

The Fedwire® Funds Service

**Assessment of Compliance with the
Core Principles for Systemically Important Payment Systems**

Revised July 2014

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List of 2014 Revisions

The table below reflects significant changes made in the 2014 revision to this assessment. Other editorial and clarifying changes are not listed in the table below.

Section of the Assessment	Revision
Executive Summary	Revised to reflect the pending adoption of the PFMI's into the PSR Policy.
0.2	Updated numbers for daylight credit use and revised Fedwire pricing to reflect the 2014 fee schedule.
0.3	Updated Fedwire Funds Service usage statistics.
2.3	Revised to reflect the 2011 update to the PSR policy.
3.1 – 3.3	Revised to reflect the 2011 update to the PSR policy. Reorganized and consolidated language, including removing section 3.4.
7.2	Updated Fedwire Funds Service availability statistics.
7.3	Updated statistics on participant contingency testing.
8.2	Revised to reflect the 2014 fee schedule.
8.3	Updated Fedwire Funds Service cost efficiency statistics.
8.4	Updated to reflect enhancements to the Fedwire Funds Service message format.
8.6	Revised to reflect the 2014 status of the technology modernization program.
10	Additional detail surrounding the various governance arrangements was provided within the section.

Executive Summary

The international financial community has worked over time on initiatives to strengthen the global financial infrastructure. As one of these initiatives, the Committee on Payment and Settlement Systems (CPSS) of the central banks of the Group of Ten countries developed the Core Principles for Systemically Important Payment Systems (Core Principles) to serve as guidelines for the design and operation of safe and efficient systemically important payment systems worldwide.¹ The Board of Governors of the Federal Reserve System (the Board) has incorporated these principles into the Federal Reserve Policy on Payment System Risk (PSR policy).² This assessment has been conducted pursuant to part I of the PSR policy.

Effective financial systems depend on safe and efficient payment systems, particularly systemically important payment systems. Systemically important payment systems can transmit economic shocks across markets and international borders. Poorly designed or operated payment systems can exacerbate economic disturbances, while well-managed systems help minimize these disturbances.

As a real-time gross settlement (RTGS) system for the United States and the U.S. dollar, the Federal Reserve Banks' Fedwire[®] Funds Service plays a critical role in the implementation of United States monetary policy through the settlement of domestic money market transactions.³ The Fedwire Funds Service is also used for time-critical payments such as the settlement of commercial payments and financial market transactions, and for the funding of other systemically important financial market infrastructures.

The Federal Reserve is the central bank of the United States and includes the Board and the 12 regional Reserve Banks. The Federal Reserve seeks to foster the safety, efficiency, and accessibility of the Fedwire Funds Service and other payment systems in the United States. As a systemically important payment system, the Fedwire Funds Service should meet or exceed the international standards for such systems. Furthermore, the Federal Reserve recognizes that critical Reserve Bank payment and settlement

¹ Committee on Payment and Settlement Systems, *Core Principles for Systemically Important Payment Systems*, Bank for International Settlements, January 2001. The Core Principles are available at www.bis.org. Systemic importance is defined in paragraph 3.0.2.

In April 2012, CPSS and the Technical Committee of the International Organization of Securities Commissions (IOSCO) published the "Principles for Financial Market Infrastructures" (PFMIs), which updated, harmonized, strengthened, and replaced the existing CPSS and IOSCO risk-management standards, including the Core Principles with respect to payment systems.

² In January 2014, the Board proposed revisions to part I of its PSR policy in light of the international risk-management standards in the PFMIs. Once the PFMIs are adopted into Board PSR policy, the Fedwire Funds Service will be expected to comply with those standards applicable to central bank-operated payment systems.

³ "Fedwire" is a registered service mark of the Federal Reserve Banks.

services should be subject to rigorous and comprehensive supervision that is comparable to or exceeds the supervision of similar private-sector payment and settlement arrangements, taking into consideration the unique characteristics of central bank services. This assessment contributes to these goals and is required by the PSR policy. This document also contributes to the implementation by the United States of international financial standards and codes set out by the Financial Stability Forum.⁴

The Fedwire Funds Service observes each of the applicable Core Principles. As an RTGS system with final settlement in central bank money, the Fedwire Funds Service meets the minimum standards for settlement assets and finality. U.S. law provides a well-established legal foundation for the Fedwire Funds Service and settlement finality. Access to the Fedwire Funds Service is determined by objective, publicly disclosed criteria. The Fedwire Funds Service’s rules and procedures are clear and permit participants to understand the financial risks resulting from participation in the system. The rules help minimize financial risks in the Fedwire Funds Service and provide incentives for participants to manage any remaining risk. The Fedwire Funds Service operates effectively and efficiently, providing secure, reliable, and practical services to its customers. The Fedwire Funds Service’s governance arrangements are effective, accountable, and transparent.

Table 1: Summary of assessment results by Core Principle	
Core Principle	Assessment
I: Legal Basis	Observed
II: Understanding Financial Risks	Observed
III: Management of Financial Risks	Observed
IV: Prompt Final Settlement	Observed
V: Settlement in Multilateral Net Systems	Not Applicable
VI: Settlement Assets	Observed
VII: Security and Operational Reliability	Observed
VIII: Efficiency	Observed
IX: Access Criteria	Observed
X: Governance	Observed

⁴ The Core Principles are one of the designated sets of international standards for payment and settlement systems, which the Financial Stability Forum (now the Financial Stability Board) designated as a key area for sound financial systems. Other key areas are monetary and financial policy transparency, fiscal policy transparency, data dissemination, insolvency, corporate governance, accounting, auditing, market integrity, banking supervision, securities regulation, and insurance supervision. The relevant standards and codes are available at <http://www.financialstabilityboard.org/>.

0 General Background

The Fedwire Funds Service is an RTGS system owned and operated by the Reserve Banks that enables participants to make final payments in central bank money. The Fedwire Funds Service consists of a set of computer applications that route and settle payment orders.⁵ In addition to settling payment orders, the Fedwire Funds Service and related applications review payment orders for syntax errors, query and update account balances, and notify participants of related credits and debits to their accounts. The Fedwire Funds Service is supported by a national communications network.

An institution that maintains an account with a Reserve Bank generally can become a participant of the Fedwire Funds Service. Participants use the Fedwire Funds Service to instruct a Reserve Bank to debit funds from the participant's own Reserve Bank account and credit the Reserve Bank account of another participant.⁶ The Fedwire Funds Service processes and settles payment orders individually throughout the operating day. Payment to the receiving participant over the Fedwire Funds Service is final and irrevocable when the amount of the payment order is credited to the receiving participant's account or when the payment order is sent to the receiving participant, whichever is earlier. Participants of the Fedwire Funds Service send payment orders to a Reserve Bank on line, by initiating an electronic message, or off line, via telephone. Payment orders must be in the proper syntax and meet the relevant security controls. An institution sending payment orders to a Reserve Bank is required to have sufficient funds, either in the form of account balances or overdraft capacity, or a payment order may be rejected.

0.1 Brief History

The Reserve Banks developed the Fedwire Funds Service to improve the safety and efficiency of the interbank settlement process.⁷ In the early 1900s, settlement of interbank payment obligations often involved the physical delivery of cash or gold to counterparties, which was both risky and costly. To mitigate these risks, in 1918, the Reserve Banks introduced a dedicated funds transfer network featuring a Morse code system that connected the 12 Reserve Banks, the Board, and the United States Department of the Treasury. The key feature of this arrangement was the ability to transfer balances held at the Reserve Banks using a secure communications network. This feature remains the foundation of Fedwire Funds Service operations.

⁵ The definition of a payment order is in subpart B of the Board's Regulation J (12 CFR § 210). The Code of Federal Regulations is available at www.gpoaccess.gov/cfr/index.html.

⁶ Except as provided in Operating Circular 1, an institution may maintain only a single master account with only the Reserve Bank in whose District the institution is located. This account contains all balances, including excess balances and balances maintained to satisfy reserve balance requirements. For additional information on reserve requirements and reserve balances requirements see the *Reserve Maintenance Manual* available at www.federalreserve.gov/monetarypolicy/rmm/reserve-maintenance-manual.pdf.

⁷ For additional information on the history of the Fedwire Funds Service see *Fedwire: The Federal Reserve Wire Transfer Service*, Federal Reserve Bank of New York, March 1995, and "Creating an Integrated Payment System: The Evolution of Fedwire," Adam Gilbert, Dara Hunt, and Kenneth C. Winch, *Federal Reserve Bank of New York Economic Policy Review*, July 1997, available at www.newyorkfed.org/research/epr/97v03n2/9707gilb.html.

As communications technology improved, the Reserve Banks increased levels of security and automation for the Fedwire Funds Service. From the 1920s to the 1960s, the Fedwire Funds Service migrated from leased-line public telegraph circuits to telex to computer operations and proprietary telecommunications networks. These operations were organized and executed by the 12 Reserve Banks on a decentralized basis. This organization matched the localized structure of the domestic banking system at the time and allowed each Reserve Bank to serve the specific needs of the institutions in its Federal Reserve District (District).

During the 1980s, consistency of services across Districts became increasingly important as interstate banking emerged in the United States. More bank holding companies owned depository institutions in multiple Districts and sought greater standardization of Reserve Bank services. The Reserve Banks addressed this demand by deploying standard software for the Fedwire Funds Service in each Reserve Bank.

In the 1990s, the Reserve Banks consolidated most mainframe computer operations, centralized certain payment applications, and consolidated Fedwire management at specific Reserve Banks. Section 10 of this assessment provides greater detail on the governance structure of the Fedwire Funds Service.

More recently, the Reserve Banks have taken advantage of the flexibility and efficiency that Internet protocol (IP) and distributed processing technologies offer. These technologies have enhanced the functionality and operational reliability of the Fedwire Funds Service and other Reserve Bank services.

Although many aspects of Fedwire Funds Service management have been centralized, certain Reserve Banks remain responsible for limited operational processes such as updating account profiles. In addition, each individual Reserve Bank still maintains an account for and a relationship with the institutions in its District.

0.2 Operations

Participating Institutions

An institution that maintains an account at a Reserve Bank is eligible to be a Fedwire Funds Service participant. Such institutions include Federal Reserve member banks, nonmember depository institutions, and certain other institutions, such as U.S. branches and agencies of foreign banks.⁸ The Board's Regulation J, subpart B, which incorporates article 4A of the Uniform Commercial Code, and Operating Circular 6 (Funds Transfers through Fedwire) (OC 6), issued in accordance with Regulation J, govern Fedwire Funds

⁸ For purposes of this assessment, "depository institution" has the meaning set forth in Section 19 of the Federal Reserve Act (12 U.S.C. § 461(b)(1)(A)), but also includes U.S. branches and agencies of foreign banks and Edge and agreement corporations unless the context indicates otherwise. The Reserve Banks also provide services for other organizations, such as the United States Treasury, government-sponsored enterprises (GSEs), and foreign central banks. Services provided to these organizations are beyond the scope of this assessment. Federal statutes are available at <http://www.gpoaccess.gov/uscode/>.

Service funds transfers.⁹ Under Regulation J and OC 6, the Reserve Banks can impose conditions on an institution's use of the Fedwire Funds Service. In particular, OC 6 requires each Fedwire participant to enter into a security procedures agreement with its Reserve Bank.

Access Solutions

Fedwire Funds Service funds transfers can be initiated on line or off line. Online transactions require no manual processing of payment orders by Reserve Bank staff. Participants that send and receive a large number of messages typically choose the FedLine Direct[®] access solution. The FedLine Direct access solution involves direct computer-to-computer communication and allows participants to customize internal systems, providing significant automation and greater levels of straight-through processing. Participants that send or receive lower message volumes typically use the FedLine Advantage[®] access solution, a web-based access solution that can be accessed via personal computers either over a private network connection or over the Internet using a virtual private network (VPN) connection. Participants that send or receive very few Fedwire Funds Service funds transfers sometimes elect to use the offline transaction process. Offline transactions are transmitted via telephone and require Reserve Bank staff to input the payment order.

Operating Hours

Fedwire Funds Service operating hours for each business day begin at 9:00 p.m. Eastern Time (ET) on the preceding calendar day and end at 6:30 p.m. ET on each business day, Monday through Friday, excluding designated holidays. For example, processing on a non-holiday Monday begins at 9:00 p.m. ET on Sunday night and ends at 6:30 p.m. ET Monday night. The deadline for third-party transfers, those initiated or received by a participant on behalf of a customer, is 6:00 p.m. ET. Offline transfers can be initiated between 9:00 a.m. and 6:00 p.m. ET (5:30 p.m. for third-party transfers). A complete time schedule and list of holidays is available in appendix B of OC 6. Guidelines pertaining to the extension of Fedwire Funds Service hours are available in OC 6 and are discussed in section 2 of this assessment.

Daylight Credit

Intraday central bank credit in the form of daylight overdrafts is generally available to financially healthy Fedwire Funds Service participants with regular access to the discount window. Additional information on the provision of daylight credit to Fedwire Funds Service participants is provided in section 3 of this assessment.

Many Fedwire Funds Service participants may use daylight credit to facilitate payments throughout the operating day. Aggregate daylight overdrafts incurred through the Fedwire Funds Service in 2013 averaged \$1.75 billion per day, with aggregate average

⁹ Reserve Bank operating circulars are available at www.frb services.org/regulations/operating_circulars.html.

daily peak daylight overdrafts of \$11.6 billion.¹⁰ In 2013, ten institutions accounted for about 89 percent of total overdrafts resulting from use of the Fedwire Funds Service.

Pricing

The Monetary Control Act of 1980 (MCA) requires the Reserve Banks to fully recover, over the long run, the costs associated with the provision of most financial services they provide, as well as a private-sector adjustment factor discussed in section 8 of this assessment.¹¹ Currently, most Fedwire Funds Service fees are charged to both the originating institution (debit side) and receiving institution (credit side). Fees are based on the volume of transfers and a fixed monthly participation fee, and, depending on the characteristics of the funds transfer, may be subject to one of several surcharges.¹² In 2014, the volume-based transaction fees range from 2.8 cents to 69 cents per transfer, per master account, depending on the transfer volume associated with that account. In addition to volume-based transaction fees, a fixed monthly fee of \$90 is charged to each participant with activity in that month. There are also certain surcharges, such as a surcharge of \$45 to originate or receive an offline funds transfer, a surcharge of \$0.15 to originate or receive a funds transfer that exceeds \$10 million, a surcharge of \$0.36 to originate or receive a funds transfer that exceeds \$100 million, and a surcharge of \$0.26 to originate a funds transfer after 5 p.m. ET. Electronic access fees are assessed separately.

0.3 Fedwire Funds Service Use

In 2013, the Fedwire Funds Service processed an average daily volume of 534,837 payments, with an average daily value of approximately \$2.8 trillion.¹³ The distribution of these payments was highly skewed, with a median value of approximately \$19,900 and an average value of approximately \$5.4 million. Roughly 8 percent of Fedwire Funds Service funds transfers are for more than \$1 million. Approximately 6,500 depository institutions are eligible to initiate or receive funds transfers over the Fedwire Funds Service. Use of the Fedwire Funds Service, however, also is highly skewed. The top ten participants by value account for approximately 60 percent of the value of payments. The top ten participants by volume account for approximately 53 percent of the volume of funds transfers.

¹⁰ Average and peak overdraft figures do not include overdrafts by GSEs and certain international organizations. PSR policy changes that went into effect in 2006 aligned the treatment of GSEs and certain international organizations with the treatment of other account holders that do not have regular access to the discount window and are not eligible for intraday credit. See <http://www.federalreserve.gov/boarddocs/press/other/2004/20040923/attachment.pdf>.

¹¹ The MCA amended the Federal Reserve Act, adding Section 11A (12 U.S.C. § 248a).

¹² The Board annually reviews and approves the fees Reserve Banks charge for their priced services. The current fee schedules for the Fedwire Funds Service and for electronic access to financial services provided by the Reserve Banks are available at www.frb-services.org.

¹³ Historical Fedwire Funds Service volume and value statistics are available at http://www.federalreserve.gov/paymentsystems/fedfunds_data.htm.

1 Core Principle I: The system should have a well-founded legal basis under all relevant jurisdictions.

1.0 Assessment of Compliance

U.S. law provides a comprehensive, well-established, and publicly disclosed legal framework for funds transfers over the Fedwire Funds Service. The statutes, regulations, and contractual provisions that constitute the legal framework for the Fedwire Funds Service clearly define the rights and obligations of each party to Fedwire Funds Service funds transfers. The legal framework provides participants a high degree of legal assurance for the settlement and finality of funds transfers over the Fedwire Funds Service. The Fedwire Funds Service observes Core Principle I.

1.1 General Statutes and Regulations

Federal statutes and regulations promulgated pursuant to those statutes provide the legal framework for the Fedwire Funds Service. These authorities provide a comprehensive set of rules and define the rights and obligations of participants and the Reserve Banks with a high degree of certainty.

1.1.1 Federal Reserve Act

Several sections of the Federal Reserve Act (FRA) provide the legal basis for operating the Fedwire Funds Service. The FRA 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.¹⁴ In addition, balances maintained at the Reserve Banks can be checked against and withdrawn from for the purpose of meeting existing liabilities.¹⁵ The FRA empowers the Board to promulgate regulations governing the transfer of funds among Reserve Banks and their Branches and also permits the Board to require each Reserve Bank to exercise the functions of a clearinghouse for depository institutions.¹⁶ The FRA also charges the Board with exercising general supervision over the Reserve Banks and authorizes the Board to make all rules and regulations necessary to enable the Board to perform effectively its duties, functions, or services as directed by the FRA.¹⁷

1.1.2 Federal Reserve Regulation J

Pursuant to the statutory authority described above, the Board has promulgated subpart B (Funds Transfers through Fedwire) of the Board's Regulation J.¹⁸ Subpart B delineates the rights and responsibilities of parties to funds transfers over the Fedwire Funds Service. The regulation was promulgated through the procedures outlined in the

¹⁴ See 12 U.S.C. § 342.

¹⁵ See 12 U.S.C. § 464.

¹⁶ See 12 U.S.C. § 248-1.

¹⁷ See 12 U.S.C. § 248 (j), (i).

¹⁸ See 12 CFR § 210.25 *et seq.*

Administrative Procedure Act (APA), which, among other things, provides for public notice and comment before the regulation becomes effective.¹⁹ Regulations adopted by federal agencies have the force of federal law. As federal law, Regulation J preempts any inconsistent provisions of state law.

Regulation J, subpart B adopts article 4A of the Uniform Commercial Code, set out as appendix B to subpart B.²⁰ In addition, an official commentary to subpart B is set out as appendix A to subpart B. The commentary constitutes an official Board interpretation of subpart B and provides background material to explain the intent of the Board in adopting particular provisions of subpart B.

Regulation J, subpart B governs the rights and obligations of parties to a Fedwire Funds Service funds transfer, including (i) Reserve Banks sending or receiving payment orders, (ii) “senders” that send payment orders directly to a Reserve Bank, (iii) “receiving banks” that receive payment orders directly from a Reserve Bank, and (iv) “beneficiaries” that receive payment pursuant to payment orders sent to a Reserve Bank by means of a credit to an account maintained or used at a Reserve Bank. Regulation J also applies to other parties to a funds transfer that might be carried out, in whole or in part, through the Fedwire Funds Service, if such parties are aware that the Fedwire Funds Service might be used to complete the transfer.

Under Regulation J, subpart B, by maintaining or using an account with a Reserve Bank, a sending bank authorizes its Reserve Bank to obtain payment for the sender’s payment order by debiting the amount of the payment order from its Reserve Bank account. In addition, a bank that receives a payment order from a Reserve Bank authorizes its Reserve Bank to pay for the payment order by crediting the amount of the payment order to its Reserve Bank account.

Article 4A, as set out in Regulation J, provides a comprehensive set of rules for funds transfers over the Fedwire Funds Service, including the following areas:

- The timing and enforceability of payment orders
- The effect of security procedures for verifying payment orders
- Liability for erroneous payment orders (including misdescription of the intended beneficiary’s name or account number)

¹⁹ See 5 U.S.C. § 553.

²⁰ Article 4A of the Uniform Commercial Code was developed and endorsed by the National Conference of Commissioners on Uniform State Laws, which is now also known as the Uniform Law Commission (ULC), in conjunction with the American Law Institute, in 1990. ULC, formed in 1892, is a nonprofit association of legal experts from each state, the District of Columbia, the Commonwealth of Puerto Rico, and the U.S. Virgin Islands. 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. 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. The Board adopted the version of Article 4A endorsed by ULC as part of Regulation J. Article 4A also has been adopted by the fifty states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands. If Article 4A as adopted in Regulation J differs from Article 4A as adopted by another jurisdiction, Regulation J controls with respect to the Fedwire Funds Service.

- Timing of acceptance of payment orders
- Rejection of payment orders
- Cancellation and amendment of payment orders
- Obligations of a bank in executing an accepted payment order
- Liability of a receiving bank for erroneous or delayed execution of a payment order
- The sender's duty to notify the receiving bank with respect to an erroneously executed payment order
- The obligation of a sender to pay a receiving bank for an accepted payment order
- The obligation of a beneficiary's bank to pay the beneficiary
- Other miscellaneous issues.

1.2 Governing Agreements

Subpart B of Regulation J directs each Reserve Bank to issue an operating circular consistent with subpart B that governs the details of its funds transfer operations. Operating circulars are contracts between a Reserve Bank and an institution.

Operating Circular 6 has been issued in identical form by all Reserve Banks. Like Regulation J, OC 6 supersedes inconsistent provisions of state law. Under Operating Circular 1 (Account Agreements) (OC 1), all accounts are subject to Federal Reserve policies, including the PSR policy.²¹

1.3 Other Applicable Laws

Insolvency Law

U.S. depository institutions and U.S. branches and agencies of foreign banks are subject to the liquidation provisions of applicable federal and state banking laws. The liquidation provisions of U.S. banking laws do not contain a zero-hour rule that would have the effect of voiding a settled funds transfer over the Fedwire Funds Service involving an insolvent participant. If the originator were insolvent at the time of the payment and a court determined that the payment was a fraudulent conveyance or an unlawful preference, the beneficiary could be required to return the funds after the fact. Such determinations, however, would be unrelated to questions of the finality of Fedwire Funds Service funds transfers.

Laws of Non-U.S. Jurisdictions

The laws of non-U.S. jurisdictions are not directly applicable in disputes involving direct Fedwire Funds Service participants because all direct Fedwire Funds Service participants are required by the Reserve Banks to be chartered or licensed in the United States. Foreign banking organizations are only permitted to access the Fedwire Funds Service through branches, agencies, or affiliates established in the United States. 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. Moreover, the

²¹ The PSR policy is available at http://www.federalreserve.gov/paymentsystems/psr_policy.htm.

issue of whether the home country laws of a foreign-incorporated participant recognize netting arrangements in an insolvency context is not applicable because the Fedwire Funds Service is not a netting system.

Miscellaneous

Other U.S. statutes and regulations could affect Fedwire Funds Service funds transfers, for example, Office of Foreign Asset Control regulations (blocked transactions involving prohibited foreign countries or nationals), the Expedited Funds Availability Act (availability of electronic funds transfer proceeds deposited in transaction accounts), the Bank Secrecy Act (anti-money laundering and record keeping requirements), and the USA PATRIOT Act (counter-terrorism expansion of investigatory tools).

2 Core Principle II: *The system’s rules and procedures should enable participants to have a clear understanding of the system’s impact on each of the financial risks they incur through participation in it.*

2.0 Assessment of Compliance

The rules and procedures for the Fedwire Funds Service are clear and permit participants to understand the financial risks resulting from participation in the system. These rules and procedures fully define the rights and obligations of all involved parties and are available to the public. The Fedwire Funds Service observes Core Principle II.

2.1 Disclosure of Rules and Procedures

The FRA, Regulation J, OC 6, and the PSR policy comprise the Fedwire Funds Service’s funds transfer rules and procedures. The FRA and Regulation J provide a general legal framework. Operating Circular 6 sets forth the roles and responsibilities of participants and the Reserve Banks in Fedwire Funds Service funds transfers. The PSR policy governs the Reserve Banks’ extension of daylight credit to participants. These documents and policies are widely available and appear on Federal Reserve web sites.

The process for changing the rules and procedures of the Fedwire Funds Service and the parties responsible for initiating such changes are discussed in section 10 of this assessment.

2.2 Financial Risks in the Fedwire Funds Service

As with other RTGS systems, the Fedwire Funds Service processes transfers individually as soon as they are received. Continuous real-time processing and the immediate settlement finality provided by Regulation J eliminate credit risk for receiving Fedwire Funds Service participants.²²

To effect the smooth and efficient operation of the Fedwire Funds Service, the Reserve Banks offer daylight credit, in the form of daylight overdrafts, to most Fedwire Funds Service participants. The provision of daylight credit converts the liquidity risk otherwise borne by participating institutions into credit risk borne by the Reserve Banks. Although daylight credit eliminates almost all liquidity risk from the Fedwire Funds Service, the daylight credit limits prescribed by the Board’s PSR policy can constrain some Fedwire Funds Service participants’ payment operations. Each participant is aware of these constraints and is responsible for managing its account throughout the day.

²² Refer to the *Core Principles for Systemically Important Payment Systems*, as referenced in footnote 1, for additional background on credit risk in settlement systems.

Operational difficulties, whether with the Fedwire Funds Service or at participating institutions, can also contribute to financial risk. An operational problem could lead to payment delays or necessitate operating-hour extensions, though the likelihood of such a problem is mitigated by the security and contingency policies outlined in section 7 of this assessment. Operating Circular 6 clearly defines the roles and responsibilities of participants and the Reserve Banks in exceptional situations.

2.3 Federal Reserve Policy on Payment System Risk

The primary objective of the PSR policy, first published in 1985, is to foster the safety and efficiency of payment and securities settlement systems. This policy objective is consistent with (1) the Board's long-standing objectives to promote the integrity, efficiency, and accessibility of the payments mechanism, (2) industry and supervisory methods for risk management, and (3) internationally accepted risk-management standards and practices for systemically important payments and securities settlement systems. Part II of the PSR policy outlines the methods used to provide intraday credit to ensure the smooth functioning of payment and settlement systems while controlling credit risk to the Reserve Banks associated with such intraday credit. These methods include voluntary collateralization of intraday credit, a limit on total daylight overdrafts in institutions' Federal Reserve accounts, and a fee for uncollateralized daylight overdrafts.²³

The PSR policy is further described to the financial community and the public in the *Guide to the Federal Reserve's Payment System Risk Policy* and the *Overview of the Federal Reserve's Payment System Risk Policy*.²⁴ These documents provide detailed descriptions of how to comply with part II of the PSR policy concerning the provision and use of intraday credit.

Through continual enforcement of part II of the PSR policy, including contact with participants and the monitoring of overdraft usage, the Reserve Banks assess account holders' awareness of the PSR policy.²⁵ Moreover, the Reserve Banks offer account holders training on both the intraday credit aspects of the PSR policy and account-management tools.

2.4 Operating Circular 6 (Funds Transfers through Fedwire)

Operating Circular 6 consists of detailed rules regarding funds transfers over the Fedwire Funds Service and several appendices setting out model agreements to be executed by an institution in order for that institution to use the Fedwire Funds Service. Among other

²³ In March 2011, the Federal Reserve implemented a new approach to daylight overdrafts. This approach explicitly recognizes the role of the central bank in providing intraday credit to healthy depository institutions on a collateralized basis and encourages these institutions to collateralize their daylight overdrafts. The approach includes a zero fee for collateralized daylight overdrafts, a 50 basis point (annual rate) charge for uncollateralized daylight overdrafts, and a biweekly daylight overdraft fee waiver of \$150.

²⁴ The Policy, Guide, and Overview are available at http://www.federalreserve.gov/paymentsystems/psr_relpolicies.htm.

²⁵ Account holders are defined in OC 1.

things, the rules in OC 6 set out operating hours, address security procedures, specify format and media requirements for payment orders, identify which messages do not constitute payment orders, and specify charges for funds transfer services.

Operating Circular 6 also establishes that, regardless of which Reserve Bank maintains an institution's online connection or initiates offline transfers to or from the institution, payment orders sent by an institution are deemed to be sent to the Reserve Bank holding the institution's account. Before issuing a payment order to, or receiving a payment order from, a Reserve Bank, a sender or receiving bank must execute an agreement with the Reserve Bank holding its account (in the form appended to OC 6) regarding the security procedures to be used by the Reserve Banks to verify the authenticity of a payment order over the Fedwire Funds Service.

As provided in OC 6, participating institutions may request an extension of Fedwire Funds Service operating hours, which may be granted either when Reserve Bank network equipment fails or when there is a significant operating problem at a bank or major dealer, or if the Federal Reserve Bank of New York or its designee deems the extension necessary to prevent a significant market disruption.

The roles of the Reserve Banks and participants in an emergency situation are set forth in OC 6, and contingency guidelines are provided to participants.

2.5 Notification of Operating Hour Extensions and Operational Outages

Online Fedwire Funds Service participants receive information about Fedwire Funds Service operational issues, including extensions and problems experienced by major customers. The Reserve Banks post this information to their financial services website, www.frbsservices.org, and have the ability to disseminate additional messages to their online customers.

3 Core Principle III: *The system should have clearly defined procedures for the management of credit risks and liquidity risks, which specify the respective responsibilities of the system operator and the participants and which provide appropriate incentives to manage and contain those risks.*

3.0 Assessment of Compliance

Credit and liquidity risks to Fedwire Funds Service participants are managed principally through immediate payment finality and the provision of intraday credit. Credit limits, assessment of fees, Reserve Bank monitoring, and collateralization requirements provide additional incentives for participants to manage these risks. The Fedwire Funds Service observes Core Principle III.

3.1 Credit Risk

3.1.1 Credit Risk to Participants

Funds transfers over the Fedwire Funds Service settle in central bank money with immediate finality. As a result, receiving institutions do not face credit risk.

3.1.2 Credit Risk to the Central Bank

To the extent a Reserve Bank provides daylight credit to a Fedwire Funds Service participant, it exposes itself to direct credit risk from that participant. If that participant were to fail and be closed before it extinguished its daylight overdraft, its Reserve Bank could face a financial loss. The PSR policy attempts to control and mitigate these exposures while providing sufficient liquidity to account holders for making payments. Part II of the policy sets out the Federal Reserve's rules regarding the use of Reserve Bank intraday credit or daylight overdrafts.

3.2 Liquidity Risk

3.2.1 Liquidity Risk to Participants

An institution's account balance is available for settlement purposes throughout the Fedwire Funds Service business day.²⁶ In addition, most Fedwire Funds Service participants have access to Reserve Bank daylight credit. Although this intraday credit eliminates almost all liquidity risk in originating Fedwire Funds Service funds transfers, certain participants can be constrained from sending funds transfers by controls and monitoring requirements imposed by the Reserve Banks.

²⁶ For more information on Reserve Bank accounts, see the *Account Management Guide* and the *Reserve Maintenance Manual* available at www.frbservices.org/regulations/operating_circulars.html.

3.2.2 Liquidity Risk to the Central Bank

Because the Reserve Banks have access to unlimited liquidity, the Reserve Banks do not face liquidity risk from Fedwire Funds Service operations or the provision of intraday credit.

3.3 Managing Credit and Liquidity Risks

3.3.1 Policies and Procedures for Managing Credit and Liquidity Risks

Net Debit Caps

The PSR policy requires all institutions incurring daylight overdrafts in their Reserve Bank accounts to establish a maximum limit on daylight overdrafts (net debit cap), based on a multiple of the institution's risk-based capital.²⁷ An institution must be financially healthy and have regular access to the discount window in order to adopt a net debit cap greater than zero. The granting of a net debit cap, or any extension of intraday credit, to an institution is at the discretion of that institution's Reserve Bank.²⁸

Collateral

To help meet institutions' demand for intraday balances while mitigating Reserve Bank credit risk, the PSR policy permits institutions with regular access to the discount window to pledge collateral voluntarily to secure daylight overdrafts. Institutions that secure their use of intraday credit with collateral are not charged for the collateralized portion of their overdrafts. This policy offers pricing incentives to encourage greater collateralization. To avoid disrupting the operation of the payment system and increasing the cost burden on a large number of institutions using small amounts of daylight overdrafts, the use of collateral is generally voluntary.²⁹ Even though the PSR policy does not require the explicit collateralization of most daylight overdrafts, a significant amount of the Reserve Banks' intraday credit exposure is secured by collateral.

Regulation J provides that, to secure any overdraft, as well as any other obligation due or to become due to its Reserve Bank, each sender, by sending a payment order over the Fedwire Funds Service, grants the Reserve Bank a security interest in all of the sender's assets in the possession of, or held for the account of, the Reserve Bank. The security interest attaches when an overdraft or other obligation becomes due and payable. Thus,

²⁷ Discount window access is governed by the Board's Regulation A (12 CFR § 201). Procedures for access to the discount window are provided at www.frbdiscountwindow.org.

²⁸ Net debit caps are calculated by applying a cap multiple from one of six cap classes (zero, exempt-from-filing, de minimis, average, above average, and high) to a capital measure. The different cap categories correspond to different degrees of permissible intraday credit usage. The different cap categories and selection processes are described in detail in the *Guide to the Federal Reserve's Payment System Risk Policy*. See http://www.federalreserve.gov/paymentsystems/psr_relpolicies.htm.

²⁹ For more information on the types and valuation of assets accepted for collateral purposes, see www.frbdiscountwindow.org.

any of the sender's assets that are in the possession of, or held for the account of, a Reserve Bank secure the sender's daylight overdrafts, up to the value of those assets.³⁰

Daylight Overdraft Fees

Under the voluntary collateralization regime, the fee for collateralized overdrafts is zero, while the fee for uncollateralized overdrafts is 50 basis points. The two-tiered fee for collateralized and uncollateralized overdrafts is intended to provide a strong incentive for a depository institution to pledge collateral to its Reserve Bank to reduce or eliminate the institution's uncollateralized daylight overdrafts and associated charges for its use of intraday credit.³¹

Monitoring

Another way that the Reserve Banks manage their credit risk is through periodic and ongoing assessment of the financial condition of institutions. In order to establish a net debit cap category of high, above average, or average, an institution must perform a self-assessment of its own creditworthiness, intraday funds management and control, customer credit policies and controls, and operating controls and contingency procedures. Each institution's board of directors must review that institution's self-assessment and recommended cap category. The process of self-assessment, with the board of directors' review, should be conducted at least once in each 12-month period. As part of its normal examination, the institution's examiners may review the self-assessment to ensure that it is consistent with the examination findings.

The Reserve Banks have developed extensive guidelines for internal monitoring of the condition of institutions that have access to Reserve Bank intraday credit. These guidelines, known as the "condition monitoring" guidelines, establish standard criteria and practices used by the Reserve Banks for account risk management. These criteria help identify institutions that present high potential risk to the Reserve Banks and that, as a result, require special controls and monitoring. Based on these and other criteria, the Reserve Banks may decrease or reduce to zero an institution's net debit cap. Reserve Banks may also choose to monitor an institution's payment activity in such a way that if an outgoing Fedwire funds transfer exceeds the institution's available funds, the transfer will not be processed and may be immediately rejected and sent back to that institution. Additionally, a Reserve Bank may require an institution to pledge collateral in certain circumstances, such as when an institution presents heightened risk to the Reserve Bank or the Reserve Bank determines that an institution's account-management practices are not sufficient to prevent impermissible daylight overdrafts.

³⁰ Similar to Regulation J, OC 1 explicitly states that to secure overdrafts an account holder grants to its Reserve Bank a security interest in all of the account holder's assets in the possession of any Reserve Bank. Institutions desiring access to the discount window must execute the letter of agreement in Operating Circular 10 (Lending) (OC 10). Under OC 10, collateral pledged by an institution to secure discount window advances secures both intraday and overnight credit.

³¹ A detailed description of the fee and its calculation can be found in section IV of the *Guide to the Federal Reserve's Payment System Risk Policy*. See http://www.federalreserve.gov/paymentsystems/psr_relpolicies.htm.

The Discount Window

Daylight overdrafts must be extinguished by the end of the operating day. Daylight overdrafts can be extinguished by incoming payments to an institution's Reserve Bank account, including payments from financing obtained in the money markets, or borrowed funds from the Reserve Banks' discount window. To obtain a discount window loan, an institution must have executed the appropriate legal agreements with and pledged adequate collateral to its Reserve Bank. Daylight overdrafts are not automatically converted into discount window loans. An institution must contact its Reserve Bank and explicitly request the discount window loan. A discount window loan is made at the discretion of a Reserve Bank.

Overnight Overdrafts

Institutions that do not extinguish their daylight overdraft position by the end of the Fedwire Funds Service operating day may be charged for an overnight overdraft. The rate charged on overnight overdrafts is generally four percentage points more than the primary credit rate on the date the overdraft occurred. An overdraft or negative balance is also included in the calculation of an institution's average balance held over a maintenance period. If the average balance held by an institution is less than its reserve balance requirement, the institution is assessed a reserve deficiency fee.

Counseling

Institutions that incur daylight overdrafts in excess of their net debit caps are contacted by the Reserve Banks and counseled to keep future overdrafts within the appropriate limits. Institutions that frequently exceed their net debit caps may be required to apply for a higher cap, to increase their balances, to pledge collateral, or to have payments monitored in real time.

3.3.2 Tools for Managing Credit and Liquidity Risks

The Reserve Banks maintain a series of tools for managing the financial risk posed by Fedwire Funds Service participants. These tools include an account balance monitor, a daylight overdraft reporting and pricing system, a collateral-management system, and a database that aggregates supervisory, financial, and other information for assessing risk and creditworthiness.³²

The Reserve Banks monitor, in real time, the payment activity and intraday account balances of certain institutions, including those deemed to pose heightened risk to the Reserve Banks, such as institutions in deteriorating financial condition or with a history of excessive overdrafts. If an institution that is being monitored sends an outgoing Fedwire funds transfer that exceeds the institution's available funds, the transfer is immediately rejected and sent back to that institution.³³ The institution can initiate the

³² Monetary policy, bank supervision, or lending function personnel may only share confidential information with Reserve Bank financial services personnel when such action fulfills an important supervisory objective, preserves the integrity of the payment mechanism, or protects the assets of the Reserve Banks. Confidential information is only provided with the approval of senior management and on a need-to-know basis.

³³ Available funds are defined as an institution's account balance plus any available intraday credit.

transfer again when sufficient funds become available in its account. Because only a small number of institutions are monitored in this way, it is possible, although not permitted under the policy, for institutions that are not on the monitor to send payments in excess of their available funds, exposing the Reserve Banks to credit risk beyond institutions' net debit caps.

Fedwire Funds Service participants can monitor their intraday account balances to manage their use of intraday credit. The Reserve Banks provide a web-based monitoring tool, which provides a real-time account balance summary of Fedwire Funds Service and Fedwire Securities Service transfer activity. Debits and credits resulting from other payment activity processed by a Reserve Bank, such as check and automated clearinghouse (ACH) activity, are captured periodically throughout the day by the monitoring tool.³⁴ The monitoring tool also provides information on an institution's opening balance, its net debit cap, and collateral, if any.

The Reserve Banks have another analytical tool for monitoring institutions' overdraft activity and compliance with the PSR policy on an ex-post basis, as well as for calculating daylight overdraft charges. This tool produces various ex-post reports for institutions to monitor daylight overdrafts, prohibited overdrafts in excess of net debit caps, and account balances.

The Reserve Banks have additional tools related to overdraft activity that are not available to the participants. One web-based application integrates information needed to support risk-management decisions, including ex post daylight overdraft data. This application provides access to information for monitoring the condition of institutions, automates the administration of certain risk management policies, and provides advanced analytical tools to support credit risk management decisions.

In addition, the Reserve Banks support a collateral-management system, which is an automated collateral inventory and transaction-processing application used to monitor collateral held for discount window, PSR, and Treasury programs. The system supports the valuation of collateral pledged to the Reserve Banks. Fedwire Funds Service participants do not have access to this system, but do periodically receive reports regarding their collateral holdings from the Reserve Banks.

³⁴ The time schedule for posting such debits and credits is outlined in the PSR policy, available at http://www.federalreserve.gov/paymentsystems/psr_policy.htm.

4 **Core Principle IV:** *The system should provide prompt final settlement on the day of value, preferably during the day and at a minimum at the end of the day.*

4.0 **Assessment of Compliance**

As an RTGS system, the Fedwire Funds Service provides real-time, immediate finality. Fedwire observes Core Principle IV.

4.1 **Final and Irrevocable Settlement**

As discussed in section 1 of this assessment, Regulation J provides the legal foundation for settlement finality in the Fedwire Funds Service. Payment to the receiving participant over the Fedwire Funds Service is final and irrevocable upon the crediting of the receiving participant's account, or when the payment order is sent to the receiving participant, whichever is earlier. Payment orders generally are processed immediately following a Reserve Bank's receipt of a transfer message.

4.2 **Rejected Transfers and Error Handling**

Although Regulation J allows a Reserve Bank to reject a payment order for any reason, payment orders are generally accepted as long as security procedures are met and online messages conform to the proper message format. If an institution is being monitored by the Reserve Banks' account balance monitor (as described in section 3 of this assessment), the institution must also have available funds to make the transfer. An institution that has a payment order rejected is usually informed of the rejection immediately. The intended receiving institution is not made aware of the rejection.

4.3 **Bankruptcy**

As discussed in section 1 of this assessment, U.S. banking and bankruptcy laws do not contain a zero-hour rule that would have the effect of reversing a settled funds transfer over the Fedwire Funds Service. The payment from the originator to the beneficiary should not be affected by the insolvency of an institution unless the institution is the originator and a court finds the payment void as a fraudulent conveyance, unlawful preference, or some similar inequitable conduct.

- 5 Core Principle V:** *A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlements in the event of an inability to settle by the participant with the largest single settlement obligation.*

As an RTGS system, the Fedwire Funds Service does not allow the multilateral netting of payment orders. Core Principle V is, therefore, not applicable.

6 **Core Principle VI:** *Assets used for settlement should preferably be a claim on the central bank; where other assets are used, they should carry little or no credit risk and little or no liquidity risk.*

6.0 **Assessment of Compliance**

The Fedwire Funds Service effects the transfer of account balances held at Reserve Banks. Such transfers between Reserve Bank accounts are by definition settled in central bank money. The Fedwire Funds Service observes Core Principle VI.

7 Core Principle VII: *The system should have a high degree of security and operational reliability and should have contingency arrangements for timely completion of daily processing.*

7.0 Assessment of Compliance

The Fedwire Funds Service maintains a high degree of security and operational reliability. Stringent security standards protect Fedwire Funds Service applications and payment orders. Contingency operations are effective and are tested on a regular basis. The Fedwire Funds Service observes Core Principle VII.

7.1 Security Policy and Controls

The Fedwire Funds Service operates within the context of the Federal Reserve's overall information security program, consisting of defined policies and an architectural framework. This program is designed to protect information from loss or misuse, and thereby to minimize the risk of monetary loss, productivity loss, or reputational damage to the Federal Reserve. One component of the program is an information security policy that describes the procedures for maintaining confidentiality and integrity of information.

The information security policy requires each Reserve Bank with managerial responsibility for a business function, such as the Fedwire Funds Service, to complete an information security risk assessment to determine whether the appropriate levels of security controls are in place. Risk assessments must address the risk of monetary loss, productivity loss, and reputational damage to the Federal Reserve. The assessments consider both the likelihood and the impact of threats.

The applications, networks, and data centers that are critical to the Fedwire Funds Service rely on numerous security controls. These controls are routinely reviewed and enhanced. The Reserve Banks outline security procedures for online and offline Fedwire Funds Service funds transfers in their operating circulars and other administrative and security documents. Among the security procedures for online transfers are embedded protocols in the transmission hardware and software; identification codes, confidential passwords, and digital certificates used for access control; and traffic encryption across private or virtual private network connections. In addition, online participants must implement their own physical and logical security and management controls that appropriately protect the hardware, software, and access controls. Participants are also responsible for implementing any additional procedures set forth in the applicable security documentation provided by the Reserve Banks. Offline security procedures include the use of individual identification codes provided by the Reserve Banks and involve call back or listen back procedures.

7.2 Operational Reliability

The reliability of the Fedwire Funds Service depends, among other things, on the availability of the Fedwire Funds application, environmental applications, and the

national communications network. The Fedwire Funds Service is considered unavailable when customers cannot send or receive Fedwire funds transfers, regardless of whether the cause is related to a fault or failure in an application, environmental software, or the telecommunications network infrastructure the Reserve Banks rely on to effect Fedwire funds transfers for customers.³⁵ The availability standard for the Fedwire Funds Service is 99.9 percent of operating hours. In 2013, the Fedwire Funds Service was available 99.96 percent of operating hours for those Fedwire customers that access the Fedwire Funds Service through the FedLine Advantage access solution, 99.99 percent of operating hours for those Fedwire customers that access the Fedwire Funds Service through the FedLine Direct access solution, and 100 percent of operating hours for those Fedwire customers that access the Fedwire Funds Service through the Reserve Banks' offline funds-transfer service.

7.3 Business Continuity

The Reserve Banks view the business continuity of the Fedwire Funds Service as critical. The Fedwire Funds Service meets or exceeds the recommendations published in the *Interagency Paper on Sound Practices to Strengthen the Resilience of the U.S. Financial System*.³⁶ The Reserve Banks maintain multiple out-of-region backup data centers and redundant out-of-region staffs for the data centers, Fedwire Funds Service applications, and customer support. The Reserve Banks conduct multiple on-site and remote-site recovery tests each year.

Participant Responsibilities

As outlined in OC 6, Fedwire Funds Service participants are responsible for developing their own contingency and recovery plans, such as backup computer and operations facilities, to ensure their ability to continue operations in the event of an equipment failure or other operational disruption. The Reserve Banks require high-volume and high-value customers to participate in a minimum number of contingency tests each year, including tests from the customers' own backup sites. In 2013, for example, approximately 30 Fedwire Funds Service participants were required to participate in three of four contingency tests, and approximately 50 additional Fedwire Funds Service participants were required to participate in two of four contingency tests. The Reserve Banks also maintain multiple testing facilities that are available to all Fedwire Funds Service participants. In addition, the Federal Financial Institutions Examination Council (FFIEC) has issued supervisory guidance to regulated financial institutions regarding business resumption and information systems contingency planning.³⁷

³⁵ When measuring availability, the experience of the user community as a whole is considered. Outage events affect the majority of currently active customers and are not isolated instances.

³⁶ <http://www.federalreserve.gov/boarddocs/srletters/2003/SR0309a1.pdf>.

³⁷ The FFIEC prescribes uniform principles, standards, and report forms for the examination of financial institutions by the Federal Reserve, the Federal Deposit Insurance Corporation, the National Credit Union Administration, the Office of the Comptroller of the Currency, and the Consumer Financial Protection Bureau and makes recommendations to promote uniformity in the supervision of financial institutions.

8 Core Principle VIII: The system should provide a means of making payments which is practical for its users and efficient for the economy.

8.0 Assessment of Compliance

The Fedwire Funds Service operates efficiently, providing high-quality, practical services to participants. Management regularly seeks user feedback on services and systems, working to ensure future efficiency and practicality. Fedwire Funds Service funds transfer prices are reviewed annually according to the principles of the MCA to ensure recovery of the cost of service provision, thereby encouraging private-sector competition.³⁸ The Fedwire Funds Service observes Core Principle VIII.

8.1 Economic Benefits

The creation of the Fedwire Funds Service substantially reduced the cost of interbank settlements, and the Fedwire Funds Service continues to contribute to economic efficiency today. Upon its creation, the Fedwire Funds Service helped eliminate the regional exchange rates for the U.S. dollar that existed within the United States before 1918. The Fedwire Funds Service also reduced the cost of making interbank payments, particularly payments associated with interbank lending and monetary policy.³⁹ Today, through immediate finality and settlement in central bank money, the Fedwire Funds Service plays a key public policy role by helping to ensure a stable and reliable payment system and by minimizing systemic risk.

8.2 Pricing Policy and Competition

In passing the MCA, the United States Congress reaffirmed its intention that the Federal Reserve promote an efficient payment system. The MCA, designed in part to encourage competition between the Reserve Banks and private-sector providers of payment services, requires the Board to develop a set of pricing principles, and to use those principles to set fees for certain Reserve Bank services. The MCA requires the Board to set service fees that, over the long run, recover the actual costs incurred to provide the services, as well as imputed costs the Reserve Banks would have incurred and imputed profits they would have expected to earn if they were private-sector firms.⁴⁰ The pricing principles adopted by the Board added the more stringent objective of full cost recovery for each service line to the aggregate cost-recovery objective specified in the MCA.⁴¹ These requirements promote competition and economic efficiency by placing the Reserve Banks in a situation more comparable to private institutions.

³⁸ See 12 U.S.C. § 248(a).

³⁹ See Kenneth D. Garbade and William L. Silber, “The Payment System and Domestic Exchange Rates: Technological versus Institutional Change,” *Journal of Monetary Economics*, Jan. 1979, v5: 1, p 1-22.

⁴⁰ See www.federalreserve.gov/boarddocs/press/other/2005/20051012/attachment.pdf.

⁴¹ See http://www.federalreserve.gov/paymentsystems/pfs_feeschedules.htm#TocIB

The fee schedule for 2014 includes fixed fees, volume-based fees, and several surcharges based on time of day, value, and access solution.⁴² The schedule aims to align revenues with the cost of providing the Fedwire Funds Service, which is characterized by high fixed costs and low marginal costs. Fedwire Funds Service participants pay both for originating and for receiving transfers. Offline participants are assessed a surcharge to originate or receive a funds transfer. This surcharge reflects the additional cost of handling offline transfers, which require manual processing.

The Reserve Banks also charge connection fees to recover costs associated with communications infrastructure provided for online participants. Connections are priced by line speed and type.⁴³

8.3 Cost Efficiency Measures

The Reserve Banks have undertaken a number of initiatives to improve the efficiency of the Fedwire Funds Service. During the mid-1990s, they consolidated Fedwire Funds Service processing from twelve primary sites to one primary site, and upgraded the Fedwire Funds Service applications. In 1999, the Reserve Banks consolidated offline Fedwire Funds Service processing from twelve to two sites. These changes significantly reduced the cost of providing the Fedwire Funds Service. Between 1998 and 2007, total Fedwire Funds Service costs declined more than 25 percent. Since then, costs have increased due to an ongoing large-scale initiative to modernize the Fedwire Funds Service applications and underlying infrastructure. Overall, net cost reductions combined with other efficiencies resulted in a 60 percent reduction in the average price per online funds transfer between 1996 and 2012.⁴⁴

8.4 Service Practicality

The Reserve Banks strive to ensure the efficiency of the Fedwire Funds Service by providing high-quality, practical services for participants. By offering a variety of access vehicles, including the FedLine Direct access solution for high-volume institutions, the FedLine Advantage access solution for moderate-use institutions, and offline services for low-volume users, the Reserve Banks allow participants to match connection needs and costs appropriately.

Extended operating hours and an expanded Fedwire Funds Service message format have enhanced service practicality for participants. In 1997, the Reserve Banks extended Fedwire Funds Service operating hours from 10 to 18, and then in 2004 further extended the hours to 21.5 operating hours per day. This change increased overlap of operating hours with foreign markets and helped reduce foreign exchange settlement risk. In 1996

⁴² From 1999 to 2008, online Fedwire Funds transfers were priced using only a volume-based fee schedule; however, in 2012 and 2013, high-value surcharges were introduced for transfers over \$10 million and \$100 million respectively.

⁴³ See www.frb services.org for more information on electronic access fees.

⁴⁴ Including all base transfer fees, online surcharges, and applicable discounts, but not including offline surcharges.

and 2002, the Reserve Banks modified the format of Fedwire Funds Service transfer messages to allow for increased levels of straight-through processing. These changes helped eliminate the need for manual modifications of transfer messages that were received from or transferred to other communication networks or funds transfer systems.

More recently, the Reserve Banks have enhanced the Fedwire Funds Service message format to accommodate both cover payments and payments containing extended business remittance information and payment notification details. Cover payments are used in correspondent banking, usually to facilitate international transactions. They are payments made through a chain of correspondent banks to settle (cover) a funds transfer that travels a more direct route to the ultimate beneficiary's bank. The format changes to support the transparency of cover payments were originally implemented in November 2009 and then enhanced in 2011. The extended Fedwire Funds Service message format for business remittance information and payment notification details was also implemented in 2011.

8.5 User Consultations

The Reserve Banks, through the Wholesale Product Office (WPO) at the Federal Reserve Bank of New York and the Customer Relations and Support Office (CRSO) at the Federal Reserve Bank of Chicago, regularly seek to improve the efficiency and practicality of the Fedwire Funds 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.

National Fedwire Funds Service Customer Advisory Groups

A private-sector advisory group composed of large institutions provides a mechanism for ongoing communication and collaboration between the WPO, other Reserve Bank business functions, and representative Fedwire Funds Service participants. The WPO uses its advisory group to better understand customer demands. The advisory group works closely with the WPO to suggest and describe potential changes and enhancements to the Fedwire Funds Service, to identify and consider the likely implications of changes to the service, to 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 and the WPO, working together with the CRSO, periodically seek input on specific issues through interviews with customers, customer surveys, focus groups, or meetings with corporate trade groups. The WPO also formally requests input on proposed operational changes from Fedwire participants. The mechanism for formal public comment is discussed in section 10 of this assessment.

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. Information from these areas is used to improve the Fedwire Funds Service.

8.6 Changes and Reforms in Process

The Reserve Banks are currently undertaking a large-scale, multiyear program designed to migrate the technology platform for the Fedwire Funds Service applications from a mainframe to a distributed environment in order to improve resiliency, flexibility, and efficiency. The program consists of a series of component projects that began in 2004 and are scheduled to be completed within the next several years.

9 Core Principle IX: *The system should have objective and publicly disclosed criteria for participation, which permit fair and open access.*

9.0 Assessment of Compliance

Criteria for access to the Fedwire Funds Service are grounded in the FRA and related Federal Reserve policies and are clearly disclosed in publicly available documents. These laws and policies act to ensure objectivity and fairness in access to the Fedwire Funds Service. The Fedwire Funds Service observes Core Principle IX.

9.1 Access to Fedwire

An institution with an account at a Reserve Bank may access the Fedwire Funds Service subject to the conditions detailed in OC 6, Operating Circular 5 (Electronic Access) (OC 5), and the PSR policy.

9.2 Access to an Account at the Federal Reserve

Any depository institution, Federal Reserve member institution, or otherwise eligible institution, including a U.S. branch or agency of a foreign bank, may maintain an account with a Reserve Bank.⁴⁵ Each separately chartered or licensed eligible institution may hold a single master account, with the possibility of creating multiple subaccounts.⁴⁶ To obtain an account, an institution must execute an account agreement pursuant to OC 1, which outlines the terms and conditions for a master account.⁴⁷

9.3 Termination of Access

Reserve Banks retain the right to limit their risk exposure. If an institution presents undue risk to a Reserve Bank, the Reserve Bank will follow a series of escalating steps to reduce its exposure to that institution. The PSR policy outlines these steps with respect to daylight credit and the Fedwire Funds Service. Reserve Banks may counsel the institution, discussing ways to reduce its excessive use of intraday credit. The Reserve Banks also retain the unilateral right to reduce net debit caps, impose collateralization or balance requirements, hold or reject Fedwire Funds Service funds transfers, or in extreme cases limit the institution to originating only offline payment orders or prohibit it from using the Fedwire Funds Service altogether.

⁴⁵ Pursuant to section 806(a) of the Dodd-Frank Act and Regulation HH, the Board may authorize a Reserve Bank to establish an account and provide certain services to financial market utilities designated as systemically important by the Financial Stability Oversight Council.

⁴⁶ A subaccount is an information record of a subset of transactions that affect a master account. Subaccounts are for informational purposes only and do not constitute a separate legal debtor-creditor relationship between an institution and its Reserve Bank.

⁴⁷ Accounts and access are also available to U.S. government agencies, GSEs, foreign central banks and governments, and certain official international organizations for which the Reserve Banks act as fiscal agents. Services to these institutions are beyond the scope of this assessment.

10 Core Principle X: *The system’s governance arrangements should be effective, accountable and transparent.*

10.0 Assessment of Compliance

The governance structure of the Fedwire Funds Service is effective, accountable, and transparent. The responsibilities of the Reserve Banks and the Board are clearly delineated in U.S. law and Board policies. Each Fedwire Funds Service participant has a contractual relationship with a specific Reserve Bank. It is with this specific Reserve Bank that a participant establishes a Reserve Bank account and any debtor/creditor relationship. The Reserve Banks’ Financial Services Policy Committee (FSPC) and the WPO provide strategic direction and operational management of the Fedwire Funds Service on a consolidated, national basis. All Reserve Bank actions, including the operation and management of the Fedwire Funds Service, are subject to the general supervision of the Board, providing accountability both to the Board and the general public. Moreover, in helping to design and in approving the governance structure of the Fedwire Funds Service, the Board has exercised care to avoid any actual or apparent conflict between the Federal Reserve’s role as a financial service provider and its role as a regulator and lender. As outlined below, the Board makes its major payment system policies, and the underlying considerations, available for public notice and consideration. The Fedwire Funds Service observes Core Principle X.

10.1 Policy and Decision Making Structure

As a government agency, the Board has broad policymaking powers, including the authority to issue certain regulations and to exercise general supervision over the Reserve Banks. Each Reserve Bank has a board of directors that is responsible for supervising the activities of that Reserve Bank. The Reserve Banks manage their Fedwire operations on a centralized basis through the WPO, which is based at the Federal Reserve Bank of New York.

10.1.1 Board of Governors

Under the Federal Reserve Act, the Board of Governors has broad and comprehensive supervisory authority over the Reserve Banks, including the Reserve Banks’ provision of payment and settlement services. The Board recognizes the critical role these services play in the financial system and is committed to strong and effective supervision of these services that is comparable to, or exceeds, the requirements placed on similar private-sector payment and settlement arrangements. The Board exercises this oversight in three ways: application of robust risk-management standards; a rigorous examination process; and review of key strategic initiatives, prices and service terms, proposed material changes, and ongoing operations.⁴⁸

To carry out its responsibilities, the Board has established two committees to provide direction on payment system issues. The Committee on Federal Reserve Bank Affairs

⁴⁸ See http://www.federalreserve.gov/paymentsystems/over_rbsystems.htm.

(BAC) is charged with the Board's general supervision of Reserve Bank operations, budgets, and strategic plans. As a result, the BAC oversees the Reserve Banks' provision and pricing of payments services. The Payments System Policy Advisory Committee advises the Board on issues related to risk management, the relationship between wholesale payment systems and financial markets, and medium- and long-term public policy issues surrounding innovation in the retail payments system. In addition to these two committees, Board staff, through the Division of Reserve Bank Operations and Payment Systems (RBOPS), provides support to the Board in exercising its general supervision of Reserve Bank payment services, analyzing payment issues, and developing payment policies and regulations. The Board has delegated authority to the director of RBOPS to approve certain types of proposals and expenditures. Other proposals and expenditures may be approved by the Board, or by the Reserve Banks under their own authority.

10.1.2 Federal Reserve Banks

The Reserve Banks serve as the operating arm of the central bank, providing a variety of services to financial institutions. As discussed in section 1 of this assessment, the FRA outlines the powers of the Reserve Banks in providing payment services. The Reserve Banks generally are responsible for maintaining customer accounts and relationships, for implementing and updating operating circulars, and for managing and operating systems such as the Fedwire Funds Service in accordance with the FRA and Board policies. Although stock in each Reserve Bank is held by its member institutions, the legal organization of the Reserve Banks includes elements of both public and private accountability. Member banks must subscribe to stock in their regional Reserve Bank.⁴⁹ Each Reserve Bank has its own board of directors, representing public and private interests, including members appointed by the Board as well as members elected by stockholding institutions in each District. Each Reserve Bank, in carrying out the powers specifically granted in the FRA and such incidental powers as are necessary, is subject to the supervision and control of its board of directors. The board of directors may form committees to assist it in carrying out its duties under the FRA. For example, the board of directors of the Federal Reserve Bank of New York has created an audit and risk committee, which is generally responsible for assessing and ensuring the effectiveness and independence of the Bank's internal audit function. The audit and risk committee discusses with Reserve Bank management reports concerning the Reserve Bank's compliance with applicable legal requirements and the effectiveness of the Reserve Bank's internal controls over various types of risk, including operational risk. 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.

⁴⁹ For information regarding the formation of the Reserve Banks see *The Federal Reserve System: Purposes & Functions*, available at www.federalreserve.gov/pf/pf.htm.

Wholesale Product Office (WPO)

The WPO is responsible for the daily operational management of the Fedwire Funds Service. The WPO's mission is to foster the integrity, efficiency and accessibility of the Reserve Banks' wholesale payments and settlement systems in support of domestic financial stability and economic growth in a global context. The WPO plays a leadership role in the development and enhancement of these payment systems within the domestic and international financial services communities. Changes to Fedwire services or prices are typically initiated through the WPO. The WPO is also responsible for initiating changes to operating circulars pertaining to Fedwire services, including OC 6.

The WPO submits periodic reports to the Reserve Banks' Conference of First Vice Presidents (CFVP) and the FSPC regarding service performance and trends. Specifically, the WPO submits its annual goals and budget objectives, with subsequent status reports of the office's progress, to the CFVP for review and to the FSPC for approval.

10.1.3 Federal Reserve Bank Committees

Cooperation among Reserve Banks is typically organized under the Conference of Presidents (COP) and the CFVP, which, under their bylaws, may establish committees to coordinate activities among the Reserve Banks.⁵⁰ The COP established the FSPC and the Information Technology Oversight Committee (ITOC) to help set the strategic direction of Reserve Bank financial services and IT respectively. The CFVP supports the FSPC by monitoring and evaluating major Reserve Bank projects and project proposals and by providing views or making recommendations in advance of FSPC action. More generally, the CFVP may suggest or recommend specific policies or courses of action to the COP, the FSPC, the ITOC, or the Board, and participates with these bodies in strategic planning.

Financial Services Policy Committee

Under the strategic direction of the COP, the FSPC provides overall direction of financial services for the Reserve Banks, as well as providing leadership for the evolving U.S. payments system. The Financial Services Council (FSC) is a standing committee established by the FSPC with the central purpose of addressing issues that have implications across more than one of the financial services provided by the Reserve Banks.

The Board has delegated authority for certain policy decisions, mostly regarding routine price- and service-change proposals, to the FSPC, which, in turn has delegated some of this authority to the product office directors. The FSPC approves key objectives developed by the Reserve Banks with respect to the Fedwire Funds Service.

⁵⁰ Among other things, the Conference of Presidents, which includes 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. The Conference of First Vice Presidents, which includes the first vice president of each Reserve Bank and a liaison from the Board and Federal Reserve Information Technology, meets to discuss policies or operational matters of common interest to the Reserve Banks. The CFVP is principally concerned with Reserve Banks operations and support services.

Information Technology Oversight Committee

ITOC is responsible for setting strategic direction and policy for Reserve Bank information technology, for approving national IT standards and security policies, and for overseeing the provision of national IT services to Reserve Banks and business functions, including the Fedwire Funds Service. National IT services include centralized computer and network services, enterprise architecture, and the development of enterprise IT standards and information security standards.

10.2 Supervision and Audit

As prescribed by the FRA and Board policies, several types of supervision and audit are employed to ensure the effectiveness and efficiency of the Fedwire Funds Service.

10.2.1 Board Supervision

In accordance with the Board's authority under the FRA to examine and exercise general supervision over the Reserve Banks, the Board's RBOPS Division devotes significant resources to the general supervision of Reserve Bank operations.⁵¹ RBOPS renders independent assessments of internal controls, assesses compliance with organization policies and procedures, and evaluates the efficiency and effectiveness of Reserve Bank operations.⁵²

10.2.2 External Audit

The Board engages a major public accounting firm to perform an annual audit of the combined financial statements of the Board and the Reserve Banks. In 1999, Congress amended the FRA to codify this practice.⁵³ The firm also audits the financial statements of each of the 12 Reserve Banks. Audited financial statements are published on the Board's website and in the *Annual Report*.

The Government Accountability Office (GAO), a federal agency that acts as the investigative arm of the United States Congress, also audits the Board and the Reserve Banks at the direction of Congress. A list of audits or studies performed or under way by the GAO is available in the Board's *Annual Report*.

10.2.3 Federal Reserve Bank Internal Audit

Each Reserve Bank has an internal audit function, directed by a general auditor, that is responsible for assessing the adequacy and effectiveness of the controls over (1) financial reporting, (2) efficiency and effectiveness of operations, and (3) compliance with laws and regulations. To promote independent and objective assessments, the general auditor reports directly to the Reserve Bank's board of directors through its audit

⁵¹ See 12 U.S.C. §§ 248(a)(1) and (j).

⁵² For information on the annual examinations see the Board's Annual Report, available at <http://www.federalreserve.gov/publications/annual-report/default.htm>.

⁵³ See 12 U.S.C. §§ 248(j), 485.

committee. Each audit committee is responsible for assessing the effectiveness and independence of the Reserve Bank's internal audit function. The Board's RBOPS Division also assesses the performance of each Reserve Bank's internal audit function against Generally Accepted Audit Standards developed by the Institute of Internal Auditors.

10.3 Consultation Process

In addition to the informal and user-group consultation processes outlined in section 8 of this assessment, the Board has also adopted formal procedures to obtain information and analysis from the public regarding proposed rules, regulations, policies, and substantive operational changes.

Federal Register

The Board uses appropriate procedures to obtain information and analysis from the public regarding proposed rules, regulations, policies, and changes to the Fedwire Funds Service that would have a significant longer-run effect. Promulgation of Board rules is subject to the public notice and comment provisions of the Administrative Procedure Act (APA). Generally, the APA 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 seeks public comment on major policy issues that are not necessarily rules under the APA.⁵⁴

⁵⁴ For information regarding the *Federal Register* notification process see <http://www.gpoaccess.gov/uscode/>.

11 Conclusion

11.0 Assessment of Compliance

This assessment concludes that the Fedwire Funds Service, the Reserve Banks' RTGS system, observes each of the nine applicable CPSS Core Principles. Core Principle V does not apply, because as an RTGS system, the Fedwire Funds Service does not allow for the multilateral netting of payment orders.