

window. At the end of 2007, 190 institutions with relationships with the Twelfth District's discount window had pledged \$72.8 billion of collateral toward loans. Six months later, the number increased to 207 depository institutions with collateral pledges of \$98.8 billion. By the end of 2008, 305 institutions had established relationships with the District's discount window, pledging \$173.5 billion in collateral to support their liquidity needs.

During the year, as relationships and collateral pledges with the discount window rose, lending activity spiked. In 2007, the District's discount window originated 283 loans totaling \$3.6 billion, principally from the primary credit program. In the first half of 2008, following the cut in the primary credit rate and the expansion of the term limits for TAF, the number of loans more than tripled, with the discount window generating 903 loans totaling \$79.3 billion. The

latter part of year continued to set new records for the number and value of advances made. By year-end 2008, Twelfth District's discount window had extended 3,190 loans totaling \$389.3 billion, the highest loan volume in the Federal Reserve System.

The Twelfth District's discount window also monitored a significantly greater number of troubled institutions during the year as the crisis intensified. Consequently, staff implemented a broad range of traditional and innovative risk controls to manage credit risk exposure at each institution. For example, some banks with impaired capital levels were no longer eligible for TAF funds, long-term borrowing, and intraday overdraft ceilings. Additionally, certain banks were required to post transactions in real-time to their Federal Reserve accounts to ensure they monitored their balances throughout the day. ■

San Francisco Fed Leads Early Rollout of Interest Payments on Bank Reserves

One rapid response to the financial crisis came from the San Francisco Fed's Statistics Division. With only three weeks of lead time, the Division implemented a new policy to pay interest on reserve balances depository institutions hold in accounts at the Federal Reserve. The change, which took effect in October 2008, provided the Federal Reserve with a tool designed to let it expand new lending facilities while achieving its federal funds interest rate target for monetary policy.

What is the link between paying interest on bank reserves and monetary policy?

Prior to the payment of interest on reserves, banks typically lent excess balances (above required reserves) in the overnight federal funds market to earn interest. By paying interest on bank reserves, the Fed now provides an incentive for institutions to hold these excess balances in reserve accounts at the Fed, and the interest rate paid on reserves tends to set a floor on the interest rate available in the funds market. Thus, the Fed may be able to maintain its monetary policy target rate for federal funds even as it expands excess reserves through new lending facilities.

Although the Financial Services Regulatory Relief Act of 2006 had already authorized interest payments, the change wasn't scheduled to begin until October 1, 2011. Congress approved the accelerated schedule with the passage the Emergency Economic Stabilization Act of 2008.

Banks are required to hold a portion of customer deposits in Federal Reserve accounts. As the manager of the computer system used by all Reserve Banks to calculate these reserve requirements, the Statistics Division led the integration of the new policy to pay interest on both required and excess reserve balances. San Francisco also serves as headquarters for the central bank's national Reserve Resource Center, which provided reserve administration expertise for the transition.

To meet the accelerated schedule, technical specialists within the Statistics Division modified one of the central bank's largest and most complex computer systems within a narrow window of just three weeks. Nearly 7,000 institutions—ranging from depository institutions and trusts to U.S. branches and agencies of foreign banks—became eligible to earn interest on their reserve balances.



Statistics

The computer system managed by the Statistics Division that is used to calculate reserve balances and interest payments also is the central application for the collection, analysis, and reporting of many types of economic and financial data. Statistics staff and their colleagues at other Reserve Banks provide guidance to depository institutions regarding reporting requirements and continually screen institutions to ensure they comply with requirements. Inside the Federal Reserve, this data contributes to monetary policy decisions, and a large portion is used to evaluate the safety and soundness of depository institutions and assess their compliance with banking regulations.

Seated (Left to Right): Marilyn Jio, Michael Fernandez, Mohamed Sadiq, Freda Choi, Nancy Henthorne

Standing (Left to Right): Lynn Hart, Dorret Dobbs-Hunte, Tom Grybinas, Mark Tanaka, Mark Frappier, Jonathan Kayes, Jeannette Cormier, Peter Miller, Jordon Lum, Huaixi Li, Gregory Canosio, Ai-Ling Wu

Not Pictured: Frank De Castro, Leo Shebalin, Susan Wong, Annie Yee

Although the software code to pay interest on reserve balances already existed, it dated back to 2001 when the Board of Governors first considered the change. Over the three-week implementation period, technical specialists matched the software's reserve balance and interest calculations with current processes and updated and tested the program in conjunction with the Federal Reserve's accounting system that posts interest payments to the accounts of financial institutions.

During this time, analysts from the Reserve Resource Center worked side by side with technical specialists—providing expertise on reserve administration, creating test strategies, and reviewing results. As part of a national effort coordinated through the Federal Reserve Bank of New York, the center's analysts worked

with reserve analysts from the other Reserve Banks to evaluate the impact on existing reserve processes and develop detailed workflow diagrams to map out the new process. New operational procedures were put in place for interest accruals and payments, as well as for complicated reserve processes, such as mergers and data revisions.

The implementation of interest payments on bank reserves significantly boosted excess balances held with the Federal Reserve. In early October 2008, excess reserves held at the Federal Reserve Bank of San Francisco totaled \$4 billion. By year-end 2008, the total skyrocketed to almost \$106 billion. Nationally, excess balances held at all Reserve Banks totaled \$136 billion in early 2008. By year-end, they reached \$799 billion. ■