspension of currency payments by New York's Knickerbocker Trust in October 1907. The bank run spread from there. Banks in the



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(Princeton University Press, 2009).

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interior, outside New York, held deposits at large New York banks, including Knickerbocker. They counted on using these deposits when there was a demand for currency by their own depositors. After the Knickerbocker suspension, there was a run on all the banks, both in the interior, where the depositors actually lined up, and in New York, where the interior banks were trying to cash in their deposits. The resulting disruption of commerce caused a sharp reduction in the country's economic output. From 1907 to 1908 real output declined by 11 percent.

Nelson Aldrich, the prominent Republican senator from Rhode Island and father-in-law of John D. Rockefeller Jr., was appointed chairman of a National Monetary Commission. He went to Europe for almost two years to study central banking. On his return, Aldrich sequestered himself in deep secrecy for a week with four of New York's leading bankers at the Jekyll Island Club, off the coast of Georgia. There they hatched the plan that, duly amended, became the basis for the Federal Reserve System. It was designed to cure the problem of flight from deposits into currency. The Fed was empowered to provide credit (hence the discount window) and also cash for banks that were in temporary need, especially in times of panic. When the Fed was founded in 1913, this provision of a "flexible currency" was considered its major innovation. It was the lender of last resort, providing credit when no one else would.

Note that the original motivation for providing this elastic currency via the Fed was to deal with confidence and its opposite, panics. These issues were frequently discussed in connection with proposals for monetary reform after the panic of 1907. In 1911, as Nelson Aldrich continued to press his case for a U.S. institution modeled after a central bank, a *Washington Post* editorial summed up the situation: "We need first of all some centralizing organization, so that an impending crisis may be met and repulsed with combined power—instead of every bank or every local bank association scurrying to cover for itself, thereby precipitating or intensifying the panic. This happened in 1907, when the demoralizing factor consisted precisely of the banks' lack of confidence in one another." The actual implementation of the Federal Reserve System—after it had been talked about for years—took place in anticipation of yet another possible panic. Representative Carter Glass of Virginia declared early in 1913 that "There are symptoms that should not go unobserved. …It would be the height of folly for us to defer action until it is forced upon us by the imminence of panic." From its inception the Fed was seen as an agency that would take decisive action at those moments when confidence might be collapsing.

THE CHANGING NATURE OF THE PROBLEM

The Fed and subsequently the Federal Deposit Insurance Corporation were the clever solutions to liquidity problems that could give rise to bank panics. Indeed, for some time now, bank panics and liquidity crises have seemed a thing of the past, so much so that most economists, until very recently, have viewed them as a solved problem.

Four lines of defense prevent the failure of normal depository institutions from causing a systemic crisis. First, they are supervised—although, as we know all too well, that supervision is not foolproof. Second, such institutions are guaranteed liquidity in the event of panic (but not in the event of insolvency) at the Fed's discount window. Third, individual depositors are insured by the FDIC for amounts up to $250,000, according to current limits. Finally, if all three of these lines of defense have failed, the FDIC has the power to take the bank into resolution. Indeed, this insolvency function of the FDIC may be the most important government tool for limiting and preventing bank panic, because it can resolve the bank (that is, it can take over the bank's assets and sell them) slowly, according to its own schedule.

But not all institutions of credit are covered by this careful overlapping system of defense. Over the course of the twentieth century, and especially in recent years, a new shadow banking system has grown up. These so-called nonbank banks are the investment banks, bank holding companies, and hedge funds. Functionally these do just what a "bank" does. They take out loans with short maturities—a great deal of it typically borrowed from banks or from bank holding companies—and then they invest that money.

And there can be a "run" on these institutions just as there can be a run on traditional banks. In the same way that nineteenth-century bank depositors fled into currency in times of panic, every short-term lender may want to be the first in line not to renew its loans to investment banks, bank holding companies, and hedge funds.

Furthermore, such a flight to safety can occur systemically, as everyone rushes for the door at once. The lenders' apprehension of a demand by their own depositors may make them especially skittish. This reduces the funds available to

the non-bank banks. It also raises the rates that they must pay for the funds they are able to borrow. They may have been fully solvent before the flight to liquidity began, but in a liquidity crisis they may not be able to afford the higher rates required for continued borrowing.

BEAR STEARNS AND LONG-TERM CAPITAL MANAGEMENT

The interactions between the Fed and Bear Stearns in 2008, and between the Fed and Long-Term Capital Management in 1998, are illustrative of the Fed's concern about the shadow banking system and the possibility that failures there would lead to a financial panic.

On a Monday morning in March 2008, the public was stunned to discover that over the weekend Bear Stearns, a leading investment bank, had been merged with JPMorgan Chase at the bargain-basement price of $2 per share. In the words of one prominent Wall Street lawyer: "This is like waking up in summer with snow on the ground." The Fed had acted as the midwife to the deal; it gave JPMorgan a $30 billion line of credit, backed by the collateral from Bear Stearns. Commentators seemed as surprised by the role played by the Fed as by the collapse of Bear Stearns.

But the history of the Federal Reserve and the original intent of the discount window suggest exactly why the Fed helped broker such a deal. Federal Reserve Chairman Ben Bernanke, one of the leading historians of monetary crises and the role the Fed has played in them, understood the original intent of the founders of the Fed. He had been worried that the collapse of Bear Stearns would create a liquidity crisis. If the creditworthiness of Bear Stearns was in doubt, who in turn would loan to their creditors? That is exactly what had happened a century earlier with the failure of Knickerbocker Trust. When it failed, who was to trust that its creditors—especially all of those interior banks, with their deposits—would be paid off? A chain reaction set in.

We have but to look back ten years to find another similar event. Here again, in the nick of time, the Fed came to the rescue. The institution at risk was not an investment bank but rather a hedge fund. In 1994 an offshoot financial group from Salomon Brothers opened a hedge fund, which they called Long-Term Capital Management (LTCM). They would arbitrage risks according to the financial theories of Myron Scholes and Robert Merton—who would, three years later, share the Nobel Prize in economics for "a new method to determine the value of derivatives." Because of the impeccable reputation of its advisers, not only was LTCM able to assemble $1.25 billion in capital, it was also given, unthinkingly, *carte blanche* to borrow from Wall Street's leading banking houses.

The partners in LTCM were at first just as successful as their initial prospectus suggested they would be. They had a fairly simple basic strategy—largely based on regression analysis and options theory—of how to make money on Wall Street. Past behavior indicated how options behaved. On a large variety of comparable trades, spreads would regress toward their historical means. If these spreads were large they would decline. If they were small they would rise. It was almost a sure thing to make such bets. And that is exactly what happened in the first years of LTCM. One of us remembers meeting one of the partners at a cocktail party in Washington at the time. Asked how he was doing, he grinned and answered that the pay was better than in the government, where he had worked previously. By 1997 LTCM's capital had grown through profits and new subscriptions to $7 billion. Its profits were $2.1 billion.

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But pride goeth before a fall. In 1998 a problem developed with the LTCM strategy. Whereas in previous years markets had obligingly agreed with prior econometric estimations, and spreads had almost universally regressed toward their means, 1998 saw the Russian and Asian currency crises. Rather than converging, market spreads diverged. And LTCM began to lose its shirt. All that leverage from Wall Street's borrowed money, instead of being an asset, was now a liability. By August it seemed possible that the fund might go under. By mid-September it seemed all but certain that LTCM—with more than $100 billion of borrowed money, and bets on derivatives with a face value far in excess of that—would go bankrupt. No one really knew what would ensue in the event of a bankruptcy. What would happen if there was a gap in the chain of payments, while bankruptcy courts sorted out who would owe what to whom?

The Fed intervened. An emergency meeting of the titans of Wall Street was convened in the boardroom of the Federal Reserve Bank of New York. An agreement was hammered out, whereby the leading lenders would contribute a pool of $3.65 billion to LTCM. They would also take 90 percent of the partners' shares.

In the cases of both Bear Stearns and LTCM, the role of the Fed was to be the banker of last resort. It was to counter

systemic risk in a liquidity crisis. In both cases it acted heroically, and a liquidity crisis was avoided. But these proved to be just the early warning signs of what was to come.

On September 15, 2008, Lehman Brothers filed for Chapter 11 bankruptcy. The Federal Reserve and the federal government began a new mode regarding intervention in the economy. It is no longer a question of using the powers of the Fed and the Treasury to rescue a single institution, to keep the first domino from falling. Central banks and governments all over the world are trying to rescue their own economies, and the world economy more generally.

THE CURRENT FINANCIAL CRISIS: WHAT IS TO BE DONE?

Our view of central banks has implications for the current economic crisis. The prescription for most economic recessions—the equivalent of "take two aspirin and get some rest"—is a reduction in interest rates (that is, reliance on standard monetary policy) and fiscal expansion, in the form of either additional spending or, more probably, politically popular tax cuts. But this time we need to do more.

This recession is different. It is not just due to low demand. Nor is it primarily due to high energy prices, although oil prices were especially high in the summer of 2008. The overwhelming threat to the current economy is the credit crunch. It will be difficult and perhaps even impossible to achieve the goal of full employment if credit falls considerably below its normal levels.

Problems in the financial sector have occurred before. For example, there was massive failure of savings and loan associations in the United States in the 1980s. Their resolution cost $140 billion, which was a lot of money, especially to be wasted. But it was still only about 2 percent of GDP at the time. The failures did not have a major macroeconomic impact.

In contrast, the current crisis is pervasive. It involves the economy as a whole. It is not just about those who bought houses they could not afford. It is about the state of California, which says that it can no longer borrow; about the demise of investment houses around the world, which seemed like they would last forever; about consumers who do not want to buy a car, and who could not obtain the credit to buy one if they wanted to.

This credit crunch has occurred because the old system of finance changed. In the old days, for the most part, those who originated loans kept them in their own portfolios. But then the proponents of the "new finance" discovered all kinds of ways to package these loans (to "securitize" them) and to divide up those securities. And then exotic financial derivatives further spiced up the stew. These financial products did not even need to be backed by underlying assets: they were promises to pay if some future event took place. Relying on a curious financial alchemy, investors combined these products in clever ways, thinking that they were thus able to exorcise the underlying risk. In the spring of 2007—just before the financial markets began to notice that, maybe, something was wrong—risk premiums were at all-time lows.

The story of the go-go years was that all of these securitizations and derivatives were about "risk management." Indeed, both securitization and some futures contracts do play this role. But then the story changed. The new story suggested that securitization and the exotic derivatives could be nothing more than a new way of selling snake oil. And as this new story about the nature of Wall Street and its products replaced the old story, the life drained out of the financial markets. The demand for the exotic products collapsed, and the credit crunch began.

The credit crunch began for three separate reasons. First, and most obviously, a standard mode of financing had collapsed. Those who originated loans (mortgages, for instance) could no longer expect to be able to package them and pass them on easily to unsuspecting third parties. Now if they were going to originate those loans either they would have to keep them ultra-safe before they passed them on, or they would have to keep them themselves.

The second reason for the credit crunch involves the relation between capital loss and leverage. Many of the institutions that held the loans or that originated them—depository banks, investment banks, and bank holding companies—had themselves invested in the new financial products. They had also been highly leveraged. And now, with the change in the story and the collapse of trust, their assets had fallen in value. For every dollar they lost on these assets, the institutions would lose a dollar's worth of capital. Not only did this edge them toward bankruptcy, it also increased their leverage. Institutions had to choose among a three-way trade-off between an increase in leverage, a

Continued on page 84

Ben Bernanke

Alan Blinder

The idea of targeting credit goes at least as far back as an article written by current Fed Chair **Ben Bernanke** *and former Fed Vice-Chair* **Alan Blinder** *in 1988.*

Continued from page 33
curtailment of loans, and taking out new capital. The credit crunch came as they chose to curtail their loans and other securities. The leverage problem was further compounded by the fact that the nondepository institutions were borrowing short but lending long. The bank holding companies, the hedge funds, and the investment banks were banks in fact but not in name: they were the shadow banking system.

The use of already-promised credit lines gives a third reason for the credit crunch. While the good times rolled, banks had granted lines of credit to their customers. Now, facing a shortage of credit, these customers cashed in, in unexpected numbers, on the promises they had found relatively easy to extract in better times. Meeting these promises put the banks in a further squeeze in terms of their ability to make new loans.

A CREDIT TARGET

The preceding summary of what has happened is now the standard story. A careful reading of the *Financial Times* or the *Wall Street Journal* on even a single day would, implicitly or explicitly, reveal this interpretation of events. But it has implications for macroeconomic policy. The usual macroeconomic models, used to make forecasts, do not contain the financial detail that would describe the credit crunch and why it has occurred. It is fairly easy now to project the fiscal and monetary stimulus necessary for aggregate demand to be at full employment—if financial markets are freely flowing.

But, with the loss of confidence in the financial sector, macroeconomic planners must also have a second target. In such abnormal times, the traditional ways of determining the needed stimulus are misleading. The planners must also make a plan—we might call it a target or an intermediate target—for the amount of credit of different sorts that is to be granted. This target should correspond to the credit that would normally be given if the economy were at full employment. The target should not be merely a mechanical credit aggregate, but should reflect the more general condition that credit be available for those who, under normal conditions, would be deserving of it. The idea of targeting credit goes at least as far back as an article written by current Fed Chair Ben Bernanke and former Fed Vice-Chair Alan Blinder in 1988.

Achieving the credit target is urgent for several reasons. Most notably, firms that count on outside finance will go bankrupt if they cannot obtain credit. If the credit crunch continues and many firms go bankrupt, it would take an impossibly large fiscal and monetary policy stimulus to achieve full employment.

There is the further problem that, as long as credit markets are frozen, the need for fiscal and monetary stimulation will continue. Using the appropriate fiscal and monetary stimulus, in a sufficient amount, could possibly keep us at full employment. But to do so without relieving the credit crunch would be like propping a sick man up in bed so that he looks all right. He will collapse again just as soon as you remove the prop. Japan during the 1990s is illustrative. After its own stock market and real estate debacle in the early 1990s, Japan was frequently in deficit for a span of over fifteen years. Eventually the government debt rose to 1.71 times annual GDP, but there was no sustained recovery until the banking system was fixed in 2002–03.

Furthermore, as long as the credit crunch continues, multipliers will be smaller than they would otherwise be. For example, a person who cannot borrow is unlikely to buy a car—even if a generous fiscal policy has provided him with the needed down payment.

In the nursery rhyme, when Humpty Dumpty fell, all the king's horses and all the king's men could not put him back together again. And that tale well describes the current financial crisis. The segment of the financial system that initiated loans, and then passed them on, was fragile. It fell. In terms of our animal spirits, confidence disappeared. People became suspicious of transactions that they had previously

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undertaken to the tune of trillions of dollars. And the story changed. There was no going back.

The public now looks to the still-existing financial structure of depository banks, bank holding companies, insurance companies, retirement funds, hedge funds, investment banks, and others to fill in the void that has been left by the financial sector's sudden fall. It is our belief—echoing Keynes' view of the role of macro policy—that if there is a macroeconomic void the government must fill it. It must once again set the stage for a healthy capitalism. This had been the vision in previous generations of those who established central banks: the role of central banks is to insure the credit conditions that enable full employment.

LTCM began to lose its shirt. All that leverage from Wall Street's borrowed money, instead of being an asset, was now a liability.

THE POLICY RESPONSE

Since the beginning of the credit crunch in August 2007 the U.S. government has used three types of instruments to expand credit.

Method 1: The Discount Window. The Federal Reserve has greatly expanded its discount operations, especially by the creation of different special loan facilities. The first of these was the Term Auction Facility (TAF), which enables banks to obtain Federal Reserve loans by competitive auction. The two auctions in October 2008, following the fall of Lehman Brothers, illustrate its use: the first auction furnished $138 billion for credit of 85 days and the second, $113 billion of credit for 28 days.

The Fed and the Treasury Department have also discovered an ingenious way to jumpstart failing credit markets. In November 2008 the Fed set up the Term Asset-Backed Loan Facility (TALF). The loans in the TALF are nonrecourse, that is, the banks can walk away from them. In addition the Fed offers them with only a small "haircut" on the collateral. (For example, the Fed might require collateral of $105 million against a $100 million loan. The haircut in this case is 5 percent)

These provisions have two effects. Because the loans in the TALF are nonrecourse, banks' potential losses are limited. As a result, banks should not require very high returns on loans to offset the risk—even now, in the midst of the crisis. They cannot lose more than the haircut. But at the same time, because the banks would be losing the haircut if the loans went sour, they also have an incentive to initiate good loans in the first place.

Another provision of the TALF, in turn, limits the Fed's liability. The losses on the collateral are shared between the Treasury Department and the Fed, so that Treasury is the junior debtor and the Fed is the senior debtor. The very first announced offering on TALF illustrates how it will work—and why it is so powerful and ingenious. In this first offering, the Fed is granting $200 billion of loans of one-year maturity against pools of collateral consisting of new or recent car loans, student loans, credit card loans, and small business loans. The collateral must be rated AAA by at least two rating houses. Treasury is using money it received under the $700 billion Troubled Assets Relief Program (TARP) to contribute a $20 billion junior tranche of the $200 billion. So the first $20 billion of loss will be taken by Treasury, not the Fed. This provision (plus the initial haircut taken by the banks) makes the Fed's interest relatively safe—enough so that it is legally empowered to make loans against it.

This scheme simultaneously accomplishes three goals. First, it gives powerful incentives for banks to make new loans. The most they have to lose is the haircut. Current spreads between Treasury bills and the types of loans that would go into the collateral pool should more than compensate for losses due to small haircuts. Second, TALF renders the Fed's portion of the collateral sufficiently safe. Third, Treasury's money can go much farther than if it were buying troubled assets outright. For example, if Treasury takes up 10 percent of the collateral as junior partner (as in the initial offering), a $300 billion contribution could support $3 trillion worth of new credit. That is the order of magnitude of impact on credit that would be needed to replace the fallen Humpty Dumpty. Of course, future TALF offerings may vary in many respects: they are now contemplated for commercial paper, loans against commercial property, and other types of collateral. Such offerings can also have different loan maturities, different required ratings on the loans, and different pricing schemes.

More generally, TALF shows us that there are two sides to creative finance: It may have gotten us into this crisis. But its genius may also get us out of it. Most important of all, TALF holds out the hope that Treasury money of the very large order of magnitude initially authorized by TARP can enhance credit flows by the yet larger order of magnitude necessary to have a serious impact on the credit crunch.

Method 2: Direct Injections of Capital. A second method of expanding credit, to replace the fallen Humpty

Dumpty, is direct injection of capital into banks. The Treasury Department has already allocated approximately $250 billion from TARP for this purpose. Approximately half of this was given to the seven biggest banks: Bank of America, Bank of New York Mellon, Citigroup, Goldman Sachs, JPMorgan Chase, Morgan Stanley, and Wells Fargo. Additional bank capital is especially valuable insofar as banks' lending is limited by their capital constraints.

Method 3: Direct Credit from Government-Sponsored Enterprises. There is yet a third approach. The federal government can use government-sponsored enterprises (GSEs) directly to increase lending. In February 2008, as part of the government's stimulus package, the maximum size of mortgage that could be purchased by two such enterprises, Fannie Mae and Freddie Mac, was increased. Previously there had been a flat limit of $417,000; the limit was now 125 percent of median regional home prices, up to a maximum as high as $729,750 for the most expensive regions. Moreover, the government directed Fannie and Freddie to continue to increase their portfolios of mortgage securities from 2008 to the end of 2009.

The federal government was thus instructing Fannie Mae and Freddie Mac to place massive support behind mortgages. Their combined book of business at the end of 2007, just before the crisis, was $4.9 trillion—a significant fraction of the entire publicly held U.S. national debt. Had these institutions not been taken into conservatorship and given this directive, their failure would have caused a deadly drop in mortgage financing, and possible immense downward overshooting in the housing market. But the government's near-guarantee of Fannie Mae and Freddie Mac (which had been only implicit prior to their takeover in September 2008) now meant that bonds issued by the two agencies were safe. The Federal Reserve also announced, on November 25, 2008, that it would be buying up to $500 billion of the mortgage-backed securities issued by the GSEs, and up to $100 billion of their direct obligations, further helping support the market for mortgages. Fannie and Freddie were thus free to replace a considerable share of the failing mortgage market.

It is only because of such dramatic action that the mortgage market in the United States has not already fallen apart. But this action was easily justified politically only because these were GSEs, initially created by the U.S. government.

In addition to TALF and other discount window-based operations, prudence suggests that we simultaneously prepare alternative approaches to deal with the credit crunch. A plan for recovery should include the possibility that relatively well-run banks that fall into the lap of the FDIC be incorporated into a new GSE. This corporation could be used directly to support lending activities beyond the conventional mortgages represented by Fannie Mae and Freddie Mac. This would require new legislation, setting up a corporation similar to the Resolution Trust Corporation, which resolved the S&L crisis. But here the mandate would be different: rather than focusing on expeditious resolution of assets, the banks in this new corporation would, with suitable supervision, be directed to make loans with the specific purpose of relieving the credit crunch. In the Swedish financial crisis of the early 1990s, a variety of methods, including state ownership of banks, insured that credit did not come to a standstill.

ADVANTAGES AND DISADVANTAGES OF METHODS 1, 2, AND 3

The actual mix of methods 1, 2, and 3 that should be used to achieve the credit target depends on their respective advantages and disadvantages.

Method 1: Expansionary Discount Window. Although the TALF would seem to be the method of relief involving the least expenditure of federal money and also the least direct intervention in the operation of credit markets, it is only experimental. Currently the Fed is basing its collateral only on AAA-rated securities. There may be many difficulties in extending use of the TALF to credit of lower grades. Furthermore, those who offer assets through the facility will surely try to game the system to dispose of their less well-performing assets. This potential problem of "lemons" in the collateral pool makes it difficult to extend operation of the TALF to securities that are not highly rated.

Method 2: Direct Investment in Banks. Direct investment in banks has its own issues, among which the problem of legitimacy and acceptance is especially salient. The public and the press do not like the idea of "bailing the banks out." It offends their—and our—sense of fairness. The public also fears—surely rightly so—that highly compensated bankers will somehow appropriate the funds from the bailout to increase their own bonuses. The *New York Times'* Gretchen Morgenson reflects such a political reaction when she describes how an "irreverent friend" thought TARP referred to "The Act Rewarding Plutocrats."

It may also be difficult to make injections of the necessary magnitude. The public may believe that injections of capital into the banks are necessary to make them solvent. But this fails to perceive the Humpty Dumpty problem. To relieve the credit crunch it is necessary to make the banks so super-solvent that they will replace those parts of the credit system that have failed. When it was announced that the Fed would inject $250 billion of capital into U.S. banks, the *Financial Times* ran a headline that suggested that even this amount was of the wrong order of magnitude to solve the credit crisis. Its banner headline compared the $250 billion being allocated by the United States to "Europe's $2,546bn Move."

There is also the lead-the-horse-to-water-but-not-make-it-drink problem. The injections may make the banks richer, and therefore less likely to become insolvent, but the banks

will not necessarily lend more money. They may already feel constrained by the extra loans they have extended in making good on their promised lines of credit.

But injections of capital into banks have two potential advantages. Such injections involve minimal interference with private systems of credit. They may also be a relatively cheap way to meet the credit target—provided that the banks' refusal to lend really depends on capital constraints. A $250 billion injection of capital will permit an extra $3.125 trillion worth of loans, if there is an 8 percent capital requirement. Furthermore, there is an interaction with schemes such as TALF. Relatively small injections are likely to greatly enhance the ability of banks that would otherwise be on the brink of insolvency to take advantage of TALF.

Method 3: Use of Government-Sponsored Enterprises. There are, of course, problems with government-run enterprises. A GSE will have difficulty in choosing to give loans to some citizens while denying others. Typically the resolution of such problems within public institutions involves cumbersome bureaucracies. In a credit crunch, when swift action is needed, this can prove a particular disadvantage. Yet many government operations function well. And many private companies function poorly; they too may be bureaucratic and inefficient. On the other hand, GSEs also solve the lead-the-horse-to-water problem. Government directives, as in the case of Fannie and Freddie, can compel the horse to drink.

THE ROLE OF FINANCIAL MARKET TARGETS

The aim of replacing the falling Humpty Dumpty financial sector is obvious to almost all policy macroeconomists. Our broad interpretation of Federal Reserve policy since the beginning of the credit crunch in August 2007, and also of fiscal policy during that period, is that the major goals have been to keep as close to the two full-employment targets as possible.

The two-target notion is useful as a vehicle for summarizing current economic policy. But its usefulness goes beyond that, and the experience of the Great Depression explains why. Both Presidents Hoover and Roosevelt moved in the right direction in terms of running budget deficits and also in their creation of new agencies to replace the then-failing financial system. Both presidents are heroes of ours, although we are not blind to the great deficiencies in their plans. Their economic policies sometimes worked in the right (Keynesian expansionary) direction, but often they themselves were misinformed, as when they both tried to balance their budgets. In the absence of a Keynesian model to gauge the size of the deficits necessary to target full employment, neither Hoover nor Roosevelt had either the inclination nor the political legitimacy to go far enough. Their deficit spending was orders of magnitude short.

The two targets provide such a gauge. Standard macro models are fairly accurate regarding the monetary-fiscal stimulus necessary to achieve full employment. But financial markets must also be targeted. The financial system is not the same as it was just a few months ago, before the fall of Humpty Dumpty. Only a portion of its prior self is now operating. The aggregate demand target will indicate, on the one hand, the fiscal stimulus and interest rate policy needed for full employment. The credit target will show what judicious application of methods 1, 2, and 3 must achieve: together they must create the financial flows—the issuance of commercial paper, bonds, and other instruments—that are also associated with full employment.

The segment of the financial system that initiated loans, and then passed them on, was fragile. It fell. In terms of our animal spirits, confidence disappeared.

The targets are needed not just to devise a plan that stands a good chance of getting us back to recovery. They are also necessary because such a plan will involve a huge sticker shock. When former Treasury Secretary Henry Paulson initially suggested his $700 billion bailout plan, the Congress balked. Paulson's description of how that money was to be spent was lacking in detail. But even after the Congress had fleshed out the plan, $700 billion still seemed like just too much money. Indeed, the House of Representatives initially vetoed the modified bill.

A study of animal spirits tells us why we need the two targets. These two targets, and the reasoning behind them, are needed to give policymakers not only the confidence but also the legitimacy to undertake a plan that is sufficiently bold. Our theory of confidence, snake oil, and stories shows why it is essential to do more than just keep the existing financial system solvent. Any plan that has a real possibility of ending the crisis must be of sufficient magnitude to replace the fallen Humpty Dumpty.

Of course the two-target approach and Humpty Dumpty do not apply only to the United States but internationally as well. ◆