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Before the House Financial Services Committee

"Systemic Risk: Are Some Institutions too Big to Fail, and if so, What Should We Do About It?"

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At its most fundamental level, the current economic calamity was precipitated by trillions of dollars in bad loans made in the lending frenzy during the middle of this decade. Between 2005 and 2007, the U.S. financial system extended too much credit to too many households and to a fair number of businesses that simply could not make good on those loans if they suffered even the mildest of financial setbacks. And there were plenty of setbacks, resulting in a flood of bad loans and losses to the financial system that undermined the system's capital base and thus its ability to extend credit even to creditworthy borrowers. As the credit spigot closed, it choked off economic activity, causing millions to lose their jobs and causing profits to plunge, thus creating even more bad loans, more losses, and an even larger capital shortfall. This adverse self-reinforcing cycle is at the center of the worst economic and financial crisis since the Great Depression.

Policymakers have worked aggressively to short-circuit this cycle, stabilize the financial system, and get credit flowing again. The U.S. Treasury Department has taken equity stakes in many of the nation's large financial institutions and has all but nationalized the residential mortgage market by placing Fannie Mae and Freddie Mac in conservatorship and empowering the FHA to dramatically expand its lending. The Federal Reserve has slashed the federal funds rate to zero and has stepped into the lending breach by purchasing a wide range of securities and extending cheap credit to private investors. The Treasury and Fed have put the nation's largest banks through stress tests to force them to rebuild capital sufficient to withstand future economic storms. And the Treasury is forming partnerships with large investors to purchase troubled securities from banks, providing a mechanism for removing them from their balance sheets.

All this will be very costly for taxpayers. The government has committed an astonishing $12 trillion to quell the crisis, of which $4 trillion has been provided (see Table 1). This includes money from the Troubled Asset Relief Program or TARP, the capital needed to shore up Fannie Mae and Freddie Mac, and losses the FDIC and FHA will bear given their added responsibilities. The ultimate cost to taxpayers will be less, since some of the money will be recouped in future asset sales, but the final tab is expected to approach $1.2 trillion, equal to over 8% of GDP.[i]

Although this is an extraordinary amount, taxpayers would have done measurably worse if policymakers had not acted so aggressively. The policy steps taken so far are working. The panic that roiled financial markets last fall and early this year is fading. A great deal of angst remains, but credit spreads—the best measure of that angst—have narrowed significantly. Bond issuance has revived, even for below-investment-grade corporations. Stock prices are up substantially from their early-March lows, even for banks issuing new equity following the stress tests. Perhaps most encouraging is that interbank lending, which had effectively shut down late last year, has largely returned to normal. Thus, while credit remains significantly impaired, it is measurably more ample than it was just a few weeks ago and much cheaper. There is no better reason to be hopeful that the worst of the economic downturn is over.

Table 1: Government Response to Financial Crisis
$ bil

	Pledged	Provided
Total	**12,080**	**4,036**
Federal Reserve		
Term auction credit	900	428
Other loans	Unlimited	132
Primary credit	Unlimited	42
Secondary credit	Unlimited	0
Seasonal credit	Unlimited	0
Primary Dealer Credit Facility	Unlimited	0
Asset-Backed Commercial Paper Money Market Mutual Fund	Unlimited	29
AIG	46	46
AIG (for SPVs)	9	0
AIG (for ALICO, AIA)	26	0
Rescue of Bear Stearns (Maiden Lane)**	27	26
AIG-RMBS purchase program (Maiden Lane II)**	23	16
AIG-CDO purchase program (Maiden Lane III)**	30	20
Term Securities Lending Facility	200	14
Commercial Paper Funding Facility**	1,800	163
TALF	1,000	16
Money Market Investor Funding Facility	540	0
Currency swap lines	Unlimited	247
Purchase of GSE debt and MBS	1,250	504
Guarantee of Citigroup assets	286	0
Guarantee of Bank of America assets	108	0
Purchase of long-term Treasuries	300	102
Treasury		
TARP	700	570
Fed supplementary financing account	479	479
Backstop of Fannie Mae and Freddie Mac	400	0
Federal Deposit Insurance Corporation		
Guarantee of U.S. banks' debt*	1,400	349
Guarantee of Citigroup assets		10
Guarantee of Bank of America assets		2.5
Transaction deposit accounts	500	0
Public-Private Investment Fund Guarantee	1,000	0
Federal Housing Administration		
Refinancing of mortgages	100	0
Congress		
Economic Stimulus Act of 2008	170	170
American Recovery and Reinvestment Act of 2009	787	787

Sources: Fed, Treasury, FDIC, FHA, Moody's Economy.com
*Includes foreign denominated debt
**Net portfolio holdings

This is not to say that credit flows will normalize soon or that the recession will soon give way to a robust recovery. Indeed, the coming recovery will be muted as long as the government has to prop up the nation's financial institutions. These institutions cannot yet provide enough credit to power strong and consistent growth. The financial system has a long way to go before it will be able to do without taxpayer help. Hundreds of smaller institutions that are not too big to fail will, and big parts of the securities markets have to be completely reworked before they can operate effectively again. Even when the government is able to step away from the financial system, private risk capital will be reluctant to return as long as the memory of recent events lasts, probably for a generation. Such risk capital fuels the innovation and technological change so vital to the economy's underlying productivity growth and long-term prospects.

The government's vast intrusion into the financial system also poses a range of threats. There are legitimate worries that with the Federal Reserve pumping so much liquidity into the system, it will eventually ignite undesirably high, if not runaway, inflation. Moreover, it is not clear whether the government will be able to gracefully exit its large ownership stakes in Fannie and Freddie, banks, and other financial firms. Fortunately, calls to nationalize major financial institutions, which would make such an exit significantly more complicated, have not been heeded.

The financial crisis also presents a once-in-a-lifetime opportunity to reform the regulatory framework overseeing the financial system. The Obama administration's proposed financial regulatory reform is much-needed and reasonably well-designed. Regulatory reform is vital to restoring confidence in the financial system and thus fully reviving it and the economy. The administration's proposed regulatory framework fills most of the holes in the current one, and although it would not have prevented the current crisis, it would have made it less severe. More importantly, the proposed framework would reduce the odds and severity of future financial crises.

The financial panic and Great Recession may soon be history, but its repercussions will be felt for decades.

Loss accounting

Millions of bad loans were made during the middle of this decade. At the time of their origination, there was a high probability that borrowers would be unable to make timely payments even under relatively untroubled financial scenarios.

More than 12.5 million subprime, alt-A, and jumbo residential mortgage loans were originated between 2005 and 2007, the height of the housing bubble. By the end of 2007, these risky loans accounted for nearly a fourth of all first mortgage loans outstanding. Adding to the threat that homeowners with these loans might never make good on them, almost half were so-called stated income loans—for which borrowers did not have to provide W-2 forms or tax returns to document their income. Over half of these borrowers also took out second mortgages, thus putting little or nothing down on their homes. Bad lending practices extended beyond residential mortgages to auto and credit card loans, commercial mortgages, corporate bonds, and leveraged loans used to finance increasingly aggressive private equity deals.

The ultimate cost of all this bad lending is projected to be an astounding $2.6 trillion (see Table 2). This translates into a cumulative lifetime loss rate of well over 10% on the approximately $24 trillion in U.S. credit market instruments now outstanding. The projection is based on a range of other forecasts, including an expected peak-to-trough decline in real estate prices of nearly 40% and a peak unemployment rate of 10%. Of these expected credit losses, $1.2 trillion will be suffered by depository institutions; nearly $1 trillion by pension funds, insurance companies, hedge funds and mutual funds; and $350 billion by government-sponsored enterprises including Fannie Mae, Freddie Mac and the FHA (see Chart 1).

To date, financial institutions have recognized some $1.4 trillion of the $2.6 trillion in expected losses (see Table 3). This suggests the system faces another $1.2 trillion in write-downs. Of these, about half, or $600 billion, will be taken by U.S.-based institutions. The rest will be borne by overseas institutions, mostly in Europe.

Table 2: Cumulative Lifetime Losses on Unsecuritized Loans and Securities in U.S. Financial System as of Year-End 2008

$ bil

				Expected Losses				
	Face Value	Expected Losses	Loss Rate	Banks	Insurance	Pension Funds	GSEs and Government	Hedge Funds and Mutual Funds
Residential Mortgages	10,856	1,339	12.3	550	205	145	321	118
Consumer Credit	2,025	262	12.9	167	38	16	-	41
Commercial Real Estate	3,425	471	13.8	250	74	59	30	58
Corporate	7,835	491	6.3	284	79	61	-	67
Total	24,141	2,563	10.6	1,251	396	281	351	284

Cash Flow Losses on Unsecuritized Loans

$ bil

				Expected Losses				
	Face Value	Expected Losses		Banks	Insurance	Pension Funds	GSEs and Government	Hedge Funds and Mutual Funds
Subprime	320	123	38.4	63	11	6	29	14
Alt-A	605	142	23.5	53	8	4	69	8
Prime	3,850	139	3.6	54	11	7	59	8
Commercial Real Estate	2,475	245	9.9	149	36	28	5	27
Consumer Loans	1,400	189	13.5	129	23	12	-	25
Corporate Loans	3,700	155	4.2	113	11	9	-	22
Leveraged Loans	175	45	25.7	25	6	6	-	8
Total Loans	12,525	1,038	8.3	586	106	72	162	112

Mark-to-Market Losses on Securities Holdings

$ bil

				Expected Losses				
	Face Value	Expected Losses		Banks	Insurance	Pension Funds	GSEs and Government	Hedge Funds and Mutual Funds
Subprime Residential	701	250	35.7	123	41	32	16	38
Alt-A Residential	870	205	23.6	68	28	15	84	10
Jumbo Residential	310	20	6.5	6	6	3	3	2
ABS CDOs	400	361	90.3	178	82	47	22	32
Prime MBS	3,800	99	2.6	5	18	31	39	6
CMBS	950	226	23.8	101	38	31	25	31
Consumer ABS	625	73	11.7	38	15	4	-	16
High-Grade Corporate Debt	3,010	133	4.4	69	28	27	-	9
High-Yield Corporate Debt	605	81	13.4	37	22	11	-	11
CLOs	345	77	22.3	40	12	8	-	17
Total Securities	11,616	1,525	13.1	665	290	209	189	172

Source: Moody's Economy.com

Chart 1: Big Losses Across All Financial Institutions
Projected losses on U.S. credit market instruments, $ bil

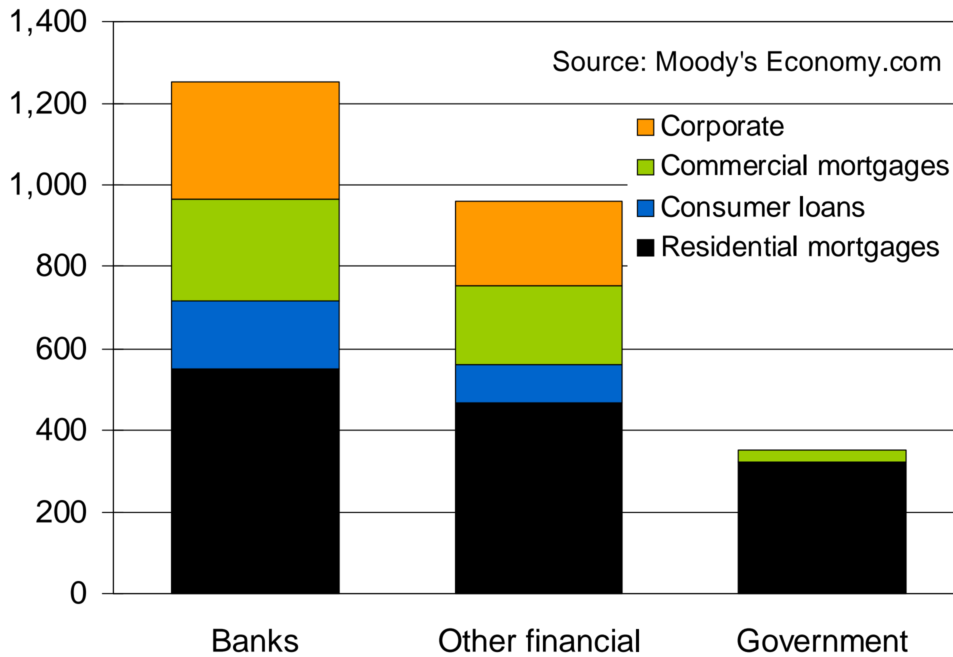


Table 3: Top 25 Financial Institution Write-Downs Taken on U.S. Loans and Securities
$ bil

Wachovia	101.9
Citi	101.8
Bank of America	56.6
Merrill Lynch	55.9
UBS	53.1
Washington Mutual	45.3
HSBC	42.2
JP Morgan	41.1
RBS	29.5
Wells Fargo	27.9
HBOS Plc	27.2
National City	25.2
Morgan Stanley	22.7
Barclays	18.6
Deutsche Bank	18.3
Credit Suisse	17.2
Lehman Brothers	16.2
Bayerische Landesbank	16.0
ING	15.4
IKB Deutsche	13.8
BNP Paribas	13.7
PNC	12.4
KBC Groep NV	11.3
Bank of China	11.2
Societe Generale	11.1

Source: Bloomberg

Who is to blame?

There is plenty of blame to go around for the bad lending. Most obviously, it could not have occurred without someone providing the credit, and flush global investors obliged. Booming emerging economies such as China and Russia collected a surfeit of dollars from their lopsided trade with the U.S. These countries invested initially in risk-free U.S. Treasuries, but in a quest for greater returns, they eventually moved into riskier mortgage and other securities. With hundreds of billions to invest and little time in which to do it, emerging market investors did little or no research of their own.

The U.S. financial system funneled dollars from global investors into loans to U.S. households and businesses via the process of securitization. It turned out that this process was fundamentally broken. No one involved—from the mortgage firms that originated the loans to the investment banks that packaged them into securities to the rating agencies that graded those securities to the global investors themselves—made sure the loans were good. Everyone in this complex process thought others were doing so, but no one was. Securitization was guided by a mélange of laws, regulations and accounting rules, supposedly designed to prevent bad lending, but the tide of investor dollars completely overwhelmed the process. There was too much money to be made by all involved.

Regulators could have intervened but did not. The middle of the decade marked the apex of a quarter-century of financial deregulation that began in earnest during the Reagan administration. Back in the early 1980s, deregulation was desirable; many lower- and middle-income households and small and even midsized businesses could not obtain credit or could get it only at a high price. But by the middle of the decade, deregulatory fervor had gone much too far. Even at the Federal Reserve—the nation's key banking regulator—there was a view that self-interested global investors would do their own policing; regulators would only muck up an efficient lending process. This view was misplaced, as lending became increasingly egregious.

Hubris fueled runaway lending. House "flippers" were empowered by lenders' belief that house prices would never fall. Lenders, investment banks and rating agencies thought their data and models were sophisticated enough to prevent major mistakes. Investors thought the wild business-cycle swings of the past were just that—history. Central bankers believed that even if things did not go as planned, they could deftly step in and limit any economic fallout. This overconfidence bred greater and greater risk-taking, leading to the trillions in losses now choking the financial system.

Financial panic

That all the bad lending precipitated a financial crisis by the summer of 2007 was not surprising, but that the crisis devolved into financial panic was shocking. A string of serious policy errors, beginning with the Treasury Department's decision to put Fannie Mae and Freddie Mac into conservatorship in early September 2008, precipitated the panic. The move wiped out shareholders and signaled to global investors that all financial institutions, no matter how large, were at risk of failure.

At the time they were seized, Fannie and Freddie may well have been technically insolvent if valuing their assets and liabilities at market prices. But they still had enough capital to satisfy government accounting rules. In past financial crises, policymakers gave large institutions in similar situations some latitude to avoid unnerving investors: Citigroup was likely insolvent during the early-1990s savings and loan crisis but was not seized by regulators. When Treasury Secretary Henry Paulson did not show the same forbearance to Fannie and Freddie, investors were spooked.

The markets' fears boiled over when policymakers allowed broker-dealer Lehman Brothers to fail one week later. Lehman’s problem was not a lack of cash. It could use the credit facilities the Fed had established after the Bear Stearns collapse a few months earlier to stay afloat. But no other financial institution wanted to trade with a firm that might soon be out of business. Hedge funds that had used Lehman to execute their trades no longer did so, and bigger financial institutions forced Lehman to put up more collateral in case something went wrong. A year earlier, Lehman Brothers had been at the center of the financial system; now, over what seemed like just a few days, the system had shut Lehman out. The

company was careening toward bankruptcy.

The Treasury and the Federal Reserve worked feverishly to find a buyer for Lehman, as they had done for Bear Stearns, but no one stepped forward, leaving Lehman's fate to the Treasury and Fed. The Fed said Lehman lacked sufficient collateral to obtain a loan from the central bank. The Treasury said it could not bail out everyone and argued that the financial system had had plenty of time to prepare for Lehman's failure.

Yet, not everyone was prepared, and the failure to prevent a Lehman bankruptcy was a mistake. The Reserve Primary Fund, one of the nation's oldest and largest money market funds, had invested heavily in Lehman debt. The resulting loss caused Reserve to break the buck—the value of the fund's assets fell below what it owed its investors. This was a shock to many mom-and-pop investors who thought a money market fund was as safe as a mattress; they began withdrawing from the Reserve fund and others. Money market funds are typically large investors in commercial paper, the short-term IOUs of major businesses; now many funds had no choice but to freeze purchases or to sell commercial paper to meet their redemptions. Large firms began scrambling for ways to finance basic operations. Equity investors realized that no business was immune to the credit crunch, and stock prices plunged.

As the entire financial system neared the precipice, a rattled Secretary Paulson and Fed Chairman Ben Bernanke asked Congress to help them save the system. They asked lawmakers to put $700 billion into a Troubled Asset Relief Fund to buy the banking system's toxic assets. Neither the need for the $700 billion TARP nor how the money was to be used and overseen was well explained. Confusion grew over about how the asset purchases would be conducted and why they would quell the financial panic. With taxpayers incensed at being asked to bail out bankers and the election fast approaching, Congress failed to pass the TARP legislation on the first try. Financial markets boiled over in response, and Congress passed the TARP a few days later. However, the collective psyche had been badly damaged. There was no longer time to begin asset purchases, and the TARP money was used instead to infuse capital directly into teetering financial institutions. Taxpayers now owned big stakes in the nation's largest banks.

Although TARP funds were not being used for asset purchases, it was widely expected that they eventually would be. Investors were thus shocked when Secretary Paulson announced in November 2008 that the TARP would not be used for this purpose after all. Depressed asset prices fell even more; if the government was not going to buy these assets, no one would. The collateral damage from this decision was the near-collapse of Citigroup, which held hundreds of billions in bad loans and securities. Ironically, the only way to avert this calamity was for the Federal Reserve to guarantee Citi's troubled assets, the same assets the Treasury had decided not to buy.

Thus, a string of policy errors had turned a severe yet manageable crisis into a nearly uncontrollable panic.

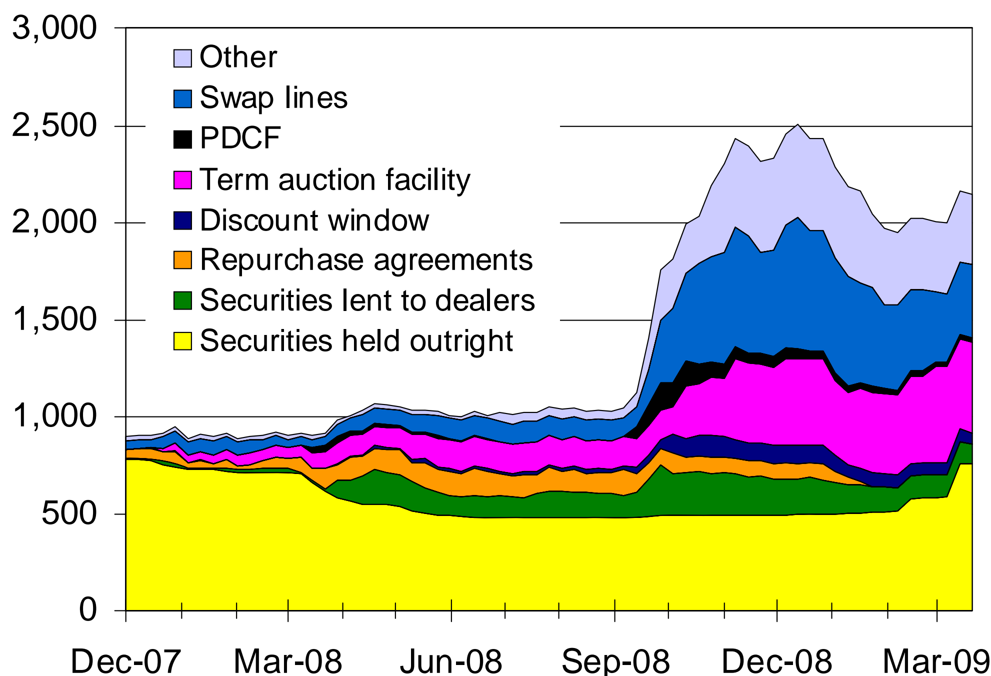
Buying, lending and guaranteeing

Policy mistakes precipitated last fall's financial panic, but generally adept policymaking ever since seems to have quelled it. Particularly noteworthy is the Federal Reserve's unprecedented use of its considerable resources to stabilize the financial system. Policymakers have slashed the federal funds rate to effectively zero and have indicated that the funds rate will stay there for an extended period.

The Fed has also engaged in credit easing, in which it essentially prints money to buy financial securities. The central bank is now buying commercial paper, debt and mortgage securities guaranteed by Fannie Mae and Freddie Mac, and Treasury securities. Before the financial crisis began, the Fed had approximately $1 trillion on its balance sheet, mostly in Treasury securities. It now has close to $2 trillion in a wide range of securities and has committed to increasing this to some $3 trillion by late this year (see Chart 2).

Chart 2: The Fed Prints Money

Federal Reserve's balance sheet, $ bil



Efforts to revive the commercial paper market have been particularly effective; the private market is now functioning well, and the Fed's commercial paper holdings have been winding down since peaking late last year. The decline in long-term Treasury yields and fixed mortgage rates is also evidence of the power of quantitative easing. With the Fed buying, 10-year Treasury yields are nearly 3.5%, and fixed mortgage rates have dropped close to 5% because of the lower Treasury yields and a narrowing in mortgage spreads.[ii]

The Fed has also dramatically expanded its lending to the financial system. Before the crisis, such lending was done only rarely and only through the Fed's discount window. A stigma was attached to banks that used the discount window, so most were reluctant to do so even if they needed the cash. To overcome this reluctance, the Fed established the Term Auction Facility in late 2007. The TAF allows banks to raise short-term cash through an auction, avoiding any stigma. To provide additional liquidity, the Fed also established the Primary Dealer Credit Facility and the Term Securities Lending Facility in early 2008.

The newest Fed lending facility is the Term Asset-Backed Securities Loan Facility, which this spring began providing attractive loans to private investors to purchase securities backed by a wide range of assets, including residential and commercial mortgages, credit cards, student loans, vehicle loans, and small business loans. The facility has gotten off to a slower start, with the Fed making only about $20 billion in TALF loans so far, primarily for purchases of credit card and auto loan securitizations. The Fed has said it is willing to make up to $1 trillion in such loans. The TALF's impact on the securities market is greater than these numbers would suggest, as interest rate spreads have narrowed meaningfully in anticipation of greater lending from the facility in the future. Ultimately, the TALF should be much more successful as the Fed adjusts it to make it attractive to more investors.

The Fed and FDIC have also worked to shore up confidence in the financial system by expanding various asset and deposit guarantees. The Fed now guarantees troubled assets at Bear Stearns, AIG, Bank of America, and Citigroup. Without this backstop, these institutions would have failed, likely creating a systemic catastrophe. The FDIC is also guaranteeing debt issued by banks. The Term Loan Guarantee

Program is backstopping well over $300 billion in bank debt. To forestall bank runs, the FDIC also increased deposit insurance from $100,000 to $250,000.

Shoring up balance sheets

Recent efforts by the Treasury Department have also helped quell the panic. The stress-testing of the largest bank holding companies this spring has been especially therapeutic. Tests were conducted on 19 banks, each holding more than $100 billion in assets and collectively accounting for two-thirds of total U.S. bank assets. The process provided a consistent framework for determining which institutions needed capital and how much. Institutions with capital holes have been required to fill them, which should eventually put them on a solid financial footing and thus reduce a major impediment to lending.

The stress tests determined expected loss rates for this year and next for different bank assets, including loans and securities. The banks were tested under a most-likely baseline economic outlook and also under a much more adverse outlook. The baseline was a bit more optimistic than the Moody's Economy.com baseline, particularly for expected unemployment, but the adverse outlook is reasonably dour, consistent with a Moody's Economy.com scenario that has a 20% probability of occurrence (see Table 4). That is, there is only a one-in-five chance that the economy performs meaningfully worse than this scenario. This is not quite what the Treasury and Fed advertised—they had argued that their adverse scenario had only a 10% probability of happening—but it is a very negative scenario nonetheless.

Table 4: Economic Scenarios Used in the Bank Stress Tests

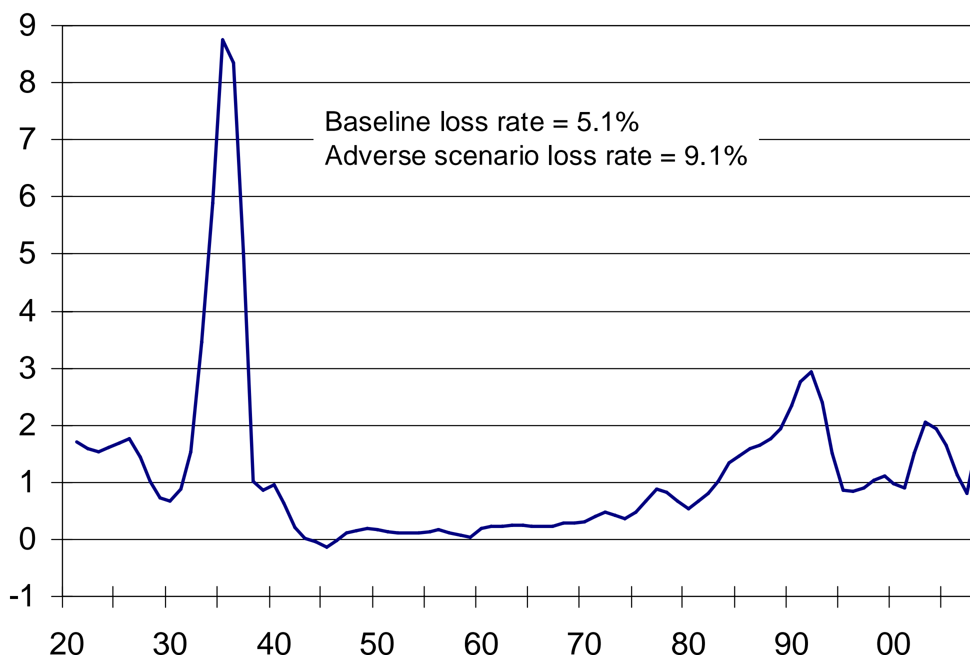
	2009	2010
Real GDP Growth		
CAP Baseline Scenario	-2.0	2.1
Moody's Economy.com Baseline	-3.0	1.4
CAP Adverse Scenario	-3.3	0.5
Moody's Economy.com 10% Scenario	-4.4	0.5
Unemployment Rate		
CAP Baseline Scenario	8.4	8.8
Moody's Economy.com Baseline	8.9	9.7
CAP Adverse Scenario	8.9	10.0
Moody's Economy.com 10% Scenario	9.6	11.0
House Prices (Case-Shiller® 10-city index)		
CAP Baseline Scenario	-14.0	-4.0
Moody's Economy.com Baseline	-19.4	-3.2
CAP Adverse Scenario	-22.0	-7.0
Moody's Economy.com 10% Scenario	-21.8	-9.3

Sources: Federal Reserve Board, Moody's Economy.com

Notes:
The stress tests are conducted under the Capital Assistance Program.
10% Scenario is designed so that there is a 10% probability that the actual economic outlook will be more severe.

Even more encouraging, the expected loss rates under both economic scenarios appear more negative than the underlying economic assumptions would imply. Assuming the baseline outlook, the total two-year loss rate across all assets is just over 5%, and assuming the adverse outlook, it is a very high 9%. The highest two-year loss rate ever was 9%, in the depths of the Great Depression (see Chart 3). Even during the savings and loan crisis of the early 1990s, the loss rate reached only 3%. Banks undergoing the stress tests will thus have enough capital to withstand an economic storm as bad as the Depression.

Chart 3: Bank Stress Tests Are Stressful
Commercial bank two-year loan loss rate



Of course, this is all in theory. If the economy were to experience a real depression, things might not go as scripted. Future earnings power is a key to how much capital each institution needs. The tests assume that institutions will remain profitable enough that after they raise more equity capital, sell off assets, and borrow from the government, their capital base will rise to a safe level. This assumption could be too optimistic if the economy seriously erodes.[iii] It is more likely that the economy will resemble the baseline, and these institutions will find themselves overcapitalized. Once they and their regulators feel certain this is the case, they can aggressively extend credit and acquire weaker or smaller financial institutions.

Stress-testing has had a noticeably positive effect on financial markets. Stock prices have rallied, even for the big banks that are issuing equity to meet the tests' requirements. There is no better endorsement of the process than the willingness of investors to pay more for shares in these banks after the tests than before. Yet more telling is the narrowing gap between three-month Libor and three-month T-bill yields—a good proxy for banks' willingness to lend to one another (see Chart 4). Big banks thus seem to believe that counterparty risk has been significantly diminished, if not eliminated.

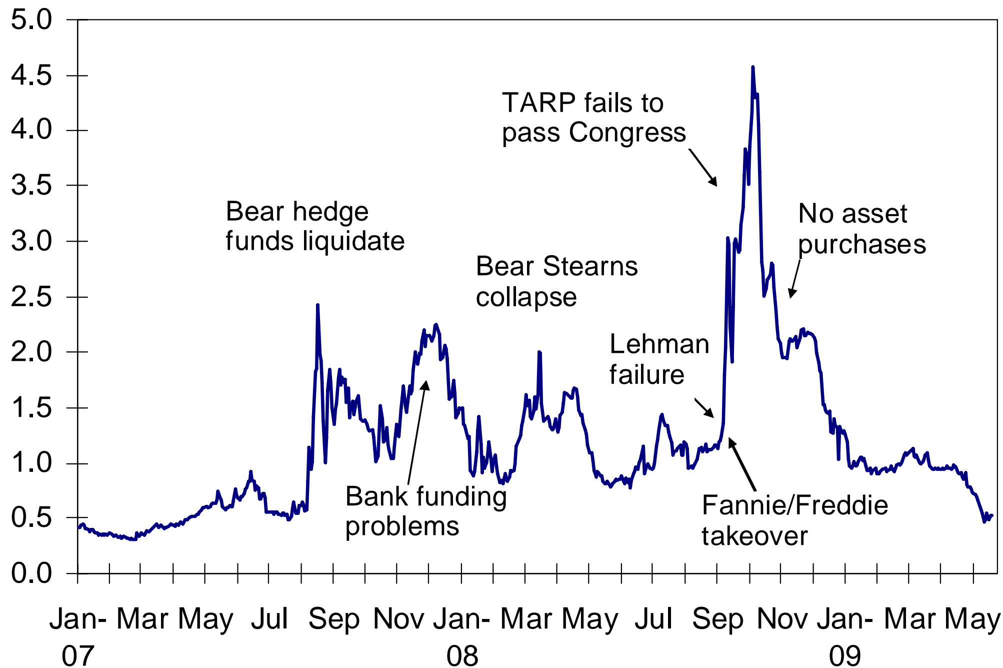
With the financial panic receding, policymakers have significantly scaled back their plan for a Public-Private Investment Partnership. PPIP was supposed to provide banks with a mechanism for selling their troubled loans and securities to investors. Under the plan, the FDIC would provide cheap, low-risk financing to private investors for purchases of bad loans and securities from banks. By encouraging these asset sales, the government would reduce the uncertainty surrounding banks' viability stemming from the presence of these assets on their balance sheets. The program would also help restart markets for loans and securities, a necessity for a well-functioning financial system.

Under the PPIP's legacy securities program, a handful of very large investors would receive FDIC loans to purchase securities from banks. Although investors would be required to put up some of their own money, the FDIC would finance most of the purchase, magnifying potential returns. The FDIC loans would be nonrecourse; thus, investors would risk only whatever they themselves put up. The legacy security

program is not much different from the TALF, but it targets existing securities and, unlike the TALF, includes securities rated lower than Aaa. The other PPIP program, the legacy loan program, is more novel, in that it would let banks auction existing loans to a broad array of private investors, who would receive cheap FDIC financing. The legacy security program appears set to begin soon, but the legacy loan program has been mothballed given banks' reluctance to participate in the auctions and a number of other impediments.

Chart 4: Financial System Is Stabilizing

Difference between 3-month Libor and Treasury bill yields



Not following through on PPIP or other efforts to get troubled loans off bank balance sheets may eventually prove to be a mistake if credit conditions continue to weaken and the capital raised in response to the stress tests is ultimately insufficient. However, given that credit conditions appear to be improving, this is a gamble policymakers seem willing to take.[iv]

Exit strategy

The unprecedented policy response to the financial panic was necessary and appropriate, but it will not be easy for the government to extricate itself gracefully from its massive intrusion into the financial system. The Federal Reserve has interests in assets amounting to trillions of dollars, and taxpayers now either own or hold sizable stakes in many of the nation's largest financial institutions. There is reasonable concern that this could lead to runaway inflation and that government's heavy hand could disrupt the day-to-day activities of financial institutions. The financial system will not provide credit efficiently, in the manner necessary for sturdy, long-term economic growth, until the government significantly withdraws.

Worry that the Fed's actions will ignite runaway inflation is not misplaced. Inflation is after all a monetary phenomenon, and the Fed is printing trillions of new dollars. But although inflation may well become uncomfortably high early next decade, it is unlikely to be as bad as feared and is certainly not a reason for the Fed to restrain its response to the current crisis. Money ignites inflation only if it first leads to more and cheaper credit, which then fuels economic activity enough to tighten labor markets and push

utilization rates near capacity. Policymakers will have time to act before this happens; it could be years before credit flows freely again and the economy finds its way back to full employment.

It is also worth noting that most of the Fed's new liquidity is in the form of short-term credit, maturing in less than 90 days. Once policymakers feel comfortable that the financial system and economy have stabilized, these programs can fade away. The Fed is providing liquidity with longer maturities—an example would be five-year TALF loans to facilitate investor purchases of commercial mortgage securities—but it is also working on new mechanisms such as issuing its own debt to drain longer-term liquidity when this is needed.

Firmly ingrained at the Federal Reserve is the belief that low and stable inflation is the central bank's first priority; sturdy, long-term economic growth is not possible without it. The Fed would almost surely raise interest rates aggressively, sacrificing near-term growth, to ensure that inflation does not rise too far above its target for too long.

Getting the government out of the financial services business could take much of the next decade. In fact, the government's stake in the system may expand further in the next several years as it places hundreds of smaller institutions in receivership. Of the 8,400 depository institutions now operating—including commercial banks, savings and loans, and community banks—nearly 1,000 are at significant risk of failing. Many will choke on bad commercial loans that will overwhelm their capital base.

It is encouraging that a number of the banks that took TARP money have begun to repay it. They have quickly realized that having the government as an owner entails considerable cost. Compensation practices have come under intense scrutiny, and the focus could easily turn to other business practices such as underwriting standards or resolving problem loans. It is not hard to envisage political pressure being brought to bear on government-aided financial institutions to ease lending or repayment terms. Once policymakers issue guidelines to banks seeking to repay TARP money, many institutions will quickly do so.

It will take much longer for the government to divest its ownership of behemoth institutions Fannie Mae, Freddie Mac and AIG. Fannie and Freddie play a central role in the housing market; privatizing them would mean higher mortgage costs and less credit. Selling AIG will be difficult, given the complexity of its operations. Thus, these institutions will likely be sold off in stages, as pieces are carved out and taken public or sold to private investors. It will be a daunting process, but it could go better than expected if, when financial conditions improve, these companies are sold at high enough prices to make a difference in correcting the federal government's severe fiscal problems.

Regulatory reform

As the Great Depression dramatically transformed the nation's financial system, so, too, will this crisis. From the ashes of the Depression rose the FDIC, Fannie Mae, and the Federal Home Loan Bank system; investment and commercial banking operations were separated; and the SEC was established. From the ashes of this panic, the nation's regulatory structure will be reworked and the financial system transformed. The goal will be to reduce the odds of future financial crises and the economic fallout should they recur.

A beneficial result of the financial crisis is an opportunity to rework the regulatory framework overseeing the financial system. The Obama administration's proposed regulatory reform is much-needed and reasonably well-designed. The financial panic has been quelled, but the financial system remains in significant disrepair. Credit remains severely impaired, as the growth in household and nonfinancial corporate debt weakened to its slowest pace on record in the first quarter of this year. The economy will not regain its footing until credit flows more freely. Reform is necessary to restore confidence in the financial system, particularly among global investors, and thus to revive it. The reform proposal is well thought out, at least in theory, as it attempts to fill most of the cracks in the regulatory framework that contributed significantly to the crisis.

An attractive aspect of the reform plan is that it establishes the Federal Reserve as a systemic risk regulator with the authority to adjust the capital and liquidity levels and risk management practices of all financial institutions deemed to pose a potential threat to the stability of the financial system. This would include all institutions, from the commercial banks it has historically overseen to those that it has not such as hedge funds and insurance companies. The Fed is uniquely suited for this task given its central position in the global financial network, its significant financial and intellectual resources, and its history of political independence.

As a systemic risk regulator, the Fed would be able to address an age-old problem: Namely, that banking regulation tends to be procyclical. When credit quality is good and lenders are aggressive, regulators have difficulty imposing discipline; when quality is poor and lending is tightening, the disciplinary screws are tightened. This procyclicality tends to exacerbate swings in lending standards and credit availability. It partly stems from regulators' inability to respond quickly, but it also reflects the influence of politics. Lenders find it much easier to keep regulators at bay when credit conditions appear robust, although those periods are generally when increased oversight would be most beneficial.

The Fed's new role would also come with an implicit mandate and meaningful tools to counteract asset bubbles. A long-held view at the Fed is that battling bubbles is not its job: Bubbles are difficult to identify, raising interest rates is a blunt way of attacking them, and if a bubble does burst, then lower interest rates are an effective response to the economic fallout. But as the nation's systemic regulator, it would be difficult for the Fed to ignore potential bubbles. As is clear now, ignoring them poses a mortal threat to the financial system. And as the systemic regulator, the Fed would presumably be able to significantly influence the amount of leverage, an essential ingredient in any asset bubble.

Responding to potential bubbles will not be easy, but little of what the Fed does is. Bubbles are always born out of something fundamental—the internet's debut for stocks, low interest rates for housing, or Chinese demand for oil—making them difficult to recognize at the time. Yet, the central bank is often asked to make judgments of equal, if not greater, difficulty. Will record oil prices undermine inflation expectations and result in higher underlying core inflation? Are a zero funds rate target and the purchase of Treasury bonds appropriate responses to the financial crisis? Was putting the Fed's balance sheet on the line to resolve the Bear Stearns collapse and save Citigroup and AIG beyond the Fed's mandate? Deciding whether a bubble exists in housing is no more difficult than these questions. A Federal Reserve that determines the nation's monetary policy and is also its chief financial regulator could reduce the odds of future financial crises through the deft use of all its tools, but it must also demonstrate the courage of its convictions.

The reform would also establish a Consumer Financial Protection Agency with the authority to protect consumers of financial products including credit, savings and payment services, and to regulate the institutions providing these products. This is a good idea, as it is clear from the current crisis that consumers' understanding of their obligations as borrowers or the risks they take as investors is limited. It is also clear that under the current regulatory framework, the authority to protect consumers is too widely dispersed across various regulatory authorities such as the Federal Reserve, SEC and FTC and not well coordinated and enforced.

The idea of a new consumer protection agency has come under much criticism from financial institutions that fear it would stifle their ability to create new financial products and would raise the cost of providing existing ones. The new agency would not always strike the right balance between consumer protection and overprotection, but it would help ensure that consumers understand what they are paying for. The Federal Reserve also seems reluctant to let go of its regulatory authority in this area. But the Fed has historically given its oversight of consumer financial products short-shrift compared with its weightier responsibilities, which would get even weightier with this proposed reform. Under laws passed as long ago as the mid-1990s, the Fed has had the authority to issue guidance to all mortgage lenders, regardless of their charter and regulator, regarding what constitutes appropriate lending.[v] The Fed did not exercise that authority until well after the current foreclosure crisis was under way.

The proposal also addresses a key failing exposed by the current crisis—what to do about financial

institutions whose failure would put the entire financial system at risk. The proposed reform would help avert cases like Lehman Brothers, whose failure brought the financial system to the edge of collapse last fall. The Treasury and Fed were seemingly confused as to whether they had the authority and ability to intervene to forestall a Lehman bankruptcy and ensure an orderly resolution of the broker-dealer's failure. With the proposed reform, there would be no such confusion in the future.

Among a number of other proposed reforms that would help prevent crises, originators of securitized assets would be required to retain a material economic interest in a security's credit risk. Without so-called skin in the game, issuers did not have adequate incentives to make sure the underlying loans in their securities were appropriately underwritten. The proposal also regulates over-the-counter markets for derivatives, including the credit default swap market to increase transparency and efficiency in these markets. Their opacity contributed to the uncertainty and thus the panic that pervaded the financial system in the crisis. And the proposal calls for increased oversight of hedge funds, money market mutual funds, and insurance companies. The proposed oversight appears modest, including registration of hedge funds, studying the structure on money funds, and collecting more information on insurance companies. Since all of these institutions played some role in the crisis, it is important for regulators to know more about them.

The most significant criticism of the Obama reform proposal is that it does not rationalize the current byzantine regulatory structure. An alphabet soup of federal and state regulators has watched over the financial system since the Great Depression, each regulatory body with its own narrowly defined jurisdiction. The OCC is responsible for bank holding companies, the OTS for savings and loans, the FHFA for Fannie Mae and Freddie Mac, and so on. During the housing bubble, the lenders that made the worst loans were able to skirt regulation by establishing corporate structures that fell outside any regulator's watch. Some of the most egregious loans were made by REITs that were all but ignored by the SEC, their nominal regulator.

The proposed reform also fails to adequately identify the lines of authority among regulators and the mechanisms for resolving differences. A new Financial Services Oversight Council would bring the key regulators together, but such a system would differ little from current interagency meetings. Regulators' inability to agree on guidance for financial institutions' lending practices contributed significantly to the current crisis. Basic guidance on alt-A mortgage lending was not forthcoming until late 2006, and subprime guidance waited until mid-2007, well into the crisis, as regulators could not agree on the exact wording.

Under the reform proposal, the thrift charter would be eliminated, and its regulator, the Office of Thrift Supervision, subsumed into the FDIC. The proposal also broadens the definition of a bank holding company to include thrifts, industrial loan corporations, credit card banks, trusts, and other grandfathered nonbanks. This broader definition would allow for more consistent regulation across this plethora of institutions. But although regulatory arbitrage would be a bit more difficult under these changes, it would remain a significant problem.

It is also worrisome that the Federal Reserve's political independence would be at greater risk under the reform proposal, given its significantly larger role in regulating the financial system. Its independence is vital to the appropriate conduct of monetary policy. The proposal provides no new mechanisms to ensure the Fed's independence. In fact, the Fed would be required to secure the Treasury Department's agreement to take action on the "exigent circumstances" clause of its charter.

The proposed regulatory regime would not have forestalled the current crisis, but it would have likely made it less severe. Even the best regulatory structure and oversight would have been unable to stop the flood of global investor dollars that fueled trillions of dollars in poorly underwritten lending at the root of the crisis. Booming emerging economies from China to Russia had a surplus of dollars earned in their lopsided trade with the U.S. Nothing in the proposal addresses this broad global macroeconomic imbalance.

The proposal does address other key imbalances, including the dysfunctional securitization process. The bad lending that took place leading up to the crisis was due in part to the fact that no one in the securitization process had enough at stake to make sure the loans were being made to creditworthy borrowers. The reform would require issuers of these securities to hold onto some of the credit risk inherent

in them. The risks taken in the credit default swap market would likely also have been less substantial than under the current regulatory regime. The failure of insurer AIG was due in large part to that institution's egregious risk-taking in the CDS market. With the greater disclosure required under the proposed reform, it would have been more difficult for AIG to be such a large player in that market.

Households might not have borrowed as aggressively during the housing boom if they had fully understood the mortgage loans they were taking on. Subprime, alt-A, and option ARM mortgage loans became increasingly complex as the housing market boomed. Fed surveys show that a sizable proportion of subprime mortgage borrowers did not understand that their payments probably would increase substantially in as soon as two years of receiving the loan. Had a consumer protection agency such as the proposed one been in place, it would have been much more difficult for lenders to extend such loans.

Similarly, had the Federal Reserve been the nation's systemic risk regulator, it might have reduced leverage in the entire financial system, particularly with respect to Fannie Mae and Freddie Mac, as the Fed had already publicly expressed its skepticism over their significant risk-taking. However, the Fed would not likely have been willing to require broker-dealers to raise more capital and reduce leverage, as regulators were actually allowing many of these institutions to take on more leverage, given their perceived acumen in managing risk. There was also little appetite to require more disclosure and less risk-taking by hedge funds.

Perhaps most importantly, the proposed regulatory regime would have allowed for a more orderly resolution of troubled institutions such as the GSEs, Bear Stearns, Lehman Brothers and AIG, which fell outside the purview of the Fed and other banking regulators but would be subject to oversight under the proposed system. It was the botched resolution of these institutions, partly because regulators lacked clear authority, that turned the financial crisis into a financial panic last fall.

Future financial system

The financial crisis is dramatically transforming the financial system. The traditional banking system will increasingly be dominated by either very large institutions or by small ones. Securitization—the bundling of loans into securities purchased by global investors that fueled the shadow banking system—will be resurrected but redesigned so that all parties have sizable stakes in ensuring the process works properly.[vi] Over-the-counter trading will be largely replaced by more centralized trading so regulators can oversee the derivatives markets that contributed to the crisis.

The crisis has shown that too many financial institutions are too big to fail. That is, their failure could undermine the system, leaving policymakers with little choice but to intervene. The desire to break up these institutions is understandable but ultimately futile. There is no going back to the era of Glass-Steagall; breaking up the banking system's mammoth institutions would be too wrenching and would put U.S. institutions at a distinct competitive disadvantage vis-à-vis their large global competitors.[vii] Large Canadian and Australian banks that weathered the current crisis well, for example, are making rapid inroads into U.S. banking markets. Banking institutions from China and other emerging economies are not far behind.

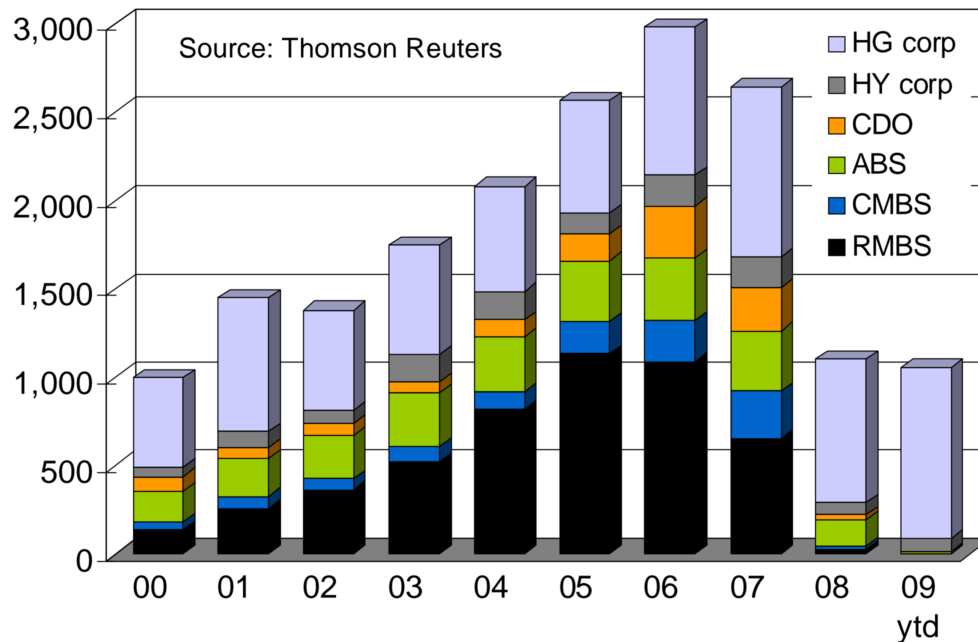
Large financial institutions are also needed to finance and backstop the shadow banking system and financial markets. Large banks provide much of the short-term cash that makes securitization run. It is more efficient and practical for regulators to watch over these large institutions and, by extension, the rest of the system. That is roughly how things were supposed to work before the current crisis, but the oversight was poor. With the Fed as the systemic risk regulator and a quicker mechanism for resolving the troubles of even large, complex institutions, oversight should measurably improve. These large institutions should also be required to hold more capital, satisfy stiffer liquidity requirements, be subject to greater disclosure requirements, and pay deposit and perhaps other insurance premiums commensurate with the risks they take and pose to the entire financial system.

While large institutions will dominate the financial landscape, there will be plenty of room for smaller players that cater to the needs of America's Main Street businesses. Small-business loans offer few economies of scale and require close knowledge of the business and its owner. Small-business owners also prefer working with smaller banks, which are more likely to work with them when times get tough.

The future financial system will also have an important role for securitization. It is true that the process that thrived during the last two decades—in which lenders made and quickly sold loans to investment bankers, who packaged them into rated securities to be resold to global investors—has collapsed. No one involved had enough at stake if a loan went bad, so many bad loans were made. Some $3 trillion in nongovernment-related securities was issued at the peak in 2006, compared with only about $1 trillion (annualized) so far this year (see Chart 5). Not a single residential or commercial mortgage security has been issued, and very few credit card, auto, or other asset-backed securities have appeared since late 2008.

Chart 5: Securitization Remains Troubled

Bond issuance, $ bil, annualized



Securitization will be resurrected, but it will be much simpler, and everyone involved will have a stake in making sure the underlying loan is good. Despite its clear vulnerabilities, the economics of securitization remain compelling. The fundamental logic underlying the process is sound: It unbundles the risks in lending and matches them with the risk tolerance of investors. More investors can thus participate, allowing more credit to flow to households and firms throughout the global economy. Securitization should and can be fixed.

The Fed's TALF program, in which investors receive cheap, low-risk loans to purchase the top-rated parts of securitizations, is a first crack at fixing the process. Participating lenders—auto finance and credit card companies, for example—hold the riskier parts of the securitization. If they make too many bad loans, they will suffer. Another idea gaining traction is the covered bond. It is a securitization, but loans backing the security remain on the lender's balance sheet. If loans go bad, the lender is responsible for replacing them. If many loans backing the security go delinquent and investors in the security stop receiving their money, they can go after the lender's other assets. Lenders thus have a strong incentive to make sure loans are properly underwritten. Yet, both regulatory and taxpayer help might be needed for the covered bond idea to really get going.

It would be a mistake to scrap securitization altogether and go back to the simple originate-to-hold

model of the past. Credit would be much less ample and more costly, even for creditworthy borrowers. There is, moreover, no guarantee that scrapping securitization would prevent missteps. The savings and loan crisis of the early 1990s was caused by the most plain-vanilla of lending institutions.

Centralized exchange trading of derivatives will grow to replace over-the-counter trading in the future financial system. OTC trading now occurs for many securities, including many derivatives at the center of the crisis. Perhaps most problematic is the market for credit default swaps, insurance contracts on fixed-income securities such as corporate and mortgage-backed bonds. AIG was particularly active in the CDS market, where it lost tens of billions of dollars that taxpayers have since been paying out. CDS in theory should mitigate risk in the financial system by allowing investors to hedge risks. In practice, they engendered uncertainty and fear. Because CDS are not traded on an exchange, there was little information regarding who bore what risks. This contributed to the freezing up of the financial system.

Although OTC trading has its place, particularly in commodity markets, regulators are pushing to move trading to organized exchanges. Such a move would increase transparency and accountability, both essential ingredients to averting future financial crises and mitigating the fallout if they occur.

Conclusions

The financial crisis is two years old and counting. It began as more than a garden-variety crisis, when the system choked on trillions in bad mortgage loans, but it did not devolve into a panic until a string of serious policy missteps in the fall of 2008. Placing Fannie Mae and Freddie Mac in conservatorship and allowing Lehman Brothers to go bankrupt were too much for the system to bear. Some good policy decisions since then, including the stress tests of the nation's largest bank holding companies, seem to have quelled the panic by the spring of 2009. Assuming that other efforts to shore up the system and end the recession succeed, the crisis should be over by this time next year.

The fallout will continue much longer, however. This has been a psychologically scarring period, and anyone involved will not forget it. Credit will slowly resume flowing more normally but will not flow as freely or as cheaply until a new generation with no memory of this period takes the reins of the financial system. Credit is the mother's milk of an economy; it drives the innovation and technological change so vital to long-term productivity growth. More cautious capital means slower long-term growth.

But the financial crisis is also generating the political will necessary to make long-overdue changes to the regulatory framework and to the financial system itself. The current regulatory structure was built during the Great Depression and feels like it. Financial institutions now provide a blizzard of products and services across the globe, and yesterday's rules are no longer up to the task. The financial system's plumbing is also getting a good overhaul. The fundamental processes of securitization and trading will be revamped to make them more transparent and institutions more accountable. After this crisis, the financial system will not be as flashy or as fast-moving as it was, but it will be more stable and sure.

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[i] The savings and loan crisis of the early 1990s ultimately cost taxpayers an estimated $250 billion in today's dollars, equal to less than 3% of GDP at that time. See "The Costs of the Savings and Loan Crisis: Truth and Consequences," FDIC, 2000. www.**fdic**.gov/bank/analytical/banking/2000dec/brv13n2_2.pdf

[ii] Long-term Treasury bond yields and mortgage rates have moved up substantially since early May. This rise reflects investors' views that the economy's prospects are improving, which is consistent with the rise in equity prices over the same period. It also reflects worries about a surge in Treasury bond issuance to finance the government's response to the current crisis, which is evident in the increase in CDS spreads on Treasury bonds. Pressure is rising on the Fed to increase its Treasury purchases beyond the $300 billion committed so far.

[iii] It is encouraging that the Federal Reserve appears to be limiting what share of the banks' additional capital requirements can be satisfied by expected future earnings.

[iv] Although it is creative and has a reasonable chance of success, the PPIP will ultimately cost taxpayers

much more than if the government had purchased the bad assets directly. The government is giving up much of the future return on these assets to private investors, even though it is taking much of the upfront risk. Concern that the government itself might overpay for the assets seems overdone; the government would use roughly the same models as investors would to value assets. However, direct government asset purchases would require more upfront taxpayer money than is now available in the TARP. The administration would thus have to go back to Congress for more money, something it clearly feels it cannot do.

[v] The Home Ownership Equal Opportunity Act passed in 1994 gave the Federal Reserve this authority.

[vi] The shadow banking system includes all nondepository institutions, ranging from hedge and sovereign wealth funds to pension and mutual funds.

[vii] The Glass-Steagall Act of 1933, among other things, established the FDIC and prohibited banking holding companies from owning other financial companies. The thinking was that institutions that combined commercial and investment banking were too speculative and created a less stable financial system. The Gramm-Leach-Bliley Act passed at the end of 1999 repealed this prohibition, resulting in the formation of very large financial institutions, many of which have failed or have required significant government help to avoid failure in the current crisis.