FIXED INCOME CLEARING CORPORATION

Disclosure Framework for Covered Clearing Agencies and Financial Market Infrastructures

December 2018

Securing Today. Shaping Tomorrow.®

Responding Institution:	**Fixed Income Clearing Corporation (“FICC”)**
Jurisdiction:	**State of New York, United States of America**
Authorities:	**U.S. Securities and Exchange Commission**

Except as noted in Section II, the information provided in this Disclosure Framework is accurate as of December 31, 2018; financial information and certain other data are provided as of the dates specified.

This Disclosure Framework can also be found at www.dtcc.com.

For further information, please contact DisclosureFrameworks@dtcc.com.

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I. Executive Summary

The Committee on Payments and Market Infrastructures and the Technical Committee of the International Organization of Securities Commissions (collectively, "CPMI-IOSCO") recognize that financial market infrastructures ("FMIs"), which include payment systems central securities depositories, securities settlement systems, central counterparties ("CCPs") and trade repositories, each play a critical role in the financial system and the broader economy. FMIs facilitate clearing, settling and recording of monetary and other financial transactions, contributing to the goal of financial stability. CCPs, such as the Fixed Income Clearing Corporation ("FICC"), interpose themselves between counterparties to financial transactions. CPMI-IOSCO has recognized that, while properly managed FMIs bring great benefits to promoting market safety, they also have the potential to concentrate risk. Therefore, it is important that FMIs, such as FICC, have effective risk controls and adequate financial resources.

CPMI-IOSCO's 2012 report on the Principles for financial market infrastructures (the "FMI Principles") contains 24 FMI Principles covering the major types of risks faced by FMIs. One key objective of the FMI Principles is to encourage clear and comprehensive disclosure by FMIs through a public "Disclosure Framework" that explains how their businesses and operations reflect each of the applicable FMI Principles. The U.S. Securities and Exchange Commission ("SEC"), in Rule 17Ad-22(e) (23), has adopted a similar approach to disclosure by covered clearing agencies.[1]

This Disclosure Framework covers FICC, a wholly owned subsidiary of The Depository Trust & Clearing Corporation ("DTCC" or the "Company"). FICC is comprised of two Divisions—the Government Securities Division ("GSD") and the Mortgage-Backed Securities Division ("MBSD"). GSD provides central counterparty services to its customers with respect to the U.S. government securities market, and MBSD provides such services to the U.S. mortgage-backed securities market. FICC is a clearing agency registered with, and under the supervision of, the SEC. In July 2012, FICC was designated as a systemically important financial market utility (or "SIFMU") under Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 ("Dodd-Frank"); and it is a "covered clearing agency" under the SEC's Standards for Covered Clearing Agencies.[2]

This Disclosure Framework is intended to provide relevant disclosure to FICC's stakeholders, including its Members and indirect users, on FICC's key services and the methods it uses to manage the risks to itself and others providing these services. In addition, this document facilitates FICC's compliance with CCA Rule 17Ad-22(e)(23).

[1] 17CFR 240.17Ad-22(e)(23).

[2] *See*, Standards for Covered Clearing Agencies, Exchange Act Release No. 34-78961, 81 Fed. Reg. 70786 (Oct. 13, 2016); referred to hereafter, collectively, as the "Covered Clearing Agency Rules" or "CCAS", and when referring to a specific rule, as "CCA Rule 17Ad-22(e)__."

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

This Disclosure Framework represents a comprehensive update from the last comprehensive update published in December, 2016. The primary changes to this disclosure since 2016 are updates throughout to reflect the SEC's adoption of the Covered Clearing Agency Rules, as well as updates reflecting the implementation of initiatives addressed in rule filings approved by the SEC in the intervening period. The information provided in this Disclosure Framework is accurate as of December 31, 2018; financial information and certain other data are provided as of the dates specified.

III. General Background of FICC and Key Metrics

A. *General Description of FICC and Organization*

FICC operates under two Divisions—GSD and MBSD.[3] Each Division has its own rules and Members.[4] GSD provides trade comparison, netting, risk management, settlement and central counterparty services for the U.S. Government securities market, and MBSD provides the same services for the U.S. mortgage-backed securities market.

Regulatory, supervisory, and oversight framework

FICC was organized in 2003 as a business corporation under New York law and is a clearing agency registered with the SEC pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). As a registered clearing agency, FICC is subject to the requirements that are contained in the Exchange Act and in the SEC's regulations and rules thereunder. As noted above, these requirements include the Covered Clearing Agency Rules, which provide enhanced standards for entities that meet the definition of "covered clearing agency."[5] The Covered Clearing Agency Rules establish minimum requirements regarding how registered clearing agencies must maintain effective risk management procedures and controls as well as meet the statutory requirements under the Exchange Act on an ongoing basis. It is designed to enhance the regulatory framework for the supervision of clearing agencies.

In accordance with Dodd-Frank, FICC's designation as a SIFMU requires that it meet prescribed risk management standards and heightened oversight by the SEC in order to promote robust risk management and safety and soundness, reduce systemic risk, and support the stability of the broader financial system. FICC is also a "clearing corporation" within the meaning of Article 8 of the New York Uniform Commercial Code. These laws, regulations and rules are readily accessible to FICC's Members and the general public via the internet and through other public sources.

Organization

DTCC is the parent company of FICC. DTCC is a non-public holding company that owns a number of FMIs, including three SIFMUs and related businesses. In addition to FICC, DTCC also owns The Depository Trust Company ("DTC"), the world's largest central securities depository and a registered clearing agency for the settlement of securities transactions for eligible securities and other financial assets, and National Securities Clearing Corporation ("NSCC"), a registered clearing agency and CCP that provides clearing, netting, settlement, risk management and CCP services for broker-to-broker trades involving equities, corporate and municipal debt, exchange-traded funds and unit investment trusts in the U.S. DTC and NSCC are also SIFMUs.

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[3] GSD was previously known as the Government Securities Clearing Corporation ("GSCC"), which was established in 1986. MBSD was previously known as the MBS Clearing Corporation ("MBSCC"), which was established in 1979. FICC resulted from a merger of GSCC and MBSCC on January 1, 2003.

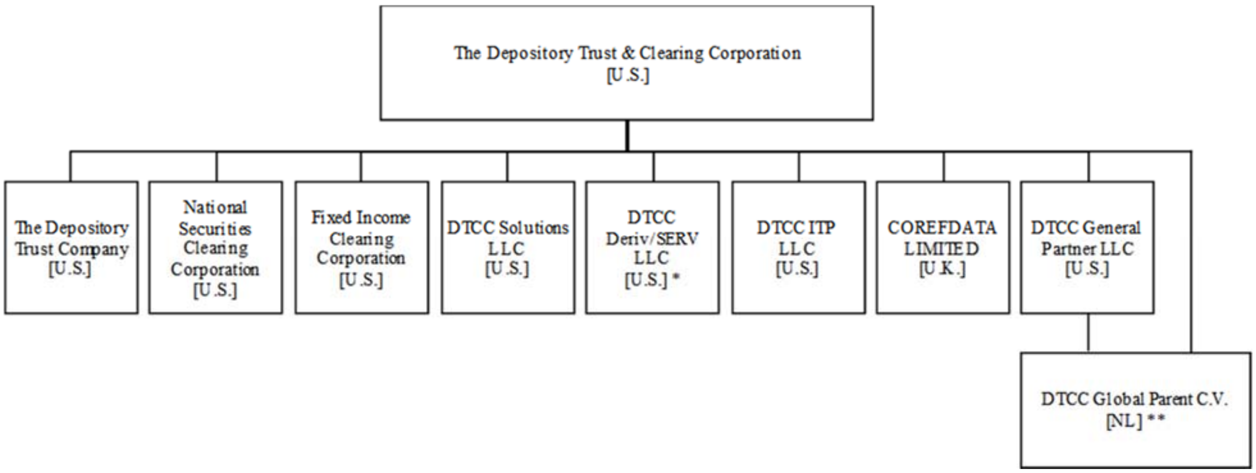
[4] GSD and MBSD have several membership types. For ease of description, when summarizing various GSD services and MBSD services in this Disclosure Framework, the term "Member," "GSD Member" or "MBSD Member," as applicable, are used throughout to denote a full-service participant that has access to GSD's guarantee/CCP services or MBSD's guarantee/CCP services, as applicable.

[5] *See supra* note 2. As a SIFMU, FICC is subject to the enhanced standards as a covered clearing agency.

DTCC, through its other subsidiaries and joint ventures, provides critical information, post-trade processing and transactional services, including through global trade repositories, to financial market participants in the U.S. and globally.

DTCC's common stock is owned by the financial institutions that are participants of its registered clearing agency/SIFMU subsidiaries. DTCC's governance arrangements—and those of its clearing agency subsidiaries—are designed to promote the safety and efficiency of its clearing agency subsidiaries, support the stability of the broader financial system and promote the objectives of its participants. These governance arrangements are more fully described in response to Principle 2 (Governance) below.

DTCC's active direct subsidiaries are shown in the following chart:



* This entity holds DTCC's interest in the U.S. data repository and the credit default swap warehouse.
** This entity indirectly holds DTCC's interest in non-U.S. data repositories and other non-U.S. businesses.

A description of the activities of DTCC's principal subsidiaries is available at www.dtcc.com.

B. *Key Services: System Design and Operation*

I. Government Securities Division

GSD offers a suite of services to support and facilitate the submission, comparison, risk management, netting and settlement of trades executed by its Members in the U.S. Government securities market. GSD acts as a central counterparty. GSD guarantees the settlement of, and novates, netting-eligible trades at the time of comparison of such trades. GSD processes buy-sell transactions of U.S. Government securities, repurchase agreement ("repo") transactions, including overnight, forward-start and term repo transactions, and GCF Repo® transactions.

The following is a brief description of the core services and functions performed by GSD.

Trade Comparison/Real-Time Trade Matching

The crux of GSD's comparison system is its Real-Time Trade Matching ("RTTM®") service. This is an interactive tool that enables Members to automate the processing of their securities trades throughout the trading day. Using standardized international message formats, RTTM® provides a common platform for collecting and matching trade data, enabling the parties to a securities trade to monitor and manage the status of their trades in real time. The result is an immediate confirmation for trade executions that is legal and binding. RTTM® creates a streamlined and operationally efficient processing environment. It maximizes the volume of trades that match on trade date, and it reduces the risk of mismatched securities trades by allowing trading parties to note and fix errors or potential problems in execution or processing as close as possible to trade execution.

Because real-time trade information is recorded immediately, RTTM® further safeguards Members in the event of an interruption of business at a Member firm level or all across the industry.

Upon trade execution, GSD Members submit all mandatory trade details to the RTTM® system to be matched with the trade details submitted against them by their counterparties.

A trade is deemed compared by GSD at the point in time at which GSD makes available to the Members on both sides of a transaction output (i.e., a report), indicating that their trade data have been compared. As noted above, a trade compared by GSD constitutes evidence of a valid, binding and enforceable contract. Upon comparison, GSD provides a guaranty of settlement (i.e., makes the counterparty whole) and novates the trade, provided that the trade meets the requirements of the GSD Rules and was entered into in good faith.

Netting and settlement

GSD's netting system typically reduces the costs associated with securities transfers by reducing the number of securities movements required to settle transactions.

Once the trades for GSD Members have compared, they enter into GSD's Netting System. Through netting, GSD establishes a single net long or short position for each Member's daily trading activity in a given security. The Member's net position is the difference between all purchases (long) and all sales (short) in a given security. GSD replaces each net position with a settlement obligation for the scheduled settlement date whereby the Member settles with GSD as CCP.

Settlement occurs after GSD has informed its Members of their respective obligations (principally on the night of trade date in a T+1 market). Settlement occurs on the Federal Reserve's Securities Service System ("Fedwire®") or on the books of FICC's designated clearing bank. Members in turn instruct their clearing bank to transfer securities to GSD's clearing bank, The Bank of New York Mellon ("BNY"). FICC, acting as a CCP, receives the securities and turns the securities to the ultimate net buyers.[6]

On each business day, GSD makes available to each Member output (i.e., a report) that provides information that GSD deems sufficient to enable such Member to settle its net settlement positions on that business day.[7] Each Member, based on the information provided by GSD, then provides appropriate instructions to

[6] Because FICC is not a depository institution, it is not given direct access to the Fedwire® and therefore employs the services of BNY for this purpose. Prior to an entity activating its membership, GSD informs the Member of the clearing bank(s) that GSD will use to deliver eligible securities to Members and receive eligible securities from Members. Each Member must also notify GSD of the clearing bank(s) that the Member has designated to act on its behalf in the delivery of securities to GSD and the receipt of securities from GSD. Additionally, in GSD, with respect to the GCF Repo® service, BNY is the agent for the settlement of GCF Repos®. GSD uses BNY, and GSD Members are required to use BNY with respect to the exchange of cash and collateral between cash lenders and repo dealers. As the Clearing Bank, BNY also values and allocates the collateral supporting the repos. As agent, the Clearing Bank does not require a membership category in FICC in its capacity as a clearing bank.

[7] The report includes the type of obligation (i.e., deliver or receive), name and reference number of the clearing bank, CUSIP number, settlement date, par value, final dollar value and other information descriptive of an eligible netting security.

its clearing bank to deliver to GSD and/or to receive from GSD, on behalf of the Member, eligible netting securities against payment or receipt at the appropriate settlement value.

Obligations may be settled within a clearing bank (i.e., on the books of a clearing bank) when the deliver and attendant receive obligation are at the same clearing bank; otherwise, obligations are settled using Fedwire®. All deliveries are made against full payment.

Auction Takedown Service

GSD's Auction Takedown service enables Members to have their Treasury auction awards netted and guaranteed with the rest of their GSD-eligible trading activity in the secondary markets, thereby reducing settlement risk and costs for Members' auction purchases. All auction awards are submitted to GSD by the Federal Reserve Banks[8] on a locked-in basis, meaning that GSD automatically generates trade confirmations based on information supplied by the Federal Reserve Banks.

Repurchase Agreement Netting Services

Repos are financial instruments that enable firms to sell securities to obtain immediate funds for their own accounts, or for the benefit of their clients, and to simultaneously agree to repurchase the same (or similar) securities after a specified time at a given price, including interest calculated using a rate agreed upon at the time of execution. Repos can be executed directly between dealers, or on a blind-brokered basis through inter-dealer brokers. In dealer-to-dealer processing, dealers trade directly with one another. In blind brokering, repos are executed using inter-dealer brokers to ensure dealer anonymity. GSD provides automated matching, netting, settlement and risk management of repo transactions.

GSD also provides a service known as the GCF Repo® service, which enables dealers to trade general collateral repos[9] based on rate, term and underlying product, throughout the day with inter-dealer broker Members ("brokers") on a blind basis. The service helps foster a highly liquid market for short-term financing.

Brokers (who are also members of GSD) are required to enter data on GCF Repo® transactions for submission to GSD shortly after trade execution. Because the specific collateral is not known at the point of trade, brokers submit all GCF Repos® to GSD using generic general collateral CUSIPs[10] that denote the underlying product. GCF Repo® participants can trade in generic CUSIP numbers all day and then, after the netting process at the end of the day, allocate specific securities[11] to their net settlement obligations. GSD becomes the CCP for settlement purposes to each dealer party to a GCF Repo® transaction and

[8] Because market activity is concentrated in New York, the FRBNY, as fiscal agent for the U.S. Treasury, coordinates much of the auction activity for the primary dealers that are required to take part in the auctions of U.S. Treasury securities. Currently, all Auction Takedown awards received by GSD on behalf of Members are received from the FRBNY, although auction activity may be processed through other Federal Reserve Banks.

[9] A general collateral repo is a repo in which the underlying securities collateral is nonspecific general collateral within an identified basket of eligible collateral. This is in contrast to a specific collateral repo where the underlying securities are specifically identified.

[10] Standardized generic CUSIP numbers established for GCF Repo® processing are used to specify the acceptable type of underlying eligible collateral.

[11] The generic general collateral CUSIP defines the appropriate collateral that a dealer may use to satisfy the net settlement obligation in that CUSIP.

guarantees settlement of GCF Repos® upon receipt of trade data. GCF Repo® transactions are settled on a tri-party basis,[12] which requires dealer Members to have an account with the participating clearing bank, BNY.

Cross-Margining with Chicago Mercantile Exchange

FICC has established a cross-margining arrangement with the Chicago Mercantile Exchange (the "CME"). In this arrangement, GSD and the CME each holds and manages its own positions and collateral, and independently determines the amount of margin that it will make available for cross-margining, referred to as the "residual margin amount" that remains after FICC and the CME conduct their own internal offset. FICC then computes the amount by which the cross-margining participant's margin requirement can be reduced at each clearing organization—i.e., the "cross-margining reduction"—by comparing the participant's positions and the related margin requirements at FICC as against those at the CME. FICC offsets each cross-margining participant's residual margin amount (based on related positions) at FICC against the offsetting residual margin amounts of the participant (or its affiliate) at the CME. FICC and the CME may then reduce the amount of collateral that they collect to reflect the offsets between the cross-margining participant's positions at FICC and its (or its affiliate's) positions at the CME.

Risk management

Risk management is the foundation for GSD's ability to guarantee settlement, as well as the means by which it protects itself and its Members from the risks inherent in the settlement process. Procedures are in place to ensure that Members comply with GSD's Rules. GSD maintains strict membership standards, including minimum financial requirements and Members are subject to ongoing review following admission. GSD's Clearing Fund addresses potential Member exposure through a number of risk-based component charges (as margin) calculated and assessed daily. In addition, GSD maintains liquidity resources that include the following: (1) the cash portion of the Clearing Fund; (2) the cash that would be obtained by entering into repos using the securities portion of the Clearing Fund (U.S. Government Treasury securities, Agency securities guaranteed by the U.S. Government and certain U.S. Agency/Government Sponsored Enterprise pass-through securities) and (3) the cash that would be obtained by entering into repos using the securities underlying transactions that would have been delivered to the defaulting Member had it not defaulted. GSD also maintains the Capped Contingency Liquidity Facility ("CCLF®")[13], which is a rules-based committed contingency liquidity resource. GSD's liquidity resources are described more extensively in the discussion of Liquidity Risk under Principle 7 (Liquidity risk) of this Disclosure Framework.

In addition, if GSD incurred a loss in the liquidation of a Member that was not covered by the Member's Clearing Fund deposit, there is the possibility that GSD would receive funds to cover such loss (or part of the loss) from its cross-margining and cross-guaranty arrangements.

The Clearing Fund (which, in the aggregate, also operates as GSD's default fund) provides the collateralization required to cover a Member's exposure. The Clearing Fund consists of deposits posted by Members in the form of cash and eligible securities. GSD's key risk management practices and procedures, including its process for closing out the open positions of a defaulting Member and allocating any consequent losses, are discussed in more detail under Principles 3 through 7 and Principle 13. To date,

[12] A tri-party repo is one where a custodian bank acts as an intermediary between the two parties to the repo.

[13] Participation in CCLF® is a membership requirement for all full-service FICC Members. Members must attest to their ability to participate in CCLF®. Daily reports provide Members with information on their current and potential future commitments. FICC may also seek to obtain a loan from its clearing bank at the discretion of such bank.

including through the 2008 and 2011 well-publicized broker-dealer closeouts, FICC has never invoked its participant loss allocation procedures.

Institutional Clearing Services

GSD provides two services that serve institutional clearing firms. The Sponsoring Membership Service, which is primarily governed by GSD Rule 3A, permits well-capitalized Bank Netting Members to sponsor certain institutional firms into GSD membership. Under Rule 3A, a Sponsoring Member is permitted to submit to GSD for comparison, novation and netting certain types of eligible transactions between itself and its Sponsored Members. Novation of eligible trading activity to FICC provides Sponsoring Members and their Sponsored Members the benefits of FICC's independent risk management and guaranty of completion of settlement of such trading activity. The CCIT Service, which is primarily governed by GSD Rule 3B, enables tri-party repurchase agreement transactions in GCF Repo Securities between Netting Members that participate in the GCF Repo Service and institutional counterparties (other than investment companies registered under the Investment Company Act of 1940, as amended). Under Rule 3B, the institutional counterparties, called CCIT Members, are cash lenders in the transactions submitted to GSD. The CCIT service permits CCIT Members to benefit from FICC's guaranty of completion of settlement of their eligible tri-party repo transactions with Netting Members.

Additional services

In addition to the services described above, GSD offers a comparison-only service that is not guaranteed by GSD and for which it does not act as a central counterparty.

II. Mortgage-Backed Securities Division

MBSD processes (1) to-be-announced ("TBA") transactions, which are trades for which the actual identities of and/or the number of pools underlying each trade are not agreed to at the time of trade execution and (2) specified pool trades, which are trades for which all pool data is agreed upon by the Members at the time of execution. TBA transactions are comprised of (i) settlement balance order destined trades ("SBOD trades"), (ii) trade-for-trade destined trades, (iii) stipulated trades, and (iv) TBA options trades.

MBSD's processing of these eligible transactions, which are pass-through mortgage-backed securities issued or guaranteed by Government National Mortgage Association ("Ginnie Mae"), Federal National Mortgage Association ("Fannie Mae") and Federal Home Loan Mortgage Corporation ("Freddie Mac"), consists of the following steps: trade matching, TBA Netting, the Do Not Allocate ("DNA'") process, electronic pool notification allocation, pool comparison, Pool Netting and settlement.

MBSD's trade comparison and TBA Netting systems form the basis of all of its other services. All compared trades will be risk managed by MBSD, but the remainder of their life cycle differs according to their trade type as noted below:

- Compared SBOD trades proceed to MBSD's TBA Netting process, which is described in a subsequent section. Compared SBOD trades are guaranteed and legally novated by FICC at the time of comparison.

- Compared trade-for-trade destined trades are not eligible for TBA Netting, but pools must be allocated before they can be settled, and those pools are eligible for MBSD's Pool Netting process. Compared trade-for-trade destined trades are guaranteed and legally novated by FICC at the time of comparison.

- Compared stipulated trades are neither eligible for TBA Netting nor MBSD's Pool Netting, but pools must be allocated before they can be settled directly with FICC. Compared stipulated trades are guaranteed and legally novated by FICC at the time of comparison. The guarantee occurs at the generic level not the specific stipulation associated with the actual obligation.

- Compared specified pool trades are neither eligible for TBA Netting nor MBSD's Pool Netting, however, these trades settle directly with FICC. Compared specified pool trades are guaranteed and legally novated by FICC at the time of trade comparison. This guarantee occurs at the generic level not the specific pool associated with the actual obligation.

- Compared option trades are not eligible for any netting process. Members also cannot allocate pools against option trades. Option trades must be bilaterally cancelled by both the buyer and the seller when the underlying TBA option is exercised or when it expires.

Trade Comparison/Real-Time Trade Matching

Similar to GSD, the crux of MBSD's trade comparison system is its RTTM® service. Through this service, MBSD Members automate the submission and matching of their TBA trades and specified pool trades throughout the trading day.

As with GSD, a trade is deemed compared by MBSD at the point in time at which MBSD makes available to the Members on both sides of a transaction output (i.e., a report) indicating that their trade data have been compared. All trades (except of option trades) legally novate at the time of comparison.

Once trade-for-trade destined transactions and stipulated trades are matched and allocated through MBSD, settlement obligations are established between the Member and FICC, however, these trades do not enter the TBA Netting process. Once specified pool trades are matched through MBSD, settlement obligations are established between the Member and FICC. SBOD trades proceed to the TBA Netting process after they are matched. TBA Options are canceled by both Members at the time the underlying option is exercised or reaches its expiration date.

TBA Netting

MBSD performs the TBA Netting process four times per month, corresponding to each of the four primary settlement classes and dates established by Securities Industry Financial Markets Association ("SIFMA").[14]

Three business days prior to the SIFMA established settlement date (referred to as "72 Hour Day"), TBA Netting for the applicable class occurs. On this date, all compared SBOD trades within the class that has been designated for the TBA Netting process are netted with FICC as the counterparty. The net positions created by the TBA Netting process are referred to as the settlement balance order position ("SBO position"), which constitutes settlement obligations against which Members will (1) submit pool information ("Pool Instructs") for the Pool Netting process or (2) offset such SBO position with other SBO position or trade-for-trade destined transaction, as applicable, through the DNA process. The Pool Netting process and the DNA process are described in further detail below.

[14] SIFMA publishes a calendar that specifies one settlement date per month for four different product classes (known as Classes A, B, C and D) that are used to categorize the various types of TBA securities. These product classes and the associated settlement dates are recognized by the industry, and they provide the foundation for MBSD's TBA Netting process.

As noted above, trade-for-trade destined transactions are not netted at the TBA level, but like the SBO positions do constitute TBA settlement obligations against which Pool Instructs may be submitted. Specified pool trades and stipulated trades are also not netted at the TBA level, nor do such trades enter the Pool Netting.

DNA Process

The DNA process gives Members the ability to offset TBA obligations with other TBA obligations – meaning that, SBO positions and/or trade-for-trade destined transactions may be offset with other SBO positions and/or trade-for-trade destined transactions, as applicable, subject to certain restrictions. The purpose of this process is to reduce a Member's overall open TBA obligations by giving such Member the ability to exclude certain TBA obligations from the pool allocation process and securities settlement.

The DNA process is available two business days prior to the established settlement date of the TBA settlement obligations (known as "48 Hour Day") from 7:00 a.m. through the business day before the contractual settlement date (known as "24 Hour Day") at 4:30 p.m. During this time, Members with two or more open TBA obligations with the same par amount, CUSIP number, and SIFMA designated settlement date may offset (i.e., "pair-off") such TBA obligations. To initiate the offset, Members are required to submit a request (referred to as a "DNA Request") to MBSD through the RTTM® system. Upon FICC's validation of the DNA Request, a Member's TBA obligations are reduced and the Member will not be required to allocate pools against the TBA obligations.

Electronic Pool Notification Allocation

Electronic Pool Notification ("EPN") enables users to reduce risk and streamline their operations by providing an automated way for Members who have an obligation to deliver pools ("pool sellers") to transmit pool information efficiently and reliably to their counterparties ("pool buyers") in real time. Pool allocations occur on 48 Hour Day. On this day, pool sellers must notify their pool buyers through the EPN system of the specific pools that such sellers intend to allocate in satisfaction of their SBO positions, trade-for-trade destined transactions and/or stipulated trades. Pool allocations occur for all TBA obligations, whether established on 72 Hour Day via the TBA Netting process or established upon comparison when the TBA trade-for-trade destined or stipulated trade, as applicable, activity was submitted.

Pool allocations are not performed for specified pool trades because, as noted above, the pool that is to be delivered in connection with such trade is specified upon submission.

Pool Comparison

On 48 Hour Day, Members are also required to submit Pool Instructs via the RTTM® system for pool comparison, which is a prerequisite for Pool Netting. Pool sellers must notify their pool buyers through the EPN system of the pools that will be allocated in satisfaction of their TBA obligation. If a Member does not submit its Pool Instructs by the established deadline, FICC would determine and apply the Pool Instructs for such Member. This determination will be based on the allocated pools that a Member has submitted through the EPN Service.

Pool Netting

MBSD maintains two Pool Netting processes. The purpose of each process is to reduce the number of pool settlements by netting Pool Instructs stemming from TBA Netting Process and trade-for-trade destined activity to arrive at a single net position in a particular pool number for next-day delivery date. The initial Pool Netting process includes pool allocations that were timely submitted on 48 Hour Day by the deadline established by SIFMA. Although the initial Pool Netting runs daily, the majority of Pool Netting activity follows the SIFMA calendar. The second Pool Netting process is referred to as "Expanded Pool Netting." The Expanded Pool Netting process includes pool allocations that were not submitted by the deadline established for the initial Pool Netting process. The Expanded Pool Netting process occurs four times per month in accordance with the SIFMA designated settlement date.

At the start of each netting cycle, all Pool Instructs active in the system are evaluated for potential inclusion in Pool Netting.[15] Any compared Pool Instructs that are not eligible for Pool Netting will be converted into settlement obligations. Any uncompared Pool Instructs will be purged from the system. Members may elect to exclude their Pool Instructs from Pool Netting by submitting a customer delivery request ("CDR") through the EPN system. Pool Instructs in a CDR state are precluded from operational netting; however, the current face of all long CDR Pool Instructs are totaled to establish an aggregated long CDR amount in the same pool number, and the current face of all short CDR Pool Instructs are totaled to establish an aggregated short CDR amount in the same pool number.

All Pool Instructs selected for Pool Netting will be used to arrive at a single net position in each pool number that the Member must either deliver to or receive from FICC.

Settlement

Similar to GSD, MBSD employs the settlement services of BNY. Prior to an entity activating its membership, MBSD informs the Member of the clearing bank that MBSD will use to deliver eligible securities to Members and to receive eligible securities from Members. Each Member also informs MBSD of the clearing bank that the Member has designated to act on its behalf in the delivery of securities to MBSD and in the receipt of securities from MBSD.

On each business day, MBSD makes available to each Member output (i.e., a report) that provides information that MBSD deems sufficient to enable such Member to be able to settle its net settlement positions on that business day. Each Member, based on the information provided by MBSD, then provides appropriate instructions to its clearing bank to deliver to MBSD, and/or to receive from MBSD, on behalf of the Member, eligible netting securities against payment or receipt at the appropriate settlement value.

Obligations may be settled within a clearing bank—i.e., on the books of a clearing bank—when the deliver and attendant receive obligation are at the same clearing bank. Otherwise, obligations are settled using Fedwire®. All deliveries are made against full payment.

Risk management

Risk management is the foundation for MBSD's ability to guarantee settlement, as well as the means by which it protects itself and its Members from the risks inherent in the settlement process. Procedures are in place to ensure that Members comply with MBSD's Rules. MBSD maintains strict membership standards, including minimum financial requirements and Members are subject to ongoing review following admission. MBSD's Clearing Fund addresses potential Member exposure through a number of risk-based component charges (as margin) calculated and assessed daily. The liquidity resources of the FICC include the following: (1) the cash portion of the Clearing Fund; (2) the cash that would be obtained by entering into repos using the securities portion of the Clearing Fund (U.S. Government Treasury securities, Agency securities guaranteed by the U.S. Government and certain U.S. Agency/Government Sponsored Enterprise pass-through securities) and (3) the cash that would be obtained by entering into repos using the securities underlying transactions that would have been delivered to the defaulting Member had it not defaulted.

[15] In order to be included in this selection process, Pool Instructs must have (i) the same contractual settlement date, (ii) a delivery date equal to the next business date, and (iii) been compared.

MBSD also maintains a separate CCLF®, which is a committed liquidity resource. MBSD's liquidity resources are described more extensively in the discussion of Liquidity Risk under Principle 7 of this Disclosure Framework.

In addition, if MBSD incurred a loss in the liquidation of a Member that was not covered by the Member's Clearing Fund deposit, there is the possibility that MBSD would receive funds to cover such loss (or part of the loss) from its cross-guaranty arrangement. The Clearing Fund (which, in the aggregate, also operates as MBSD's default fund) provides the collateralization required to cover a Member's exposure. The Clearing Fund consists of deposits posted by Members in the form of cash and eligible securities. MSBD's key risk management practices and procedures, including its process for closing out the open positions of a defaulting Member and allocating any consequent losses, are discussed in more detail under Principles 3 through 7 and Principle 13. To date, including through the 2008 and 2011 well-publicized broker-dealer closeouts, FICC has never invoked its Member loss allocation procedures.

Additional services

In addition to the core services described above, MBSD offers an EPN-only service that is not guaranteed by MBSD and for which it does not act as a central counterparty.[16]

C. *Key Metrics for FICC*

As a CCP, FICC provides specific quantitative disclosures with respect to certain FMI principles. These disclosures are intended to complement the narrative disclosures included in this Disclosure Framework. The FICC Quantitative Disclosures for Central Counterparties can be found at www.dtcc.com.

[16] MBSD Members are required to be EPN Members; however, one can be an EPN Member only and not a full-service Member with access to MBSD's guaranteed central counterparty services. The EPN services are described in the EPN Rules, which are available at www.dtcc.com.

IV. Principle-by-Principle and Standard-by-Standard Summary Narrative Disclosure

Principle 1: Legal basis; CCAS 17Ad-22(e)(1)

Principle 1: Legal Basis	**CCAS 17Ad-22(e)(1)**
An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions. ***Key consideration 1***: The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions. ***Key consideration 2***: An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations. ***Key consideration 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. ***Key consideration 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. ***Key consideration 5***: An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (1) Provide for a well-founded, clear, transparent, and enforceable legal basis for each aspect of its activities in all relevant jurisdictions.

Legal basis for material aspects of FICC's activities in all relevant jurisdictions

FICC has a well-founded, clear, transparent and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

With respect to GSD and MBSD (each, a "Division"), the material aspects of FICC's activities include: (1) trade comparison and validation, (2) trade guarantee, netting and novation of delivery and receive obligations, (3) funds netting and position netting, (4) funds settlement and finality, (5) risk management and collateral arrangements, (6) default procedures and liquidity resources (including closing out a defaulting Member's open positions and closeout netting) and (7) links with other clearing organizations (i.e., FICC's cross-margining agreement with the CME and the multilateral netting contract and limited cross-guaranty agreement with DTC, NSCC and The Options Clearing Corporation ("OCC")).

In evaluating the legal basis for FICC's core activities, the United States is the critical venue for FICC's operations and the markets it serves, the location of collateral held by FICC and, with respect to each Division, the principal location of its Members, clearing banks and settling banks. FICC is a New York corporation, and each Division's Rules and FICC's liquidity arrangements are expressly governed by New York law.[17]

All Members are required to execute membership agreements under which they agree to be bound by the applicable Division's Rules. Entities acting as settling banks on behalf of Members execute agreements covering such arrangements, and are required, under the applicable Division's Rules, to be "Funds-Only Settling Bank Members" with respect to GSD or "Cash Settling Bank Members" with respect to MBSD; as such they execute a membership agreement under which they also agree to be bound by the applicable Division's Rules (which include the requirements for the funds-only settlement/cash settlement process at each Division). All such agreements with Members and settling banks are expressly governed by New York law. Each Division's Rules are public, and can readily be found on the DTCC website, www.dtcc.com.

FICC ensures that its legal basis provides a high degree of legal certainty for each material aspect of its activities in all relevant jurisdictions:

1. By structuring each Division's activities and Rules in accordance with the laws of the relevant jurisdictions.

With respect to each Division, FICC's activities and its Rules are structured in accordance with the laws of New York and the United States. The principal laws comprising the legal framework under which FICC operates include: (1) the Exchange Act, particularly Sections 17A and 19, (2) the New York Business Corporation Law (the "New York BCL"), (3) the New York Uniform Commercial Code (the "New York UCC"), particularly Articles 8 and 9, (4) general New York contract law, (5) the Securities Act of 1933, as amended, (6) the Federal Deposit Insurance Act, as amended ("FDIA"), (7) the U.S. Bankruptcy Code (the "Bankruptcy Code"), (8) the Federal Deposit Insurance Corporation Improvement Act of 1991, as amended ("FDICIA"), (9) Dodd-Frank, particularly Title II, regarding orderly liquidation authority ("OLA"), and Title VIII, regarding payment, clearing, and settlement supervision, and (10) the Securities Investor Protection Act of 1970, as amended ("SIPA").

The ability of FICC to enforce each Division's Rules to accomplish its core clearance and settlement and risk management functions has been repeatedly confirmed through analogous court decisions with respect to its clearing agency affiliates, NSCC and DTC.[18] Moreover, courts have routinely held that state-law challenges to the existence or operation of clearing agency-related SEC-approved programs are federally preempted because they conflict with congressional directives as set forth in Section 17A of the Exchange Act.[19]

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[17] FICC is also qualified to do business in New Jersey and Florida, where it maintains certain operations.

[18] *See generally* Pet Quarters, Inc. et al. v. Depository Trust and Clearing Corporation et al., 559 F.3d 772 (8th Cir. 2009); Whistler Investments, Inc. et al. v. The Depository Trust and Clearing Corporation et al., 539 F.3d 1159 (9th Cir. 2008); Nanopierce Technologies, Inc. et al. v. The Depository Trust and Clearing Corporation et al., 168 P.3d 73 (Nev. 2007).

[19] *See* Whistler Investments, 539 F.3d at 1167-68 (affirming the district court's dismissal of all claims on the grounds of preemption by Section 17A of the Exchange Act); Pet Quarters, 559 F.3d at 780-82; Nanopierce Technologies, 168 P.3d at 76 (concluding that "because the state law on which [plaintiffs] base their claims poses an obstacle to [DTCC, DTC and NSCC's] accomplishment of congressional objectives as explicitly stated in and gleaned from the [Exchange Act's] framework, and because [DTCC, DTC and NSCC's] compliance with both state and federal requirements

2. Through the Proposed Rule Change and Advance Notice Processes.

As a clearing agency registered with the SEC, the Exchange Act provides a clear framework under which each Division's Rules are adopted and enforced. Each Division's Rules are filed with and reviewed by the SEC.[20] As a clearing agency registered under Section 17A of the Exchange Act, a self-regulatory organization subject to Section 19 of the Exchange Act, and a SIFMU under Title VIII of Dodd-Frank, FICC is required to follow: (1) a specified process[21] whenever it proposes a new rule or a change or amendment to either Division's Rules (a "Proposed Rule Change," and the process, the "Proposed Rule Change Process") and (2) a specified process[22] whenever it proposes to make a change to either Division's rules, procedures or operations that could materially affect the nature or level of risks presented by FICC (a "Material Change," and the process, the "Advance Notice Process").

Under the Proposed Rule Change Process, generally, before a Proposed Rule Change may take effect, (1) the change and an explanatory statement must be filed with the SEC and posted by FICC on DTCC's website, (2) notice of the filing and the substantive terms or description of the change must be published by the SEC in the Federal Register for public review and comment, and (3) the SEC must approve the change (or the change must otherwise be permitted to take effect[23]). The SEC is required to disapprove a Proposed Rule Change if it does not find that the change is consistent with the requirements of the Exchange Act and the rules and regulations thereunder that are applicable to FICC.

Similar submission, disclosure and publication requirements apply to the Advance Notice Process, where, generally, FICC must provide 60 days advance notice to the SEC (an "Advance Notice") before a Material Change may take effect, describing the nature of the change, its expected effects on risks to FICC, its Members or the market, and how FICC plans to manage any identified risks. A copy of the notice must also be: (1) provided by FICC to the Board of Governors of the Federal Reserve System (the "FRB"), (2) posted by FICC on DTCC's website and (3) published by the SEC in the Federal Register for public review and comment. The SEC must consult with the FRB in regard to a Material Change, and may object to the change if it determines that the change would be inconsistent with the objectives and principles for risk management standards described in Section 805(b) of Dodd-Frank or the rules and regulations thereunder that are applicable to FICC.

3. By requiring or otherwise obtaining legal opinions, analyses or advice.

FICC requires applicants for membership to provide a legal opinion to the effect that the membership agreement (which incorporates the applicable Division's Rules) will be binding and enforceable on the applicant when it becomes a Member. To the extent that the applicant is organized under the laws of a jurisdiction outside of the United States, the required opinion must, in addition, specifically address issues

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concerning the securities transactions at issue in this case is impossible, section 17A of the [Exchange Act] preempts [plaintiffs'] claims.").

[20] Each Division's Rules, as originally in effect at the time of FICC's registration as a clearing agency, were filed with and reviewed by the SEC as part of the registration process. Subsequent changes in each Division's Rules have been similarly filed with and reviewed by the SEC.

[21] This process is set forth in Section 19(b) of the Exchange Act and Exchange Act Rule 19b-4.

[22] This process is set forth in Section 806(e) of Dodd-Frank and Exchange Act Rule 19b-4.

[23] In certain limited circumstances, including fee changes, Proposed Rule Changes may become effective upon filing. Proposed Rule Changes may also become effective summarily if it appears to the SEC that such action is necessary for the protection of investors, the maintenance of fair and orderly markets, or the safeguarding of securities or funds. However, any Proposed Rule Change that becomes effective upon filing or summarily is subject to SEC review and the right of the SEC to take action thereafter.

such as FICC's ability to enforce the applicable Division's Rules (including its netting, guaranty, novation of delivery and receive obligations, and default management rules) under the applicable insolvency regime of the applicant's home jurisdiction, and the enforceability of the choice of New York law to govern the membership agreement and the applicable Division's Rules. FICC also obtains legal analyses or advice as it deems appropriate in connection with new services, changes in law, and other matters.

FICC's role as CCP, trade guaranty and netting

FICC's authority to clear and settle securities transactions and act as a CCP is provided through: (1) its powers as a New York corporation under the New York BCL; (2) its registration as a clearing agency under the Exchange Act, which provides for the registration and regulation of clearing agencies, and also prescribes standards for their operation and governance; (3) the New York UCC, which contains provisions for the operation of clearing corporations (including registered clearing agencies such as FICC); and (4) general New York contract law, which provides the legal basis under which FICC guarantees trades and becomes a CCP through novation. The timing of FICC's guarantee and the timing of novation are clearly set forth in each Division's Rules; the Rules generally provide that with respect to each Division, FICC guarantees settlement and completion of compared trades and serves as the central counterparty for settlement obligations that it novates. GSD legally novates all netting-eligible trades at the time of comparison of such trades and MBSD legally novates all trades (except for option contracts) at the time of comparison of such trades.

FICC's legal basis supports the enforceability of its netting arrangements. As a general matter, U.S. law supports netting arrangements relating to securities transactions. In particular, the definition of "clearing agency" in the Exchange Act clearly recognizes that one of the roles of a clearing agency is to "reduce the number of settlements of securities transactions." FDICIA supports "netting contracts" (which include the rules of a clearing organization), providing for the netting of payment obligations and payment entitlements between and among clearing organizations (including registered clearing agencies such as FICC) and their members (including liquidation or closeout values relating to such obligations or entitlements). "Payment" includes both cash payments and noncash deliveries. Each Division's Rules (including the netting and limited cross guaranty agreements that FICC has with other registered clearing agencies[24]) are a "netting contract" within the meaning of FDICIA.

FDICIA provides that: (1) provisions of any security agreement or arrangement or other credit enhancement related to one or more netting contracts between any two members of a clearing organization (including the clearing organization itself) shall be enforceable in accordance with their terms (with a limited exception not applicable to FICC); (2) notwithstanding any other provisions of state or federal law (with limited exceptions), the payment entitlements and obligations of members of a clearing organization (including the clearing organization itself) shall be terminated, liquidated, accelerated and netted in accordance with and subject to the conditions of any applicable netting contract; and (3) no stay, injunction, avoidance, moratorium or similar proceeding or order, whether issued or granted by a court, administrative agency or otherwise, shall limit or delay application of otherwise enforceable netting contracts.

The provisions of FDICIA applicable to clearing organization netting therefore override any conflicting provisions of state or federal law, including the Bankruptcy Code, SIPA and FDIA (except to the extent otherwise expressly provided). The netting provisions of FDICIA were designed to reduce systemic risk to the financial markets. In addition, amendments to FDIA, FDICIA, the Bankruptcy Code and SIPA in 2005 and 2006 included provisions that validate master netting agreements in respect of securities, commodities,

[24] These arrangements are described under Principles 9 (Money settlements) and 13 (Participant-default rules and procedures).

forward, swap and repurchase transactions. The foregoing provisions also support the cross-margining arrangement between FICC and the CME.

FICC's legal basis supports the finality of transfers of financial instruments and funds, and the effectiveness of its risk management and default management rules and procedures (including the closeout of positions of an insolvent Member).

Each Division's Rules provide (1) the timing of, and requirements for, settlement, and (2) procedures that will be followed in the event of a failure of a Member to perform its obligations, including the insolvency of a Member. As a general matter, U.S. law, including general New York contract law, the New York UCC, the New York BCL, the Exchange Act, FDIA, FDICIA, the Bankruptcy Code, SIPA and Title II of Dodd-Frank, supports the settlement of securities transactions in accordance with each Division's Rules, and the ability of FICC to effectuate its risk management and default management rules and procedures (including closing out the open positions of an insolvent Member).

Settlement Finality. Each Division's Rules (GSD Rule 12 and MBSD Rule 9) provide that all securities settlements are to be effected on a delivery versus payment basis. The legal basis is provided by general New York contract law and the New York UCC, and are protected in the event of the insolvency of a Member (with limited exceptions) by relevant provisions of FDIA, FDICIA, the Bankruptcy Code, SIPA and Title II of Dodd-Frank.

GSD funds-only settlement (GSD Rule 13) and MBSD cash settlement (MBSD Rule 11) are described more fully in Principle 9 (Money settlements). Cash debits and credits are paid out via the National Settlement Service ("NSS"), a payment system operated by the Federal Reserve System ("FRS"), through the use of cash settling banks appointed by Members, with DTC assuming the role of FICC's settlement agent in NSS. The individual debits and credits of each Member using the same settling bank are totaled. Once the net debits/credits are approved at the settling bank level, the Federal Reserve debits or credits each settling bank. Each settling bank then debits or credits the account of each Member for which the bank settles. Funds transfers become final at the time that funds are moved through NSS.[25]

Clearing Fund payments are currently paid by wire transfer through the Fedwire® Funds Service ("Fedwire®"), a payment system operated by the FRS.[26] Payment to the receiving party (FICC) through Fedwire is final and irrevocable upon the crediting of the receiving party's account, or when the payment order is sent to the receiving party, whichever is earlier. Payment orders generally are processed immediately following the applicable Federal Reserve Bank's receipt of a transfer message.[27]

Risk Management and Default Procedures. Each Division's Rules also provide risk management tools: GSD Rule 4 and MBSD Rule 4, as applicable, provide for the Clearing Fund (margin) formula, collection of Clearing Fund (margin) from Members, the form and manner in which such funds or collateral is provided, and the means by which losses are to be allocated. In addition, GSD Rule 3 and MBSD Rule 3, as applicable, provide FICC with the ability to obtain adequate assurances of a Member's ability to perform

[25] NSS is governed by Federal Reserve Bank Operating Circular 12 (Multilateral Settlement).

[26] Funds transfers through Fedwire are governed by Subpart B of Regulation J, which incorporates the provisions of Article 4A of the UCC, and Federal Reserve Bank Operating Circular 6 "Funds Transfers Through the Fedwire® Funds Service."

[27] *See* FRB, The Fedwire® Funds Service Assessment of Compliance with the Core Principles for Systemically Important Payment Systems, July 2014, at 23, *available at* http://www.federalreserve.gov/paymentsystems/files/fedfunds_coreprinciples.pdf.

its operational and financial obligations. Additionally, the cross-guaranty arrangement described under Principle 13 is structured as netting contracts under FDICIA.

Legal support for the validity of the foregoing provisions, including the validity of FICC's lien and collateral protections, is found principally in the New York UCC and general New York contract law. (In the case of deposits of Clearing Fund cash, title is transferred to FICC by the transfer of the funds to accounts of FICC.)

In the case of a Member default or insolvency, FICC may cease to act for the Member, and in that event, proceed to close out the open positions of the Member,[28] and once that is completed, determine a net gain or loss on the closeout of those positions.[29] GSD Rule 21 (Restrictions on Access to Services) and Rule 22 (Insolvency of a Member), and MBSD Rule 14 (Restrictions on Access to Services) and Rule 16 (Insolvency of a Member), set out the circumstances under which FICC may cease to act for a Member, and the types of actions it may take.

As discussed more fully below, clearing agency closeout provisions (including access to and retention of collateral) are supported (with limited exceptions) under FDICIA, the Bankruptcy Code, SIPA, FDIA and Title II of Dodd-Frank.

(a) FDICIA

As noted above, FDICIA supports the effectiveness of "netting contracts," which include the rules of a clearing organization, providing for the netting of payment obligations and payment entitlements between and among clearing organizations and their members (including liquidation or closeout values relating to such obligations or entitlements). "Payment" includes both cash payments and noncash deliveries. Each Division's Rules are a "netting contract" within the meaning of FDICIA.

Further, Section 404(h) of FDICIA provides that the provisions of any security agreement or arrangement or other credit enhancement related to one or more netting contracts between any two members of a clearing organization (including the clearing organization itself) shall be enforceable in accordance with their terms (with a limited exception not applicable to FICC), and shall not be stayed, avoided or otherwise limited by any state or federal law (except to the extent expressly stated to be applicable).

FDICIA also provides that (1) Section 404 of FDICIA shall be given effect notwithstanding that a Member is a failed Member, and (2) no stay, injunction, avoidance, moratorium or similar proceeding or order, whether issued or granted by a court, administrative agency, or otherwise, shall limit or delay application of otherwise enforceable netting contracts in accordance with Section 404 of FDICIA.

(b) The Bankruptcy Code, SIPA, FDIA and Title II of Dodd-Frank

The insolvency regime applicable to a FICC Member is determined by the jurisdiction in which the Member is organized and, in the U.S., by the form of organization of the Member and its regulatory oversight; these regimes in the U.S. include Chapter 11 of the Bankruptcy Code (reorganization), subchapters III and IV of

[28] With respect to such defaulting Member, under GSD Rule 22A and MBSD Rule 17, FICC will generally exit from its system those transactions that have not reached the point where FICC's trade guaranty attaches, unless the Board of Directors determines otherwise.

[29] The process by which FICC closes out transactions of a defaulting Member is described in greater detail under Principle 13 (Participant-default rules and procedures).

Chapter 7 of the Bankruptcy Code (liquidation), SIPA (with respect to members of the Securities Investor Protection Corporation ("SIPC")), FDIA (with respect to insured depository institutions) and Title II of Dodd-Frank regarding OLA (with respect to covered financial companies).[30]

The insolvency of a FICC Member that is not a member of SIPC, insured depository institution or covered financial company is typically handled under Chapter 11 of the Bankruptcy Code or subchapter III or IV of Chapter 7 of the Bankruptcy Code. Although the automatic stay, prohibitions on *ipso facto* provisions and avoidance powers of the bankruptcy trustee are generally applied with respect to cases conducted under Chapters 11 and 7 of the Bankruptcy Code, the Bankruptcy Code contains various exceptions and safe harbors to those provisions that support the finality of securities transactions processed through securities clearing agencies and the clearing agency's closeout of the insolvent member's open positions.[31] The Bankruptcy Code also provides similar exceptions and safe harbors that apply to master netting agreements.

The insolvency of a FICC Member that is a member of SIPC, and whose customers would be entitled to advances from the SIPC fund created under SIPA to protect customers, is handled under SIPA. Although SIPC proceedings generally involve (1) a protective decree of a federal district court that, among other things, freezes a Member's assets, and (2) the application of the Bankruptcy Code's automatic stay and avoidance powers, there are exceptions and safe harbors in SIPA, as well as provisions typically included in such protective decrees, that support the finality of securities transactions processed through securities clearing agencies and their ability to close out the open positions of the insolvent Member.[32]

The insolvency and receivership of a FICC Member that is an insured depository institution is handled under FDIA. Although stays, prohibitions on walkaway provisions, avoidance powers of the Federal Deposit Insurance Corporation ("FDIC"), and powers of the FDIC to disaffirm or repudiate certain contracts and leases are generally applied with respect to cases under FDIA, there are exceptions and safe harbors in FDIA that support settlement of securities transactions through clearing agencies.[33]

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[30] As discussed below, legal risk relating to the insolvency regime applicable to a non-U.S. Member is identified, analyzed and mitigated through the use of legal opinions, analyses and/or advice.

[31] Examples of such exceptions and safe harbors include: Sec. 362(b)(6) (exceptions from the automatic stay); Sec. 546(e) (limitations on avoidance powers); Sec. 555 (contractual right to liquidate, terminate, or accelerate a securities contract); Sec. 561 (contractual right to terminate, liquidate, accelerate, or offset under a master netting agreement and across contracts; proceedings under chapter 15).

[32] Examples of these exceptions and safe harbors include 15 U.S.C. §78eee(b)(2)(C), which provides that the automatic stay shall not apply to "any contractual rights [including rights set forth in a rule or bylaw of a securities clearing agency] of a creditor to liquidate, terminate, or accelerate a securities contract, commodity contract, forward contract, repurchase agreement, swap agreement, or master netting agreement, as those terms are defined in [the Bankruptcy Code], to offset or net termination values, payment amounts, or other transfer obligations arising under or in connection with one or more of such contracts or agreements, or to foreclose on any cash collateral pledged by the debtor, whether or not with respect to one or more of such contracts or agreements." Moreover, protective decrees often recite many of the stay exceptions and safe harbors found in the Bankruptcy Code and SIPA and also contain additional stay exceptions and safe harbors not contained in the Bankruptcy Code and SIPA, including those designed to enable clearing agencies to timely effectuate a closeout.

[33] Examples of these exceptions and safe harbors include 12 U.S.C. §1821(e)(8)(C), which provides that, notwithstanding any federal or state law relating to the avoidance of preferential or fraudulent transfers, the FDIC, whether acting as such or as conservator or receiver of an insured depository institution, "may not avoid any transfer of money or other property in connection with any qualified financial contract [including a securities contract] with an insured depository institution" (except in cases involving an intent to hinder, delay or defraud). FDIA also provides for: (1) the right to exercise any right to liquidate a qualified financial contract ("QFC") with an insured depository

FDIA does provide for up to a one-business-day stay of closeout actions while the FDIC determines whether to transfer all the insured depository institution's positions to a successor institution. In the event that the FDIC is appointed as receiver for a Member, FICC expects to be in discussions with the FDIC regarding FICC's acceptance of such a successor institution as a substitute Member.

The provisions of Title II of Dodd-Frank regarding OLA provide for the appointment of the FDIC as receiver for certain systemically important entities (defined in Title II of Dodd-Frank as "covered financial companies"). As under FDIA, stays, prohibitions on walkaway provisions, avoidance powers of the FDIC, and powers of the FDIC to disaffirm or repudiate certain contracts and leases are generally applied with respect to cases under OLA, with exceptions and safe harbors under OLA similar to those under FDIA that support settlement of securities transactions processed through securities clearing agencies. As under FDIA, OLA provides for up to a one-business-day stay of closeout actions while the FDIC determines whether to transfer all the covered financial company's positions to a successor institution. In the event that the FDIC is appointed as receiver for a Member under OLA, FICC expects to be in discussions with the FDIC regarding FICC's acceptance of such a successor institution as a substitute Member.

The exceptions and safe harbors contained in FDICIA, the Bankruptcy Code, SIPA, FDIA and Title II of Dodd-Frank that support the finality of securities transactions and the closeout of the insolvent Member's open positions provide FICC with a high degree of certainty as to the effectiveness of its risk management and default management rules and procedures.

Transparency of each Division's Rules

The laws and regulations governing the operations of FICC and the rules, procedures and contractual provisions for FICC's Members are clearly stated, internally coherent and readily accessible to Members and the public.

FICC makes the following resources, among others, available to the public on the DTCC website: (1) each Division's Rules; (2) filings of Proposed Rule Changes and Advance Notices; (3) white papers and other reports addressing initiatives under consideration or in process, or other issues of import to stakeholders, including the membership; (4) Important Notices that address issues of import to each Division's membership (including notice of when FICC ceases to act for a Member, and information as to how it will handle pending transactions of the defaulting Member), and (5) this Disclosure Framework.

The Proposed Rule Change Process and Advance Notice Process, as described above, provide for proposed changes to be made publicly available – both by the SEC by publication in the Federal Register,[34] and by FICC by posting on the DTCC website. Interested parties are provided an opportunity to comment publicly on such proposals, including the ability to raise any applicable concerns. Any such concerns would be addressed or responded to as part of the SEC's review and approval/non-objection process.

The SEC is required to disapprove a Proposed Rule Change if it does not find that the change is consistent with the requirements of the Exchange Act and the rules and regulations thereunder that are applicable to FICC. Similarly, the SEC may object to a Material Change that is the subject of an Advance Notice if it determines that the change is inconsistent with the objectives and principles for risk management standards

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institution which arises upon the appointment of the FDIC as receiver at any time after such appointment; (2) the right to exercise any right under a security agreement or other credit enhancement that relates to one or more such QFCs; and (3) the right to exercise any right to offset or do closeout netting in connection with one or more such QFCs, including under any master agreement for such QFCs (such as each Division's Rules).

[34] The SEC also makes proposed changes publicly available by posting them on its website.

described in Section 805(b) of Dodd-Frank or the rules and regulations thereunder that are applicable to FICC.

Degree of certainty for rules and procedures; conflict of laws issues

FICC achieves a high level of confidence that each Division's Rules and material contracts are enforceable in all relevant jurisdictions:

1. By obtaining legal opinions, analyses and advice and other legal comfort.

Each Division's Rules and, generally, FICC's material contracts, are (1) governed by the law of New York and (2) adjudicable in federal and state courts located in New York. As described above, U.S. and New York law provide a clear and comprehensive framework for the enforceability of each Division's Rules and FICC's material contracts.

FICC identifies, analyzes and mitigates legal risks arising from potential conflict-of-law issues in a variety of ways. FICC's operations are based in the United States, and each Division's Members are predominantly U.S.-domiciled entities. With respect to membership of non-U.S. entities, GSD Rule 2A and MBSD Rule 2A, as applicable, set forth FICC's policy with respect to the admission of such Members. Among the requirements for such applicants is the provision of a legal opinion of counsel qualified in the applicant's home jurisdiction, to the effect that (1) the choice of New York law to govern the membership agreement and the applicable Division's Rules and the submission to jurisdiction of the federal and state courts located in New York will be enforceable against the Member in its home jurisdiction, and (2) the foreign jurisdiction will recognize the judgment of a federal or state court located in New York. In addition, as noted above, the opinion must specifically address issues such as FICC's ability to enforce the applicable Division's Rules (including its netting, guaranty, novation, and default management rules) under the applicable insolvency rules of the applicant's home jurisdiction. These opinions facilitate analysis of any legal risk that may arise as a result of the applicant's participation in FICC. FICC can mitigate conflicts of laws risks or other legal risks that may be identified as a result of such opinions and analysis by, among other things, imposing conditions on membership or additional requirements and/or requiring special representations from an applicant.[35]

FICC also obtains legal opinions, analyses and/or advice, as it deems necessary or appropriate, to confirm, among other things, that each Division's Rules and FICC's material contracts are consistent with relevant laws and regulations prior to becoming effective. FICC will also obtain legal opinions, analyses and/or advice in the future, as it deems necessary or appropriate, to address new services, changes in law, or other matters.

2. Through the Proposed Rule Change and Advance Notice Processes.

As noted above, generally before a Proposed Rule Change may take effect, the SEC must approve the change. In order to do so, it must determine that the change is consistent with the requirements of the Exchange Act and the rules and regulations thereunder that are applicable to FICC. Similarly, generally before a Material Change takes effect, the SEC may object to the change if it determines that the change is inconsistent with the objectives and principles for risk management standards described in Section 805(b) of Dodd-Frank or the rules and regulations thereunder that are applicable to FICC. These processes, together

[35] For example, GSD Rule 4 (Clearing Fund and Loss Allocation) and MBSD Rule 4 (Clearing Fund and Loss Allocation) provide that FICC reserves the right to require the entity to deposit additional amounts to the Clearing Fund in an instance where FICC, in its sole discretion, believes the entity presents legal risk.

with the opportunity for public review and comment provided thereby, provide a clear record and statutory basis for the enforceability of each Division's Rules.

Principle 2: Governance; CCAS 17Ad-22(e)(2)

Principle 2: Governance	CCAS 17Ad-22(e)(2)
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. ***Key consideration 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. ***Key consideration 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. ***Key consideration 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. ***Key consideration 4***: The board should contain suitable members with the appropriate skills and incentives to fulfill its multiple roles. This typically requires the inclusion of non-executive board member(s). ***Key consideration 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. ***Key consideration 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	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (2) Provide for governance arrangements that: (i) Are clear and transparent; (ii) Clearly prioritize the safety and efficiency of the covered clearing agency; (iii) Support the public interest requirements in Section 17A of the Act (15 U.S.C. 78q-1) applicable to clearing agencies, and the objectives of owners and participants; (iv) Establish that the board of directors and senior management have appropriate experience and skills to discharge their duties and responsibilities; (v) Specify clear and direct lines of responsibility; and (vi) Consider the interests of participants' customers, securities issuers and holders, and other relevant stakeholders of the covered clearing agency.

should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board. ***Key consideration 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.	

Ownership and Board structure

FICC is a wholly owned subsidiary of DTCC. DTCC is user owned and governed pursuant to a Shareholders Agreement.[36] The DTCC common shareholders include approximately 285 banks, broker-dealers, and other companies in the financial services industry that are participants of one or more of DTCC's clearing agency subsidiaries, including FICC. DTCC common shares are allocated to participants in accordance with a formula based on their relative usage of the services of the three clearing agencies.

Individuals elected to the DTCC Board of Directors are also elected to the Boards of Directors of FICC and of its affiliates, DTC and NSCC, and these boards generally operate together with the DTCC Board (collectively, the "Board"). DTCC (and FICC) is a New York business corporation. As such, DTCC's business is subject to the oversight of the Board, and managed on a day-to-day basis by DTCC's senior management.

The Board is currently composed of 19 directors. Twelve of the directors represent clearing agency participants, including broker/dealers, custodian and clearing banks and investment institutions ("participant directors"); three are non-participant directors; two directors are designated by DTCC's Series A and Series B preferred shareholders (ICE and the Financial Industry Regulatory Authority, respectively); one director is DTCC's Non-Executive Chairman; and one director is from DTCC senior executive management (the President and Chief Executive Officer).[37] The non-participant directors are not employed by any user of DTCC's services. Non-participant directors bring additional skills and expertise to the Board, mitigate potential conflicts of interest among participant directors and introduce different perspectives. Collectively, the participant directors, non-participant directors, the Non-Executive Chairman, the management director and representatives of the Series A and B preferred shareholders provide a diverse representation of DTCC's stakeholders and ensure that the broad interest of the public is represented. All directors, except those designated by the preferred shareholders, are elected annually to one-year terms.

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[36] The Fourth Amended and Restated Shareholders Agreement, dated January 27, 2015 (the "Shareholders Agreement"), among DTCC, DTC, NSCC, FICC, and the common shareholders, Series A preferred shareholders and Series B preferred shareholders of DTCC.

[37] As part of its capital raising plan, in 2015 DTCC issued an additional series of preferred stock via a private 144A offering to qualified institutional investors. These shares, 1,600 shares of Series C Fixed-to-Floating Rate Non-Cumulative Perpetual Preferred Stock, have a liquidation preference of $250,000 per share (the "Series C Preferred Stock"). The Series C Preferred Stock does not have any voting rights, except in specified circumstances (including with respect to fundamental changes in the terms of the Series C Preferred Stock and the right to appoint two directors in the event of certain dividend arrearages) and except as specifically required by New York law.

As noted in the Board of Directors Mission Statement and Charter (available on the DTCC website), the Board is responsible for providing direction to and overseeing the conduct of the affairs of the corporation in the interests of the corporation, its shareholders and other stakeholders including investors, issuers and participants in the financial markets that DTCC serves. The Board plays a key role in policy development and establishment of corporate objectives, financial management and operational planning.

The names and backgrounds of the members of the Board and DTCC senior management are available on the DTCC website.

Mission and objectives

FICC's objectives are aligned with those of its parent company, DTCC, as targeted to the services of FICC and its membership base, which is composed of GSD Members and MBSD Members (collectively, "FICC Members"). DTCC's long-term objective is to safeguard the stability and integrity of global financial markets, and to drive positive change. As expressed on the DTCC website:

> Risk management is the primary function of DTCC and has been since the organization's inception more than 40 years ago. The company's risk management role entails effective and efficient identification, measurement, monitoring and control of credit, market, liquidity, systemic, operational and other risks for the DTCC enterprise, its users and the marketplace.

In applying these objectives to the Board's oversight role, the Mission Statement provides that:

> The Board will discharge its oversight responsibilities and exercise its authority in a manner, consistent with applicable legal and regulatory provisions and with regulatory expectations of a systemically important financial market infrastructure, that:
>
> - Promotes the safe, sound and efficient operation of DTCC and its subsidiaries, including the clearance and settlement activities conducted by its registered clearing agency subsidiaries;
> - Fosters the safe, sound and efficient operation of services provided by DTCC and its subsidiaries supporting the global system for processing transactions in financial instruments and related activities;
> - Seeks to develop the services and businesses of DTCC and its subsidiaries in a manner promoting further safety, soundness and efficiency broadly in the global system for processing transactions in financial instruments and related activities and
> - Leverages DTCC's role as a leader in financial services with respect to risk management and systemic risk management, promoting sound practices in governance and in transparency to its membership and user community and in its role as a systemic component of the financial market infrastructure supporting the operation of orderly and efficient markets in the interest of the investing public.

Collectively, these objectives are designed, particularly with respect to the activities of DTC, FICC and NSCC, to promote the prompt and accurate clearance and settlement of securities transactions and the safeguarding of securities and funds in the custody or control of DTC, FICC and NSCC or for which they are responsible.

DTCC's performance management framework consists of two major components: annual corporate goals ("Corporate Goals") and a "Balanced Business Scorecard" ("BBS"). Together they provide the basis for assessing DTCC's overall performance in supporting the industry and the financial markets throughout the year. The Corporate Goals are strategic in nature, focusing on the key projects or improvements that DTCC plans to deliver during the year. The BBS focuses more on actual performance, assessing it against a series of measures organized into four quadrants (Stakeholder/Financial, Client Experience, Operational Execution and Human Capital). In designing these metrics and setting targets for them, the BBS deliberately recognizes that various corporate priorities must be "balanced" to achieve the optimum level of organizational achievement.

In furtherance of its Mission Statement, relevant public interest considerations are identified and reflected in DTCC's objectives through the Corporate Goals. The Corporate Goals are developed based on consultation with individual participants, members of the Board, standing advisory councils, industry associations, regulators and others. Individual product managers are actively engaged with relevant industry groups and associations in partnering to identify ways that the DTCC can continue to develop operational, technological and risk mitigation solutions for the financial services industry.

DTCC management prioritizes safety and efficiency through review of businesses and initiatives by enterprise-wide management committees organized to focus on such issues, including the Management Committee, the Management Risk Committee ("MRC"), the Investment and Operating Committee and the IT Governance Committee. Initiatives are also reviewed at the Board level by the relevant Board committee, as appropriate. For example, risk initiatives are reviewed by the MRC, and escalated as appropriate to the Board Risk Committee. The Compensation and Human Resources Committee, in consultation with the Board Risk Committee, seeks to ensure that compensation policies do not encourage excessive risk-taking and meet evolving standards on compensation practices.

DTCC works to foster a culture of openness and dialogue at the management and Board levels with its regulators (sometimes referred to as the "supervisors").

Governance structure and arrangements

The governance arrangements, which also identify the roles and lines of responsibility and accountability within DTCC, are described in by-laws, the Board of Directors Mission Statement and Charter, the Procedures for the Annual Nomination and Election of the Board, and each of the Board Committee Charters, all of which are publicly available on the DTCC website. The Board Charter includes provisions relating to board composition, meetings, election of directors, board committees, duties and responsibilities of directors, and director qualification standards. With respect to management, the roles and responsibilities of management, including reporting lines, are provided in job descriptions.

The Board currently has designated six (6) standing Committees, and each director serves on at least one Board committee. The committees are briefly described below:

Audit Committee: The Board has established an Audit Committee to assist the Board in overseeing: (1) the integrity of DTCC's financial statements and financial reporting; (2) the overall effectiveness of DTCC's internal control environment; (3) the effectiveness of DTCC's process for monitoring compliance with applicable laws, regulations and the Code of Conduct; (4) the performance and coverage of the internal audit function; (5) the external auditor's independence, performance and coverage; (6) functional areas within the Committee's jurisdiction to ensure proper communication of any issues or risks material to the clearing agencies; and (7) legal, compliance and regulatory risks as they relate to DTCC or its subsidiaries or any clearing agency's provision of clearance and settlement services as an industry utility. The roles and responsibilities of the Audit Committee are outlined in the DTCC Audit Committee Charter.

Businesses, Technology & Operations Committee: The Board has established a Businesses, Technology & Operations Committee (the "BTOC") to facilitate the oversight of DTCC's business strategy and assess performance against that strategy, as well as oversight of the operational and technology capabilities that support DTCC's business lines that are responsible for implementing that strategy. Consistent with this purpose, the BTOC oversees the performance of DTCC's existing businesses, including the review and approval of plans and fees of such businesses and extensions to such businesses. The BTOC reviews and recommends for Board approval material proposed DTCC businesses or services, with particular regard to (i) any significant risks created by the proposed businesses or services, for DTCC, its subsidiaries and the financial system more generally, as well as the measures to control and mitigate or eliminate such risks, and (ii) whether there is an acceptable business case for the proposed activity. The BTOC also oversees management's operation and development of the infrastructure capabilities, technology resources, processes and controls necessary to fulfill DTCC's service delivery requirements, and monitor key operational and technology metrics associated with the delivery of DTCC's services. The roles and responsibilities of the BTOC are outlined in the Businesses, Technology & Operations Committee Charter.

Compensation and Human Resources Committee: The Board has established a Compensation and Human Resources Committee to assist it in overseeing DTCC's human capital management programs to ensure that they are aligned with DTCC's strategic goals and objectives and to continually improve business performance. Programs included in the scope of the Compensation and Human Resource Committee's responsibilities include those related to talent acquisition, retention, executive leadership development, performance management, succession planning, total rewards, diversity and the fostering of a high performance corporate culture. The Compensation and Human Resources Committee further advises on the extent to which human capital management programs are periodically reviewed and revised so as to be in alignment with industry and regulatory best practices. The roles and responsibilities of the Compensation and Human Resources Committee are outlined in the Compensation and Human Resources Committee Charter.

Executive Committee: The Board has established an Executive Committee to exercise powers of the Board in the event that an emergency or other time-sensitive matter arises and it is not practicable to assemble the entire Board. The roles and responsibilities of the Executive Committee are outlined in the Executive Committee Charter.

Governance Committee: The Board has established a Governance Committee to assist the Board in: (1) identifying, screening and reviewing individuals qualified to serve as directors and recommending to the Board candidates for nomination for election at the annual meeting of shareholders or to fill Board vacancies; (2) developing, recommending to the Board and overseeing implementation of DTCC's corporate governance policies and procedures and the Board Code of Ethics; and (3) reviewing on a regular basis the overall corporate governance framework of DTCC and recommending enhancements and/or changes when necessary. The roles and responsibilities of the Governance Committee are outlined in the Governance Committee Charter.

Risk Committee: The Board has established a Risk Committee (the "Board Risk Committee" or "BRC") to assist the Board in fulfilling its responsibilities for oversight of DTCC's risk management activities focusing on the following critical aspects: (1) oversight of risk management systems and processes designed to identify and manage credit, market, liquidity and operational risks to DTCC and its subsidiaries; and (2) due to the Company's unique capabilities and position, oversight of the Company's efforts to mitigate certain "systemic risks" that may undermine the stable operation of the financial system. To provide additional dedicated focus and align oversight of specialized risk categories with the domain expertise of other committees that have been established, or may be established from time to time, by the Board, certain risks will be overseen by other Board committees. While these risks will not be directly overseen by the BRC, the BRC will, nonetheless, coordinate risk oversight with these other Board committees as appropriate to achieve a comprehensive and holistic oversight of the organization's risk-related matters. The Board retains the authority to review matters brought to the BRC and request immediate escalation to the full Board should the Board deem appropriate. The roles and responsibilities of the BRC and its governance arrangements, which have been designed to prioritize the clearing agencies' safety and efficiency in support of the public interest and the prompt and accurate clearance and settlement of securities transactions, as well as the objectives of clearing agency members and participants, as required under the Exchange Act are outlined in the Risk Committee Charter.

Review of Board performance and conflicts of interest

The Governance Committee of the Board reviews and addresses director conflicts of interest. Directors are subject to the DTCC Board Code of Ethics. The Board Code of Ethics, which is available on the DTCC website, describes how conflicts of interest are identified and how they are to be addressed. The Board Code of Ethics is reviewed by the Governance Committee.

The Board conducts an annual self-evaluation of its performance and the performance of its Committees. The Governance Committee is responsible for coordinating and providing oversight of the annual self-evaluation, including determining the methodology for the evaluation, and overseeing its execution. The results of the self-assessments are reviewed by the respective committee, the Governance Committee and the Board.

Director nomination process

As a registered clearing agency, FICC is subject to Section 17(A) of the Exchange Act, which provides that the rules of a clearing agency must assure a "fair representation of its shareholders and participants in the selection of its directors and administration of its affairs…." DTCC's shareholders are the participants and members of its three clearing agency subsidiaries, including FICC's Members. This "fair representation" requirement is currently satisfied by allocating shares, pursuant to the Shareholders Agreement, with attendant voting rights to elect directors, in accordance with a formula based on usage of the services of the three clearing agencies.

Each year, typically in December, a nominations solicitation letter along with a copy of the Procedures for the Annual Nomination and Election of the Board of Directors ("Procedures") is sent to the participants of DTC, FICC and NSCC, and is also provided via Important Notice on DTCC's website. This begins the process by which participants of the clearing agency subsidiaries may nominate individuals for election as participant directors. Using cumulative voting, DTCC's common shareholders vote on director nominees at the annual shareholders' meeting.

The Procedures set forth the skill sets that are necessary for Board members. The skill sets are reviewed annually by the Governance Committee, and changes, if any, are recommended to the Board for approval.

Each director is required to complete a skills and experience questionnaire. In accordance with its Committee Charter, on a yearly basis, the Governance Committee reviews the skills and experience of the current directors and determines, among other things, whether there are any gaps in skills or experiences that would be desirable to have filled by a new director nominee. Each Board Committee Charter contains a list of skill sets that the committee members should have.

Individuals are nominated for election as directors based on their ability to represent DTCC's diverse base of participants, and DTCC's governance is specifically structured to help achieve this objective. The non-participant Board members are individuals with specialized knowledge of financial services, but who bring an independent perspective since they are not employed by firms that use clearing agency services.

Collectively, the Board composition reflects an appropriate balance of participant and non-participant directors. Board members serve on a variety of Board committees with responsibility to oversee aspects of DTCC and its clearing agency subsidiaries' operations.

The Board plays an integral role in the oversight of the firm, ensuring DTCC services (including those provided by FICC) continue to meet the evolving needs of participants.

Management experience, skills, integrity and performance

DTCC has talent management programs and succession planning programs that are reviewed, updated and presented to the Compensation and Human Resources Committee annually. As needed, and generally on an annual basis, the full Board is updated on the company's succession planning process and on the status of development plans for key individuals. For very senior level positions, multiple members of the Management Committee and selected Board Members may be involved in the interview and selection process. For the most senior levels of the organization (e.g., CEO, Chairman, etc.,) a search committee of the Board may be formed to conduct the process.

Performance appraisals are prepared on an annual basis for employees, including Managing Directors.

On an annual basis, the CEO reviews the performance of the Management Committee members and discusses the performance with the members of the Compensation and Human Resources Committee.

The performance and compensation of the CEO and Non-Executive Chairman are reviewed by the Compensation and Human Resources Committee and presented to the full Board for approval.

A Risk Assessment of the Management Committee (and selected additional Managing Directors) is conducted on an annual basis by the Group Chief Risk Officer, the Chief Compliance Officer and the General Auditor and reviewed with the Compensation and Human Resources Committee and the Chairs of the Risk and Audit Committees.

The Board of Directors measures management's performance against the Corporate Goals periodically throughout each year through (i) the review of status reports prepared by management, and (ii) the Board Committees that have oversight responsibilities for particular activities. In addition, the Board's Compensation and Human Resources Committee receives periodic updates throughout the year on the achievement of the Corporate Goals and Balanced Business Scorecard metrics. As provided in its Committee Charter, the Compensation and Human Resources Committee is also responsible for the following:

- In consultation with the Board Risk Committee Chair, assuring that corporate goals and objectives are aligned with the interests of DTCC's stakeholders and do not encourage executive officers to take undue risks;

- Reviewing and assessing, in consultation with the Board Risk Committee Chair, whether the compensation program:

    - Promotes appropriate risk identification and management approaches,

    - Discourages executive officers from taking unnecessary or excessive risks,

    - Includes a regular assessment of key performance indicators to measure and compensate executive officers, and

- Maintains a high level of responsiveness to concerns and recommendations raised by officers;

– Obtaining input from the Group Chief Risk Officer, General Auditor and Chief Compliance Officer regarding executives' performance in relation to risk management/behaviors and considering that input when determining compensation; and

– Ensuring that critical matters and material systemic risk concerns are escalated to the full Board.

Employee integrity is a core DTCC value. DTCC maintains a Code of Ethics that sets forth the foundational principles that govern DTCC's business. All employees and consultants must comply with the Code of Ethics and are expected to have a clear understanding of and commitment to the high ethical standards outlined in the Code.

Risk management framework

DTCC has established a Corporate Risk Framework, pursuant to which its risk tolerances are established, communicated, and monitored. The goal of the Corporate Risk Framework is to define DTCC's risk management program and provide guidelines to manage key risks across the organization in a comprehensive, consistent and effective manner, enabling DTCC to achieve its strategic business objectives while remaining consistent with its risk tolerances. While risk types are diverse, their effective management requires a core set of common principles and common processes for identifying, assessing, measuring, monitoring, mitigating and reporting risk. The Board has ultimate responsibility for the effectiveness of the Corporate Risk Framework's implementation. In carrying out this responsibility, applicable guidelines make clear that the Board is not expected to itself implement the Corporate Risk Framework or to carry out the day-to-day management of risks. Rather, the Board, in discharging its ultimate responsibilities over risk management matters works closely with management and may assign tasks to board committees. DTCC's Corporate Risk Framework is documented through the DTCC Corporate Risk Framework Policy, which includes several Risk Tolerance Statements. Each Risk Tolerance Statement pertains to a specified risk within the "risk family framework" established to guide DTCC's discussion of risk. The DTCC Corporate Risk Framework Policy is reviewed, updated (as appropriate), and approved by the MRC, at least annually, and is reviewed and approved by the Board Risk Committee annually.

The DTCC Corporate Risk Framework Policy is the overarching policy from which all risk management policies and procedures within the primary purview of the Group Chief Risk Office, among other areas, derive. The Group Chief Risk Office consists of the following areas: (i) Financial and Operational Risk Management ("FORM"), (ii) the Chief Security Office ("CSO"), and (iii) Enterprise Data Management ("EDM").

Each area within the Group Chief Risk Office has its own risk management policies designed to address that area's specific domain of expertise. These policies are reviewed and updated (as appropriate) at least annually.

Oversight of the Group Chief Risk Office is the responsibility of the Board Risk Committee. The Group Chief Risk Officer has a direct reporting line to the Chair of the Board Risk Committee and reports, administratively, to the DTCC President and Chief Executive Officer. The Board Risk Committee has responsibility to review and approve the compensation recommendation of the Group Chief Risk Officer. This specialized Board oversight over the Group Chief Risk Office is designed to provide the Group Chief Risk Office with independence from the operating business areas of DTCC.

The Corporate Risk Framework is more fully described under Principle 3 (Framework for the comprehensive management of risks).

Internal Audit

The mission of the Internal Audit Department ("IAD") is to provide independent and objective assurance services to assist the enterprise in maintaining effective risk management and control practices. IAD supports the Board in its oversight of the governance, risk and control framework and seeks to achieve and maintain the highest level of professional standards, while helping the company achieve its objectives. The Audit Committee is responsible for overseeing the internal audit function. IAD is governed by policies reviewed and approved by the Audit Committee and the Board.

IAD's assurance services include evaluating operations and internal controls to validate that the enterprise's assets and member assets held by DTCC and its subsidiaries (including FICC) are safeguarded, and that policies, standards, and procedures are being followed. Additionally, IAD helps management proactively identify risks that require controls or risk mitigation strategies for new businesses, products, and services, and to properly maintain controls in existing and expanding businesses.

The scope of IAD's activities is subject to the Audit Committee's review and approval, but is not otherwise restricted. The General Auditor directs all internal audit activities in support of its mission to support the Board and to enhance the control environment.

IAD is expected to be independent in the execution of its activities. As noted above, independence is achieved through organizational placement and reporting lines. To help maintain independence, staff assignments are rotated periodically as is practicable. In addition, the General Auditor, among others, periodically meets privately with the Audit Committee, without members of management or the external accounting firm present. The Audit Committee Chair conducts the General Auditor's annual performance assessment and the Audit Committee reviews and approves the compensation recommendation for the General Auditor.

Disclosure

Major decisions of the Board that are not confidential are disclosed to relevant stakeholders, as appropriate. To the extent such decision is reflected in a change to the Rules of FICC or constitutes a material change to the operations of FICC, disclosure is made though public regulatory filings with the supervisors, as applicable, as well as the issuance of Important Notices, which are published on the DTCC website. Decisions and information with a broader impact or of more general interest are disclosed through press releases, articles, white papers and other materials posted to the DTCC website, including DTCC's Annual Reports and the financial statements of the clearing agency subsidiaries. Section VI of this Disclosure Framework provides a list of information and documents that is publicly available on the DTCC website.

Principle 3: Framework for the comprehensive management of risks; CCAS 17Ad-22(e)(3)

Principle 3: Framework for the comprehensive management of risks	CCAS 17Ad-22(e)(3)
An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks. ***Key consideration 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. ***Key consideration 2***: An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI. ***Key consideration 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. ***Key consideration 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.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (3) Maintain a sound risk management framework for comprehensively managing legal, credit, liquidity, operational, general business, investment, custody, and other risks that arise in or are borne by the covered clearing agency, which: (i) Includes risk management policies, procedures, and systems designed to identify, measure, monitor, and manage the range of risks that arise in or are borne by the covered clearing agency, that are subject to review on a specified periodic basis and approved by the board of directors annually; (ii) Includes plans for the recovery and orderly wind-down of the covered clearing agency necessitated by credit losses, liquidity shortfalls, losses from general business risk, or any other losses; (iii) Provides risk management and internal audit personnel with sufficient authority, resources, independence from management, and access to the board of directors; (iv) Provides risk management and internal audit personnel with a direct reporting line to, and oversight by, a risk management committee and an independent audit committee of the board of directors, respectively; and (v) Provides for an independent audit committee.

Risk management framework

The Company maintains a sound risk management framework for comprehensively managing legal, credit, liquidity, operational, general business, investment, custody, and other risks that arise in or are borne by FICC. This risk management framework includes risk management policies, procedures, and systems that are designed to identify, measure, monitor, and manage such risks to FICC. The overarching document outlining the Company's risk management framework is the Company's Corporate Risk Framework Policy ("Corporate Risk Framework Policy"), attached to which are a set of Risk Tolerance Statements described below. In addition, FICC has filed the following risk management documents with the SEC, which have been approved: (i) the Clearing Agency Risk Management Framework, (ii) the Clearing Agency Stress Testing Framework (Market Risk); (iii) the Clearing Agency Model Risk Management Framework; (iv) the

Clearing Agency Securities Valuation Framework; (iv) the Clearing Agency Liquidity Risk Management Framework; (v) the Clearing Agency Operational Risk Management Framework; (vi) the Clearing Agency Investment Policy; and (vii) the Clearing Agency Policy on Capital Requirements (collectively, the "Clearing Agency Risk Frameworks").

The Corporate Risk Framework Policy, the Risk Tolerance Statements, and the Clearing Agency Risk Frameworks that address FICC's management of credit, liquidity, and operational risks, among other risks, as well as the various supporting policies and procedures thereunder, are reviewed annually by their respective owners and are escalated to the MRC for approval at least annually; they are also reviewed and approved by the BRC annually.

The Company believes that while the risks affecting FICC are diverse, their effective management requires a core set of common principles and common processes for identifying, assessing, measuring, monitoring, mitigating, and reporting risk. The Corporate Risk Framework Policy and the Risk Tolerance Statements outline the overall approach through which risk tolerances are established, communicated, and monitored. These documents, in combination with the Clearing Agency Risk Frameworks have been designed to provide guidelines for managing risk in a comprehensive, consistent, and effective manner. Adherence to the Corporate Risk Framework Policy, the Risk Tolerance Statements, and the Clearing Agency Risk Frameworks strikes the balance for FICC to achieve its strategic business objectives while remaining within established risk tolerance thresholds.

As of December 31, 2018, the Company has identified the set of risks listed below ("Key Risks") for purposes of managing legal, credit, liquidity, operational, general business, investment, custody, and other risks that arise in or are borne by FICC. Any of these Key Risks, if realized, could result in one or more negative impacts to FICC, including business disruption, financial loss, customer dissatisfaction, regulatory censure, and reputational harm. These Key Risks, whether alone or in combination, could also have or cause systemic impacts to the broader market place. The Key Risks are as follows:

- Market Risk
- Credit Risk
- Liquidity Risk
- Operational Risk, includes the following sub-types:
  - Financial Risk[38]
  - Model Risk
  - Legal & Regulatory Compliance Risk
  - Processing & Operations Risk
  - Information Technology Risk
  - Cybersecurity & Information Protection Risk
  - Human Capital/People Risk
  - Business Continuity Risk

[38] The Company defines this Key Risk to include those risks addressed by Principle 15 (General Business Risk) and Principle 16 (Custody and Investment Risk) below.

- Strategic Risk, includes the following sub-types:
  - General Business Risk[39]
  - New Initiatives Risk

To protect against these Key Risks, the Company maintains a framework of corporate level controls to guide its activities, including within FICC's business lines and functional units. These corporate level controls begin with adherence to the three lines of defense approach to risk management. The corporate level controls also include risk management policies, procedures and systems designed to support execution of the Corporate Risk Framework Policy and the Clearing Agency Risk Frameworks.

The Three Lines of Defense

Under the three lines of defense approach to risk management, everyone supporting FICC's business lines and functional units is a risk manager. Collectively, the three lines of defense described below are designed to safeguard that Key Risks remain within their established risk tolerances and that any deviation outside a defined risk tolerance threshold is monitored on an ongoing basis and escalated in accordance with the Risk Tolerance Statement applicable to it.

- The First Line of Defense: The first line of defense is comprised of the various FICC business lines and supporting functional units including Product Management, Operations Management, Information Technology, and other areas critical to FICC's daily operations and functioning. Their mandate is to manage risk proactively on a day-to-day basis.

- The Second Line of Defense: The second line of defense is comprised of the Company's control functions, including the General Counsel's Office, the Privacy Office, Compliance, and those areas that fall within the Group Chief Risk Office, as outlined below. Their mandate is to provide advice and guidance to the first line of defense in adhering to established risk standards and to monitor compliance with those standards.

- The Third Line of Defense: The third line of defense is the Internal Audit Department ("IAD"). IAD's mission is to assess the Company's overall control environment, risk management, and control framework and, in doing so, to raise awareness of control risk and promote changes (and identify opportunities) for improving governance processes. IAD provides independent and objective assurance to assist in the Company's maintenance of effective risk management and control practices. The head of IAD is the General Auditor. The General Auditor has a direct reporting line to the Chairman of the Audit Committee.

Policies, procedures and systems

The Company maintains a comprehensive set of policies, procedures, and systems designed to identify, measure, monitor, and manage FICC's Key Risks. The set of policies and procedures include the Corporate Risk Framework Policy, the Clearing Agency Risk Frameworks, and the underlying policies and procedures that support their execution. Through a single set of defined standards ("Document Standards"), all such policies, procedures, and similar documents are designed holistically and consistently. Documents covered

[39] With regard to this Key Risk, the Company defines "General Business Risk" as the risk of adverse changes in business volume/margins resulting from market changes, changes in the competitive situation, customer shift and/or excessive operating expenses.

by the Document Standards undergo regular, periodic reviews and approval. The Document Standards provide guidance for the regular, periodic review of documents by their owners. Through these reviews, document owners are able to confirm that such documents continue to effectively mitigate the risks they were designed to address. The Document Standards provide a central location where all covered documents are maintained, which includes a system for the automated workflow for their review, approval and dissemination.

The system of Risk Tolerance Statements is designed to reinforce the Company's commitment to maintaining an effective risk management framework for comprehensively managing FICC's Key Risks. The set of Risk Tolerance Statements documents the overall risk reduction or mitigation objectives with respect to the identified Key Risks, as well as the risk controls and other measures used to manage the Key Risks, including escalation requirements in the event of risk metric breaches. Each Risk Tolerance Statement, among other things: (i) identifies the Key Risk to which it applies; (ii) identifies the key indicators (or metrics) that categorize the tolerance thresholds (from no impact to severe impact); and (iii) identifies the governance and escalation process applicable to any risk metric breach that would result in FICC falling outside of the accepted tolerance level. Each Risk Tolerance Statement is reviewed, revised, updated, and/or created by the Operational Risk Management group ("ORM") within the Group Chief Risk Office and approved by the MRC at least annually, and reviewed and approved by the BRC annually.

Key Risks for the FICC business lines and supporting functional units are monitored through a process of assessing inherent risk (that is, risk in the absence of any mitigating controls) and then evaluating such inherent risk against the strength of the then-existing controls (and, as appropriate, new and additional controls). At the end of the process, residual risks may be identified for further management (such as mitigation) or "acceptance" (which follows a defined escalation and approval process) by the applicable FICC business line or functional unit. Assessments are conducted and documented by ORM through the use of tailored risk profiles, which consolidate pertinent operational risk and control data to support an overall assessment of the applicable business line's or functional unit's inherent risk and residual risk ("Risk Profiles").

Risk Profiles are prepared by ORM at least annually (depending on the level of risk assigned to the business line or functional unit being evaluated). The data collected by ORM in the Risk Profiles supports planning and helps guide decision-making, which may, for example, lead to additional FICC investments to further reduce risk or to readjustment of Risk Tolerance Statement thresholds.

FICC monitors and manages credit and market risk, addressed more fully in Principles 4 and 6, respectively, through strict membership admission criteria and review (as outlined in GSD Rules 2 and 2A and MBSD Rules 2 and 2A), ongoing monitoring and review of Members (as outlined in GSD Rule 3 and MBSD Rule 3), collection of Clearing Fund (GSD Rule 4 and MBSD Rule 4), and other tools that enable FICC to obtain adequate assurances that Members are capable of meeting their membership obligations (GSD Rule 3, Section 7, and MBSD Rule 3, Section 6). Management's efforts are supported by a number of systems, including the systems that (i) capture and evaluate Member financial metrics from reports they submit to their respective regulators (the Credit Risk Rating Matrix[40]), (ii) calculate Member Clearing Fund requirements, (iii) monitor Members' compliance with Clearing Fund requirements, and (iv) evaluate the potential closeout exposure of a given Member portfolio in the event of a default.

Clearing Fund requirements, which include a number of risk-based components, are calculated systemically at least twice a day for each GSD Member and at least daily for each MBSD Member. The core of these systems is built around Value at Risk (VaR) models to estimate market price exposure of cleared

[40] The Credit Risk Rating Matrix (CRRM) relies on both quantitative and qualitative factors to rate the risks presented by both domestic and foreign banks Members and domestic broker/dealer Members.

instruments. The models for these calculations are regularly backtested, as well as tested under stress scenarios, designed to identify coverage issues and protect against model risk. To further mitigate credit risk, FICC's systems allow the addition of special Clearing Fund charges to specific Members, and GSD's Rules and MBSD's Rules permit the collection of Clearing Fund on an intraday basis outside of the scheduled margin calls.

FICC mitigates collateral risk, addressed more fully in Principle 5 (Collateral), by strictly limiting the types, and amount, of collateral it accepts for the GSD and MBSD Clearing Funds. Eligible collateral types and limitations are described in GSD Rule 4 and MBSD Rule 4.

FICC manages its liquidity risk by running daily simulations that measure the amount of liquidity that would be required for FICC over the settlement cycle in the event that the Member or Member family with the largest aggregate liquidity exposure becomes insolvent.

The liquidity resources for each of GSD and MBSD include the following: (1) the cash portion of the Clearing Fund; (2) the cash that would be obtained by entering into repos using the securities portion of the Clearing Fund (U.S. Government Treasury securities, Agency securities guaranteed by the U.S. Government and certain U.S. Agency/Government Sponsored Enterprise pass-through securities) and (3) the cash that would be obtained by entering into repos using the securities underlying transactions that would have been delivered to the defaulting Member had it not defaulted.

In addition to the above, GSD and MBSD each maintain separate CCLFs. CCLF® is a rules-based committed liquidity resource. Briefly summarized, once GSD or MBSD, respectively, declares a CCLF® event, Members of the applicable Division will be required to hold and fund their deliveries to the insolvent Member of that Division, up to a predetermined cap by entering into repo transactions with FICC until GSD or MBSD, as applicable, completes the associated closeout. This facility allows Members to effectively manage their potential financing requirements with predetermined caps. Each Division intends to use the CCLF® process only in the event it is not able to procure its own financing via its existing repo agreements and other funding sources.

FICC's liquidity resources are described more extensively in Principle 7 (Liquidity risk) below.

FICC manages custody and investment risks, including those related to investment of Clearing Fund cash, through the Clearing Agency Investment Policy ("Investment Policy"). Such risks are discussed in more detail in Principle 16 (Custody and Investment Risk) below.

ORM utilizes several tools to identify, assess and manage operational risks, including the Risk Tolerance Statements and Risk Profiles described above, internal incident data collection, external loss data collection, scenario analysis, testing by internal and external parties, metrics and key risk indicators, issue tracking, and issue reporting. Operational risk, including business continuity and technology system arrangements, are discussed more fully in Principle 17 (Operational Risk) below.

As related to proposed new initiatives that FICC may seek to undertake, the Company employs a structured approach for the implementation of new initiatives, which includes defining the process being proposed, evaluating and approving all initiatives and, among other things, conducting a comprehensive risk assessment of new initiatives that are in scope of this approach. Such new initiatives are subject to necessary governance and oversight to enable FICC to bring initiatives to market in a timely and efficient manner, while helping ensure, where relevant, that these initiatives are designed in a way that appropriately mitigates risk to FICC, its Members and the financial markets. This review and risk assessment of new initiatives addresses compliance with applicable laws, regulations and standards.

The Group Chief Risk Office and IAD

The Group Chief Risk Office. The Group Chief Risk Office is the dedicated, independent control function specifically charged with monitoring and managing the Key Risks affecting FICC. The Group Chief Risk Office's responsibilities include: (i) day-to-day management of FICC's credit, market, liquidity, and operational risks; (ii) through ORM, establishing the processes by which FICC's business lines and other functional units report on risk, actively monitoring the Risk Tolerance Statements and Risk Profiles described above, and regularly reporting to the BRC on its findings; and (iii) promptly escalating identified breaches to risk tolerance thresholds and/or material risk exposures in accordance with the Risk Tolerance Statements.

The Group Chief Risk Office consists of the following areas: The CSO, FORM, and EDM.

The CSO is subdivided into three areas:

- Global Security Management
- Technology Risk Management
- Business Continuity Management

FORM is subdivided into three areas:

- Operational Risk Management ("ORM")
- Financial Risk Management ("FRM")
- the Systemic Risk Office

EDM is subdivided into two areas:

- Data Governance & Stewardship
- Data Quality, Metadata and Metrics

The head of the Group Chief Risk Office is the Group Chief Risk Officer. The Group Chief Risk Officer has a direct reporting line to the Chair of the BRC and is responsible for assisting the BRC, as needed, in the performance of its duties. The BRC is responsible for setting the Group Chief Risk Office's annual budget and for monitoring the Group Chief Risk Office's performance. Senior management of the CSO and FORM are invited to attend all BRC meetings.

The Internal Audit Department. As the third line of defense, IAD is functionally independent from all other FICC business lines, support areas, and control functions. IAD evaluates FICC's operations and internal controls to validate that it is providing services in a safe and sound manner, consistent with applicable regulatory requirements and guidance. IAD also evaluates FICC's operations and internal controls to validate that its and its Members' assets are safeguarded, and that policies, standards, and procedures are being followed. IAD helps management proactively identify risks that require controls or risk mitigation strategies for new businesses, products, and services, and to properly maintain controls in existing and expanding businesses. As noted above, the head of IAD is the General Auditor. The General Auditor reports directly to the Chair of the Audit Committee and is responsible for assisting the Audit Committee, as needed, in the performance of its duties. The Audit Committee is responsible for reviewing and approving IAD's annual budget, as well as for annually reviewing and approving IAD's structure, staffing, and resources.

Management and Board Committees and Board oversight

Management oversight. While responsibility for proactive, day-to-day management of risk lies with business line and functional unit managers and their staff, senior management oversight is achieved through the following senior management committees:

- The Management Committee: The Management Committee provides overall direction for all aspects of the Company's (including FICC's) businesses, technology and operations, and the functional areas that support them. Among its responsibilities, the Management Committee periodically reviews (at least quarterly) and assesses overall performance, including but not limited to, goals, metrics, targets, and budget, and approves recommendations for change as necessary. The Management Committee provides oversight and governance for the management committees set forth below.

- The Management Risk Committee: The MRC is primarily responsible for implementing the Company's risk management framework by overseeing the management of credit, market, liquidity, operational, and systemic risks in accordance with the Corporate Risk Framework Policy and the Risk Tolerance Statements. Among its responsibilities, the MRC: (i) reviews and approves at least annually those risk management policies and procedures directly aligned to the management of credit, market, liquidity and operational risks; (ii) where applicable, approves applicants for MBSD and GSD membership, and oversees other MBSD Rule/GSD Rule and participation matters: (iii) establishes and reviews reporting of Key Risks and related risk tolerance thresholds for FICC, and escalates, as appropriate, those matters requiring Board level consideration to the BRC or other Board committees.

- Investment and Operating Committee: The IOC oversees and monitors the Company's portfolio of investments and initiatives and the Company's overall health. The committee's investment oversight responsibilities include reviewing and evaluating the overall investment portfolio for adherence to the Company's budget and recommending to the Management Committee prioritization of ongoing and new initiatives that may be outside the original budget. The committee's initiatives oversight responsibilities include approving material new initiatives for FICC by evaluating business cases, risk assessments, and feasibility studies, and reviewing reports that summarize new initiative approvals, exceptions, cancellations and variances. The committee's oversight also includes monitoring corporate goals, financial results, and other indicators of overall health.

- IT Governance Committee ("ITGC"): The ITGC provides holistic and comprehensive governance for the Company's IT organization, to facilitate the oversight of the organization's IT strategy, and to assess performance and progress against that strategy, as well as to provide oversight of the technology capabilities that support the Company's technology. Consistent with this purpose, the ITGC oversees the plan and performance of IT's existing and new services, reviews and approves material, proposed IT programs or services, with emphasis on any significant risks and committed business value. The ITGC also oversees the development of the infrastructure capabilities, technology resources, processes and controls necessary to fulfill the IT's service delivery requirements, and monitors key technology metrics associated with the delivery of IT's services.

Board oversight. The Board is responsible for providing direction to and overseeing the conduct of the affairs of the Company in the interests of the Company, its shareholders, and other stakeholders, including investors, issuers, and participants in the financial markets to which the Company and FICC serve. The Board discharges its oversight responsibilities and exercises its authority in a manner that, among other things, is designed to promote the safe, sound and efficient operation of FICC and the services it provides, and that promotes safety, soundness and efficiency broadly in the global system for processing financial transactions. The Board fulfills its role either directly or by delegation of certain responsibilities to committees of the Board. The Board Committees and their responsibilities are described in Principle 2 (Governance) above.

Information and incentives for Member management of risk

Members are provided with a significant amount of information, and incentives, to enable them to understand, monitor and manage the risks they pose to FICC, as further described under Principle 23 (Disclosure of Rules, Key Procedures, and Market Data). First, the respective Rules of GSD and MBSD, which are publicly available, establish Membership responsibilities, including Members' daily responsibilities to meet Clearing Fund requirements and complete settlement. Changes to the respective Division's Rules are subject to the proposed rule change and advance notice filing requirements of Section 19(b)(1) of the Act, and the rules thereunder, and the advance notice filing requirements pursuant to Section 806(e)(1) of Dodd-Frank, and the rules thereunder (collectively, "Filing Requirements"). Pursuant to the Filing Requirements, proposed changes to the respective Division's Rules are published in the Federal Register and subject to public review and comment.

While FICC does not impose trading limits, on a daily basis FICC provides Members an entire suite of reports showing their activity in all phases of the settlement cycle; this includes transaction messages and reports, Clearing Fund requirements, and settlement reports/accounting summaries.

To assist firms in understanding FICC's services and applications, FICC provides a number of tools, including user guides, as well as training courses through the Company's learning portal. Topics covered include not only functional and operational aspects of securities clearing through FICC, but also risk management practices and methodologies.

Each GSD and MBSD Member is required to meet its Clearing Fund requirements which are based on the Member's outstanding positions as well as its intraday trading and settlement activity. Clearing Fund reports help Members manage their market risk on an ongoing basis. The resizing of a Member's margin requirement (at least twice a day for GSD Members and once per day for MBSD Members) and its close correlation with the amount of risk created by a Member's trade activity provide incentives for Members to carefully monitor and manage the risks that they pose to FICC. Members have a vested interest in monitoring their Clearing Fund requirements continuously, as these requirements have a direct impact on the amount of collateral and liquidity at their disposal.

FICC also has the ability to require additional Clearing Fund deposits or other adequate assurances (such as limitations on their activity), as a risk mitigant from those firms it considers may pose a risk to GSD or MBSD, as applicable, or their memberships.

Further, as all FICC Members are required to comply with the respective Division's Rules, FICC has a number of disciplinary tools at its disposal, including monetary fines, the consequence of reporting certain incidents to regulators, and, in some cases, limitation on access to one or more services or limitation on activities, which could ultimately result in termination of membership should a Member fail to meet its requirements to FICC.

Material interdependency risks

Given its central role in the U.S. securities markets, FICC potentially poses many risks to other entities, while it is also exposed to risks that may originate from other entities.

As regards risk that may be posed by Members, FICC has established clear and objective membership requirements for each category of membership, which provide fair and open access for firms seeking membership, while maintaining prudent risk management standards that enable FICC to manage the material risks resulting from membership activities. As described more fully under Principle 4 (Credit Risk), FICC monitors GSD Members and MBSD Members on an ongoing basis and assesses credit risk through the use of a Credit Risk Rating Matrix which is designed to focus the level of scrutiny and ongoing monitoring in a manner consistent with a Member's internal risk rating.

In a similar manner, FICC has established credit standards for entities providing settling bank services, and investment and custody services. While settling banks are selected by, and act on behalf of, Members, entities providing such services are held to strict operational standards, and are subject to fines and other disciplinary measures (in their capacity as Members or Settling Bank Only Members) should they fail to abide by such requirements.

FICC's material service providers are subject to a comprehensive third party review and vetting process. FICC assesses its material service provider risks periodically, throughout the lifecycle of a third party service provider relationship. This includes protocols for reporting, escalation and remediation of third party risk and potential exposures. Mitigants may take the form of contractual protections, or additional or backup providers where deemed appropriate and feasible. For example, FICC utilizes price feeds from multiple third parties as an additional risk mitigant, and further employs price review and data scrubbing procedures to minimize the risk of using inaccurate prices. FICC's third party risk management processes are also discussed under Principle 17 (Operational Risk Management) below.

As described in the General Background section of this Disclosure Framework, because FICC is not a depository institution, it is not given direct access to Fedwire® and therefore employs the clearing bank services of BNY.[41] GSD Rule 12 and MBSD Rule 9 provide that FICC shall notify each GSD Member and MBSD Member, as applicable (prior to the entity activating its membership) of the clearing bank or banks that FICC will use to deliver eligible securities to Members and to receive eligible securities from Members, and by product, the types of securities that each such clearing bank will so deliver and receive. In turn, each Member (prior to activating its membership) must notify FICC of the clearing bank or banks that the Member has designated to act on its behalf in the delivery and receipt of securities to or from GSD or MBSD, as applicable. As stated above, obligations may be settled within a clearing bank; i.e., on the books of a clearing bank when the deliver and attendant receive obligation are at the same clearing bank. Otherwise, obligations are settled using Fedwire®. All deliveries are made against full payment. Participation in GSD's GCF Repo® service requires dealer GSD Members to have an account with BNY. It should be noted that for non-GCF Repo® activity, members are not limited to BNY. As described more fully in the General Background section of this Disclosure Framework, the clearing banks have an integral role in the GCF Repo® service.

[41] Historically, JPMorgan Chase ("JPM") provided clearing bank services to FICC and its Members. In September 2018, JPM exited the business and discontinued these services. As a result, BNY is currently the only bank that provides clearing bank services to FICC.

FICC uses the central bank model with a tiered settlement arrangement for GSD's and MBSD's funds-only settlement process and settlement occurs in central bank funds.[42] The funds-only settlement process is a cash pass-through process (i.e., those members who are in a debit position submit payments that are then used to pay Members in a credit position). The settlement ultimately occurs via the Federal Reserve's NSS, with DTC acting as a settling agent, and funds transfers are final when effected on the NSS. Similarly, Members are required to engage a settling bank that meets FICC's settling bank criteria to effect funds-only settlement on the central bank's NSS on behalf of the Members. FICC confirms that fund transfers have been effected twice each business day with respect to GSD and once each business day with respect to MBSD. With respect to securities settlement, the GSD Rules and the MBSD Rules clearly set forth its obligations with respect to securities settlement. Every securities delivery, whether to or from GSD and MBSD, as applicable, is made against full payment.

As described in the General Background section of this Disclosure Framework, in the CME Arrangement, GSD offsets each cross-margining participant's residual margin amount (based on related positions) at GSD against the offsetting residual margin amounts of the participant (or its affiliate) at the CME. GSD and the CME may then reduce the amount of collateral that they collect to reflect the offsets between the cross-margining participant's positions at GSD and its (or its affiliate's) positions at the CME.

Given the interdependent nature of financial markets and FICC's role as a SIFMU, Key Risks of the various types identified above may occur at a magnitude or in combination with the potential of creating "systemic" impact. Such systemic-type risks and potential mitigants are evaluated by the Systemic Risk Office and discussed with management, the Board and, through outreach, with FICC's Members.

Scenarios that may prevent an FMI from providing critical operations and services

FICC identifies scenarios that may potentially prevent it from providing its critical operations and services, including through the development of recovery and orderly wind-down plans. As part of this process, FICC has simulated single and multiple Member failures coinciding with significant market price changes to assess financial resource adequacy and impact to FICC's ability to continue to provide critical operations and services. FICC maintains financial resources—the Clearing Fund (which in the aggregate serves as the default fund for loss mutualization purposes) and certain of its own resources—designed to enable it to cover potential losses resulting from the failure of the Member or Member family to which it has the largest credit exposure (a "Cover 1" standard). These tests, in general, show that such resources are sufficient to handle defaults larger than a Cover 1 standard.

In addition, Business Continuity Management maintains plans that address the loss of people, premises and/or technology as an additional element to ensure the continuing operation of critical services. This is discussed in Principle 17 (Operational Risk Management).

Recovery or orderly wind-down plans

FICC maintains a Recovery and Wind-down (R&W) Plan to be used by the Board and management in the event FICC encounters scenarios that could potentially prevent it from being able to provide its critical services as a going concern. The R&W Plan identifies (i) the recovery tools available to address the risks of (a) uncovered losses or liquidity shortfalls resulting from the default of one or more Members, and (b) losses arising from non-default events such as, for example, damage to its physical assets, a cyber-attack, or custody or investment losses, and (ii) the strategy for implementation of such tools. The R&W Plan also establishes the strategy and framework for the orderly wind-down of FICC and the transfer of its business

[42] The GSD Rules refer to this process as the "funds-only settlement" process, and the MBSD Rule refers to this process as the "cash settlement" process.

in the remote event the implementation of the available recovery tools does not successfully return FICC to financial viability.

The R&W Plan is structured as a roadmap, and identifies the tools that FICC may use to effect a recovery from such events. It provides, among other matters, (i) a description of FICC's services, and the criteria used to determine which services are considered critical; (ii) a description of the governance around the overall recovery and wind-down program; (iii) a discussion of tools available to FICC to mitigate credit/market and liquidity risks, including recovery indicators and triggers, and the governance around management of a stress event along a "Crisis Continuum" timeline; (iv) a discussion of potential non-default losses and the resources available to address such losses, including recovery triggers and tools to mitigate such losses; and (v) the framework and approach for the orderly wind-down and transfer of FICC's business in a manner designed to provide continuity of access to FICC's critical services.

Key factors considered in developing the R&W Plan and the types of tools available to FICC were its governance structure and the nature of the markets within which FICC operates. As a result, many of the tools available to FICC are FICC's existing, business-as-usual risk management and default management tools, which would continue to be applied in scenarios of increasing stress. In addition to business-as-usual tools, the R&W Plan describes FICC's other principal recovery tools, which include (i) identifying, monitoring and managing general business risk and holding sufficient liquid net assets funded by equity ("LNA") to cover potential general business losses pursuant to the Clearing Agency Policy on Capital Requirements, filed with and approved by the SEC ("Capital Policy"), (ii) maintaining the Clearing Agency Capital Replenishment Plan ("Replenishment Plan") as a viable plan for the replenishment of capital should FICC's equity fall close to or below the amount being held pursuant to the Capital Policy, and (iii) the process for the allocation of losses among FICC and the membership, as provided in Rule 4 of the respective Division's Rules.

In support of the R&W Plan, FICC adopted a special wind-down Rule addressing the wind-down of FICC, and enhanced other rules (including adoption of a market disruption rule). The Rules facilitate the implementation of the R&W Plan, particularly FICC's strategy for winding down and transferring its business, and provide the membership with transparency and certainty with respect to these matters.

The development of the R&W Plan is facilitated by the Company's Office of Recovery & Resolution Planning ("R&R Team"). The R&R Team reports to the Management Committee and is responsible for the development and ongoing maintenance of both the plans and the overall recovery and wind-down planning process. The Board, or such committees as may be delegated authority by the Board from time to time pursuant to its charter, reviews and approves the R&W Plan biennially.

Principle 4: Credit risk; CCAS 17Ad-22(e)(4)

<u>**Principle 4: Credit risk**</u>	<u>**CCAS 17Ad-22(e)(4)**</u>
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. ***Key consideration 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. ***Key consideration 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. ***Key consideration 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	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (4) Effectively identify, measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes, including by: (i) Maintaining sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence; (ii) To the extent not already maintained pursuant to paragraph (e)(4)(i) of this section, for a covered clearing agency providing central counterparty services that is either systemically important in multiple jurisdictions or a clearing agency involved in activities with a more complex risk profile, maintaining additional financial resources at the minimum to enable it to cover a wide range of foreseeable stress scenarios that include, but are not limited to, the default of the two participant families that would potentially cause the largest aggregate credit exposure for the covered clearing agency in extreme but plausible market conditions; (iii) To the extent not already maintained pursuant to paragraph (e)(4)(i) of this section, for a covered clearing agency not subject to paragraph (e)(4)(ii) of this section, maintaining additional financial resources at the minimum to enable it to cover a wide range of foreseeable stress scenarios that include, but are not limited to, the default of the participant family that would potentially cause the largest aggregate credit exposure for the covered clearing agency in extreme but plausible market conditions; (iv) Including prefunded financial resources, exclusive of assessments for additional guaranty fund contributions or other resources that are not prefunded, when calculating the financial resources available to meet the standards under paragraphs (e)(4)(i) through (iii) of this section, as applicable;

their affiliates that would create the largest aggregate credit exposure in the system. [Not applicable, as FICC is not a payment system or SSS.] ***Key consideration 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. ***Key consideration 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	(v) Maintaining the financial resources required under paragraphs (e)(4)(ii) and (iii) of this section, as applicable, in combined or separately maintained clearing or guaranty funds; (vi) Testing the sufficiency of its total financial resources available to meet the minimum financial resource requirements under paragraphs (e)(4)(i) through (iii) of this section, as applicable, by: (A) Conducting stress testing of its total financial resources once each day using standard predetermined parameters and assumptions; (B) Conducting a comprehensive analysis on at least a monthly basis of the existing stress testing scenarios, models, and underlying parameters and assumptions, and considering modifications to ensure they are appropriate for determining the covered clearing agency's required level of default protection in light of current and evolving market conditions; (C) Conducting a comprehensive analysis of stress testing scenarios, models, and underlying parameters and assumptions more frequently than monthly when the products cleared or markets served display high volatility or become less liquid, or when the size or concentration of positions held by the covered clearing agency's participants increases significantly; and (D) Reporting the results of its analyses under paragraphs (e)(4)(vi)(B) and (C) of this section to appropriate decision makers at the covered clearing agency, including but not limited to, its risk management committee or board of directors, and using these results to evaluate the adequacy of and adjust its margin methodology, model parameters, models used to generate clearing or guaranty fund requirements, and any other relevant aspects of its credit risk management framework, in supporting compliance with the minimum financial resources requirements set forth in paragraphs (e)(4)(i) through (iii) of this section; (vii) Performing a model validation for its credit risk models not less than annually or more frequently as may be contemplated by the covered clearing agency's risk management framework

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. ***Key consideration 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. ***Key consideration 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.	established pursuant to paragraph (e)(3) of this section; (viii) Addressing allocation of credit losses the covered clearing agency may face if its collateral and other resources are insufficient to fully cover its credit exposures, including the repayment of any funds the covered clearing agency may borrow from liquidity providers; and (ix) Describing the covered clearing agency's process to replenish any financial resources it may use following a default or other event in which use of such resources is contemplated.

Framework for management of credit risk

The measurement, monitoring and management of credit risk are part of the overall risk management framework described under Principle 3 (Framework for the comprehensive management of risk). As noted in that section, FICC manages its credit exposures through strict membership admission criteria, ongoing Member surveillance and regular margining.

FICC's credit risk vis-à-vis Members consists of the risk that a Member defaults in the performance of its obligations to FICC. FICC addresses this risk through its membership requirements, ongoing monitoring and surveillance and margining methodologies.

Membership requirements. FICC has established participation criteria and requirements relating to financial resources, creditworthiness and operational capability. Rule 2, Rule 2A and Rule 3 of the GSD Rules and Rule 2, Rule 2A and Rule 3 of the MBSD Rules set forth the specific requirements for each level of membership in each Division. Members must meet minimum financial and other criteria for membership, including minimum capital requirements. All applicants for membership must provide FICC with certain information, which is reviewed by FRM and other relevant departments as necessary to confirm, among other matters, that the applicant has (1) sufficient financial ability to make anticipated contributions to the Clearing Fund and to meet obligations to the respective Division; (2) either an established business history, or personnel with sufficient operational background and experience to ensure the ability of the firm to conduct such a business and (3) appropriate settling and clearing bank arrangements. FICC employs a robust membership process that entails a thorough review prior to approval by the Board Risk Committee or through its delegated authority to the Management Risk Committee and the Counterparty Credit Risk team. Details regarding the application process are set forth in response to Principle 18 (Access and participation requirements).

Each Division has a limited purpose membership category for Settling Banks. Each Member is required to appoint a settling bank to perform their funds-only/cash settlement obligations. The review and ongoing monitoring of Settling Banks is discussed more fully under Principle 9 (Money settlement). All Members are required to designate a clearing bank for purposes of delivering securities to, and receiving securities from, FICC in satisfaction of settlement obligations.

Ongoing monitoring and surveillance. FICC monitors its credit exposures with respect to the risk that a Member defaults through the ongoing surveillance of its Members' financial strength and default risk. On an ongoing basis, Members are required to provide financial and other information to FICC, as outlined in GSD Rule 3 and MBSD Rule 3, to ensure that they meet the membership standards on an ongoing basis. In addition, FRM reviews publicly available information such as earnings releases, equity prices, and news as part of its Member surveillance. FICC utilizes a credit risk rating model (referred to as the credit risk rating matrix, or "CRRM", as further described below) to evaluate and rate the credit risk of FICC's U.S. bank, foreign bank, and broker-dealer Members, and rate such Members based upon qualitative and quantitative information (including information contained in regulatory reports).[43] These ratings are used to set surveillance levels and may impact Clearing Fund requirements. All Members are subject to a credit review at least every 12 to 24 months.

Clearing Fund. Each FICC Division collects Clearing Fund deposits from its Members using a risk-based margin methodology. These amounts operate, individually, as the Member's margin, and the aggregate of all such Members' deposits is referred to collectively as the Clearing Fund, which operates as each Division's default fund. This risk-based methodology enables FICC to identify the risks posed by a Member's unsettled portfolio and to quickly adjust and collect additional deposits as needed to cover those risks. Each Member's required Clearing Fund deposit ("Required Fund Deposit") is calculated at least twice daily for GSD Members and at least once daily for MBSD Members pursuant to a formula set forth in GSD Rule 4 and MBSD Rule 4, respectively, each of which is designed to provide sufficient funds to cover FICC's exposure to the Member fully with a high degree of confidence. In addition, FICC maintains financial resources sufficient to cover a wide range of potential stress scenarios (discussed more fully below); including the default of the Member and its affiliated Members that would cause the largest aggregate credit exposure to the respective Division in extreme, but plausible, market conditions. As noted above, these resources include each Division's Clearing Fund, which operate as FICC's default fund. The Clearing Fund formula, discussed more fully under Principle 6 (Margin), takes account of a variety of risk factors through the application of a number of components.

[43] Such as the Consolidated Report of Condition and Income (generally referred to as the "call" report) or the Financial and Operational Combined Uniform Single ("FOCUS") report. An enhanced CRRM model, approved May 19, 2017, rates foreign Members that are banks or trust companies in addition to domestic bank and broker/dealer Members. The enhanced model also relies on both quantitative and qualitative factors.

Measurement, monitoring and management of credit risk

FICC Members are monitored on a daily, monthly/quarterly and periodic basis. FICC monitors Members' credit risk through review and analysis of financial and operational information and through regular market, news and regulatory monitoring. Members are required under the Rules to (i) provide the respective Division with regulatory reports and data relating to their financial condition on a monthly, quarterly, semi-annual, or annual basis (depending on the reporting frequency of the entity), (ii) provide the respective Division with audited financial statements on an annual basis and (iii) promptly notify FICC of material events or changes in their business or financial condition. Members' ongoing reporting and information requirements are set forth in GSD Rule 3 and MBSD Rule 3.

The CRRM is produced systemically from financial metrics contained in the Members' regulatory filings such as call and FOCUS reports. The CRRM uses a rating scale of 1 to 7, with 1 being the strongest and 7 being the weakest. The model incorporates both quantitative factors, such as capital, assets, earnings, and liquidity, and qualitative factors, such as management quality, market position/environment, and capital and liquidity risk management. Once this rating is generated, it is reviewed by an assigned analyst within FRM's Counterparty Credit Risk ("CCR") group. The analyst considers whether additional qualitative factors (e.g. regulatory history, type of audit opinion issued and material management changes) warrant a manual override of the model-generated rating. The resulting rating determines the level of financial review that will be performed on that Member and may impact the Member's Clearing Fund requirement. Members with a weaker internal credit rating (rated a 5, 6, or 7 on the credit risk rating matrix) are automatically placed on the respective Division's Watch List. Members on the Watch List may be subject to additional monitoring more closely than those Members with a stronger credit rating.

CCR also maintains an enhanced surveillance list, which consists of Members for which CCR conducts additional surveillance or requires additional information in order to more closely monitor their risk profile. Members can be added to enhanced surveillance for a variety of reasons, including concerns about regulatory issues, changes to senior management at the Member firm, etc. A Member can be added to enhanced surveillance regardless of the rating generated for the firm by the CRRM. In addition, Member types not subject to the CRRM may also be subject to enhanced surveillance and be monitored for financial condition and/or operational capability, as FICC deems necessary to protect itself and its Members.

GSD calculates a Clearing Fund requirement for each GSD Member twice a day, and MBSD calculates the Clearing Fund requirement for each MBSD Member once a day. The calculation is based upon each Member's unsettled and pending transactions. The formula uses a risk-based methodology, and includes a number of components as described below. In addition, each Division may impose, as applicable, a premium charge when a Member's VaR charge exceeds a defined capital amount.[44] Any shortfalls in a Member's required deposit must be paid each business day by 9:30 a.m. ET and 2:45 p.m. ET with respect to GSD and 9:30 a.m. ET with respect to MBSD. In addition, FICC may call for additional Clearing Fund on an intraday basis, as needed. Any such amounts must be satisfied within one hour of demand.

In order to mitigate counterparty exposure to each Member, each Division calculates the VaR of the unsettled obligations of each Member to a 99 percent confidence interval with a three-day liquidation/hedge

[44] For GSD, the VaR Charge is compared to a Member's "Netting Member Capital", a defined term in the GSD Rules that means Net Capital, net assets or equity capital as applicable, to a Netting Member based on its type of regulation. For MBSD, the VaR Charge is compared to a Member's "Excess Capital", a defined term in the MBSD Rules that means Excess Net Capital, net assets, or equity capital as applicable to a Clearing Member based on its type of regulation.

horizon and a ten-year historical look-back period, as the basis of its Clearing Fund requirement, if it includes sufficient stressed market scenarios. If, however, FICC determines that the historical look-back period does not contain adequate shocks, an additional period of stressed market conditions may be added to the ten-year historical data. Each Division has additional margin charges for each Member's total Clearing Fund requirement.

With respect to GSD, in addition to VaR, an additional component that impacts the Member's Required Fund Deposit is the Blackout Period Exposure Adjustment.[45] The Blackout Period Exposure Adjustment is an additional charge or reduction to the Required Fund Deposit to address risks to the Corporation that may arise due to potential overvaluation of mortgage-backed securities pledged to collateralize GCF Repo Transactions during the Blackout Period. Other charges may be applicable to reflect additional exposure for reasons such as late submission of requisite financial statements.

Separate and apart from collecting Clearing Fund, marking to market is conducted to reflect the difference between the contract value of a trade and the current market value of the security. Twice each business day, each GSD Member must pay (or is entitled to collect) an aggregate funds-only settlement amount across all CUSIPs in which it has outstanding positions. The main components of this amount include, among other payments, a mark-to-market amount for every net settlement position, a mark-to-market amount for every forward net settlement position, fail marks for obligations that were scheduled to settle and have not yet settled, coupon payments and other adjustments. GSD's funds-only settlement process is a cash pass-through process; i.e., those GSD Members that are in a debit position submit payments that are then used to pay GSD Members in a credit position.

With respect to MBSD, in addition to VaR, the primary additional components included in the Member's Required Fund Deposit are mark-to-market components and other charges that may be applicable to reflect additional exposure for reasons such as late submission of requisite financial statements.

The Clearing Fund is designed to cover risk spanning from the last margin collection until the next collection. On a daily basis, MBSD collects mark-to-market components as part of the Clearing Fund. These components consist of charges to offset the difference between the contract price and current market prices, interest and other cash items when the Member's end-of-day positions are marked at end-of-day market prices.

The Divisions employ backtesting and stress-testing to determine the adequacy of their Clearing Fund requirements. The back tests compare the Clearing Fund requirements with actual price changes in a portfolio. The portfolio values are calculated by using the actual positions in a Member's portfolio and the observed security price changes over the assumed liquidation/hedge period of three days. Each Division employs stress-testing to determine whether there will be adequate coverage levels for potential losses in a portfolio incurred during extreme, but plausible, market conditions. The scenarios used in the stress tests fall into two broad categories—historical scenarios and hypothetical or "what-if" scenarios. FICC maintains policies and procedures, in accordance with the CCAS, that address the process for conducting these tests and calculating the resulting metrics. Backtesting and stress-testing are discussed more fully below and under Principle 6 (Margin).

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[45] Implementation of the Blackout Period Exposure Adjustment and the elimination of the Blackout Period Exposure Charge was staggered through the end of 2018. See Amendment No. 1 to SR-FICC-2018-001 and SR-FICC-2018-801, available at https://www.sec.gov/comments/sr-ficc-2018-001/ficc2018001.htm.

For example, FICC, and its affiliates, DTC and FICC, have adopted the Clearing Agency Stress Testing Framework (Market Risk) ("Stress Testing Framework"), which sets forth the manner in which FICC tests the sufficiency of its prefunded financial resources in accordance with applicable legal requirements, including CCA Rule 17Ad-22(e)(4) and addresses related matters. The Stress Testing Framework has been filed with and approved by the SEC,[46] and is reviewed and approved by the Board on an annual basis.

Both Divisions also may impose a Backtesting Charge on Members based on their end-of-day and intraday backtesting performance. The Backtesting Charge is assessed for those Members whose portfolios experience overall margin backtesting deficiencies over the prior 12-month period. The Backtesting Charge is calculated by each Division to mitigate exposures to the Division caused by settlement risks that may not be adequately captured by the Division's portfolio volatility model. As a further mitigant of credit risk, under GSD Rule 3 and MBSD Rule 3, the Divisions may seek additional assurances of financial responsibility (as well as operational capability) from a Member as they deem necessary or advisable. This may include, for example, increased Clearing Fund deposits.

Coverage of current and potential future exposures to Members and financial resources

The Clearing Fund formula is designed to calculate individual Member Clearing Fund (margin) requirements at a 99 percent confidence level, assuming a three-day liquidation/hedge period and a ten-year historical look-back period, if it includes sufficient stressed market scenarios. If, however, FICC determines that the historical look-back period does not contain adequate shocks, an additional period of stressed market conditions may be added to the ten-year historical data. The adequacy of these amounts is measured through backtesting.

FICC maintains additional prefunded financial resources sufficient to cover a wide range of potential stress scenarios, including the default of the Member and its affiliated Members that would cause the largest aggregate credit exposure to FICC in extreme but plausible market conditions (referred to as a "Cover 1" standard).

GSD clears and settles securities issued or guaranteed by the United States, U.S. government agencies or instrumentalities, or U.S. government-sponsored corporations. The securities are correlated with the cost of funding to the U.S. government. MBSD clears and settles mortgage-backed pass-through securities issued or guaranteed by Ginnie Mae, Freddie Mac and Fannie Mae. MBSD trades and positions are guaranteed at the to-be-announced ("TBA") level. The securities are correlated with the cost of funding to the U.S. government. FICC does not consider these securities to have a more complex risk profile of the type contemplated by Key Consideration 4 of Principle 4, or its CCAS analogue. Moreover, FICC is not systemically important in multiple jurisdictions. Accordingly, each Division maintains financial resources in amounts required, at a minimum, to meet a Cover 1 standard; this is consistent, and in accordance, with the requirements of CCAS 17Ad-22 (e)(4)(ii) and (iii).

Additional financial resources

With respect to each Division, if a defaulting Member has any outstanding obligations to FICC arising from its default, FICC would first apply the amounts on deposit to the Clearing Fund and Eligible Clearing Fund Securities pledged from the defaulting Member (along with other resources of, or attributable to, the defaulting Member (or certain permitted margin affiliates) that FICC may access under each Division's

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[46] Exchange Act Release No. 82368 (December 19, 2017), 82 FR 61082 (December 26, 2017) (SR-DTC-2017-005; SR-FICC-2017-009; SR-NSCC-2017-006).

Rules, including under available Clearing Agency Cross-Guaranty Agreements and Clearing Agency Cross-Margining Agreements).

To address potential tail losses, FICC maintains additional prefunded resources. These consist of (i) the Clearing Fund of each Division, which, in the aggregate, serves as each Division's default fund, and (ii) an amount, referred to as FICC 's "Corporate Contribution", equal to 50 percent of its General Business Risk Capital Requirement, as described in more detail under Principles 13 (Participant-default rules and procedures) and 15 (General business risk). As regards to the composition of the Clearing Fund at each Division, Clearing Fund deposits are cash, but a portion of a Member's Required Fund Deposit may be evidenced by open account indebtedness, secured by certain eligible U.S. government and agency securities, as described in more detail under Principle 5 (Collateral). Not less than 40 percent of a Member's Required Fund Deposit must be in cash. With respect to the Corporate Contribution, FICC maintains sufficient liquid net assets to fund such amounts with respect to each Division. All of the prefunded financial resources that FICC thus relies upon to cover losses are liquid and readily available to meet its obligations.

Stress-testing

As described above, FICC employs stress-testing to evaluate whether it will have adequate financial resources to cover potential losses during extreme, but plausible, market conditions. The Stress Testing Framework describes, among other matters, FICC's stress-testing methodologies.

FICC employs daily stress-testing to determine whether it will have sufficient prefunded financial resources to cover potential losses in a wide range of scenarios including, at a minimum, on a Cover 1 standard, during extreme, but plausible, market conditions. The scenarios used to conduct these stress tests fall into two broad categories: historical scenarios and hypothetical scenarios. The historical scenario set includes at least 50 stress scenarios selected from a rolling look-back period of 10 years. In addition, FICC supplements the scenarios with historical stresses outside the 10-year period, such as the volatile bear market in US Treasuries in 1994. The hypothetical scenarios are constructed according to potential market conditions. Current positions in a portfolio are used in the stress tests. Stress-testing results and the appropriateness of the underlying assumptions and parameters are used for both historical and hypothetical scenarios, are reviewed on a monthly basis and as appropriate more frequently than monthly when the products cleared or the markets served by FICC display high volatility or become less liquid, or when the size or concentration of positions held by Members increases significantly. Stress-testing results are reviewed at least monthly by the internal Enterprise Stress Test Council ("ESTC"), a group comprised primarily of risk management, business and control function senior management.

The ESTC has responsibility for the review, oversight, escalation, and governance of credit stress-testing related activities at FICC. This council, comprised primarily of FRM management, meets at least monthly and its responsibilities include (but are not limited to): reviewing stress-testing policies, procedures, methodology, and test results; approving stress scenarios; and ensuring stress-testing activities meet DTCC's risk tolerance requirements applicable to FICC.

FICC maintains written policies and procedures that describe its process related to the calculation and monitoring of the following stress-test metrics: (i) maximum Member-level daily historical and hypothetical stress test results run daily and reported on a monthly basis; (ii) maximum family-level daily historical and hypothetical stress test results run daily and reported on a monthly basis; and (iii) as a record of the financial resources necessary to meet a Cover 1 standard, the maximum observed family-level historical stress deficiency/to total aggregate Clearing Fund requirement.

Stress-tests are conducted daily. Exceptions identified and substantial changes in stress-test results are reviewed by FRM management in order to identify the causes and formulate responses, as needed. The results of this review and related metrics are reported and discussed monthly with the MRC, and shared monthly with the Board Risk Committee and FICC's supervisors.

FICC and its affiliates DTC and NSCC have adopted the Clearing Agency Model Risk Management Framework ("Model Risk Framework"),[47] which provides that models utilized for the Clearing Fund formula, as well as stress testing models, be validated prior to their implementation and not less often than annually thereafter. In conducting a model validation, FICC would verify that the model is performing (or continuing to perform) as expected in accordance with its design objectives and business purpose, and identify any deficiencies that would call into question the continuing validity of any such model.

Model validation

An internal Model Risk Governance Committee, comprised primarily of FRM management, is responsible for oversight of all risk models ("MRGC"). This committee meets at least monthly to review FICC models' performance including sensitivity analyses against defined parameters. The MRGC also discusses any identified issues that may impact model efficacy. In accordance with the Model Risk Framework, all new models (including material changes to existing models) are subject to independent validation and approval by the MRGC and the MRC prior to their use in production. The margin stress-testing and CRRM models are also reviewed at least annually by the Model Validation and Control Group ("MVC"). The results of these reviews are provided to the Management Risk Committee, the Board Risk Committee and FICC's supervisors. If a model issue is detected, deficiencies would be escalated through the MVC and additional mitigation strategies would be discussed with the MRC and BRC.

Allocation of credit losses and replenishment of resources

If, after closing out and liquidating a defaulting Member's positions, FICC were to suffer a loss, that loss would first be satisfied by the amounts on deposit to the Clearing Fund and Eligible Clearing Fund Securities pledged from the defaulting Member (along with any other resources of, or attributable to, the defaulting Member that FICC may access under each Division's Rules). If these amounts are insufficient to fully remediate the loss, then FICC would apply the applicable Division's loss waterfall provisions (contained in GSD Rule 4 and MBSD Rule 4, respectively), which allocate and assess losses among FICC and each Division's membership as applicable. This process is described under Principle 13 (Participant-default rules and procedures). The replenishment of any prefunded resources that may be applied is also discussed in Principle 13.

[47] Exchange Act Release No. 81485 (August 25, 2017), 82 FR 41433 (August 31, 2017) (SR-DTC-2017-008; SR-FICC-2017-014; SR-NSCC-2017-008).

Principle 5: Collateral; CCAS 17Ad-22(e)(5)

<u>**Principle 5: Collateral**</u>	<u>**CCAS 17Ad-22(e)(5)**</u>
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. ***Key consideration 1***: An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks. ***Key consideration 2***: An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions. ***Key consideration 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. ***Key consideration 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. ***Key consideration 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. ***Key consideration*** 6: An FMI should use a collateral management system that is well-designed and operationally flexible.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (5) Limit the assets it accepts as collateral to those with low credit, liquidity, and market risks, and set and enforce appropriately conservative haircuts and concentration limits if the covered clearing agency requires collateral to manage its or its participants' credit exposure; and require a review of the sufficiency of its collateral haircuts and concentration limits to be performed not less than annually.

Collateral eligibility

GSD and MBSD accept cash (in U.S. dollars) and certain eligible securities as Clearing Fund collateral. Due to the nature of their businesses, GSD and MBSD limit the non-cash securities currently accepted to collateralize a Member's open account Clearing Fund indebtedness to U.S. Government Treasury securities, U.S. Agency securities guaranteed by the U.S. Government, and certain U.S. Agency/Government Sponsored Enterprise pass-through securities (collectively, "Eligible Clearing Fund Securities"). Not less than 40 percent of a Member's required deposit must be in cash or a combination of cash and U.S. Treasury securities. The composition of cash and eligible securities is reported to Management Risk Committee at least quarterly.

GSD and MBSD do not accept cross-border collateral.

GSD and MBSD maintain a collateral management system ("Clearing Fund Management System" or "CFM") that validates that posted collateral meets security eligibility standards and values aggregate collateral to determine sufficiency of posted amounts.

Collateral haircuts and valuation

GSD and MBSD apply haircuts to Eligible Clearing Fund Securities that reflect the potential of such assets' value to decline both in normal and in stressed markets. These haircuts are set forth in a Schedule to each Division's Rules, and include additional concentration charges for pass-through securities posted in amounts above specified levels.

Because GSD and MBSD limit the collateral they accept to U.S. Government Treasury securities, U.S. Agency securities guaranteed by the U.S. Government and certain U.S. Agency/Government Sponsored Enterprise pass-through securities, they face limited exposure to wrong-way risk with respect to their collateral.

Haircuts are reviewed quarterly if FRM determines that the risk of a particular security may have increased significantly. In addition, annual reviews are conducted to determine if the acceptable collateral types have changed. The sufficiency of haircuts is evaluated through use of back tests and stress tests. This review is conducted initially by management within FRM, and any recommended changes are escalated to the Management Risk Committee and the Board Risk Committee. Before making adjustments to the haircuts they apply to such collateral, GSD and MBSD measure the potential impact of such adjustments. However, given the limited nature and high quality of acceptable collateral, adjustment of haircuts is infrequent.

Collateral securities are re-priced every night, from pricing sources utilized by FRM's Securities Valuation unit. Pricing updates may be performed instantaneously and will update collateral valuations within GSD's and MBSD's collateral management system accordingly.

FICC, and its affiliates, DTC and NSCC, have adopted a Clearing Agency Securities Valuation Framework ("SV Framework"), which sets forth the manner in which FICC identifies, measures, monitors, and manages the risks related to the pricing of securities processed or otherwise held by it in accordance with applicable legal requirements, including CCAS 17Ad-22(e)(4)(i) and Rule 17Ad-22(e)(6)(iv), and addresses related matters. The SV Framework has been filed with and approved by the SEC,[48] and is reviewed and approved by the Board on an annual basis.

Eligible Clearing Fund Securities are held on deposit at a custodian bank for GSD and MBSD. With respect to each Division, securities pledged by Members to secure their Clearing Fund open account indebtedness thus are available for immediate access by GSD and MBSD, as applicable, and may be re-pledged by GSD and MBSD, respectively, if there is a need for liquidity to facilitate completion of settlement.[49]

Collateral management

Clearing Fund management is performed by the Treasury Operations staff, which is part of the Finance Department. This group consists of dedicated staff in multiple locations to facilitate the management of

[48] Exchange Act Release No. 82006 (November 2, 2017), 82 FR 51892 (November 8, 2017) (SR-DTC-2017-016; SR-NSCC-2017-016; SR-FICC-2017-020).

[49] GSD Rule 4, Section 5 and MBSD Rule 4, Section 5.

GSD’s and MBSD’s Clearing Fund collateral using the CFM system in order to ensure smooth operations even during times of market stress.

Under GSD’s and MBSD’s Rules, Members are required to make Clearing Fund deposits within specified timeframes (generally, Required Fund Deposits must be satisfied by 9:30 a.m. ET and 2:45 p.m. ET for GSD Members and 9:30 a.m. ET for MBSD Members or, for intraday calls, within one hour of demand), and are permitted to request the return of excess amounts and/or substitute collateral, subject to the review of Clearing Fund Management for collateral sufficiency, prior to specified cutoff times. The CFM system is designed to interface with several internal and external systems in the daily management of the Clearing Fund collateral. FRM’s system calculates Clearing Fund requirements and provides real-time requirements feeds to CFM. Account Administration’s master file stores Members’ wire instructions, which CFM reads to create delivery instructions for the return of any permitted excess deposits. The CFM system validates Clearing Fund parameter rules, to ensure minimum cash levels are maintained, validates security eligibility, and applies haircuts on collateral and determine the overall sufficiency of deposited amounts. The CFM system is utilized by Members to make online requests to withdraw collateral or have the system evaluate collateral substitution values.

Treasury Operations is also responsible for the investment of Clearing Fund cash. DTCC’s Clearing Agency Investment Policy governs FICC’s investments of cash, including the custody and overnight investment of Clearing Fund cash. The management and investment of cash is described under Principle 16 (Custody and investment risks).

Principle 6: Margin; CCAS 17Ad-22(e)(6)

Principle 6: Margin	CCAS 17Ad-22(e)(6)
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. ***Key consideration 1***: A CCP should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves. ***Key consideration 2***: A CCP should have a reliable source of timely price data for its margin system. A CCP should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable. ***Key consideration 3***: A CCP should adopt initial margin models and parameters that are risk-based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure. For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more-granular levels, such as at the sub portfolio level or by product, the requirement must be met for the corresponding distributions of future exposure. The model should (a) use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the CCP (including in stressed market conditions), (b) have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (c) to the extent practicable and prudent, limit the need for destabilising, procyclical changes. ***Key consideration 4***: A CCP should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A CCP should have the authority and	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (6) Cover, if the covered clearing agency provides central counterparty services, its credit exposures to its participants by establishing a risk-based margin system that, at a minimum: (i) Considers, and produces margin levels commensurate with, the risks and particular attributes of each relevant product, portfolio, and market; (ii) Marks participant positions to market and collects margin, including variation margin or equivalent charges if relevant, at least daily and includes the authority and operational capacity to make intraday margin calls in defined circumstances; (iii) Calculates margin sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default; (iv) Uses reliable sources of timely price data and uses procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable; (v) Uses an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products; (vi) Is monitored by management on an ongoing basis and is regularly reviewed, tested, and verified by: (A) Conducting backtests of its margin model at least once each day using standard predetermined parameters and assumptions; (B) Conducting a sensitivity analysis of its margin model and a review of its parameters and assumptions for backtesting on at least a monthly basis, and considering modifications to ensure the backtesting practices are appropriate for

operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants. ***Key consideration 5***: In calculating margin requirements, a CCP may allow offsets or reductions in required margin across products that it clears or between products that it and another CCP clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where two or more CCPs are authorised to offer cross-margining, they must have appropriate safeguards and harmonised overall risk-management systems. ***Key consideration 6***: A CCP should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more-frequent where appropriate, sensitivity analysis. A CCP should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a CCP should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices. ***Key consideration 7***: A CCP should regularly review and validate its margin system.	determining the adequacy of the covered clearing agency's margin resources; (C) Conducting a sensitivity analysis of its margin model and a review of its parameters and assumptions for backtesting more frequently than monthly during periods of time when the products cleared or markets served display high volatility or become less liquid, or when the size or concentration of positions held by the covered clearing agency's participants increases or decreases significantly; and (D) Reporting the results of its analyses under paragraphs (e)(6)(vi)(B) and (C) of this section to appropriate decision makers at the covered clearing agency, including but not limited to, its risk management committee or board of directors, and using these results to evaluate the adequacy of and adjust its margin methodology, model parameters, and any other relevant aspects of its credit risk management framework; and (vii) Requires a model validation for the covered clearing agency's margin system and related models to be performed not less than annually, or more frequently as may be contemplated by the covered clearing agency's risk management framework established pursuant to paragraph (e)(3) of this section.

Overview of margin methodology

Each Division calculates and collects Clearing Fund from its Members using a risk-based margin methodology that includes a sensitivity-based VaR approach. These amounts (a Member's "Required Fund Deposit") operate as the Member's margin, and the aggregate of all such Members' deposits is, collectively, the Clearing Fund of each Division, which operates as FICC's default fund with respect to each Division. The sensitivity approach enables FICC to identify the risks posed by a GSD Member's or MBSD Member's unsettled portfolio and to quickly adjust and collect additional deposits as needed to cover those risks. Each GSD Member's Required Fund Deposit is calculated at least twice daily, and each MBSD Member's Required Fund Deposit is calculated at least once daily pursuant to a formula that is outlined in Rule 4 of each Division's Rules. Each Division's formula is designed to provide sufficient funds to cover this risk of loss. The Clearing Fund formula accounts for a variety of risk factors through the application of a number of components, each described in Rule 4 of each Division's Rules

A Member's Required Fund Deposit will vary daily based on its trading activity and financial status. The calculated requirement is based upon the total unsettled (fails) and pending (future settling) transactions of the Member. The amount due, payable via Fedwire®, is the difference between the Member's calculated Required Fund Deposit and the amount currently on deposit. This amount is due each day by 9:30 a.m. ET and 2:45 p.m. ET for GSD Members and by 9:30 a.m. ET for MBSD Members, regardless of the time zone the Member operates in. Intraday calls, which are described below, are due within one hour of demand. Failure to submit payment by the deadline may subject the Member to a warning letter or a fine, according to the schedule provided in each Division's Rules. Such fines may be reported to the SEC. Repeated lateness may result in additional penalties or disciplinary action, including termination of membership pursuant to each Division's Rules, as applicable.

Required Fund Deposit components

Government Securities Division

The formula used for calculating a GSD Member's Required Fund Deposit includes the following major component charges:

1. **VaR Charge[50]—**The VaR Charge is generally the largest component of the Required Fund Deposit. It is based on the potential price volatility of unsettled positions using a sensitivity based Value-at-Risk (VaR) methodology. The VaR methodology provides an estimate of the possible losses for a given portfolio based on: (1) confidence level, (2) a time horizon and (3) historical market volatility.

The VaR methodology is calculated at a 99 percent confidence level. FICC assumes a portfolio will take three days to hedge or liquidate. The end-of-day VaR component of the Required Fund Deposit addresses the risk presented by a Member's end-of-day positions. GSD also calculates VaR for intraday collection, which reflects the changes in positions and thus risk profile due to the submission of new trades and completed settlement activity, since the prior end of day. FICC uses historical simulation to estimate the impact of market volatilities on the Member's portfolio. A ten-year historical look-back period is used, if it includes sufficient stressed market scenarios. If, however, FICC determines that the historical look-back period does not contain adequate shocks, an additional period of stressed market conditions may be added to the ten-year historical data. A haircut method is applied to securities with insufficient requisite data used to employ the sensitivity approach.

The sum of the VaR value and any haircut applied in lieu of VaR is used to cover the potential market price volatility for the portfolio. This approach assumes no diversification benefit between securities margined with VaR and those with haircuts applied. The sum of the VaR and haircuts applied in lieu of VaR are subject to a minimum amount, referred to as a "VaR Floor", which seeks to address the risk that the VaR model calculates a VaR charge that is too low because of offsets applied by the model from certain offsetting long and short positions. To account for extreme future risks and to ensure data quality and consistency, VaR results undergo daily backtesting.

2. **Blackout Period Exposure Adjustment—**As outlined in Principle 4, the Blackout Period Exposure Adjustment addresses exposures during the Blackout Period caused by GCF Repo Transactions collateralized by mortgage-backed securities. The reduction or addition of the Blackout Period Exposure Adjustment will be applied to all GCF Counterparties with a portfolio that includes mortgage-backed securities and will only be imposed during the Blackout Period.

3. **Other Charges**—GSD may assess additional charges to the Required Fund Deposit, including but not limited to the following:

    <u>Backtesting Charge:</u> The Backtesting Charge is assessed for those Members whose portfolios experience overall margin backtesting deficiencies over the prior 12-month period. The Backtesting

[50] FICC can utilize an alternative Margin Proxy method as a back-up VaR Charge calculation to the sensitivity approach in the event that FICC experiences a data disruption with its third-party vendor.

Charge is calculated to mitigate exposures to GSD caused by settlement risks that may not be adequately captured by GSD's portfolio volatility model. GSD may assess this charge on a Netting Member's start of day portfolio (Regular Backtesting Charge) and/or its intraday portfolio (Intraday Backtesting Charge). In addition, GCF counterparties that have two or more backtesting deficiencies during the Blackout Period and whose overall 12-month trailing backtesting coverage falls below the 99% coverage target are subject to a Blackout Period Exposure Charge applied during the Blackout Period.

Special Charges: Pursuant to Rule 4, FICC may increase a GSD Member's Required Fund Deposit by assessing additional charges aimed at mitigating perceived risks in excess of those systemically addressed (and discussed above). Examples of special charges include additional requirements due to concerns around market volatility, and/or credit matters, etc. Furthermore, GSD can apply Clearing Fund premiums for items such as a Member's late submission of requisite financial information and/or a Member's failure to maintain minimum required financial resources in accordance with the GSD Rules.

Finally, the Required Fund Deposit for GSD Members, and hence the size of the Clearing Fund, may be reduced through the CME Arrangement, which is described above in the *General Background Section*. Pursuant to this arrangement, eligible positions at CME are offset against eligible positions at GSD for purposes of calculating margin requirements. The arrangement is limited to joint members of the two clearing organizations or their affiliates.

Funds-Only Settlement Amounts

As described in Principle 4, separate and apart from collecting the Required Fund Deposit, marking to market is conducted to reflect the difference between the contract value of a trade and the current market value of the security. Twice each business day, each GSD Member must pay (or is entitled to collect) an aggregate funds-only settlement amount across all CUSIPs in which it has outstanding positions. The main components of this amount include, among other payments, a mark-to-market amount for every net settlement position, a mark-to-market amount for every forward net settlement position, fail marks for obligations that were scheduled to settle and have not yet settled, coupon payments and other adjustments. GSD's funds-only settlement process is a cash pass-through process; i.e., those GSD Members that are in a debit position submit payments that are then used to pay GSD Members in a credit position.

Mortgage-Backed Securities Division

The formula used for calculating a MBSD Member's Required Fund Deposit includes the following major component charges:

1. **VaR Charge**[51]—The VaR Charge is generally the largest component of the Required Fund Deposit. It is based on the potential price volatility of unsettled positions using a sensitivity based Value-at-Risk model. The value at Risk (VaR) methodology provides an estimate of the possible losses for a given portfolio based on: (1) a confidence level, (2) a time horizon and (3) historical market volatility.

For unregistered investment pool members, the VaR methodology is calculated at a 99.5 percent confidence level; the VaR methodology is calculated at 99 percent for all other Member categories. FICC assumes a portfolio will take three days to liquidate/hedge in normal market conditions. The end-of-day VaR component of the Required Fund Deposit addresses the risk presented by a Member's end-of-day positions.

[51] FICC can utilize an alternative Margin Proxy method as a back-up VaR Charge calculation to the sensitivity approach in the event that FICC experiences a data disruption with its third-party vendor.

FICC uses historical simulation to estimate the impact of market volatilities on the Member's portfolio. A ten-year historical look-back period is used, if it includes sufficient stressed market scenarios. If, however, FICC determines that the historical look-back period does not contain adequate shocks, an additional period of stressed market conditions may be added to the ten-year historical data. A haircut method is applied to securities with insufficient requisite data used to employ the sensitivity approach.

The sum of the VaR value and any haircut applied in lieu of VaR is used to cover the potential market price volatility for the portfolio. This approach assumes no diversification benefit between securities margined with VaR and those with haircuts applied. The sum of VaR and haircuts applied in lieu of VaR are subject to a minimum amount, referred to as a "VaR Floor", which seeks to address the risk that the VaR model calculates a VaR charge that is too low because of offsets applied by the model from certain offsetting long and short positions. To account for extreme future risks and to ensure data quality and consistency, VaR results undergo daily back-testing.

2. **Deterministic Risk Component ("DRC")**—DRC is a component that reflects mark-to-market results on outstanding positions, regardless of settlement date, cash items and adjustments that are the result of netting, and principal and interest exposure on failed positions.

3. **Backtesting Charge**—The Backtesting Charge is assessed for those Members whose portfolios experience overall margin backtesting deficiencies over the prior 12-month period. The Backtesting Charge is calculated to mitigate exposures to MBSD caused by settlement risks that may not be adequately captured by MBSD's portfolio volatility model.

4. **Other Charges**—Pursuant to Rule 4, FICC may increase a MBSD Member's Required Fund Deposit by assessing additional charges aimed at mitigating perceived risks in excess of those systemically addressed (and discussed above). Examples of special charges include additional requirements due to concerns around market volatility and/or credit matters, etc. Furthermore, MBSD can apply Clearing Fund premiums for items such as a Member's late submission of requisite financial information and/or a Member's failure to maintain minimum required financial resources, in accordance with the MBSD Rules.

Mark-to-Market included in the Clearing Fund

At least once daily, MBSD calculates the DRC that reflects the mark-to-market of the portfolio to account for the difference between the contract price and current market prices, interest and other cash settlement obligations. DRC can be a credit or debit amount. If the DRC is a debit, this amount will increase the Clearing Fund requirement. If the DRC is a credit, it can be used to reduce the amount of the Required Fund requirement (subject to the VaR Floor).

Intraday Supplemental Fund Deposit and Intraday Mark-to-Market Charges

With respect to each Division, FICC may require additional intraday margin should FICC deem it necessary or appropriate. Intraday market moves and positions are tracked and additional Clearing Fund monies are collected, as deemed necessary. Intraday Supplemental Fund Deposits for GSD and Intraday Mark-to-Market Charges for MBSD are typically due within one hour of request. Changes in Member portfolios and security pricing are monitored intraday, and additional Clearing Fund charges may be collected to cover the price movement from those Members with a significant exposure in an identified security or net portfolio and the market value of those positions. These intraday routines are run frequently throughout the day and generate reports identifying Members' then-current positions and the estimated impact to the Clearing Fund requirements. These reports are reviewed, and FRM may impose an additional margin call.

The components of each Division's margining methodology are set forth in Rule 4 of each Division's Rules, available on the DTCC website at www.dtcc.com.

Pricing and data sources

As described under Principle 5 (Collateral), the SV Framework sets forth the manner in which FICC identifies, measures, monitors, and manages the risks related to the pricing of securities processed or otherwise held by FICC.

FICC utilizes multiple third-party vendors to price its eligible securities, and uses a pricing hierarchy to determine a price for each security. FRM monitors each pricing file and performs rigorous exception reporting (large variance, stale, missing, off-the-market reports) to ensure that the prices are accurate, and uses established procedures or, where applicable, valuation models to generate prices for securities when vendor information may not be readily available or reliable.

FICC also uses historical price data that is incorporated into the historical look-back period of the VaR margin model.

Model inputs, assumptions and parameters

As noted above, with respect to each Division, FICC calculates margin requirements assuming a three-day liquidation/hedge period for unsettled positions. The Clearing Fund requirement is calculated to achieve a confidence level of 99 percent, and this is evidenced with daily back-testing.

The liquidation/hedge period is conservative based on the types of securities to be liquidated and the availability of options to "hedge" the portfolio to be liquidated essentially in "real time." Hedging strategies may be used promptly following the failure of a Member in order to minimize market risk. This allows sufficient time to liquidate the portfolio in an orderly manner and minimize market impact.

Simulated closeout exercises are performed to understand the profit and loss of a portfolio under various stressed conditions, including market liquidity, limits on average daily volume and significant price changes due to stressed conditions.

As regards the historical data used in the VaR model, the current look-back period is ten years, plus, to the extent applicable, an additional stressed period[52]. FICC bases its determination of the sample periods for historical data on mathematically sound principles that result in a stable base for providing projected returns, supported by continual back-testing. The appropriate sample period is also discussed with industry experts and FICC's independent model validators.

The Model Risk Framework sets forth the manner in which FICC identifies, measures, monitors, and manages the risks related to the design, development, implementation, use, and validation of quantitative models in accordance with applicable legal requirements, including CCAS 17Ad-22(e)(4), (6), and (7), and

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[52] To the extent the 2008/2009 financial crisis period is phased out from the 10-year look-back period (i.e., from September 2018 onward), FICC will continue to include it as a stress period in its historical scenarios. However, if an equally or more stressed market period emerges in the future, FICC may choose not to augment its 10-year historical scenarios with those from the 2008/2009 financial crisis.

addresses related matters. The Model Risk Framework has been filed with and approved by the SEC,[53] and is reviewed and approved by the Board on an annual basis.

Procyclicality and specific wrong-way risk

In times of stress, market volatility may cause the Clearing Fund to increase, which is inherent in the risk management process of FICC. The choice of the VaR look-back period reflects a balance between stability of the VaR calculation and appropriate responsiveness to changing market conditions. FICC addresses the procyclicality of the formula by adopting a 10-year lookback period that incorporates an additional stress period if FICC determines that the historical look-back period does not contain adequate shocks, utilizing a VaR Floor and ongoing Member outreach, seeking to increase Member awareness of this impact.

FICC currently mitigates wrong-way risk (defined as the risk that counterparty exposures will increase when the creditworthiness of a counterparty deteriorates) by limiting eligible Clearing Fund collateral to cash and U.S. government and agency securities.

Backtesting, sensitivity analysis and model performance monitoring

FICC confirms the robustness of its margining methodologies through rigorous back tests.

FICC conducts backtesting on a daily basis on individual Member portfolios to determine: (a) the efficacy of the underlying VaR model and (b) the sufficiency of the calculated Required Fund Deposit (which includes all component charges). For the sufficiency test, coverage is defined as the number of test events without deficiencies divided by the total number of events in the testing period. The back tests compare the Clearing Fund requirements with actual price changes in a portfolio. The portfolio values are calculated by using the actual positions in a Member's portfolio and the observed security price changes over the following three days.

Backtesting results are calculated and reviewed by FRM management on a daily basis. Exceptions identified in back tests are reviewed in order to identify causes and formulate responses, as needed. The results of this review and related metrics are reported to and discussed with the Management Risk Committee monthly, and shared with the Board Risk Committee and FICC's supervisors in accordance with their regularly scheduled meetings. Members with repeated deficiencies, subject to certain criteria, may be contacted as well. In addition, Backtesting Charges may be imposed as discussed above.

FICC employs daily stress-testing to determine whether there will be adequate coverage levels for potential losses in a portfolio incurred under extreme, but plausible market conditions. While the VaR component of FICC's Clearing Fund formula is intended to provide coverage at a 99 percent confidence interval (assuming a three-day period to liquidate or hedge the relevant portfolio), it is possible under certain historical or hypothetical stressed scenarios, which may be outside of the 99 percent confidence interval, that the VaR based Clearing Fund component requirement could be insufficient to provide complete coverage for losses realized as a result of a Member's failure. Stress tests facilitate FICC's determination of the possibility where such a clearing fund requirement would be insufficient in this regard.

Additionally, the MRGC is responsible for oversight of all risk models. This committee meets at least monthly to review FICC's models' performance including sensitivity analyses against defined parameters. The MRGC also discusses any identified issues that might impact model efficacy. In accordance with the Model Risk Framework, all new models (including material changes to existing models) are subject to

[53] Exchange Act Release No. 81485 (August 25, 2017), 82 FR 41433 (August 31, 2017) (SR-DTC-2017-008; SR-FICC-2017-014; SR-NSCC-2017-008).

independent validation and approval by the MRGC and the MRC prior to their use in production. The margin models are also reviewed at least annually by the MVC. The results of these reviews are provided to the Management Risk Committee, the Board Risk Committee and FICC's supervisors. If a model issue is detected, deficiencies would be escalated through the MVC and additional mitigation strategies would be discussed with the MRC and BRC.

Principle 7: Liquidity risk; CCAS 17Ad-22(e)(7)

Principle 7: Liquidity risk	CCAS 17Ad-22(e)(7)
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. ***Key consideration 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. ***Key consideration 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. ***Key consideration 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. [Not applicable, as FICC is not a payment system or SSS.] ***Key consideration 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	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (7) Effectively measure, monitor, and manage the liquidity risk that arises in or is borne by the covered clearing agency, including measuring, monitoring, and managing its settlement and funding flows on an ongoing and timely basis, and its use of intraday liquidity by, at a minimum, doing the following: (i) Maintaining sufficient liquid resources at the minimum 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 foreseeable stress scenarios that includes, but is not limited to, the default of the participant family that would generate the largest aggregate payment obligation for the covered clearing agency in extreme but plausible market conditions; (ii) Holding qualifying liquid resources sufficient to meet the minimum liquidity resource requirement under paragraph (e)(7)(i) of this section in each relevant currency for which the covered clearing agency has payment obligations owed to clearing members; (iii) Using the access to accounts and services at a Federal Reserve Bank, pursuant to Section 806(a) of the Payment, Clearing, and Settlement Supervision Act of 2010 (12 U.S.C. 5465(a)), or other relevant central bank, when available and where determined to be practical by the board of directors of the covered clearing agency, to enhance its management of liquidity risk; (iv) Undertaking due diligence to confirm that it has a reasonable basis to believe each of its liquidity providers, whether or not such liquidity provider is a clearing member, has: (A) Sufficient information to understand and manage the liquidity provider's liquidity risks; and

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. ***Key consideration 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 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. ***Key consideration 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. ***Key consideration 7***: An FMI should obtain a high degree of confidence, through rigorous due	(B) The capacity to perform as required under its commitments to provide liquidity to the covered clearing agency; (v) Maintaining and testing with each liquidity provider, to the extent practicable, the covered clearing agency's procedures and operational capacity for accessing each type of relevant liquidity resource under paragraph (e)(7)(i) of this section at least annually; (vi) Determining the amount and regularly testing the sufficiency of the liquid resources held for purposes of meeting the minimum liquid resource requirement under paragraph (e)(7)(i) of this section by, at a minimum: (A) Conducting stress testing of its liquidity resources at least once each day using standard and predetermined parameters and assumptions; (B) Conducting a comprehensive analysis on at least a monthly basis of the existing stress testing scenarios, models, and underlying parameters and assumptions used in evaluating liquidity needs and resources, and considering modifications to ensure they are appropriate for determining the clearing agency's identified liquidity needs and resources in light of current and evolving market conditions; (C) Conducting a comprehensive analysis of the scenarios, models, and underlying parameters and assumptions used in evaluating liquidity needs and resources more frequently than monthly when the products cleared or markets served display high volatility or become less liquid, when the size or concentration of positions held by the clearing agency's participants increases significantly, or in other appropriate circumstances described in such policies and procedures; and (D) Reporting the results of its analyses under paragraphs (e)(7)(vi)(B) and (C) of this section to appropriate decision makers at the covered clearing agency, including but not limited to, its risk management committee or board of directors, and using these results to evaluate the adequacy of and adjust its liquidity risk management methodology, model parameters, and

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. ***Key consideration 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. ***Key consideration 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. ***Key consideration 10***: An FMI should establish explicit rules and procedures that enable the FMI to effect same-day and, where appropriate, intraday	any other relevant aspects of its liquidity risk management framework; (vii) Performing a model validation of its liquidity risk models not less than annually or more frequently as may be contemplated by the covered clearing agency's risk management framework established pursuant to paragraph (e)(3) of this section; (viii) Addressing foreseeable liquidity shortfalls that would not be covered by the covered clearing agency's liquid resources and seek to avoid unwinding, revoking, or delaying the sameday settlement of payment obligations; (ix) Describing the covered clearing agency's process to replenish any liquid resources that the clearing agency may employ during a stress event; and (x) Undertaking an analysis at least once a year that evaluates the feasibility of maintaining sufficient liquid resources at a minimum 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 foreseeable stress scenarios that includes, but is not limited to, the default of the two participant families that would potentially cause the largest aggregate payment obligation for the covered clearing agency in extreme but plausible market conditions if the covered clearing agency provides central counterparty services and is either systemically important in multiple jurisdictions or a clearing agency involved in activities with a more complex risk profile.

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.	

Liquidity risk management framework

FICC, and its affiliates, DTC and NSCC, have adopted a Clearing Agency Liquidity Risk Management Framework ("Liquidity Risk Framework") which sets forth the manner in which FICC measures, monitors and manages the liquidity risks that arise in or are borne by it, including (i) the manner in which FICC deploys its liquidity tools to meet its settlement obligations on an ongoing and timely basis and (ii) FICC's use of intraday liquidity, in accordance with applicable legal requirements, including CCAS 17Ad-22(e)(7), and addresses related matters. The Liquidity Risk Framework has been filed with and approved by the SEC,[54] and is reviewed and approved by the Board on an annual basis.

FICC's liquidity risk management strategy and objectives are designed to ensure that FICC maintains sufficient liquid resources to meet the potential amount of funding required to settle outstanding transactions of a defaulting Member or affiliated family of Members in a timely manner. Liquidity risk is the risk that FICC would not have sufficient funding resources to complete settlement obligations of a defaulting Member's unsettled transactions. FICC's liquidity risk is managed by the Liquidity Product Risk Unit ("LPRU") within FRM, and subject to oversight by the Management Risk Committee and the Board Risk Committee.

As a central counterparty, each Division's liquidity needs are driven by the requirement to cover settlement and funds-only settlement, on an ongoing basis, in the event of a failure of a Member. As a cash market CCP, if a Member defaults, FICC will need to complete settlement of guaranteed transactions on the failing Member's behalf from the date of insolvency (referred to as "DOI") through the settlement date. As such, FICC measures the sufficiency of its qualifying liquid resources through daily liquidity studies across a range of scenarios, including amounts needed over the settlement cycle in the event that the Member or Member family with the largest aggregate liquidity exposure becomes insolvent (that is, on a Cover 1 standard). FICC settles only in U.S. dollars.

With respect to each Division, FICC then seeks to maintain qualifying liquid resources (as defined in Rule 17Ad-22(a)(14)) in an amount sufficient to cover this risk. Each Division's liquidity resources include, for example: (1) the cash in the Clearing Fund; (2) the cash that would be obtained by repo'ing the securities in the Clearing Fund (U.S. Government Treasury securities, Agency securities guaranteed by the U.S. Government and certain U.S. Agency/Government-Sponsored Enterprise pass-through securities) and (3) the cash that would be obtained by repo'ing the securities underlying the transactions that would have been

[54] Exchange Act Release No. 82377 (December 21, 2017), 82 FR 61617 (December 28, 2017) (SR-DTC-2017-004; SR-NSCC-2017-005; SR-FICC-2017-008).

delivered to the insolvent defaulting Member had it not defaulted. FRM performs a weekly assessment of the repo market supply relative to observed FICC liquidity needs. In addition to the above, as noted in the Background section of this Disclosure Framework, MBSD and GSD separately maintain a rules-based committed repo facility referred to as the "CCLF®."[55] GSD CCLF became operative on November 15, 2018; it was subject to a 12-month implementation period to allow Netting Members to adjust trading strategies in light of the obligation to perform on their CCLF commitments.

Once FICC declares a CCLF event, Members will be required to hold and fund their deliveries to the insolvent Member up to a predetermined cap by entering into repo transactions with FICC until they complete the associated closeout. These facilities allow Members to effectively manage their potential financing requirements with predetermined caps. FICC intends to use the CCLF process only in the event it is not able to procure financing via the existing repo agreements and other funding sources.

Once FICC issues an Important Notice announcing it is invoking CCLF with respect to a Division (or both Divisions), each solvent Member will receive a report that identifies their delivery obligations owed to the Defaulting Member (i.e., positions that would then be liquidated). FICC will then instruct solvent Members to hold and fund those deliveries (entirely or partially) up to their maximum contribution amount. Solvent Members will be responsible for suppressing securities deliveries to MBSD or GSD as appropriate; FICC will then return securities delivered by solvent Members to the extent that they should have suppressed such deliveries. Operationally, Members will then pair off fails with FICC and set up reverse repos against FICC as their counterparty for the amount they are funding until FICC has liquidated the underlying securities. This will allow solvent Members to achieve finality of settlement while closing out any obligations against FICC and adequately reflecting their financing transactions. In order to finance the long positions established by the repo transactions, Members will utilize the lines they have in place for repo, bank loan or potentially the Federal Reserve Bank Discount Window (for Members who have access to this facility).

For MBSD CCLF, these repo transactions will remain open until it completes the liquidation of the underlying securities by selling them to a new buyer. For GSD CCLF, the repo transactions will remain open until 30 calendar days after entry into the CCLF Transaction for U.S. government bonds or 60 calendar days after entry into the CCLF Transaction for mortgage-backed securities. At that point, FICC will instruct the funding Member to close the repo trade and deliver the securities to the clearing corporation at the original obligation amount to complete settlement on the contractual settlement date of the liquidating trade. By receiving and delivering securities on the same day, FICC is able to liquidate positions without any need for liquidity.

FICC will reimburse Members for the financing costs they incur when funding their own positions. These costs will become part of the liquidation P&L, as they would if FICC had done the financing. If there are insufficient resources to pay for these costs, they will become part of the loss allocation process.

Allocation of cap for MBSD and GSD Members

For MBSD CCLF, by establishing a maximum contribution amount for each firm, MBSD effectively establishes a predetermined amount that firms can utilize to size their potential liquidity needs in case a major Member defaults. That, in turn, will help Members assess their potential exposure to liquidity risks in various scenarios. MBSD uses two algorithms to establish the maximum contribution for each Member—one for Members that are banks or have bank affiliates, and a second model for all other Members. These maximum contributions are revised on a regular basis. Both algorithms determine each Member's largest

[55] Participation in CCLF® is a membership requirement for all full-service FICC Members. Members must attest to their ability to participate in CCLF®. Daily reports provide Members with information on their current and potential future commitments. FICC may also seek to obtain a loan from its clearing bank(s) at the discretion of such bank(s).

potential liquidity need for a given period by reviewing its associated sell positions versus original buyers on a bilateral basis within each CUSIP.

For GSD CCLF, there is no segregation between banks or non-banks. Members are subject to the Individual Regular Amount and Individual Supplemental Amount based on the Aggregate Total Amount which is a sum of the Cover 1 liquidity requirement plus a liquidity buffer within the look back-period. The Individual Regular Amount is allocated to all Members and the Individual Supplemental Amount is applicable only to Members generating liquidity needs in excess of $15 billion. The Individual Supplemental Amount has a Liquidity Tier structure and uses frequency of liquidity created within those Liquidity Tiers. GSD believes that this tiered approach reflects a reasonable, fair and transparent balance between the need for sufficient liquidity resources and the burdens of the funding obligations on Members' management of their liquidity. This increment would appropriately distinguish Members that present the highest liquidity needs on a frequent basis and allocate more of the Individual Supplement Amount to the members in the top Liquidity Tiers.

In the context of a CCLF event, FICC will accept securities delivered by a solvent Member to the insolvent Member in excess of the solvent Member's maximum contribution on a delivery-versus-payment (DVP) basis for FICC. FICC will seek to fund these deliveries via its Clearing Fund cash deposits. If these cash deposits are insufficient, FICC will seek to fund the requisite amount by routing these securities to other Members. This redistribution of securities, which will occur in the form of repo transactions, and for MBSD, will be limited to Members that are banks or that have bank affiliates. For GSD, the redistribution of securities will be applicable to all Members. In addition, the combined amount of suppressed and redistributed deliveries will not exceed a Member's maximum contribution amount. All positions funded by Members will continue to be guaranteed by MBSD or GSD.

As all securities cleared and settled through FICC settle in U.S. dollars, FICC has no cross-currency exposure. As noted above under the discussion of Credit Risk (Principle 4), FICC is not systemically important in multiple jurisdictions, and as a U.S. CCP, its activities do not have a complex risk profile. FICC does not have access to routine credit at the central bank for liquidity; as such, it does not account for this option in its liquidity planning.[56]

Measurement and monitoring of liquidity risk and needs

On a daily basis, FRM and each Division's Settlement Operations groups monitor settlement flows and projected debit obligations. Each Member's incoming credits and debits are reviewed to estimate the size of cash outflow required to satisfy settlement needs. In addition, automated risk systems are utilized to measure and monitor liquidity demands. On a daily basis, FRM contacts those Members that have large projected settlement obligations to confirm their settlement capabilities.

FRM performs daily liquidity studies to determine if each Division's current available liquidity resources are sufficient to satisfy the single-largest family default under stressed but plausible conditions.

In the event that a GSD Member or MBSD Member, as applicable, defaults on its open obligations, the applicable Division's liquidity needs are driven by the Member's settlement obligations on the date of its insolvency (DOI), plus the failed Member's security purchases on each day of the settlement cycle. To the

[56] However, FICC does maintain an account with the FRBNY, which is one of the options available to it for cash management under the Investment Policy and which facilitates the management of, and access to, FICC's qualified liquid resources.

extent that a Member's open portfolio to be closed out is "net-long," FICC is responsible for the receipt of securities and payment of cash. As such, "buy" settlement positions drive the potential liquidity risk that is posed to FICC, since FICC would be responsible for the payment of cash required to settle those purchases.

Accordingly, FICC calculates its liquidity needs per individual Member at a legal entity level and further aggregates amounts at a family level (that is, including all affiliated entities[57] that are also FICC Members, under the assumption that all such affiliates fail simultaneously). Members' total liquidity needs are based on the sum of their aggregate daily debit positions on a per CUSIP basis, less any applicable offsets in the portfolio (that is, if the Member has transacted a securities purchase and sale in the same CUSIP, a settlement credit can be generated). These positions represent the securities that FICC would have an obligation to receive and pay for in the event of a Member default.

Based on the results of the calculation, for each Division, FICC determines its aggregate financial resources that would be available to satisfy the largest peak aggregate settlement obligation of a Member or Member family on the day of the simulated default.

In order to assess its liquidity obligations under a wide array of scenarios, each Division performs daily liquidity sufficiency testing with respect to three types of scenarios:

- Level 1, or normal market, scenarios as a baseline reference point to assess other stress assumptions.
- Level 2 scenarios, which are designed to meet the requirements set forth in Rule 17Ad-22(e)(7)(i), and a wide range of foreseeable stress scenarios that include but are not limited to the default of the Affiliated Family that would generate the largest aggregate payment obligation for each Division in extreme but plausible market conditions.
- Level 3 scenarios, which are designed to meet the requirements set forth in Rule 17Ad-22(e)(7)(vi)(A) and the requirements of Principle 7 liquidity risk, key consideration number 9 (pertaining to the sufficiency of liquid resources through rigorous stress testing) and would assume certain standard and predetermined parameters which are designed to be extreme but plausible.

Level 1, 2, and 3 scenarios reflecting three sets of conditions are subject to review and approval on at least a monthly basis by the ESTC. On a monthly basis, liquidity risk metrics are escalated and these results are used to evaluate the adequacy of FICC's liquidity resources.

Size and composition of qualifying liquid resources; reporting

Each Division's Rules specifically permit borrowing from the Clearing Fund to facilitate settlement. Additionally, Clearing Fund collateral may be pledged for the purpose of securing loans to facilitate settlement. The investment of Clearing Fund cash is managed in accordance with the Investment Policy (as described under Principle 16 Custody and investment risks). These amounts are available, as needed, for each Division to draw upon to complete settlement.

[57] "Affiliated entities" means collectively, each GSD Member or MBSD Member, as applicable, which controls or is controlled by another Member and each Member that is under the common control of any organization, entity or individual. "Control" for these purposes means the direct or indirect ownership of more than 50 percent of the voting securities or other voting interests of any organization, entity or person.

Reliability of liquidity providers and others

Counterparty Credit Risk within FICC's Group Chief Risk Office reviews the limits, outstanding investments, and collateral held (if applicable) of each Clearing Agency's investment counterparties. Due diligence is conducted to reasonably validate each liquidity provider has sufficient liquidity resources, understands its liquidity obligations, and has the capacity to perform its liquidity obligations, including the need to be able to provide funding within a short time window. The basis of this analysis includes a credit analysis of each liquidity provider, which includes review of credit ratings assigned by credit rating agencies, and reviews of key metrics including capital adequacy, liquidity, asset quality, and profitability.

With respect to a liquidity provider understanding its liquidity obligations, automated risk systems are utilized to measure and monitor each Division's liquidity demands. In addition, Members receive daily reporting on the settlement obligations and CCLF® reporting is made available to both MBSD and GSD Members. These CCLF® reports enable Members to monitor their potential maximum liquidity obligation in a scenario in which CCLF is invoked.

Moreover, FICC's qualified liquid resources are tested at least annually to confirm the providers are operationally able to perform their commitments and are familiar with the execution and operational arrangements with respect to FICC's MRAs and CCLF process.

Stress scenarios, review and validation

LPRU conducts a daily liquidity study which includes a number of stress scenarios and assumptions used to evaluate each Division's liquidity needs on a conservative basis and to ensure the maintenance of sufficient qualifying liquid resources to timely meet each Division's settlement obligations with a high degree of confidence. In addition, LPRU may perform daily liquidity studies for informational and monitoring purposes using stress scenarios that exceed regulatory minimums.

Selected scenarios stress test results are comprehensively analyzed on a weekly basis. The results of these analyses are escalated and reviewed by the Management Risk Committee on at least a monthly basis and escalated to the Board Risk Committee as necessary. These results are used to evaluate the adequacy of each Division's qualifying liquid resources, for example, the impact of extreme market moves and the potential changes in resource availability that may follow. To the extent that stress tests indicate a potential impact on the sufficiency of each Division's liquidity resources, management may consider options available to supplement resources.

The results of these analyses are reviewed by the ESTC at its monthly meeting as well as FICC's Management Risk Committee and the Board's Risk Committee. The ESTC uses such results to evaluate the adequacy of the stress testing methodology for the purpose of achieving compliance with the minimum prefunded financial resource requirements set forth in the Clearing Agency Liquidity Risk Management Framework.

FICC also performs an annual liquidity assessment to review the sizing of liquid resources relative to peak liquidity needs to assure the maintenance of sufficient liquid resources under a wide range of foreseeable stress scenarios that includes both historical and hypothetical market scenarios selected from an inventory of risk factors. This assessment is presented to the MRC and the BRC.

FICC's liquidity stress-testing methodology is reviewed and validated in accordance with the Model Risk Framework, including validation on an annual basis.

Replenishment of liquidity resources; uncovered liquidity shortfalls

As the liquidation of a defaulting Member's portfolio completes (including the sale of collateral used to secure a borrowing), the proceeds from the closeout are used to repay liquidity borrowings, thus replenishing each Division's liquidity resources.

If closeout proceeds are insufficient to fully repay such liquidity usage/borrowings, then the amount of any such shortfall would constitute a credit loss that would first be satisfied by recourse to the defaulting Member's available resources pursuant to the provisions of GSD Rule 4 (Clearing Fund and Loss Allocation) or MBSD Rule 4 (Clearing Fund and Loss Allocation) and the applicable terms of any Cross-Guaranty Agreements. Any loss remaining thereafter would be addressed by the loss allocation waterfall, which is described in Principle 13 (Participant-default rules and procedures).

Principle 8: Settlement finality; CCAS 17Ad-22(e)(8)

<u>**Principle 8: Settlement finality**</u>	<u>**CCAS 17Ad-22(e)(8)**</u>
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. ***Key consideration 1***: An FMI's rules and procedures should clearly define the point at which settlement is final. ***Key consideration 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. ***Key consideration 3***: An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (8) Define the point at which settlement is final to be no later than the end of the day on which the payment or obligation is due and, where necessary or appropriate, intraday or in real time.

Funds-Only Settlement—GSD and MBSD

The GSD Rules and the MBSD Rules require that the transfer of cash with regard to funds-only settlement (see GSD Rule 13 and MBSD Rule 11) be processed through the Federal Reserve's NSS. FICC has indirect access to the NSS service via DTC. All entries processed via NSS are final and irrevocable when posted as per the Federal Reserve's Operating Circular 12.[58] Each Division's funds-only settlement process is further described in Principle 9.

Settlement of Securities and Related Payment Obligations—GSD

For all GSD CCP services other than the GCF Repo® service and the CCIT Service described below, securities settlement occurs on a DVP basis via Fedwire® or on the books of FICC's clearing bank, BNY. Securities settlement that occurs on Fedwire® is final and irrevocable when the transfer of securities and related funds is made as per the Federal Reserve's Operating Circular 7.[59] Similarly, securities settlement that occurs on the books of FICC's clearing bank is final when the transfer of securities and related funds occurs per the agreement between FICC and its clearing bank.

Settlement in connection with the GCF Repo® service and the CCIT service occurs on the books of the clearing bank and is final when the transfer of securities and related funds occurs per the agreement between FICC and its clearing bank.

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[58] Operating Circular No. 12 is available at www.frbservices.org.

[59] Operating Circular No. 7 is available at www.frbservices.org.

Settlement of Securities and Related Payment Obligations—MBSD

Securities settlement at the MBSD occurs on a DVP basis via Fedwire® or on the books of FICC's clearing bank, and finality is achieved in the same manner as for the GSD DVP settlement services, as described above.

Settlement instructions

Pursuant to each Division's Rules, Members cannot revoke their securities settlement obligations to FICC. Each Division's Rules state that "reversal codes shall not be used to identify any delivery of securities to [FICC] without the express prior permission of [FICC]."[60] FICC may accept a revocation of an instruction or obligation under limited circumstances. In order for a revocation to be accepted, FICC must receive revocation instructions from both Members, and FICC must be certain that removing the affected positions from the settlement process will not affect other Members.

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[60] GSD Rule 12, Section 1 and MBSD Rule 9, Section 1.

Principle 9: Money settlements; CCAS 17Ad-22(e)(9)

Principle 9: Money settlements	**CCAS 17Ad-22(e)(9)**
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 minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money. ***Key consideration 1***: An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks. ***Key consideration 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. ***Key consideration 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, capitalisation, 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. ***Key consideration 4***: If an FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks. ***Key consideration 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.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (9) Conduct its money settlements in central bank money, where available and determined to be practical by the board of directors of the covered clearing agency, and minimize and manage credit and liquidity risk arising from conducting its money settlements in commercial bank money if central bank money is not used by the covered clearing agency.

Introduction

With respect to GSD, there are three types of money settlements that occur: (i) the funds-only settlement process that occurs pursuant to GSD Rule 13 and consists of a mark-to-market amount for every net settlement position, a mark-to-market amount for every forward net settlement position, fail marks for obligations that were scheduled to settle and have not yet settled, coupon payments, GCF Repo® interest, billing and other adjustments, (ii) the fund payments associated with securities deliveries pursuant to GSD's DVP/RVP settlement process and (iii) the fund payments associated with the settlement of GCF Repo® transactions.

With respect to MBSD, there are two types of money settlements that occur: (i) the cash settlement process that occurs pursuant to MBSD Rule 11 and consists of a mark-to-market amount for every netted pool settlement position and netted TBA position, principal and interest payments, TMPG fail charges, billing and other adjustments and (ii) the fund payments associated with securities deliveries pursuant to MBSD's DVP/RVP settlement process.

Fund payments in connection with each Division's DVP/RVP service and GSD's GCF Repo® service are discussed in Principle 8.

Settlement Arrangements

Funds-only settlement

FICC uses the central bank model with a tiered settlement arrangement for its GSD funds-only settlement process (GSD Rule 13) and its MBSD cash settlement process (MBSD Rule 11) and settlement is conducted in central bank funds. Members are required to engage a settling bank that meets FICC's settling bank limited membership criteria to effect money settlement via Federal Reserve's National Settlement Service ("NSS")[61] on behalf of the Members. Funds transfers are final when effected on the NSS. The arrangement with the central bank is supported by applicable laws and rules, including the applicable Federal Reserve circular (Federal Reserve Operating Circular 12). FICC confirms that fund transfers have been effected on each business day with respect to the funds-only settlement process.

Fund-only settlement is a daily process of generating a net credit or debit cash amount for each Member and settling those cash amounts between Members and GSD or MBSD, as applicable.[62] The funds-only settlement process is a cash pass-through process; i.e., those Members that are in a net debit position are obligated to submit payments that are then used to pay Members in a net credit position. Net debits and credits of all Members using the same settling bank are further netted and reported to the settling bank which is required to acknowledge the net-net debits or credits. FICC uses DTC as its settlement agent to instruct the Federal Reserve to debit or credit each settling bank. The settling banks then debit or credit the Members' accounts for which they settle.

GSD processes funds-only settlement debit and credit payments via the NSS twice daily at 10:00 a.m. and 3:15 p.m. The timing of the payments is set to lag behind the Clearing Fund margin calls, so if a Member has not made its Clearing Fund call, any funds-only credit payment can be withheld (up to the amount of

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[61] NSS is a multilateral settlement service owned and operated by the Federal Reserve Banks (FRBs). The service is offered to depository institutions that settle for participants in clearinghouses, financial exchanges and other clearing and settlement groups. Settlement agents, acting on behalf of those depository institutions in a settlement arrangement, electronically submit settlement files to the FRBs. Files are processed on receipt, and entries are automatically posted to the depository institutions' Federal Reserve Bank accounts. DTC maintains an account at the FRB and acts as agent for FICC for Funds-Only Settlement.

[62] The GSD Rules refer to this process as "funds-only settlement"; however, the MBSD Rules refer to this process as "cash settlement." For ease of review, the term "funds-only settlement" is used in this principle.

the late Clearing Fund call). MBSD processes funds-only settlement debits in the morning at 10:00 a.m. and credits in the afternoon at 2:45 p.m.

Designation of Settling Bank

Members at each Division are obligated to designate a settling bank to effect daily money settlement on their behalf. Members may designate a settling bank of their own choosing (and FICC does not intervene in that relationship), provided the bank meets certain financial and operational criteria, is a Federal Reserve member and agrees to settle through use of NSS. The settling banks are "Funds-Only Settling Bank Members" with respect to GSD and "Cash Settling Bank Members" with respect to MBSD (collectively, referred to herein as "Settling Bank Members" or "Settling Banks") and agree to abide by the requirements applicable to that class of membership; this includes timely adherence to daily settlement protocols. (Settling Bank standards and monitoring are described below.) The Settling Bank may or may not have a credit relationship with the Member—it is not expected or required to guarantee the obligations of the Member or to advance funds on the Member's behalf.[63] If a Settling Bank does not settle on behalf of one or more Members, each of those Members nevertheless remains obligated to pay its net settlement obligation through alternative funding arrangements.

DTC acts as settlement agent for FICC

As described above, FICC has a settlement interface with its affiliate, DTC. DTC acts as settlement agent for FICC. In submitting the NSS file, DTC, as FICC's settlement agent, submits instructions to cause the Federal Reserve accounts of the Settling Banks to be charged for their net-net debit balances and credited with their net-net credit balances.

Settling Bank requirements and monitoring

Settling Banks are required to maintain accounts at the Federal Reserve, and meet minimum financial and operational criteria, including minimum capital requirements and a minimum Tier 1 Risk-Based Capital Ratio for regulatory purposes. Settling Banks are subject to supervision and regulation by their federal and state regulators, depending on their form of organization.

FRM monitors the Settling Banks for their compliance with each Division's Rules (in their capacity as Members or as Settling Bank Members). In this regard, FRM obtains information from Settlement Operations regarding settlement exposures, and any operational problems experienced by these banks. Settling Bank operational issues are monitored on an ongoing basis; banks may be subject to fines for failure to timely acknowledge settlement balances.

Quarterly, FRM reviews the capital adequacy of Settling Banks and the SRO monitors FICC Settling Bank exposure and concentration. For Full Service Members financial statements filed with regulatory agencies (CALL reports), and information gathered from various financial publications are analyzed to confirm that each Settling Bank continues to be financially stable.

[63] Each Division's Rules include protections such as allowing the Settling Bank to refuse to settle for a Member.

Principle 10: Physical deliveries; CCAS 17Ad-22(e)(10)

Principle 10: Physical deliveries	**CCAS 17Ad-22(e)(10)**
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. ***Key consideration 1***: An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities. ***Key consideration 2***: An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (10) Establish and maintain transparent written standards that state its obligations with respect to the delivery of physical instruments, and establish and maintain operational practices that identify, monitor, and manage the risks associated with such physical deliveries.

FICC does not have any obligations with respect to physical instruments or commodities. Accordingly, Principle 10 and CCAS 17Ad-22(e)(10) do not apply to FICC.

Principle 11: Central securities depositories; CCAS 17Ad-22(e)(11)

Principle 11: Central securities depositories	**CCAS 17Ad-22(e)(11)**
A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (11) When the covered clearing agency provides central securities depository services: (i) Maintain securities in an immobilized or dematerialized form for their transfer by book entry, ensure the integrity of securities issues, and minimize and manage the risks associated with the safekeeping and transfer of securities; (ii) Implement internal auditing and other controls to safeguard the rights of securities issuers and holders and prevent the unauthorized creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains; and (iii) Protect assets against custody risk through appropriate rules and procedures consistent with relevant laws, rules, and regulations in jurisdictions where it operates.

FICC is not a CSD and does not provide Central Securities Depository Services. Accordingly, Principle 11 and CCAS 17Ad-22(e)(11) do not apply to FICC.

Principle 12: Exchange-of-value settlement systems; CCAS 17Ad-22(e)(12)

<u>Principle 12: Exchange-of-value settlement systems</u>	**<u>CCAS 17Ad-22(e)(12)</u>**
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. ***Key consideration 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.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (12) Eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other, regardless of whether the covered clearing agency settles on a gross or net basis and when finality occurs if the covered clearing agency settles transactions that involve the settlement of two linked obligations.

GSD Rule 12 and MBSD Rule 9 establish that all deliveries of eligible securities in satisfaction of delivery obligations, and all receipts of eligible securities in satisfaction of receive obligations, must be made against simultaneous payment or receipt in Federal funds. Operational procedures are in place to effectuate these mechanisms. GSD's and MBSD's settlement mechanisms and supporting procedures eliminate principle risk by ensuring that the final settlement of one obligation occurs if the final settlement of the linked obligation occurs.

Settlement System—GSD

Settlement of the transactions processed by GSD involves the delivery of securities against payment of funds.

With respect to GSD, FICC's CCP services can be divided into two segments for purposes of this Principle: (1) the GCF Repo® service and (2) all non-GCF Repo®, which is generally referred to as the DVP service. From a legal and contractual perspective, these services are described in the GSD Rules to which Members are subject by the provisions of their membership agreements with the FICC. There are also relevant contractual provisions between FICC and its clearing bank that govern the clearance and settlement services provided by the clearing bank with respect to each of these services.

The DVP service encompasses all non-GCF Repo® activity (both repo and buy-sell activity). All of this activity is done on a delivery-versus-payment (DVP) basis, and in this way FICC ensures that principal risk is eliminated. The framework is as follows: On each business day, FICC makes available to each GSD Member output (i.e., a report) that provides information (i.e., type of obligation (deliver or receive), name and reference number of the clearing bank, CUSIP number, settlement date, par value, final dollar value and other information descriptive of an eligible netting security) that FICC deems sufficient to enable the Member to settle its net settlement positions on that business day. Each GSD Member, based on the information provided by FICC, then provides appropriate instructions to its clearing bank to deliver to FICC, and/or to receive from FICC, on behalf of the GSD Member, eligible netting securities against payment or receipt of funds at the appropriate settlement value. Obligations are either settled within the clearing bank (that is, on the books of the clearing bank) or using Fedwire®. All deliveries are made against full payment.

The GCF Repo® service essentially functions on a tri-party basis. Dealer GSD Members who participate in this service are required to have an account with the participating clearing bank, BNY. The service is currently operating on an intra-clearing bank basis, and as such, the securities settlement for the GCF Repo service occurs on the books of the clearing bank and is final when the transfer of securities and related funds occurs per the agreement between FICC and its clearing bank.

Settlement System—MBSD

Settlement of transactions processed by MBSD involves the delivery of securities against payment of funds. This activity is done on a DVP basis, and in this way FICC ensures that principle risk is eliminated. The framework is as follows: On each business day, FICC makes available to each MBSD Member output (i.e., a report) that provides information (i.e., type of obligation (deliver or receive), CUSIP number, settlement date, par value, final dollar value and other information descriptive of an eligible security) that FICC deems sufficient to enable the Member to settle its net pool positions on that business day. Each MBSD Member, based on the information provided by FICC, then provides appropriate instructions to its clearing bank to deliver to FICC, and/or to receive from FICC, on behalf of the Member, eligible netting securities against payment or receipt at the appropriate settlement value. Obligations may be settled within the clearing bank (that is, on the books of the clearing bank) or using Fedwire®. All deliveries are made against full payment.

Each Division's Reliance on the Fedwire®

Each Division relies on another FMI—the Federal Reserve's Fedwire®. BNY, FICC's clearing bank, has the direct relationship with the Fedwire® systems. The terms of the Fedwire® service are governed by the Federal Reserve's Operating Circular No. 7.[64]

[64] Offering Circular No. 7 is available at www.frbservices.org.

Principle 13: Participant-default rules and procedures; CCAS 17Ad-22(e)(13)

Principle 13: Participant-default rules and procedures	CCAS 17Ad-22(e)(13)
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. ***Key consideration 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. ***Key consideration 2***: An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules. ***Key consideration 3***: An FMI should publicly disclose key aspects of its default rules and procedures. ***Key consideration 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.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (13) Ensure the covered clearing agency has the authority and operational capacity to take timely action to contain losses and liquidity demands and continue to meet its obligations by, at a minimum, requiring the covered clearing agency's participants and, when practicable, other stakeholders to participate in the testing and review of its default procedures, including any close-out procedures, at least annually and following material changes thereto.

Rules and procedures relating to default management

FICC's Divisions have effective and clearly defined rules and procedures to manage a Member default. Each Division's Rules (with implementing internal procedures) are designed to ensure that FICC has the authority to take timely action to contain losses and liquidity pressures and demands and continue to meet its obligations in the event of a Member default.

FICC has publicly disclosed key aspects of its default rules and procedures. Each Division's Rules clearly state what constitutes a Member default and the consequences of default. Under GSD Rule 21 (Restrictions on Access to Services), and MBSD Rule 14 (Restrictions on Access to Services), the Board of Directors may suspend a Member or prohibit or limit a Member's access to FICC's services in enumerated circumstances. These circumstances include a Member's expulsion or suspension from a regulatory or self-regulatory organization, default in delivering funds or securities to FICC, and a Member's experiencing such financial or operational difficulties that FICC determines, in its discretion, that restriction on access to its services is necessary for its protection and for the protection of its membership. Each Division's Rules provide FICC with some discretion in determining what constitutes adequate cause to cease to act for a

Member. GSD Rule 22 (Insolvency of a Member) and MBSD Rule 16 (Insolvency of a Member) enumerate the circumstances under which a Member will be treated as insolvent.

If any of the enumerated circumstances arise, depending upon the facts and situation, FICC may suspend a Member from any service provided by FICC either with respect to a particular transaction or transactions or with respect to transactions generally, or it may prohibit or limit such Member's access to services offered by FICC. When FICC restricts a Member's access to services generally, FICC is said to have "ceased to act" for the Member.

The determination as to whether or not to cease to act for a Member is not automatic; rather under GSD Rule 21 and MBSD Rule 14 an affirmative determination to do so must be made.[65] The Board of Directors has delegated authority to make such determinations to the BRC.[66] To ensure that timely action may be taken, the BRC Charter also provides for delegated authority to the Chair of the BRC if it is impractical to convene the BRC. Action taken would then be ratified by the BRC at a subsequent meeting.[67]

When FICC ceases to act for a Member, or suspends or limits its access to services, FICC notifies the Member and furnishes it with a written statement of the grounds for the decision, and of the Member's right to request a hearing with respect to that determination.[68] FICC will also notify FICC's own supervisors of any decision to cease to act promptly after such decision is made, and will issue an Important Notice to all Members informing them of the cease to act.[69] FICC will also notify the defaulter's regulator of such decision.

Close-out process

Once FICC has ceased to act for a Member, each Division's Rules provide it with the authority to promptly close out and manage the positions of a defaulter and to apply the defaulter's collateral. GSD Rule 22A (Procedures for When the Corporation Ceases to Act) and MBSD Rule 17 (Procedures for When the Corporation Ceases to Act) describe the procedures, including actions FICC may take, when it ceases to act for a Member; this includes provisions for the treatment of core services where Members may have transactions pending with a defaulting Member. The Rules identify which actions are automatic and which are discretionary, and detail how the unsettled transactions of the defaulting Member are to be processed. In this regard, unless the BRC has determined otherwise, FICC will exclude from further processing any trade that, at the time FICC declined or ceased to act for the Member, had not compared upon receipt pursuant to the Rules or that had not been reported by FICC to Members as compared.[70] Any transactions so excluded are to be settled between the parties and not through FICC.

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[65] See also GSD Rule 22 and MBSD Rule 16.

[66] This authority is reflected in the Charter of the BRC, which is available on DTCC's website.

[67] In addition, GSD Rule 44 and MBSD Rule 34 also permit action to be taken by senior corporate officers, if so designated.

[68] Notices are provided for in GSD Rule 45 and MBSD Rule 35; hearing procedures are provided pursuant to GSD Rule 37 and MBSD Rule 28. As provided in GSD Rule 21 and MBSD Rule 14, in certain cases FICC may summarily suspend a Member, with the Member having a right to a hearing after the fact; in other cases, the action is subject to the Member's prior right to request a hearing. See also GSD Rule 22A and MBSD Rule 17 regarding notification of a cease to act.

[69] GSD Rule 22A, Section 1 and MBSD Rule 17, Section 1.

[70] GSD Rule 22A, Section 2 and MBSD Rule 17, Section 2.

FICC communicates all such actions and determinations to its membership (including Members' responsibilities with respect thereto) via Important Notices, which are posted on the DTCC website. Members are responsible for retrieving Important Notices daily.

As discussed in Principle 14 (Segregation and portability), as a cash market CCP in the U.S., the legal regime provides for protection of customer securities at the broker/dealer level. As a result, FICC does not maintain separate "house" and "client" accounts for its Members, nor is it able to distinguish between proprietary and customer activity. Accordingly, the close-out of pending transactions will include all of the defaulter's pending transactions that are not otherwise exited from FICC's systems.

As a cash market CCP, the process of closing out open positions typically involves effecting market purchases and sales; that is, buying in securities the defaulter was obligated to deliver to FICC, and selling out securities the defaulter was obligated to receive from FICC and pay for, or otherwise liquidating the position. FICC utilizes the services of investment advisors and executing brokers to facilitate such transactions promptly following its determination to cease to act. FICC may engage in hedging transactions or otherwise take action to minimize market disruption as a result of such purchases and sales.

Use of financial resources to contain liquidity pressures and demands and losses

As described more fully in Principle 7 (Liquidity risk), FICC maintains liquidity resources to enable it to complete settlement in the ordinary course notwithstanding the default of a Member. Each Division's liquidity resources include: (1) the cash in the Clearing Fund, (2) the cash that would be obtained by selling the securities in the Clearing Fund (U.S. Government Treasury securities, Agency securities guaranteed by the U.S. Government and certain U.S. Agency/Government-Sponsored Enterprise pass-through securities) pursuant to standard repurchase agreements and (3) the cash that would be obtained by selling the securities underlying the transactions that would have been delivered to the insolvent defaulting Member had it not defaulted. In addition to the above, each Division maintains the CCLF®.[71] Each Division's Rules empower it to draw promptly on these resources as needed, while it proceeds to complete the close-out and liquidation of the defaulter's positions.

Each Division's Rules specifically permit borrowings from the Clearing Fund to facilitate settlement; in addition, Clearing Fund collateral may be pledged for the purpose of securing loans to facilitate settlement.[72]

As the liquidation of a defaulting Member's portfolio completes (including the sale of collateral used to secure a borrowing), the proceeds from the close-out would be used to repay liquidity borrowings, thus replenishing FICC's liquidity resources. Should close-out proceeds be insufficient to fully repay a liquidity borrowing, then FICC would look to its loss waterfall to repay any outstanding borrowings.

Resources to cover losses

If, after closing out and liquidating a defaulting Member's positions, FICC were to suffer a loss, such loss would first be satisfied by the amounts on deposit to the Clearing Fund and Eligible Clearing Fund Securities pledged from the defaulting Member (along with any other resources of, or attributable to, the

[71] Once a Division declares a CCLF® event, Members will be required to hold and fund their deliveries to the insolvent Member up to a predetermined cap by entering into repo transactions with FICC until it completes the associated close-out. This facility allows Members to effectively manage their potential financing requirements with predetermined caps. Each Division intends to use the CCLF® process only in the event it is not able to procure its own financing via its existing repo agreements and other funding sources.

[72] GSD Rule 4 and MBSD Rule 4.

defaulting Member (or certain permitted margin affiliates) that FICC may access under each Division's Rules, such as funds-only settlement amounts and other collateral held by the Division securing the defaulting Member's obligations to the Division).

FICC has also entered into a multilateral netting contract and limited cross-guaranty agreement with DTC, NSCC and OCC, under which these clearing agencies have agreed to make payments to each other for unsatisfied obligations of a common defaulting participant to the extent they have excess resources of the defaulting Member. Under this arrangement, no party ever needs to pay "out of pocket" and no party can receive more than its loss. Each Division would apply its own respective resources and determine its own liquidation results. In determining FICC's available net resources for purposes of the Cross-Guaranty Agreement, FICC would first offset the available net resources of GSD with those of MBSD.

GSD also has a cross-margining agreement with the CME, which may also provide for additional funds if the defaulting Member was a cross-margining participant.[73]

Loss waterfall

GSD Rule 4 and MBSD Rule 4 contain the loss waterfall provisions for the respective Divisions. Under GSD Rule 4 and MBSD Rule 4, if there is a loss (i) as a result of an obligation of a defaulting Member to FICC that was not fully satisfied by the application of its resources or the proceeds from the liquidation of its portfolio, or (ii) due to an event other than a Member default ("non-default loss," as described in more detail below), FICC has recourse to the loss allocation waterfall.

For purposes of loss allocation, triggering events, which may include both Member defaults and non-default events, would be grouped together chronologically into discrete "event periods" of ten business days. Losses arising from a group of events that occurred within the same event period, whether a default loss or a non-default loss, would be allocated as follows:

1. Before the allocation of losses to Members, FICC would apply 50% of its General Business Risk Capital Requirement as of the end of the calendar quarter immediately preceding the applicable event period (referred to as the "Corporate Contribution"), or such greater amount as the Board of Directors may determine to satisfy the losses. The amount of the Corporate Contribution to be applied to any losses arising from events that may occur in subsequent event periods during the next 250 business days would be reduced to the remaining unused portion of contribution, if any. If the losses are attributable to only one Division, the Corporate Contribution to the losses would be up to the amount then available. If the losses occur simultaneously at both Divisions, the Corporate Contribution to the losses would be applied ratably between the Divisions.

2. If a loss is a default loss, FICC will allocate the loss between the Tier One Members and the Tier Two Members, and the loss allocation process applicable to Tier One Members and Tier Two Members will proceed via two separate, parallel and simultaneous streams. If a loss is a non-default loss, FICC will allocate the loss to Tier One Members.

3. With respect to Tier One Members, if a loss remains after applying the Corporate Contribution, FICC will allocate the remaining amount among Tier One Members that were Tier One Members on the first day of the applicable event period, ratably in accordance with their average daily required deposit to the Clearing Fund over the prior 70

[73] If the defaulting Member participates in the CME Arrangement, GSD will determine any loss or liability incurred in accordance with that agreement which is part of the GSD's Rules.

business days. Each Tier One Member must pay its allocation amount within two business days of receiving notice of the amount.

4. With respect to Tier Two Members, if a loss remains after applying the Corporate Contribution, FICC will allocate the remaining amount to Tier Two Members to the extent they traded with the defaulting Member~~s~~ and their trades resulted in the loss. FICC will assess Tier Two Members ratably based on their loss as a percentage of the entire amount of the remaining loss attributable to Tier Two Members. Tier Two Members are required to pay their loss allocation obligation in full.

5. Losses relating to the events within the same event period may be allocated iteratively.

Non-default losses are generally expected to be absorbed by FICC's capital, as described in more detail in response to Principle 15 (General business risks). However, to the extent that a loss incident to the clearance and settlement business of FICC is determined by the Board to be a significant and substantial loss that may materially impair the ability of FICC to provide clearance and settlement services in an orderly manner, FICC has recourse to the loss waterfall, as described above.

A Tier One Member is able to limit its liability for loss allocation, up to a loss allocation cap, by withdrawing from participation within the specified timeframe. However, it will remain obligated for any loss allocations for which a withdrawal election was not timely made, and, subject to the specified cap, would be obligated for subsequent loss allocations to which it is otherwise subject. To date, FICC has never invoked its loss allocation process.

Implementation of default rules and procedures

FICC is well-prepared to implement its Member default rules and procedures, including any appropriate discretionary procedures provided for in the Divisions' Rules. FICC maintains internal plans outlining the roles and responsibilities for addressing a Member default. These include internal procedures of the involved departments (for example, Settlement Operations and FRM) that outline the actions that may be taken in the event of a default of a Member and the various roles and responsibilities associated with these actions. Each instance where FICC would determine to cease to act is unique, and the internal procedures take this into consideration. FICC also maintains arrangements with one or more investment advisors and executing brokers to facilitate an actual close-out and liquidation.

As noted above, FICC will notify the defaulting Member, as well as the Member's regulator, of any decision to cease to act promptly after such decision is made. FICC will also issue an important notice to all Members informing them of the cease to act. If a trustee (or other insolvency official) is appointed for the defaulting Member, FICC will notify them as well. Finally, FICC will also notify other FMIs that are party to clearing agency cross-guaranty or other link arrangements, as applicable.

The FICC close-out procedures are subject to ongoing review and development, including incorporating knowledge gained from actual close-outs and internal tests, which occur at least once per year. Material changes to FICC's internal plans are presented to the MRC and the BRC for approval.

GSD Rules and MBSD Rules are publicly available

The key aspects of the close-out procedures are in each Division's Rules, which are available to Members and to the public generally on DTCC's website. In addition, if FICC were to make a determination to cease to act on behalf of a Member, FICC would provide notice of the action to Members via Important Notice and also communicate relevant details as to the resolution of open transactions to Members in the same manner. Important Notices are posted by FICC on the DTCC website, and are available to the public. Members are responsible for retrieving notices daily from the website.[74]

Testing and engagement with participants and other stakeholders

FICC conducts a simulated close-out at least annually, where members of the Board, FICC's supervisors and certain other stakeholders (such as representatives from SIPC and the FDIC) are invited to attend. The close-out simulations cover a wide range of hypothetical fact patterns that may represent extreme, but plausible, situations, and include testing arrangements with FICC's investment advisor(s). In addition, FRM conducts internal "table-top" close-out exercises to enable relevant staff across the DTCC enterprise to become familiar with processes and procedures that would be utilized in the event of an actual cease to act. Both the simulation results and the table-top reviews are used to review—and, where appropriate, improve—default management processes and procedures. Results are shared with the Board of Directors, the BRC, FICC's supervisors and, as appropriate, relevant stakeholders.

As noted above, as a cash market CCP, the process by which FICC liquidates and closes out Member positions is typically through purchases and sales into the market; accordingly, the successful implementation of FICC's default management processes does not generally require the active participation of Members (through, for example, an auction process). As such, Members are not generally included as part of FICC's testing processes. However, FICC does provide Members with information—including instructions—as to how transactions will be handled in the event of an actual close-out via Important Notices.

The successful implementation of FICC's default management process does require a robust default liquidity process. As such, FICC tests the mechanics of each Division's CCLF with each Division's Members so that FICC staff and the Members of each Division may be prepared for the facility to be invoked and utilized under stress conditions. In addition, FICC also periodically tests the mechanics of its uncommitted master repurchase agreements with its counterparties.

[74] GSD Rule 45, Section 1, and MBSD Rule 35, Section 1.

Principle 14: Segregation and portability; CCAS 17Ad-22(e)(14)

Principle 14: Segregation and portability	**CCAS 17Ad-22(e)(14)**
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. ***Key Consideration 1***: A CCP should, at a minimum, have segregation and portability arrangements that effectively protect a participant's customers' positions and related collateral from the default or insolvency of that participant. If the CCP additionally offers protection of such customer positions and collateral against the concurrent default of the participant and a fellow customer, the CCP should take steps to ensure that such protection is effective. ***Key Consideration 2***: A CCP should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A CCP should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts. ***Key Consideration 3***: A CCP should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants. ***Key Consideration 4***: A CCP should disclose its rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral. In particular, the CCP should disclose whether customer collateral is protected on an individual or omnibus basis. In addition, a CCP should disclose any constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customers' positions and related collateral.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (14) Enable, when the covered clearing agency provides central counterparty services for security-based swaps or engages in activities that the Commission has determined to have a more complex risk profile, the segregation and portability of positions of a participant's customers and the collateral provided to the covered clearing agency with respect to those positions and effectively protect such positions and related collateral from the default or insolvency of that participant.

As explained in the explanatory notes and footnotes to this Principle[75] in the FMI Principles report, certain cash market CCPs, like FICC, operate in legal regimes that facilitate segregation and portability in order to

[75] FMI Principles report, Principle 14, explanatory notes 3.14.5, 3.14.6 and footnote 122.

achieve the protection of customer assets by alternate means that offer the same degree of protection as the approach recommended by this Principle. In the case of FICC, as an SEC-registered cash market clearing agency, the applicable customer protection regime is the SEC's customer protection rules, promulgated by the SEC under the Exchange Act in 1972.[76] (FICC does not clear security-based swaps.) This regulation applies to broker-dealers, and provides for customer segregation requirements with respect to transactions processed through FICC to be accounted for on the books and records of the broker-dealer, and not at the clearing agency level.

Under this regime, customer ownership generally occurs upon or after settlement, and "in flight" transactions and Clearing Fund deposited by Members do not belong to the customer. As such, there is no customer trade or position entered into FICC. As a result, Members provide Clearing Fund deposits with respect to pending transactions regardless of whether the Member is acting in a principal or agent basis, and FICC is not able to identify positions or possess the assets of its Members' customers. Accordingly, FICC does not, as a general matter, maintain separate "house" and "client" accounts for Members.[77] CCA Rule 17Ad-22(e)(14) thus does not apply to FICC.

[76] Exchange Act Rule 15c3-3.

[77] The GSD Rules do, however, permit FICC to offer certain market professional customers of GSD Members the ability to cross-margin FICC cleared cash positions against positions cleared by another clearing organization pursuant to a cross-margining arrangement between FICC and the relevant clearing organization.

Principle 15: General business risk; CCAS 17Ad-22(e)(15)

Principle 15: General business risk	**CCAS 17Ad-22(e)(15)**
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 materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services. ***Key consideration 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. ***Key consideration 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. ***Key consideration 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. ***Key consideration 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.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (15) Identify, monitor, and manage the covered clearing agency's general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that the covered clearing agency can continue operations and services as a going concern if those losses materialize, including by: (i) Determining the amount of liquid net assets funded by equity based upon 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; (ii) Holding liquid net assets funded by equity equal to the greater of either (x) six months of the covered clearing agency's current operating expenses, or (y) the amount determined by the board of directors to be sufficient to ensure a recovery or orderly wind-down of critical operations and services of the covered clearing agency, as contemplated by the plans established under paragraph (e)(3)(ii) of this section, and which: (A) Shall be in addition to resources held to cover participant defaults or other risks covered under the credit risk standard in paragraph (b)(3) or paragraphs (e)(4)(i) through (iii) of this section, as applicable, and the liquidity risk standard in paragraphs (e)(7)(i) and (ii) of this section; and (B) Shall be of high quality and sufficiently liquid to allow the covered clearing agency to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions; and (iii) Maintaining a viable plan, approved by the board of directors and updated at least annually, for raising additional equity should its

Key consideration 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.	equity fall close to or below the amount required under paragraph (e)(15)(ii) of this section.

General business risk and capital planning overview

The capital management strategy of FICC's parent company, DTCC, as well as its approach to financial planning and management, allow DTCC to effectively identify, monitor, and manage the general business risks for each of its subsidiaries, including FICC, as well as for the DTCC group as a whole.

DTCC considers those general business risks, as applicable to FICC, to include potential impairment to FICC's financial position that could result in a loss that consequently is charged against capital. The potential for financial impairment could be affected by a variety of factors, including, but not limited to, an unexpected downturn in business volumes or in the economic cycle; external market events with adverse systemic consequences; competitive forces, such as new market participants in the clearance and settlement space; changes in regulatory requirements that may adversely impact FICC and/or FICC's participants; unexpectedly large operating expenses; and operational or cyber risk events.

In order to identify, monitor, and manage these risks, the capital management strategy for FICC focuses on the following key objectives:

- Provide financial resources that are sufficient to support FICC's business, in terms of both current and forecasted needs;
- Allow FICC to maintain adequate capital to protect against risks that may arise under adverse scenarios;
- Satisfy regulatory capital requirements in light of strengthened global risk management standards for financial market utilities in markets in which FICC operates;
- Support a strong credit rating for FICC; and
- Maintain a viable plan to replenish financial resources, including equity, should those resources fall close to or below the amount being held in compliance with regulatory requirements.

DTCC maintains a disciplined approach to financial planning and management, which is a critical element to ensuring sustainability of the operations of FICC and its other subsidiaries.

Key aspects of this approach include the annual budget process, through which comprehensive and detailed operating plans are developed for each business line and functional area. These business plans, which are updated periodically throughout the year, include an assessment of the relevant market/operating environment. Additionally, business performance reviews are conducted regularly, tracking month-to-month volume data, trends and financial performance, thereby facilitating ongoing assessment and monitoring of business risk. DTCC's financial planning approach also includes development of a three-year long-range financial plan for the overall enterprise and each operating subsidiary, including FICC; monthly cash flow projections based on earnings estimates and financial forecasting; and regular review of estimated capital requirements at the individual subsidiary level, as well as for DTCC in the aggregate.

The detailed and comprehensive nature of the annual budget process and related business plans, coupled with the monthly frequency of the ongoing business reviews and other tools as mentioned above, allow FICC to quickly identify relevant events and emerging trends, and to assess their potential financial impact. Based on this information, management can take appropriate tactical and strategic measures in order to minimize business risk. These measures may include, among other actions, making changes to existing products and services; introducing new products or services; reprioritizing planned or ongoing projects and reallocating resources accordingly; taking cost-reduction measures; modifying fee structures; and adjusting the level of capital and liquid net assets that DTCC maintains at FICC. These elements are brought together to create a comprehensive financial plan that projects FICC's ability to generate the required level of earnings and cash flows to manage and protect against business risks and to support overall business strategies.

This robust framework for assessing capital needs occurs under the oversight of the Board of Directors. FICC's capital management strategy and financial plan are reviewed and updated on an ongoing basis by DTCC's Finance group, and are provided to the Board regularly.

Liquid net assets funded by equity

The Clearing Agency Policy on Capital Requirements ("Capital Policy") and the Clearing Agency Capital Replenishment Plan ("Replenishment Plan") are maintained by DTCC Treasury group and have been approved by the SEC.[78] The Capital Policy sets forth the manner in which FICC identifies, monitors, and manages its general business risk with respect to the requirement to hold sufficient liquid net assets ("LNA") funded by equity to cover potential general business losses so FICC can continue operations and services as a going concern if such losses materialize. The Replenishment Plan provides for a viable plan for the replenishment of capital by FICC should its equity fall close to or below the amount being held as its "Total Capital Requirement" pursuant to the Capital Policy.

FICC determines its Total Capital Requirement, or the amount of liquid net assets funded by equity that it maintains, as the sum of three components:

(i) The general business risk capital requirement, which is the greatest of three separate calculations (each of which is calculated on an at least an annual basis):

> a) An amount based on FICC's general business risk profile ("Risk-Based Capital Requirement"), where FICC's general business risk profile consists of the specific business risks of potential financial impairment of FICC's financial position that it may face (including, for example, business and profit/loss risks, operational risks and investment risks,), and that would be sufficient to cover losses so FICC can continue operations and services if those losses materialize.
>
> b) An amount based on the time estimated to execute a recovery or orderly wind-down of the critical operations of FICC ("Recovery/Wind-Down Capital Requirement"), which is determined annually by the Board by estimating the time needed to execute a recovery or orderly wind-down of FICC's critical operations as the greatest of (i) the estimated amount sufficient to ensure a recovery of critical operations and services of FICC; and (ii) the estimated amount sufficient to facilitate an orderly wind-down of FICC's critical operations.
>
> c) An amount based on an analysis of FICC's estimated operating expenses ("Operating Expense Capital Requirement"), which is determined as the greater of (a) a retrospective estimate of

[78] *See* Exchange Act Release No. 81105 (July 7, 2017), 82 FR 32399 (July 13, 2017) (SR-DTC-2017-003, SR-FICC-2017-007, SR-NSCC-2017-004).

operating expenses based on six (6) times the average monthly operating expense over the prior twelve (12) month period; and (ii) a prospective estimate of operating expenses based on forecasted expense data.

(ii) A "Corporate Contribution," which is an amount defined in and may be applied pursuant to FICC Rule 4, and is generally equal to 50% of FICC's general business risk capital requirement. Pursuant to FICC Rule 4, FICC may voluntarily apply an amount greater than 50% of FICC's general business risk capital requirement to an unsatisfied loss or liability if the Board believes it appropriate to do so. The use and application of the Corporate Contribution, as part of FICC's loss waterfall to address unsatisfied losses, is discussed under Principle 13 (Participant-default rules and procedures) above. These resources are held in addition to the LNA funded by equity held by FICC as its General Business Risk Capital Requirement.

(iii) A buffer amount of capital held to protect resources available to address general business risks. The amount of buffer that FICC holds is periodically reassessed, and is generally equal to approximately four to six months of operating expenses based on various factors, including the volatility of FICC's net income and liquid cash resources or liquid net assets and estimates of potential losses from general business risk.

In addition to the calculation of the Total Capital Requirement, described above, DTCC has also developed its own internal economic capital framework, which estimates capital requirements for each major business (including FICC) and on a consolidated basis across core risk categories, specifically, business risk, market risk, investment risk, credit risk, and operational risk. Management believes that an economic risk-based capital view of DTCC's total business portfolio is an important assessment tool to complement regulatory mandates. This methodology enables DTCC to more fully assess its risk-based capital needs, and the capital needs of FICC, in terms of economic realities during potential periods of market downturns and contraction.

FICC's liquid net assets are conservatively invested pursuant to the Investment Policy to maximize liquidity and mitigate investment risk, credit and market risks. The Investment Policy is described in more detail under Principle 16 (Custody and Investment Risks) below. The Investment Policy is reviewed by the FICC Board annually.

Plans to raise additional capital

FICC's comprehensive financial plan, as described above, is designed, in part, to project FICC's ability to generate and maintain the required level of capital to manage and protect against business risks. FICC has developed a viable plan to replenish its financial resources through various replenishment tools, as set forth in that plan.

The circumstances that trigger the replenishment plan include (i) when equity being held by FICC is at or below an amount equal to its Total Capital Requirement (as described above), plus the equivalent of one (1) month of operating expenses of FICC; and (ii) the FICC Board determines that the replenishment plan should be implemented.

Replenishment tools serve as either (1) bridge financing, which would provide immediate financing, and would be considered an initial step in implementation of the replenishment plan; or (2) capital replenishment, which would provide FICC with the required additional equity on a longer term basis. The replenishment tools would include either actions taken by DTCC, to raise capital, which would then be contributed to FICC, or actions taken by FICC to increase capital.

Actions that may be taken by DTCC could include contributing resources from existing cash, borrowing under an existing line of credit, or by making a claim for insurance proceeds, if applicable. DTCC could also seek to fund a capital contribution to FICC by authorizing, issuing and selling shares of common stock of DTCC to its participant shareholders or via a capital markets transaction, such as the issuance or sale of preferred stock by DTCC, or through strategic actions, such as the sale or divesture of assets or businesses. Actions FICC could take to increase capital include increasing fees for services, or when appropriate, cutting expenses.

Principle 16: Custody and investment risks; CCAS 17Ad-22(e)(16)

Principle 16: Custody and investment risks	**CCAS 17Ad-22(e)(16)**
An FMI should safeguard its own and its participants' assets and minimise 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. ***Key consideration 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. ***Key consideration 2***: An FMI should have prompt access to its assets and the assets provided by participants, when required. ***Key consideration 3***: An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each. ***Key consideration 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.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (16) Safeguard the covered clearing agency's own and its participants' assets, minimize the risk of loss and delay in access to these assets, and invest such assets in instruments with minimal credit, market, and liquidity risks.

Introduction

FICC safeguards its own assets (cash, cash equivalents, and marketable investment securities), and Clearing Fund Securities and cash, in a well-established structure designed to minimize the risk of loss on and delay in access to these assets. FICC investments are subject to the Investment Policy (which has been filed with and approved by the SEC), [79] as it applies to FICC. Under these requirements, FICC may only invest in instruments with minimal credit, market and liquidity risks, as further described below. Clearing Fund Securities and cash, and proprietary assets are maintained and accounted for separately, so there is no commingling.

[79] The Investment Policy addresses the investment of funds of DTCC's clearing agency subsidiaries, including NSCC, FICC and DTC. *See* Exchange Act Release No. 79528 (December 12, 2016), 81 FR 91232 (December 16, 2016) (SR-DTC-2016-007; SR-FICC-2016-005; SR-NSCC-2016-003).

Maintenance of Eligible Clearing Fund Securities

As described under Principle 5 (Collateral), Members may satisfy a portion of their required Clearing Fund deposit through the pledge of Eligible Clearing Fund Securities. The Eligible Clearing Fund Securities are held at FICC's clearing bank.

FICC invests cash safely under the Investment Policy

FICC holds proprietary general operating funds cash (which includes cash LNA funded by equity) as well as cash in each Division's Clearing Fund. Clearing Fund cash is maintained as a liquidity resource to facilitate settlement in the event of a Member default and is available to cover potential losses due to such an event.

As a key liquidity resource, Clearing Fund cash must be available to complete daily settlement as needed, but it may be invested in readily available liquid investments in accordance with the Investment Policy as described below. Deposits with commercial financial institutions are subject to their agreement that any funds so received and assets in which such funds are invested shall not be subject to set-off or lien of these financial institutions. In addition to Clearing Fund cash, FICC's proprietary general operating funds are invested in accordance with the Investment Policy.

Investment criteria and monitoring

The Investment Policy outlines the parameters for FICC's investments including, among other things, permitted investments and limitations on investments. The Investment Policy is reviewed and approved annually by the FICC Board. DTCC's Treasury group is responsible for the investment of available firm-wide funds, including FICC funds.

Pursuant to the Investment Policy, Clearing Fund cash and FICC proprietary funds are invested conservatively in order to maximize liquidity and mitigate both credit and market risk. Under the Investment Policy, assets are held by regulated and creditworthy financial institution counterparties and may be invested in the following types of financial instruments:

- Reverse repurchase agreements;
- Money market mutual funds;
- Commercial bank deposits;
- FICC's FRBNY account; and
- Direct obligations of the U.S. Government.

Investments in reverse repurchase agreements are generally secured by debt obligations of the U.S. Government or those U.S. Government Agencies guaranteed by the U.S. Government and collateral must have a market value greater than or equal to 102% of the cash invested. Money market mutual funds must be regulated under Rule 2a-7 of the Investment Company Act of 1940, have a stable Net Asset Value, and a credit rating of AAA/Aaa from recognized rating agencies. FICC's investments are short term and can be readily accessed for liquidity, should the need arise; as such, market risk is minimal.

As part of its risk management process, evaluations are performed at least quarterly on the relative credit standing of the financial institutions with which FICC places funds. Investments are generally placed with financial institutions having a credit rating of BBB+/Baa1 or better from recognized rating agencies, as set forth in the Investment Policy. In addition, approved custodial banks, including custodial banks named in tri-party reverse repurchase agreements, must be members of the Federal Reserve System, subject to oversight of the Board of Governors of the Federal Reserve.

Approved financial institutions are monitored by Counterparty Credit Risk within DTCC's Group Chief Risk Office on a quarterly basis for review of their financial condition, and approved counterparties and counterparty credit limits may be revised based on these periodic reviews. Additionally, and based on its ongoing monitoring process, to the extent that CCR determines that a change in a counterparty's financial condition warrants a change in FICC's investment limits with the counterparty, CCR would promptly notify Treasury of any change, so that Treasury can implement any required adjustment to the investment strategy.

An element of CCR's ongoing custody/investment counterparty monitoring process includes the identification of credit risk, a general analysis of the counterparty which includes the review of the audited financial statements (includes available audit opinions) and/or FFEIC call report (assess liquidity resources, earnings trends, capital levels and other relevant information), and review of the counterparty's external credit ratings (if applicable). Beyond the scope of its internal review practices, FICC takes additional comfort from the regulatory framework that governs its investment counterparties (which includes oversight and examination by U.S. banking regulators and the SEC), in evaluating the safety and accessibility of its investments. This includes regulation regarding the protection of customer securities from theft, loss, or misuse, and in the event of insolvency.

Exposure and concentration risk

The acceptable levels of exposure to financial institution counterparties are governed by the Investment Policy, which establishes the overall framework for the investment of funds, as well as CCR's criteria for determining credit limits to appropriately facilitate diversification and mitigate concentration across counterparties. On a daily basis, DTCC's Treasury group adheres to the policy guidelines and reports investment activity compared to established credit limits for each of the respective counterparties. This reporting is distributed to management, CCR, and Finance.

Principle 17: Operational risk; CCAS 17Ad-22(e)(17)

Principle 17: Operational risk	**CCAS 17Ad-22(e)(17)**
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 fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption. ***Key consideration 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. ***Key consideration 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. ***Key consideration 3***: An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives. ***Key consideration 4***: An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives. ***Key consideration 5***: An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats. ***Key consideration 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 information technology (IT) systems can resume operations within two hours	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (17) Manage the covered clearing agency's operational risks by: (i) Identifying the plausible sources of operational risk, both internal and external, and mitigating their impact through the use of appropriate systems, policies, procedures, and controls; (ii) Ensuring that systems have a high degree of security, resiliency, operational reliability, and adequate, scalable capacity; and (iii) Establishing and maintaining a business continuity plan that addresses events posing a significant risk of disrupting operations.

following disruptive events. The plan should 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. ***Key consideration 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.	

Operational risk management framework and identification of risks

The Operational Risk Management Policy and DTCC Corporate Risk Framework Policy describe the framework employed by ORM to identify, analyze, mitigate, report and escalate operational risks. This is done through internal incident data collection, operational risk profile risk assessments, scenario analysis, testing by internal and external parties, metrics and key risk indicators, issue tracking and reporting.

ORM is responsible for the aggregation, analysis, escalation and reporting of operational risk to the management of business units, senior management and Board of Directors. ORM maintains an operational risk management program that enables the identification, assessment, management, monitoring and reporting of the risks encountered in the day-to-day business of DTCC's clearing agency subsidiaries, including FICC. The program establishes DTCC's overall strategy for identifying internal and external sources of risks, assessing the implications, prioritizing and developing plans to address such risks so that they can be remediated to the extent practicable.

ORM policies and procedures serve as the guiding principles to support the business units to monitor operational control effectiveness through: (1) identification and assessment of operational risks, (2) management and mitigation of operational risks, (3) monitoring of operational risk and (4) reporting and escalation of operational risk.

Each business unit implements an operational risk management program and related elements in accordance with the standards established by the ORM as set forth in the ORM Policy and the related supporting procedure documents. At least annually, the policies and procedures are reviewed by ORM management and updated as needed; the updated policies and procedures are then reviewed and approved by the MRC and the BRC.

The operational risks that DTCC has identified in its Corporate Risk Framework are:

- *Human Capital/People Risk*
- *Processing and Operations Risk*
- *Cybersecurity and Information Protection Risk*
- *Information Technology Risk*
- *Financial Risk*
- *Legal & Regulatory Compliance Risk*

- *Business Continuity Risk*
- *Model Risk*

To determine how to address these risks, ORM regularly conducts operational risk profile assessments, which includes a thorough analysis of FICC's business functions and how each of these risk categories may be implicated in the business operations. The data collected informs the organization's business planning and helps guide decision making with respect to the need for additional investments that may further reduce risk or the readjustment of risk tolerance. Furthermore, to enhance the current risk framework, ORM has developed a scenario analysis program as a forward-looking risk management tool to enable the enterprise to identify and consider scenarios that may materially impact a business to an extent that threatens everyday viability of the business/organization. This framework allows the organization to identify possible vulnerabilities in critical functions and critical external dependencies across the enterprise, and understand more fully the risks and the potential impact of stressful events and circumstances on FICC's financial condition.

Management of operational risk

DTCC has several ways in which it identifies and manages its operational risks, each underscored by the "three lines of defense" strategy:

- The <u>first line of defense</u> is the businesses and functional units, including Product Management, Operations Management, Information Technology and other areas critical to daily operation and functioning. Their mandate is to proactively manage risk.

- The <u>second line of defense</u> is comprised of DTCC's control functions. This includes those areas that fall under the Group Chief Risk Officer's purview, Legal, Privacy and Compliance. Their mandate is to provide advice and guidance to the first line of defense in adhering to established risk standards and to monitor compliance with those standards.

- The <u>third line of defense</u> is Internal Audit. Internal Audit's mission is to provide independent, objective assurance and advisory services to assist the organization in maintaining effective risk management and control practices.

ORM is an independent risk management function that operates as part of the "second line of defense." It is primarily responsible for:

- the company-wide establishment and implementation of the operational risk framework;

- ongoing monitoring of company-wide adherence to the operational risk framework by the business units;

- analysis and reporting to senior management and the Board of Directors, on a company-wide basis, the operational risk exposures, including the timely escalation of risk exposures identified under the framework and

- supporting the business units with respect to the ongoing roll-out and application of the framework.

Policies, processes and controls

DTCC's operational risk framework is, in part, designed in accordance with industry standards and best practices, including the operational risk measurement rules under Basel II,[80] and has evolved based on the changing needs of DTCC's businesses and regulatory guidance. These standards are incorporated into the methodology and tools used by ORM to identify, assess, manage and report on operational risks. ORM's systems, policies, procedures and controls are reflected within the ORM policies and procedures, including those relating to risk incident collection and reporting.

FICC also complies with the requirements of Regulation Systems Compliance and Integrity ("Reg SCI"), adopted by the SEC under the Exchange Act. These requirements include establishing, maintaining and enforcing written policies and procedures reasonably designed to ensure that critical systems have levels of capacity, integrity, resiliency, availability and security adequate to maintain FICC's operational capability and promote the maintenance of fair and orderly markets.

With respect to human capital and people risk, DTCC defines job responsibilities in order to recruit qualified talent, and compensates them competitively based on market data and internal equity. Employees have access to a range of in-house, online and external learning offerings and programs to support risk management capabilities, professional/leadership development and business/functional knowledge. DTCC regularly tracks voluntary attrition, conducts exit interviews, and takes appropriate action to mitigate the impact of turnover. Succession and replacement plans are in place to address key-person risk for Managing Directors and other key jobs.

Additionally, DTCC's Employee Code of Conduct sets the parameters of acceptable employee conduct that includes, but is not limited to, fraud prevention.

The New Initiative Approval Policy and the related Framework provide the basis on which management proposes, evaluates and approves initiatives; criteria for involving FICC's supervisors and other stakeholders in the review of initiatives; and escalation and other standards for review and approval of initiatives by the Board of Directors or Board committees. The policy and related framework also provide the necessary governance and oversight structure to enable FICC to bring initiatives to market in a timely and efficient manner, while helping to ensure, where relevant, that these initiatives are designed in a way that appropriately mitigates risk to FICC, each Division's membership and the financial markets.

The New Initiatives Office oversees adherence to the New Initiatives Approval Process, which is the process for proposing, evaluating and approving initiatives. This process is DTCC's product development and enhancement methodology, based on the Stage-Gate®[81] process and product development best practices.[82] It provides a framework to manage initiatives including defined stages, milestones, approval criteria and governance process. The New Initiatives Approval Process is used for all initiatives, including those without technology development. The methodology is designed to integrate with DTCC's IT development processes as well as external software development providers and alternative software implementation methodologies.

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[80] http://www.bis.org/publ/bcbs195.htm.

[81] Created by Stage-Gate® International.

[82] Robert G. Cooper, *Winning at New Products—Accelerating the Process from Idea to Launch*; Paige Leavitt, Marisa Brown, Steve Wright, *New Product Development: A Guide for Your Journey to Best-Practice Processes.*

The Investment and Operating Committee, as an internal management committee comprised of officer-level SMEs, has responsibility for reviewing and approving initiatives that meet designated risk and materiality thresholds. These reviews occur from initial identification and concept development through product launch and post-implementation. Given that initiatives can vary significantly in complexity, risk profile and internal and external impact, initiatives are categorized in three ways: (1) materiality, (2) business driver and (3) risk rating. These categories determine the level of governance, including documentation, required for an initiative.

The New Initiatives Office tracks initiative exceptions and reports them to the Investment and Operating Committee monthly. Policy conformance for material initiatives is also reflected on the Quarterly Risk Tolerance Dashboard for New Initiatives Risk, a strategic risk that is a component of the Corporate Risk Framework.

Roles, responsibilities and framework; review and audit

As described under Principle 3 (Framework for the comprehensive management of risks), the Board has delegated to management the responsibility for the day-to-day management of risk, as articulated through individual risk tolerance statements. The risk tolerance statements are provided to the Board Risk Committee for its approval at least annually. The Board requires management to distribute regular risk tolerance reporting to the Board to provide assurance of management's effective oversight of such risks.

To fulfill the Board and management's risk oversight responsibilities, the Corporate Risk Framework has been designed to provide information on DTCC's key risks (including those applicable to FICC) and the processes used to identify, assess, measure, monitor, mitigate and report those risks. The Corporate Risk Framework utilizes two primary risk management processes to consolidate reporting: (1) operational risk profiles created for each business and functional area and (2) the risk tolerance reporting for each risk family. In addition, ORM periodically reports on the status of operational risk across the enterprise, providing an overview of the key risks and associated mitigation plans, if applicable.

Internal Audit performs independent testing and reviews the effective implementation of the operational risk framework by both ORM and the business units. The audit frequencies range from 12 to 48 months, based on periodic assessments of inherent risk and control environments. In addition, as a registered clearing agency and designated SIFMU, FICC is subject to continuous monitoring by its regulators, which includes review and monitoring of the effectiveness of FICC's operational risk management policies and procedures.

Operational reliability

FICC monitors operational reliability through multiple processes, including an annual risk assessment, periodic risk and controls assessment, incident reporting, monitoring for lifecycle processing, system availability and data reporting; a metrics review of incident-related key risk indicators that have been identified for event processing, settlement processing, data reporting, system availability and other key processes. These monitoring activities are performed regularly and evaluated by management as required, with appropriate procedures and controls applied as needed.

To continuously maintain high levels of quality, FICC uses several improvement methodologies that, when integrated, provide the company with a powerful quality management toolkit. For example, Lean, Six Sigma and Kaizen techniques help to streamline business and operations processes, as well as reduce defects, waste and service failures. In Information Technology (IT), FICC employs a Capability Maturity Model Integration (CMMI) process improvement best practice model to optimize software development and the Information Technology Infrastructure Library (ITIL) best practice framework for IT service management and operations of its Enterprise Infrastructure.

Further, FICC uses a formalized internal Service Level Agreements ("SLAs") process across the enterprise between the service provider (IT) and their customers (Product Management). SLAs identify the critical business services and underlying IT services provided to fulfill them, their service performance targets, and the metrics associated with these services. Any SLA breaches are noted, and timely reports, with appropriate detail, are distributed to various levels within the organization including senior management. These measures and metrics are re-evaluated on an annual basis as part of FICC's continuous improvement process.

Capacity planning

DTCC's Corporate Capacity Planning and Performance Management Framework provides a governance structure for meeting the requirements of ordinary course business, and for responding to events that may arise as a result of extraordinary market events.

The Corporate Capacity Planning and Performance Management Framework utilizes trend analysis, augmented by annual reviews of business application changes, to forecast the upcoming year's capacity demand for both processor and storage capacity for all data centers. The Framework incorporates business forecasts, application throughput, current capacity and scalability, SLAs, performance management, capacity utilization and capacity modeling and forecasts. The annual reviews encompass business defined factors (i.e., growth, new product lines and new applications, etc.) to adjust the trend projection. Furthermore, the Framework's scope gives priority to and addresses the largest business areas and the associated production processing environments.

DTCC has dedicated capacity planning staff. The Capacity and Performance group is specifically responsible for forecasting and monitoring infrastructure capacity and utilization. Among the area's responsibilities are:

- supporting performance testing in the quality assurance environment in collaboration with the Test Support Group;

- reporting defects found during performance testing;

- researching and recommending tools to improve the efficiency, quality and accuracy of capacity and performance reporting, monitoring, and testing;

- reviewing incidents and problems that have a direct impact on capacity or performance;

- measuring and reporting monthly on DTCC mainframe and distributed systems' usage trends for computer processing unit utilization, memory utilization, persistent storage utilization and traffic and

- recording and reporting available capacity information for mainframe and distributed systems.

The Capacity and Performance group monitors capacity resulting in daily, weekly and monthly usage reports for review by IT Management, and utilizes several real-time performance monitoring tools to identify anomalies and opportunities for efficiency improvements. New systems are stress tested prior to being placed into production. Capacity management information and metrics are provided to the Operating Committee on a quarterly basis, with management presenting capacity planning to the Committee for discussion no less than two times per year. FICC performs stress tests periodically to affirm the ability to process at least two times historical peak volumes. This includes testing prior to implementation of significant application changes and in other circumstances where significant volume increases may be anticipated.

Physical security

Global Security Management utilizes a comprehensive security assessment tool as part of an overall program aimed at developing and maintaining a consistent, structured and integrated methodology for identifying, monitoring, managing and reporting on security risks across physical sites and locations throughout the organization.

The process consists of several components, which include: (a) a Security Vulnerability Assessment checklist that is "risk-specific" and facilitates the analysis and reporting of risk information using a common language and (b) quantitative information, including internal theft events and security breaches, area threat analysis (from a Federal and local perspective) and local area crime statistics to ascertain the effectiveness of current security control structures.

Because of the vast differences in the types of federal and non-public facilities and the variety of risks associated with each of them, there is no single relevant international, national or industry-level standard for physical security by which guidance can be solely taken. Accordingly, select guidance is taken from a number of applicable resources.

Information security

Technology Risk Management ("TRM") manages information security within DTCC, including the clearing agency subsidiaries. This includes responsibility to:

- establish and maintain an information security management framework and an organization with the resources, expertise and training to support DTCC's security strategy;

- define roles, responsibilities and accountabilities for information security strategically plan and coordinate information security efforts throughout the enterprise;

- establish, maintain, communicate and periodically reassess information security policies and a comprehensive information security program that are approved by the Technology Risk Management Steering Committee, MRC and the Board of Directors, and that (1) incorporates relevant industry information security standards and (2) is published and communicated to all DTCC employees and relevant external parties;

- provide annual mandatory and periodic information security awareness, education, training and communication for DTCC employees and relevant external parties;

- identify current and potential legal and regulatory issues affecting information security; and

- perform enterprise-wide threat/vulnerability assessments to facilitate the determination of TRM's investment and remediation priorities.

The objective of the DTCC Information Security Policy is to provide management direction and support for information security in accordance with business requirements and relevant laws and regulations. As there is no single relevant international, national or industry-level standard by which guidance can be solely taken, select guidance is taken, as applicable, from a number of recognized information security standards, including:

- the internationally recognized standard "ISO/IEC 27001:2013—Information technology—Security techniques—Information security management systems—requirements";[83]
- the FFIEC Information Technology (IT) Examination Handbook, which is comprised of several booklets covering a variety of technology and technology-related risk management guidance for financial institutions and examiners;[84] and
- the NIST cyber security framework consisting of standards, guidelines and practices to promote the protection of critical infrastructure.[85]

Business continuity

Business Continuity Management ("BCM") is concerned with the governance and implementation of proactive and reactive measures that help ensure that enterprise and business functions have resilience and recovery capabilities to continue, should a serious event occur. This is done through the: (1) integration and alignment with the various risk functions throughout the organization and sector, (2) development of guidance and standards relating to business continuity and environmental risk, (3) monitoring of compliance and (4) promotion of awareness and education. DTCC's Global Business Continuity Management Policy establishes requirements for how DTCC as a whole, including FICC, will effect and maintain controls that address defined threats that, if not otherwise implemented, could result in a high level of risk to the continuity of enterprise operations. This policy defines the governance structure, high-level roles and responsibilities and framework for DTCC's BCM process.

Given the nature and breadth of significant business disruptive events, BCM aligns its controls to the regional, enterprise, business and support levels, including alignment with each of DTCC's clearing agency subsidiaries. DTCC provides a set of core business processes for each clearing agency subsidiary, including FICC. The business processes have a relative importance based on the service they provide. The ability to deploy sensible and balanced controls, as well as to triage recovery efforts, is based on this relative importance. FICC falls into the top rankings with a goal of two hours for resumption, and a maximum allowable downtime of four hours and fifteen minutes.

On an annual basis, Business Continuity Plans are updated and include a Business Impact Analysis (BIA). The BIA validates the criticality of business areas to ensure the appropriate level of controls.

In support of FICC's business, DTCC has multiple data centers, including in-region and out-of-region sites. In-region sites utilize synchronous data replication between them, maintaining multiple exact copies of core production data in separate locations. Production processing is spread across the in-region data centers. Specifically, primary and secondary sites are within 10 miles of each other, and the tertiary site is approximately 1,500 miles from primary/secondary sites. The out-of-region site contains additional asynchronously replicated copies of production data. The asynchronous nature of the replication to this site is due to the limits inherent in current-day technology. The technology currently permits asynchronous

[83] http://www.iso.org/iso/home/standards/management-standards/iso27001.htm.

[84] http://ithandbook.ffiec.gov.

[85] http://www.nist.gov/cyberframework/upload/cybersecurity-framework-021214-final.pdf.

replication sufficiently timed to ensure that there is no more than a two-minute variance in the data stored at the in-region sites and the data stored out-of-region.

In addition, all critical clearance and settlement transactions utilize private non-Internet networks such as the Securely Managed and Reliable Technology ("SMART"), BT Radianz and the NYSE Secure Financial Transaction Infrastructure ("SFTI") networks. SMART is the primary network that provides connectivity between DTCC and its customers. SMART is a seamless, end-to-end, securely managed private communications system encompassing a geographically dispersed complex of processing centers, communications networks and control facilities. Each element of SMART is highly secure, engineered with multiple independent levels of redundancy. External traffic is split between these connections, which are always active with each having sufficient capacity for the entire traffic volume.

The BCM plans enable DTCC to effectively and efficiently assess the impact of the disruption, organize communication and decision making and coordinate the company's response effort. The BCM Policy includes definitions of the types of communications necessary, the methodology and some template text to execute the plans. Moreover, BCM is typically responsible for the actual management of a crisis event, and its duties internally are to implement the crisis management procedures.

In addition, individual product line and support units are responsible for working with BCM and include a cross section of individuals from various departments throughout the organization, including senior management (decision making), facilities management (locations and safety), human resources (personnel issues and travel), marketing (media contact), finance/accounting (funds disbursement and financial decisions), Operations (Settlement) and Risk Management (Collection of Clearing Fund), among others. In a crisis, BCM will immediately disseminate a message to internal and external audiences to ensure consistent communication to key audiences.

Review and testing

Contingency arrangements are reviewed throughout the year but at a minimum once per product line or support unit. DTCC also conducts facility specific work area recovery exercises throughout the year, but at a minimum once annually.

DTCC works with its customers and other industry infrastructure organizations to discuss the industry's business continuity preparations and DTCC's expectations regarding customers' own business continuity capabilities. Furthermore, DTCC conducts regular "tabletop" exercises to validate how its command teams would respond in the event of a catastrophic loss of the company's headquarters or other locations. As with real events, these various exercises involve debriefing sessions and checklists that are used to identify weaknesses or opportunities for improvement.

DTCC also engages in the following:

- *Ensuring connectivity*—DTCC has telecommunication networks with major participants to ensure continued connectivity for all of DTCC's data processing. This includes the participant's primary locations as well as the participant's backup locations. DTCC has met with several of its larger participants to review geographic diversity of their telecommunications and will continue to meet with others.

- *Connectivity testing*—Each year, DTCC's clearing agency subsidiaries issue Important Notices that establish telecommunications connectivity requirements for major Members and customers. With respect to each Division, FICC requires its larger-volume Members to test their connectivity with

FICC at least once a year. This includes testing of connectivity from the Member's primary and backup locations to several of the DTCC data processing locations.

- *Reg SCI testing* – As a designated Reg SCI entity, FICC performs functional and operational testing with clients that are, taken as a whole, the minimum necessary for the maintenance of fair and orderly markets in the event of the activation of FICC's business continuity and disaster recovery plans.

- *Industry testing*—DTCC participates in industry-wide testing with the Securities Industry and Financial Markets Association, as well as tests conducted by SWIFT, the FRB's Fedwire® Securities Service and other critical vendors. In addition, DTCC representatives participate in several industry committees that focus on business continuity issues at the industry level.

Risks to the FMI's operations and risks posed to other FMIs

As discussed more fully in Principle 3 (Framework for the comprehensive management of risks), given its central role in the U.S. securities markets, FICC potentially poses a number of risks to other entities, while it is also exposed to risks that may originate from other entities.

FICC's material service providers are subject to a comprehensive third party review and vetting process. FICC assesses its material service provider risks periodically, throughout the lifecycle of a third party service provider relationship. This includes protocols for reporting, escalation and remediation of third party risk and potential exposures. Mitigants may take the form of contractual protections, or additional or backup providers where deemed appropriate and feasible. For example, FICC utilizes price feeds from multiple third parties as an additional risk mitigant, and further employs price review and data scrubbing procedures to minimize the risk of using inaccurate prices. FICC's third party risk management processes are also discussed under Principle 3 (Framework for the comprehensive management of risks).

As regards to risks that FICC might pose to other FMIs (where applicable), FICC has agreed communication and escalation processes in the event of system issues to facilitate prompt resolution.

Along with other financial industry organizations, DTCC is an active participant in the Financial Services Sector Coordinating Council for Critical Infrastructure Protection and Homeland Security, a private sector group that interfaces with the U.S. Department of Treasury and the Financial Banking Information Infrastructure Committee on infrastructure protection issues. The FSSCC works to coordinate the financial services industry's initiatives to protect critical financial services infrastructure. The goal is to ensure that these efforts focus on complementary objectives and contribute to achieving the highest possible level of overall industry resiliency.

As noted above, DTCC staff actively participate in SIFMA industry-wide business continuity testing. Some of these tests include FEMA pandemic, cyber security and backup site testing.

DTCC is a member of the Financial Systemic Analysis and Resilience Center (FSARC). The FSARC's mission is to proactively identify, analyze, assess and coordinate activities to mitigate systemic risk to the U.S. financial system from current and emerging cyber security threats through focused operations and enhanced collaboration between participating firms, industry partners, and the U.S. Government.

DTCC is also a member of Sheltered Harbor. Sheltered Harbor is a voluntary industry initiative undertaken by the US financial services sector to enhance the sector's resiliency, and to provide additional protections for consumer account information. Its goal is to extend the industry's capabilities to securely save and restore account data in the event of a loss of operational capability.

Principle 18: Access and participation requirements; CCAS 17Ad-22(e)(18)

Principle 18: Access and participation requirements	**CCAS 17Ad-22(e)(18)**
An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access. ***Key consideration 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. ***Key consideration 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. ***Key consideration 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 covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (18) Establish objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access by direct and, where relevant, indirect participants and other financial market utilities, require participants to have sufficient financial resources and robust operational capacity to meet obligations arising from participation in the clearing agency, and monitor compliance with such participation requirements on an ongoing basis.

FICC's access and participation requirements

With respect to each Division, FICC has established participation criteria and requirements relating to financial resources, creditworthiness and operational capability. These requirements are designed to limit the risks a Member may present to FICC or to each Division's respective membership, while facilitating fair and open access by market participants; they are objective, risk-based, and are set forth in each Division's Rules, which are publicly available on DTCC's website at www.dtcc.com.

In general, FICC Member participation requirements are set forth in GSD Rule 2A (Initial Membership Requirements) and MBSD Rule 2A (Initial Membership Requirements) as well as GSD Rule 3 (Ongoing Membership Requirements) and MBSD Rule 3 (Ongoing Membership Requirements). As indicated in the General Background of FICC in part III of this Disclosure Framework, each Division has several categories of membership. GSD Rule 2A and MBSD Rule 2A provide that an applicant for full-service membership must either be a specified type of legal (regulated) entity or must otherwise demonstrate to the Board of Directors that its business and capabilities are such that it could reasonably expect material benefit from direct access to FICC's services.

Members within the same membership category are subject to the same requirements, although FICC reserves the right to require a Member to furnish such adequate assurances of its financial responsibility and operational capability as deemed necessary or advisable in order to protect FICC and its members. Membership types at each Division differ in terms of their level of reporting requirements, admission and continuance standards and their Clearing Fund requirements.

With respect to each Division, FICC reviews its risk-based membership criteria regularly, and changes to these criteria would be subject to the Proposed Rule Change Process,[86] which is subject to public comment.

Membership application requirements

All applicants for full-service membership must provide FICC with certain information, which is reviewed by FRM to ensure that the applicant has (1) sufficient financial ability to make anticipated contributions to the Clearing Fund and to meet obligations to FICC; (2) either an established business history of a minimum of six months or personnel with sufficient operational background and experience to ensure the ability of the firm to conduct its business with FICC; and (3) appropriate settling and clearing bank arrangements.

1. *Type of Legal Entity*. As set forth in GSD Rule 2A and MBSD Rule 2A, an applicant must be a specified type of legal entity (such as a broker-dealer, bank or other specified entity that, under its regulatory regime, as applicable, may engage in the transactions that will be processed through FICC).

   With respect to GSD, an applicant must either be (i) a bank or trust company chartered as such under the laws of the United States, or a State thereof, or a bank or trust company established or chartered under the laws of a non-U.S. jurisdiction and participates in GSD through its U.S. branch or agency; (ii) a registered government securities dealer; (iii) a futures commission merchant; (iv) an inter-dealer broker; (v) a government securities issuer; (vi) a registered clearing agency; (vii) a registered investment company or (viii) an entity may apply to be a foreign member in one of the existing categories if FICC, in its sole discretion, has determined that the entity: (a) has a home country regulator that has entered into a memorandum of understanding with the SEC regarding the sharing or exchange of information and (b) maintains a presence in the United States, either directly or through a suitable agent.

   With respect to MBSD, an applicant must either be (i) a bank or trust company chartered as such under the laws of the United States, or a State thereof, or a bank or trust company established or chartered under the laws of a non-U.S. jurisdiction and participates in MBSD through its U.S. branch or agency; (ii) a registered securities dealer; (iii) an inter-dealer broker; (iv) an unregistered investment pool; (v) a government securities issuer; (vi) an insurance company;[87] (vii) a registered clearing agency; (viii) a registered investment company or (ix) an entity may apply to be a foreign member in one of the existing categories if FICC, in its sole discretion, has determined that the entity: (a) has a home country regulator that has entered into a memorandum of understanding with the SEC regarding the sharing or exchange of information and (b) maintains a presence in the United States, either directly or through a suitable agent.

   Each Division may make its services available to persons in such other categories as FICC may from time to time determine, subject to any requisite regulatory approval.

2. *Financial Responsibility*. FICC sets financial requirements for establishing and continuing membership that are based on the type of legal entity (such as broker/dealers, banks, trust companies, etc.). In addition, GSD Rule 4 (Clearing Fund and Loss Allocation) and MBSD Rule 4 (Clearing Fund and Loss Allocation) each provide that all Members are required to make a deposit to the Division's Clearing

[86] Described in detail under Principle 1(Legal basis).

[87] Specific requirements for insurance companies would need to be defined through a rule filing.

Fund, as applicable, with the amount of each Member's required deposit being determined by FICC in accordance with the formula in Rule 4 of each Division's Rules.

3. *Operational Capability*. FICC will assess its Members' operational capability both in connection with the application process as well as during periodic reviews. FICC's Operations group, in conjunction with the Relationship Management group, confirms that the applicant will be able to satisfactorily communicate with FICC and to fulfill anticipated commitments to and to meet the operational requirements of FICC with necessary promptness and accuracy, and is able to establish appropriate arrangements to effect obligations to FICC. This includes designating a settling bank that meets FICC's settling bank requirements and designating a clearing bank. Prior to activating membership, FICC applicants are required to conduct testing with FICC (i.e., connectivity testing) to confirm that they are able to transmit files to, and receive files from, FICC.

Finally, all applicants must execute a Membership Agreement, and submit other required membership application documents, under which they agree, among other things, to be bound by FICC's Rules and meet all anticipated financial obligations to FICC.

Before denying a membership application, FICC must provide the applicant with a concise written statement setting forth the specific grounds under consideration upon which any such denial may be based, and notify the applicant of its right to request a hearing to determine whether the application should be denied.

Ongoing compliance with membership requirements

FICC monitors its Members' ongoing compliance with access criteria through review and analysis of financial and operational information and through regular market, news and regulatory monitoring. Pursuant to Rule 3 (Ongoing Membership Requirements) of each Division's Rules, Members are required to provide FICC with regulatory reports and other required financial information timely. This includes annual audited financial statements and monthly or quarterly regulatory reports (e.g., FOCUS or CALL reports), depending on the reporting frequency of the Member, and notification of changes in condition. Members are informed by Important Notice as to the due dates for providing this information.[88]

Pursuant to its Rules, FICC may fine Members that fail to timely provide such information, and those fines are reported to the SEC, as required by Rule 19h-1 under the Exchange Act.

Through FRM, FICC reviews this information to confirm that applicants and Members meet their applicable minimum financial requirements. FRM monitors Clearing Fund requirements throughout the day, and Operations staff monitors the operational capability of FICC Members, as applicable.

As described in Principle 4 (Credit risk), with respect to each Division, FRM utilizes an internal credit risk rating matrix (referred to as the "CRRM") to risk rate U.S. bank, U.S. broker/dealer and foreign bank Members as part of the ongoing monitoring of Member firms. The CRRM is produced systemically from financial data contained in the Members' regulatory reports and from qualitative assessments from Counterparty Credit Risk ("CCR") analysts of FRM. A rating scale of 1 to 7 is utilized, with 1 being the strongest and 7 being the weakest. The key elements used to set a Member's internal credit rating focus on certain quantitative and qualitative factors, as defined by the CRRM, including that firm's capital, leverage, liquidity, profitability, management quality, and market position. Once this rating is generated, it is reviewed by an assigned analyst, and approved by a manager, within the CCR group of FRM. The CCR

[88] FRM may receive FOCUS reports automatically from the Member's designated examining authority, and CALL reports automatically from a third-party vendor.

analyst considers whether other factors, not captured by the CRRM, warrant an override to downgrade the model-generated rating. The resulting rating determines the level of financial review that will be performed on that Member and may impact the Member's Clearing Fund requirement.

Members with a weaker internal credit rating (CRRM-rated a 5, 6 or 7) are automatically placed on FICC's Watch List. Members on the Watch List may be monitored more closely than those with a stronger credit rating.

CCR also maintains an enhanced surveillance list, which consists of Members for which CCR conducts additional surveillance or requires additional information in order to more closely monitor their risk profile. Members can be added to enhanced surveillance for a variety of reasons, including concerns about legal and/or regulatory issues, changes to organizational structure, a Member's liquidity arrangements, available news reports relating to the Member, concern regarding a Member's ability to maintain membership standards, etc. A Member can be subject to enhanced surveillance regardless of its CRRM rating. In addition, Member types not subject to the CRRM may also be subject to enhanced surveillance and be monitored for financial condition and/or operational capability, as FICC deems necessary to protect itself and its Members.

Suspension and orderly exit of Members

Each Division's Rules contain provisions that facilitate the suspension and orderly exit of Members that no longer meet the participation requirements:

- A Member may voluntarily retire from membership by notifying FICC in writing, as provided in GSD Rule 3, Section 13, and MBSD Rule 3, Section 14, as applicable. Notwithstanding any such notification, the Member remains obligated to satisfy any open obligations and liabilities arising out of its membership existing at the time of its notification. A retiring Member will typically designate a retirement date, by which all open activity will be closed out and new activity will no longer be submitted or accepted. FICC issues an Important Notice to Members when a Member voluntarily retires from membership.

- Under GSD Rule 21A (Wind-Down of a Netting Member) and MBSD Rule 15 (Wind-Down of a Member), FICC can facilitate the orderly wind-down of a Member's business when FICC is notified by the Member that it intends to wind-down its business. Under this Rule, FICC may impose conditions on, or take actions with respect to, the "Wind-Down Member" in order to mitigate risk, including (but not limited to) permitting the Wind-Down Member to submit only transactions that serve to support the wind-down, restricting or modifying the Wind-Down Member's use of any or all of FICC's services and requiring the Wind-Down Member to post increased Clearing Fund deposits. FICC will notify the Member, all other Members (via Important Notice) and the SEC when it implements this Rule and determines that the affected Member is a "Wind-Down Member."

- Under GSD Rule 21 (Restrictions on Access to Services) and MBSD Rule 14 (Restrictions on Access to Services), as applicable, FICC has the right to restrict a Member's access to services, by limiting or excluding the Member's participation in one or more classes of transactions or services, or by ceasing to act for the Member generally. Under GSD Rule 22 and MBSD Rule 16, FICC may cease to act for a Member who has become Insolvent. The circumstances under which FICC may cease to act are clearly set forth in the Rules, and include a determination by the Board of Directors or appropriate Board Committee that the Member is no longer in compliance with the membership requirements. If FICC ceases to act for a Member, the Rules provide that FICC must notify the affected Member, other Members (via Important Notice) and the SEC of FICC's action. The Member may request a hearing to consider the decision, which, depending upon the circumstances on which the action was based (such as insolvency or settlement default), may be after the cease to act or suspension takes effect.

GSD Sponsoring/Sponsored Membership Program

Since 2005, GSD has offered a program under Rule 3A that allows qualifying Bank Netting Members to act as "Sponsoring Members" for purposes of sponsoring certain buy-side entities into GSD membership. Under the current program, eligibility to become a Sponsored Member is limited to entities that are SEC-registered investment companies and qualified institutional buyers under Rule 144A of the Securities Act of 1933, or is a legal entity that, although not organized as an entity specifically listed in paragraph (a)(1)(i) of Rule 144A under the Securities Act of 1933, as amended, satisfies the financial requirements necessary to be a "qualified institutional buyer" as specified in that paragraph. For operational and administrative purposes, a Sponsoring Member acts as a processing agent on behalf of its Sponsored Members and establishes an omnibus account for all of its Sponsored Members' activity. Rule 3A contains the requirements and obligations applicable to Sponsoring Members and their Sponsored Members.

GSD CCIT Service

In 2017, GSD implemented its CCIT Service. Under Rule 3B, the CCIT Service enables tri-party repurchase agreement transactions in GCF Repo Securities between Netting Members that participate in the GCF Repo Service and institutional counterparties (other than investment companies registered under the Investment Company Act of 1940, as amended). Under Rule 3B, the institutional counterparties, called CCIT Members, are cash lenders in the transactions submitted to GSD and therefore participate in GSD on a limited basis. Rule 3B sets forth the eligibility requirements for CCIT Members, which include financial responsibility and operational capability requirements.

Principle 19: Tiered participation arrangements; CCAS 17Ad-22(e)(19)

<u>**Principle 19: Tiered participation arrangements**</u>	<u>**CCAS 17Ad-22(e)(19)**</u>
An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements. ***Key Consideration 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. ***Key Consideration 2***: An FMI should identify material dependencies between direct and indirect participants that might affect the FMI. ***Key Consideration 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. ***Key Consideration 4***: An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (19) Identify, monitor, and manage the material risks to the covered clearing agency arising from arrangements in which firms that are indirect participants in the covered clearing agency rely on the services provided by direct participants to access the covered clearing agency's payment, clearing, or settlement facilities.

FICC Members are direct participants of FICC. Indirect participants are firms that rely on the services provided by Members in order to have their activity cleared and settled through FICC's facilities.

Identification and monitoring of indirect participant risk

The risks that indirect participants pose to FICC are identified and monitored as part of the application and on-boarding process for FICC Members and as part of FICC's ongoing Member due diligence process. Among the aims of these processes is for FICC to understand the material dependencies between Members and the indirect participants that rely on them for the clearance and settlement of their transactions, as well as significant Member-indirect participant relationships and the various risk controls and mitigants that Members employ to manage their risks with respect to such relationships.

During the membership on-boarding process, FICC requests and reviews, pursuant to its authority under each of the Division's Rule 2A (Initial Membership Requirements), information from Member applicants regarding the types of businesses they conduct, including the anticipated activity to be introduced to FICC by such applicants on behalf of indirect participants.

Thereafter, as part of its ongoing Member due diligence process, FICC collects information periodically, pursuant to its authority under each of the Division's Rule 3 (Ongoing Membership Requirements) from

Members in order to understand their overall business condition, risk management practices, which may cover operational, credit, legal and other risks, and financial standing, including information related to the indirect participants that rely on them.

In particular, FICC requires that Members submit information regarding the amount of revenue and settlement activity that significant indirect participants represent to the Members, the criteria and procedures used by the Members for on-boarding indirect participants, as well as the risk management policies and procedures employed by the Members for ongoing monitoring and controlling of indirect participant activities such as, trading activity, including limits, acceptable levels of concentration and required levels of liquidity in securities traded.

Management of indirect participant risk

Credit Risk Rating. FICC's review of the information received on indirect participants through its Member on-boarding and periodic Member due diligence processes described above may factor into the qualitative factors that affect FICC's credit risk rating of a Member. As described in further detail in response to Principles 4 (Credit risk) and 18 (Access and participation requirements), the resulting credit risk rating of a Member determines the level of financial review that will be performed on that Member and may impact the Member's Clearing Fund requirement. If FICC believes the CRRM model-generated rating is insufficiently conservative, or deems such action necessary to protect itself and its Members, FICC may opt to use mitigation actions such as the override framework to lower the Member's credit risk rating[89] and/or subject the Member to enhanced surveillance. This would apply if a Member fails to provide sufficient disclosure, as requested during the due diligence process, to allow FICC to assess the risk exposure posed by the Member's activity, including the indirect member's activity.

Monitoring and Margin Collection. As described in further detail in response to Principle 6 (Margin), FICC collects Required Fund Deposits from its Members on a daily basis in accordance with the methodology set forth in each Division's Rule 4 (Clearing Fund and Loss Allocation). Such required Clearing Fund deposits are calculated based on, among risk factors, the trading activity that Members submit to FICC on their own behalf and on behalf of any indirect participants that clear through them. FICC may also require additional ("ad hoc") intraday margin should FICC deem it necessary or appropriate based on intraday market moves and intraday trading activity (whether activity of the Member, or indirect participants who clear through the Member).

Adequate Assurances. FICC also has the authority under each Division's Rule 3 (Ongoing Membership Requirements) to seek adequate assurances from a Member if FICC determines that such adequate assurances are warranted based on its review of such Member's indirect participant relationships.

[89] This may have the effect of placing the Member on the Watch List if, as a result of the downgrade, the final rating is 5, 6 or 7. The Credit Risk Rating Matrix (CRRM) is utilized to risk rate U.S. banks, U.S. broker/dealer and foreign bank Members.

Principle 20: FMI links; CCAS 17Ad-22(e)(20)

Principle 20: FMI links	**CCAS 17Ad-22(e)(20)**
An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks. ***Key Consideration 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. ***Key Consideration 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. ***Key Consideration 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. ***Key Consideration 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. ***Key Consideration 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. ***Key Consideration 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. ***Key Consideration 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. ***Key Consideration 8***: Each CCP in a CCP link arrangement should be able to cover, at least on a	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (20) Identify, monitor, and manage risks related to any link the covered clearing agency establishes with one or more other clearing agencies, financial market utilities, or trading markets.

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. ***Key Consideration 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.	

FICC Identifies, Monitors and Manages Risks Related to Links

FICC maintains a risk review framework that sets forth procedures for both the review and approval of prospective link arrangements, and for the identification, monitoring and management of risks related to established links on an ongoing basis. Prospective links are subject to management and regulatory review and approval, as well as a formal risk assessment process designed to identify the risks inherent in the link and the controls and processes designed to mitigate those risks. Link arrangements are subject to FICC's Rules and relevant agreements between the link parties.

A central element of the risk review framework is input from a cross-functional group of FICC businesses, functional units and control functions with the requisite subject matter expertise relevant to the particular link. The framework addresses the relevant risk categories including, but not limited to, operational, market, credit, liquidity, legal and compliance risks.

FICC reviews changes to relevant laws and regulations as they arise, and makes such changes to its link arrangements (including filing any Proposed Rule Changes or Advance Notices) as may be necessary or appropriate.

FICC has one established link which is between GSD and the CME, as described below.

CME Arrangement

Since 2000, FICC and its predecessors have had in place a cross-margining arrangement with the CME (the "CME Arrangement"). In the CME Arrangement, FICC and the CME each holds and manages its own positions and collateral, and independently determines the amount of margin that it will make available for cross-margining, referred to as the "residual margin amount" that remains after each of FICC and the CME conduct its own internal offset. FICC then computes the amount by which the cross-margining participant's margin requirement can be reduced at each clearing organization—i.e., the "cross-margining reduction"—by comparing each cross-margining participant's residual margin amount (based on related positions) at FICC against the offsetting residual margin amounts of the participant (or its affiliate) at the CME. FICC and the CME may then reduce the amount of collateral that they each collect to reflect the offsets between the cross-margining participant's positions at FICC and its (or its affiliate's) positions at the CME.

The margin savings provided to GSD Members pursuant to the CME Arrangement are monitored by FICC on a daily basis. Any significant change to the CME Arrangement would be subject to a risk analysis, including analysis as to whether such change would allow FICC to remain observant with the applicable requirements of the CCAS and PFMIs. Any change to the cross-margining agreement would generally require a rule filing and be subject to any requisite regulatory approval.

FICC and the CME have satisfied themselves that the provisions of the cross-margining agreement are enforceable under U.S. law and have designed the arrangement to avail themselves of the special protections that are available in the event of the insolvency of a cross-margining participant. The cross-margining agreement also provides for FICC and CME to cooperate to effect an orderly termination of the agreement in the event of a default of either clearing organization, so as to manage the potential spill-over effects from the default of such clearing organization and limit adverse effects on Members.

Principle 21: Efficiency and effectiveness; CCAS 17Ad-22(e)(21)

Principle 21: Efficiency and effectiveness	**CCAS 17Ad-22(e)(21)**
An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves. ***Key consideration 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. ***Key consideration 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. ***Key consideration 3***: An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (21) Be efficient and effective in meeting the requirements of its participants and the markets it serves, and have the covered clearing agency's management regularly review the efficiency and effectiveness of its: (i) Clearing and settlement arrangements; (ii) Operating structure, including risk management policies, procedures, and systems; (iii) Scope of products cleared or settled; and (iv) Use of technology and communication procedures.

Efficiency and effectiveness in the low cost provision of needed services

FICC is efficient and effective in meeting the requirements of its Members and the markets it serves, providing clearing agency services to promote the prompt and accurate clearance and settlement of securities transactions in U.S. markets. Operating as a low-cost financial market utility, FICC strives for maximum efficiency in its operations and technology, and responsiveness to the needs of its Members in the scope of services provided.

Scope of services responsive to market needs

Through each Division, FICC provides clearing, settlement, risk management and central counterparty services, which are part of its fundamental directive as a registered clearing agency under the Exchange Act. In providing these services, FICC seeks to enhance and expand the scope of services it offers to support an evolving market, often in response to initiatives requested by its membership and other industry parties. One example of this approach was the deployment of the Mortgage-Backed Securities Division Novation initiative in 2017, the culmination of a multi-year effort. MBS Novation obviates inefficient bilateral settlement processing, reduces the number of Electronic Pool Notification messages and significantly drives down client cost and risk. This is just one example of FICC's continuing commitment to the evolving needs of the markets it serves.

FICC engages with the industry and evaluates new initiatives, enhancements, strategic thinking and its performance through the following mechanisms:

- FICC employs a structured approach for the implementation and prioritization of new initiatives. The DTCC Investment and Operating Committee oversees the implementation of the New Initiatives Approval Policy and Framework, which defines the process for proposing, evaluating and approving all initiatives. Among other things, the framework ensures new initiatives are fully aligned with the corporate strategy, offer sound financial viability and that risk matters are properly evaluated.

- FICC and its parent company, DTCC, lead strategic thinking across the industry through their development of various White Papers, which are designed to provoke discussions on relevant topics of note in an effort to continually improve the overall market infrastructure. The White Papers are available at www.dtcc.com.

- FICC actively evaluates whether it is meeting and will continue to meet the requirements and needs of its Members through periodic customer satisfaction surveys conducted by DTCC for all of its business lines, including FICC. Relationship Managers are product-aligned to better support the membership.

FICC Members have the opportunity to participate in product development through their involvement in advisory boards and/or ad hoc working groups. Advisory boards are sometimes established to provide guidance, expertise and feedback on various initiatives. FICC also establishes ad hoc working groups, as necessary, in order to assist with more discrete programs, products or processes.

FICC's management team additionally interacts with the industry through (a) industry associations and committees such as SIFMA and Asset Managers' Forum, (b) industry conferences, (c) forums organized by FICC to inform Members of current and new products and services, and (d) onsite Member visits.

Low cost pricing for accessibility of services

FICC's efficiency is ultimately reflected through its pricing. FICC operates a "low cost" pricing model, continually striving to drive down cost in the industry by providing efficient services. In addition to driving down cost, FICC also strives to drive down risk.

FICC has in place procedures to control costs and to regularly review pricing levels against costs of operation. FICC uses a formal budgeting process to control its expenditures. It reviews pricing levels against its costs of operation typically during the annual budget process, providing guidance to the BTOC and to the full Board of the price impact. The budget is reviewed by several Board committees and approved annually by the Board, as is any change in service fees. FICC's fees are cost-based plus a markup as approved by the Board. This markup or "low margin" is applied to recover development costs and operating expenses and to accumulate capital sufficient to meet regulatory and economic requirements. Furthermore, to help promote ongoing efficiency, DTCC maintains a Business Transformation Office, which, for example, employs Quality Reengineering, Six Sigma and Lean techniques, among others, to analyze workflows and make appropriate recommendations for further efficiency improvements.

Membership representation in governance

FICC is a wholly owned subsidiary of DTCC, which, as described in Principle 2 (Governance), is owned and governed by the users of DTCC's three clearing agency subsidiaries. The majority of Directors on the Board are representatives of financial institutions that are significant users of FICC's services. As further described in Principle 2, in addition to management representatives, the Board also includes non-participant directors with industry, regulatory or academic backgrounds important to shaping institutional goals of DTCC and the clearing agency subsidiaries. The Board and its committees are structured so that FICC's operations, delivery systems and technologies, services and products meet the needs of FICC's membership and the markets that FICC serves.

Goals and objectives

Corporate goals are set annually, which are approved by the Board. As applicable, the overarching DTCC corporate goals are used as the framework for the annual goals for each business line and/or control function area. Corporate goals encompass a range of benchmarks, such as service level goals, financial goals and overall business priorities.

To ensure that the goals are clearly defined, measurable and achievable, corporate goals are reviewed by several levels of management, including the Management Committee; they are then reviewed and approved by the Board. Historical results may be used as guidelines to set future targets, as appropriate. Results are tracked monthly by the Management Committee and the Board, with specific attention on those metrics that might be performing below target.

A Corporate Balanced Business Scorecard (BBS) holistically measures corporate performance addressing the strategic direction and health of DTCC and its wholly owned subsidiaries. The BBS is drafted annually by management and approved by the Board, and includes various metrics addressing the customer experience, operational execution, financial performance and human capital performance.

In addition, there are supporting score cards for Operations and Information Technology that focus on additional metrics in those areas.

Processes and metrics

DTCC uses a variety of metrics to measure FICC’s efficiency and effectiveness. In addition to the BBS and monitoring against goals, DTCC employs the following:

- DTCC’s Business Transformation Office evaluates process efficiency and identifies improvement opportunities across the enterprise.

- DTCC also measures the effectiveness of FICC’s technology process through industry standard methodologies, such as Capability Maturity Model Integration, Agile and Information Technology Infrastructure Library (ITIL).

- DTCC’s Application Development group has been assessed by an independent party on process maturity.

- DTCC’s Enterprise Infrastructure organization uses the ITIL framework for continued improvement with respect to IT service management.

FICC evaluates its efficiency and effectiveness at least monthly. This information is communicated to senior management monthly (via the BBS and other score cards) and provided to the Board and/or Board Committees as a standing item during their regularly scheduled meetings.

Principle 22: Communication procedures and standards; CCAS 17Ad-22(e)(22)

Principle 22: Communication procedures and standards	CCAS 17Ad-22(e)(22)
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. ***Key consideration 1***: An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (22) Use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, and settlement.

Communication procedures and standards

FICC's policy on communications procedures and standards provides the manner in which FICC will accommodate relevant internationally accepted communication procedures and standards. Specifically, FICC will support relevant internationally accepted communication procedures and standards where there is industry support, and a business case for implementing such standards. In cases where a business relevant to FICC has decided to adopt an industry standard, FICC will work with the appropriate industry organizations that are defining those standards to ensure FICC's unique needs, given its position in the industry, are met. FICC has adopted the International Standards Organization (IS0) 15022 messaging format, which is used in transactions between financial institutions, for interacting with its Members and other connected parties.

FICC supports industry-standard communication interfaces through a direct interface (direct end-to-end line) via DTCC's SMART network, and through the SFTI® and BT Radianz networks. FICC also supports direct interface through the Internet. These communication interfaces are available for all entities that interface with FICC systems, including any linked FMIs. Members are eligible to use any one or a combination of the communication interfaces supported by FICC. Members identify their communication interface(s) during the on-boarding process and may modify these elections at any time subsequently, as needed.

Principle 23: Disclosure of rules, key procedures and market data; CCAS 17Ad-22(e)(23)

Principle 23: Disclosure of rules, key procedures, and market data	**CCAS 17Ad-22(e)(23)**
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. ***Key consideration 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. ***Key consideration 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. ***Key consideration 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. ***Key consideration 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. ***Key consideration 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.	*Each covered clearing agency shall establish, implement, maintain and enforce written policies and procedures reasonably designed to, as applicable:* (23) Provide for the following: (i) Publicly disclosing all relevant rules and material procedures, including key aspects of its default rules and procedures; (ii) Providing sufficient information to enable participants to identify and evaluate the risks, fees, and other material costs they incur by participating in the covered clearing agency; (iii) Publicly disclosing relevant basic data on transaction volume and values; (iv) A comprehensive public disclosure that describes its material rules, policies, and procedures regarding its legal, governance, risk management, and operating framework, accurate in all material respects at the time of publication, that includes: (A) Executive summary. An executive summary of the key points from paragraphs (e)(23)(iv)(B), (C), and (D) of this section; (B) Summary of material changes since the last update of the disclosure. A summary of the material changes since the last update of paragraph (e)(23)(iv)(C) or (D) of this section; (C) General background on the covered clearing agency. A description of: (1) The covered clearing agency's function and the markets it serves; (2) Basic data and performance statistics on the covered clearing agency's services and operations, such as basic volume and value statistics by product type, average aggregate intraday exposures to its participants, and statistics on the covered clearing agency's operational reliability; and (3) The covered clearing agency's general organization, legal and regulatory framework, and system design and operations; and

	(D) Standard-by-standard summary narrative. A comprehensive narrative disclosure for each applicable standard set forth in paragraphs (e)(1) through (23) of this section with sufficient detail and context to enable a reader to understand the covered clearing agency's approach to controlling the risks and addressing the requirements in each standard; and (v) Updating the public disclosure under paragraph (e)(23)(iv) of this section every two years, or more frequently following changes to its system or the environment in which it operates to the extent necessary to ensure statements previously provided under paragraph (e)(23)(iv) of this section remain accurate in all material respects.

Introduction

With respect to each Division, FICC provides GSD Members and MBSD Members with comprehensive rules and procedures, including its fees. These are readily available on DTCC's website to Members, supervisors and to the public. Through other publications (including this Disclosure Framework) and Member outreach, FICC also provides sufficient information to enable Members to understand the risks, fees and other material costs they incur through membership at FICC.

GSD Rules and MBSD Rules

The GSD Rules and MBSD Rules, as applicable, are filed with the SEC prior to or concurrent with their effectiveness. As discussed under Principle 1 (Legal basis), all Proposed Rule Changes and Advance Notices are posted on DTCC's website, and also published by the SEC on the SEC's website, www.sec.gov, and in the Federal Register (which is published online by the U.S. Government Printing Office). Members are also notified of all Proposed Rule Changes and Advance Notices via Important Notices published on DTCC's website.

Except when filed for immediate effectiveness, publication of Proposed Rule Changes (and of Advance Notices) allows Members and other interested parties the opportunity to comment on proposals, to understand what such proposals provide and how stakeholders may be affected.[90] Rules filed for immediate effectiveness are typically administrative and not controversial. Fee filings may be made immediately effective, but are objective and transparent to Members. Each Division's Rules as in effect, as well as Proposed Rule Changes and Advance Notices, are available to the public via DTCC's website, www.dtcc.com.

All rule changes are subject to internal review and governance before they are submitted to the SEC. Changes to the GSD Rules and MBSD Rules, as applicable, may be initiated from a number of sources, including internal review and lessons learned from actual events or simulations, process or product enhancements, Member feedback and evolving regulatory requirements.

[90] Proposed Rule Changes and Advance Notices follow a format prescribed by the SEC. This includes a narrative description of the relevant proposal, with background information, including the statutory basis for the proposal, and discussion of its impact on Members and stakeholders.

In addition to its Rules, FICC also provides supplementary information on its services through Important Notices and a series of other documents that are made publicly available on www.dtcc.com.

Design and operations

As part of FICC's on-boarding process, Members are provided with information about the design and operations of FICC's systems, including record layouts, if applicable, as well as other technical information necessary for Members to establish connectivity with FICC and interact with FICC's systems.

Information about the design and operations of FICC's systems is also included in service descriptions and other forms of user documentation that are available on www.dtcc.com.

Member rights, obligations and risks

Members' rights, obligations and risks are reflected in the GSD Rules and MBSD Rules, as applicable with respect to each Division, and include, but are not limited to: (i) initial and ongoing membership requirements; (ii) FICC's ability to temporarily suspend, or definitively cease to act on a Member's behalf, with respect to some or all services in enumerated circumstances; (iii) the obligation of Members to make deposits to the Clearing Fund; (iv) the requirement for Members to provide additional assurances of financial responsibility and operational capability, as FICC deems necessary; (v) Members' rights and obligations under the loss allocation process; (vi) Member obligations in their use of FICC's services, including with respect to certain indemnifications of FICC; (vii) Members' obligation for compliance with applicable law; (viii) settlement and payment obligations; (ix) settling bank and clearing bank requirements; and (x) disciplinary sanctions (including fines) and a Member's right to appeal a decision adverse to it. A number of these provisions refer to non-routine, though foreseeable, events, including use of the Clearing Fund for liquidity to complete settlement, and potentially to address uncovered credit losses through the loss allocation process, in the event of a Member failure. Each Division's Rules also provide for authority and reporting of waivers and/or suspension of the Rules, in the event of such a contingency. These provisions recognize, and provide for, a degree of discretion to management, to enable FICC to address situations as facts and circumstances may require.

Training and other resources

FICC offers training to new Members prior to membership activation, which facilitates their understanding of their obligations under each Division's Rules as well as the risks that they may face from joining FICC. Additional training tools to help Members learn how to more effectively use FICC's products and services are made available on www.dtcclearning.com. FICC also provides formal training on an ad-hoc basis to existing Members, upon request.

The initial and ongoing membership requirements serve to demonstrate that each Division's Members are able to: (i) satisfactorily communicate with FICC, (ii) fulfill their anticipated commitments, (iii) meet the operational requirements with necessary promptness and accuracy and (iv) establish appropriate arrangements to effect payment obligations to FICC. Members must demonstrate operational readiness both during the membership on-boarding process before being provided with access to FICC's systems as well as on an ongoing basis as part of their continuing membership requirements. Each FICC Member is assigned a dedicated Relationship Manager or Account Manager who is able to provide a number of resources or one-on-one education as needed to ensure Members understand the applicable Division's Rules, procedures and the risks they face from membership in FICC.

If a Member is observed to be lacking appropriate understanding of the GSD Rules or MBSD Rules, as applicable, FICC's operations or other requirements, the concerned DTCC employee/department will reach out to Relationship Management staff to discuss remedies with the relevant firm's management. Remedial actions to address an apparent lack of understanding of the GSD Rules or MBSD Rules, as applicable, and the obligations and risks of membership may include one-on-one coaching, webinars or other forms of additional training and/or telephone support. FICC also maintains the right to institute disciplinary proceedings, including fines, for a Member's violation of the GSD Rules or MBSD Rules, as applicable.

Fees

With respect to each Division, FICC publicly discloses its fees for services. This information is included in each Division's Rules and is available on DTCC's website, www.dtcc.com.

With respect to each Division, generally, a forecast of fee changes is provided to Members during the third quarter of the year. The fee changes are then finalized, approved by the Board of Directors and filed with the SEC during the fourth quarter of the year with an effective date of the following January 1. FICC notifies Members of all fee and service changes via Important Notices that are available on DTCC's website. Mid-year fee changes (if applicable) are also filed with the SEC, and Members are provided notice of the changes via Important Notice.

In addition, DTCC discloses information on fees charged for operating and maintaining the SMART communications infrastructure that provides access to DTCC's (including FICC's) services. These fees are disclosed in the "Guide to SMART Charges," which is available on DTCC's website, www.dtcc.com.

Disclosure Framework

This FICC Disclosure Framework is available on DTCC's website, www.dtcc.com. FICC updates the Disclosure Framework every two years, at a minimum. In addition, FICC discloses quantitative information specified by CPMI-IOSCO for CCPs. This information is also available on DTCC's website, www.dtcc.com, is updated quarterly, and includes transaction volume and value data.

DTCC discloses other quantitative information regarding FICC in the DTCC Annual Report, which is published annually, and in the FICC financial statements, which are published quarterly. This information, as well as basic data on transaction volumes and values, is available to the public on the DTCC website.

In addition to the information described above, FICC's public disclosures include the following:

1. Important Notices,
2. Proposed Rule Changes and Advance Notices filed with the SEC, and
3. Management's Statements Regarding Internal Controls and Reports of Independent Accountants

Section VI of this Disclosure Framework includes a listing of publicly available resources, including information available on www.dtcc.com, and on other public websites. Additional information is available to Members on www.dtcclearning.com or upon request. All such information is available in English.

Principle 24: Disclosure of market data by trade repositories

Principle 24: Disclosure of market data by trade repositories	**Not applicable for CCAS**
A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs. ***Key consideration 1***: A TR should provide data in line with regulatory and industry expectations to relevant authorities and the public, respectively, that is comprehensive and at a level of detail sufficient to enhance market transparency and support other public policy objectives. ***Key consideration 2***: A TR should have effective processes and procedures to provide data to relevant authorities in a timely and appropriate manner to enable them to meet their respective regulatory mandates and legal responsibilities. ***Key consideration 3***: A TR should have robust information systems that provide accurate current and historical data. Data should be provided in a timely manner and in a format that permits it to be easily analysed.	

FICC is not a TR. Accordingly, Principle 24 does not apply to FICC.

V. Definitions of Key Terms and Abbreviations

Bankruptcy Code	The U.S. Bankruptcy Code
BBS	Balanced Business Scorecard is a component of DTCC’s performance management framework; used to assess DTCC’s contributions to the financial industry and markets throughout the year and measured against corporate priorities
BCM	Business Continuity Management
BRC	Risk Committee of the Board of Directors
CCAS	SEC’s Covered Clearing Agency Standards
CCLF®	Capped Contingency Liquidity Facility
CCP	Central counterparty
CCR	Counterparty Credit Risk group
CFM	Clearing Fund Management System
Clearing Agency	A self-regulatory organization that operates either as a clearing corporation or a central securities depository. A clearing corporation compares and/or records securities transactions, and reports to members the resulting activity; and clears and prepares instructions for the automated settlement of those transactions, often acting as intermediaries or CCPs, in effecting settlement of the transactions. Entities acting as clearing agencies are required to register with the SEC.
CSO	Chief Security Office
Dodd-Frank	The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010
DTC	The Depository Trust Company
DTCC	The Depository Trust & Clearing Corporation
DVP/RVP	Delivery versus payment/Receive versus payment
Eligible Clearing Fund Securities	With respect to each Division, certain eligible securities accepted by FICC as Clearing Fund collateral.
EDM	Enterprise Data Management
EPN	Electronic Pool Notification
ESTC	Enterprise Stress Test Council

Exchange Act	The Securities Exchange Act of 1934
FDIA	The Federal Deposit Insurance Act
FDIC	Federal Deposit Insurance Corporation
FDICIA	The Federal Deposit Insurance Corporation Improvement Act of 1991
FICC	Fixed Income Clearing Corporation
FMI	Financial Market Infrastructure
FORM	Financial and Operational Risk Management
FRBNY	The Federal Reserve Bank of New York
FRM	Financial Risk Management
FRS	Federal Reserve System
GSD Rules	GSD Rulebook
IAD	Internal Audit Department
LNA	Liquid Net Assets
LPRU	Liquidity Product Risk Unit
MBSD Rules	MBSD Clearing Rules
MRC	Management Risk Committee
MRGC	Model Risk Governance Committee
MVC	Model Validation and Control group
NSS	The FRB's National Settlement Service
OCC	The Options Clearing Corporation
OFAC	Office of Foreign Assets Control
OLA	Orderly liquidation authority from Title II of Dodd-Frank
ORM	Operational Risk Management
Reg SCI	Regulation Systems Compliance & Integrity
SEC	U.S. Securities and Exchange Commission

SFTI	NYSE's Secure Financial Transaction Infrastructure network
Shareholders Agreement	The DTCC Shareholders Agreement
SIFMU	Systemically Important Financial Market Utility
SIPA	Securities Investor Protection Act of 1970
SIPC	Securities Investor Protection Corporation
SLA	Service Level Agreement
SMART	DTCC's Securely Managed and Reliable Technology network
TRM	Technology Risk Management
UCC	Uniform Commercial Code; the version of the UCC as adopted in the State of New York is sometimes referred to as the NYUCC
VaR	Value-at-Risk

VI. Additional Publicly Available Resources

1. Statutes, Laws, Regulations and Reports
CPMI-IOSCO Principles for financial market Infrastructures, available at http://www.bis.org and http://www.iosco.org
Exchange Act Rules, available on the SEC website at http://www.sec.gov
Federal Deposit Insurance Act, available on the Federal Deposit Insurance Corporation website at http://www.fdic.gov
Federal Deposit Insurance Corporation Improvement Act of 1991, available on the Federal Deposit Insurance Corporation website at http://www.fdic.gov
New York Business Corporation Law, available at http://public.leginfo.state.ny.us
New York Uniform Commercial Code, particularly Articles, 8 and 9, available at http:/public.leginfo.state.ny.us
Regulation J, available on the Board of Governors of the Federal Reserve System website at http://www.federalreserve.gov; and Operating Circulars 6 and 12, available on the Federal Reserve Bank Services website at http://www.frbservices.org
Securities Exchange Act of 1934, as amended, available on the SEC website at http://www.sec.gov
Securities Investor Protection Act of 1970, available on the SEC website at http://www.sec.gov
Standards for Covered Clearing Agencies, available at http://www.gpo.gov/fdsys/pkg/FR-2016-10-13/pdf/2016-23891.pdf
The Dodd-Frank Wall Street Reform and Consumer Protection Act, available at http://www.gpo.gov/, especially Title II regarding orderly liquidation authority, and Title VIII regarding Clearing and Settlement
Title 11 of the United States Code (The Bankruptcy Code), available at http://uscode.house.gov/
2. FICC and DTCC Documents
Board Code of Ethics, available at http://www.dtcc.com/about/leadership
Board of Directors Committee Charters, available at http://www.dtcc.com/about/leadership/committees
Board of Directors Mission Statement and Charter, available at http://www.dtcc.com/about/leadership/mission-and-charter
FICC and NSCC Quantitative Disclosures for Central Counterparties, available at http://www.dtcc.com/legal/policy-and-compliance

FICC Important Notice with Nominations Solicitations Letter and Procedures for the Annual Nomination and Election of Directors, available at http://www.dtcc.com/about/leadership and http://www.dtcc.com/legal/important-notices
GSD Rulebook, available at http://www.dtcc.com/~/media/Files/Downloads/legal/rules/ficc_gov_rules.pdf
Identification of Board of Directors, available at http://www.dtcc.com/about/leadership/board
Identification of Senior Management Team, available at http://www.dtcc.com/about/leadership/management-committee
Important Notices, available at http://www.dtcc.com/legal/important-notices
MBSD Clearing Rules, available at http://www.dtcc.com/~/media/Files/Downloads/legal/rules/ficc_mbsd_rules.pdf
Principles of DTCC Governance, available at http://www.dtcc.com/about/leadership
Procedures for the Annual Nomination and Election of the Board of Directors, available at http://www.dtcc.com/about/leadership
Rule Filings, Advance Notices and related Regulatory Approval Orders, available at http://www.dtcc.com/legal/sec-rule-filings
White Papers and Industry Reports, available at http://www.dtcc.com/dtcc-connection
3. Financial Statements and Reports
DTCC Annual Reports, including Consolidated Audited Financial Statements, available at http://www.dtcc.com/about/annual-report and http://www.dtcc.com/legal/financial-statements
FICC Audited Financial Statements, available at http://www.dtcc.com/legal/financial-statements
FICC Interim (Unaudited) Financial Statements, available at http://www.dtcc.com/legal/financial-statements