4. Clearance and Settlement Infrastructure

Chapter 4

Clearance and Settlement Infrastructure

There are several primary service providers to the industry that have developed infrastructure to support the U.S. Mortgage-Backed Securities (MBS) marketplace. The Federal Reserve Banks offer Fedwire Securities Services to facilitate the settlement process, and clearing banks facilitate settlement of Fed-eligible MBS on behalf of broker dealers and other financial institutions. The Fixed Income Clearing Corporation (FICC), a subsidiary of DTCC, provides clearing and risk management services. Each of these entities offer enhanced functionality to automate different aspects of MBS processing and trade reconciliation. Additionally, the Depository Trust Company (DTC), also a subsidiary of DTCC, provides settlement services for collateralized mortgage obligations and asset-backed securities that are not issued by the federal agencies or GSEs and are not Fed-eligible for settlement.

The following is an overview of the MBS-related services available through the Federal Reserve Banks' Fedwire Securities Services, the clearing banks, and FICC's Mortgage-Backed Securities Division (MBSD).

A. Fedwire® Securities Service[1]

The Fedwire Network which supports the Federal Reserve Banks' funds and securities transfer systems is the primary large-value electronic transfer system in the United States. Owned and operated by the Reserve Banks, it connects Federal Reserve Banks and branches, the United States Treasury, several federal and federally sponsored agencies, and more than 9,500 depository institutions for funds transfers, and 8,800 institutions for book-entry securities transfers.

Leveraging this high-speed network, the Fedwire Securities Service maintains securities accounts and effects transfers for more than 8,800 customers. The Fedwire Securities Service is used to issue securities for the U.S. Treasury, government agencies, and government-sponsored enterprises (GSE's), settle secondary market trades (including open market transactions), and support activity associated with collateralized lending. The Fedwire Securities Service also offers enhanced functionality to automate the claim adjustment payments resulting from fail trades, securities subject to interim accounting, and repo tracking among participants.

Fedwire History

The Federal Reserve System has been moving funds since it was established over 80 years ago. In 1918, in conjunction with the change from a weekly to a daily settlement among Federal Reserve Banks, the Federal Reserve installed a private telegraph system connecting the Reserve Banks and

[1] Fedwire(r) is a Registered Service Mark of the Federal Reserve Banks.

began to process transfers of funds among member banks. The first steps toward modern securities clearance were taken in the 1920s when Treasury securities became transferable by telegraph among banks in different Reserve districts. To effect the transfer of securities, the early system required the retirement of physical certificates at the sending institution, and the issuance of identical physical certificates at the receiving institution. Some of the difficulties involved in delivering physical securities were overcome nearly fifty years later, when the U.S. Treasury authorized the first book-entry procedures.

Under the new plan, U.S Treasury securities were issued and transferred electronically on the books of a Reserve Bank. Other federal and federally sponsored agencies followed the Treasury's lead in the 1970s to eliminate physical certificates by issuing book-entry securities, but it was not until 1985 that mortgage-backed securities were issued in book-entry form by Fannie Mae and Freddie Mac, with Ginnie Mae following in 1986.

At present, nearly all marketable U.S. Treasury and federal agency debt is in book-entry form. To facilitate this all depository institutions as defined by the Monetary Control Act of 1980 are eligible to maintain book-entry accounts at their local Reserve Bank, provided that they also maintain a funds account with their Reserve Bank. Depository institutions, in turn, maintain records of ownership of book-entry securities for their customers who may also be acting as custodian to others. Thus ownership interests in book-entry securities are recorded in a tiered system of accounts.

New pools or issues of mortgage-backed securities are being added to the Fedwire Securities Service at a rate of several thousand per month. In addition to the pass-through mortgage-backed securities, adjustable rate securities, stripped securities, CMOS and REMICs have also been issued in book-entry form through the Fedwire Securities Services.

Fedwire Securities Services® Overview

1. **Issuance** - Instead of issuing registered physical certificates, the issuer creates and issues new mortgage-backed securities directly by sending securities transfer messages to the Fedwire Securities Service. The new issues are automatically created and the securities are delivered to the receiver within seconds. Most original-issue messages are delivered free of payment to depository institutions on behalf of dealers who in turn must make payment to the mortgage originator.

2. **Transfers** - Secondary market transfers occur when the sending depository institution (or in some cases the customer of the depository institution if online access is provided by the bank) initiates a transfer in the appropriate format which is edited by the Fedwire Securities Service. Assuming the securities are in position, the sending bank's securities account is debited and its reserve account is credited with payment proceeds. Simultaneously, a transfer message is delivered to the receiving depository institution, at which point its securities account is credited and its reserve account in debited by the same amounts. Transfers are usually completed within seconds. If the securities are not in position, the transfer message is rejected and sent back to the sending depository institution.

   Securities transfers are processed on an individual or gross basis in real time, and the transfer of the securities and the related funds (if any) is final and irrevocable. Although participants can send securities in exchange for no payment (free transfers), most securities transfers involve the delivery of securities and the simultaneous exchange of payment for these securities, "DVP" (Delivery vs. Payment).

3. **Risk Reduction** - In 1985, the Federal Reserve Banks initiated a policy to reduce the risks that large-dollar payments systems present to the Federal Reserve Banks and the nation's financial system. A series of guidelines issued by the Federal Reserve's Board of Governors in recent years spell out the details of a comprehensive daylight overdraft control policy. This risk-reduction policy has five major components including: a) net debit caps; b) limits on the size of individual securities transfers; c) collateralization of some book-entry-related overdrafts; d) measurement of overdrafts; and, e) daylight overdraft fees.

Fedwire Securities Services® Features

1. **Principal and Interest (P&I) Payments** - The Federal Reserve Banks are the fiscal agent for the U.S. Treasury, many federal government agencies, government-sponsored enterprises (GSE's) and some international organizations. As such, the Federal Reserve Banks maintain book-entry securities records and are also responsible for the timely distribution of principal and interest to the holders of securities issued by these entities.

   On record date, a "snapshot" of the holders of the securities is taken so that the appropriate principal and interest payments can be made on the payment date. The Federal Reserve Banks send a P&I Notification of Credit to all holders of record containing detailed information on the CUSIPs that will be paid and the factors that were used to calculate the payment. This notification is used to reconcile the payments received on the payment date. For mortgaged-backed securities the notifications are sent after the factors have been processed, typically several days before the payment date. For Treasury, Agency non-MBS debt securities, and a limited number of MBS securities, the notifications are sent the evening prior to the payment date. On the actual payment day, P&I payments are made to the reserve accounts of the appropriate depository institutions based on the "snapshots" taken on the record date. Payments are made based on the incremental schedule defined by each issuer. Once funding for the incremental payment is received, an advice of credit will be sent to the holder indicating the amount of the payment. The messages are sent via the Fedwire Securities Service and can be received throughout the day beginning with the opening of the service.

2. **Automated Claim Adjustment Processing** - The Federal Reserve Banks have developed enhanced functionality called Automated Claim Adjustment Processing to assist in processing Fed-eligible Freddie Mac, Fannie Mae and Ginnie Mae mortgage-backed securities. This functionality includes:

   a. **Fail Tracking** - Fail tracking is an automated process that applies to principal and interest payments when the actual settlement date of a transaction is beyond the contract date. An adjustment will be made when one or more beneficiary dates fall between the contract date and the settlement date. The adjustment will result in payment of funds from the message originator to the message receiver through the Federal Reserve's National Settlement Service (NSS).

The Fail Tracking feature alleviates back-office P&I collections problems associated with deliveries that fail over Record Date by automatically posting cash adjustments when a delivery is finally made. A "fail" occurs when delivery is NOT made on the agreed upon "contractual Settlement Date" indicated on a securities transfer message. When one or more "Beneficiary Dates" (the date on which the accrual period ends) fall between the contractual Settlement Date and the Delivery Date (also called "actual Settlement Date"), an interest adjustment is required. Automated claims adjustments will only be made for Beneficiary Dates that fall within six months prior to the fail transaction Delivery Date. For periods greater than six months, the receiver must manually claim the delivering party.

b. **Interim Accounting** - Interim accounting is an automated process for posting principal and interest adjustments upon delivery, required in cases where the Beneficiary Date occurs on a different date than the Record Date (such as for zero-day delay bonds). Interim accounting processing is necessary when the actual Settlement Date falls between the Record Date and the Beneficiary Date (accrual end date). When a delivery clears through the Fedwire Securities Service between Record Date and Beneficiary Date, a transfer of funds from the message originator to the message receiver will be made in order to allocate payments to the correct holder. Principal and interest are always paid to the record date holder first, with separate debit and credit adjustments made later in the day on the payment date. If the transaction is both a multiple month fail and subject to interim accounting, the Federal Reserve Banks will track both fail and interim accounting. Adjustments will result in payment of funds through the Federal Reserve's National Settlement Service (NSS).

c. **Repo Tracking** - Repo tracking is also an automated process for tracking principal and interest as well as for recording "repo-in" (total par value of repo collateral received) and "repo-out" (total par value of repo collateral delivered) balances of each participant. Through the use of field tags, the Fedwire Securities Service is able to record and maintain balances for all participants based on the contra. On record date, a participant's repo balances are used to create claims and calculate adjustments to be made on payment date. Since proceeds are always paid to the record date holder, separate debit and credit adjustments will be made on payment date, with funds moving from the holder of a Repo In balance to the holder of a Repo Out balance through Federal Reserve's National Settlement Service (NSS).

B. Clearing Banks

Under the Federal Reserve Banks' oversight of Fedwire Securities Service, direct participation is restricted to "Depository Institutions", which are typically banks. Broker dealer firms cannot debit or credit a reserve account, which is required to settle a trade on Fedwire. Given their high volume of government, agency, and mortgage-backed trade activity, broker dealers have come to rely on depository institutions to act as their agent to settle these securities on Fedwire.

Several commercial banks have developed extensive services that enable broker dealers and other financial institutions to manage securities settlement on Fedwire. These "clearing banks" each provide their clients with a software interface needed to utilize the Fedwire Securities Service functionality including trade settlement through book-entry delivery, automated payment systems, and fail tracking.

In addition to technology, these banks also provide critical credit services, extending the large amounts of credit needed by broker dealers and other financial institutions to fund their intraday and overnight securities positions. The clearing banks provide significant intraday liquidity to the MBS market through the extension of secured credit to cover daylight overdrafts generated by Fedwire securities clearance transactions.

Only depository institutions are permitted direct access to Fedwire Securities Service, therefore the book entry positions and cash account balances recognized by the systems are limited to these direct participants. All MBS activity on Fedwire is performed in the accounts of the clearing banks, who in turn maintain complex sub-accounting to track the activities of each of their broker dealer and institutional clients.

The services provided by the clearing banks are essential to the operation of the MBS market. The technology they offer enables clients to maintain greater control over their clearing and settlement environments. Increasingly sophisticated applications and information systems allow users to increase MBS transaction volumes while reducing operational risk exposure with real-time monitoring and transaction capabilities.

C. Mortgage-Backed Securities Division of the Fixed Income Clearing Corporation

The Depository Trust Clearing Corporation (DTCC) provides clearance and settlement services for equities, corporate and municipal bonds, government bonds, mortgage-backed securities, over the counter credit derivatives, and emerging market debt. DTCC is a holding company owned by the financial services industry with operating facilities in the U.S. and abroad. Its four primary subsidiaries include the Depository Trust Company (DTC)[2] and three clearing corporations: the National Securities Clearing Corporation (NSCC), the Fixed Income Clearing Corporation (FICC) and the Emerging Markets Clearing Corporation (EMCC), each of which serves a different segment of the market.

FICC History

The FICC was formed in January 2003 with the merger of the Government Securities Clearing Corporation (GSCC) and the MBS Clearing Corporation (MBSCC). Its purpose is to ensure orderly settlement in the fixed income securities markets by providing clearing services to support government, corporate, and municipal bond and mortgage-backed securities transactions. The FICC, through its Mortgage-Backed Securities Division (MBSD), offers products and services specific to the Mortgage-backed marketplace including real-time trade comparison, confirmation, netting, and risk management. In addition, MBSD offers Electronic Pool Notification (EPN) services, which allow customers to transmit/retrieve mortgage-backed securities pool information using real-time standardized message formats.

[2] DTC is the primary settlement venue for U.S. equities, corporate and municipal bonds, money market instruments and other securities including corporate and private asset-backed securities, collateralized mortgage obligations and other forms of collateralized debt.

Mortgage-backed securities bought and sold in the over-the-counter cash, forward, and options markets are backed by Ginnie Mae, Freddie Mac and Fannie Mae. The Mortgage-Backed Securities Division of FICC processes several hundred billion dollars in MBS trades each day. In the mortgage-backed securities markets, the time period between trade date and settlement date is generally much longer than it is in other markets. This lengthy settlement period presents unique challenges and risks to market participants, including an increased likelihood of pre-settlement price fluctuation and the resulting settlement exposure. To provide protection to market participants, the MBSD's services are designed to: a) reduce operational risk through automation; b) mitigate execution risk through real-time trade comparisons; and c) reduce credit exposure through multi-lateral netting and comprehensive risk management procedures.

Given the high value of the MBS transactions that are completed daily, and the long settlement cycle, this industry faces great operational risk and financial exposure in the event of a major system outage or market disruption. Thus the MBSD's business continuity plan is another critical component of its risk mitigation program. The FICC maintains multiple redundant data facilities and business centers throughout the U.S. to make certain that securities processing is not interrupted by a major event or regional situation. In addition, to ensure continuous connectivity to those data centers, FICC supports access to its facilities via DTCC's SMART (Securely Managed and Reliable Technology) Network and SIAC's SFTI (Secure Financial Transaction Infrastructure), with interconnectivity established between these two high-capacity, fault-tolerant networks.

Clearing Services

MBSD Clearing Services are intended for all MBS trading participants including brokers, dealers, inter-dealer brokers, banks and bank Section 20s, GSEs, mortgage originators, insurance companies, investment companies, investment managers/advisors, mutual funds, trust companies, pension funds, and any other organization, domestic or international, active in the MBS market. Each MBSD applicant is evaluated for acceptance as a participant on the basis of capital adequacy, operational soundness, financial resources, regulatory oversight, and business recovery.

1. **Trade Comparison/Confirmation** - All MBS trades processed in the FICC's MBSD Clearing Service are compared and matched within the FICC's Real-time Trade Matching (RTTM) system. RTTM compares trade submissions throughout the day as trades are executed. Submitted trades become binding obligations upon matching.

   The MBSD offers two types of trade submission designed to electronically compare, match, and confirm MBS trades. The first is the MBSD's two-sided trade-comparison system, which allows any two trading principals to submit trades for comparison and confirmation. The other type of submission is the MBSD's broker give-up comparison system, which allows for the submission of trades executed on behalf of two trading principals through an inter-dealer broker, which results in a three way comparison. Contra-side identity for compared and matched broker give-up trades are "given up" to the trading principals automatically in accordance with the instructions supplied by the matching inter-dealer broker. The MBSD produces a purchase and sales report that serves as legally binding confirmation for compared trades and a 10b-10 compliant trade confirmation. The Purchase and Sales report eliminates the need for exchange of trade confirmations and commitment letters.

2. **Risk Management** - The MBSD's risk reduction methodologies are based on revaluing all outstanding trades daily by marking them from contract value to current market value. This procedure ensures that each participant maintains collateral in the Participant's Fund at a level sufficient to meet margin requirements.

   After positions have been marked, participants with "net losses" are required to post additional margin collateral. Deposits to the Participants' Fund are made in approved forms of collateral including cash, securities, and Letters of Credit. This balance represents each participant's net exposure, and may be drawn on in the event of that participant's insolvency.

   Each participant's margin deposit is available exclusively to offset its own liabilities, never to fulfill the obligations of another participant. Since margin deposits maintained in the participant fund are not mutualized, the MBSD supports ongoing inter-participant credit evaluations.

3. **Trade Netting Service** - The MBSD's Netting Service reduces a participant's overall settlement obligations by pairing off trades, regardless of contra-side identity; this greatly reduces the number of trades that require actual settlement. To achieve this, the MBSD offers Settlement Balance Order (SBO) services for organizations that wish to net To-Be-Announced (TBA) trades. The SBO system automatically performs the netting process for trades within the same MBS product, coupon rate, maturity and settlement date on a multilateral basis. The FICC's MBSD SBO process typically eliminates the need to settle more than 90 percent of all trades submitted for netting. The resulting net buy and sell obligations require allocation and settlement.

4. **Trade-for-Trade Services** - For organizations that choose not to participate in SBO processing, and for trades that are not SBO-eligible or other trade executions that the contra-sides choose not to net, the MBSD offers trade-for-trade services. Trade-for-trade executions receive the benefits of Trade Comparison and Risk Management but require individual settlement of the compared trade as originally executed.

Electronic Pool Notification

Net sellers of TBA contracts are required to inform net purchasers of the specific mortgage pools being allocated to meet TBA contract obligations. Typically this notification occurs 48 hours prior to settlement of the pool (TBMA 48 hour notification rule). To facilitate this communication, at the industry's request, the MBSD developed the Electronic Pool Notification (EPN) service in the early 1990's.

1. **The Electronic Pool Notification** - EPN service allows MBS buyers and sellers to achieve automated electronic transfer of allocated pool information. The EPN system reduces the dependence upon telephone and fax notification.

2. **EPN Messaging** - EPN users may exchange three different types of messages to accomplish their notification needs. The ON (Original Notification) message type is available for a seller to notify the buyer of an outstanding TBA allocation. The DK (Don't Know) message type is available for a buyer to notify a seller that it does not concur with the terms of a previously sent ON. The CX (Cancel) message type is available for a seller to notify a buyer to disregard the terms of a previously sent ON. All EPN messages consist of two parts, a header and a body. The header contains the essential message routing information of the seller and buyer

along with the terms of the TBA trade for which the pool information is being provided. The body of the message contains from one to 250 pool detail records with the full complement of data necessary to achieve a successful notification.

3. **EPN Processing** - The EPN system processes all messages real-time. As users submit messages to EPN, EPN performs basic edits and validation checks to ensure essential data integrity. Subsequently, EPN time-stamps each message and forwards the message to the outbound queue of the recipient. The T2 time stamp placed by EPN on the message is the sender's evidence of "good delivery", that is, proof the notification was sent within the 48-hour time-frame (before 15:00:00 EST), 2 days prior to settlement. Message recipients may connect to EPN at any time throughout the day to retrieve messages from their queues or to submit messages to EPN.