



Fedwire[®] Securities Service Disclosure

Responding FMI:	Fedwire Securities Service
Jurisdiction in which the FMI operates:	United States of America
Authority regulating, supervising, or overseeing the FMI:	Board of Governors of the Federal Reserve System
Date of this disclosure:	December 27, 2017

This disclosure can also be found at FRBservices.org.
For further information, please e-mail WPO.Inquiries@ny.frb.org.

Table of Contents

I. Executive Summary	2
II. Summary of Major Changes Since the Last Update of the Disclosure	4
III. General Background of the Fedwire Securities Service	5
IV. Principle-by-Principle Summary Narrative Disclosure	23
Principle 1: Legal basis	23
Principle 2: Governance.....	32
Principle 3: Framework for the comprehensive management of risks.....	48
Principle 4: Credit risk	52
Principle 5: Collateral	58
Principle 6: Margin	62
Principle 7: Liquidity risk.....	63
Principle 8: Settlement finality	67
Principle 9: Money settlements	69
Principle 10: Physical deliveries	71
Principle 11: Central securities depositories.....	72
Principle 12: Exchange-of-value settlement systems	76
Principle 13: Participant-default rules and procedures	77
Principle 14: Segregation and portability	79
Principle 15: General business risk	80
Principle 16: Custody and investment risks.....	83
Principle 17: Operational risk	85
Principle 18: Access and participation requirements	96
Principle 19: Tiered participation arrangements	99
Principle 20: FMI links	104
Principle 21: Efficiency and effectiveness.....	107
Principle 22: Communication procedures and standards.....	112
Principle 23: Disclosure of rules, key procedures, and market data.....	114
Principle 24: Disclosure of market data by trade repositories	117
V. Acronyms	118
VI. List of Publicly Available Resources	120

I. Executive Summary

In April 2012, the Committee on Payments and Market Infrastructures (CPMI), then known as the Committee on Payments and Settlement Systems (CPSS),¹ and the Technical Committee of the International Organization of Securities Commissions (IOSCO) published the *Principles for Financial Market Infrastructures* (PFMI) to establish a uniform set of international risk-management standards applicable to all systemically important financial market infrastructures (FMIs).² The stated public policy objectives of the PFMI include promoting financial stability, reducing systemic risk posed by FMIs to domestic and global financial systems, and encouraging FMI transparency to participants. CPSS and IOSCO then published in December 2012 *Principles for Financial Market Infrastructures: Disclosure Framework and Assessment Methodology* to assist FMIs in their application of the PFMI and to facilitate consistent disclosure of information by FMIs.³ This disclosure for the Fedwire Securities Service, an electronic central securities depository and securities settlement system developed, managed, and operated by the Federal Reserve Banks of the Federal Reserve System (Reserve Banks), follows the disclosure framework set forth in that report.

The Board of Governors of the Federal Reserve System (Board of Governors) incorporated principles 1 through 24 of the PFMI into part I of the Federal Reserve Policy on Payment System Risk (the PSR policy).⁴ As stated in the PSR policy, the Board of Governors requires the Reserve Banks' Fedwire Securities Service to meet or exceed the risk-management standards set forth in part I of the PSR policy, consistent with the guidance in the PFMI on central bank–operated systems and with the requirements in the Monetary Control Act.⁵

The PFMI recognize that FMIs operated by central banks might need to tailor the application of certain principles in light of their own governance requirements and policy mandates.⁶ Furthermore, in its incorporation of principles 1 through 24 of the PFMI through the PSR policy, the Board of Governors also recognized that certain principles might require flexibility in the way

¹ Effective September 1, 2014, CPSS changed its name to CPMI.

² Committee on Payment and Settlement Systems & Technical Committee of the International Organization of Securities Commissions, *Principles for Financial Market Infrastructures* (Apr. 2012), available at <http://www.bis.org/cpmi/publ/d101a.pdf>. FMIs include central securities depositories (CSDs), securities settlement systems (SSSs), central counterparties (CCPs), payment systems, and trade repositories (TRs).

³ Committee on Payment and Settlement Systems & Board of the International Organization of Securities Commissions, *Principles for Financial Market Infrastructures: Disclosure Framework and Assessment Methodology* (Dec. 2012), available at <http://www.bis.org/cpmi/publ/d106.pdf>.

⁴ Board of Governors of the Federal Reserve System, Federal Reserve Policy on Payment System Risk 8 (effective Sept. 15, 2017), available at http://www.federalreserve.gov/paymentsystems/files/psr_policy.pdf. The Board of Governors has noted that, in applying part I of the PSR policy, it would be guided by the key considerations and explanatory notes in the PFMI. *Id.*

⁵ *Id.*

⁶ Principles for Financial Market Infrastructures, *supra* note 2, ¶ 1.23. This was further developed and clarified in a note released by the CPMI and the board of IOSCO in August 2015. See Committee on Payments and Market Infrastructures & Board of the International Organization of Securities Commissions, *Application of the Principles for Financial Market Infrastructures to Central Bank FMIs* (Aug. 2015), available at <http://www.bis.org/cpmi/publ/d130.pdf>.

they are applied to the Fedwire Securities Service.⁷ Instances in which this flexibility is important in applying a particular principle are identified in the disclosure below.

⁷ PSR policy, *supra* note 4, n.19.

II. Summary of Major Changes Since the Last Update of the Disclosure

The Reserve Banks last published a version of this disclosure in December 2015. Since that time, the Reserve Banks made one major change to the Fedwire Securities Service's organization, services, design, rules, markets served, or regulatory environment. In 2016, the Reserve Banks amended Operating Circular 5, *Electronic Access*, by adding an information security appendix. This new appendix consolidated and enhanced information security responsibilities of the Reserve Banks and their financial services and electronic access customers, including Fedwire Securities Service participants. References to the new information security appendix are found in sections 3.2, 17.5, and 19.3 of this disclosure.⁸

⁸ Federal Reserve Banks, Operating Circular 5, *Electronic Access*, app. A, available at <https://www.frbsecurities.org/assets/resources/rules-regulations/063016-operating-circular-5.pdf>.

III. General Background of the Fedwire Securities Service

A. General Description

The Fedwire Securities Service is a central securities depository (CSD) and real-time delivery-versus-payment (DVP) model 1⁹ securities settlement system (SSS) for certain eligible securities as discussed in more detail below. In the context of a securities-transfer system, a DVP model 1 system is one that settles transfer messages for both securities and associated funds on a trade-by-trade (gross) basis, with final transfer of the securities from the seller to the buyer (delivery) occurring at the same time as final transfer of funds from the buyer to the seller (payment).¹⁰

As the operational arm of the central bank of the United States, the Reserve Banks play several roles in the payment and securities settlement systems of the United States, including developing, managing, and operating the Fedwire Securities Service. The Reserve Banks also act as fiscal agent for the U.S. Department of the Treasury (Treasury), several other U.S. federal agencies and government-sponsored enterprises (GSEs), and certain international organizations.¹¹ In that fiscal agency capacity, the Reserve Banks support the issuance of securities by those entities over the Fedwire Securities Service and facilitate the related payment of principal and interest on those securities, among other things. For purposes of this disclosure, securities that may be issued by the above-listed entities over the Fedwire Securities Service are collectively referred to as “Fedwire-eligible securities,” securities issued by Treasury are referred to as “Treasury securities,” and securities issued over the Service by all other issuers are collectively referred to as “non-Treasury securities.”

Market Overview

The Reserve Banks, through the Fedwire Securities Service, provide key issuance, maintenance, transfer, and settlement services, as described below under *Core Services and Functions*. In addition, certain clearance and settlement functions for market participants are performed by two divisions of the Fixed Income Clearing Corporation (FICC) and by depository

⁹ For more detail on the Fedwire Securities Service as a DVP model 1 system, see Principle 12, *Exchange-of-value settlement systems*.

¹⁰ See Committee on Payment and Settlement Systems, *Delivery Versus Payment in Securities Settlement Systems* (Sept. 1992), available at <http://www.bis.org/cpmi/publ/d06.pdf>.

¹¹ This disclosure uses the term *GSE* to mean, as in the PSR policy, not only government-sponsored enterprises, such as the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac), but also government corporations, such as the Financing Corporation and the Resolution Funding Corporation, that issue securities over the Fedwire Securities Service. For a complete list of GSE issuers, see table 1 on page 10.

The market for securities issued by international organizations is small in comparison with that for other Fedwire-eligible securities. As of year-end 2016, the par value of securities issued by international organizations stood at approximately \$222.8 billion or approximately 0.3 percent of all securities outstanding on the Service. In 2016, less than 0.1 percent of the total cash value of secondary-market transactions (not including reversals) over the Service involved securities issued by international organizations. Given these factors, this disclosure does not address unique issues that result from the use of the Fedwire Securities Service by international organization issuers.

institutions that specialize in the business of clearing trades.¹² The latter are commonly called clearing banks. Together, these entities constitute an important part of the clearance and settlement arrangements for the Fedwire securities market. The life cycle of a Fedwire-eligible security in this market has three stages—issuance, trading, and clearance and settlement.

Issuance

Treasury, other federal agencies, GSEs, and certain international organizations use the Fedwire Securities Service to issue their securities that have been sold to investors in what is referred to as the primary market. The primary market is described in greater detail below in *Core Services and Functions* in connection with the issuance of securities over the Fedwire Securities Service. Issuance over the Fedwire Securities Service refers generally to the crediting of the par amount of the security that has been purchased by a Fedwire Securities Service participant, for itself or on behalf of another party, such as a broker or dealer,¹³ to a securities account of that participant on the books of a Reserve Bank. The majority of primary market issuance activity involves certain broker-dealers known as primary dealers, which purchase securities for themselves and their customers.¹⁴

Trading

Broker-dealers and institutional and individual investors invest and trade in the market for securities issued over the Fedwire Securities Service. Treasury securities and debt securities issued by non-Treasury issuers are typically traded in what is referred to as the secondary market. Treasury securities can also be traded in the forward “when issued” market.¹⁵ The majority of agency mortgage-backed securities (MBS) trading occurs in the to-be-announced (TBA) market.¹⁶ Securities in the agency MBS TBA markets are traded based on certain parameters (i.e., issuer, maturity, coupon, price, par amount, and settlement date) rather than particular securities. Market convention calls for trade counterparties to identify the particular

¹² The two divisions of FICC are the Government Securities Division and the Mortgage-Backed Securities Division. For more detail on FICC, see FICC’s PFMI disclosure. Fixed Income Clearing Corporation, Disclosure under the Principles for Financial Market Infrastructures (Dec. 2016), *available at* <http://www.dtcc.com/legal/policy-and-compliance>.

¹³ As a general matter, *broker* is broadly defined in the Securities Exchange Act of 1934 as “any person engaged in the business of effecting transactions in securities for the account of others.” See 15 USC § 78c(a)(4). Unlike a broker, who acts as an agent, a dealer acts as a principal. A dealer is defined in the Securities Exchange Act in general as “any person engaged in the business of buying and selling securities (not including security-based swaps, other than security-based swaps with or for persons that are not eligible contract participants) for such person’s own account through a broker or otherwise.” See 15 USC § 78c(a)(5). Broker-dealers may trade securities on their own behalf or on behalf of investors. For the purposes of this disclosure, the term *broker-dealer* is used interchangeably with the terms *broker* and *dealer*.

¹⁴ Primary dealers serve as trading counterparties of the Federal Reserve Bank of New York. For a list of those primary dealers, see <http://www.newyorkfed.org/markets/primarydealers.html>.

¹⁵ When-issued trading extends from the day an auction for a Treasury security is announced until the original issue settlement date.

¹⁶ The term *agency MBS* generally refers to mortgage-backed securities issued or guaranteed by GSEs or federal agencies eligible to issue on the Fedwire Securities Service.

securities that are to be delivered in settlement of the trade no later than 3 p.m. Eastern Time (ET) two business days before the settlement date.

In the secondary market, broker-dealers, depository institutions, and other investors buy and sell Fedwire securities that were previously purchased on original issue. These transactions and other transactions involving Fedwire securities, such as repurchase agreements (repos), securities lending, and collateral management, may result in the transfer of securities over the Fedwire Securities Service. Secondary-market trading occurs primarily between intermediaries such as dealers or through interdealer brokers rather than through a recognized securities exchange. Trading activity in Fedwire securities is concentrated among the primary dealers.

Clearance and Settlement

Once a trade is executed, dealers may use a number of market utilities and clearing banks to facilitate clearance and trade confirmation, for trade settlement, and for netting and risk-management services. Prior to settlement, most Fedwire securities trades are cleared by one of the two divisions of FICC, the Government Securities Division or the Mortgage-Backed Securities Division, or by the clearing banks.¹⁷

On settlement date, all Fedwire securities trades cleared through FICC will settle either as debits and credits to sending and receiving participant accounts over the Fedwire Securities Service or, for transfers between customers of the same clearing bank or dealer, on the books of that bank or dealer. Settlement of secondary-market trades of Treasury securities can take place the same day the trade was executed, but usually occurs on T+1, or one business day after the trade date.¹⁸ Settlement of agency MBS trades occurs primarily on fixed monthly settlement dates in the settlement month that was contracted at the time of trade execution, as designated by the Securities Industry and Financial Markets Association (SIFMA). Settlement takes place up to three months forward for most TBA trades, but can settle further out in certain instances.¹⁹ Settlement of trades of non-Treasury debt securities generally occurs T+1. Regardless of the above conventions, the two parties to a trade can always agree to settle on a different timeline.

Core Services and Functions

Participants

The Reserve Banks' Operating Circular 7, *Book-Entry Securities Account Maintenance and Transfer Services*, sets forth the classes of depository institutions and other entities that are

¹⁷ The Government Securities Division provides trade comparison, trade netting, and risk-management services to its members both for Treasury securities and for non-Treasury securities other than MBS. The Mortgage-Backed Securities Division provides trade comparison, trade netting, and risk-management services to its members that trade in the forward and over-the-counter option markets for MBS issued or guaranteed by Government National Mortgage Association (Ginnie Mae), Fannie Mae, or Freddie Mac. For additional information about these divisions, see *supra* note 12.

¹⁸ Settlement of when-issued Treasury securities trades occurs on the original issue date.

¹⁹ For additional information about SIFMA and MBS settlement dates, see SIFMA's website: <http://www.sifma.org>.

legally eligible to be participants of the Fedwire Securities Service.²⁰ Fedwire Securities Service participants include depository institutions, as defined in section 19 of the Federal Reserve Act,²¹ and certain other institutions, including U.S. branches and agencies of foreign banks.

Securities Account Maintenance

Operating Circular 7 provides a comprehensive set of rules under which each Reserve Bank maintains securities accounts and effects transfers of securities over the Fedwire Securities Service for participants, including the associated payments for those transactions.

A Fedwire Securities Service participant may have one or more securities accounts at a Reserve Bank.²² Securities accounts are classified under Operating Circular 7 as either unrestricted or restricted. A participant may hold securities in unrestricted securities accounts either for itself or on behalf of its clients. Participants typically use separate unrestricted securities accounts to segregate the securities they hold for their own account from those they hold for their clients. The Reserve Banks, however, do not reflect in their records the interest of any person other than the Fedwire Securities Service participant in the securities held in unrestricted securities accounts. Participants may use restricted securities accounts to, among other things, pledge collateral to secure their obligations related to Treasury programs,²³ Reserve Bank discount window loans and payment system risk requirements, and state and local government deposits (referred to as the joint-custody service).²⁴ Transfers of securities from restricted securities accounts generally require involvement by the pledgee.

At year-end 2016, the Fedwire Securities Service provided securities account maintenance for approximately 2,100 customers, most of which are depository institutions. Those entities that are not direct Fedwire Securities Service participants hold securities issued over the Service

²⁰ Federal Reserve Banks, Operating Circular 7, *Book-Entry Securities Account Maintenance and Transfer Services*, available at <https://www.frb services.org/assets/resources/rules-regulations/operating-circular-7-102917.pdf>. For more detail on Service participant eligibility rules and criteria, see Principle 18, *Access and participation requirements*.

²¹ See 12 U.S.C. § 461(b)(1)(A) (definition of depository institution).

²² In contrast to securities accounts, a Fedwire Securities Service participant may generally maintain only a single master account on the books of a Reserve Bank. A master account is a record of financial rights and obligations of an account holder and the Reserve Bank maintaining the account with respect to one another, where opening, intraday, and closing funds balances are determined. See Federal Reserve Banks, Operating Circular 1, *Account Relationships*, § 2.2(e), available at <https://www.frb services.org/assets/resources/rules-regulations/020113-operating-circular-1.pdf>.

²³ Treasury programs for which securities collateral may be pledged include Treasury Tax and Loan (31 CFR part 203), Depositories and Financial Agents of the Federal Government (31 CFR part 202), and Acceptance of Bonds Secured by Government Obligations in Lieu of Bonds with Sureties (31 CFR part 225).

²⁴ The joint-custody service is offered by the Reserve Banks through the Fedwire Securities Service for the benefit of state and local governments by permitting depository institutions to collateralize their obligations to state and local governments (typically, deposits by those governments) by recognizing a security interest in favor of those governments in securities the depository institutions hold in the Fedwire Securities Service. For more detail, see <https://www.frb services.org/financial-services/securities/joint-custody.html>.

indirectly in securities accounts on the books of a direct Fedwire Securities Service participant or at a lower-tier securities intermediary, or directly with the issuer, such as Treasury.

Issuance of Securities and Payment of Principal and Interest

As mentioned above, the Reserve Banks, as fiscal agents, support 18 entities, including Treasury, other federal agencies, and GSEs, as well as certain international organizations, in their issuance of securities over the Fedwire Securities Service and the payment of principal and interest on the outstanding securities. These Fedwire-eligible securities include all marketable Treasury debt securities, as well as debt securities and MBS issued by the non-Treasury issuers (see table 1 below). Before the issuance of securities over the Fedwire Securities Service, an issuer will sell the to-be-issued securities to investors in the primary market. Issuance over the Fedwire Securities Service is by book entry only and refers to the crediting of the par amount of the purchased security to a Service participant's securities account on the books of a Reserve Bank. (The participant is purchasing the security either for itself or for one of its customers, such as a primary dealer.) At the same time, the participant's master account on the books of a Reserve Bank is debited for the amount of the payment previously agreed upon by the issuer and the participant (or its customer) and the issuer's master account is credited that same amount. The majority of issuance activity involves primary dealers purchasing Fedwire securities for themselves and their customers. Once securities are issued, the Reserve Banks, as fiscal agents for the issuers, will make the related principal and interest payments to the Fedwire Securities Service participants that hold those securities as of a specified record date as directed by the issuers of those securities.²⁵

The principal and interest payments for MBS vary from month to month. MBS issuers initiate the process of paying principal and interest by transmitting factor files, which include pool factors (e.g., the percentage of principal left to be distributed) and other information necessary for calculating principal and interest payments, electronically to the Reserve Banks. The factor-file information is uploaded to and processed by the Fedwire Securities Service application in a practice referred to as factor-file processing. Once this factor-file process is complete, the Fedwire Securities Service sends a notification of expected principal and interest payments to the issuers and to the holders of these securities on the Fedwire Securities Service.

The Fedwire Securities Service is the CSD for securities issued by the issuers indicated in table 1 below over the Fedwire Securities Service.²⁶ At the end of 2016, there was approximately \$74 trillion (par value) of Fedwire securities held in securities accounts maintained by the Reserve Banks as part of the Service.²⁷

²⁵ In general, Fedwire Securities Service participants will have their own master accounts, which will be credited with such principal and interest payments. It is possible, however, for a Reserve Bank customer that does not have a master account to become a Fedwire Securities Service participant. In such a case, the participant is only permitted to send and receive securities transfers free of payment. In addition, it must identify a correspondent that holds a master account with a Reserve Bank to receive principal and interest payments on its behalf.

²⁶ The list of issuers and the classes of securities issued by each can be found at <https://www.frbervices.org/resources/financial-services/securities/user-guide.html>.

²⁷ See Board of Governors of the Federal Reserve System, Fedwire Securities Services: Data and Additional Information, available at http://www.federalreserve.gov/paymentsystems/fedsecs_ann.htm.

Details concerning the timing of the issuance of securities over the Fedwire Securities Service and the payment of principal and interest through the Service are provided below in *System Design and Operations*.

Table 1: Issuers of Securities over the Fedwire Securities Service

U.S. Department of Treasury	Federal Agencies	Government-Sponsored Enterprises	International Organizations
All marketable U.S. Treasury debt securities (Bills, Notes, Bonds, Treasury Inflation-Protected Securities, and Floating Rate Notes)	Debt and MBS Securities issued or guaranteed by: <ul style="list-style-type: none"> ▪ Government National Mortgage Association ▪ U.S. Department of Veterans Affairs 	Debt Securities issued by: <ul style="list-style-type: none"> ▪ Farm Credit Banks ▪ Federal Home Loan Banks ▪ Financing Corporation ▪ Resolution Funding Corporation ▪ Tennessee Valley Authority ▪ Student Loan Marketing Association (prior to privatization) Debt and MBS Securities issued by: <ul style="list-style-type: none"> ▪ Federal National Mortgage Association ▪ Federal Agricultural Mortgage Corporation ▪ Federal Home Loan Mortgage Corporation 	Debt Securities issued by: <ul style="list-style-type: none"> ▪ African Development Bank ▪ Asian Development Bank ▪ Inter-American Development Bank ▪ International Bank for Reconstruction and Development ▪ North American Development Bank ▪ International Finance Corporation

Transfer and Settlement of Securities

Participants generally use the Fedwire Securities Service to transfer securities to settle secondary market trades and to move collateral to secure obligations. The Fedwire Securities Service is a book-entry system, and securities transfers over the Service refer to the electronic movement over the Service of a par amount of book-entry securities by a series of debits and credits to relevant accounts. All securities transfers over the Fedwire Securities Service are settled following a DVP model 1 system.²⁸ The vast majority of transfers constitute DVP transactions, which involve the simultaneous exchange of securities and payment. Fedwire securities may also be transferred free of payment.²⁹ A securities transfer is final at the time the debits and credits are posted to both the sender's and the receiver's securities accounts and, in

²⁸ For more detail on the Fedwire Securities Service as a DVP model 1 system, see Principle 12, *Exchange-of-value settlement systems*.

²⁹ In 2016, DVP transfers accounted for approximately 83 percent of total securities transfer volume (as measured by number of secondary-market transactions and excluding reversals) over the Fedwire Securities Service. Transfers free of payment accounted for approximately 17 percent of all securities transfers (by the same measure). About 29 percent of the free-of-payment transfers were intraparticipant transfers (i.e., a participant repositioning securities from one of its securities accounts to another).

the case of transfer against payment, their corresponding master accounts. In 2016, the Service processed on average \$1.1 trillion of securities transfers against payment (measured by cash value, not par amount) every business day.³⁰

All securities transfers made over the Fedwire Securities Service against payment are settled on the books of the Reserve Banks and, therefore, in central bank money.

Details concerning the transfer of securities over the Fedwire Securities Service, including a diagram depicting a securities transfer against payment, are provided in *System Design and Operations* below.

Other Services

Automated Claim Adjustment Process

The Fedwire Securities Service includes an automated claim adjustment process (ACAP) feature for MBS.³¹ A Service participant uses ACAP when it desires to redirect principal and interest payments from the master account of the participant to the master account of another participant, as further detailed below. ACAP supports such “adjustments” to principal and interest payments in three distinct scenarios: fail tracking, interim accounting, and repo tracking.

Fail-tracking adjustments take place when the settlement date of a Fedwire securities transfer is after the contract date (i.e., the date the two participants had originally agreed to settle the securities transfer) and a beneficiary date (the date on which interest accrual for a security ends) falls between those two dates. When the participant that was supposed to transfer the security actually does so, it can include a flag (by specifying the contract date) in the securities transfer message that will debit the sender’s master account and credit the receiving participant’s master account, on payment date, for the amount of principal and interest the receiver would have been paid if the sender had transferred the security on the date agreed by the parties.³²

Interim-accounting adjustments occur when the settlement date of the securities transfer falls after the record date but on or before the beneficiary date. Interim-accounting works much like fail tracking: principal and interest is redirected, once it is paid, from the sender of the security to the receiver. Unlike fail tracking, interim-accounting occurs whenever a sender transfers a security meeting the specified criteria.

³⁰ See Board of Governors of the Federal Reserve System, Fedwire Securities Service: Data and Additional Information, *supra* note 27. This value includes secondary-market transfers only and excludes transfers sent using the reversal message.

³¹ For additional information on the ACAP feature, see <https://www.frbservices.org/assets/financial-services/wires/fedwirebook-entrysecuritiesservice.pdf> and appendix D to Operating Circular 7. Operating Circular 7, *supra* note 20, app. D.

³² This is a simplification because ACAP adjustments are aggregated and netted by participant at the securities account level.

Conversely, repo tracking facilitates the adjustment of principal and interest payments from the participant that received a security to the sender. It is intended to be used in connection with a security under repo. A sender can activate repo tracking by including a flag (a repo tracking indicator) in the securities transfer message when it transfers a security to another Service participant. Assuming the receiver is holding the security on record date, it will receive the principal and interest payment when it is paid. Consequently, on payment date, the repo-tracking service will debit the receiver's master account and credit the sender's master account.

Securities Stripping and Reconstitution

The Service also provides securities stripping and reconstitution processing at the request of participants for certain Fedwire securities. The Fedwire Securities Service stripping process retires the original security after it separates the security's principal and interest components so each component can be traded as a separate security in the secondary market. Participants may also request that the Service reconstitute, or reassemble, the principal and interest components of a security. To do so, the Fedwire Securities Service retires the separate principal and interest components and creates a reconstituted security. Once the security is reconstituted, it can then be traded and transferred as a whole in the secondary market.

Key Statistics

The following are key 2016 volume and value statistics for the Fedwire Securities Service:

Table 2: Fedwire Securities Service Key Statistics

Fedwire Securities Service Key Statistics	
2016 Annual Data	
Transfers initiated ^{1, 2} (number)	16,565,473
Cash value of transfers initiated ² (millions)	\$286,671,689
Average cash value per transfer ² (millions)	\$17
Average daily volume of transfers initiated ^{2, 3} (number)	65,998
Average daily cash value of transfers initiated ^{2, 3} (millions)	\$1,142,118
Securities maintained in securities accounts at year end ⁴ (millions)	\$74,039,804

Source: http://www.federalreserve.gov/paymentsystems/fedsecs_ann.htm

¹ The total number of secondary-market transfers initiated during 2016.

² Includes all transfers except reversals and transfers to pledge collateral related to Treasury programs and Reserve Bank discount window loans.

³ Based on the number of business days in 2016.

⁴ Par value.

B. General Organization of the Fedwire Securities Service

How the Reserve Banks carry out their responsibilities for providing financial services, including the Fedwire Securities Service, is largely dictated by federal law and Board of Governors' policies. By written agreement among the Reserve Banks, the Federal Reserve Bank of New York (FRBNY) is responsible for the day-to-day management of the Fedwire Securities Service, which it accomplishes through its Wholesale Product Office (WPO). As further discussed in Principle 2, *Governance*, in managing the Service, FRBNY is responsible to a number of Federal Reserve stakeholders, including FRBNY's board of directors, certain Federal Reserve System committees, and the Board of Governors in its role as supervisor of the Reserve Banks.

C. Legal and Regulatory Framework

Ownership Structure

The Federal Reserve System was created by act of Congress in 1913 to provide the nation with a safer, stabler, and more flexible monetary and financial system and to serve as the central bank of the United States. It is composed of, among other bodies, 12 regional Reserve Banks and the Board of Governors.³³ Member banks must subscribe to stock in their regional Reserve Bank. Although each Reserve Bank is owned by its member institutions, the legal organization of the Reserve Banks includes elements of both public and private accountability. Each Reserve Bank has its own board of directors, representing public and private interests, including directors appointed by the Board of Governors, as well as directors elected by member banks in that Federal Reserve district.

For more detail on the governance of the Reserve Banks, see Principle 2, *Governance*.

Legal Structure

U.S. law provides a comprehensive, well-established legal framework governing all material aspects of the Fedwire Securities Service and offers a high degree of legal assurance that transactions conducted over the Service are enforceable. The rights and obligations of parties to, and the enforceability of, transactions conducted over the Fedwire Securities Service are subject to a broad and detailed treatment in this legal framework. The statutes, regulations, rules and procedures, and contracts relevant to the Service are clearly stated, understandable, internally coherent, and unambiguous. Furthermore, they are readily accessible, via the Internet, to Service participants and the general public.

Federal statutes and regulations provide the essential legal framework for the Fedwire Securities Service. These statutory and regulatory authorities, in concert with contractual provisions governing the Service, as supplemented by U.S. state or territorial law as relevant,

³³ The other bodies that make up the Federal Reserve System are member banks, the Federal Open Market Committee, and three statutory advisory committees (the Federal Advisory Council, the Consumer Advisory Council, and the Thrift Institutions Advisory Council). For more detail on the Federal Reserve System, see Board of Governors of the Federal Reserve System, *The Federal Reserve System: Purposes & Functions* (10th ed. 2016), available at http://www.federalreserve.gov/aboutthefed/files/pf_complete.pdf.

provide a comprehensive set of rules and define the rights and obligations of participants and the Reserve Banks with a high degree of certainty.

Section 15 of the Federal Reserve Act directs the Reserve Banks to act as fiscal agents of the United States when required by the Secretary of the Treasury.³⁴ The Reserve Banks are authorized or directed by other federal statutes, or instructed by Treasury pursuant to section 15 of the Federal Reserve Act, to act as fiscal agents for all of the other issuers or guarantors of Fedwire-eligible securities.³⁵ The Reserve Banks developed and operate the Fedwire Securities Service pursuant to these authorities, as well as other provisions of the Federal Reserve Act. Among the latter, the Reserve Banks are authorized to provide specified priced services, including “securities safekeeping services,” “wire transfer services,” and “settlement services.”³⁶ The act also permits a Reserve Bank to receive deposits from any of its member banks or other depository institutions and to receive deposits from other Reserve Banks for purposes of exchange or collection.³⁷ The act also confers authority for a Reserve Bank to exercise the functions of a clearinghouse for depository institutions when directed to do so by the Board of Governors.³⁸

Under the Monetary Control Act of 1980, which amended the Federal Reserve Act, the Fedwire Securities Service is among the Reserve Bank financial services required to be priced to fully recover, over the long run, all direct and indirect costs, certain imputed costs, and a return on equity that would have been earned if a private-sector firm provided the services.³⁹ In discharging its responsibilities under the Monetary Control Act, the Board of Governors, among other things, adopted a set of standards related to the Reserve Banks’ priced-services activities

³⁴ Federal Reserve Act § 15(1) (12 USC § 391).

³⁵ See 12 USC § 1723a(g) (authority and direction to act as depositories, custodians, and fiscal agents for Ginnie Mae and Fannie Mae); 12 USC § 1452(d) (authority to act as depository, custodian, or agent for Freddie Mac); 12 USC § 393 (authority to act as depositories and fiscal agents for any Farm Credit System institution); 12 USC § 2279aa-3(d) (authority to act as depositories, custodians, and fiscal agents for Federal Agricultural Mortgage Corporation (Farmer Mac)); 31 USC §§ 9101(3)(n), 9107(b) (authority to act as depository and fiscal agent for Tennessee Valley Authority); 12 USC § 1435 (authority to act as depositories, custodians, and fiscal agents for Federal Home Loan Banks); 12 USC § 1441(h)(2) (authority to act as depositories, custodians, and fiscal agents for Financing Corporation); 12 USC § 1441b(h)(2) (authority to act as depositories, custodians, and fiscal agents for Resolution Funding Corporation).

Unlike the other entities that issue securities over the Fedwire Securities Service, Ginnie Mae is technically the guarantor of certain MBS issued over the Service by private lending institutions approved by Ginnie Mae. Similarly, the United States Department of Veterans Affairs (Veterans Affairs) is the guarantor of certain MBS issued over the Service by a vendee mortgage trust. For the sake of convenience, however, this disclosure refers to Ginnie Mae and Veterans Affairs as an issuer over the Fedwire Securities Service.

³⁶ Federal Reserve Act § 11A (12 USC § 248a).

³⁷ Federal Reserve Act § 13(1) (12 USC § 342).

³⁸ Federal Reserve Act § 16(14) (12 USC § 248-1).

³⁹ Federal Reserve Act § 11A (12 USC § 248a). The Monetary Control Act is discussed in more detail in section 15.1. As discussed in that section, not every aspect of the Fedwire Securities Service is required to be priced under the Monetary Control Act.

that are designed in part to ensure fairness to private-sector providers of financial services.⁴⁰ These standards require the Reserve Banks' monetary policy, financial institution supervision, and lending functions to be handled by Reserve Bank employees that are separate from the employees that provide Reserve Bank financial services, such as the Fedwire Securities Service, to help avoid an actual or apparent conflict that might arise between the Reserve Banks' provision of financial services and one of the other functions.⁴¹

Pursuant to these statutory authorities, the Reserve Banks, as fiscal agents, issue and maintain book-entry records evidencing ownership of Treasury and certain non-Treasury securities that are held in securities accounts maintained with the Reserve Banks (and not directly with the issuers of the securities).⁴² Treasury promulgated the Treasury/Reserve Automated Debt Entry System (TRADES) regulations to govern this book-entry system (i.e., the Fedwire Securities Service), as well as the rights and obligations of the United States and the Reserve Banks vis-à-vis Fedwire Securities Service participants and others with respect to Treasury bonds, notes, and bills issued over the Fedwire Securities Service.⁴³ Other non-Treasury securities issued on the Service are governed by regulations substantially comparable to the TRADES regulations, as adopted by their respective issuer or, in the case of GSE securities, the issuer's regulator.⁴⁴ Regulations duly adopted by federal agencies have the force of federal law.⁴⁵

Under the TRADES regulations and other comparable issuer regulations, U.S. state and territorial commercial law applies to certain aspects of transactions in Fedwire securities. More specifically, the regulations provide that Articles 8 and 9 of the Uniform Commercial Code (UCC) generally govern certain matters.⁴⁶ Article 8 sets out rules regarding the rights and

⁴⁰ See Board of Governors of the Federal Reserve System, Standards Related to Priced-Service Activities of the Federal Reserve Banks, *Federal Reserve Regulatory Service* 9–1569 to –1572 (1984), available at http://www.federalreserve.gov/paymentsystems/pfs_standards.htm.

⁴¹ *Id.* at 9–1569 to –1570.

⁴² As discussed in more detail in section 1.1, as a legal matter, crediting a Fedwire security by book entry to a participant's securities account maintained with a Reserve Bank creates a security entitlement, which represents the rights and property interest of the participant (also known as an entitlement holder) with respect to that Fedwire security. Service participants may, in turn, maintain securities accounts for their customers. If participants do so, they are acting, in turn, as securities intermediaries for their customers, which are themselves entitlement holders to the extent the intermediaries have credited securities to their securities accounts.

⁴³ See 31 CFR pt. 357, subpt. B.

⁴⁴ See, e.g., 24 CFR pt. 350 (book-entry procedures for Ginnie Mae); 12 CFR pt. 1249 (book-entry procedures for Fannie Mae and Freddie Mac); 18 CFR pt. 1314 (book-entry procedures for TVA). For a full list of issuer regulations, see appendix A to Operating Circular 7. Operating Circular 7, *supra* note 20, app. A.

⁴⁵ See *N.Y.C. Emps.' Ret. Sys. v. SEC*, 45 F.3d 7, 11-12 (2d Cir. 1995) (agency rules that are legislative are those that “create new law, rights, or duties” and that are therefore subject to the notice and comment requirements of the Administrative Procedure Act; such rules have the force of law (citations omitted)). Cf. Administrative Procedure Act, 5 USC § 553(d)(2) (exempting agency interpretive rules and statements of policy from the notice and comment provisions applicable to substantive rulemaking).

⁴⁶ Articles 8 and 9 of the UCC were first developed and endorsed by the National Conference of Commissioners on Uniform State Laws, which is now known as the Uniform Law Commission (ULC), in conjunction with the American Law Institute, in 1951. The ULC, formed in 1892, is a nonprofit association

obligations of entitlement holders, securities intermediaries, and other parties in both direct and indirect systems for holding securities.⁴⁷ Article 9 governs the rights and obligations of parties to a secured transaction.

In addition to the statutes and regulations mentioned above, the Reserve Banks have operating circulars that describe the various services and terms agreed to by direct participants of the Fedwire Securities Service. Operating Circular 7 governs the details of securities account maintenance and transfer operations by the Reserve Banks and has been issued in identical form by all Reserve Banks.⁴⁸ It is a contract between a Reserve Bank and each Fedwire Securities Service participant that holds a securities account on that Reserve Bank's books. Under the federal regulations governing securities issued over and maintained by the Service, the Reserve Banks are authorized to issue such operating circulars, so long as they are consistent with the regulations.⁴⁹ Furthermore, these federal regulations treat the Reserve Banks as clearing corporations under state law for certain key purposes. Relatedly, under Article 8 of the UCC, Reserve Banks are considered clearing corporations. As such, their operating circulars have a special status as clearing corporation rules. That means the operating circulars, like the TRADES regulations and other corresponding issuer regulations, supersede conflicting provisions of Article 8 of the UCC.⁵⁰

For more detail, see Principle 1, *Legal basis*. Operating Circular 1, *Account Relationships*, and Operating Circular 5, *Electronic Access*, are also relevant to the Fedwire Securities Service.

Supervisory and Oversight Framework

The Federal Reserve Act charges the Board of Governors with exercising general supervision over the Reserve Banks, including with respect to the operation of the Fedwire Securities

of legal experts from each state, the District of Columbia, the Commonwealth of Puerto Rico, and the U.S. Virgin Islands. The ULC studies the laws of the states to determine which areas of law should be uniform nationwide and promotes the principle of uniformity by drafting and proposing specific statutes in areas of law where uniformity between the states is desirable. The ULC can only propose uniform or model statutes; no uniform or model law is effective until a body with rulemaking authority, such as a state legislature or federal agency, adopts it. Although states and territories have distinct legal statuses, for simplicity, this disclosure will subsequently use the term "state law" to mean either state or territorial law.

⁴⁷ Unlike each of the 50 U.S. states, the District of Columbia, the Commonwealth of Puerto Rico, and the U.S. Virgin Islands, the U.S. territory of Guam has not adopted the 1994 official text of Article 8 as approved by the American Law Institute and the ULC (defined in the TRADES regulations as "Revised Article 8"). Under the TRADES regulations, applicable state law governs security entitlements held at levels below that of the participant. If a particular state, territory, or possession (e.g., Guam) has not adopted Article 8 in a form "substantially identical" to Revised Article 8, the TRADES regulations automatically apply Revised Article 8. See 31 CFR §§ 357.10(c), 357.11(e); see also 31 CFR pt. 357, app. B. The other issuer regulations have corresponding provisions. This helps ensure that at levels below that of the direct participant the law is uniform.

⁴⁸ See Operating Circular 7, *supra* note 20.

⁴⁹ See *id.*, app. A (list of issuer regulations).

⁵⁰ See, e.g., 31 CFR § 357.14(b); UCC § 8-111 (rules adopted by a clearing corporation that govern rights and obligations among the clearing corporation and its participants are effective even if they conflict with Article 8 of the UCC).

Service, and authorizes the Board of Governors to adopt rules and regulations necessary to enable the Board of Governors to perform effectively its duties, functions, or services as specified in the act.⁵¹ The Board of Governors has publicly recognized the critical role the Fedwire Securities Service plays in the financial system and has implemented a supervisory framework for the Fedwire Securities Service that includes requirements that are comparable to, or exceed, those placed on similar private-sector FMI.s.⁵² The Board of Governors exercises this oversight in three ways—application of risk-management standards; an examination process; and review of the Fedwire Securities Service’s key strategic initiatives, price and service terms, and proposed material changes to the Service.

Part I of the PSR policy, which incorporates the risk-management and transparency standards in the PFMI, applies to both Reserve Bank and certain private-sector systems.⁵³ The risk-management and transparency standards in the PSR policy are consistent with those in Regulation HH,⁵⁴ which apply to payment, clearing, and settlement systems (also known as financial market utilities) designated as systemically important by the Financial Stability Oversight Council and for which the Board of Governors has standard-setting authority under title VIII of the Dodd-Frank Act. The Board of Governors expects the Fedwire Securities Service to meet or exceed the applicable standards set forth in part I of the PSR policy.⁵⁵ In addition, the Board of Governors expects the Reserve Banks to regularly update this disclosure following changes to the Fedwire Securities Service or the environment in which it operates that would significantly affect the accuracy of the statements in this disclosure.⁵⁶ At a minimum, the Board has stated that such disclosures should be updated every two years.⁵⁷

The Board of Governors conducts examinations of the Reserve Banks’ Fedwire Securities Service, and it monitors the Service’s operations and initiatives through reports, discussions with Reserve Bank management, and its liaison roles on various Reserve Bank committees. The rigor of the Board of Governors’ Fedwire Securities Service examination process is comparable to, or exceeds, that of the process used by Federal Reserve supervisors for designated financial market utilities.

In reviewing proposed material changes to the Fedwire Securities Service rules, procedures, and operations, the Board of Governors also holds the Reserve Banks to procedural requirements that are the same as, or higher than, the requirements for designated financial market utilities it supervises.⁵⁸ For example, the Board of Governors reviews, and has the opportunity to object to, any changes to Reserve Bank operating circulars. The Board of

⁵¹ Federal Reserve Act §§ 11(j) (general supervision over Reserve Banks) (12 USC § 248(j)), 11(i) (authority to promulgate rules and regulations) (12 USC § 248(i)).

⁵² Board of Governors of the Federal Reserve System, Policy on Payment System Risk, 79 Fed. Reg. 67326, 67332 (Nov. 13, 2014).

⁵³ See PSR policy, *supra* note 4, at 7-9.

⁵⁴ See 12 CFR § 234.3 (Regulation HH risk-management and transparency standards).

⁵⁵ Policy on Payment System Risk, 79 Fed. Reg. at 67336.

⁵⁶ See PSR policy, *supra* note 4, at 10.

⁵⁷ *Id.*

⁵⁸ *Cf.* 12 CFR § 234.4.

Governors also approves the Reserve Banks' budgets, including budgets related to the Fedwire Securities Service, and approves major Reserve Bank strategic initiatives. Furthermore, the Board of Governors approves and publishes in the Federal Register the fees the Reserve Banks charge for the Fedwire Securities Service and monitors the Reserve Banks' ongoing compliance with the cost-recovery requirements of the Monetary Control Act.

The U.S. Government Accountability Office (GAO), the investigative arm of Congress, may also examine activities of the Service, including in connection with the GAO's annual financial audit of federal debt.⁵⁹

D. System Design and Operations

Participant Access

Participants access the Fedwire Securities Service through the FedLine Direct[®] electronic access channel (an IP-based computer interface), the FedLine Advantage[®] electronic access channel (web-based access), or through the offline service described below. Participants conducting larger volumes of securities transfers typically use the FedLine Direct access solution, which requires internal or third-party software to interface with the Service. Midsize or smaller participants typically access the Service through the FedLine Advantage access solution using the FedPayments[®] Manager—Securities application to create, send, and receive securities-transfer messages, messages relating to principal or interest payments, and nonvalue messages. Participants with very low transaction volume typically access the Service through the offline service.

Participants using the offline service submit securities transfer instructions by telephone or in writing by e-mail or fax to the Reserve Banks. Once the Reserve Bank has authenticated the requested transfer instructions, the transfer message is submitted to the Fedwire Securities Service for processing. In 2016, offline transfers accounted for less than 1 percent of all transfers originated over the Service.

Operating Hours

As noted in table 3 on the following page, the Fedwire Securities Service operates 10.5 hours each business day beginning at 8:30 a.m. ET and ending at 7:00 p.m. ET, Monday through Friday, excluding designated holidays.⁶⁰

⁵⁹ See 31 USC § 714; see also U.S. Government Accountability Office, GAO-17-104, *Financial Audit: Bureau of the Fiscal Service's Fiscal Years 2016 and 2015 Schedules of Federal Debt* (Nov. 10, 2016), available at <http://gao.gov/products/GAO-17-104>.

⁶⁰ A complete time schedule and list of holidays is available in appendix B to Operating Circular 7. See Operating Circular 7, *supra* note 20, app. B.

Table 3: Operating Hours

Online Transfers	Eastern Time
Operating Hours Monday through Friday	Opens at 8:30 a.m. – Closes at 7:00 p.m.
Cutoff times	2:15 p.m. – cutoff for original issue 2:30 p.m. – cutoff for original issue reversals ¹ 3:15 p.m. – cutoff for secondary market transactions 3:30 p.m. – cutoff for secondary market reversals 4:30 p.m. – cutoff for reposition against payment ² 7:00 p.m. – cutoff for reposition free of payment
¹ Reversals of transfers are made using a specific reversal code and constitute separate and distinct securities transfers. A participant must not send a transfer message for the first time during the reversal period by using the reversal code. ² Repositioning refers to the transfer of book-entry securities between two securities accounts of a particular Fedwire Securities Service participant.	
Offline Transfers	Eastern Time
Operating Hours Monday through Friday	Opens at 9:00 a.m. - Closes at 4:00 p.m.
Cutoff times	1:30 p.m. – cutoff for current-day processing 4:00 p.m. – cutoff for future-day processing

At the request of a Fedwire Securities Service participant, the Reserve Banks may extend Service cutoff times or operating hours to accommodate a significant operating problem at a bank or major dealer if the extension is deemed necessary, in the Reserve Banks' view, to prevent market disruption (i.e., the dollar value of delayed transfers exceeds \$1 billion). For an extension to be granted, the requesting participant must make the request at least 20 minutes before the cutoff time. Extensions may also occur if there is a failure of Reserve Bank or Service network equipment. The Reserve Banks retain the discretion to shorten or extend an operating day to facilitate special market needs.

Availability

In 2016, the Fedwire Securities Service was available 99.99 percent of operating hours for all customers, which exceeded the availability target of 99.985 percent of operating hours.

Fedwire Securities Service Transfer Flow

A securities transfer is initiated by the Fedwire Securities Service participant that wishes to transfer securities. That participant (the sender) does so by sending an instruction (known as a transfer message) through one of the Service's access channels to the Reserve Bank that maintains the securities account in which the securities are held. A transfer message submitted by the sender must be in the media and format the Reserve Banks prescribe. A Reserve Bank will not act on instructions in a transfer message that is not in accordance with the required format specifications. The basic transfer message identifies both the sender and the receiver of the securities by their respective identifying numbers (typically routing transit numbers), the receiver's securities account to be credited, the security and par amount to be transferred (the former being identified by CUSIP® number, a nine-character alphanumeric identifier commonly used by market participants to identify securities), and any payment information. In many

cases, securities transfers involve parties other than the sender and receiver. The Service's transfer message format supports supplementary information, which participants may use to debit or credit securities accounts on their books for such third parties. For more detail on transfer message format, see Principle 22, *Communication procedures and standards*.

As a legal matter, the transfer message instructs the Reserve Bank to debit the Fedwire security specified in the message from the sender's securities account and to credit (or, if another Reserve Bank maintains the receiver's securities account, cause that other Reserve Bank to credit) the Fedwire security to the receiver's securities account. If it is a transfer against payment, the Reserve Bank credits the sender's master account for the payment amount specified in the transfer message and debits, or causes another Reserve Bank to debit, the receiver's master account. Under Operating Circular 7, each sender and receiver of a securities transfer over the Service irrevocably authorizes the Reserve Banks involved in the transfer to make debits and credits to the securities accounts and master accounts identified in the transfer message. A securities transfer is final at the time the debits and credits are posted to both the sender's and the receiver's securities accounts and, in the case of transfer against payment, their corresponding master accounts. Given that settlement occurs in real time over the Service, there are no unsettled transfer messages that could be revoked by participants at any point in the settlement day. Reversals of transfers must be made separately; they constitute separate and distinct securities transfers, such that the finality of the original securities transfer to which the reversal transfer message relates is not disturbed. For more detail, see Principle 8, *Settlement finality*.

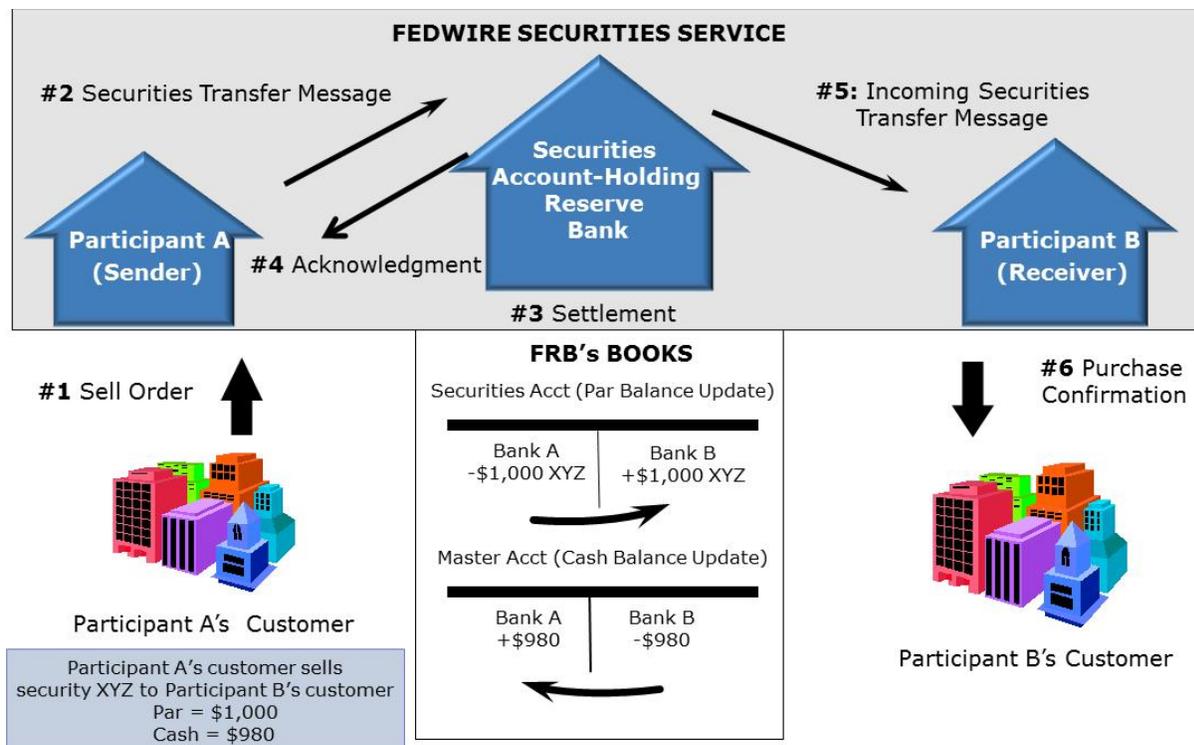
From an operational standpoint, many of the actions that the Reserve Banks perform on behalf of senders and receivers of Fedwire securities in a securities transfer are accomplished by the Fedwire Securities Service as a centralized application developed, managed, and operated by FRBNY on behalf of all 12 Reserve Banks. For example, the Fedwire Securities Service processes debits and credits to the securities accounts and master accounts of the senders and receivers over the Service in real time, and it delivers notices of each credit or debit to a participant's securities account in real time. Moreover, the Fedwire Securities Service checks the transfer message for syntax errors and verifies that the sender has a sufficient par amount of the security identified in the message to be transferred in its securities account. Most securities transfers are subject to a \$50 million par-amount limit per transfer, with limited exceptions as provided in Operating Circular 7.⁶¹ In addition, the Service will process a securities transfer, and any associated payment, only if the transfer message is received before the relevant cutoff time. Once verified by the Service, the securities are automatically debited from the sender's designated securities account and credited to the receiver's securities account; simultaneously, if the transfer is against payment, funds are debited from the receiver's master account and credited to the sender's master account.

The diagram below depicts an example of a securities transfer over the Fedwire Securities Service. The diagram assumes that the sender and receiver have securities accounts and master accounts at the same Reserve Bank. The gray box shows the portion of the securities transaction that is processed by the Fedwire Securities Service. The diagram as a whole helps

⁶¹ The limit does not apply to the original issuance of securities, to requests to strip or reconstitute securities, or to debits or credits of securities to restricted securities accounts.

illustrate the tiered ownership structure of Fedwire securities. In the diagram, Participant A's customer, which wishes to sell security XYZ, and Participant B's customer, which wishes to buy that security, are not direct participants of the Fedwire Securities Service. Participant A's customer sends an order to Participant A, its securities intermediary, to sell \$1,000 (par value) of security XYZ to Participant B's customer for \$980. In response to that order, Participant A sends a transfer message over the Fedwire Securities Service to its Reserve Bank instructing the Reserve Bank to transfer \$1,000 (par value) of security XYZ to Participant B for further credit to Participant B's customer. The Fedwire Securities Service will cause the Reserve Bank to debit Participant A's securities account for the \$1,000 par amount of security XYZ and credit Participant B's securities account for the same amount of that security. At the same time, the Service will cause the Reserve Bank to debit Participant B's master account \$980 and to credit Participant A's master account \$980. These transactions are depicted by the simple ledger in the middle of the diagram. Once all those debits and credits have been posted, the Fedwire securities transfer is final. Immediately thereafter, the Service sends a notice to Participant A that its securities account has been debited (this notice is identified in the diagram as #4, acknowledgment) and a notice to Participant B that its securities account has been credited (this notice is identified in the diagram as #5, incoming securities transfer message).

Once Participant B's securities account has been credited by the Reserve Bank, Participant B will credit \$1,000 (par value) of security XYZ to its customer's securities account on Participant B's books and debit that customer's funds account \$980. As described in more detail in section 1.1, Participant B's customer is now considered an entitlement holder with a security entitlement against Participant B with respect to security XYZ, and Participant B is a securities intermediary. At the same time, Participant B is an entitlement holder with a security entitlement against its account-holding Reserve Bank with respect to security XYZ.



Issuance of Securities and Payment of Principal and Interest

Issuers may issue securities over the Fedwire Securities Service between 8:30 a.m. and 2:30 p.m. ET every business day.

Once securities are issued, the Service will make the principal and interest payments to the master accounts of holders of the securities as of a specified record date, as directed by the issuers of those securities.⁶² On payment dates, the Service releases principal and interest payments for Treasury and federal government agency securities before 9:15 a.m. ET.⁶³ Principal and interest payments for all other non-Treasury securities are released by the Service only after the issuers have provided funding for those payments to designated principal and interest accounts. These issuers have the flexibility to pay holders of their securities on a flow basis with incremental payments based on a preestablished percentage of the entire obligation. A participant receives information that details principal and interest payments credited to its master account (or, if it has designated a correspondent, to its correspondent's master account).

⁶² As explained in footnote 25, Fedwire Securities Service participants that do not have master accounts must arrange for correspondent depository institutions to receive principal and interest payments on their behalf. Generally, such participants are those using securities accounts solely to pledge Fedwire securities as collateral to secure discount window loans or for PSR purposes.

⁶³ Federal government agency securities include those backed by the full faith and credit of the U.S. government, such as those guaranteed by the Department of Veterans Affairs or by Ginnie Mae.

IV. Principle-by-Principle Summary Narrative Disclosure

Principle 1: Legal basis

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

1.1 The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions.

The Fedwire Securities Service is subject to a comprehensive and mature legal framework that provides a basis for each material aspect of the Service, including the rights and interests in securities, securities accounts, securities transfers, settlement finality, and arrangements for DVP. The United States is the only relevant jurisdiction for assessing the legal basis of the material aspects of the Reserve Banks' activities in operating the Service because nearly all direct Service participants are U.S.-chartered or -licensed entities and all agreements with participants are governed by U.S. law.

Federal and State Law

Section 15 of the Federal Reserve Act directs the Reserve Banks to act as fiscal agents of the United States when required by the Secretary of the Treasury.⁶⁴ The Reserve Banks are authorized or directed by other federal statutes, or instructed by Treasury pursuant to section 15 of the Federal Reserve Act, to act as fiscal agents for all of the other issuers or guarantors of Fedwire-eligible securities in a similar capacity. The Reserve Banks operate the Fedwire Securities Service pursuant to these authorities, as well as other provisions of the Federal Reserve Act. Among the latter, the Reserve Banks are authorized to provide specified priced services, including "securities safekeeping services," "wire transfer services," and "settlement services."⁶⁵ The act also permits a Reserve Bank to receive deposits from any of its member banks or other depository institutions and to receive deposits from other Reserve Banks for purposes of exchange or collection.⁶⁶ In addition, the act confers authority for a Reserve Bank to exercise the functions of a clearinghouse for depository institutions when directed to do so by the Board of Governors.⁶⁷

Under the TRADES regulations (and similar regulations issued by the other Fedwire issuers or their regulators), federal law governs the rights and obligations of, and claims against, the issuer and the Reserve Banks with respect to Fedwire securities held in securities accounts maintained at the Reserve Banks, as well as the rights of any person, including direct Fedwire Securities Service participants, against the issuer and the Reserve Banks with respect to those securities.⁶⁸ The regulations govern creation of a security entitlement of a Fedwire Securities

⁶⁴ Federal Reserve Act § 15(1) (12 USC § 391).

⁶⁵ Federal Reserve Act § 11A (12 USC § 248a).

⁶⁶ Federal Reserve Act § 13(1) (12 USC § 342).

⁶⁷ Federal Reserve Act § 16(14) (12 USC § 248-1).

⁶⁸ See, e.g., 31 CFR § 357.10(a) (TRADES regulations governing Treasury securities). Specifically, the TRADES regulations provide that federal governing law includes Treasury regulations, the Treasury offering circular (31 CFR pt. 356), offering announcements, and Reserve Bank operating circulars.

Service participant in, and transfers and pledges of, such securities held through the Fedwire Securities Service. The regulations further provide that state law (in particular, Revised Articles 8 and 9 of the UCC)⁶⁹ governs the rights and obligations of the various other parties with interests in book-entry securities held at securities intermediaries other than the Reserve Banks to the extent such state law is consistent with the regulations.⁷⁰

Operating Circulars

Operating Circular 7 provides a comprehensive set of rules under which each Reserve Bank maintains securities accounts and effects transfers of Fedwire securities for Fedwire Securities Service participants. Operating Circular 7 applies to all Fedwire securities and formally incorporates by reference the TRADES regulations and the regulations relating to non-Treasury securities. Participants are bound by the provisions of Operating Circular 7 by virtue of maintaining a Fedwire Securities Service account with a Reserve Bank. In accordance with Operating Circular 7, a participant may hold Fedwire securities at a Reserve Bank in one or more unrestricted or restricted securities accounts. In addition, Operating Circular 7 specifies:

- operating hours and rules for extending or shortening the operating hours,
- terms and conditions of access to the Fedwire Securities Service,
- the roles of Reserve Banks in a Fedwire securities transfer,
- the timing of, and conditions for, debits and credits of Fedwire securities to participants' securities accounts and, in the case of securities transfers against payment, debits and credits to participants' master accounts,
- security procedures,
- how securities transfers may be returned or reversed,
- format and media requirements for securities transfers,
- charges and billing for securities transfer services,
- notices of debits and credits,
- the terms relating to automated claim adjustments for MBS,
- contingency requirements,
- settlement finality,
- payment of principal and interest on Fedwire securities, and
- liability of Reserve Banks.

⁶⁹ The regulations provide that Revised Article 8, as approved by the ULC, applies if a state has not adopted Article 8 in substantially identical form to the uniform version. Revised Article 9 refers to the 1999 official text of Article 9 as approved by the American Law Institute and the ULC (defined in the TRADES regulations as "Revised Article 9"). Like Revised Article 8, Revised Article 9 is incorporated by reference into the TRADES regulations. Under the TRADES regulations, Revised Article 9 applies to define the location of a person creating a security interest in a Treasury security for purposes of determining the governing state law for perfection of the security interest automatically or by filing a financing statement. See 31 CFR § 357.11(d).

⁷⁰ See 31 CFR § 357.11.

Operating Circular 7 also sets forth the terms under which the Reserve Banks hold Fedwire securities for the benefit of a state or local government (or a unit of such a government) to which a Fedwire Securities Service participant has granted a security interest.

Under Operating Circular 7, a participant must establish and maintain a master account to send or receive securities transfers against payment. Operating Circular 1, *Account Relationships*, sets out the terms for opening, maintaining, and terminating a master account with a Reserve Bank. With few exceptions, a participant may hold only one master account with a Reserve Bank.

In addition, Operating Circular 1 contains provisions regarding an account holder's default on an obligation to a Reserve Bank. Under Operating Circular 1, the account holder grants its Reserve Bank a security interest in all of the account holder's right, title, and interest in property, whether owned at that time or acquired in the future, in the possession or control of, or maintained with, any Reserve Bank, including securities, security entitlements, and securities accounts. Reserve Banks have the right to liquidate collateral subject to this security interest or exercise any other creditor right authorized by applicable law to recover any obligation owed by a participant.

Operating Circular 5 sets forth the terms under which a participant may access Reserve Bank services, including the Fedwire Securities Service, by means of electronic connections.

The legal basis for the Fedwire Securities Service as described above and in section III under *Legal and Regulatory Framework* provides a high degree of certainty concerning the dematerialization of Fedwire-eligible securities and the electronic movement of those securities over the Fedwire Securities Service.

Operating Circular 7 provides a legal basis for the DVP feature in the Fedwire Securities Service. Under Operating Circular 7, a securities transfer may be either (1) a securities transfer that does not involve any funds credit or debit to a master account other than a transaction fee (such a transfer is called a free transfer in Operating Circular 7; more generically, they are known as transfers free of payment) or (2) a securities transfer that is accompanied by a funds credit to the master account of the securities sender and a funds debit to the master account of the securities receiver for the amount of the payment (such a transfer is called a transfer against payment in Operating Circular 7; more generically, such transfers are known as DVP transfers).⁷¹ A participant must maintain a master account at a Reserve Bank to be a sender or receiver of securities in a transfer against payment.⁷² A DVP transfer is completed under Operating Circular 7 when the debits and credits associated with both the securities transfer and the funds movements are made.⁷³ For more detail on DVP settlement over the Fedwire Securities Service, see Principle 12, *Exchange-of-value settlement systems*.

Operating Circular 7 defines finality of settlement for transfers over the Fedwire Securities Service. Operating Circular 7 states that, unless a transfer is rejected by the Fedwire Securities Service, all debits and credits with respect to a transfer become final at the time that the debits

⁷¹ Operating Circular 7, *supra* note 20, ¶¶ 3.7 & 3.21.

⁷² *Id.* ¶ 5.2.

⁷³ *Id.* ¶ 9.1.

and credits are posted to the participants' securities accounts and, if the transfer is against payment, the participants' master accounts.⁷⁴ Notice of the transfer is conclusive evidence that the debits and credits were made.⁷⁵ For more detail on settlement finality over the Fedwire Securities Service, see Principle 8, *Settlement finality*.

Protection of Customer Assets

The legal framework governing the Fedwire Securities Service and the Fedwire-eligible securities market also offers a high degree of legal assurance that participants' assets are protected.

Indirect Holding Systems

In the United States, interests in securities may be held in either direct or indirect holding systems. In direct holding systems, interests in securities are held on the books of the issuer or the issuer's official registrar. For example, individuals and entities may directly hold interests in Treasury securities on Treasury's books through its TreasuryDirect[®] service.

In indirect, or tiered, holding systems, interests in securities are recorded on the books of one or more securities intermediaries. When securities are transferred in an indirect holding system, the transfer is reflected in securities accounts on the books of the relevant securities intermediary. The credit of a security to a securities account on the books of the securities intermediary creates a "security entitlement"—a bundle of rights and property interests of the securities account holder with respect to the credited security. The securities account holder is considered to be an "entitlement holder," and its security entitlement generally runs solely against its securities intermediary.

The Fedwire Securities Service is part of such an indirect holding system. Participants hold securities accounts with Reserve Banks; nonparticipants (i.e., customers of participants) hold securities accounts on the books of a participant or some other securities intermediary. Reserve Banks act as the securities intermediaries for Fedwire Securities Service participants. As securities intermediaries, the Reserve Banks maintain records of the identities and interests of each Service participant and hold each participant's Fedwire securities "for, and subject to, the sole order of the participant."⁷⁶ As a legal matter, the participant's interest in a Fedwire security as recorded on the books of a Reserve Bank is a security entitlement against that Reserve Bank, and the participant has the rights and interests of an entitlement holder with respect to that security.

Because the Reserve Banks are the securities intermediaries that maintain the securities accounts to which Service participants' Fedwire securities are credited, participants do not face

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.* ¶ 4.2.1. This is the case for Fedwire securities held in a participant's unrestricted securities account. In the case of Fedwire securities held in a participant's restricted securities account, the Reserve Bank will recognize the security interest of another party.

the risk that their securities intermediary will become insolvent. Under federal law, a participant also has rights against the issuer of Fedwire securities for principal and interest payments.⁷⁷

Nonparticipants hold securities accounts on the books of a participant or some other securities intermediary that holds its interests in Fedwire securities with a participant. The Reserve Banks do not maintain records of the identities or interests of nonparticipants.⁷⁸ Nonparticipants do not have any rights against the issuer or any securities intermediary other than their direct intermediary. While Reserve Banks, as part of the U.S. central bank, do not face liquidity constraints, nonparticipants' securities intermediaries may. As indicated below, however, U.S. law protects nonparticipants from the failure of their securities intermediaries.

Participant Insolvency Under Federal Law

The process for distributing assets held by federally insured depository institutions that become insolvent is governed by the liquidation provisions of the Federal Deposit Insurance Act.⁷⁹ These liquidation provisions generally provide that a person with a security entitlement against a failed insured bank with respect to a Fedwire security would normally be entitled to that security entitlement so long as that person's exclusive ownership interest is properly documented.

The failure of entities other than insured depository institutions, such as nonbank broker-dealers, would require application of other statutes. The stockbroker liquidation procedures under the U.S. Bankruptcy Code and the Securities Investor Protection Act provide some protections to investors when a brokerage firm fails with outstanding obligations to customers in the form of cash and securities that are missing from customer accounts. The Securities Investor Protection Corporation (SIPC) usually asks a federal court to appoint a trustee to liquidate the firm and protect its customers. In small brokerage firm failures, SIPC sometimes deals directly with customers. In general, a trustee for a failed broker-dealer will return to customers all securities that already are registered in their name or that are in the process of being registered. After this step, the firm's remaining customer assets, including security entitlements with respect to Fedwire securities, are then divided on a pro rata basis with funds shared in proportion to the size of claims. If sufficient funds are not available in the firm's customer accounts to satisfy claims within these limits, the reserve funds of SIPC are used to supplement the distribution, up to a ceiling of \$500,000 per customer, including a maximum of \$250,000 for cash claims. Additional funds may be available to satisfy the remainder of customer claims after the cost of liquidating the brokerage firm is taken into account.⁸⁰

⁷⁷ See, e.g., 31 CFR §§ 357.11, 357.14(a). By contrast, indirect holders are not typically entitled to make claims against issuers under Article 8; rather, indirect holders generally may assert claims only against their direct securities intermediary.

⁷⁸ See Operating Circular 7, *supra* note 20, ¶¶ 4.2.1 & 4.2.2.

⁷⁹ See 12 USC § 1811 *et seq.* The process for distributing assets held by federally insured credit unions that become insolvent is governed by the liquidation provisions of the Federal Credit Union Act (12 USC § 1787). These provisions are similar to the corresponding provisions of the Federal Deposit Insurance Act, so, for simplicity, this disclosure cites only provisions in the Federal Deposit Insurance Act.

⁸⁰ See 15 USC § 78fff.

Under U.S. law, the customer of an insolvent intermediary is able to move its positions to a solvent intermediary.⁸¹

State Law Protections

In addition, applicable state law provides additional safeguards for securities holders. Article 8 of the UCC provides that securities intermediaries, including the Reserve Banks, are required to maintain a sufficient quantity of investment property (security entitlements, in the case of the Fedwire Securities Service) to satisfy all of their customers' claims (meaning claims of Fedwire Securities Service participants).⁸² In addition, by regulation, securities intermediaries are prohibited from using customer securities in their own business activities. Thus, by law, a securities intermediary is prohibited from pledging or selling a customer security except as agreed to by the customer or to the extent Article 8 of the UCC creates a statutory lien in favor of the securities intermediary.

Article 8 of the UCC further provides that all interests in a particular security held by a securities intermediary are held for the benefit of the securities intermediary's customers to the extent necessary to satisfy the claims of the securities intermediary's customers and are not the property of the securities intermediary.⁸³ Moreover, such interests are not subject to the claims of the creditors of the securities intermediary.⁸⁴ There are two exceptions to the general rule that customers have priority over claims of a securities intermediary's creditors. The first exception arises when the securities intermediary is a clearing corporation; the second exception arises when a secured creditor of a securities intermediary obtains control of the security entitlement.⁸⁵ Although Reserve Banks are treated as clearing corporations for certain purposes, these exceptions are not likely to be directly relevant to the Fedwire Securities Service because Reserve Banks do not face liquidity constraints and do not typically have significant creditors.⁸⁶

⁸¹ Under U.S. law, "customer name securities" (i.e., securities held by the securities intermediary that have been registered by the issuer in the name of a customer or that are in the process of being so registered) are not part of the insolvent securities intermediary's estate and are not subject to claims by the insolvent securities intermediary's creditors. Therefore, when a securities intermediary becomes insolvent, these customer name securities may be transferred to the customer or to another securities intermediary. The governing law, however, depends on the type of institution acting as securities intermediary. See the Securities Investor Protection Act (15 USC § 78fff-2(c)(2)) and the U.S. Bankruptcy Code (11 USC § 751) for examples of insolvency frameworks that contemplate the appointment of a trustee for an insolvent securities intermediary that may transfer customer name securities to the customer or, on behalf of the customer, to someone else, such as to a solvent securities intermediary. Such insolvency provisions apply only to registered securities, however. As such, they are not directly relevant to the Fedwire Securities Service.

⁸² See UCC § 8-504(a).

⁸³ See UCC § 8-503(a).

⁸⁴ See UCC § 8-511.

⁸⁵ See UCC §§ 8-511(b), 8-511(c); see *also* UCC § 8-511, official cmt. 3.

⁸⁶ See UCC § 8-102(a)(5) (defining "clearing corporation" to include all Reserve Banks); 31 CFR § 357.11(f) (providing that Reserve Banks are clearing corporations for purposes of determining when a person has acquired a security entitlement from a securities intermediary, the rights and duties of the securities intermediary and entitlement holder that arise from a security entitlement, whether a person

1.2 An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.

The Reserve Banks and the Board of Governors take a number of steps that help ensure the rules, procedures, and contracts relating to the Fedwire Securities Service are clear, understandable, and consistent with relevant laws and regulations.

The Reserve Banks' operating circulars, which are contracts between a Reserve Bank and an institution that is located within that Reserve Bank's Federal Reserve district, are drafted by Reserve Bank legal counsel. As a matter of practice, each Reserve Bank issues its own operating circulars identical in form to those issued by the other Reserve Banks. This ensures consistent terms for the financial services the Reserve Banks provide nationwide. All proposed operating circulars and all amendments to existing operating circulars are subject to review by the Board of Governors and the 12 Reserve Banks, including by their respective general counsels.⁸⁷ Through this process, each of the Reserve Banks and the Board of Governors in its capacity as a supervisor of the Reserve Banks help to ensure that the operating circulars remain clear, understandable, and consistent with U.S. law, including the TRADES regulations, the regulations of the issuers of non-Treasury securities, and Article 8 of the UCC.⁸⁸ Moreover, to provide transparency with respect to the terms governing Reserve Bank services, the Reserve Banks publish all operating circulars on the Reserve Banks' publicly accessible financial services website, FRBservices.org.

The Board of Governors also publishes the PSR policy, which governs the availability of intraday Reserve Bank credit to Reserve Bank customers, including Fedwire Securities Service participants, in the Federal Register and invites public comment. The PSR policy is accompanied by a public guide that is designed to assist Reserve Bank customers in complying with the policy.

1.3 An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

As described in section III under *Legal and Regulatory Framework*, the Reserve Banks are authorized to operate the Fedwire Securities Service under the Federal Reserve Act and other federal statutes, and Treasury and the other issuers of Fedwire-eligible securities promulgated, respectively, the TRADES regulations and the other issuer-specific regulations, specifically to

may assert adverse claims with respect to a security entitlement (or an interest in a security entitlement), and the perfection and priority of a security interest in a security entitlement). Note, however, that, as stated earlier in this section, federal regulations are the source of the rights and obligations of issuers and Reserve Banks vis-à-vis direct Service participants.

⁸⁷ All the Reserve Banks must approve any proposed operating circular or any amendment to an existing one. The Board of Governors, in its supervisory capacity, is given the opportunity to object to any proposed operating circular or amendment.

⁸⁸ Although neither the Reserve Banks nor the Board of Governors are responsible for issuing the TRADES regulations or other comparable issuer regulations, such regulations are subject to the Administrative Procedure Act's public notice and comment requirements. For more detail on the Administrative Procedure Act notice and comment process with respect to issuer regulations, see Principle 2: Governance.

provide the legal and regulatory framework governing the rights and obligations of parties in connection with use of the Fedwire Securities Service.

The Federal Reserve Act, other federal statutes,⁸⁹ the TRADES regulations and the other issuer regulations, and Operating Circular 7, which form the legal basis for operating the Service, are all publicly available for review by any party through countless channels, including websites. Articles 8 and 9 of the UCC are also accessible on the Internet.

1.4 An FMI should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.

The rules, procedures, and contracts that govern the Fedwire Securities Service are enforceable under U.S. law. The United States, as described in section 1.1, is the only relevant jurisdiction.

U.S. depository institutions and U.S. branches and agencies of foreign banks are subject to the liquidation provisions of applicable federal or state banking laws. Under U.S. banking law, neither the payment by the receiver to the sender of the security that was transferred nor the securities transfer itself should be affected by the subsequent insolvency of a participant unless a court finds the payment or transfer void after the fact as a fraudulent transfer or unlawful preference or due to other inequitable conduct. Such determinations, however, would be unrelated to the finality of the original securities transfer made through the Fedwire Securities Service or of settlement of payment related to that securities transfer.

1.5 An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.

The Reserve Banks provide the Fedwire Securities Service only within the United States.

In addition, it is Federal Reserve policy to accept securities for the Fedwire Securities Service only if the offering documents for the securities specify that the securities are governed by U.S. law.⁹⁰

The laws of non-U.S. jurisdictions are not directly applicable to disputes involving Fedwire Securities Service participants. Disputes over a Fedwire securities transfer involving direct Fedwire Securities Service participants are governed by U.S. law. While it is always possible that a foreign court could decline to apply U.S. law, that outcome is unlikely given that Fedwire securities transfers are made on the books of the Reserve Banks in the United States, nearly all direct Fedwire Securities Service participants are U.S.-chartered or -licensed entities, and all

⁸⁹ See footnote 35 for a list of other federal statutes that provide authority for the Reserve Banks to act as fiscal agent for issuers of Fedwire securities.

⁹⁰ Although international organizations are beyond the scope of this disclosure, securities issued by these organizations on the Fedwire Securities Service are also governed by U.S. law. The Reserve Banks act as fiscal agents and depositories for these international organizations, and Reserve Bank actions as fiscal agents are governed by U.S. law.

agreements with participants are governed by U.S. law.⁹¹ In case of insolvency, U.S. jurisdictions employ a territorial or “separate entity” liquidation scheme, in which a foreign bank’s U.S. offices are liquidated in a proceeding under U.S. law separate from the liquidation of the foreign bank in its home country.

Within the United States, the law governing the rights and obligations of parties in connection with Fedwire securities and the Fedwire Securities Service is harmonized; if an inconsistency between federal and state law does arise, however, the TRADES regulations or other issuer regulations would preempt the inconsistent provisions of state law.

⁹¹ Foreign banking organizations are only permitted to access the Fedwire Securities Service through branches, agencies, or affiliates established in the United States. The Reserve Banks permit service providers for certain participants to maintain foreign electronic connections to the Reserve Banks. These foreign electronic-access arrangements are governed by U.S. law by agreement, and they do not affect the applicability of U.S. law to Fedwire securities transfers because each participant’s securities account and, if applicable, master account remains in the United States and the Reserve Banks continue to send and receive securities transfers between their participants within the United States.

Similarly, while foreign central banks, monetary authorities, and international organizations that are Fedwire Securities Service participants are not U.S.-chartered or -licensed entities, each such participant has agreed that U.S. law governs their relationship with the Reserve Banks. In addition, for international organizations, the United States is either a participating member of such organization or has another special-purpose relationship with the organization by agreement or by law.

Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

Because the Fedwire Securities Service is a central bank–operated central securities depository and securities settlement system, U.S. law and central bank policies govern the governance framework applicable to the Reserve Banks’ operation of the Service. The PFMI recognize that central bank–operated systems might need to tailor the application of this principle in light of the central bank’s own governance requirements and policy mandates. In its implementation of the PFMI through the PSR policy, the Board of Governors also recognized that this principle might require flexibility in the way it is applied to the Fedwire Securities Service.

2.1 An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.

As noted in the Board of Governors’ policy *The Federal Reserve in the Payments System*, the role of the Federal Reserve in providing financial services, including the Fedwire Securities Service, is to promote the integrity and efficiency of the payments mechanism, to ensure the provision of payment services to all depository institutions on an equitable basis, and to do so in an atmosphere of competitive fairness.⁹² FRBNY, which is responsible for the day-to-day management of the Fedwire Securities Service on behalf of all 12 Reserve Banks, develops, manages, and operates the Service consistent with these principles, including setting annual objectives in support of these principles. As outlined in the *Federal Reserve System Guidelines for the Provision of Financial Services*, the Reserve Banks are expected to (i) maintain an operational presence in the provision of financial services where that presence, as a result of cost advantages, would contribute to economic efficiency or where other public-interest considerations might dictate; (ii) be prepared to remove themselves from the provision of those services that the private sector can supply more efficiently, unless there are overriding public-interest reasons for the Reserve Banks to continue offering such services; (iii) maintain the flexibility to change existing services or to offer new ones to meet specialized or evolving needs of financial institutions and the public; (iv) ascertain the needs of financial institutions and the public in order to enhance their service offerings; (v) encourage innovation across financial services; and (vi) provide full information to financial institutions about the nature and scope of the services they offer.⁹³

⁹² See Board of Governors of the Federal Reserve System, *The Federal Reserve in the Payments System*, *Federal Reserve Regulatory Service* 9–1550 to –1561 (issued 1984; revised 1990 & 2001), available at http://www.federalreserve.gov/paymentsystems/pfs_frpaysys.htm.

⁹³ See Board of Governors of the Federal Reserve System, *Federal Reserve System Guidelines for the Provision of Financial Services*, *Federal Reserve Regulatory Service* 9–1573 (June 1981), available at http://www.federalreserve.gov/paymentsystems/pfs_guidelines.htm. Moreover, under another Board of Governors’ policy, when the Reserve Banks are considering introducing a new service or major service enhancements, all of the following criteria must be met: (i) the Federal Reserve must expect to achieve full recovery of costs in operating the service in question over the long run; (ii) the Federal Reserve must expect that its providing the service will yield benefits to the public, such as promoting the efficiency and integrity of the payments system; and (iii) the service should “be one that other providers alone cannot be

Reserve Bank operations, including the management and operation of the Fedwire Securities Service, are subject to the general supervision of the Board of Governors, providing accountability to both the Board and the general public.

2.2 An FMI should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants, and, at a more general level, the public.

The governance of Reserve Bank financial services, including the Fedwire Securities Service, is largely dictated by federal law and Board of Governors' policies, both of which are available to the public.⁹⁴ Under the Federal Reserve Act and Reserve Bank operating circulars, each Reserve Bank offers the Service to legally eligible customers. By written agreement among the Reserve Banks, FRBNY is responsible for the day-to-day management, operation, support, and ongoing development of the Fedwire Securities Service. FRBNY established the WPO as the area within FRBNY primarily charged with carrying out FRBNY's responsibilities under the agreement with the other Reserve Banks. The WPO is consequently responsible for the daily operational management of the Fedwire Securities Service, subject to the supervision and control of FRBNY's board of directors.

Because the Fedwire Securities Service is operated by FRBNY on behalf of all Reserve Banks, when considering governance of the Service, it is necessary to consider both FRBNY's governance structure as the Reserve Bank charged with managing day-to-day Fedwire Securities Service operations and the governance structure supporting decision-making among the Reserve Banks for those aspects of the Service for which each Reserve Bank retains discretion.

FRBNY Governance

The Federal Reserve Act, FRBNY's bylaws, and the charters of the standing committees of FRBNY's board of directors, as well as the charters of FRBNY's management committee and that committee's subcommittees, document the responsibility and accountability of the FRBNY employees responsible for the Fedwire Securities Service. Under section 4(6) of the Federal Reserve Act and FRBNY's bylaws, FRBNY's board of directors is responsible for the supervision and control of FRBNY's activities, including the activities performed in support of the Fedwire Securities Service. FRBNY's president, as chief executive officer under section 4(4)(*fifth*) of the Federal Reserve Act, is likewise responsible for these activities.⁹⁵ FRBNY's president may delegate authority to other FRBNY officers.

expected to provide with reasonable effectiveness, scope, and equity." See *The Federal Reserve in the Payments System*, *supra* note 92, at 9–1557.

⁹⁴ Reserve Bank financial services include cash services, check services, automated clearinghouse services, funds-transfer services, securities transfer services, multilateral settlement services, and related support functions, including financial management, customer support, electronic access, and marketing/sales.

⁹⁵ Reserve Bank powers include those specifically granted in the Federal Reserve Act and such incidental powers "as shall be necessary to carry on the business of banking within the limitations prescribed by [the Federal Reserve Act]." Federal Reserve Act § 4(4) (12 USC § 341).

With respect to the Fedwire Securities Service, FRBNY's president has delegated responsibility for the management of the Service to an executive vice president with the title of product director and a senior vice president with the title of product manager. The product director of the WPO is a member of FRBNY's management committee and reports directly to FRBNY's president.⁹⁶ The product manager is responsible for the day-to-day operations of the Fedwire Securities Service. While the product director and product manager are responsible for Fedwire Securities Service operations, as discussed in more detail in section 2.5, FRBNY's board of directors and president have established several separate control functions within FRBNY that report directly to them to provide an independent view of FRBNY's risk profile, including risks related to the Fedwire Securities Service. Ultimately, it is the responsibility of FRBNY's president, with escalation to FRBNY's board of directors where appropriate, to resolve disagreements between the WPO's senior management and these control functions.

Governance Among the Reserve Banks

Although each Reserve Bank is a separate legal entity, the Reserve Banks often agree to conduct operations on a centralized or consolidated basis and to implement consistent policies and services. The centralized structure of the Fedwire Securities Service was approved by each Reserve Bank's board of directors and formally established through a written agreement among the 12 Reserve Banks. The agreement sets out the responsibility and accountability of FRBNY as the Reserve Bank selected to manage the Fedwire Securities Service and identifies the areas in which each of the Reserve Banks, as operators of the Service, retains responsibility and accountability.

Where needed, coordination and cooperation among Reserve Banks with respect to financial services is principally organized under their Conference of Presidents (COP). Among other things, the COP, which is made up of the president of each Reserve Bank, meets to discuss issues of strategic interest to the Federal Reserve System and to discuss other matters of common concern to the Reserve Banks. Each Reserve Bank president is empowered to make decisions, without special authorization from his or her Reserve Bank's board of directors, concerning matters that fall within the general business of that Reserve Bank. To the extent that the COP is considering matters that concern the broad strategy of a Reserve Bank, as well as those of material interest to a Reserve Bank, that Reserve Bank's president must act in a manner that is consistent with the approvals and broad strategies adopted by the board of directors of his or her Reserve Bank.

The COP may establish committees to coordinate Reserve Bank activities. Two such committees, the Financial Services Policy Committee (FSPC) and the Information Technology Oversight Committee (ITOC), play important roles in Reserve Bank financial services. The FSPC provides overall direction of Reserve Bank financial services and related support functions, as well as providing leadership for the evolving U.S. payments system. ITOC sets the strategic direction and policy for Reserve Bank information technology (IT), approves national IT standards and security policies, and oversees the provision of national IT services to Reserve Banks. The Conference of First Vice Presidents (CFVP), which is made up of the first vice

⁹⁶ FRBNY's management committee is composed of FRBNY's most-senior officers and is charged with establishing FRBNY's strategic priorities.

president of each Reserve Bank, also plays a role and is concerned primarily with Reserve Bank operations and support functions. Like the COP, the FSPC, ITOC, and the CFVP may delegate certain responsibilities to committees they establish.

Under the governance structure approved by FRBNY's board of directors, FRBNY's president and the WPO's senior management develop strategic priorities for the Service and then seek endorsement of those priorities through the COP and its committees. FRBNY's implementation of the strategy is subject to the supervision and control of FRBNY's board of directors, including the application of FRBNY's risk-management framework.

Other Reserve Bank Service Providers

By agreement with FRBNY, certain Reserve Banks provide operational support to FRBNY for the Fedwire Securities Service. These Reserve Banks, as separate legal entities, remain accountable to their own senior management and boards of directors; under the agreements with FRBNY, however, these Reserve Banks are required to, among other things, meet operating and performance standards (e.g., standards for reporting risk events). Under the agreements with these Reserve Banks (known as wholesale operations sites), each such Reserve Bank is accountable to FRBNY for the services that it has agreed to provide. FRBNY remains responsible to the other 11 Reserve Banks for the provision of the entire Service, however—even for those aspects performed by other Reserve Banks. FRBNY's board of directors is responsible for overseeing the WPO's management of the relationship that FRBNY has with these Reserve Bank service providers.

In addition to the wholesale operations sites, FRBNY relies on the electronic access, customer support, and sales and marketing services provided by the Federal Reserve Bank of Chicago's Customer Relations and Support Office (CRSO) in connection with FRBNY's management and operation of the Fedwire Securities Service. FRBNY also relies on the Federal Reserve Bank of Richmond for certain consolidated IT services known as "National IT." Among other things, National IT is responsible for running the technology infrastructure used by the Fedwire Securities Service. FRBNY is responsible for defining the business requirements and specifications of the wholesale services, including the Fedwire Securities Service; the CRSO and National IT are responsible for supporting those business requirements and specifications.

FRBNY's board of directors oversees the services provided by the CRSO and National IT by means of quarterly reports that are designed to provide FRBNY with information that assists it in managing its responsibility for the WPO and other matters that concern the broad strategy of, or that have a material impact on, FRBNY. Other oversight tools include quarterly reports assessing the CRSO's and National IT's performance against predefined measures and annual performance evaluations. Senior management of these Reserve Banks (especially the Reserve Bank responsible for National IT) will meet with FRBNY's board of directors upon request. In addition to FRBNY's oversight of these two critical service providers, the governance of the services provided by the Federal Reserve Bank of Chicago through the CRSO and by the Federal Reserve Bank of Richmond through National IT is similar to the governance of FRBNY's operation of the WPO. Both the Chicago and Richmond Reserve Banks operate under the supervision and control of a board of directors, are subject to general supervision of the Board of Governors, have agreements in place with all the Reserve Banks to provide the services, and are responsive to Reserve Bank conferences and committees such as the COP, the FSPC, ITOC, and the CFVP.

Board of Governors

Under the Federal Reserve Act, the Board of Governors has supervisory authority over the Reserve Banks, including the Reserve Banks' provision of payment and settlement services. With respect to the wholesale services, including the Fedwire Securities Service, the Board of Governors has publicly recognized the critical role these services play in the financial system and has implemented a supervisory framework for the wholesale services that is comparable to, or exceeds, the requirements placed on similar private-sector payment and settlement arrangements.

To carry out its authority, the Board of Governors has established two committees to provide direction on payment and settlement system issues. The Committee on Federal Reserve Bank Affairs is charged with the Board's general supervision of Reserve Bank operations, budgets, and strategic plans. As a result, the Committee on Federal Reserve Bank Affairs oversees the Reserve Banks' provision and pricing of financial services. The Payments System Policy Advisory Committee advises the Board of Governors on policy and strategic matters involving domestic and international payment and settlement issues, including issues related to risk management.

In addition to these two committees, Board of Governors' staff, through the division of Reserve Bank Operations and Payment Systems, provides support to the Board of Governors in exercising its general supervision of Reserve Bank financial services through examinations, analyzing payment and settlement issues, and developing payment and settlement policies and regulations. The Board of Governors has delegated authority to the division's director to approve certain types of proposals and expenditures. Other proposals and expenditures may be approved by the Reserve Banks under their own authority.⁹⁷

2.3 The roles and responsibilities of an FMI's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.

As noted above, under the Federal Reserve's governance structure, there are two bodies with roles and responsibilities that are akin to the roles and responsibilities that a standalone FMI's board of directors would have—FRBNY's board of directors and the COP. Furthermore, the latter body has chosen to delegate many of its responsibilities to one of its committees, the FSPC.

FRBNY's Board of Directors

The Federal Reserve Act states that each Reserve Bank's board of directors generally is responsible for supervision and control of that Reserve Bank.⁹⁸ The board of directors is

⁹⁷ See Board of Governors of the Federal Reserve System, Supervision and Oversight of Financial Market Infrastructures, Reserve Bank Systems, available at http://www.federalreserve.gov/paymentsystems/over_rbsystems.htm.

⁹⁸ Federal Reserve Act § 4(6) (12 USC § 301).

required to perform the duties usually appertaining to the office of directors of banking organizations, including exercising (directly or by officers or agents) “all powers specifically granted ... by [the Federal Reserve Act] and such incidental powers as shall be necessary to carry on the business of banking within the limitations prescribed by [the Federal Reserve Act].”⁹⁹ Powers specifically granted by the Federal Reserve Act include the authority, with the approval of the Board of Governors, to appoint a president, who is the Reserve Bank’s chief executive officer, and to prescribe bylaws, which cannot be inconsistent with law, regulating the manner in which the general business of the Reserve Bank may be conducted. The Federal Reserve Act, combined with the Reserve Bank bylaws, provides that, subject to the supervision and control of the board of directors, the president as chief executive officer of the Reserve Bank shall have general charge and control of the business and affairs of that Reserve Bank.

The roles of Reserve Bank directors generally fall in three principal areas: overseeing the management of the Reserve Bank, participating in the formulation of national monetary and credit policies, and acting as a “link” between the government and the private sector.

FRBNY’s bylaws and the charters for FRBNY’s three standing board committees—the nominating and corporate governance committee, the audit and risk committee, and the management and budget committee—further define roles and responsibilities of FRBNY’s board of directors and those granted to each of its standing committees, as well as limitations on those roles and responsibilities.¹⁰⁰ Among other things, the nominating and corporate governance committee is responsible for director conduct, including managing director conflicts of interest and investment restrictions, ensuring the audit and risk committee is informed of risk events related to director-related policies, and annually assessing the performance of the board, board committees, and individual board members.¹⁰¹ The management and budget committee’s responsibilities include oversight and guidance on the performance of FRBNY’s strategic and material activities, including those of the WPO. The audit and risk committee is responsible, among other things, for FRBNY’s risk-management framework and oversight of the WPO’s activities.

As discussed in more detail in section 2.4, the Federal Reserve Act dictates who appoints different classes of FRBNY directors and whose interests those directors represent. While the requirements in the Federal Reserve Act could result in potential conflicts of interest, especially with respect to class A directors (i.e., directors who represent member banks), several factors minimize that risk. First, all Reserve Bank directors are subject to policies adopted by the Board of Governors that address director conduct and serve to mitigate conflicts of interest.¹⁰² In

⁹⁹ Federal Reserve Act § 4(4) (12 USC § 341).

¹⁰⁰ FRBNY’s bylaws are available at http://www.newyorkfed.org/aboutthefed/ny_bylaws.html. Under FRBNY’s bylaws, the board of directors may also act by executive committee in the absence of a quorum. The charters of FRBNY’s standing board committees are available at <http://www.newyorkfed.org/aboutthefed/nominate.html>, <http://www.newyorkfed.org/aboutthefed/audit.html>, and <http://www.newyorkfed.org/aboutthefed/management.html>.

¹⁰¹ Class A directors, who are elected by member banks to represent their interests, may not constitute a majority of the membership of either the audit and risk committee or the nominating and corporate governance committee.

¹⁰² These policies are available at <http://www.federalreserve.gov/aboutthefed/directors/policy-governing-directors.htm>.

addition, under FRBNY's bylaws, the authority of FRBNY's board of directors does not extend to activities that fall within the statutory authority of the Board of Governors or any other federal agency. This constraint minimizes the risk of an actual or perceived conflict of interest arising from the Reserve Banks' separate roles as operator of the Fedwire Securities Service and as supervisor (acting under delegated authority of the Board of Governors) of other FMI's because it places supervisory and regulatory matters outside the purview of FRBNY's board of directors.¹⁰³ Reserve Bank directors are also subject to the same criminal conflict-of-interest statute that applies to federal government employees, as well as to officers and employees of the Reserve Banks. That statute prohibits a Reserve Bank director from participating personally and substantially in any Reserve Bank matter that, to the director's knowledge, would have a direct and predictable effect on the director's financial interest, broadly defined.¹⁰⁴ At the time they join the board, directors are required to undergo ethics training and to certify that they comply with FRBNY's restrictions on interests in financial institutions. Thereafter, they must recertify their compliance every year. If an actual or potential director conflict arises, directors are obligated to recuse themselves from the matter.¹⁰⁵

COP and FSPC

The FSPC is composed of three Reserve Bank presidents and two Reserve Bank first vice presidents, one of whom is the chair of the CFVP. In addition, a senior management representative of the Board of Governors, the Federal Reserve's chief information officer (an officer of the Federal Reserve Bank of Richmond), the product directors of the various product and support offices that manage or support Reserve Bank financial services (including the product director of the WPO), the chair of the Financial Services Council (a council of one of the FSPC's standing committees that focuses on issues that broadly affect Reserve Bank financial services), and the Federal Reserve's payments strategy director serve as liaison members of the FSPC. As set forth in the COP's guidelines, under the strategic direction of the COP, the FSPC provides overall direction of financial services and related support functions for the Reserve Banks, as well as providing leadership for the evolving U.S. payments system. Specific responsibilities of the FSPC are outlined in its guidelines. They include (i) recommending to the COP an integrated strategic plan for Reserve Bank financial services after consultation with relevant stakeholders; (ii) approving an annual integrated business plan for Reserve Bank financial services and related support functions; (iii) providing input on product

¹⁰³ Constraints on the authority of certain directors also serve to limit actual or perceived conflicts. For example, under FRBNY's bylaws, class A directors, which represent member banks, and class B directors affiliated with thrift holding companies may not participate in personnel or budget decisions related to FRBNY's supervision group.

¹⁰⁴ 18 USC § 208. Participation in a particular matter may include making a decision or recommendation, providing advice, or taking part in an investigation.

¹⁰⁵ FRBNY's general counsel or corporate secretary attends all meetings and, where appropriate (e.g., in advance of discussion of a particular FRBNY vendor), counsels the directors with respect to their obligation to recuse themselves from matters that might create actual or potential conflicts of interest. The board of directors receives an agenda before each meeting that the directors and FRBNY's corporate secretary use to identify matters that raise conflicts concerns.

office strategic plans and endorsing material changes to existing strategic plans; and (iv) approving, overseeing, and giving guidance with respect to major Reserve Bank projects.¹⁰⁶

All Reserve Bank officers and employees, including members of the COP and the FSPC, are subject to a code of conduct, and they are subject to the same federal conflict-of-interest statute discussed above that applies to Reserve Bank directors (and federal government employees).¹⁰⁷ Reserve Bank officers and employees are generally prohibited from owning or controlling investments in depository institutions, affiliates of depository institutions, thrift holding companies whose thrifts constitute a significant portion of their overall assets, and investment funds that have a stated policy of concentrating their investments in the financial services sector.¹⁰⁸ To avoid the appearance of conflicts of interest, Reserve Bank officers and employees are also generally prohibited from accepting gifts from a supervised institution or anyone that does business or seeks to do business with the Reserve Banks.

The ethics officer and senior management of each Reserve Bank are responsible for ensuring that their officers and employees comply with that Reserve Bank's code of conduct and the ethics laws. This is primarily done through annual training and financial disclosures, as well as through ethics hotlines.

2.4 The board should contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of nonexecutive board members.

All Reserve Bank directors are nonexecutive directors. Both the process for selecting directors and the criteria for serving as directors are mandated by section 4 of the Federal Reserve Act. Like each Reserve Bank's board of directors, FRBNY's board of directors has nine members, who are divided into three equal classes—designated A, B, and C. Class A and class B directors are elected by FRBNY's shareholders.¹⁰⁹ Class C directors are appointed by the Board of Governors. Each year, one class C director is designated by the Board of Governors to be chair of FRBNY's board of directors and a second class C director is designated deputy chair.

¹⁰⁶ As noted above in section 2.2, to the extent that the COP is considering matters that concern the broad strategy of a Reserve Bank, as well as those of material interest to a Reserve Bank, that Reserve Bank's president must act in a manner that is consistent with the approvals and broad strategies adopted by the board of directors of his or her Reserve Bank.

¹⁰⁷ FRBNY's code of conduct is available at <https://www.newyorkfed.org/medialibrary/media/aboutthefed/ob43.pdf>. FRBNY's code of conduct is generally consistent with the codes of conduct of the other Reserve Banks, but FRBNY's code of conduct is tailored to address activities unique to FRBNY. The federal conflict-of-interest statute is codified at 18 USC § 208.

¹⁰⁸ Investment restrictions applicable to FRBNY employees are outlined generally in section 5.3 of its code of conduct. Employees with monetary policy or supervisory responsibilities are subject to additional restrictions. From time to time, FRBNY and the other Reserve Banks may adopt further restrictions as necessary or appropriate to avoid actual or potential conflicts of interest.

¹⁰⁹ Under the Federal Reserve Act, Reserve Bank shareholders are member banks. All national banks and those state banks that have successfully applied to become members must subscribe to stock in the Reserve Bank in their Federal Reserve district.

Under the Federal Reserve Act, FRBNY's class A directors represent the member banks in FRBNY's district. Typically, class A directors are officers or directors of member banks or their holding companies. Class B and class C directors are required by the Federal Reserve Act to represent the public "with due but not exclusive consideration to the interests of agriculture, commerce, industry, services, labor and consumers."¹¹⁰ The intent of Congress in devising such a system was to ensure that a diversity of viewpoints and backgrounds is represented on each Reserve Bank's board of directors.

As a general matter, FRBNY's directors are expected to contribute to the Federal Reserve's understanding of local economic conditions and the effect of those conditions on the nation's economy as a whole. Under the charter of the audit and risk committee, directors that serve on the committee, which is responsible for FRBNY's risk-management framework, must meet certain independence and experience requirements, including possessing an adequate familiarity with and knowledge of effective risk-management practices, and at least one member of the committee must be a "financial expert" as defined by the Securities and Exchange Commission.¹¹¹

The makeup of the COP and the FSPC is discussed above in sections 2.2 and 2.3.

2.5 The roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI.

Responsibilities of FRBNY's Management

As noted, FRBNY's president serves as chief executive officer and is responsible for all of FRBNY's activities. FRBNY's executive officers constitute FRBNY's management committee, and each executive officer is responsible for a specific FRBNY function that is within the individual's area of expertise. For instance, the product director of the WPO, together with the project manager, is charged with managing the operation of the Fedwire Securities Service, and the scope of that FRBNY function is outlined in the service agreement FRBNY has with the other Reserve Banks. The heads of FRBNY's control functions, including the chief risk officer, the general counsel, and the chief compliance officer, along with FRBNY's general auditor, are charged with providing an independent assessment of risk across all of FRBNY's activities, and they are each empowered to develop frameworks for addressing these risks and escalating risk concerns to FRBNY's president and board of directors.

FRBNY's management committee established several subcommittees to support its principal role in guiding and executing FRBNY's strategic priorities. Such subcommittees include the priorities, operational services, and risk subcommittees. The priorities subcommittee defines objectives, strategic initiatives, and deliverables for FRBNY, including with respect to financial services. The operational services subcommittee helps guide and execute FRBNY's strategic

¹¹⁰ Federal Reserve Act § 4(11) (codified at 12 USC § 302).

¹¹¹ Information about the eligibility, qualifications, and rotations of Reserve Bank directors generally is available at <http://www.federalreserve.gov/generalinfo/listdirectors/PDF/eligibility-qualifications-rotation.pdf>.

priorities as they relate to FRBNY's externally facing operational services, such as the Fedwire Securities Service. Last, the risk subcommittee is responsible for supporting business areas, including the WPO, in the identification and assessment of key risks and for providing guidance to manage those risks in line with FRBNY's risk tolerance. Each of these subcommittees is composed of executive and other senior FRBNY officers, including from the WPO.

Expertise and Performance

FRBNY requires that each of its executive officers have significant core expertise and experience and that each exhibit leadership abilities in such areas as strategic thinking, inclusiveness, and staff and team development. Each FRBNY officer develops annual performance objectives in consultation with his or her direct supervisor. For the WPO's product director and product manager, annual performance goals are also discussed with the FSPC. FRBNY officers, including nearly all FRBNY's executive officers, are subject to biannual performance evaluations.¹¹² Each FRBNY officer, except the first vice president, general auditor, and general counsel, may be removed by FRBNY's president or its board of directors. FRBNY's president, first vice president, general auditor, and general counsel may be removed only by FRBNY's board of directors.¹¹³

In addition to the internal appraisal process, the Reserve Banks annually conduct an evaluation of FRBNY's performance under the agreement it has with the other Reserve Banks with respect to the wholesale services, including the Fedwire Securities Service; this evaluation includes an assessment of the WPO's management and leadership. The FSPC coordinates this effort, which includes a self-assessment by FRBNY of its performance against the previously agreed-upon business objectives, an assessment by FRBNY of its subcontractors and agents against agreed-upon performance measures, and an assessment by each of the other Reserve Banks of FRBNY's performance in terms of the agreed-upon performance measures, as well as its delivery of the wholesale services overall. All Reserve Banks receive the results of this annual assessment.

Integrity

As outlined in FRBNY's code of conduct, FRBNY believes it is indispensable to the proper functioning of, and the maintenance of public confidence in, FRBNY and the Federal Reserve System overall that every employee and officer perform his or her duties with honesty, integrity, and impartiality and without improper preferential treatment of any person.¹¹⁴ Under FRBNY's code of conduct, each employee and officer has a responsibility to FRBNY and the rest of the Federal Reserve System to avoid conduct that places private gain above his or her duties to FRBNY, that gives rise to an actual or apparent conflict of interest, or that might result in a

¹¹² Annual performance evaluations of FRBNY's president and general auditor are performed by FRBNY's board of directors and its audit and risk committee, respectively. Annual performance evaluations of FRBNY's first vice president are performed by FRBNY's president and board of directors.

¹¹³ Note, however, that, as supervisor of the Reserve Banks, the Board of Governors also has the power to remove or suspend any officer or director of a Reserve Bank.

¹¹⁴ See section 2.3 for a further discussion of ethical rules applicable to all Reserve Bank employees and officers, including FRBNY employees and officers (i.e., the federal conflict-of-interest statute and investment restrictions).

question being raised regarding the independence of the employee's or officer's judgment or ability to perform the duties of his or her position satisfactorily. Moreover, each employee is expected to conduct his or her financial affairs with integrity and honesty.

Reserve Bank employees and officers who are responsible for Reserve Bank financial services, including those in the WPO, are also subject to an information barrier imposed by the Board of Governors that restricts their access to information of the Reserve Banks' supervisory, monetary policy, and lending functions. This policy is designed to help avoid a conflict or potential conflict that might arise between the Reserve Banks' role as financial service providers and their roles as supervisors and lenders.¹¹⁵

2.6 The board should establish a clear, documented risk-management framework that includes the FMI's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board.

Pursuant to the agreement under which FRBNY manages the Fedwire Securities Service for all 12 Reserve Banks, FRBNY is required to identify and manage risks associated with the provision of wholesale services, where appropriate working with other Reserve Banks. As reflected in FRBNY's risk-management framework, risk-tolerance policy, and risk-tolerance statement, FRBNY employs a three-lines-of-defense risk-management model that emphasizes interaction and communication between the first line (business line) and second line (central risk management), with independent oversight by the third line (audit). FRBNY relies on these lines of defense to help it manage risk for the wholesale services, including the Fedwire Securities Service. (For more detail on the three-lines-of-defense risk-management model, see Principle 3, *Framework for the comprehensive management of risks.*)

FRBNY's risk-management framework includes required assessments by business areas across FRBNY, an internal control framework designed to map controls to key risks, a reporting framework designed to capture risk events, and policies to address certain risks that are applicable to all business lines. FRBNY's risk-management framework, risk-tolerance policy, and risk-tolerance statement assign responsibilities and accountability for risk decisions. In addition, the WPO has established its own risk-tolerance statement with respect to its management of risks specific to the wholesale services, including the Fedwire Securities Service, and as required under FRBNY's risk-management framework, the WPO's risk-tolerance statement aligns with FRBNY's risk-management framework, risk-tolerance policy, and risk-tolerance statement.¹¹⁶

The audit and risk committee of FRBNY's board of directors is responsible for assisting FRBNY's board of directors in assessing, among other things, the adequacy and effectiveness of financial reporting controls, the independent audit function, and risk-management practices

¹¹⁵ See Standards Related to Priced-Service Activities of the Federal Reserve Banks, *supra* note 40.

¹¹⁶ For additional information regarding the review and approval of FRBNY's risk-management framework, risk-tolerance policy, and risk-tolerance statement and WPO's risk-tolerance statement, see section 3.1.

for the overall institution, including those relating to the Fedwire Securities Service.¹¹⁷ It is through the activities of the audit and risk committee, which receives reporting and briefings directly from FRBNY's chief risk officer, general counsel, chief compliance officer, and general auditor, as well as the WPO's product director, that the board of directors monitors FRBNY's risk-management policies and practices.¹¹⁸

Some of the audit and risk committee's responsibilities are specific to the WPO. For instance, the committee provides oversight, guidance, and feedback regarding the WPO and the WPO's compliance with the PFMI.¹¹⁹ This includes helping to ensure that the design and rules of the Fedwire Securities Service and the WPO's overall strategy and major decisions affecting the Service appropriately reflect the legitimate interests of the Service's direct and indirect participants and other relevant stakeholders.¹²⁰ To fulfill its responsibilities, the committee periodically receives reports and briefings on the WPO's strategic priorities and risk management from the WPO's product director and other senior management.¹²¹

FRBNY's chief risk officer is a member of FRBNY's management committee, is independent from FRBNY's business lines, and has direct access to FRBNY's board of directors without management being present. FRBNY's chief risk officer also serves as chair of the risk subcommittee of FRBNY's management committee. The WPO's product director is also a member of the risk subcommittee, and the WPO works closely with FRBNY's chief risk officer and central risk-management function to provide the WPO's assessment of risks associated with the Fedwire Securities Service to the subcommittee. The risk subcommittee also annually assesses and reports to the management committee whether, in the aggregate, business area-specific risk tolerances, such as the WPO's, are within FRBNY's risk tolerance.

FRBNY's general auditor reports directly to FRBNY's board of directors, has access to the board of directors without management being present, and may not be removed by any FRBNY officer, including the president. Under the service agreement between the Reserve Banks, FRBNY's general auditor is responsible for ensuring that there is comprehensive audit attention to the Fedwire Securities Service to help ensure that risk management and control processes applicable to the Service are effective. The Board of Governors retains an external auditor to audit the Federal Reserve's consolidated financial statements, as well as the financial statements of each Reserve Bank. The external auditor also audits FRBNY's internal controls over financial reporting. To ensure independence, the external auditor may not provide any other services to FRBNY.

As noted in section 17.6, the WPO has established an incident-management protocol and handbook to facilitate communication and decision making among all relevant internal and external stakeholders in crisis situations involving disruptions to the Fedwire Securities Service application and supporting infrastructure. Under the protocol and handbook, the severity level

¹¹⁷ See Board of Directors, Federal Reserve Bank of New York, Audit and Risk Committee Charter, art. V(C), available at <http://www.newyorkfed.org/aboutthefed/audit.html>.

¹¹⁸ See *id.*

¹¹⁹ See *id.*

¹²⁰ See *id.*

¹²¹ See *id.*

of a problem or issue determines the communication and decision-making processes invoked in a crisis. Decisions regarding the severity level that is assigned to a problem or issue are business driven, are made by the designated business incident manager, and are based on the scope, customer impact, and duration of the problem or issue. As a supplement to the protocol and handbook, the WPO utilizes a framework to govern Fedwire Securities Service decision making and communications for severe information-security incidents.

The Reserve Banks are keenly aware of the criticality of the Fedwire Securities Service to the functioning of the U.S. financial system, so FRBNY has minimal tolerance for risk that might impair the functioning of the Service.

2.7 The board should ensure that the FMI’s design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

The audit and risk committee of FRBNY’s board of directors, in coordination with other Federal Reserve System bodies, is responsible for ensuring that the design and rules of the Fedwire Securities Service and the WPO’s overall strategy and major decisions affecting the Service appropriately reflect the legitimate interests of the Service’s direct and indirect participants and other relevant stakeholders.¹²²

Under section 11A of the Federal Reserve Act, the Board of Governors was charged with establishing pricing principles and fee schedules based on those principles for Reserve Bank-provided financial services. After issuing those principles,¹²³ the Board of Governors further elaborated on them in guidelines, two of which require the Federal Reserve to seek input from and provide information to stakeholders. Specifically, the two guidelines read as follows:

[(1)] In the provision of financial services, the [Reserve Banks and the Board of Governors] will ascertain the needs of depository institutions and the public so that the Federal Reserve can enhance its ability to offer useful, cost-effective, and complete packages of financial services to its customers, while recognizing the statutory requirement that revenues must cover costs . . .

[(2)] The Reserve Banks will undertake efforts to provide depository institutions with full information about the nature and scope of financial services offered, including the prices, benefits, and operating requirements of those services. The character of these efforts should be consistent with the System’s responsibility to serve the public interest.¹²⁴

¹²² See Board of Directors, Federal Reserve Bank of New York, Audit and Risk Committee Charter, art. V(C), available at <http://www.newyorkfed.org/aboutthefed/audit.html>.

¹²³ See Board of Governors of the Federal Reserve System, Principles for Pricing of Federal Reserve Bank Services, *Federal Reserve Regulatory Service* 9–1566 to –1568 (1980), available at http://www.federalreserve.gov/paymentsystems/pfs_principles.htm.

¹²⁴ Federal Reserve System Guidelines for the Provision of Financial Services, *supra* note 93, at 9–1573.

The Board of Governors' role in establishing pricing principles and approving fees for Reserve Bank financial services and in carrying out certain other responsibilities is a unique aspect of the structure of the Federal Reserve System because the Board of Governors takes actions that might be undertaken by a board of directors of a standalone private-sector FMI. For example, while the Reserve Banks publish all operating circulars and fee schedules, and any changes to them, on the Reserve Banks' publicly accessible financial services website, by policy, the Board of Governors determines whether to seek public comment on significant changes to Reserve Bank financial services and approves fees for Reserve Bank financial services, including the Fedwire Securities Service, with a detailed disclosure explaining how those fees were determined.

New Services, Service Modifications, and Rule Changes

Requests for Public Comment on Reserve Bank Financial Services Changes

The Board of Governors has adopted a policy of seeking public comment when changes in Reserve Bank fees and service arrangements are proposed that would have significant longer-run effects on the nation's payments system.¹²⁵ One of the committees of the Board of Governors, the Committee on Federal Reserve Bank Affairs mentioned in section 2.2, has issued guidelines that Board of Governors staff and the committee could use "as input to their assessment of whether a proposal related to Federal Reserve priced services should be subject to public comment before adoption."¹²⁶ These guidelines, which are not to be "rigidly applied, but rather used at the Board's discretion," indicate that public comment should be requested in the following circumstances: (i) the Board of Governors proposes changes to its pricing principles; (ii) a Reserve Bank plans to enter a new priced service line or significantly expand or modify an existing service line; (iii) all Reserve Banks plan to withdraw from a current service line; (iv) Reserve Banks plan to recover less than the short-run average variable cost for a service line over an extended period; (v) a Reserve Bank's planned action in connection with a service is likely to have a direct and material adverse effect on the ability of other service providers to compete effectively in providing similar services for legal reasons (i.e., due to differing legal powers or constraints) or because the Reserve Banks have a dominant market position deriving from such legal differences; (vi) the Board of Governors proposes a significant modification to the methodology for calculating imputed costs or revenue for the priced services; or (vii) the contemplated action would, or is meant to, result in a significant long-term structural change in the nation's payments or settlement systems.¹²⁷

Material Changes to Service and Service Proposals

Board of Governors' policy also dictates that the Reserve Banks seek the Board of Governors' review of any material changes to the risk profile of the Fedwire Securities Service or of any other proposals relating to the Service that the Board deems to be "nonroutine." This policy as it relates to material changes is intended to ensure that the Board of Governors holds the Reserve

¹²⁵ See Principles for Pricing of Federal Reserve Bank Services, *supra* note 123, at 9–1568 (principle 7).

¹²⁶ See Committee on Federal Reserve Bank Affairs, Board of Governors of the Federal Reserve System, Guidelines for Requesting Public Comment on a Federal Reserve Priced Service, *Federal Reserve Regulatory Service* 9–1574 (1995).

¹²⁷ See *id.*

Banks to procedural requirements that are the same as, or higher than, the requirements for financial market utilities designated as systemically important by the Financial Stability Oversight Council and supervised by the Board of Governors. The Board of Governors imposes a similar requirement on such financial market utilities through Regulation HH.

The Board of Governors has delegated the authority to approve routine, nonmaterial service proposals to the FSPC. Given this delegation and the Reserve Banks' agreement (endorsed by the Reserve Banks' boards of directors) to work through the COP and its committees, FRBNY, acting principally through the WPO, works with the FSPC and the COP to advance strategies related to the Fedwire Securities Service. From time to time, FRBNY, through the WPO, presents proposals relating to the Service to the Payments System Policy Advisory Committee.

Changes to Issuer Regulations and Reserve Bank Operating Circulars

Federal agencies that promulgate regulations relating to the Fedwire Securities Service and securities issued over it, such as the TRADES regulations, are subject to the public notice and comment provisions of the Administrative Procedure Act when they propose new, or amend existing, rules or regulations. Generally, the Administrative Procedure Act requires that each federal agency provide notice to the public of a proposed rulemaking and an opportunity for the public to comment on the proposed rulemaking before it becomes effective. The notice of a proposed rulemaking must be published in the Federal Register. In addition, the Board of Governors may seek public comment on certain policy issues that are not necessarily rules under the Administrative Procedure Act.¹²⁸

The process for changing Reserve Bank operating circulars is described in section 1.2.

Informal Reserve Bank Efforts

The Reserve Banks, through the WPO and the CRSO, regularly seek to improve the efficiency and effectiveness of the Fedwire Securities Service. The WPO uses external user groups to obtain information on best practices, participant business needs, demand for new features, and cost reduction. The CRSO obtains customer input through regular interactions with individual customers, as well as through the administration of periodic customer satisfaction surveys.

For more detail on how the Reserve Banks solicit feedback on the Service, see Principle 21, *Efficiency and effectiveness*.

Customer Advisory Group

As described in more detail in section 21.1, an advisory group composed of large institutions but chaired by FRBNY provides a mechanism for ongoing communication and collaboration between the WPO, other Reserve Bank business functions, and representatives of major Fedwire Securities Service participants. The WPO uses this advisory group to better understand Fedwire Securities Service customer business needs. The WPO works closely with the advisory group to obtain feedback on potential changes and enhancements to the Fedwire Securities Service, to identify and consider the likely implications of changes to the Service, to

¹²⁸ As an example, the Board of Governors seeks public comment on its PSR policy.

suggest and structure additional analysis or market research needed to evaluate potential changes to the Service, and to participate in the review of high-level specifications for changes and enhancements selected for implementation.

Other

The Reserve Banks periodically seek input on specific issues through interviews with customers, customer surveys, focus groups, or meetings with industry trade groups across a range of issues and financial services, including the Fedwire Securities Service. With respect more specifically to the Fedwire Securities Service, consolidated business and technical customer support units provide support and problem resolution related to specific service issues, such as answering questions about how to use features of the Service, solving problems, reconciling transactions, and establishing and testing electronic access connections. The WPO uses information from these areas to improve the Fedwire Securities Service.

Principle 3: Framework for the comprehensive management of risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

3.1 An FMI should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMI. Risk-management frameworks should be subject to periodic review.

The Fedwire Securities Service faces a range of risks as an FMI. These risks include operational, strategic, compliance, financial statement reporting, reputational, and legal risks.¹²⁹ The WPO uses FRBNY's risk-management framework, risk-tolerance policy, and risk-tolerance statement, along with the WPO's own risk-tolerance statement and associated policies, procedures, and systems, as the basis for its comprehensive management of these risks with respect to the Service. Under the WPO's risk-tolerance statement, the WPO developed a review process to regularly evaluate business-specific risks against acceptable risk tolerances. As required by the WPO's risk-tolerance statement, the WPO reports and escalates risks to the audit and risk committee of FRBNY's board of directors and incorporates remediation plans into the WPO's strategic planning process. Further, the WPO adheres to the supporting policies, procedures, and systems established for FRBNY as a whole in the WPO's identification, measurement, monitoring, and management of these risks.

FRBNY's risk-management framework, risk-tolerance policy, and risk-tolerance statement and the WPO's own risk-tolerance statement are routinely reviewed. Every year, both FRBNY's management committee and the audit and risk committee of FRBNY's board of directors review FRBNY's risk-management framework and, if they find it adequate, they approve that framework. FRBNY's risk group reviews the risk-tolerance policy that FRBNY has adopted pursuant to FRBNY's risk-management framework at least annually, updating the policy as necessary. FRBNY's management committee is required under the policy to update and approve FRBNY's risk-tolerance statement every year. The risk-tolerance statement is then presented to the audit and risk committee for its approval. FRBNY's risk subcommittee must review and endorse the WPO's risk-tolerance statement before it is approved by FRBNY's president and the audit and risk committee.

As reflected in FRBNY's risk-management framework, risk-tolerance policy, and risk-tolerance statement, FRBNY employs a three-lines-of-defense risk-management model in its risk oversight of the Fedwire Securities Service that emphasizes interaction and communication between the first line (business line) and second line (central risk management), with independent oversight by the third line (internal audit).

- The first line of defense consists of the WPO and the wholesale operations sites at other Reserve Banks that provide operational support for the Fedwire

¹²⁹ Financial risk, including credit risk, is managed by each Reserve Bank in its capacity as an Administrative Reserve Bank. An Administrative Reserve Bank is the Reserve Bank in whose Federal Reserve district the Fedwire Securities Service participant is located. It generally oversees the administration of Federal Reserve credit, reserves, and risk-management policies for a financial institution's operations nationwide. For additional information on Administrative Reserve Bank responsibilities, see section 3.2 and Principle 4, *Credit risk*.

Securities Service. The WPO and the wholesale operations sites are responsible for identifying, assessing, mitigating, monitoring, and reporting risks, and for managing risk within FRBNY's and the WPO's tolerances. The WPO is ultimately responsible for overseeing the services provided by the wholesale operations sites and for ensuring that the risk-management practices of the wholesale operations sites are aligned with FRBNY's own risk-management framework.

- The second line of defense refers to FRBNY's organizational units that provide independent risk assessment, independent risk oversight, development and maintenance of risk frameworks and risk-related policies, and support of first-line implementation of risk frameworks. One such organizational unit, the central risk-management function, independently assesses the WPO's risk management and compliance with policies and procedures. The function periodically updates FRBNY's chief risk officer, risk representatives from other FRBNY control functions and business areas, and the risk subcommittee of FRBNY's management committee on risks related to the Fedwire Securities Service.¹³⁰ It also provides integrated risk reporting on a quarterly basis to the audit and risk committee of FRBNY's board of directors. Two other FRBNY organizational units that have notable second line-of-defense responsibilities with respect to the Service are the legal group and the information-security function.
- The third line of defense is FRBNY's internal audit function, which provides an independent assessment of the effectiveness of the control environment for identifying and managing risk in the wholesale services. The internal audit function conducts annual audits of the wholesale services using a risk-based approach. It also monitors the WPO's strategically important projects, current business operations, and new initiatives. The internal audit function also reports the results of their work, including recommendations to the other lines of defense, as well as directly to the audit and risk committee of FRBNY's board of directors.

3.2 An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.

U.S. law, the Reserve Banks, and the policies of the Board of Governors provide incentives to Fedwire Securities Service participants to manage a variety of risks they pose to the Reserve Banks in operating the Service, such as credit risk and fraud risk.

The Board of Governors' PSR policy provides a mix of incentives for Reserve Bank customers to limit the credit risk they pose to each Administrative Reserve Bank (ARB),¹³¹ including in connection with their use of the Fedwire Securities Service. For instance, under the PSR policy, the Reserve Banks provide institutions with net debit caps with collateralized intraday overdrafts at no cost but charge fees for providing these institutions with uncollateralized intraday credit. This pricing difference provides an incentive for even healthy institutions to collateralize intraday overdrafts and limits an ARB's risk of loss from credit exposure to that institution. An ARB might

¹³⁰ The risk subcommittee of FRBNY's management committee takes a consolidated view of FRBNY's risk management and provides guidance on FRBNY's risk appetite.

¹³¹ See footnote 129 for the definition of ARB.

also apply risk controls or take other remedial actions to manage credit risk that will affect how the customer uses Reserve Bank services, particularly if the customer is a higher-risk institution. For more detail on how the Reserve Banks manage their credit risk and on the information the Reserve Banks provide customers to manage their accounts, see Principle 4, *Credit risk*.

The Reserve Banks offer each Fedwire Securities Service participant a variety of security procedures and enforce certain security-related rules to minimize risks to the Service. These risks include cybersecurity risk and the risk of fraud (i.e., the risk that a Reserve Bank would process a securities transfer that had not been authorized by its sender). In general, under Operating Circular 7, the Reserve Banks are liable to the Fedwire Securities Service participants for which they hold accounts only for actual, direct losses the participants sustained as a result of a transaction proximately caused by the Reserve Banks' failure to exercise ordinary care or act in good faith. Furthermore, under Operating Circular 7, Reserve Banks are entitled to rely on transfer messages they reasonably believe to be genuine, regardless of whether they are in fact authorized.¹³² Consequently, senders are motivated to take measures to mitigate the risk that their hardware, software, or other systems or personnel might be compromised.

Operating Circular 5, which governs electronic access to the Reserve Banks, also incents Fedwire Securities Service participants to manage and contain the risks they pose to the Service directly and through their customers by relieving the Reserve Banks of liability if participants fail to adopt or implement prescribed information security measures.¹³³

The FedPayments Manager—Securities application offers participants accessing the Fedwire Securities Service through the FedLine Advantage access solution a variety of processing options to help them manage how they create, update, and verify messages they send to the Fedwire Securities Service. Participants determine the appropriate settings based on their own business and risk tolerance. In October 2017, the Reserve Banks implemented or enhanced a number of options and added features that enable participants to better monitor changes to the processing options themselves.

For more detail on the measures the Reserve Banks require Service participants to take with respect to cybersecurity and how those measures help address the risk posed not only by those participants but also by their customers, see Principle 19, *Tiered participation arrangements*.

3.3 An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks.

The WPO evaluates the material risks the Service bears from and poses to other entities and has procedures for minimizing risks that could impact the availability of the Service in such

¹³² The TRADES regulations and other comparable issuer regulations similarly insulate Reserve Banks from adverse claims, including claims arising from securities transfers effected by a Reserve Bank pursuant to a transfer message the Reserve Bank reasonably believes to be genuine. See, e.g., 12 CFR § 357.13(b).

¹³³ This limitation is subject to applicable law. See Operating Circular 5, *supra* note 8, app. A §§ 3.1, 3.2.

scenarios. Among these risks, the Fedwire Securities Service faces operational risk from its multiple Reserve Bank and third-party service providers, including utilities such as electricity and telecommunications network suppliers. As a result, the WPO closely monitors service provision and actively manages these relationships. The Reserve Banks also recognize the systemic importance of the Fedwire Securities Service and the material risk it poses to other entities, including other FMIs. As a result, the Reserve Banks expend significant effort to ensure that the availability of the Service remains high and that its resiliency program remains robust and is tested regularly.

3.4 An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.

As the Board of Governors noted when it revised the PSR policy to incorporate the risk-management and transparency standards in the PFMI, the Fedwire Securities Service does not “face the risk that a business shock would cause the service to wind down in a disorderly manner and disrupt the stability of the financial system.”¹³⁴ Accordingly, the Board of Governors does not require the Service to develop recovery or orderly wind-down plans under this principle.¹³⁵ This is consistent with *Application of the Principles for Financial Market Infrastructures to Central Bank FMIs* issued in August 2015 regarding central bank–operated FMIs, which noted that a central bank’s ability to “ensure continuity of operations of the FMI as necessary in extreme financial circumstances means that the requirements to prepare recovery and orderly wind-down plans do not apply.”¹³⁶ The August 2015 guidance also states that requirements to support resolution planning or intervention by a resolution authority in the operation or ownership of FMIs do not apply in the case of central bank–operated FMIs, like the Fedwire Securities Service, because intervention by a resolution authority is not relevant for such FMIs.¹³⁷

¹³⁴ Policy on Payment System Risk, 79 Fed. Reg. at 67329.

¹³⁵ *Id.*

¹³⁶ See *Application of the Principles for Financial Market Infrastructures to Central Bank FMIs*, *supra* note 6, at 1.

¹³⁷ See *id.*

Principle 4: Credit risk

An FMI should effectively measure, monitor, and manage its credit exposure to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two largest participants and their affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions. All other CCPs should maintain, at a minimum, total financial resources sufficient to cover the default of the one participant and its affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions.

As an ARB, each Reserve Bank manages credit risk posed by its customers across all Reserve Bank financial services, not just the Fedwire Securities Service. By policy of the Board of Governors, credit risk management is handled by Reserve Bank employees that are separate from the employees that provide Reserve Bank financial services, such as the Fedwire Securities Service.¹³⁸ The discussion below, therefore, considers how the Reserve Banks address credit exposure to Fedwire Securities Service participants through their credit risk-management functions (rather than the Fedwire Securities Service).

4.1 An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.

Part II of the PSR policy governs the provision of intraday credit (or daylight overdrafts) in master accounts at the Reserve Banks and serves as the framework by which the Reserve Banks manage their credit exposures to account holders. The PSR policy recognizes that the Reserve Banks have an important role in providing intraday credit to foster the smooth functioning of the payment system. At the same time, the policy seeks to control the risks assumed by the Reserve Banks in providing that intraday credit. In considering an institution's request for daylight overdraft capacity, Reserve Banks evaluate the institution's financial, market, and supervisory information. Under the policy, the Reserve Banks may supply temporary, intraday credit to financially healthy depository institutions. The Reserve Banks control their exposures through several methods, including by motivating institutions to collateralize daylight overdrafts voluntarily (by not charging a fee for collateralized daylight overdrafts), by setting limits on daylight overdrafts in institutions' master accounts, and by requiring collateral in certain situations.

To ensure compliance with the policy, the Reserve Banks monitor minute-by-minute daylight overdrafts for each account holder. Monitoring is done on an *ex post* basis for all institutions. The Reserve Banks cannot monitor an institution's use of the Fedwire Securities Service in real time. Thus, if an account holder were sent a Fedwire securities transfer without having

¹³⁸ See Standards Related to Priced-Service Activities of the Federal Reserve Banks, *supra* note 40, at 9–1570.

sufficient funds in its master account, the transaction would not reject. Instead, an overdraft would result, or an existing overdraft would grow deeper, exceeding the account holder's predefined overdraft capacity.¹³⁹ While the Reserve Banks have the ability to block debits to an account holder's master account for Fedwire securities transfers altogether (effectively permitting the Fedwire Securities Service participant in question to receive securities transfers only free of payment), they do not routinely use this capability for various central bank-driven policy reasons. Instead, Reserve Banks may take other prudential actions to manage credit risk, including requiring institutions to post collateral to cover any daylight overdrafts they do incur.¹⁴⁰

4.2 An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.

Reserve Banks initially assess credit risk of each account holder through their account-setup process. Institutions' eligibility for master accounts and financial services is governed by federal law and Operating Circular 1. At the time an institution applies for a master account or financial services, the account-holding Reserve Bank reviews the applicant's eligibility, initiates or updates its assessment of counterparty credit risk, assigns a net debit cap, and may apply risk controls to the account, if it deems it necessary.¹⁴¹ If the institution is in weak financial condition, the Reserve Bank will impose a zero cap. Once a master account is opened, the Reserve Bank reviews the credit risk the account holder poses to it at least quarterly to ensure appropriate risk controls are applied to the account. If necessary, the Reserve Bank will implement or adjust risk controls on the account at the time of those reviews.

Reserve Banks routinely measure and monitor credit exposures posed by their account holders. For those account holders that are subject to real-time monitoring controls, such as those deemed to pose greater risk, Reserve Banks monitor and limit credit exposure throughout the business day. Credit exposure to account holders that are not subject to real-time controls is

¹³⁹ As a matter of law, however, if an account holder incurs an overdraft in its master account as a result of a securities transfer, the Reserve Bank holding the master account, as the account holder's securities intermediary, has an automatically perfected security interest in the transferred Fedwire security for the amount of the overdraft. See UCC §§ 9-206, 8-106.

¹⁴⁰ While the Reserve Banks cannot prevent a DVP securities transfer from resulting in an overdraft in an account holder's master account, the Reserve Banks can control overdrafts for certain other Reserve Bank financial services. For example, for funds transfers through the Fedwire Funds Service, the Reserve Banks apply real-time monitoring controls to the balances of nearly all institutions. For certain other Reserve Bank services, the Reserve Banks apply real-time monitoring controls under certain, more limited circumstances, including if a Reserve Bank believes an institution poses excessive risk (e.g., if an account holder's financial condition is deteriorating).

¹⁴¹ Under the PSR policy, each institution that maintains a master account at a Reserve Bank is assigned or may establish a net debit cap, which limits the amount of intraday Reserve Bank credit that the institution may use during the Fedwire Funds Service funds-transfer business day. Generally speaking, the net debit cap is the maximum amount of daylight overdrafts that an institution is permitted to incur in its master account at any point in the day.

measured on a next-day basis. With few exceptions, Reserve Banks consider all cap breaches to be violations of the PSR policy and counsel account holders as outlined by the PSR policy.¹⁴²

Reserve Banks use a range of risk-management tools to control credit risk. For lower-risk account holders, limits for intraday credit are regularly reviewed by the account holder's ARB.¹⁴³ Account holders eligible for regular discount window access pay a fee of 50 basis points (on an annualized basis) for intraday credit but pay no fee for intraday credit secured by collateral. Account holders without regular access to the discount window pay a higher, penalty fee for intraday credit (regardless of whether its collateralized) because they are not supposed to incur daylight overdrafts. Higher-risk account holders are assigned a zero net debit cap and may face additional controls, including collateral requirements and the rejection or delay of certain transactions when the balances in their accounts are insufficient. Furthermore, under Operating Circular 1, an ARB may also require an account holder to maintain adequate balances with a Reserve Bank in an amount determined by the ARB.¹⁴⁴

An account holder is not entitled to incur an overnight overdraft in its master account, even if it is eligible to borrow from the discount window,¹⁴⁵ and is subject to a penalty fee for any overdrafts that extend beyond the close of the Fedwire Funds Service's funds-transfer business day.

Under Reserve Bank operating circulars, collateral pledged by a customer to a Reserve Bank secures the payment of all obligations that customer owes to any Reserve Bank.¹⁴⁶ If an account holder does not meet its obligations, whether because it fails or otherwise, the Reserve Bank to which the collateral is pledged could liquidate or otherwise dispose of the collateral to satisfy the outstanding obligations.

¹⁴² A cap breach occurs whenever an end-of-minute daylight overdraft exceeds an institution's net debit cap.

¹⁴³ As stated in footnote 129, the ARB generally oversees the administration of Federal Reserve credit, reserves, and risk-management policies for a financial institution's operations nationwide. In general, a financial institution has only one master account, so the account-holding Reserve Bank and the ARB are the same. Furthermore, an institution's securities accounts are ordinarily maintained by the same Reserve Bank that maintains the institution's master account.

¹⁴⁴ See Operating Circular 1, *supra* note 22, ¶ 2.11.

¹⁴⁵ An institution eligible to borrow from the discount window could request a loan from its Reserve Bank to cover a daylight overdraft so it does not become an overnight overdraft. If the loan request is granted and the amount of the loan is sufficient to cover the overdraft, then no overnight overdraft would occur.

¹⁴⁶ See *id.* ¶ 5.3; Federal Reserve Banks, Operating Circular 10, *Lending*, § 6, available at <https://www.frb services.org/assets/resources/rules-regulations/071613-operating-circular-10.pdf>.

4.3 A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a DNS payment system or DNS SSS in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing, and settlement processes, such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.

As described in section 4.2 above, Reserve Banks may, among other steps, require the pledging of collateral by higher-risk account holders or prohibit institutions from using Reserve Bank intraday credit in order to protect themselves from the risk of loss. They may also require account holders to maintain certain balances.

For lower-risk account holders, the PSR policy provides incentives for institutions to pledge collateral voluntarily to secure daylight overdrafts, thereby helping to mitigate the credit exposures to the Reserve Banks from daylight overdrafts. Institutions that secure their use of intraday credit with collateral are not charged for these daylight overdrafts, while institutions that incur uncollateralized daylight overdrafts are charged a fee.

Reserve Bank losses would be absorbed by the Reserve Bank that extended the credit. As the operational arm of the central bank of the United States, Reserve Banks are not subject to capital or liquidity constraints that apply to private-sector FMIs. Therefore, it is not necessary for the Reserve Banks to hold additional resources to cover potential exposures.

4.4 A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see Principle 5 on collateral and Principle 6 on margin). In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. In all cases, a CCP should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.

This consideration is not applicable because the Fedwire Securities Service is not a CCP.

4.5 A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be

performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. A full validation of a CCP's risk-management model should be performed at least annually.

This consideration is not applicable because the Fedwire Securities Service is not a CCP.

4.6 In conducting stress testing, a CCP should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.

This consideration is not applicable because the Fedwire Securities Service is not a CCP.

4.7 An FMI should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI's process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner.

Under Operating Circular 7, a Reserve Bank's payment to a sending Fedwire participant in connection with a securities transfer against payment is final at the time the debits and credits are posted to the sender's and receiver's securities and master accounts, regardless of whether the receiving participant meets its obligation to pay the Reserve Bank holding its master account.¹⁴⁷ For this reason, if the receiving participant's Reserve Bank permitted the receiving participant to overdraw its master account in connection with a securities transfer against payment and if that participant did not subsequently cover that overdraft, the Reserve Bank holding the master account could incur a loss. As discussed in sections 4.1 and 4.2, the Reserve Banks have a range of tools to help them monitor and manage credit risk. Among other things, the Reserve Banks generally have a security interest in all property of their

¹⁴⁷ Under Operating Circular 7, the transfers of securities and any related funds are final and irrevocable when a Reserve Bank makes the appropriate debit or credit entries to the respective sending and receiving participants' securities accounts and corresponding master accounts. For additional information on settlement finality, see Principle 8, *Settlement finality*.

customers in their possession or control.¹⁴⁸ Such collateral could be used to offset what would otherwise be a loss to the account-holding Reserve Bank.

As the operational arm of the central bank of the United States, the Reserve Banks will be able to provide liquidity to Fedwire Securities Service participants even in stress events.

¹⁴⁸ See Operating Circular 1, *supra* note 22, § 5.3.

Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

Each Reserve Bank manages credit risk posed by its customers across all Reserve Bank financial services, not just the Fedwire Securities Service. By policy of the Board of Governors, collateral decisions, like credit-risk management decisions, are handled by Reserve Bank employees that are separate from the employees that provide Reserve Bank financial services, such as the Fedwire Securities Service.¹⁴⁹ The discussion below, therefore, considers how the Reserve Banks impose collateral requirements on Fedwire Securities Service participants through their credit risk-management functions (rather than the Fedwire Securities Service). The presence or absence of collateral, the valuation of collateral, and the margins applied to collateral have no direct effect on the operations of the Fedwire Securities Service. In other words, no Reserve Bank application checks whether the Fedwire Securities Service participants identified in a Fedwire securities-transfer message have pledged collateral (or what the value of that collateral is) before the Service processes that message.¹⁵⁰

5.1 An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.

Collateral pledged to a Reserve Bank by a Fedwire Securities Service participant must be acceptable to that Reserve Bank. The Reserve Banks accept a wide range of collateral that generally meet regulatory standards for sound asset quality; detailed criteria for accepting certain types of assets as collateral are set forth in the Reserve Banks' collateral guidelines.¹⁵¹ The Reserve Banks periodically review these criteria to assess whether any changes should be made. The Reserve Banks may accept other types of collateral but do not routinely do so.

Once an institution has pledged assets as collateral, the Reserve Bank to which the assets have been pledged conducts periodic reviews of certain assets. If an asset is determined to no longer meet the Reserve Bank's eligibility requirements, that Reserve Bank will reduce the collateral value of that asset to zero.

¹⁴⁹ See Standards Related to Priced-Service Activities of the Federal Reserve Banks, *supra* note 40, at 9–1570.

¹⁵⁰ As discussed in section 4.1, the Reserve Banks cannot implement real-time monitoring of Fedwire Securities Service transactions such that securities transfers against payment that would result in an overdraft in a receiving participant's master account or would cause the receiving participant to breach its net debit cap are rejected. In other words, the Fedwire Securities Service will process such securities transfers and corresponding payments even if they result in an overdraft in a receiving participant's master account or a breach of the participant's net debit cap.

¹⁵¹ See Federal Reserve Banks, Federal Reserve Collateral Guidelines, *available at* <https://www.frbdiscountwindow.org/~media/Documents/FRcollguidelines.ashx?la=en>.

5.2 An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

Collateral pledged to the Reserve Banks is valued using third-party pricing or, if third-party pricing is not available, using Reserve Bank internal models; in either case, collateral is subject to haircuts. The internal models the Reserve Banks use for collateral valuation and haircutting are subject to annual validation and respecification. Haircuts are established based on the historical price volatility of each category of collateral, measured over typical liquidation periods. A detailed listing of Reserve Bank collateral haircuts is available online.¹⁵²

Reserve Banks also have the discretion to increase the haircuts they apply to collateral as they deem appropriate for effective risk management. For instance, an additional haircut will generally be applied to collateral that is pledged by depository institutions that would not be eligible for the Reserve Banks' primary credit program under Regulation A.¹⁵³

5.3 In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.

Reserve Banks accept a wide range of assets as collateral. Most collateral consists of either securities or loans. The latter category includes commercial loans, consumer loans, and loans guaranteed by U.S. federal agencies.

In general, the Reserve Banks seek to value securities and loan collateral at a fair market value estimate. Haircuts are applied to the fair market value estimate and are designed to account for the risk characteristics of the pledged asset, as well as the volatility of the value of the pledged asset over an estimated liquidation period.

Haircuts for securities used as collateral are assigned based on asset type and duration. The size of the haircuts is based on the historical price volatility of each category, measured over typical liquidation periods.

Haircuts for loans used as collateral are assigned based on reported cash flow characteristics. The size of the haircuts is based on the historical volatility of risk-free rates and proxy credit spreads, measured over typical liquidation periods.

Haircuts are updated annually and conservatively based on historical data where the time horizon is sufficiently long to include periods of stressed market conditions. Haircuts are not procyclical, insofar as, historically, they have not been adjusted in response to short-term price volatility.

For additional information, please refer to the Reserve Banks' collateral guidelines.¹⁵⁴

¹⁵² See Federal Reserve Banks, Federal Reserve Discount Window & Payment System Risk Collateral Margins Table, available at <https://www.frbdiscountwindow.org/~media/Documents/discountmargins.ashx?la=en>.

¹⁵³ See 12 CFR § 201.4(a) (availability and terms of primary credit).

¹⁵⁴ See Federal Reserve Collateral Guidelines, *supra* note 151.

5.4 An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

The Reserve Banks generally do not employ position size or concentration limits or require haircuts to vary by size or concentration. Reserve Banks have the ability to hold assets as long as is necessary to liquidate without having an adverse impact on markets.

5.5 An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.

Before entering into an arrangement with a foreign custodian to hold certain foreign-issued or -denominated securities pledged by depository institutions, a Reserve Bank conducts certain legal due diligence to assess, among other things, its ability to liquidate such collateral in a timely manner. Currently, the only arrangements of this type are with the central securities depositories Euroclear Bank S.A./N.V. and Clearstream Banking S.A.

These custodians screen collateral pledged by Reserve Bank customers against eligibility criteria predetermined by the Reserve Banks. The eligibility standards help to ensure the Reserve Banks accept high quality collateral, which contributes to mitigating the risk of loss that a Reserve Bank has to its account holders. Only investment-grade securities in certain asset classes are accepted, for example. Further, securities not denominated in U.S. dollars are accepted only if they are denominated in one of a specified set of currencies.¹⁵⁵ The exchange rate risk of those foreign-denominated securities is mitigated by adding an additional haircut. The adequacy of that additional haircut is reevaluated each time margins are respecified and is monitored on an ongoing basis between respecifications.

To be acceptable as collateral all securities, including cross-border securities, must meet certain standards relating to credit, legal, and valuation risk.¹⁵⁶ Reserve Banks take steps to ensure a first-priority perfected security interest in such securities.

5.6 An FMI should use a collateral management system that is well designed and operationally flexible.

Reserve Banks operate a collateral management system that is flexible enough to record and report on the wide range of assets Reserve Bank customers pledge as collateral. Loan and securities collateral is onboarded through each Reserve Bank into a centralized collateral management application. The collateral management system records and maintains information on deposits and withdrawals of collateral throughout the business day and provides Reserve Bank customers with real-time information about the value of the collateral they have pledged. Each Reserve Bank has the ability to transfer collateral administration activities to alternate Reserve Banks to ensure business operations can be conducted without interruption

¹⁵⁵ Currently, the only acceptable foreign currencies are Australian dollars, British pounds, Canadian dollars, Danish kroner, euros, Japanese yen, Swedish kronor, and Swiss francs.

¹⁵⁶ Securities may not be obligations of the pledging institution or an affiliate of the pledging institution, or otherwise correlated with the financial condition of the pledging institution.

and regularly tests its ability to execute those transfers. The Reserve Banks rely on third-party vendor prices for valuation, but have alternate ways to value collateral when such prices do not exist or are not available.

Principle 6: Margin

A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.

This principle is not applicable to the Fedwire Securities Service.

Principle 7: Liquidity risk

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

To the extent that liquidity is needed for the operation of the Fedwire Securities Service, it is needed by securities receivers in the Service. This liquidity may be provided by these receivers' master account-holding Reserve Banks to settle payments they send through the Service for securities received through the Service.¹⁵⁷ The use of Reserve Bank liquidity is governed by procedures and controls implemented by each participant's ARB that are separate from the operation of the Service. For more detail about Reserve Bank credit that may be used as liquidity, refer to Principle 4, *Credit risk*.

7.1 An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.

As the operational arm of the central bank of the United States, the Reserve Banks are not subject to liquidity constraints that apply to private-sector FMIs, including when the Reserve Banks provide liquidity to Fedwire Securities Service participants. As noted in section 7.2 below, however, the Reserve Banks apply the framework outlined in part II of the PSR policy to manage the liquidity they provide to their customers, some of which are Fedwire Securities Service participants, and the credit risk those customers may pose to them. It is important to note that the Reserve Banks perform this function outside their role as operator of the Fedwire Securities Service.

7.2 An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.

Reserve Banks have automated systems, including a range of risk controls to monitor and manage liquidity used by customers, including Fedwire Securities Service participants, and to manage the resulting credit risk those customers pose.¹⁵⁸ These include tools to monitor

¹⁵⁷ Participants do not need access to liquidity as senders of securities over the Service.

¹⁵⁸ As a general matter, balances held in a Fedwire Securities Service participant's master account are available for settlement purposes throughout the Fedwire Funds Service business day. In addition, under part II of the PSR policy, most Fedwire Securities Service participants have access to intraday credit provided by the Reserve Banks that hold their accounts. This converts the liquidity risk otherwise borne by participating institutions into credit risk borne by the Reserve Banks. Although the intraday credit provided by the Reserve Banks is sufficient for most Service participants, the limits prescribed by the PSR policy on how much intraday credit a Reserve Bank customer may use could constrain some Service participants' payment and securities-transfer operations. Such constraints, however, must be managed by the Service participants themselves and do not affect the functioning of the Service. For more detail on how the Reserve Banks manage credit risk, see Principle 4, *Credit risk*, and part II of the PSR policy, *supra* note 4.

account balances, report and price overdrafts in Reserve Bank master accounts, manage collateral posted to the Reserve Banks, and compile information for assessing the financial condition of Reserve Bank customers. As noted in section 4.1, the Reserve Banks can monitor payment activity and intraday account balances of customers in real time throughout the business day and may restrict their access to Reserve Bank intraday credit. For more detail on the range of risk-management tools used by the Reserve Banks to control the credit risk of their customers, see Principle 4, *Credit risk*.

Moreover, the Reserve Banks provide their customers, including Fedwire Securities Service participants, with intraday and *ex post* tools to monitor and manage master account balances, net debit caps, collateral pledged to the Reserve Banks, and the use of Reserve Bank intraday credit.¹⁵⁹

7.3 A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.

This consideration is not applicable. The Reserve Banks do not hold liquid resources to meet obligations that may arise in operating the Fedwire Securities Service because the Reserve Banks, as the operational arm of the central bank of the United States, can create U.S. dollar liquidity as needed, and the Service only settles in U.S. dollars.

7.4 A CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions.

This consideration is not applicable because the Fedwire Securities Service is not a CCP.

7.5 For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of

¹⁵⁹ For more detail, see the Reserve Banks' account management guide, which is a comprehensive reference guide for Reserve Bank customers to manage their master accounts. See Federal Reserve Banks, Account Management Guide, available at <https://www.frbservices.org/assets/resources/rules-regulations/account-management-guide.pdf>.

issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.

This consideration is not applicable. As noted, the Reserve Banks are not subject to liquidity constraints, so there is no need for them to hold liquid resources.

7.6 An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if an FMI does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. An FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.

This consideration is not applicable. As noted, the Reserve Banks are not subject to liquidity constraints, so there is no need for them to hold liquid resources.

7.7 An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider.

This consideration is not applicable. The Reserve Banks do not use external liquidity providers in connection with the Fedwire Securities Service because the Reserve Banks, as the operational arm of the central bank of the United States, can create U.S. dollar liquidity as needed, and the Service only settles in U.S. dollars.

7.8 An FMI with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.

The Reserve Banks are the operational arm of the central bank of the United States, and all Fedwire securities transfers are settled on the books of the Reserve Banks, so all activity through the Fedwire Securities Service is settled using central bank accounts and securities services.

7.9 An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMI should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.

As noted, the Fedwire Securities Service does not face liquidity risk, even under extreme-stress scenarios, so there is no need for the Reserve Banks to stress test their liquid resources.

7.10 An FMI should establish explicit rules and procedures that enable the FMI to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

The Fedwire Securities Service is an RTGS system with immediate settlement finality. By definition, such a system meets this requirement.

For more detail on these matters, see Principle 1, *Legal basis*, Principle 8, *Settlement finality*, and Principle 13, *Participant-default rules and procedures*.

Principle 8: Settlement finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time/

8.1 An FMI's rules and procedures should clearly define the point at which settlement is final.

The timing of settlement finality is clearly defined in the legal framework applicable to the Fedwire Securities Service and publicly available on the Internet.¹⁶⁰ Under the TRADES regulations and other corresponding issuer regulations, an interest (i.e., a security entitlement) in a Fedwire security is created when a Reserve Bank credits, by book entry, the security to a participant's securities account.¹⁶¹

Operating Circular 7 provides that all debits and credits of securities in connection with a securities transfer become final at the time the debits and credits are posted to both the sender's and the receiver's securities accounts and, in the case of a transfer against payment, to the participants' corresponding master accounts.¹⁶²

As noted in section 1.4, the liquidation provisions of U.S. banking laws do not contain a zero-hour rule that would result in the unwinding of securities transfers made over the Fedwire Securities Service.

8.2 An FMI should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. An LVPS or SSS should consider adopting RTGS or multiple-batch processing during the settlement day.

The Fedwire Securities Service provides for final settlement of securities transfers on a transaction-by-transaction basis in real time as it processes them throughout the value-date operating day.

8.3 An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.

All securities transfers made over the Fedwire Securities Service are settled in real time on a gross basis. As a result, there are no unsettled transfer messages that could be revoked by participants at any point in the settlement day. Reversals of transfers are made using a separate, specific reversal code and constitute separate and distinct securities transfers, such

¹⁶⁰ For more detail on public access to the statutes, regulations, and operating circulars governing the Fedwire Securities Service, see section 23.1.

¹⁶¹ See, e.g., 31 CFR § 357.12(a).

¹⁶² *Id.* Each sender and receiver of a securities transfer over the Fedwire Securities Service irrevocably authorizes and instructs the Reserve Banks involved in the transfer to make the stated credits and debits to the securities accounts and master accounts of the relevant participants as designated in the transfer message. See *id.* ¶ 7.1.4

that the finality of each original securities transfer is not disturbed.¹⁶³ Reserve Banks also have a right to debit or credit participants' securities accounts without further authorization by the participant to correct securities transfer errors.¹⁶⁴ Operating hours and cutoff times for submission of transfer messages, including reversals, are clearly defined in appendix B to Operating Circular 7. The Reserve Banks may unilaterally change these times as deemed necessary to facilitate special market needs.¹⁶⁵ Operating Circular 7 provides specific procedures for a Fedwire Securities Service participant to request an extension of operating hours, which may only be granted under limited and defined circumstances.¹⁶⁶ Any change in operating hours is broadcast electronically to all participants using the FedLine Direct access solution.¹⁶⁷ It is also posted on the FedLine Advantage homepage (for participants using the FedLine Advantage access solution) and on the service status page of FRBservices.org (so offline participants and others would be aware).

¹⁶³ See Operating Circular 7, *supra* note 20, ¶ 9.1.1 (“Transfers may be reversed only by a separate Transfer effected by a Transfer Message using the reversal code.”); see also *id.* app. B.

¹⁶⁴ *Id.* ¶ 9.1.1.

¹⁶⁵ See *id.* ¶ 11.1 & app. B.

¹⁶⁶ See *id.* ¶ 11.2.

¹⁶⁷ See *id.* ¶ 11.4.

Principle 9: Money settlements

An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimize and strictly control the credit and liquidity risk arising from the use of commercial bank money

9.1 An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.

All securities transfers made over the Fedwire Securities Service are settled on the books of the Reserve Banks. If they are transfers against payment, the payment is, by definition, settled in central bank money. Refer to Principle 8, *Settlement finality*, for a discussion of the settlement finality of Fedwire securities transfers, Principle 4, *Credit risk*, for a discussion of how the Reserve Banks manage credit risk in connection with providing the Service, and Principle 7, *Liquidity risk*, for a discussion of liquidity risk.

9.2 If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.

This consideration is not applicable to the Fedwire Securities Service because, as stated in section 9.1, all Fedwire securities transfers against payment settle in central bank money.

9.3 If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalization, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.

This consideration is not applicable to the Fedwire Securities Service because, as stated in section 9.1, all Fedwire securities transfers against payment settle in central bank money.

9.4 If an FMI conducts money settlements on its own books, it should minimize and strictly control its credit and liquidity risks.

This consideration is not applicable to the Fedwire Securities Service because, as stated in section 9.1, all Fedwire securities transfers against payment settle in central bank money, so the credit and liquidity risks with which the consideration is concerned are avoided.¹⁶⁸

¹⁶⁸ Based on the explanatory notes in the PFMI, this consideration appears to be relevant only if two conditions are met: (1) money settlements do not occur in central bank money and (2) the FMI conducts money settlements on its own books. See Principles for Financial Market Infrastructures, *supra* note 2, ¶ 3.9.7. The Fedwire Securities Service conducts money settlements on its own books (technically, on the books of the Reserve Banks, which operate the Service), but those settlements occur in central bank money, as stated in section 9.1. Thus, only one of the two conditions is met, and the consideration is not applicable.

9.5 An FMI's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the FMI and its participants to manage credit and liquidity risks.

This consideration is not applicable to the Fedwire Securities Service because the Service does not use third-party settlement banks. As stated in section 9.1, Fedwire securities transfers against payment settle on the books of the Reserve Banks.

Principle 10: Physical deliveries

An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries

10.1 An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.

The Fedwire Securities Service does not settle transactions by delivery of physical assets or commodities and, accordingly, does not need rules setting out its obligations relating to physical delivery. Rather, the Service is an electronic book-entry securities system in which all securities are dematerialized. For more detail, see Principle 11, *Central securities depositories*, and Principle 12, *Exchange-of-value settlement systems*.

10.2 An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.

The Reserve Banks, acting as fiscal agents of an issuer of securities on the Fedwire Securities Service, may, however, effect conversions from eligible definitive securities to book-entry securities maintained in the Service (and vice versa) if the issuer's offering documentation for the particular securities includes conversion rights. This happens very infrequently and does not involve the handling or safekeeping of definitive securities by the Reserve Banks. Moreover, this function is performed by the Reserve Banks outside their role as operator of the Fedwire Securities Service.

Principle 11: Central securities depositories

A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimize and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilized or dematerialized form for their transfer by book entry

11.1 A CSD should have appropriate rules, procedures, and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, prevent the unauthorized creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains.

Safeguarding the Rights of Securities Issuers and Holders

To help ensure that the Fedwire Securities Service's records are accurate and that securities held in the Service are not subject to theft, loss, or misuse, the Reserve Banks have incorporated both physical and technical security controls into the Service. These physical and technical security controls are discussed in depth in section 17.5. As a further check, the Reserve Banks rely on their participants to alert them to any discrepancies. Under Operating Circular 7, participants must notify their Reserve Banks in writing of an exception "to any notice, summary, or statement as soon as possible," but "in no event later than 10 calendar days from the date of the notice, summary, or statement."¹⁶⁹ Fedwire Securities Service participants receive a notice every time a debit or credit is made to one of their securities accounts. Moreover, at the end of each day, each online participant receives a summary of its net balances for each security it held for which there was activity that day.

Prevention of the Unauthorized Creation or Deletion of Securities

Reserve Bank staff responsible for the daily operation of the Service conduct all activities related to creating and extinguishing securities and updating the description of securities maintained in the Service based on instructions from issuers. The Fedwire Securities Service will not permit Reserve Bank staff to remove a security profile from the system if there are any holdings of that security outstanding. Furthermore, once marked for removal, actual removal of a securities profile from the system is postponed for a six-month period, which provides sufficient time for detection and correction of errors.

The Reserve Banks employ various technical and access controls, including internal procedures, audit trails, and a dual-verification security process, to prevent or detect the unauthorized creation or deletion of a security entitlement in or from a participant's securities account. Furthermore, changes to a participant's holdings of a particular security are visible to the participant itself through the daily reports provided by the Fedwire Securities Service, as described below.

Reconciliation of Securities Issues

To assist participants in reconciling their activity, the Fedwire Securities Service makes available to its participants daily activity reports and clearing summaries. These reports and

¹⁶⁹ Operating Circular 7, *supra* note 20, ¶ 12.4.

summaries include information on those securities held by the participant that had transaction activity on that business day. Participants may also elect to receive periodic account holdings reports, which provide detailed information about the participant's securities holdings in each of its securities accounts. More specifically, the holding reports list the total par balance of each security held by the participant in each of its securities accounts. Participants may use the reports to reconcile their total par balances as reported by the Service to their own internal records. The Reserve Banks will also respond to participants' requests for audit confirmations that can be used by participants and their supervisors, internal audit departments, and external audit firms to verify participants' securities holdings as of a particular date.

The Fedwire Securities Service provides similar information to issuers to help ensure that the records in the Service accurately reflect all issued securities that continue to be held by Service participants. This information may be contained in daily reports and filings on transfer activity in securities issued by those issuers and securities holdings on the Service. The issuers may use these reports in their internal reconciliation process.

11.2 A CSD should prohibit overdrafts and debit balances in securities accounts.

Before executing a securities transfer, the Fedwire Securities Service application checks the transfer message for technical acceptability and verifies that the sender of the transfer has a sufficient par balance of the security being transferred in the securities account from which the transfer is being initiated. The Service will not effect a securities transfer if the sender has an insufficient par balance of the security in that securities account.

11.3 A CSD should maintain securities in an immobilized or dematerialized form for their transfer by book entry. Where appropriate, a CSD should provide incentives to immobilize or dematerialize securities.

The Fedwire Securities Service is, by its nature, an electronic book-entry securities settlement system in which all securities are dematerialized and all securities transfers between securities accounts maintained in the Service are made by the Reserve Banks through entries to their books.

The Reserve Banks, acting as fiscal agents of issuers of securities maintained in the Service, may, however, effect conversions from eligible definitive securities to book-entry securities maintained in the Service (and vice versa) if the issuer's underlying offering documentation grants conversion rights to holders of its securities. Such conversions take place infrequently.

11.4 A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.

The legal framework governing the Fedwire Securities Service offers a high degree of assurance that participants' interests in securities maintained in the Service are protected. Furthermore, the Reserve Banks' accounting practices and internal controls, including those relating to the Service, are robust. For more detail on the legal framework for the protection of participants' interests in securities, see Principle 1, *Legal basis*; for more detail on Reserve Bank accounting practices and internal controls, see section 16.1.

11.5 A CSD should employ a robust system that ensures segregation between the CSD’s own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the CSD should also support operationally the segregation of securities belonging to a participant’s customers on the participant’s books and facilitate the transfer of customer holdings.

The Reserve Banks maintain records of the identities and interests of each of the participants in securities held through the Fedwire Securities Service. In some instances, the Reserve Banks themselves are participants.¹⁷⁰ Like other participants’ interests in Fedwire securities, the Reserve Banks’ interests are reflected in securities accounts maintained in the Service. The Service is designed to keep those securities accounts separate and distinct from the securities accounts of other participants.

Each participant, in turn, maintains a record of how its holdings in the Service are allocated between it and its direct customers, if any. This process can be repeated throughout a potentially multitiered structure.

The Fedwire Securities Service does not have assets that are independent of the assets of the Reserve Banks that operate the Service.

Under Operating Circular 7, the Service allows participants to have multiple securities accounts so that participants can, to the extent desirable or required by law, segregate their customer holdings. Securities accounts are classified as either unrestricted or restricted. A participant may hold securities in unrestricted securities accounts either for itself or on behalf of its clients. Participants typically use separate unrestricted securities accounts to segregate the securities they hold for their own account from those they hold for their clients. For securities held in unrestricted securities accounts, the Reserve Banks do not reflect in their records the interest of any persons other than the Fedwire Securities Service participants holding those accounts. Participants may use restricted securities accounts to pledge collateral to secure participant obligations related to Treasury programs, Reserve Bank discount window loans and payment system risk requirements, and state and local government deposits.

For more detail on the laws and regulations applicable to this tiered holding structure and the protection of customer assets held at securities intermediaries, such as the Reserve Banks, see Principle 1, *Legal basis*.

11.6 A CSD should identify, measure, monitor, and manage its risks from other activities that it may perform; additional tools may be necessary in order to address these risks.

The Fedwire Securities Service performs core services and functions related to securities account maintenance, issuance of securities and payment of principal and interest, and transfer and settlement of securities. Securities stripping and reconstitution also falls within those core services and functions. For more on the core services and functions performed by the Fedwire Securities Service, see *General Description* in section III.

¹⁷⁰ For example, FRBNY holds Fedwire securities in a Fedwire Securities Service account on behalf of all 12 Reserve Banks in connection with Reserve Bank open-market operations.

The Fedwire Securities Service also includes the ACAP service.¹⁷¹ In providing ACAP services, the Reserve Banks, as operator of the Fedwire Securities Service, are protected by contractual limitations of liability and indemnity provisions in Operating Circular 7. Specifically, Reserve Banks are liable only for actual, direct losses sustained by participants (or their correspondents) proximately caused by the Reserve Banks' failure to exercise ordinary care or to act in good faith. Furthermore, participants that use ACAP services provide a broad indemnity to the Reserve Banks for all claims that might be brought against them and any losses they may incur. There are only two exclusions to the indemnity: (1) claims that arise solely from a Reserve Bank's failure to act in good faith or to exercise ordinary care and (2) direct losses to a Reserve Bank resulting from an overdrawn master account due to an ACAP-caused debit.

¹⁷¹ For a description of the ACAP service, see *Core Services and Functions* in section III.

Principle 12: Exchange-of-value settlement systems

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

12.1 An FMI that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the FMI settles on a gross or net basis and when finality occurs.

The Fedwire Securities Service eliminates principal risk by following DVP model 1.¹⁷² DVP model 1 includes systems that settle transfer instructions for both securities and funds on an obligation-by-obligation (gross) basis, with final (irrevocable and unconditional) transfer of securities from the seller to the buyer (delivery) occurring at the same time as final transfer of funds from the buyer to the seller (payment). All transfers of securities and associated payments made over the Fedwire Securities Service occur simultaneously. A securities transfer message identifies the sending and receiving participants (i.e., the sender, or seller, and the receiver, or buyer, of the security), the security in question, the par amount of the security to be transferred, and the amount to be paid for the security. The Fedwire Securities Service application checks the transfer message for technical acceptability and verifies that the sender has at least the par amount of the security to be transferred in the securities account indicated in the message. Once the message passes these checks, the par amount of security specified in the message is debited from the sender's securities account and credited to the receiver's securities account, and, simultaneously, the corresponding funds are debited from the receiver's master account and credited to the sender's master account. As a legal matter, a transfer of securities and the associated payment for those securities are final at the time the debits and credits are posted both to the sender's and the receiver's securities accounts and their corresponding master accounts.¹⁷³ Once the transfer is complete, the Fedwire Securities Service sends a notice confirming its completion to both the sender and the receiver.

¹⁷² See also *Delivery Versus Payment in Securities Settlement Systems*, *supra* note 10.

¹⁷³ For more detail on the finality of Fedwire securities transfers and the associated payments for those transfers, see Principle 8: *Settlement* finality.

Principle 13: Participant-default rules and procedures

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

13.1 An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.

As a central bank–operated RTGS system, neither the Fedwire Securities Service itself nor its nondefaulting participants are affected by participant defaults. Instead, the Board of Governors requires the Reserve Banks to follow the PSR policy both in managing the credit risk their customers (including Fedwire Securities Service participants) pose to them and in providing liquidity to those customers. As more fully described in Principle 4, *Credit risk*, the Reserve Banks perform those functions outside their role as operator of the Fedwire Securities Service.

The rules and procedures of the Fedwire Securities Service enable the Reserve Banks to continue to settle securities transfers sent through the Service in a timely manner even if one or more participants default. This is true even in extreme market scenarios. Defaults by receiving participants will not affect sending participants because all debits and credits of securities and funds in connection with a DVP securities transfer are final at the time a Reserve Bank posts the debits and credits of securities to the participants' securities accounts and the debits and credits of funds to the participants' master accounts.¹⁷⁴ Therefore, nondefaulting participants in the Service are not exposed to losses caused by a defaulting participant's failure to meet an obligation to its Reserve Bank. Moreover, there is a clear framework for most Service participants to access intraday credit provided by the Reserve Banks under part II of the PSR Policy, which converts the liquidity risk that might otherwise be borne by participants into credit risk borne by the Reserve Banks. Reserve Banks, as the operational arm of the central bank of the United States, can absorb this risk because they are not subject to liquidity constraints and therefore can meet their obligations to all sending participants even if one or more receiving participants default. For more details, see Principle 7, *Liquidity risk*.

To the extent an account holder incurs an overdraft in its master account due to a securities transfer, a Reserve Bank, as the securities intermediary for that account holder, has an automatically perfected security interest in the transferred Fedwire security for the amount of the overdraft.¹⁷⁵ In addition, under Operating Circular 1, each master account holder grants its Reserve Bank a security interest in all of its property in the possession or control of, or maintained with, any Reserve Bank to secure overdrafts in its master account or any other obligation owed to a Reserve Bank. In the case of a participant default, the Reserve Banks retain the right to liquidate collateral or to take any other action authorized by law to satisfy outstanding obligations.

Through application of the rules governing the Service and the PSR policy, the Reserve Banks are able to contain and manage risks associated with participant defaults without transmitting

¹⁷⁴ For more detail on the finality of Fedwire securities transfers, see Principle 8: *Settlement finality*.

¹⁷⁵ See UCC §§ 9-206, 8-106.

those risks through the Fedwire Securities Service to the Service's direct participants or the financial system more generally.

13.2 An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.

This consideration is not applicable because, as described in section 13.1, the Fedwire Securities Service does not have, and does not need, specialized default rules and procedures.

13.3 An FMI should publicly disclose key aspects of its default rules and procedures.

This consideration is not applicable because, as described in section 13.1, the Fedwire Securities Service does not have, and does not need, specialized default rules and procedures. All key rules and procedures pertaining to the Fedwire Securities Service are publicly disclosed on the Reserve Banks' financial services website, FRBservices.org. For more detail on the disclosure of rules and procedures governing the Service, see principle 23, *Disclosure of rules, key procedures, and market data*.

13.4 An FMI should involve its participants and other stakeholders in the testing and review of the FMI's default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective.

This consideration is not applicable because, as described in section 13.1, the Fedwire Securities Service does not have, and does not need, specialized default rules and procedures.

Principle 14: Segregation and portability

A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions

This principle is not applicable to the Fedwire Securities Service.

Principle 15: General business risk

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialize. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

15.1 An FMI should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.

The WPO manages the risks and potential losses associated with the general business risk of operating the Fedwire Securities Service by carefully controlling costs and projecting revenues to help ensure that in setting fees for the Service, operating costs do not exceed revenues over the long run. Actual costs are monitored on an ongoing basis, and projected costs are closely scrutinized as part of the annual budgeting process. The Fedwire Securities Service recovers its costs by seeking full reimbursement for all expenses incurred in providing fiscal agency services, by charging fees for certain securities transfer, settlement, and maintenance services (i.e., priced services), and by allocating some costs to Reserve Bank customers that use the Service in connection with their business operations. If the WPO's efforts to control operating costs fall short, it would consider raising prices or taking other measures to enhance revenue. Given the cost-recovery time horizon, described in greater detail below, these actions can be done in a measured way.

As required by the Monetary Control Act, the Fedwire Securities Service is among the Reserve Bank financial services required to be priced to fully recover, over the long run, all direct and indirect costs and imputed costs, including financing costs, taxes, and certain other expenses that would have been paid and the return on equity (i.e., profit) that would have been earned if a private business firm provided the services.¹⁷⁶ The costs associated with the Service include the risk-based contingency budgets for its major capital projects to minimize the impact of potential losses that may stem from such projects. The Service is priced to cost recover over the long run, which serves as a mitigant to potential losses stemming from poor execution of business strategy, negative cash flows, or unexpected or excessively large operating expenses by allowing the Reserve Banks to adjust pricing as required (subject to approval by the Board of Governors). Cost-recovery performance, including the underlying revenue and cost statistics, are monitored on a monthly basis against budgeted performance. On an annual basis, the WPO conducts a repricing exercise to determine whether changes in prices for the following year are necessary to ensure long-term cost recovery.

The robust repricing exercise conducted by the WPO includes the development of volume and revenue projections that incorporate in-depth analysis of potential drivers of the Service's revenue-generating products, such as economic conditions and exogenous market and policy developments. Using projected revenues and costs, the Reserve Banks conduct analysis on

¹⁷⁶ See Principles for Pricing of Federal Reserve Bank Services, *supra* note 123, at 9–1568 (principle 3). As discussed in the last paragraph of this section, not every aspect of the Fedwire Securities Service is subject to the Monetary Control Act.

potential cost-recovery scenarios to determine the appropriate fees for the following year.¹⁷⁷ In addition, annual repricing is reviewed and approved by the Board of Governors, which publishes a description of the new pricing and the factors influencing the fee calculation in the Federal Register and on its public website.¹⁷⁸

The Fedwire Securities Service also seeks full reimbursement for all of the Reserve Banks' aggregate direct, support, and overhead costs associated with fiscal agency services that are not required to be priced under the Monetary Control Act (e.g., securities issuance and payment of principal and interest). Actual costs are assessed to issuers of Fedwire securities quarterly and prorated based on each issuer's proportionate activity over the Fedwire Securities Service as compared to all other issuers.¹⁷⁹

15.2 An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.

The *Application of the Principles for Financial Market Infrastructures to Central Bank FMIs* notes that, given a central bank's inherent financial soundness, the requirement under Principle 15, *General business risk*, to hold liquid net assets funded by equity to cover business risk and support a recovery or wind-down plan does not apply to central bank-operated FMIs like the Fedwire Securities Service.¹⁸⁰

15.3 An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

As noted in *Application of the Principles for Financial Market Infrastructures to Central Bank FMIs*, although a central bank should plan for an orderly and transparent termination of a central bank-operated FMI service, a central bank's ability to ensure continuity of operations as

¹⁷⁷ See, e.g., Board of Governors of the Federal Reserve System, Federal Reserve Bank Services, 81 Fed. Reg. 75058 (Oct. 28, 2016).

¹⁷⁸ See, e.g., *id.*

¹⁷⁹ Treasury reimburses the Reserve Banks for costs associated with online transfers of Treasury securities by Fedwire Securities Service participants. Treasury then recoups its costs by establishing a fee for these transfers, which the Reserve Banks, as Treasury's fiscal agents, collect from Fedwire Securities Service participants.

¹⁸⁰ Application of the Principles for Financial Market Infrastructures to Central Bank FMIs, *supra* note 6, at 1.

necessary in extreme financial circumstances means that the requirements to prepare recovery and orderly wind-down plans do not apply.¹⁸¹ Consistent with this notion and the fact that the Reserve Banks do not face the risk that a business shock would cause the Fedwire Securities Service to wind down in a disorderly manner, the Board of Governors does not require the Service to develop recovery or orderly wind-down plans or to hold liquid net assets funded by equity to implement such plans. The Board of Governors does, however, expect the Reserve Banks to follow policies consistent with financial stability and established principles of entering and exiting Reserve Bank priced services.¹⁸²

As stated in section 15.2, the *Application of the Principles for Financial Market Infrastructures to Central Bank FMIs* also noted that central bank–operated FMIs like the Fedwire Securities Service do not need to hold liquid net assets funded by equity to support a recovery or wind-down plan.¹⁸³

15.4 Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the FMI to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.

As stated in section 15.2, the requirement to hold liquid net assets funded by equity to cover business risk does not apply to central bank–operated FMIs like the Fedwire Securities Service.

15.5 An FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.

The *Application of the Principles for Financial Market Infrastructures to Central Bank FMIs* also notes that the requirement under Principle 15, *General business risk*, to maintain a plan to raise additional equity does not apply to central bank–operated FMIs like the Fedwire Securities Service given a central bank’s inherent financial soundness.¹⁸⁴ Accordingly, FRBNY’s board of directors does not need to approve a plan to raise additional equity.

¹⁸¹ *Id.*

¹⁸² Policy on Payment System Risk, 79 Fed. Reg. at 67329. If a Reserve Bank intended to withdraw from a priced service like the Fedwire Securities Service, among other factors, the Board of Governors would consider whether the public benefit of continuing to provide the service would outweigh the benefits of withdrawing from the service. Board of Governors of the Federal Reserve System, Factors for Evaluating Reserve Bank Requests to Withdraw from a Priced Service Line, *Federal Reserve Regulatory Service* 9–1575 (1992).

¹⁸³ Application of the Principles for Financial Market Infrastructures to Central Bank FMIs, *supra* note 6, at 1.

¹⁸⁴ *Id.*

Principle 16: Custody and investment risks

An FMI should safeguard its own and its participants' assets and minimize the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

16.1 An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.

The Fedwire Securities Service does not have assets that are independent of the assets of the Reserve Banks that operate the Service.

Moreover, the Fedwire Securities Service itself does not hold assets of its participants. Rather, participants' security entitlements, which represent securities that have been credited by the Reserve Banks to securities accounts maintained for each participant within the Fedwire Securities Service, are recorded directly on the books of one or more Reserve Banks. Balances held in master accounts at the Reserve Banks are not generally invested.¹⁸⁵

The Reserve Banks' accounting practices and internal controls are robust. The Reserve Banks follow specialized accounting standards and practices developed by the Board of Governors that are based on generally accepted accounting principles but tailored to the unique nature of the Reserve Banks as the operational arm of the central bank of the United States.¹⁸⁶ To help ensure that the Reserve Banks maintain an effective internal control environment over financial reporting and operate efficiently and effectively, the Reserve Banks apply the 2013 integrated internal control framework of the Committee of Sponsoring Organizations of the Treadway Commission, voluntarily comply with the Sarbanes-Oxley Act of 2002, and implement and monitor a variety of other controls.

Reserve Bank accounting practices and internal controls are subject to internal and external audits and oversight by the Board of Governors and the GAO.

For a discussion of the specific controls applicable to securities held through the Fedwire Securities Service, see Principle 11, *Central securities depositories*, and for more detail on the laws and regulations applicable to the protection of customer assets, see Principle 1, *Legal basis*.

¹⁸⁵ The exception is that FRBNY does invest balances it holds for certain foreign central banks and international organizations. These investments may take the form of overnight repurchase agreements or purchases of Treasury and other Fedwire securities that are held directly on FRBNY's books.

¹⁸⁶ The Reserve Banks' accounting practices deviate from generally accepted accounting principles in three material ways: (i) the Reserve Banks do not present a statement of cash flows, (ii) the Reserve Banks do not hold securities held for monetary policy purposes at fair value, and (iii) the Reserve Bank do not account for transactions executed for monetary policy purposes on trade date (they are accounted for on settlement date). For more detail, see the Reserve Banks' Financial Accounting Manual, which is available at <http://www.federalreserve.gov/monetarypolicy/files/BSTfinaccountingmanual.pdf>.

16.2 An FMI should have prompt access to its assets and the assets provided by participants, when required.

Because transfers through the Fedwire Securities Service are effected by debiting and crediting participants' securities accounts and master accounts held directly on the books of the Reserve Banks, and each participant grants the Reserve Banks a security interest in the participant's assets held at the Reserve Banks, the Reserve Banks have prompt access to assets of their participants to meet obligations the participants owe to the Reserve Banks.¹⁸⁷ While these assets are available to settle activity through the Service and protect the Reserve Banks from losses they might incur in connection with providing the Service (among other losses), the availability of these assets or others to buffer Reserve Bank losses does not affect the Reserve Banks' ability to operate the Service because the Reserve Banks are not subject to capital or liquidity constraints.

16.3 An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.

The Fedwire Securities Service does not use custodian banks. Refer to Principle 5, *Collateral*, for a discussion of Reserve Bank practices relating to collateral.

16.4 An FMI's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.

The Fedwire Securities Service does not have assets that are independent of the assets of the Reserve Banks that operate the Service, and the Reserve Banks do not invest their own assets or assets of their participants in connection with the Service.

¹⁸⁷ Participants are generally free to withdraw assets held at a Reserve Bank, but the Reserve Banks will not release assets held in restricted accounts on their books if the assets secure an extension of credit by a Reserve Bank or are used to meet a clearing balance requirement imposed by a Reserve Bank. Under certain conditions, the Reserve Banks will allow participants to hold assets outside the Reserve Banks to secure potential extensions of credit by a Reserve Bank, which also will be restricted from release if an extension of credit against those assets is outstanding. These collateral arrangements allow the Reserve Banks to obtain a security interest in assets held at a supervised central securities depository or a custodian approved by the participant's ARB. For more detail on the Reserve Banks' collateral programs, see Principle 5, *Collateral*, and the Federal Reserve Collateral Guidelines, *supra* note 151.

Principle 17: Operational risk

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfillment of the FMI's obligations, including in the event of a wide-scale or major disruption.

17.1 An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.**Operational Risk Framework, Identification, and Management**

The WPO is responsible for operational risk management of the Fedwire Securities Service and leverages FRBNY's risk-management framework, risk-tolerance statement, and associated policies to manage and report on operational risks. This is done using various processes, tools, and reports, including self-assessments, management testing, business risk and control mapping, risk-event reporting, internal audit evaluations, and residual risk analysis. The WPO evaluates operational risk to the Service across a range of factors and scenarios that would affect the provision of services. As described in section 3.1, FRBNY employs a three-lines-of-defense risk-management model that emphasizes interaction and communication between the first line (business line) and second line (central risk management), with independent oversight by the third line (internal audit).

As part of the first line of defense, the WPO is responsible for managing and reporting on the risks associated with advancing the policy objectives of the Fedwire Securities Service. The WPO carries out these responsibilities by, among other things, collecting, classifying, and analyzing operational risk events, leveraging internal and external gap assessments, and evaluating results of security testing to inform the risk profile and develop a forward-looking view of operational risks to the Service. FRBNY, as the Reserve Bank responsible for the wholesale services, including the Fedwire Securities Service, has agreements with a number of Reserve Banks that provide services necessary to operate the Service. To help ensure that the WPO is able to apply FRBNY's risk-management framework to the wholesale services, the WPO developed standard operating procedures under these agreements that are intended to align the risk-management practices of the wholesale operations sites at these other Reserve Banks with FRBNY's own risk-management framework.

The WPO risk team monitors and reports operational risk through risk-event analysis and reporting, residual risk ratings of key business processes supporting the Fedwire Securities Service, responses to control findings from FRBNY's internal audit function, and reporting on the Service's operational risk profile to FRBNY's central risk-management function. The WPO also manages program risks from large IT project initiatives involving the suite of applications that support the Service according to a project operating model that complies with the Reserve Banks' technology project standards. The WPO assesses such risks, which are documented and tracked in risk registers, based on a mix of quantitative and qualitative factors. The WPO risk team reports on key risks and mitigation strategies to WPO management, FRBNY's central risk-management function, the audit and risk committee of FRBNY's board of directors, and the FSPC on a regular schedule.

Policies, Processes, and Controls

There are a range of policies, processes, and controls that support the operational risk framework governing the Fedwire Securities Service, including standard operating procedures, HR policies, an information security assurance policy, and a project operating model for managing technology projects. These policies help ensure operational procedures are implemented appropriately and mitigate operational risk to the Service resulting from changes to operations, policies, procedures, or controls.

The WPO applies FRBNY's risk-event reporting policy, which dictates the disclosure, notification, escalation, and reporting requirements for all risk events, to the wholesale services. The WPO's standard operating procedures incorporate the requirements of this policy to ensure alignment with FRBNY's risk-management framework.

In terms of HR policies, the WPO, the wholesale operations sites, and other Reserve Bank service providers, like National IT and the CRSO, work with human resources within their Reserve Banks to hire, train, and retain qualified personnel. The key job responsibilities and associated skills are defined and used to recruit talent with appropriate technical and operational backgrounds. All employees, contingent workers, and vendor personnel that perform certain wholesale services-related functions or that have access to wholesale services applications, including supporting technology infrastructure, must pass a rigorous security background screening process and are subject to periodic rescreening.

Staff members performing functions relating to or supporting the wholesale services are trained to perform their duties based on established standard operating procedures and practices in accordance with operation agreements and service-level agreements entered into by the various Reserve Banks.

All Reserve Bank employees are subject to a code of conduct and are subject to the same criminal conflict-of-interest statute that applies to federal government employees. Under those codes of conduct and the conflict-of-interest statute, a Reserve Bank employee is prohibited from participating personally and substantially in an official capacity in any particular matter in which, to the employee's knowledge, the employee (or certain related parties) has a financial interest if the particular matter will have a direct and predictable effect on that interest. Participation in a particular matter may include making a decision or recommendation, providing advice, or taking part in an investigation.

Reserve Bank employees are also not permitted to own or control investments in depository institutions or affiliates of depository institutions. Employees are also prohibited from investing in certain thrift holding companies and investment funds that have a stated policy of concentrating their investments in the financial services sector. In order to avoid the appearance of conflicts of interest, Reserve Bank employees are generally not permitted to accept anything of value from a supervised institution or anyone that does business or seeks to do business with the Reserve Banks. This prohibition applies to gifts, meals, favors, and entertainment.

As described in detail in section 17.5, the Reserve Banks' approved information security program, SAFR, defines the rules, as well as the risk-management process, that help the Reserve Banks manage information security risk, including that posed to the Fedwire Securities Service. The WPO monitors and manages information security risks to the Service in accordance with SAFR.

The WPO also adheres to a project operating model to holistically manage Fedwire Securities Service projects and ensure project management discipline around governance, communication, scope, schedule, financial, risk, quality assurance, procurement, and vendor management. The model includes a framework to help ensure effective collaboration within the wholesale services. In addition, various Federal Reserve resources contribute to the strategic alignment, value delivery, risk management, resource management, and performance of the Fedwire Securities Service. These resources include project managers working in the WPO project management office and for Reserve Bank service providers, a standing change control board composed of WPO senior management and representatives from Reserve Bank service providers that support Fedwire Securities Service IT projects, project-specific executive advisory groups composed of executive-level Reserve Bank and Board of Governors staff responsible for advising the WPO on certain matters related to strategy, execution, and governance navigation with respect to strategically important projects, and the FSPC.

The Fedwire Securities Service project operating model is aligned with the Reserve Banks' technology project standards and provides a documented framework for identifying and controlling risks for projects within the Service. The project operating model also includes a risk-management plan and quality-assurance framework. The risk-management plan specifically provides a method to manage risks to increase the likelihood of executing a project successfully. The quality-assurance framework describes requirements for a Fedwire Securities Service product or service to be fulfilled appropriately and includes management of the quality of requirements, designs, and testing components, services related to production, and management, production, and inspection processes.

17.2 An FMI's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the FMI's operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.

As detailed in Principle 2, *Governance*, by written agreement among the Reserve Banks, FRBNY is responsible for the day-to-day management of the wholesale services, including the Fedwire Securities Service. FRBNY established the WPO as the area within FRBNY primarily responsible for the daily operational management of the Service. The Federal Reserve System's complex structure calls for an intricate risk governance structure. The audit and risk committee of FRBNY's board of directors is responsible for assessing the adequacy and effectiveness of FRBNY's financial reporting controls, independent audit function, and risk management practices, including those relating to the Service. The committee receives reporting and briefings directly from FRBNY's chief risk officer, general auditor, and the WPO's product director. It is through the committee that FRBNY's board of directors has chosen to monitor and assess FRBNY's risk-management practices.¹⁸⁸ The committee reviews and approves FRBNY's risk-management framework every year. It also approves FRBNY's risk-tolerance statement. The audit and risk committee is also responsible for providing oversight, guidance, and feedback regarding the WPO. As part of that responsibility, the committee reviews and approves the WPO's risk-tolerance statement at least once a year.

¹⁸⁸ For more detail on how the audit and risk committee assists FRBNY's board of directors, see sections 2.6 and 3.1.

The risk subcommittee of FRBNY's management committee is responsible for supporting business areas, including the WPO, in the identification and assessment of key risks and for providing guidance to manage those risks in line with FRBNY's risk tolerance.

The FSPC provides overall direction of financial services and related support functions for the Reserve Banks and provides leadership for the evolving U.S. payments system. The Financial Services Council is a council of one of the FSPC's standing committees and serves as a support group to the FSPC. The council considers risk-management issues of common concern across Reserve Bank financial services, including the Fedwire Securities Service, provides a forum for discussion, and recommends action to the FSPC when appropriate.

Audit, Review, and Testing

FRBNY's internal audit function is responsible for providing an independent assessment of Fedwire Securities Service policies, procedures, and controls. The internal auditors perform an annual audit of the wholesale services and render an opinion of the internal control structure over wholesale activities executed across the Reserve Banks. The scope of the engagement is established through a risk-based planning process that identifies inherent risks and related controls for key activities related to the Service's operations, management, technology, and infrastructure. The internal auditors test and evaluate the design and effectiveness of the wholesale services' control environment to render an opinion. FRBNY's internal audit function actively participates on strategic Fedwire Securities Service technology change initiatives and periodically renders an opinion on project execution and the control environment. In addition, the GAO conducts an annual audit of certain Fedwire Securities Service applications associated with Treasury-related activities to validate and assess the Reserve Bank internal controls relating to the Service.

17.3 An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.

The WPO has established performance objectives and service-level targets to benchmark operational availability, throughput, and end-to-end response times for the Fedwire Securities Service.¹⁸⁹ In 2016, the Fedwire Securities Service was available 99.99 percent of operating hours for all customers, which exceeded the availability target of 99.985 percent of operating hours. The Reserve Banks have documented and communicated their operational objectives for the Service to internal stakeholders, including Reserve Bank service providers, through operating policies, business continuity management practices, and operations and service-level agreements.

The WPO has established monitoring controls and reviews performance metrics to evaluate the performance and reliability of the applications that support the Fedwire Securities Service. National IT provides periodic service-level agreement metric reporting, and the wholesale operations sites provide additional performance metrics (i.e., processing timeliness and accuracy) on a monthly basis. The WPO compiles this information and provides the combined

¹⁸⁹ The Service is considered unavailable when participants cannot send or receive Fedwire Securities Service messages because of the failure of Service-related applications, environmental software, or the Reserve Banks' telecommunications network infrastructure.

monthly availability statistics and service quality metrics as part of its regular reporting to the FSPC.

17.4 An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

The Fedwire Securities Service's available capacity is designed to adapt to changes in business requirements, environmental changes, and other external influences such as natural disasters. National IT, which is responsible for much of the technological infrastructure on which the Service depends, has a dedicated resource planning department to coordinate capacity planning and performance monitoring activities across the Reserve Banks' technological infrastructure. The department is responsible for strategic and tactical planning in IT, as well as ongoing capacity management of networks, computing systems, storage systems, access channels, and data center facilities for the Reserve Banks. The resource planning department designed National IT's capacity-planning methodology framework to help ensure the Reserve Banks' mainframe, server, network, and storage capacity is tightly coupled to system and infrastructure resource utilization. The distributed server, data center, network, access channel, and storage assets needed to support the Fedwire Securities Service are included in the department's planning initiatives. Furthermore, the department forecasts and evaluates application usage metrics used to assess the current capacity and projected usage of the Service's infrastructure and technology. The WPO has weekly review meetings with National IT. Among other things, availability metrics, risk events, and capacity-related information are reviewed periodically at these meetings.

17.5 An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.

The Reserve Banks' comprehensive principles, policies, and standards relating to information security constitute the SAFR program. The program is risk based and includes principles pertaining to both physical and information security. It is informed by industry best practices, federal standards (including those developed by the National Institute of Standards and Technology), and relevant supervisory guidance, such as that issued by the Federal Financial Institutions Examination Council. The WPO utilizes the physical security, information security, and risk-management principles embedded in the SAFR program to manage security assurance for the Fedwire Securities Service.

Physical Security

SAFR's physical and environmental protection policy addresses physical security and associated risks posed to the Reserve Banks. The policy describes the procedures and controls to mitigate risks from physical access, visitors, water damage, fire, emergency shutoff, and power equipment and cable failure, among others. The WPO, the wholesale operations sites, and other Reserve Bank service providers use this policy to assess and mitigate physical security risks for the Service.

Information Security

The SAFR program includes information security principles, policies, standards, checklists, and other supporting security artifacts that help ensure the Reserve Banks have sound information security practices. The program establishes security requirements across 18 control groups to help the Reserve Banks protect the confidentiality, integrity, and availability of their information systems and the information those systems process, store, and transmit. The information security principles cover information security, access, classification and handling, personnel, and physical access. In addition, SAFR includes information security standards that provide controls for identifying, assessing, and managing security threats and vulnerabilities. These standards and controls help mitigate risks to the Fedwire Securities Service relating to data loss and leakage, data classification, security patching, personnel screening, privileged account monitoring, intrusion detection, end-user device protection, network access, server security, device configuration, and application vulnerability.

As described in Principle 2, *Governance*, the Federal Reserve Bank of Richmond operates National IT to provide a variety of services relating to information technology for the Reserve Banks, including information security. As a part of National IT, the National Information Security Assurance function in Richmond administers and manages the SAFR program for the Reserve Banks.

In addition, National IT has established risk-management lifecycle documents that outline periodic risk assessment activities that can be undertaken at various points in the SAFR process. The purpose of the lifecycle documents is to establish approved methodologies and approaches for managing risk to Reserve Bank information and information systems. A central incident response team is responsible for coordinating the processes and controls related to security monitoring and incident responses. The team achieves this through proactive intelligence gathering, threat analysis, forensic investigations, security alerting, and incident response services.

Overall, FRBNY has the responsibility for ensuring that it and the other Reserve Banks that support the operations of the Fedwire Securities Service comply with applicable information security policies. To ensure FRBNY fulfills this responsibility, the WPO coordinates SAFR activities for the wholesale services, which helps ensure consistent risk-management practices across Reserve Banks with FRBNY's risk-management framework.

Operating Circular 5, *Electronic Access*, includes a high-level description of certain aspects of the Reserve Banks' information security program as it applies to Fedwire Securities Service participants and their service providers that use the Reserve Banks' electronic access channels.¹⁹⁰

17.6 An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical IT systems can resume operations within two hours following disruptive events. The plan should

¹⁹⁰ Operating Circular 5, *supra* note 8, app. A.

be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements.

Objectives and Design of Business Continuity Plan

The WPO has a comprehensive business continuity plan to assess wholesale services–related application resiliency and contingency and to ensure a high degree of operational reliability for the Fedwire Securities Service suite of applications. The plan is based on the Federal Reserve System Business Continuity Framework, a series of business continuity principles developed by all 12 Reserve Banks to establish a common foundation for business continuity management across the Reserve Banks. The framework helps ensure that the WPO, in developing and maintaining the business continuity plan for the Fedwire Securities Service, takes a methodical approach to identifying, assessing, and controlling business continuity risks. The business continuity plan defines the roles and responsibilities, criticality assessment, and testing strategy for the Fedwire Securities Service. Roles and responsibilities for continuity planning and testing are shared among the WPO, the wholesale operations sites, and other Reserve Bank service providers. The business continuity plan for the Service was developed to address a variety of scenarios, such as loss of critical staff, loss of facilities, and loss of IT resources. The WPO reviews the plan at least annually and updates it as needed based on changes to business processes or system upgrades.

The WPO's business continuity plan was developed in accordance with the key elements of the *Interagency Paper on Sound Practices to Strengthen the Resilience of the U.S. Financial System*.¹⁹¹ Specifically, the WPO's business continuity objectives include the following: (1) the rapid recovery and timely resumption of critical operations in advance of or following a wide-scale disruption; (2) the rapid recovery and timely resumption of critical operations in advance of or following the loss or inaccessibility of staff in at least one major operating location; and (3) a high level of confidence, through ongoing use or robust testing, that critical internal and external continuity arrangements are effective and compatible. Through this robust business continuity management, the WPO meets or exceeds the key objectives of the interagency paper.

To help meet these objectives, the WPO's business continuity plan is augmented by an incident management handbook that reflects in greater detail the agreed-upon roles and responsibilities of various Reserve Bank and Board of Governors stakeholders when the Reserve Banks are faced with a severe information security incident or other disruptive event affecting the Fedwire Securities Service. The handbook incorporates incident and problem management processes established by the Reserve Banks (1) to manage the rapid deployment of skilled personnel and resources to restore normal operations as quickly as possible and (2) to facilitate the review of critical incidents, determine root causes, and assist in the prevention of recurring problems. These roles are shared among the WPO and other Reserve Bank service providers, including National IT and the CRSO. The responsibilities include invoking incident response plans, restoring infrastructure, reestablishing electronic access for customers, validating application

¹⁹¹ See Board of Governors of the Federal Reserve System, Office of the Comptroller of the Currency, & Securities and Exchange Commission, *Interagency Paper on Sound Practices to Strengthen the Resilience of the U.S. Financial System* (Apr. 7, 2003), available at <http://www.federalreserve.gov/boarddocs/srletters/2003/sr0309.htm>.

functionality, reconciling data and performing recovery analysis, and coordinating internal and external communications. Importantly, the Reserve Banks have a national incident response team that is charged with understanding and remediating the technical aspects of information security incidents that affect the Service and with coordinating and prioritizing communications with internal and external stakeholders, including the Financial Services Information Sharing and Analysis Center, so that they are aware of certain incidents and may respond by mitigating potential risks. The Reserve Banks also have decision-making protocols concerning the ongoing operation (or resumption) of the Service that may be triggered depending on the event and its severity. The severity of the disruption will dictate the applicability of various aspects of the protocols and the actions taken.

Redundant Data Centers

The Reserve Banks operate the applications that are necessary for the operation of the Fedwire Securities Service from several different data centers, which are located with sufficient geographical dispersion to mitigate the effects of most natural disasters, power and telecommunication outages, and other widespread regional disruptions. Wholesale service operations regularly rotate between two primary data centers. The data centers have the necessary staffing, equipment, and security to resume operations and include various contingency features, such as redundant power feeds, environmental and emergency control systems, dual computer and network operations centers, and dual customer service centers. The primary data centers include full same-site processing redundancy to address local failures. The primary data centers also support full cross-site processing redundancy, so either data center can quickly take over production processing if the data center that had been processing production work is, or is expected to be, disrupted.

In the event of a primary data center outage or in advance of an impending event, the affected applications will be recovered to the other primary data center within an established time objective, with a somewhat longer recovery time for the various ancillary applications supporting the Fedwire Securities Service. If, in the course of restoring production-processing capability, the Reserve Banks detect data loss, they have reconciliation processes in place to identify and inform customers of transactions that may need to be resubmitted. These recovery objectives are documented requirements in agreements with Reserve Bank service providers.

The wholesale operations sites that support the Fedwire Securities Service are located in different geographic regions of the country to help ensure they can continue to support the Service even in the midst of a widespread disruption. Furthermore, the Reserve Banks split personnel with key recovery and crisis management responsibilities between these locations to help ensure critical operations can be conducted if a disruptive event affects a particular region. Fully trained personnel capable of opening and closing the applications that support the Fedwire Securities Service are located in each of the three separate locations around the country. These personnel routinely provide production support to help ensure their skills remain current.

Review and Testing

The WPO reviews and tests its business continuity capabilities regularly. The WPO and its Reserve Bank service providers conduct several alternate-site recovery tests per year for the Fedwire Securities Service. In addition, once a year, the Reserve Banks conduct a third-site test in which core Service applications are failed over to the Service's backup data center.

The WPO requires certain large, high-volume Fedwire Securities Service participants to participate in at least two of these business resumption tests per year; at least one of these tests must be conducted from the participants' backup processing sites. During the contingency tests, participants test their ability to reconcile and resume processing of their transactions following a Fedwire Securities Service application recovery event. The WPO also coordinates the schedule of these business resumption tests so they may occur when other FMIs are conducting similar contingency tests.

Furthermore, the WPO regularly tests its full cross-site processing redundancy, including by rotating wholesale service operations between the primary data centers for production processing multiple times a year. The WPO also coordinates and participates in tabletop exercises to test resiliency procedures. Such tests help the WPO identify risks the Fedwire Securities Service faces and poses to others under these scenarios, and the WPO uses that knowledge to help it improve Service resiliency.

Last, the Reserve Banks have taken a number of steps to minimize the likelihood that an event at one of their locations will affect the operation of the Fedwire Securities Service. For example, Reserve Banks routinely test their own physical security, evacuation and emergency notification plans, smoke-detection systems and fire extinguishers, and uninterruptible power supplies. They also have in place procedures to mitigate the impact of a reduction in staff across multiple locations in a pandemic situation. Specifically, they have cross-trained staff so that they can continue to operate critical activities effectively in reduced-staff scenarios.

Other Measures

The WPO is also developing procedures to position the Reserve Banks to process at least some Fedwire Securities Service transactions in the event of a protracted disruption of the Service. The procedures are designed to minimize impact to Fedwire Securities Service customers, as well as the broader securities markets.

17.7 An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.

Risks to the FMI's Own Operations

As discussed in Principle 3, *Framework for the comprehensive management of risks*, the WPO identifies and evaluates the material risks that the Fedwire Securities Service bears from other entities, including its key participants, other FMIs, and service and utility providers and acts to manage those risks. Among those risks, the Fedwire Securities Service faces operational risk from its multiple Reserve Bank and third-party service providers, including utilities such as electricity and telecommunications network suppliers. As a result, the WPO closely monitors and actively manages these service providers.

As discussed in Principle 2, *Governance*, two such critical service providers are the CRSO, which operates the nationwide electronic network on which the Fedwire Securities Service relies for sending and receiving messages, and National IT, which operates the critical computing environment in which the Fedwire Securities Service operates. Under agreements between all 12 Reserve Banks, the Chicago and Richmond Reserve Banks manage operational risks associated with the services they provide through the CRSO and National IT, respectively,

including identifying security, resiliency, and contingency risks related to those services, as well as proposing and implementing appropriate mitigation of those risks in cooperation with the other Reserve Banks. Like all Reserve Banks, the Chicago and Richmond Reserve Banks are each subject to SAFR,¹⁹² and FRBNY requires both Reserve Banks to disclose vulnerabilities identified through the SAFR program that might affect the Fedwire Securities Service, as well as plans to remediate those vulnerabilities. Because FRBNY remains responsible for the overall security and resiliency of the Fedwire Securities Service, FRBNY continually and actively engages with these critical Reserve Bank service providers, both bilaterally and through activities of various Reserve Bank committees, concerning operational risk discussions and resiliency and contingency planning.

Beyond these Reserve Bank service providers, the Fedwire Securities Service is also reliant on certain critical external service providers, such as telecommunications companies, to ensure reliable connectivity to the Service for participants. To address risks from this dependency, the CRSO has taken steps to diversify the telecommunications network used by the Fedwire Securities Service. The CRSO and WPO coordinate to routinely test connections to that network.

The Fedwire Securities Service does not face material operational risk from other FMIs or from its participants. Still, the WPO monitors the capacity of the Service by analyzing customer activity according to transaction volume sent or received over the Service. In addition, Reserve Bank service providers, such as National IT and the CRSO, monitor, plan, and test capacity of the electronic access channels customers use to access the Service.¹⁹³

The WPO analyzes key participant activity, with a focus on participants that collectively generate the majority of Fedwire Securities Service transactions, based on transaction volume and value, to determine an appropriate business resumption test model. The WPO employs a testing protocol that allows for a simulated disruption of the production processing environment, with the subsequent activation of a backup data center. This structure provides an opportunity for certain large, high-volume customers to validate their ability to establish connectivity with the backup data center, reconcile their message traffic, and resume normal processing. As discussed in section 17.6, certain Fedwire Securities Service customers are required to participate in at least two scheduled business resumptions tests per year. Each test is designed to demonstrate the ability of the Service and its customers to resume processing in the event of a disruption to production processing at one of the data centers. Service participants that play a significant role in critical financial markets or are core clearing and settlement organizations are expected to adopt the practices outlined in the *Interagency Paper on Sound Practices to Strengthen the Resilience of the U.S. Financial System*, which was adopted in the wake of the September 11, 2001, terrorist attacks.¹⁹⁴ The interagency paper aimed to strengthen the overall resilience of the U.S. financial system in the event of a widespread disruption by restating three key, broadly agreed-upon business continuity objectives for all financial firms and by outlining

¹⁹² For more detail on SAFR, see section 17.5.

¹⁹³ For more detail on the evaluation of operational risks posed by tiered participation, see Principle 19: *Tiered participation arrangements*.

¹⁹⁴ See *Interagency Paper on Sound Practices to Strengthen the Resilience of the U.S. Financial System*, *supra* note 191.

four sound practices that are designed to minimize the immediate systemic effects of a widespread disruption on critical financial markets.¹⁹⁵

Risks Posed to Other FMIs

The Reserve Banks recognize that the wholesale services, including the Fedwire Securities Service, are vital to the stability of the broader financial industry and, accordingly, pose material risk to other entities, including other FMIs. As a result, as described in Principle 3, *Framework for the comprehensive management of risks*, and in section 17.6, the Fedwire Securities Service is designed for high availability and resiliency. The WPO regularly reviews the risk the Service poses to other entities and considers enhancements to mitigate that risk. This includes not only identifying and evaluating scenarios in which the Service may not be available to provide critical services but also considering alternative means, such as manual processing, for meeting the needs of other Service participants under these scenarios, including contingency arrangements with other FMIs.

As stated in section 17.6, the WPO has a business continuity plan that is designed to help ensure continuous operation and availability of the Fedwire Securities Service through various scenarios, as well as rapid recovery and timely resumption of operations if operations of the Service are nevertheless disrupted. The plan addresses disruptions from a variety of causes, including widespread disruptions to telecommunications, transportation, electric power, and other critical infrastructure in the geographic regions where the wholesale operations sites that support the Service are located. The WPO routinely tests the business resiliency of the Service through regular business resumption testing. The capacity of the Service's suite of applications, as well as its electronic access channels, are monitored and tested regularly by National IT and the CRSO.

The WPO continues to strengthen the resiliency profile of the wholesale services, including the Fedwire Securities Service, through ongoing modernization of core applications that support the wholesale services and through ongoing resiliency initiatives.

¹⁹⁵ See *id.* at 1-2. The interagency paper specifies the same three business-continuity objectives outlined in section 17.6. The four sound practices in the paper are the following: (1) the identification of clearing and settlement activities in support of critical financial markets; (2) the determination of appropriate recovery and resumption objectives for such activities; (3) the maintenance of sufficient geographically dispersed resources to meet recovery and resumption objectives; and (4) the routine use or test of recovery and resumption arrangements.

Principle 18: Access and participation requirements

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access

18.1 An FMI should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.

Because the Fedwire Securities Service is a central bank–operated central securities depository and securities settlement system, U.S. law and central bank policies govern the classes of entities that are eligible to access it. U.S. law limits the customer base Reserve Banks may serve principally to depository institutions. The PFMI recognize limitations like this and note that central bank–operated systems may exclude certain categories of institutions because of legislative constraints.¹⁹⁶ In revising part I of the PSR policy to incorporate the risk-management and transparency standards in the PFMI, the Board of Governors also recognized that the application of this principle to the Fedwire Securities Service might require flexibility.¹⁹⁷

The Reserve Banks are authorized under U.S. law to provide the Fedwire Securities Service to the following entities:

- Depository institutions, as defined in section 19(b)(1)(A) of the Federal Reserve Act;¹⁹⁸
- U.S. agencies and branches of foreign banks, as defined in section 1(b) of the International Banking Act of 1978;¹⁹⁹
- State member banks admitted to the Federal Reserve System under Regulation H of the Board of Governors;²⁰⁰
- Treasury and other entities specifically authorized by federal statute to use the Reserve Banks as fiscal agents or depositories;²⁰¹
- Entities designated by the Secretary of the Treasury in accordance with section 15 of the Federal Reserve Act;²⁰²
- Edge Act and Agreement corporations authorized under paragraph 3 of section 25 and section 25A, respectively, of the Federal Reserve Act;²⁰³ and
- Foreign central banks, foreign monetary authorities, foreign governments, and certain international organizations, subject to the approval of the Board of Governors.

¹⁹⁶ Principles for Financial Market Infrastructures, *supra* note 2, n.144.

¹⁹⁷ See PSR policy, *supra* note 4, n.19.

¹⁹⁸ 12 USC § 461(b)(1)(A).

¹⁹⁹ 12 USC §§ 3101(1), 3101(3).

²⁰⁰ 12 CFR pt. 208.

²⁰¹ See, e.g., 12 USC § 393 (Farm Credit System); 12 USC § 1435 (Federal Home Loan Banks); 12 USC § 1441(h)(2) (Financing Corporation); 12 USC § 1441b(h)(2) (Resolution Funding Corporation); 12 USC § 1723a(g) (Ginnie Mae and Fannie Mae); 12 USC § 1452(d) (Freddie Mac); 12 USC § 2279aa-3(d) (Farmer Mac).

²⁰² 12 USC § 391.

²⁰³ 12 USC §§ 611, 601 (*third*).

The Dodd-Frank Wall Street Reform and Consumer Protection Act also allows the Board of Governors to authorize a Reserve Bank to provide Reserve Bank services, including the Fedwire Securities Service, to financial market utilities designated as systemically important by the Financial Stability Oversight Council.²⁰⁴

Entities that are not eligible for direct access to the Fedwire Securities Service may access the Service indirectly as customers of direct Service participants. The Service does not place any restrictions on such indirect access. For more detail on indirect participation, see Principle 19, *Tiered participation arrangements*.

18.2 An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavor to set requirements that have the least-restrictive impact on access that circumstances permit.

The Reserve Banks seek to provide broad access to the Fedwire Securities Service to legally eligible entities, but the Reserve Banks must do so in accordance with Federal Reserve risk-management policies. Participants' ARBs, not the Fedwire Securities Service itself, make risk-management decisions under these Federal Reserve risk-management policies. At the time an institution applies for a master account or financial services, the institution's ARB reviews the applicant's eligibility, initiates or updates its assessment of counterparty credit risk, and may apply risk controls that will affect how the customer uses Reserve Bank services, if appropriate.²⁰⁵ As a general matter, each ARB imposes similar risk controls on institutions that have similar risk profiles, and each ARB seeks to impose controls that are no more restrictive than necessary to manage the risks posed by that particular customer. The actions that an ARB might take to address the credit risk posed by particular customers (including customers that are Service participants) are addressed in Reserve Bank operating circulars and in part II of the PSR policy. For more detail on how the Reserve Banks manage risk, see Principle 4, *Credit risk*, Principle 5, *Collateral*, and Principle 7, *Liquidity risk*.

Certain key securities market participants, such as nonbank broker-dealers, do not have direct access to the Fedwire Securities Service because the Reserve Banks do not have express statutory authority to offer services to them. Moreover, nearly all classes of eligible participants must maintain a physical presence in the United States (foreign central banks, foreign monetary authorities, foreign governments, and certain international organizations are the exceptions).²⁰⁶ These limitations on the classes of depository institutions and other entities that are eligible to access the Fedwire Securities Service are consistent with guidance in the PFMI, which

²⁰⁴ See Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 806(a), 124 Stat. 1376, 1811 (2010) (codified at 12 USC § 5465(a)).

²⁰⁵ For example, the ARB may require customers that engage in certain transactions to maintain collateral or adequate balances with a Reserve Bank in an amount the ARB determines.

²⁰⁶ Granting direct access to a foreign bank that does not have a U.S. presence raises issues of risk to the Reserve Banks and is inconsistent with the International Banking Act of 1978, which was intended to provide a level playing field in the United States between U.S. and foreign banking organizations. See Senate Committee on Banking, Housing, & Urban Affairs, International Banking Act of 1978, S. Rep. No. 95-1073, at 2 (1978), *reprinted in* 1978 USCCAN 1421, 1422.

recognizes that central bank–operated systems may exclude certain categories of institutions, such as non-deposit-taking institutions, because of legislative constraints.²⁰⁷

18.3 An FMI should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.

Each ARB performs ongoing surveillance and reviews the credit risk that its account holders pose to it (or another Reserve Bank) at least quarterly to ensure appropriate risk controls are applied. If necessary, the ARB will implement or adjust risk controls at the time of those reviews or more frequently if it believes that it faces excessive risk exposure (e.g., if the account holder’s financial condition is deteriorating).

A Reserve Bank may take remedial action to terminate a participant’s access to the Fedwire Securities Service if the participant is no longer eligible, if the participant poses undue risk to the Reserve Bank maintaining its master account, or if the participant materially or persistently violates the rules, policies, or procedures applicable to the Service. For more detail on the remedial actions a Reserve Bank may take, see Operating Circular 1, Operating Circular 7, part II of the PSR policy, and Principle 4, *Credit risk*.

As mentioned above, risk-management decisions are made by ARBs and not by the Reserve Banks as operator of the Fedwire Securities Service.

²⁰⁷ See Principles for Financial Market Infrastructures, *supra* note 2, n.144. The Board of Governors also notes in the PSR policy that this principle may require flexibility as applied to the Fedwire Securities Service.

Principle 19: Tiered participation arrangements

An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements

19.1 An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.

On behalf of the 12 Reserve Banks that operate the Fedwire Securities Service, the WPO evaluated the operational, credit, and liquidity risks posed by tiered participation in the Service and concluded that indirect participants do not pose material risks to the Service that cannot be addressed through managing those same risks that arise from direct participants.

Consequently, the Reserve Banks have not put in place rules, procedures, or agreements to gather information to help them identify, monitor, and manage specific risks to the Service posed by indirect participants. The WPO has procedures in place to review its assessment of the risks posed to the Service from tiered participation at least biannually or more frequently if the Service or the environment in which it operates change significantly.

19.2 An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.

As noted in section 19.1, the Reserve Banks do not routinely gather information that might assist them in identifying material dependencies between direct and indirect participants in the Fedwire Securities Service. Nevertheless, the Reserve Banks believe that the measures they have taken to address material risks posed to the Service by direct participants are sufficient to address any risks that might arise from indirect participants.

19.3 An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.

Evaluation of Operational Risks Posed by Tiered Participation

To begin its analysis of potential operational risks posed by tiered participation in the Fedwire Securities Service, the WPO examined whether such tiered participation could result in spikes in transaction volume, which might overwhelm the processing capacity of the Service or supporting applications. Direct participants of the Service initiate Fedwire securities transfers for their own purposes or on behalf of their customers (i.e., indirect participants). Trading activity in Fedwire securities is concentrated among 23 primary dealers and their counterparties, which rely on a few direct participants of the Service for settlement of that activity. That means a high concentration of transfers over the Service occur between direct participants acting as securities intermediaries for indirect participants; in this fashion, they act as clearing banks for those indirect participants. If an indirect participant changed its securities intermediary with respect to trading activity in securities maintained in the Fedwire Securities Service or if it became a direct participant of the Service itself, such a change would not necessarily increase overall Fedwire Securities Service transaction volume. But it is conceivable that an indirect participant could effect a change in such a way that fewer securities transfers for it were

conducted on the books of a direct Fedwire Securities Service participant (i.e., so-called “book transfers”) but instead were made over the Fedwire Securities Service.

The WPO analyzed different scenarios in which changes made by indirect participants could result in significant volume shifting to the Fedwire Securities Service that would exceed processing capacity and thus pose operational risk to the Service. The WPO also assessed the impact on the electronic access channels Service customers use to access the Service if changes made by indirect participants caused an increase in volume being sent over a specific access channel. Based on this analysis, the WPO concluded that the probability of substantial volume increases emanating from the shift of the type of volume described above was low, and, even if there were significant increases in volume, both the Service and the electronic access channels would have sufficient capacity to handle the volume.²⁰⁸

The WPO also considered the impact on the Fedwire Securities Service from a cybersecurity incident originating at an indirect participant and concluded that such a scenario could pose material risk to the Service. The Reserve Banks mitigate this risk by requiring Service participants to implement certain security measures, which include the following:

- security protocols embedded in the hardware and software associated with the equipment used to initiate, transmit, and receive securities transfer messages;
- access controls that grant access to the Fedwire Securities Service, such as identification codes, confidential passwords, and digital certificates; and
- encryption of transfer messages during the transmission process over a private network or virtual private network.

In addition, each Fedwire Securities Service participant that sends or receives transfer messages electronically must implement its own physical and logical security, as well as management controls, that appropriately protect the hardware, software, and access controls used in the securities transfer process from unauthorized access and use. Fedwire Securities Service senders must also have controls in place to ensure that initiation of a transfer message occurs from locations it has authorized and requires action by more than one of its employees. Operating Circular 5, *Electronic Access*, sets forth the information security and access control requirements applicable to Fedwire Securities Service participants and their service providers that use the Reserve Banks’ electronic access channels.²⁰⁹

Last, the overwhelming majority of Fedwire Securities Service participants are supervised financial institutions that are required to follow the Federal Financial Institutions Examination Council guidance on cybersecurity aimed at ensuring that direct Fedwire Securities Service participants have taken steps to protect the security of their connections with their customers (indirect customers). Indirect participants do not have direct electronic access to the Service.

The robustness of the Reserve Banks’ security procedures are assessed periodically.

²⁰⁸ The Reserve Banks recognize that while operation of the Fedwire Securities Service would not be impaired as a result of such volume shifts, the clearing banks themselves pose systemic risk to the securities markets.

²⁰⁹ Operating Circular 5, *supra* note 8, app. A.

Evaluation of Credit and Liquidity Risks Posed by Tiered Participation

Each Reserve Bank manages credit risk posed by its customers across all Reserve Bank financial services, not just the Fedwire Securities Service. By the policy of the Board of Governors, credit risk management must be handled by Reserve Bank employees that are separate from the employees that provide Reserve Bank financial services, such as the Fedwire Securities Service.²¹⁰ The discussion below, therefore, considers how the Reserve Banks address credit exposure posed by indirect participants through their credit risk-management functions (rather than the Fedwire Securities Service). The risk of loss to a Reserve Bank includes a situation in which the failure of a direct participant's customer (i.e., indirect participant) causes the direct participant to default or causes liquidity problems for other direct participants that are anticipating payments from the defaulted direct participant. In such a scenario, a Reserve Bank would bear greater credit risk if a Service participant were unable to cover an overdraft in its master account or otherwise meet its obligations to the Reserve Bank as expected. The Reserve Banks have policies in place to manage and mitigate these risks, however. Specifically, the Board of Governors has issued the PSR policy, which is binding on Reserve Banks. The PSR policy recognizes that the Reserve Banks have an important role in fostering the smooth functioning of payment and settlement systems by providing intraday liquidity to depository institutions. At the same time, the PSR policy seeks to control the risks assumed by the Reserve Banks in providing that intraday credit.

Part II of the PSR policy governs the provision of intraday credit (or daylight overdrafts) by Reserve Banks to their account holders, including direct Fedwire Securities Service participants. A depository institution applying for intraday credit through the self-assessment process must evaluate its intraday funds-management procedures and its procedures for evaluating the financial condition of and establishing intraday credit limits for its customers in order to determine if it is able to fund its positions in each payment or settlement system in which it participates even if a major customer defaults.²¹¹ For more detail on how the Reserve Banks manage credit risk on an ongoing basis, see Principle 4, *Credit risk*.

Although the Reserve Banks do not generally collect information about indirect participants from direct Fedwire Securities Service participants, the Reserve Banks are able to leverage other information collected through the supervisory process to inform their condition monitoring and credit risk management of certain Reserve Bank customers, including certain direct Service participants.²¹² The Reserve Bank employees who monitor and make credit decisions are not the employees charged with running the Service; credit information is not permitted to be shared with the WPO and other Reserve Bank employees responsible for providing financial services absent extraordinary circumstances. Nevertheless, such information helps the ARB understand

²¹⁰ See Standards Related to Priced-Service Activities of the Federal Reserve Banks, *supra* note 40, at 9–1570.

²¹¹ The Board of Governors' website contains additional information on the self-assessment process. See Board of Governors of the Federal Reserve System, Guide to the Federal Reserve's Payment System Risk Policy on Intraday Credit (July 2012), available at http://www.federalreserve.gov/paymentsystems/files/psr_guide.pdf.

²¹² In certain instances, Reserve Banks may not have access to supervisory information for particular Reserve Bank customers. In that case, Reserve Banks would evaluate the financial and market information they have available in order to formulate a credit opinion of the customer in question.

the materiality of any single counterparty to a particular supervised Reserve Bank customer (including Service participants) and the importance of that Reserve Bank customer to indirect participants that are supervised.²¹³

Moreover, indirect participation in the Fedwire Securities Service does not appear to present incremental credit risk to Service participants at large; only the direct Service participant that has the relationship with the indirect participant would be immediately affected. A default by either a direct Service participant or an indirect participant would not affect the finality of the settlement of securities transfers processed through the Service. Defaults by Service participants receiving a DVP securities transfer would not affect sending Service participants because all debits and credits of securities and funds in connection with a securities transfer become final at the time a Reserve Bank posts the debits and credits of to the respective participants' securities accounts and master accounts. Moreover, because the Reserve Banks are not subject to liquidity constraints, they would be able to meet their payment obligations to all sending participants even if one or more receiving participants should fail. This would be true even if the direct participant default stemmed from a default by an indirect participant and even in periods marked by liquidity-related market stress events. For more detail on the Reserve Banks' ability to meet their obligations following a direct participant's default, see Principle 13, *Participant-default rules and procedures*.

Evaluation of Legal Risks Posed by Tiered Participation

Indirect participants hold securities accounts on the books of a direct Fedwire Securities Service participant or some other securities intermediary that holds its interests in securities maintained in the Fedwire Securities Service with a direct participant. The Fedwire Securities Service does not maintain records of the identities or interests of indirect participants. Under the legal framework applicable to the Service, indirect participants do not have any rights against the Reserve Banks as operator of the Fedwire Securities Service; indirect participants' rights lie only with their direct securities intermediaries. Reserve Banks and the issuers of Fedwire securities are not liable for adverse claims to a security entitlement or a Fedwire security in a direct participant's securities account, even if the claim results from the transfer of a Fedwire security by a Reserve Bank, so long as the transfer is effected pursuant to a transfer message the Reserve Bank reasonably believes to be genuine.²¹⁴ Accordingly, the Reserve Banks would not face liability for indirect participant transactions. For more detail on the indirect holding system and the legal framework of the Fedwire Securities Service, see Principle 1, *Legal basis*.

Although Operating Circular 7 is binding on indirect participants in some circumstances, the only obligations Reserve Banks have under Operating Circular 7 are those owed to direct Fedwire Securities Service participants.²¹⁵

²¹³ As stated in footnote 129, the ARB generally oversees the administration of Federal Reserve credit, reserves, and risk-management policies for a financial institution's operations nationwide.

²¹⁴ See, e.g., 31 CFR § 357.13(b).

²¹⁵ Under the TRADES regulations and the other comparable issuer regulations, state law governs the rights and obligations with respect to security entitlements and securities intermediaries other than at the level of the direct participant in the Service. Operating Circular 7 is considered a clearing corporation rule for these purposes. Under UCC Article 8, such clearing corporation rules are effective even if they affect parties that do not consent to them. UCC § 8-111.

For more detail on the legal framework of the Fedwire Securities Service, see Principle 1, *Legal basis*.

19.4 An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

The WPO has procedures in place to review its assessment of the risks posed to the Service from tiered participation at least biannually.

Principle 20: FMI links

An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks

20.1 Before entering into a link arrangement and on an ongoing basis once the link is established, an FMI should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other principles in this report.

Upon application by an FMI to open a securities account at a Reserve Bank and to use the Fedwire Securities Service, the Reserve Bank will subject the FMI to the same initial assessment of legal eligibility and counterparty credit risk, as well as other sources of risk, as other entities seeking to become Reserve Bank customers. Note that the ARB for such an FMI would make risk-management decisions, not the Reserve Banks as operator of the Fedwire Securities Service. Assuming it becomes a participant in the Fedwire Securities Service, the linked FMI would then be subject to the same rules and procedures as other participants of the Service. The Reserve Bank holding the FMI's master and securities accounts (typically the ARB) would measure and monitor possible credit exposures posed by the FMI (through the link arrangement or otherwise) as part of the Reserve Bank's routine risk-management practices. Like other Reserve Bank customers, the linked FMI is subject to a range of potential risk controls. For more detail on the Reserve Banks' risk-management practices, see Principle 4, *Credit risk*, and Principle 18, *Access and participation requirements*.²¹⁶

In the only current link arrangement between the Fedwire Securities Service and another FMI, The Depository Trust Company (DTC) maintains securities accounts at FRBNY. As permitted under Operating Circular 7, DTC may use those securities accounts to hold Fedwire securities it owns, as well as Fedwire securities it holds for the account of its participants. Fedwire Securities Service participants may transfer securities held in their securities accounts maintained at a Reserve Bank to one of DTC's securities accounts at FRBNY to secure certain obligations the Fedwire Securities Service participant, as a participant of DTC, owes DTC under DTC's rules and procedures. It is DTC's responsibility to reflect its participants' interests in those securities on its books, however. FRBNY recognizes only DTC's interest in securities in DTC's unrestricted securities accounts on FRBNY's books.

20.2 A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the FMIs involved in the link.

The link arrangement with DTC described in section 20.1 is subject to the same legal framework that provides a basis for each material aspect of the Fedwire Securities Service. That framework provides adequate protection to both FMIs (i.e., both the Fedwire Securities Service and DTC) and their respective participants. For more detail on the legal framework governing the Fedwire Securities Service, see Principle 1, *Legal basis*.

²¹⁶ Under Regulation HH, the Board of Governors may impose additional limits, restrictions, and other conditions on the Reserve Bank account of a financial market utility designated as systemically important by the Financial Stability Oversight Council. See 12 CFR § 234.5(d).

20.3 Linked CSDs should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between CSDs should be covered fully with high-quality collateral and be subject to limits.

Credit and liquidity risks arising from a linked CSD would be measured, monitored, and managed by the ARB responsible for the linked CSD, just as ARBs do for other Reserve Bank customers. The Reserve Banks do not extend routine credit to any CSD. Reserve Banks are not subject to any liquidity risk as a result of link arrangements because, as part of the central bank, the Reserve Banks are not subject to liquidity constraints. It is the ARB, not the Fedwire Securities Service as such, that makes risk-management decisions. For more detail on how Reserve Banks manage credit and liquidity risks, see Principle 4, *Credit risk*, and Principle 7, *Liquidity risk*.

20.4 Provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.

The Fedwire Securities Service does not support provisional transfers of securities. For more detail on the finality of securities transfers, see Principle 8, *Settlement finality*.

20.5 An investor CSD should only establish a link with an issuer CSD if the arrangement provides a high level of protection for the rights of the investor CSD's participants.

This consideration is not applicable because the Fedwire Securities Service is not an investor CSD with respect to any link arrangement.

20.6 An investor CSD that uses an intermediary to operate a link with an issuer CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary.

This consideration is not applicable because the Fedwire Securities Service is not an investor CSD with respect to any link arrangement.

20.7 Before entering into a link with another CCP, a CCP should identify and manage the potential spill-over effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify, assess, and manage the risks of the collective link arrangement.

This consideration is not applicable because the Fedwire Securities Service is not a CCP.

20.8 Each CCP in a CCP link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP's ability to fulfil its obligations to its own participants at any time.

This consideration is not applicable because the Fedwire Securities Service is not a CCP.

20.9 A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources.

This consideration is not applicable because the Fedwire Securities Service is not a TR.

Principle 21: Efficiency and effectiveness

An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

21.1 An FMI should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.

The Reserve Banks provide the Fedwire Securities Service in accordance with guidelines established by the Board of Governors on the provision of Reserve Bank financial services and pricing, including those set out in the *Federal Reserve System Guidelines for the Provision of Financial Services*. Under those guidelines, the Reserve Banks are expected to (i) maintain an operational presence in the provision of financial services where that presence, as a result of cost advantages, would contribute to economic efficiency or where other public-interest considerations might dictate; (ii) be prepared to remove themselves from the provision of those services that the private sector can supply more efficiently, unless there are overriding public-interest reasons for the Reserve Banks to continue offering such services; (iii) maintain the flexibility to change existing services or to offer new ones to meet specialized or evolving needs of financial institutions and the public; (iv) ascertain the needs of financial institutions and the public in order to enhance their service offerings; (v) encourage innovation across financial services; and (vi) provide full information to financial institutions about the nature and scope of the services they offer.²¹⁷ To meet these expectations, the Reserve Banks designed and operate the Fedwire Securities Service to efficiently and effectively meet its participants' needs by providing high-quality and practical securities transfer, settlement, and account maintenance services.

User Consultations on Products and Services

FRBNY, through the WPO, is responsible for the day-to-day management of the Fedwire Securities Service. The WPO actively seeks participant feedback and assesses market needs through various user consultation channels when it considers enhancements to aspects of the existing Fedwire Securities Service or the development of new products or services for the Service.

External Stakeholders

FRBNY sponsors the Wholesale Securities Service Customer Advisory Group (WSCAG), whose membership is drawn from Fedwire Securities Service participants, including issuers, financial institutions, and certain market-infrastructure firms. The WSCAG is chaired by the FRBNY officer in charge of the Fedwire Securities Service. It meets at least two times a year to inform FRBNY about trends, developments, conditions, and practices in the issuance, clearing, and settlement of Fedwire securities. The WSCAG serves as a forum for participants in the Service to provide the Reserve Banks with input and feedback on existing and potential service offerings and, where necessary and appropriate, input and feedback on the Reserve Banks'

²¹⁷ See Federal Reserve System Guidelines for the Provision of Financial Services, *supra* note 93, at 9–1573.

efforts to improve industry practices for the security, efficiency, or effectiveness of issuance, clearing, and settlement services.

In addition to discussions held at the WSCAG, the WPO has regular dialogue with Fedwire Securities Service issuers, including Treasury and the GSEs, given the critical role they play in shaping the products and services provided by the Service. These touch points include discussions of major securities industry developments, new product issuance, and budget planning.

The Reserve Banks, through the WPO and the CRSO, seek to improve the efficiency and effectiveness of the Fedwire Securities Service by periodically seeking input on specific topics by interviewing and surveying customers and by meeting with customers or industry trade groups in other forums besides the WSCAG. To keep abreast of developments in the government and fixed-income securities markets, the WPO is also an active participant in various SIFMA committees. The WPO leverages feedback from these external sources to assess Fedwire Securities Service participants' business needs and demand for new features and services and to help ensure it remains well informed, more generally, of the business environment and industry trends that may affect the Fedwire Securities Service.

In addition to the informal and user-group consultation processes outlined above, the Board of Governors uses appropriate procedures to obtain information and analysis from the public regarding proposed rules, regulations, policies, and changes to the Fedwire Securities Service that would have a significant longer-run effect on the nation's payments system.²¹⁸

Promulgation of Board rules is subject to the public notice and comment provisions of the Administrative Procedure Act. Generally, the Administrative Procedure Act requires that each federal agency provide notice to the public of a proposed rulemaking and an opportunity for the public to comment on the proposed rulemaking before it becomes effective. The notice of a proposed rulemaking must be published in the Federal Register. In addition, the Board of Governors may seek public comment on certain policy issues that are not necessarily rules under the Administrative Procedure Act.

Internal Stakeholders

The WPO also works with a number of Federal Reserve bodies to review the performance of the Fedwire Securities Service. This includes regular reporting to the FSPC, which is responsible for providing overall direction of the Reserve Banks' financial services, as well as related support functions, and for providing leadership for the evolving U.S. payments system. In addition, the WPO meets regularly with other Federal Reserve groups that consist of members from wholesale operation sites, the technical operations and testing staff responsible for monitoring the applications that run the Service, as well as liaisons from the Board of Governors, National IT, the CRSO, and Reserve Bank legal, audit, and risk functions.

Leveraging Stakeholder Input

The WPO uses the information collected through internal and external stakeholders to ensure the Fedwire Securities Service remains responsive to the needs of its participants. For example, the Reserve Banks worked with a number of issuers to ensure the Service could support the issuance of new types of securities, including floating-rate notes for Treasury and

²¹⁸ See Principles for Pricing of Federal Reserve Bank Services, *supra* note 123, at 9–1568 (principle 7).

certain debt securities issued by GSEs. Additionally, much effort has been focused on resiliency-related initiatives. In 2016, following completion of the WPO's effort to modernize core processing and settlement functionality of the Fedwire Securities Service, the WPO announced a five-year strategy for improving the Service. The strategy was developed based on stakeholder input, with a focus on product enhancements and new services. Leveraging the flexibility of the new Service platform, the WPO designed a suite of processes to more agilely deliver product fixes, enhancements, and new services. The first of what are planned to be annual service packs was implemented in 2016, which among other things, addressed software code defects and increased operational efficiencies.

Pricing and Cost Efficiency

Fedwire Securities Service fees are set and structured to meet its cost-recovery mandate while providing customers with price efficiencies through a tiered pricing based on a mix of service and volume utilization. The Service recovers its costs by seeking full reimbursement for all expenses the Reserve Banks incur in acting as fiscal agents for Fedwire Securities Service issuers, by charging fees for certain securities transfer and maintenance services (i.e., the explicitly priced services), and by allocating costs to Reserve Banks' customers that use the Service for their business operations. In establishing and approving fees for the Service, the Reserve Banks and the Board of Governors adhere to the previously mentioned principles for the pricing of Reserve Bank services and the Monetary Control Act.²¹⁹ The Board of Governors, which considers the objectives of fostering competition, improving the efficiency of the payment mechanism, and lowering costs of these services to society at large, has required the Reserve Banks to establish their fees for services like the Fedwire Securities Service in such a way that, over the long run, the Reserve Banks will recover all the direct and indirect costs they incur in providing the services, as well as imputed costs, including financing costs, taxes, and certain other expenses, plus a return on equity (i.e., profit) that a private business firm would have expected to earn if it had provided the services.²²⁰

The WPO focuses on controlling costs and closely scrutinizes projected and actual costs as part of the annual budgeting process for the Fedwire Securities Service. Over the course of the year, the WPO actively monitors cost-recovery performance, including the underlying revenue and cost statistics, on a monthly basis against budgeted performance and leads an annual repricing exercise to determine whether changes in prices for the Service for the following year will be necessary to ensure cost recovery over the long run. The fee schedule for the Fedwire Securities Service aims to align revenues with the cost of providing the Service, which is characterized by high fixed costs and low marginal costs. Participants that use the offline telephone service to send and receive their Service transactions are assessed a surcharge that reflects the additional cost of handling offline transfers, which require manual processing on the part of the Reserve Banks. Finally, the Reserve Banks charge connection fees to Service participants that access the Service via an electronic access channel to recover costs related to the secure communications infrastructure. Connections are priced by line speed and access channel type.

²¹⁹ See *id.* at 9–1566 to –1568.

²²⁰ See, e.g., Board of Governors of the Federal Reserve System, Federal Reserve Bank Services, 81 Fed. Reg. 75058 (Oct. 28, 2016).

Fedwire Securities Service prices are publicly available at FRBservices.org, along with other Reserve Bank financial services prices, and prices for access channels and à la carte services. FRBservices.org clearly breaks down prices by service offering. Prices for Reserve Bank financial services, including those for the Fedwire Securities Service, are reevaluated on an annual basis. If circumstances warrant, the Reserve Banks may implement price changes, including for the Service, at other times (subject to approval by the Board of Governors). The Board publishes in the Federal Register and on its website a detailed disclosure relating to all price changes.²²¹ For more detail on the repricing process, see Principle 15, *General business risk*.

21.2 An FMI should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations, and business priorities.

The WPO develops business objectives as part of its annual planning process. The business objectives represent the primary drivers of resource usage or significant strategic initiatives in the wholesale business and align with the WPO's business plan and the Reserve Banks' annual strategic goals for the financial services they offer. Every year, the WPO seeks input from the FSPC about the WPO's business plan and business objectives. Under the COP's strategic direction, the FSPC provides the overall direction of financial services and related support functions for the Reserve Banks and provides leadership for the evolving U.S. payments system. For more detail, see Principle 2, *Governance*. In conjunction with the annual planning process, the WPO works with the wholesale operations sites to define a set of deliverables for the coming year. These deliverables are defined in support of the WPO business objectives and are monitored through to completion with a progress report provided on a periodic basis. A self-evaluation process and performance conversation occurs with the operations sites on these deliverables at the end of each year.

Separately, the WPO submits its business objectives to FRBNY's strategic planning office as part of FRBNY's annual strategic planning, resourcing, and evaluation process. The WPO's business objectives are included in the overall planning process and the financial resources requested to support its business objectives are reviewed as part of the annual budget by several FRBNY bodies, including a planning committee, the management committee, and FRBNY's board of directors, and submitted as part of the FRBNY consolidated budget for approval by the Board of Governors. The WPO also submits quarterly performance reporting to FRBNY's strategic planning office, which aggregates the information and reports accomplishments, issues, and risks to FRBNY senior management. The strategic planning office leverages these inputs to inform FRBNY's self-evaluation of its overall performance as a Reserve Bank, which is submitted to the Board of Governors each year.

The WPO separately measures the efficiency of the Fedwire Securities Service by monitoring the availability of the suite of applications that support the Service. For more detail on the availability metrics for the Fedwire Securities Service, see section 17.3.

²²¹ See, e.g., *id.*

21.3 An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.

The WPO relies on a range of processes and metrics to assess the efficiency and effectiveness of the Fedwire Securities Service. To assess efficiency, the WPO prepares monthly reports to monitor cost-recovery performance against its budget for the Service and to document explanations for any variances. In addition, the WPO's quarterly performance report, which is sent to the FSPC's support office and wholesale services contacts at the other 11 Reserve Banks, includes metrics on cost-recovery performance, volume and value fluctuations, and market share, as well as business drivers that explain the observed changes.

The WPO provides quarterly progress reports to each of the Reserve Banks' designated wholesale contacts and to the FSPC's support office, which include the availability metrics described in section 17.3. The FSPC's support office assists the FSPC in monitoring the progress of Reserve Bank product offices, like the WPO, and coordinating a self-assessment process across all Reserve Bank product offices against their business objectives and other evaluation criteria. The WPO's self-assessment is an input in the evaluation by the other 11 Reserve Banks of FRBNY's performance in operating the Fedwire Securities Service. The FSPC also uses these inputs to evaluate whether FRBNY has achieved the business objectives established by the WPO and to evaluate the performance of the WPO's product director and product manager.

To assess the effectiveness of the Fedwire Securities Service, the Reserve Banks collect feedback from Service customers on the performance of the Service in meeting their needs through the user consultations described in section 21.1.

Principle 22: Communication procedures and standards

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

22.1 An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.

The Fedwire Securities Service accommodates internationally accepted communication procedures and standards. The Fedwire Securities Service is, among other things, a securities settlement system that sends and receives messages relating to securities transfers between Service participants in the United States using a proprietary format that is documented and communicated to participants. The format can be translated to and from international message standards, including those developed by the Society for Worldwide Interbank Financial Telecommunication SCRL (SWIFT), which is often used by the Service's participants for international financing messaging. Basic functions enabled by the Fedwire Securities Service's proprietary message format include securities transfers (both free and against payment), acknowledgments, requests for reversals, distribution of principal and interest payments, securities holdings balance inquiries, and end-of-day customer statement delivery.

Routing numbers, which are widely used to identify financial institutions in the United States, can be converted to and from the global Business Identifier Code standard through a simple lookup.²²² Similarly, the Fedwire Securities Service includes CUSIP identifiers in its records to help issuers and Service participants readily identify particular securities; CUSIP numbers are broadly used within the financial industry to identify U.S. domestic fixed income securities and other securities and can be easily translated to and from International Securities Identification Numbers (ISINs).²²³

The WPO participates in relevant payments industry standards groups, such as the SWIFT user and steering groups and the ISO 20022 Payments Standards Evaluation Group, to maintain awareness about changes to existing standards and the development of future standards.

In 2014, a stakeholder group in the United States, which included FRBNY, engaged an independent consultant to consider the business case for or against adopting ISO 20022 payment messages for U.S.-based payment clearing and settlement infrastructure providers, financial institutions, and their corporate customers.²²⁴ While the study did not consider the

²²² Each Fedwire Securities Service participant is assigned a routing number or, if ineligible for a routing number, an identification number issued by the Reserve Banks that can be used like a routing number in connection with Reserve Bank services. Routing numbers were developed jointly by the Reserve Banks and the American Bankers Association. Accuity, the American Bankers Association's official registrar, assigns routing numbers. Additional information is available at http://www.aba.com/Products/Pages/PS98_Routing.aspx.

²²³ ISINs are extended versions of nine-character CUSIP numbers formed by adding a country code and check digit to the beginning and end of a CUSIP. Additional information is available at <http://www.isin.org/isin/>.

²²⁴ The other members of the stakeholder group are The Clearing House Payments Company L.L.C., NACHA—The Electronic Payments Association, and Accredited Standards Committee X9—Financial Industry Standards, Inc.

business case for adopting ISO 20022 for securities transfer messages sent through the Fedwire Securities Service, the WPO collected input on this topic from large customers of the Service and determined that there is currently no business case to pursue this standard. See *System Design and Operations* in section III for a brief description of the channels that participants can use to access the Fedwire Securities Service.

Principle 23: Disclosure of rules, key procedures, and market data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

23.1 An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.

The Reserve Banks provide Fedwire Securities Service participants with comprehensive rules and procedures and make key rules and procedures accessible to participants and the general public from the Reserve Banks' financial services website, FRBservices.org. Moreover, regulations adopted by the respective issuers of securities on the Fedwire Securities Service, or, in the case of GSE securities, the issuer's regulator, which also govern certain aspects of the Fedwire Securities Service, are published in the Code of Federal Regulations. As noted in section 1.2, the Reserve Banks and the Board of Governors take a number of steps that help ensure the rules and procedures governing the Service are clear and understandable.

23.2 An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.

The respective rights and obligations of the Reserve Banks, as operator of the Fedwire Securities Service, and of Fedwire Securities Service participants are set forth in applicable Reserve Bank operating circulars and in the statutes and regulations applicable to the Service, all of which are publicly accessible through the Internet. For more detail on the specific rights and obligations established through the legal framework applicable to the Fedwire Securities Service, see Principle 1, *Legal basis*.

Clear descriptions of the design and operations of the Fedwire Securities Service also are publicly available to participants and the general public through the Internet. In particular, an overview of the Fedwire Securities Service is available at FRBservices.org, which sets forth a description of the structure of the Service, product offerings and pricing, hours of operation, and relevant contact information. The same website provides links to instructions for customers wishing to become participants, as well as for existing participants that wish to modify the services they currently use.

When a new customer requests an electronic connection to the Fedwire Securities Service, the customer is provided additional documentation regarding the technical specifications required for connectivity. Operating Circular 5, which sets forth the rights and obligations of Reserve Bank customers with respect to electronic access to any Reserve Bank services, including the Fedwire Securities Service, also incorporates, or is supplemented by, additional documentation, including the Reserve Banks' certification practice statements and password practice statement.²²⁵ Operating Circular 5 and these practice statements are available at FRBservices.org.

²²⁵ The certification practice statements describe the policies and practices of the Reserve Banks' public key infrastructure with respect to the issuance, management, and usage of digital certificates and set

23.3 An FMI should provide all necessary and appropriate documentation and training to facilitate participants’ understanding of the FMI’s rules and procedures and the risks they face from participating in the FMI.

Fedwire Securities Service communication, training, and testing opportunities are designed to improve participants’ understanding of rules and procedures and risks related to participation. The Reserve Banks communicate with participants as needed regarding changes to the Fedwire Securities Service, including changes to the fee schedule for the Service.²²⁶ The Reserve Banks also regularly provide Fedwire Securities Service participants with training and testing opportunities. Detailed instructions regarding training, testing, and educational opportunities can also be found at FRBservices.org.

The Reserve Banks routinely seek feedback from customers regarding the effectiveness of their communications through, for example, customer advisory group meetings and customer satisfaction surveys. For questions about the Fedwire Securities Service, participants may contact their account executives, the customer contact centers, the wholesale testing units, or the wholesale operations sites for assistance. Contact numbers are available at FRBservices.org.

If a participant does not follow applicable operating circulars or other governing rules, policies (including the PSR policy), or procedures, a Reserve Bank may take certain remedial actions to protect itself or other participants. For more detail on the remedial actions a Reserve Bank may take, see Operating Circular 1, Operating Circular 7, the PSR policy, and Principle 4, *Credit risk*.

23.4 An FMI should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes.

The prices for using the Fedwire Securities Service are publicly available at FRBservices.org, along with prices for other Reserve Bank financial services, and prices for access channels and à la carte services. FRBservices.org clearly breaks down prices by service offering and indicates where surcharges may apply (e.g., for offline securities transfers).

Prices for Reserve Bank financial services, including those for the Fedwire Securities Service, are reevaluated on an annual basis. Price changes typically are announced in the fourth quarter of every year before they take effect in January of the following year. If circumstances warrant, the Reserve Banks may implement price changes, including for the Service, at other times (subject to approval by the Board of Governors). The Board of Governors publishes in the Federal Register a detailed disclosure relating to all price changes.²²⁷ For more detail on the

forth the obligations of certificate users. The password practice statement describes the policies and practices of the Reserve Banks with respect to Reserve Bank–issued passwords used to access Reserve Bank applications.

²²⁶ As described above, the Board of Governors also communicates with participants and the public, at large, regarding significant changes in Reserve Bank fees or service arrangements.

²²⁷ See, e.g., Board of Governors of the Federal Reserve System, Federal Reserve Bank Services, 81 Fed. Reg. 75058 (Oct. 28, 2016).

process of reevaluating the prices for using the Service, see Principle 15, *General business risk*, and Principle 21, *Efficiency and effectiveness*.

23.5 An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO disclosure framework for financial market infrastructures. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.

Value and volume statistics related to the Fedwire Securities Service are available at FRBservices.org and the Board of Governors' website and present monthly, quarterly, and annual data.²²⁸ The Board's website also includes statistics on daylight overdrafts incurred by master account holders.²²⁹

The Reserve Banks will update this disclosure following changes to the Fedwire Securities Service or the environment in which it operates that would significantly affect the accuracy of the statements in this disclosure. At a minimum, they will review and update this disclosure every two years.

²²⁸ See Board of Governors of the Federal Reserve System, Fedwire Securities Service: Data and Additional Information, *supra* note 27.

²²⁹ See Board of Governors of the Federal Reserve System, Payment System Risk: Data, *available at* http://www.federalreserve.gov/paymentsystems/psr_data.htm.

Principle 24: Disclosure of market data by trade repositories

A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

This principle is not applicable to the Fedwire Securities Service.

V. Acronyms

ACAP	automated claim adjustment process
ARB	Administrative Reserve Bank
CCP	central counterparty
CFR	Code of Federal Regulations
CFVP	Conference of First Vice Presidents
COP	Conference of Presidents
CPMI	Committee on Payments and Market Infrastructures
CPSS	Committee on Payment and Settlement Systems
CRSO	Customer Relations and Support Office
CSD	central securities depository
CUSIP	Committee on Uniform Securities Identification Procedures
DNS	deferred net settlement
DTC	The Depository Trust Company
DVP	delivery versus payment
ET	Eastern Time
FICC	Fixed Income Clearing Corporation
FMI	financial market infrastructure
FRBNY	Federal Reserve Bank of New York
FSPC	Financial Services Policy Committee
GAO	U.S. Government Accountability Office
GSE	government-sponsored enterprise
HR	human resources
IOSCO	International Organization of Securities Commissions
ISIN	international securities identification number
ISO	International Organization for Standardization

IT	information technology
ITOC	Information Technology Oversight Committee
LVPS	large-value payment system
MBS	mortgage-backed security
PFMI	Principles for Financial Market Infrastructures
PSR	payment system risk
RTGS	real-time gross settlement
SAFR	Security Assurance for the Federal Reserve
SIFMA	Securities Industry and Financial Markets Association
SIPC	Securities Investor Protection Corporation
SSS	securities settlement system
SWIFT	Society for Worldwide Interbank Financial Telecommunications
TBA	to be announced
TR	trade repository
TRADES	Treasury/Reserve Automated Debt Entry System
UCC	Uniform Commercial Code
ULC	Uniform Law Commission
USC	United States Code
USCCAN	United States Code Congressional and Administrative News
WSCAG	Wholesale Securities Service Customer Advisory Group
WPO	Wholesale Product Office

VI. List of Publicly Available Resources

General Information

Fedwire Securities Service

<https://www.frbservices.org/financial-services/securities/index.html>

Operating Circulars, Policies, and Guides

Reserve Bank operating circulars

<https://www.frbservices.org/resources/rules-regulations/operating-circulars.html>

Federal Reserve Policy on Payment System Risk

http://www.federalreserve.gov/paymentsystems/files/psr_policy.pdf

PSR-related policies

http://www.federalreserve.gov/paymentsystems/psr_relpolicies.htm

Federal Reserve's Key Policies for the Provision of Financial Services

http://www.federalreserve.gov/paymentsystems/pfs_policies.htm

Supervision and Oversight of Financial Market Infrastructures (Reserve Bank Systems)

http://www.federalreserve.gov/paymentsystems/over_rbsystems.htm

Federal Reserve Collateral Guidelines

<https://www.frbdiscountwindow.org/~media/Documents/FRcollguidelines.ashx?la=en>

Account Management Guide

<https://www.frbservices.org/assets/resources/rules-regulations/account-management-guide.pdf>

Financial Accounting Manual for Federal Reserve Banks

<http://www.federalreserve.gov/monetarypolicy/files/BSTfinaccountingmanual.pdf>

Data

Monthly Fedwire Securities Service value and volume statistics

<https://www.frbservices.org/resources/financial-services/securities/volume-value-stats/monthly-stats.html>

Quarterly and annual Fedwire Securities Service value and volume statistics

http://www.federalreserve.gov/paymentsystems/fedsecs_data.htm

Other

The Federal Reserve System: Purposes & Functions

http://www.federalreserve.gov/aboutthefed/files/pf_complete.pdf

Information on FRBNY's governance

<http://www.newyorkfed.org/aboutthefed/governance.html>

FRBNY's code of conduct

<https://www.newyorkfed.org/medialibrary/media/aboutthefed/ob43.pdf>

The Fedwire logo, "Fedwire," "Wired to Deliver," "FedLine Direct," "FedLine Advantage," "FedPayments," "FedFlash," and "FedFocus" are registered or unregistered service marks of the Federal Reserve Banks.

Other trademarks and service marks are the property of their respective owners.