

RESEARCH BUZZ



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The Fed's New Front in the Financial Crisis

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The continuing foreclosure crisis worsened in October 2008, though some policy efforts appear to be taking hold. Other efforts may complicate the resolution of the crisis, however. The Federal Reserve (Fed) continued the aggressive expansion of new credit that it began in mid-September. The Fed also created two new credit facilities to add to the plethora of other facilities created since the financial crisis component of the foreclosure crisis began in August 2007. These new facilities are aimed at stabilizing the commercial paper market, most recently adversely affected by the failure of Lehman Brothers and the failures of several money market mutual funds (MMMF) in September 2008.

Some background on the commercial paper market

Lehman Brothers was a large issuer of commercial paper, which historically has been unsecured short-term borrowing by large companies

with exceptional credit ratings. Companies that issue commercial paper (CP) are typically firms that have relatively large demands for short-term financing. These firms include non-financial firms as well as financial firms, such as the financing arms for auto dealer and buyers including, for example, GMAC. These firms seek to avoid the relatively high cost of bank credit, going instead straight to the marketplace for short term funds, generally with one to six month paper. Here they can trade on their traditionally high credit rating to secure lower cost funds very quickly and easily and on an unsecured basis. Since the late-1990s, however, a new innovation has allowed firms to access the commercial paper market without the credit worthiness and liquidity of the usual issuers by providing CP that is backed, or secured, by a claim on a pool of assets. This paper is called asset-backed commercial paper (ABCP). It has been important for the development of financing for holdings of securitized asset pools, such as mortgage-backed securities (MBS), boosting the market for these new securities.

Figure 1 shows the components of commercial paper market since late-2006. The largest share of the commercial paper market before August 2007 had been ABCP. Nonfinancial commercial paper has been the smallest component of the market. Commercial paper has declined in two major waves over the past 15 months, first from August 2007 to December 2007 and then since mid-September 2008.

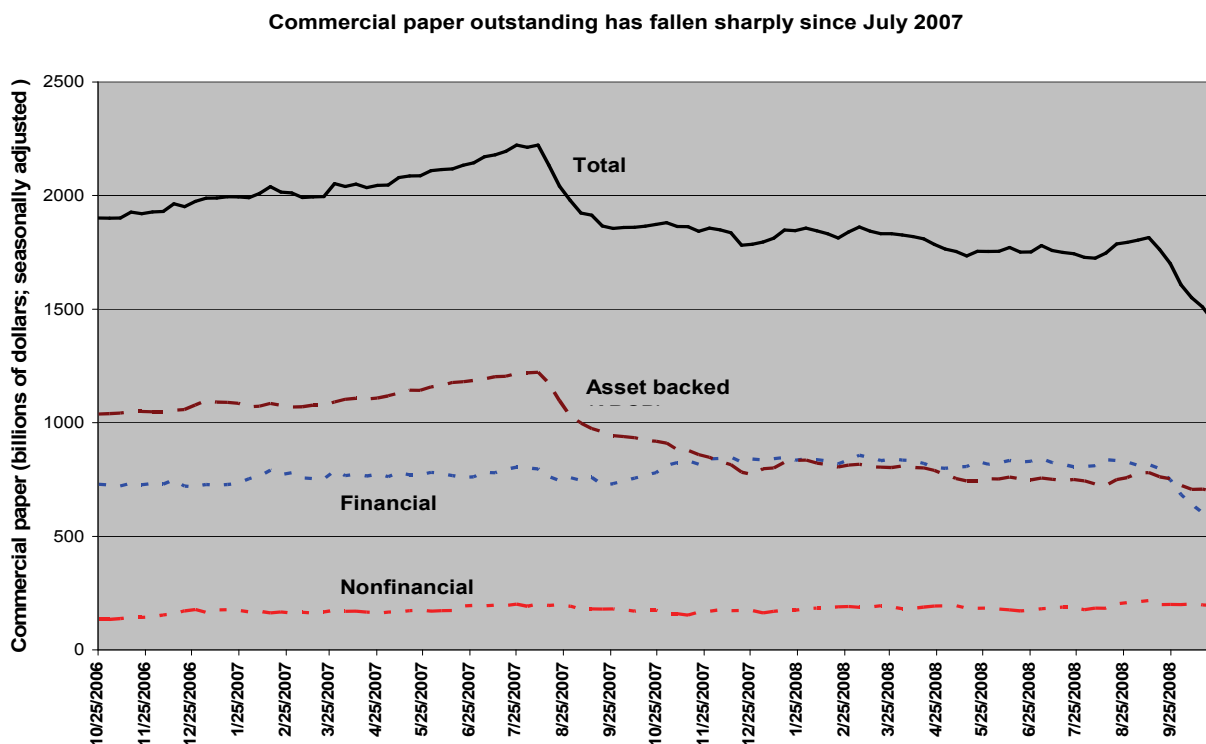
Commercial paper has played a key roll in the foreclosure-financial crisis in two ways. At the beginning of the financial episode in August 2007, many bank holding companies attracted attention because they held structured finance assets in special investment vehicles (SIVs), composed wholly or largely of MBS, securities with a claim on the income from pools of dedicated mortgage assets. These SIVs were financed by ABCP issued by the

holding companies. After several months of deterioration of the value of mortgage assets and MBS, commercial paper purchasers became unwilling to buy new ABCP. This led to a dramatic decline in ABCP in August and September 2007. The holding companies adjusted by selling the SIV assets to their affiliated banks, and the banks, in turn, financed the new assets by increasing their sales of money market deposit accounts and time deposits.

asset class, investors in money market funds ran for the exits because their funds were invested, in part, in these CP assets. As a result, some MMMFs failed and the market for commercial paper declined further.

The recent decline is about the same as the earlier one, but unlike the earlier one, it has caused a huge reaction by policymakers. In the five weeks

Figure 1
Commercial Paper Outstanding



Source: Board of Governors of the Federal Reserve System

The second period of sharp decline in commercial paper, beginning in mid-September 2008, was triggered by the failure of Lehman Brothers on September 14, 2008. Lehman was a large financial CP issuer and their failure raised risk perceptions of all holders and purchasers of CP. The decline in demand for commercial paper was reinforced by a decline in demand for assets backed by commercial paper. In particular, money market mutual fund (MMMF) issuers were historically major purchasers of CP. When CP became questionable as an

following August 8, 2007, commercial paper outstanding fell \$356.1 billion (16 percent) and in the five weeks since September 10, 2008, commercial paper outstanding has fallen \$366.2 billion (20 percent). Perhaps the different reaction was due to the fact that the latest event was associated with a decline in MMMF. Interestingly, the sharp and quick two-week decline of \$200 billion in money market funds in September 2008 was concentrated in institutional money funds, the type managed by the most astute and informed investors, not the retail

investors that one might think warrant policymaker protection. Nevertheless, the Fed and Treasury reacted very strongly, including the introduction by the Treasury of a government insurance program for unlimited balances in money market funds without congressional approval, and using funds on which Congress had earlier attempted to place strong restrictions after unauthorized Treasury use in the 1995 Mexican peso crisis. In addition, the Fed reacted with new credit facilities described in Tatom (2008a) and below.

There was an earlier shock to public confidence in commercial paper that evoked a Fed response out of concern for the stability of the commercial paper market. In June 1970 the Penn Central railroad was headed for bankruptcy, despite its earlier strong credit rating and reputation in credit markets. The Nixon administration had proposed a loan of \$750 million, including \$300 million to keep Penn Central out of bankruptcy, but Congress, following the lead of the House Banking Committee chairman Henry Gonzalez, was unwilling to make the loan. This would be the equivalent of about \$3.5 billion and \$1.4 billion, respectively, today, well below the size of bail-outs involved in recent government programs. Because of its inability to obtain a government or other loan, Penn Central failed on June 21, 1970, at the time the largest bankruptcy in U.S. history. The Fed, fearing repercussions in the CP market because Penn Central's commercial paper had become worthless, tried to boost demand for and the value of commercial paper. To that end, the Fed for some months allowed bank holdings of commercial paper to count as bank reserves for the purpose of meeting reserve requirements at the Fed. This would not work today because total required reserves, largely satisfied already by banks' holding of vault cash, is trivial compared with the volume of commercial paper outstanding.

New Federal Reserve Actions

In September 2008, the Fed announced the Asset-backed Commercial Paper Money Market Mutual Fund Liquidity Facility called AMLF. This program was aimed at lending funds at the primary credit rate to banks and bank holding companies on a non-recourse basis. The maturities of the loans and of the ABCP cannot exceed 270 days for bank

holding companies or 120 days for banks. This program is set to end on January 30, 2009.

Subsequently the Fed announced the Commercial Paper Funding Facility (CPFF) on October 7, 2008 which creates a Fed financed Special Purpose Vehicle (SPV) that would buy CP and ABCP directly from issuers. The SPV is run by PIMCO and began work on October 27, 2008. Under the terms of the program, the SPV buys three month assets issued at an interest rate equal to the three-month Overnight Indexed Swap Rate (OIS) plus 200 basis points, (includes a 100 basis point surcharge for unsecured credit). For ABCP the rate is the three-month OIS plus 300 basis points. Each issuer participating must pay 10 basis points on the maximum potential borrowing under the program in order to participate. This program is set to end on April 30, 2009.

Finally, on October 21, 2009, the Fed announced the Money Market Investor Funding Facility (MMIF) which creates another SPV managed by JP Morgan Chase that will buy CDs, bank notes and highly-rated commercial paper with 90 days to maturity or less from 50 approved MMMFs. The SPV will pay with ABCP issued by the SPV equal to 10 percent of the purchase price; the other 90 percent of the purchase price will be paid from funds advanced by the Fed to the SPV. The assets acquired will be held to maturity and the proceeds will be used to pay the Fed and to redeem the ABCP issued by the SPV. The rate on the Fed loans will be the primary credit rate and the SPV will pay each holder of the new ABCP issued 25 basis points less than the rate on the assets acquired. Assets are purchased by the SPV at amortized cost.

On Monday October 27, 2008, the Treasury began to use the \$700 billion allocated by Congress on October 3, 2008 for the Temporary Asset Relief Program (TARP). The Emergency Economic Stabilization Act of 2008 authorized \$250 billion for immediate use, \$100 billion to be released on the approval of the president and a final \$350 billion available subsequently with the approval of Congress. Originally intended to purchase illiquid mortgage-related securities, the first \$250 billion will be used to purchase stock in the nation's

banks. The first \$125 billion was spent on the first day, October 27, 2008, to acquire non-voting stock in the largest nine U.S. banks.

The explosion in Federal Reserve credit has continued

Table 1 shows selected Fed balance sheet items on a weekly average basis for the weeks indicated, except for total assets which are for the last day of the period shown. All of the new programs for private sector credit are indicated, as well as what was previously the largest Fed asset, Government securities held outright, and government securities held under repurchase agreements. The new AMLF and CPFF are shown, but the latter only existed for the final three days in the period. It reached about \$145 billion by the end of the period, however. The other new facility discussed above, the MMIF, is not shown because it had not begun as of October 29, 2008. The penultimate row, a Fed liability called supplementary financing, captures Treasury borrowing from the Fed, the proceeds of which are held on deposit at the Fed. These Treasury securities are then sold by the Fed in order to raise funds to be lent to the private sector. This new program was announced on September 17, 2008. This convoluted operation is done to keep Fed lending to the private sector from increasing bank reserves by more than they otherwise would, putting more downward pressure on the federal funds rate.

One pattern that is emerging is the federal government's depression-era practice of creating multiple new agencies and programs known by an alphabet soup of acronyms.

In the Fed's case, all of this new credit could have been provided by open market purchases of U.S. government securities. But the Fed has chosen instead to target credit to specific private financial firms and groups of firms. Until recently, the Fed had chosen to finance the new credit by reducing credit provided to the federal government. This is indicated by the small change in total assets from August 2007 to August 2008. Since August 2008, the Fed has more than doubled its total assets, largely by expanding its private sector lending. Meanwhile it has sharply reduced its net lending to the federal government, the liquidity of its balance sheet and the government securities available should it wish to sell securities for monetary policy purposes.

Generally these efforts have spawned new demands for subsidized credit to the private sector apparently with little reduction in the illiquidity of private sector assets. See Thornton (2008). Moreover, each new emergency program of the Fed or Treasury has been followed by an equity market decline, suggesting that these actions are lowering the expected return to capital and/or raising risk premiums that investors require to be compensated for heightened risk. Since mid-September, another disturbing development is that investors have pushed up the real rate of interest required on default risk-free assets, the yield on Treasury Inflation-Protected Securities (TIPS) securities. Apparently investors are coming to recognize the crowding out of productive investment and the reduced private capital stock that are implied by recent policy actions.

Table 1
Fed asset growth: from nothing to an explosion
(millions of dollars)

Selected Assets (average for week ending on date indicated)	October 29, 2008	August 6, 2008	August 1, 2007
Securities held outright	\$490,382	\$479,291	\$790,758
Repurchase agreements	80,000	110,500	25,786
Term auction credit (TAF)	301,363	150,000	NA
Primary credit	111,946	17,370	2
Primary Dealer Credit Facility (PDCF)	87,393	0	NA
Asset backed CP MMMF liquidity facility (AMLF)	99,902	NA	NA
Other credit extensions	89,549	0	NA
Commercial Paper Funding Facility CPFF*	40,819	NA	NA
Maiden Lane**	26,809	29,105	NA
Securities lent to dealers			
-term (TSLF)	222,566	124,862	NA
-overnight facility	25,067	7997	9,917
Total private credit	837,781	306,975	25,788
-Incl. security loans	1,085,414	439,834	35,705
Total assets (end of period)	1,931,261	901,307	874,112
Supplementary Financing Account***	558,864	NA	NA
Available Government Securities	242,749	346,432	780,841

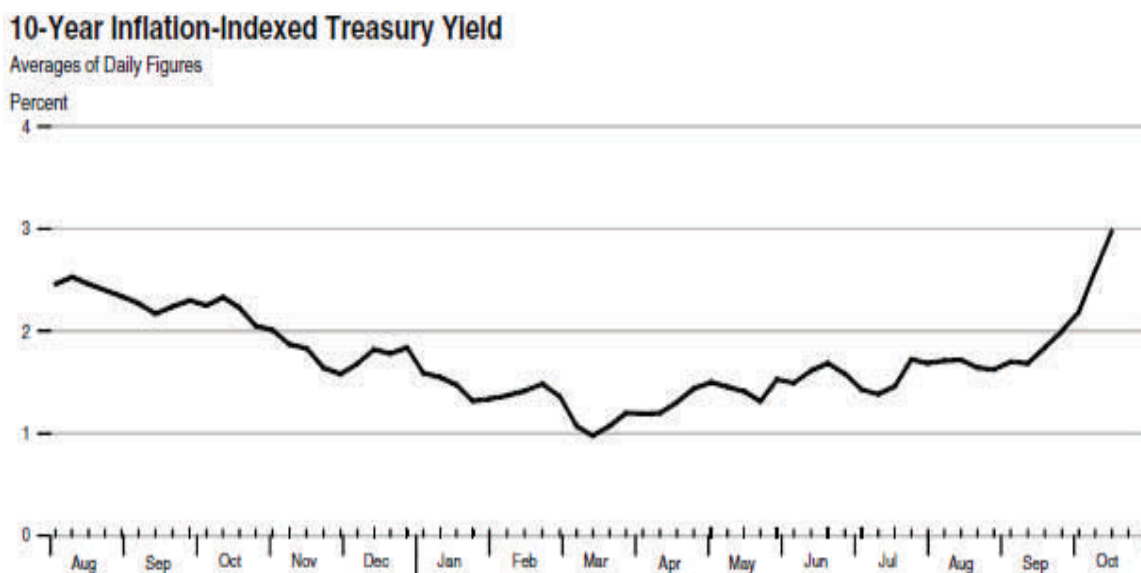
* Portfolio value of the SIV created to hold and transact commercial paper acquired under this facility; equity position.

**Maiden Lane is counted as a credit even though it is an equity position.

***Fed liability for Treasury Supplementary Financing Account created in the week ending September 24, 2008

Source: Board of Governors of the Federal Reserve System

Figure 2



Source: Federal Reserve Bank of St. Louis, *U.S. Financial Data*, October 24, 2008.

Figure 2 shows the yield on 10-year TIPS securities rose to the highest level since 2003, 2.99 percent in the week ending October 17, 2008 from about 1.63 percent in September and the record low of 0.99 percent in the week ending March 14, 2008. A greater and quieter reliance on less risky and more effective traditional programs in future might induce less of a decline in expectations and increase in uncertainty, fear and panic in financial markets.

Perhaps the most significant question to emerge over the past two months is not whether these actions will stem the financial crisis, but whether the government and the Fed have an exit strategy to pull all of this new financial asset creation out after it succeeds in stemming deflation and before it kick starts the economy into a major inflation problem. For example, the Fed successfully injected a huge amount of credit and liquidity into the economy in late 1999 in anticipation of the Y2K millennial change and as quickly pulled it out at the beginning of 2000, after it was clear that there were no disruptions to the economy. It may not be so easy this time.

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Interest on Reserves Moves to the Forefront at the Fed

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On October 3, 2008, Congress passed the Emergency Economic Stabilization Act. One provision of this legislation gave the Federal Reserve (Fed) immediate authorization to pay interest on reserves held by depository institutions at Federal Reserve banks, thereby moving up by three years the timetable paying for interest on reserves that the Financial Services Regulatory Relief Act of 2006 had originally sanctioned for October 2011. The Federal Reserve promptly established a two-tiered program for interest payments. Over each reserve period, the Federal Reserve will pay a rate of interest on required reserves 10 basis points less than the average value of the targeted federal funds rate, and it will pay a rate on excess reserves 75 basis points below the lowest target for the funds rate during the relevant reserve period. Payment of interest on required reserve balances, the Federal Reserve (2008) suggests, “should essentially eliminate the opportunity cost of holding required reserves, promoting efficiency in the banking sector.” In rationalizing the payment of interest on excess reserves, the Federal Reserve (2008) indicates that doing so “should help to establish a lower bound on the federal funds rate.” Furthermore, the Federal Reserve proposes that offering an interest payment on excess reserves “will permit the Federal Reserve to expand its balance sheet as necessary to provide the liquidity necessary to provide financial stability while implementing the monetary policy that is appropriate in light of the System’s macroeconomic objectives of maximum employment and price stability.”

Efficiency Objectives of Interest on Reserves

As documented by VanHoose (2008), the Federal Reserve has long sought authority to pay interest on required reserves. The Federal Reserve’s required reserve ratio of 10 percent that must be applied to the bulk of transactions deposits is the highest among all industrialized nations, which, in the absence of interest on required reserves, has

implied a significant tax on transactions deposits. In late 1993, U.S. depository institutions responded by developing “sweep accounts,” programs under which they regularly shift funds from transactions deposits to nontransactions deposits exempt from reserve requirements. Since 1994, balances in sweep accounts have risen to more than \$750 billion, as depository institutions effectively have reduced their required reserves by significantly decreasing deposit balances classified as transactions deposits subject to reserve requirements. As a consequence, reserve balances held at Federal Reserve banks have declined from more than \$30 billion in 1994 to an average of approximately \$10 billion.

A key Federal Reserve objective of paying interest on required reserves is to reduce the incentive for depository institutions to expend resources on these sweep programs. According to Federal Reserve chair Bernanke (2006), “From the perspective of society as a whole, sweep programs have little to no economic value to justify their cost of implementation. . . . [W]hen the Federal Reserve is able to begin paying interest on required reserve balances, much of the regulatory incentive for depositories to engage in resource-wasting efforts to minimize reserve balances will be eliminated, to the economic benefit of depository institutions, their depositors, and their borrowers.”

It remains to be seen, however, whether the Federal Reserve will succeed in its aim to give depository institutions an incentive to halt their sweep activities. To evaluate the prospects for attainment of this Federal Reserve objective, Dutkowsky and VanHoose (2008) apply a basic model of balance-sheet allocations by profit-maximizing banks. Their model yields a condition relating the average market loan rate, the interest payment on reserves, and bank resource costs that must be satisfied to induce depository institutions to eliminate sweeping. This condition implies that the spread between the average market loan rate and the interest payment on required reserves cannot exceed a critical value. Under the assumption that banks incur quadratic resource costs in lending and sweeping, Dutkowsky and VanHoose estimate that at present, the critical minimum spread is about 3.67 percentage points. That is, according to this estimate, the loan rate must exceed the interest rate paid on reserves by no more than 3.67 percent in order to induce depository institutions to halt their sweep-

ing activities.

So is the Fed's policy action likely to accomplish its aim? At present, the target federal funds rate is 1.5 percent, so the Fed's interest payment on required reserves is 1.4 percent. The prime loan rate is 4.5 percent, but other loan rates, such as auto and mortgage rates, are close to 7 percent. This implies that an average rate across all loans is probably in excess of 6 percent, implying a spread exceeding 4 percent. Thus, the spread between the average loan rate and the rate currently paid on required reserves exceeds the estimated minimum spread required to induce depository institutions to halt their sweeping activities.

Dutkowsky and VanHoose show that in principle the Fed could also act to decrease the incentive to sweep funds from transactions deposits to non-transactions deposits by reducing the required reserve ratio on the former deposit category. They estimate that if supplementing the interest-on-reserves policy with a cut in the required reserve ratio to 7.5 percent would widen the necessary spread between the loan rate and the rate on reserves to about 5 percent—which at current market interest rates their analysis suggests would induce institutions to cease sweeping. So far, however, the Federal Reserve has not indicated any intention to reduce reserve requirements.

Monetary Policy Implications of Interest on Reserves

In the late 1980s, Federal Reserve Board Governor Wayne Angell advanced a proposal for the Federal Reserve simultaneously to pay interest on reserves and to charge a penalty discount rate. VanHoose (1991) showed that, as suggested by Angell, this policy stance would effectively establish a floor and ceiling for the market federal funds rate, potentially assisting the Federal Reserve's efforts to attain monetary policy objectives pursued via its federal funds rate targeting procedure.

The Federal Reserve established a penalty discount rate policy in 2003, and presently the discount rate penalty is 0.5 percentage point above the market federal funds rate. By setting the rate of interest on excess reserves 0.75 percentage point below the market federal funds rate, the Federal Reserve has now effectively implemented a policy procedure of the type that Angell proposed nearly 20 years ago.

One benefit of this new policy procedure is that establishing a floor for the federal funds rate will help to ensure that in today's low interest rate environment the market rate will not fall to zero.

Hence, the Federal Reserve's interest on excess reserves policy should prevent it from encountering the zero lower bound for the nominal interest rate, a situation which posed policy problems for the Bank of Japan during the 1990s when the market interest rates in Japan fell to zero.

It remains to be seen, however, whether the Federal Reserve will truly derive significant benefits from the new policy in relation to its recent efforts to "unfreeze" the interbank market and other credit markets. After all, by paying interest on excess reserves, the Federal Reserve increases the incentive for banks to hold idle cash rather than making interbank loans. To be sure, a depository institution that opts to hold excess reserves rather than extending a loan in the federal funds market sacrifices about 0.75 percentage point on each dollar it holds in reserve. Nevertheless, uncertainties associated with a number of depository institutions' dwindling asset and capital positions confront potential federal funds lenders with considerable risks in today's distressed environment. Undoubtedly, this explains why depository institutions were already holding more than \$68 billion prior to the Federal Reserve's announcement of its plan to pay interest on reserves. Now that depository institutions can earn interest from the Federal Reserve by holding idle cash at Federal Reserve banks, there is an even greater incentive for depository institutions to hold excess reserves rather than lending those reserves to other depository institutions—or to businesses and individuals in credit markets. Indeed, during the week following the Federal Reserve's announcement, excess reserves at U.S. depository institutions nearly doubled, to an unprecedented level of more than \$136 billion. This outcome is hardly consistent with the Federal Reserve's stated goal of "unfreezing" both the interbank market and other credit markets.

Conclusion

Under authority granted by the Emergency Economic Stabilization Act of 2008, the Federal Reserve is now paying interest on both required and excess reserve balances held by depository institutions. The key rationale originally enunciated by

the Federal Reserve for paying interest on reserves is to remove the incentive for depository institutions to devote resources to sweep programs aimed at evading reserve requirements on transactions deposits. Attaining this objective, however, would require that the spread between the market interest rate on loans and the rate paid on reserves be less than a required minimum value. A recent estimate of this minimum value suggests that at current market interest rates bank sweeping is likely to continue.

With regard to pursuit of monetary policy goals, on the one hand, payment of interest on reserves does accomplish a Federal Reserve objective of placing a lower bound on the market federal funds rate, which could prove useful in today's low interest rate setting. On the other hand, the payment of interest on excess reserves adds to the incentive that many depository institutions face in today's high-risk environment to hold idle cash rather than extending interbank loans in the federal funds market or offering credit to businesses and consumers.

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Does a Foreclosure's Lifespan Help or Hurt?

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With the housing crisis persisting and foreclosures continually on the rise, could the timeline between when the last payment was due and when a home is lost matter on the cost of foreclosure for lenders, neighborhoods and the economy? Different states have different time periods for the foreclosure process. How could this timeframe be important? In states with short foreclosure periods, households recovering from brief financial problems or other short-term situations could more easily lose their homes. On the other hand, households in states that have longer foreclosure periods and who will ultimately lose their homes anyway, are able to raise costs to lenders. This article examines "Interventions in Mortgage Default: Policies and Practices to Prevent Home Loss and Lower Costs," by Amy Crews Cutts, Deputy Chief Economist at Freddie Mac and William A. Merrill, a former Director of Non-Performing Loans at Freddie Mac. Specifically, I focus on the effects on states with a longer and shorter than average lifespan for the foreclosure process.

States pursue either of two methods for a foreclosure process. The first, judicial foreclosure, involves a court official or judge who presides over the process. The second, statutory foreclosure, relies on the use of state law without use of the courts. Cutts and Merrill find that, generally, states that have a statutory foreclosure process take less time than those that have a judicial process. Statutory foreclosures are also less costly for both borrowers trying to reinstate their loans as well as for investors. They also find that costs associated with foreclosure rise significantly with an increased length of the foreclosure process, and that this also

reduces the likelihood of a borrower reinstating their loan. The *average* expected timeline based on the legislated legal process from referral to finalized foreclosure sale and possession is 206 days in judicial foreclosure states and only an average of 93 days in statutory foreclosure process states. In practice, actual timelines are somewhat longer. Actual timelines in statutory process states currently run almost four months faster at 149 days, versus 272 days for those in judicial foreclosure states. These timelines do not include the pre-referral period (the time spent in delinquency – Freddie Mac has a minimum 150 days) during which initial efforts are made to avoid foreclosure. Cutts’ and Merrill’s research shows that, of the two foreclosure processes, only the judicial states show a statistical strong relationship between longer time and higher costs.

Currently, the overall foreclosure process for all methods averages 354 days between the due date of the last payment and the date of a foreclosure sale. Foreclosure costs rise by as much as 12 percent for each additional 50 days.

Cutts and Merrill estimate that in states with longer than average foreclosure periods, borrowers could have a 3 to 9 percent better chance of retaining their homes if this timeline were shortened to the average level. Table 1 below compares states with the shortest and longest timeframes for each process, and the average cost per state relative to the national average. However, it should be noted that some states not shown have lower average costs even with longer than average timeframes, such as Indiana, while some with short timeframes have higher costs. Contrary to what some people believe, Cutts and Merrill say the most significant costs in the foreclosure process are delinquent interest, taxes and insurance, and not legal costs. For a lender, costs accumulate as the seriousness of the contractual failure increases. These costs include the opportunity cost of principal and income not yet received, servicing costs, legal costs, costs of property preservation and costs of property disposition Cutts and Green (2004). Neither study includes the loss to neighbors of foreclosed property. Reducing the length of the process from delinquency to final disposition can cut costs to lenders, some borrowers and third parties.

Table 1
National Foreclosure Period Compared

Foreclosure process	Length	State	Actual average time from last payment due date to finalized foreclosure sale	Actual average cost from last payment due date to finalized foreclosure sale (relative to U.S. average)
Judicial	Shortest Process	Nebraska	278	82%
	Longest Process	Maine	598	135%
Statutory	Shortest Process	Tennessee	248	57%
	Longest Process	Minnesota	425	82%
Judicial		Indiana	402	87%

Source: Cutts and Merrill (2008)

In addition to the Cutts and Merrill paper, the U.S. Department of Housing and Urban Development (HUD) provides a [link](#) showing the state by state foreclosure process and approximate timelines.

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