U.S. Securities and Exchange Commission

Staff Report on the Regulation of Clearing Agencies

by

Division of Trading and Markets

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Executive Summary

Since the 2007–2009 financial crisis, market participants, academics, regulators, and the public have paid increasing attention to the market infrastructure that undergirds the global financial system. Recent market volatility, arising in response to the COVID-19 pandemic, emphasizes the ongoing importance of a robust market infrastructure that can respond to unprecedented challenges. In the United States, focus on robust market infrastructure intersects with the longstanding and congressionally mandated oversight by the U.S. Securities and Exchange Commission ("SEC") of the national system for clearance and settlement of securities transactions. The SEC exercises this oversight in a number of ways, most notably by supervising various market intermediaries, including central counterparties ("CCPs"), securities depositories, and other service providers that facilitate clearance and settlement, through a regulatory framework that includes registration requirements and standards for governance, operations, and risk management. Under this regulatory framework, such intermediaries are known as clearing agencies.

In 2010, Congress expanded the SEC's authority over the national system for clearance and settlement to include the regulation of clearing agencies for security-based swaps. In addition, Congress provided that the SEC and the Commodity Futures Trading Commission ("CFTC"), in consultation with the Financial Stability Oversight Council ("FSOC") and the Board of Governors of the Federal Reserve System ("FRB"), may prescribe regulations for the enhanced oversight of systemically important clearing agencies.[1] Currently, the SEC is the supervisory agency for four such clearing agencies:[2] The Depository Trust Company ("DTC"); Fixed Income Clearing Corporation ("FICC"); National Securities Clearing Corporation ("NSCC"); and The Options Clearing Corporation ("OCC").[3] The establishment of an enhanced oversight framework has strengthened the existing collaborative relationship among SEC staff and the staffs of the CFTC and FRB.

In addition, three clearing agencies supervised by the SEC provide CCP services for security-based swaps: ICE Clear Credit ("ICC"), ICE Clear Europe ("ICEU"), and LCH SA ("LCH"). The SEC shares oversight responsibility for each of these clearing agencies with multiple regulatory agencies, including the CFTC, Bank of England, and Autorité des marchés financiers in France ("French AMF"). Sharing regulatory responsibilities with these and other agencies has enabled the SEC to expand its expertise in cross-border issues, helping to ensure that each regulator can pursue and achieve its mandates effectively and efficiently.

Consistent with the new congressional directives, the SEC has taken a number of steps to enhance the regulatory framework for clearing agencies and to ensure that the national system for clearance and settlement remains resilient. Core to these initiatives are new rules establishing heightened standards for governance, operations, and risk management, which the SEC recently extended to all CCPs and central securities depositories.[4] The rules rely on a flexible, principles-based approach to regulation so that

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1 See 12 U.S.C. 5472; see also infra note 73 and accompanying text.

2 See 12 U.S.C. 5462; see also infra note 69 and accompanying text.

3 Although this report concerns the regulation of registered clearing agencies generally, some parts focus specifically on systemically important clearing agencies for which the SEC is the supervisory agency because these clearing agencies are subject to enhanced regulation and can have a unique impact on broader U.S. financial stability. See, e.g., infra Parts III.B (discussing the regulatory framework for systemically important clearing agencies) and V.E (discussing recovery and resolution of systemically important clearing agencies).

4 See infra note 9 and accompanying text.

clearing agencies can effectively adapt their policies and procedures to the markets they serve, the products they clear, and the risks they face. The SEC has also enhanced its supervisory and examination capabilities to monitor effectively clearing agencies as they implement and maintain policies and procedures under the heightened standards established by these rules.

Clearing agencies have undertaken a number of initiatives—including, importantly, efforts related to improving the tools that facilitate financial risk management, such as stress testing and margin calculation—to achieve compliance with the new rules and the heightened standards they represent. SEC staff, in turn, evaluates these initiatives on a dynamic basis, assessing at the time of proposal whether such initiatives are consistent with the outcomes contemplated by regulatory standards, and later examining whether implementation and execution of such initiatives achieve outcomes compliant with those standards. As discussed in detail in this report, SEC staff generally observes that the clearing agencies have made positive strides in pursuing initiatives that are consistent with current regulatory standards for critical market infrastructure. In the staff's view, the current and future success of such initiatives, largely expressed and implemented in the form of clearing agency rulebooks, policies, and procedures, are contingent on a fundamental element: effective governance. Clearing agency governance is critical both to establishing the goals and objectives of the clearing agency and to ensuring clear lines of responsibility within the clearing agency so that board members, senior management, and front-line staff can work effectively to execute their rules, policies, and procedures in a manner that supports the resilience of the national system for clearance and settlement. Rule 17Ad-22 includes several requirements intended to promote effective governance, as discussed further below.[5]

Furthermore, SEC staff observes that the efforts and role of the clearing agencies are not static relative to broader trends prevalent in global financial markets. Events of varying size and scope, at times outside the direct control or influence of the clearing agencies, can have significant impact on operations, priorities, and the availability of resources for these critical market infrastructures. The onset of sudden and unexpected instances of market volatility, as recently observed with the arrival of the COVID-19 pandemic and the various fiscal and monetary responses that ensued, is only the most recent example of this reality. In addition, the SEC's regulatory enhancements and the initiatives undertaken by the clearing agencies have occurred in tandem with a number of broad trends that signal emergent risks or that are likely to have a significant effect on both the national system for clearance and settlement and the global financial markets. As discussed in detail later in this report, in the staff's view the key trends are:

- Heightened regulation of clearance and settlement providers and improved coordination across markets following the 2007–2009 financial crisis;
- Ongoing monitoring of and response to market dynamics related to the COVID-19 pandemic;
- A renewed focus on the current and potential role of central clearing in the U.S. Treasury market;
- Tensions arising from consolidation among market participants, resulting in the potential for concentration of clearance and settlement activity among a smaller set of firms, and risks presented by clearing agencies as single points of failure; and
- Ongoing efforts to ensure that systemically important clearing agencies are resilient in times of financial stress through recovery and resolution planning.

In the wake of these trends—many of which have been highlighted during the response to the COVID-19 pandemic—SEC staff continues to work with domestic regulators and authorities from other jurisdictions

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5 See infra Part III.C (discussing the elements of Rule 17Ad-22).

to share information and develop guidance for the resilient functioning of the national system for clearance and settlement. In the staff's view, the resilience of this system and the entities on which it depends ultimately will be a function of the ability of clearing agencies to implement and maintain effective governance and risk management. Such ability helps ensure that clearing agencies are well positioned to understand and engage effectively with the risks and challenges implicated by these trends and those unseen, including the COVID-19 pandemic.

The purpose of this report is to serve as a vehicle for facilitating discussion of these prevailing trends and related developments in the national system for clearance and settlement since the 2007–2009 financial crisis. To provide a framework for such a discussion, this report:

- Includes a brief history of the national system for clearance and settlement;
- Provides an overview of the SEC's current regulatory framework;
- Describes the SEC's examinations program for clearing agencies;
- Discusses the staff's view of trends relevant to the ongoing development of the national system; and
- Illustrates how the clearing agencies are engaging with these trends by summarizing the recent, relevant initiatives that they have undertaken.

In the conclusion to this report, SEC staff emphasizes the importance of strong governance arrangements and risk management, as well as having robust written rules, policies, and procedures. To achieve real-life outcomes that promote resilience and compliance, rules, policies, and procedures must be well designed to address all risks faced by a clearing agency, updated regularly and thoughtfully as practices or other circumstances change, and subject to sound governance that ensures they will be executed promptly and effectively. Only then can a clearing agency support the ongoing development of the national system for clearance and settlement.

I. Introduction

The SEC has taken a number of steps over the past several years to enhance the regulatory framework for clearing agencies registered with the SEC under the Securities Exchange Act of 1934 ("Exchange Act").[6] In particular, the SEC has adopted: (i) Rule 17Ad-22 in 2012 to establish a comprehensive set of regulatory requirements for governance, operations, and risk management practices of registered clearing agencies;[7] (ii) Regulation Systems Compliance and Integrity ("Regulation SCI") in 2014 to enhance the SEC's oversight and enforcement of the technology and systems infrastructure that supports clearing agencies;[8] (iii) Rule 17Ad-22(e) in 2016 to establish an enhanced regulatory framework for systemically important clearing agencies and clearing agencies for security-based swaps; and (iv) amendments to Rule 17Ad-22 that expand the enhanced regulatory framework to cover all CCPs and central securities depositories.[9] In the staff's view, the heightened requirements for governance reflect a keen recognition that robust governance is essential to sound risk management and that a clearing agency's decisions necessarily have a widespread impact on market participants, financial institutions, global markets, and jurisdictions beyond the United States.

In promulgating these rules, the SEC took a flexible, principles-based approach rather than imposing rigid, prescriptive requirements because clearing agencies serve a variety of markets that are characterized by different trading patterns, volumes, liquidity, transparency, and other characteristics.[10] When determining the content of its policies and procedures, each registered clearing agency must have the ability to consider its unique characteristics and circumstances, including ownership and governance structures, effect on direct and indirect participants, membership base, markets served, and the risks inherent in products cleared.[11] In the staff's view, these differences also necessitate that clearing agencies regularly evaluate, update, and improve their policies and procedures to facilitate prompt and accurate clearance and settlement that is subject to robust risk management.

As summarized in the Appendix, a number of policies and procedures in furtherance of these objectives have been submitted to the SEC for review and approval.[12] These rule changes generally have been designed to improve the safety and efficiency of the clearing agency and to better serve the U.S. securities markets, market participants, and investors. To improve safety and efficiency, however, such policies and procedures must not only be adopted but implemented, maintained, and enforced consistent with the requirements of Rule 17Ad-22 and Regulation SCI.[13] In the staff's view, such an effort requires

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6 15 U.S.C. 78q-1.

7 See Release No. 34-68080 (Oct. 22, 2012), 77 FR 66219 (Nov. 2, 2012) ("CA Standards adopting release"); 17 CFR 240.17Ad-22.

8 See Release No. 34-73639 (Nov. 19, 2014), 79 FR 72251 (Dec. 5, 2014) ("Regulation SCI adopting release"); 17 CFR 242.1000 et seq.

9 See 17 CFR 240.17Ad-22(e); Release Nos. 34-78961 (Sept. 28, 2016), 81 FR 70785 (Oct. 13, 2016) ("CCA Standards adopting release"); 34-88616 (Apr. 9, 2020) 85 FR 28853 (May 14, 2020) ("CCA Definition adopting release").

10 CA Standards adopting release, supra note 7, at 66231–32.

11 CCA Standards adopting release, supra note 9, at 70800.

12 15 U.S.C. 78s.

13 In this regard, staff notes that paragraphs (b), (d), and (e) of Rule 17Ad-22 each direct a registered clearing agency to "establish, implement, maintain and enforce written policies and procedures reasonably

strong governance at each clearing agency that establishes a clear oversight role for the board of directors, maintains effective lines of communication between the board and senior management, promotes compliance with regulatory requirements, and fosters the ongoing development of training and expertise in clearance and settlement systems and processes.

The adoption of Rule 17Ad-22 and Regulation SCI, and the corresponding changes to the rules, policies, procedures, and operations implemented by the respective clearing agencies, have occurred in tandem with a number of emerging trends in the global financial markets. In particular, SEC staff has identified the following as critical to the ongoing development of the national system for clearance and settlement:

- *Heightened regulatory coordination and focus on CCPs across markets.* Immediately following the 2007–2009 financial crisis, regulators across global markets undertook efforts to assess and enhance the regulation of CCPs, particularly with respect to their risk management practices. Recent market volatility in response to the COVID-19 pandemic has underscored the importance of forward-looking risk management practices for all clearing agencies. In addition, increased information sharing and coordination among regulators and across jurisdictions is improving regulators' understanding of the role CCPs play in times of market stress.[14]
- *Monitoring of and response to the COVID-19 pandemic.* The COVID-19 pandemic has increased the potential for market volatility and required clearing agencies to activate business continuity plans. While clearing agencies responded well to the initial market volatility in the United States, they will need to continue monitoring events to ensure that they are well prepared to respond to events that may affect both clearing agency operation and financial risk management.
- *Renewed focus on the current and potential role of central clearing in the U.S. Treasury market.* Following uncharacteristic volatility in U.S. Treasury securities in 2014, U.S. regulators have undertaken several efforts to understand and map the evolving structure of the market, resulting in renewed focus on the role of central clearing for U.S. Treasury securities.
- *Tensions arising from consolidation among market participants and risks presented by clearing agencies as single points of failure.* Some market participants have argued that measures by clearing agencies to enhance their financial resources have reduced direct access to the clearance and settlement infrastructure by medium-sized banks and broker-dealers. In addition, consolidation among providers of clearance and settlement services concentrates clearing activity in fewer providers and has increased the potential for providers to become single points of failure. This raises for clearing agencies the importance of risk management and business continuity planning to promote operational resiliency and presenting opportunities to improve operational resiliency through innovation and new technologies.
- *Efforts in support of resiliency and recovery planning.* Staff continues to engage with the clearing agencies and other regulators to ensure that clearing agencies have robust recovery plans and effective resolution strategies. The increase in market volatility in response to the COVID-19

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designed" to meet the requirements of the underlying rules. 17 CFR 240.17Ad-22(b), (d), (e). Similarly, Rule 1001 of Regulation SCI states that each SCI entity shall "establish, maintain, and enforce written policies and procedures reasonably designed to ensure" that the SCI entity's systems meet the requirements of the rule. 17 CFR 242.1001.

14 See, e.g., infra notes 69–71 (discussing information sharing and coordination under the Dodd-Frank Act).

pandemic provides an instructive example of the type of financial stress that CCPs and other clearing infrastructure must be prepared to manage.

The SEC has developed a regulatory framework that is flexible and principles-based, which enables the framework to address a range of challenges and risks, including any posed by these trends or others. Clearing agencies must be similarly flexible and thoughtful in navigating these challenges, and being successful in doing so will require strong governance practices and robust risk management, as set forth in the SEC's regulatory framework.

To set the stage for a discussion of the above trends, Part II summarizes the historical development of the national system for clearance and settlement. Part III then provides an overview of the current regulatory framework, and Part IV provides an overview of the SEC's examinations program for clearing agencies. Part V discusses the trends important to the ongoing development of the national system for clearance and settlement, and the Annex illustrates the significant initiatives undertaken by the clearing agencies that are reflective of these trends.

II. Development of the National System for Clearance and Settlement

A. Paperwork Crisis and 1975 Amendments

The statutory framework for the national system for clearance and settlement is a product of the "Paperwork Crisis" that occurred in the U.S. securities markets during the late 1960s and early 1970s. This crisis resulted from sharply increased trading volumes and a history of inattention to the need for efficient processing of securities transactions, including the use of inefficient, duplicative and manual processes, poor recordkeeping, and insufficient controls over funds and securities.[15] Together, these problems nearly brought the securities industry to a standstill, and directly or indirectly caused the failure of a large number of broker-dealers.[16] The breakdown in the handling of paper associated with the clearance and settlement of securities transactions threatened to curtail the flow of debt and equity instruments available for public investment and jeopardized the continued operation of the securities markets.[17]

With the objectives of both improving the operation of the U.S. clearance and settlement infrastructure and protecting investors,[18] Congress held extensive hearings to investigate the Paperwork Crisis,[19] and ultimately enacted the Securities Acts Amendments of 1975 ("1975 Amendments"). The 1975 Amendments directed the SEC to facilitate the establishment of a national system for the prompt and

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15 See SEC, Study of Unsafe and Unsound Practices of Brokers and Dealers, H.R. Doc. No. 92-231 (1971) ("Unsafe and Unsound Practices Report"); see also Securities Transactions Settlement, Release No. 34-49405 (Mar. 11, 2004), 69 FR 12922 (Mar. 18, 2004); S. Rep. No. 94-75, at 45 (1975), reprinted in 1975 U.S.C.C.A.N. 179, 183.

16 See Unsafe and Unsound Practices Report, supra note 15.

17 Id.

18 See 15 U.S.C. 78q-1(a)(1)(A)–(D), which lays out the congressional findings for Section 17A of the Exchange Act. In particular, Congress found that inefficient clearance and settlement procedures imposed unnecessary costs on investors and those acting on their behalf and that new data processing and communications techniques create the opportunity for more efficient, effective, and safe procedures for clearance and settlement.

19 See, e.g., Clearance and Settlement of Securities Transactions Hearings on S. 3412, S. 3297, and S. 2551 Before the Subcom. on Banking, Housing and Urban Affairs, 92d Cong. 2d Sess., 95–96 (1972).

accurate clearance and settlement of securities transactions and provided the SEC with the authority to regulate those entities critical to the clearance and settlement process.[20]

B. Clearing for Cash Equities, Options, and Government Securities

Using its new authority under the 1975 Amendments, the SEC began efforts in November 1975 to establish a national system for clearance and settlement by adopting Rule 17Ab2-1 and Form CA-1 for the registration of clearing agencies. Thirteen clearing agencies applied for registration in accordance with the rule.[21] The SEC granted temporary registration to these clearing agencies in December 1975 and instituted proceedings to determine whether to grant full registration to each.[22]

The SEC subsequently extended these temporary registrations several times.[23] To provide guidance to the clearing agencies in structuring their organizations, systems, capacities, and rules to meet the Exchange Act standard for registration, the SEC published in September 1980 standards to be used by SEC staff in reviewing applications and making recommendations to the Commission on whether to grant full registration.[24] In response to the Standards Release, twelve temporarily registered clearing agencies submitted amended applications, and in September 1983 the SEC granted full registration to nine clearing agencies.[25]

Changes in technology and the concentration of securities trading around New York City led to consolidation among clearance and settlement providers in the years since, as discussed further in Part II.F. Today, three of the nine clearing agencies registered in 1983 continue to operate: DTC, NSCC,[26] and OCC.[27] To further serve the markets for cash equities, options, and government securities, the SEC has also granted registration or temporary registration to several other clearing agencies; of those, FICC continues to operate today.[28]

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20 15 U.S.C. 78q-1(a)(2)(A); see also S. Rep. No. 94-75, supra note 15, at 53. Congress provided the SEC with the authority and responsibility to regulate, coordinate, and direct the operations of all persons involved in processing securities transactions, toward the goal of a national system for the prompt and accurate clearance and settlement of securities transactions. Id. at 55.

21 Release No. 34-11875 (Nov. 26, 1975), 40 FR 55910 (Dec. 2, 1975).

22 Release No. 34-12759 (Sept. 1, 1976), 41 FR 38841 (Sept. 13, 1976).

23 E.g., Release Nos. 34-13584 (June 1, 1977), 42 FR 30066 (June 10, 1977); 34-13911 (Aug. 31, 1977), 1977 WL 190688; 34-14531, 43 FR 10288 (Mar. 10, 1978); 34-18584 (Mar. 22, 1982), 47 FR 13266 (Mar. 29, 1982).

24 Release No. 34-16900 (June 17, 1980) 45 FR 41920 (June 23, 1980) ("Standards Release").

25 Release No. 34-20221 (Sept. 23, 1983), 48 FR 45167 (Oct. 3, 1983).

26 DTC and NSCC are subsidiaries of the Depository Trust and Clearing Corporation ("DTCC"), a non-public holding company that owns a number of financial market infrastructures. This report summarizes recent changes submitted by NSCC and DTC and reviewed by the SEC in Part VI.A.

27 See Release No. 34-20221 (Sep. 23, 1983) 48 FR 45167 (Oct. 3, 1983). This report summarizes recent changes submitted by OCC and reviewed by the SEC in Part VI.E.

28 See Release No. 34-69838 (June 24, 2013) 78 FR 39027 (June 28, 2013). FICC is a subsidiary of DTCC and has two Divisions, the Government Securities Division ("GSD") and the Mortgage-Backed Securities Division ("MBSD"). GSD provides CCP services for the U.S. Government securities market, and MBSD

C. Response to the 1987 Market Break

In October 1987, the U.S. securities markets experienced an extraordinary surge in volume and price volatility known as the 1987 market break.[29] On October 19, 1987, or "Black Monday," the Dow Jones Industrial Average ("DJIA") declined an additional 508.32 points. At its low point midday on October 20, 1987, the DJIA had declined over 1,000 points (37 percent).

Many commenters questioned the performance of the national system for clearance during the 1987 market break. A report by SEC staff noted that, while the vast majority of equity trades were cleared and settled within the routine five-business-day settlement cycle and clearing agencies handled potential member defaults well, the record trading volume and price volatility exposed the need for improvements in post-execution trade processing and clearing agency safeguards against member default.[30]

In response to the 1987 market break, the SEC and the clearing agencies undertook many reforms designed to address systemic risk and improve the national system for clearance and settlement. One of the most significant initiatives was shortening the standard settlement time for broker-dealer trades from five business days to three business days ("T+3").[31] Shortening the settlement cycle was one of several measures taken by the securities industry, self-regulatory organizations ("SROs"), and the SEC to improve the operation of the national system for clearance and settlement and to reduce risk. The other measures included improving the confirmation/affirmation process for institutional trades, expanding cross-margining and guarantee arrangements among clearing agencies, and implementing same-day funds settlement.[32] The implementation of a T+3 settlement cycle was widely viewed as a success, and the national system for clearance and settlement continued to be one of the safest and most reliable in the world.[33]

D. Regulation of CCPs for OTC Derivatives

In November 2008, the SEC, in consultation and coordination with the CFTC and FRB, took steps to help facilitate the development of CCPs for over-the-counter ("OTC") derivatives. Specifically, the SEC authorized the clearing of OTC security-based swaps by permitting five clearing agencies to clear credit

provides CCP services for the U.S. mortgage-backed securities market. This report summarizes recent changes submitted by FICC and reviewed by the SEC in Parts VI.A and V.B.

29 See *The October 1987 Market Break*, A report by the Division of Market Regulation, U.S. Securities and Exchange Commission (Feb. 1988).

30 Id.

31 See Release No. 34-33023 (Oct. 6, 1993), 58 FR 52891 (Oct. 13, 1993).

32 Release No. 34-49405 (Mar. 11, 2004), 69 FR 12921, 12926 (Mar. 18, 2004).

33 Id.

default swaps ("CDS") on a temporary conditional basis.[34] The temporary exemptive orders granted to four of these clearing agencies were subsequently extended until July 16, 2011.[35]

E. Security-Based Swaps in the National System for Clearance and Settlement

In 2010, Congress enacted the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank Act"), among other reasons, to promote the financial stability of the United States by improving accountability and transparency in the financial system.[36] Title VII and Title VIII of the Dodd-Frank Act established new requirements with respect to the national system for clearance and settlement.

In the aftermath of the 2007–2009 financial crisis, Title VII provided the SEC and the CFTC with authority to regulate certain OTC derivatives.[37] Title VII was designed to increase the likelihood that, wherever possible and appropriate, swap and security-based swap contracts formerly traded exclusively in the OTC market are centrally cleared.[38]

Title VII also deemed registered as a clearing agency for security-based swaps: (i) any depository institution that cleared swaps as a multilateral clearing organization prior to the date of enactment of the Dodd-Frank Act, and (ii) any derivatives clearing organization registered with the CFTC that cleared swaps pursuant to an exemption from registration as a clearing agency prior to the date of enactment of the

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[34] The SEC authorized five entities to clear CDS. See CDS clearing by ICE Clear Europe Limited, Release Nos. 34-60372 (July 23, 2009), 74 FR 37748 (July 29, 2009) and 34-61973 (Apr. 23, 2010), 75 FR 22656 (Apr. 29, 2010); CDS clearing by Eurex Clearing AG, Release Nos. 34-60373 (July 23, 2009), 74 FR 37740 (July 29, 2009) and 34-61975 (Apr. 23, 2010), 75 FR 22641 (Apr. 29, 2010); CDS clearing by Chicago Mercantile Exchange Inc., Release Nos. 34-59578 (Mar. 13, 2009), 74 FR 11781 (Mar. 19, 2009), 34-61164 (Dec. 14, 2009), 74 FR 67258 (Dec. 18, 2009) and 34-61803 (Mar. 30, 2010), 75 FR 17181 (Apr. 5, 2010); CDS clearing by ICE Clear Credit LLC (formerly ICE Trust US LLC), Release Nos. 34-59527 (Mar. 6, 2009), 74 FR 10791 (Mar. 12, 2009), 34-61119 (Dec. 4, 2009), 74 FR 65554 (Dec. 10, 2009) and 34-61662 (Mar. 5, 2010), 75 FR 11589 (Mar. 11, 2010); Temporary CDS clearing by LIFFE A&M and LCH.Clearnet Ltd., Release No. 34-59164 (Dec. 24, 2008), 74 FR 139 (Jan. 2, 2009).

[35] See Release Nos. 34-63389 (Nov. 29, 2010), 75 FR 75520 (Dec. 3, 2010) (order extending temporary conditional exemptions in connection with request on behalf of ICE Clear Europe, Limited); 34-63390 (Nov. 29, 2010), 75 FR 75518 (Dec. 3, 2010), (order extending temporary conditional exemptions in connection with request on behalf of Eurex Clearing AG); 34-63388 (Nov. 29, 2010), 75 FR 75522 (Dec. 3, 2010) (order extending temporary conditional exemptions in connection with request on behalf of Chicago Mercantile Exchange, Inc.); and 34-63387 (Nov. 29, 2010) 75 FR 75502 (Dec. 3, 2010) (order extending and modifying temporary exemptions in connection with request of ICE Trust US LLC). LIFFE A&M and LCH.Clearnet Ltd. allowed their order to lapse without seeking renewal.

[36] See Pub. L. No. 111-203, H.R. 4173, Preamble.

[37] Title VII provides that the CFTC will regulate "swaps," the SEC will regulate "security-based swaps," and the CFTC and the SEC will jointly regulate "mixed swaps." See Release No. 34-67286 (June 28, 2012), 77 FR 41602, 41603 (July 13, 2012).

[38] See, e.g., Report of the Senate Committee on Banking, Housing, and Urban Affairs regarding The Restoring American Financial Stability Act of 2010, S. Rep. No. 111-176 at 34 (stating that "[s]ome parts of the OTC market may not be suitable for clearing and exchange trading due to individual business needs of certain users. Those users should retain the ability to engage in customized, uncleared contracts while bringing in as much of the OTC market under the centrally cleared and exchange-traded framework as possible.").

Dodd-Frank Act ("Deemed Registered Provision").[39] The Deemed Registered Provision, along with other general provisions under Title VII of the Dodd-Frank Act, became effective on July 16, 2011.[40] As a result, three clearing agencies—ICC (formerly ICE Trust US LLC), ICEU, and Chicago Mercantile Exchange Inc. ("CME"),[41] which were performing CCP functions with respect to CDS in the United States, were deemed registered with the SEC on July 16, 2011.[42]

In December 2016, the SEC subsequently granted registration to LCH in response to an application seeking registration as a clearing agency to provide CCP services for security-based swaps.[43] ICC, ICEU, and LCH continue to operate as clearing agencies that provide CCP services for security-based swaps.

F. Ongoing Developments and Consolidation among Clearing Agencies

Since the enactment of the 1975 Amendments, clearing agencies, broker-dealers, and technology services providers have significantly improved the reliability and efficiency of the national system for clearance and settlement. These improvements have resulted from many incremental changes to clearance and settlement processes over the years, as well as ongoing efforts by the clearing agencies and market participants to automate many of the operational processes related to the clearance and settlement of securities transactions. Such improvements have facilitated, for example, in 2017 further shortening the settlement cycle to T+2.[44]

The staff observes that improvements in operations and technology, as well as the increased concentration of trading activity around New York City, have over time led to the consolidation of clearance and settlement providers, particularly for the cash equities markets, into fewer separate entities, such that the number of registered clearing agencies has significantly declined. In 1987, the Pacific Clearing Corporation transferred substantially all business to NSCC.[45] In 1992, the Pacific Securities Depository Trust Company ceased operations and dissolved.[46] In 1995, the Midwest Clearing Corporation

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39 See 15 U.S.C. 78q-1(l). Under this Deemed Registered Provision, a clearing agency will be required to comply with all requirements of the Exchange Act, and the rules thereunder, applicable to registered clearing agencies to the extent it clears security-based swaps after the effective date of the Deemed Registered Provision, including, for example, the obligation to file proposed rule changes under Section 19(b) of the Exchange Act.

40 See Section 774 of the Dodd-Frank Act (stating, "[u]nless otherwise provided, the provisions of this subtitle shall take effect on the later of 360 days after the date of the enactment of this subtitle or, to the extent a provision of this subtitle requires a rulemaking, not less than 60 days after publication of the final rule or regulation implementing such provision of this subtitle.").

41 CME subsequently withdrew from registration as a clearing agency in 2015. See Release No. 34-76678 (Dec. 17, 2015), 80 FR 79983 (Dec. 23, 2015).

42 Eurex Clearing AG did not meet the criteria in the Deemed Registered Provision and is not currently providing CCP services in the United States with respect to security-based swaps. See, e.g., Release No. 34-64795 (July 1, 2011), 76 FR 39927, 39935 n.76 (July 7, 2011).

43 See Release No. 34-79707 (Dec. 29, 2016), 82 FR 1398 (Jan. 5, 2017).

44 Release No. 34-80295 (Mar. 22, 2017), 82 FR 15564 (Mar. 29, 2017).

45 Release No. 34-66459 (Feb. 24, 2012), 77 FR 12896 (Mar. 2, 2012).

46 Release No. 34-66460 (Feb. 24, 2012), 77 FR 12897 (Mar. 2, 2012).

transferred its business to NSCC,[47] and the Midwest Securities Trust Company transferred its business to DTC.[48] In 1997, the Philadelphia Depository Trust Company transferred its business to DTC.[49] In 1998, the Participants Trust Company merged into DTC.[50] In 1999, the International Securities Clearing Corporation transferred its business to NSCC.[51] In 2002, the SEC approved the merger of the Government Securities Clearing Corporation ("GSCC") and the Mortgage-Backed Securities Clearing Corporation ("MBSCC"), leading to the creation of FICC, which at the time also became a subsidiary of the Depository Trust and Clearing Corporation ("DTCC").[52] Today, DTCC is the holding company for DTC, FICC, and NSCC.

Since that time, staff has observed that registered clearing agencies have made significant strides toward reducing risk in the clearance and settlement system by improving their risk management policies and procedures. The Appendix provides a summary of recent initiatives. However, as discussed in Part V.D, consolidation among providers of clearance and settlement services concentrates clearing activity in fewer providers and has increased the potential for providers to become single points of failure.

III. Regulatory Framework for Clearing Agencies

A. Exchange Act

The Exchange Act sets out the goals of and core elements of the regulatory framework for clearing agencies. In addition to directing the SEC to facilitate the establishment of a national system for the prompt and accurate clearance and settlement of securities transactions, it also directs the SEC to facilitate linked or coordinated facilities for clearance and settlement.[53] In overseeing the national system, it requires that the SEC have due regard for the public interest, the protection of investors, the safeguarding of securities and funds, and maintenance of fair competition among brokers and dealers, clearing agencies, and transfer agents.[54]

Clearing agencies are broadly defined in the Exchange Act,[55] though a large part of the regulatory framework for clearing agencies focuses on CCP and depository activity, and the SEC has historically applied the requirements in Section 17A of the Exchange Act to entities that perform the functions of a

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47 Release No. 34-66458 (Feb. 24, 2012), 77 FR 12896 (Mar. 2, 2012).

48 Release No. 34-66461 (Feb. 24, 2012), 77 FR 12898 (Mar. 2, 2012).

49 Release No. 34-47061 (Dec. 20, 2002), 67 FR 79172 (Dec. 27, 2002).

50 Release No. 34-40357 (Aug. 24, 1998), 63 FR 46261 (Aug. 31, 1998).

51 Release No. 34-42274 (Dec. 27, 1999), 65 FR 311 (Jan. 4, 2000).

52 See Release No. 34-47015 (Dec. 17, 2002), 67 FR 78531 (Dec. 24, 2002).

53 15 U.S.C. 78q-1(a)(2); see also Report of the Senate Committee on Banking, Housing & Urban Affairs, S. Rep. No. 94-75, at 4 (1975) (urging that "[t]he Committee believes the banking and security industries must move quickly toward the establishment of a fully integrated national system for the prompt and accurate processing and settlement of securities transactions").

54 15 U.S.C. 78q-1(a)(2)(A).

55 15 U.S.C. 78c(a)(23)(A). To avoid duplicative regulation, the definition also excludes a number of activities typically performed by other market intermediaries, including national securities exchanges and broker-dealers. See 15 U.S.C. 78c(a)(23)(B).

clearing agency involving U.S. securities to U.S. persons.[56] Where an entity performs the functions of a clearing agency, the Exchange Act requires that a clearing agency's rules and operations meet certain standards.[57] For example, the SEC cannot register a clearing agency unless the clearing agency has the capacity to be able to facilitate the prompt and accurate clearance and settlement of securities transactions and to safeguard securities or funds in its custody or control. It must also assure fair representation of its members and participants in the selection of its directors and the administration of its affairs, and its rules must provide for the equitable allocation of reasonable dues and fees.[58]

Following the registration process, a clearing agency is subject to supervision by the SEC and becomes an SRO subject to the rule filing process in the Exchange Act. Under that process, a clearing agency is required to file with the SEC any proposed rule or proposed change in its rules, including additions or deletions from its rules.[59] The SEC publishes all proposed rule changes for comment and reviews them. Proposed rule changes are generally required to be approved prior to going into effect; however, certain types of proposed rule changes take effect upon filing with the SEC.[60] The rule filing process provides transparency to market participants and the public about new initiatives and changes to governance, operations, and risk management at the clearing agency.

To ensure effective oversight of the clearing agencies, particularly with respect to financial risk management, SEC staff deploys a number of supervisory tools in addition to review of proposed rule changes for consistency with the Exchange Act. SEC staff maintains regular contact with each of the clearing agencies, receives risk reports and other metrics from the clearing agencies with a high degree of frequency, and participates in recurring meetings with each clearing agency focused on a variety of topics related to risk monitoring, governance, internal audit, and other issues. In addition, since the SEC shares oversight responsibility for some clearing agencies with other regulatory agencies, including the CFTC, FRB, Bank of England, and French AMF, SEC staff also coordinates on supervisory matters with other regulatory agencies on a regular basis.

The Exchange Act also provides other tools for supervision. For example, it provides the SEC with authority to adopt rules as necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of the Exchange Act.[61] The primary rules relevant to clearing

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56 See Release No. 34-69872 (Jun. 27, 2013), 78 FR 40220 (Jul. 3, 2013) ("The Commission has required a foreign clearing agency to register or obtain an exemption from clearing agency registration if the foreign clearing agency provides clearance and settlement services for U.S. securities directly to U.S. persons.").

57 See 15 U.S.C. 78q-1(b)(3)(A)–(I) (identifying nine determinations that the SEC must make regarding the rules and structure of a clearing agency to grant registration). In 1980, the SEC published a statement of the views and positions of SEC staff regarding the requirements of Section 17A. See Release No. 34-16900 (June 17, 1980), 45 FR 41920 (June 23, 1980).

58 15 U.S.C. 78q-1(b)(3)(A), (C), (D), (F).

59 An SRO must submit proposed rule changes to the SEC for review and approval pursuant to Rule 19b-4 under the Exchange Act. A stated policy, practice, or interpretation of an SRO, such as its written policies and procedures, would generally be deemed to be a proposed rule change. See 15 U.S.C. 78s(b)(1); 17 CFR 240.19b-4.

60 See 15 U.S.C. 78s(b)(3)(A) (setting forth the types of proposed rule changes that take effect upon filing with the SEC). The SEC may temporarily suspend those rule changes within 60 days of filing and institute proceedings to determine whether to approve or disapprove the rule changes. 15 U.S.C. 78s(b)(3)(C).

61 15 U.S.C. 78q-1(d).

agencies are discussed in Parts III.C and III.D. SEC staff engage in regular examinations of registered clearing agencies to ensure compliance with the Exchange Act and Commission rules thereunder. The SEC also uses its authority under the Exchange Act to initiate and conduct investigations to determine if there have been violations of the federal securities laws,[62] and to institute civil actions seeking injunctive and other equitable remedies and/or administrative proceedings arising out of such investigations.[63]

B. Dodd-Frank Act

Title VII of the Dodd-Frank Act added provisions to the Exchange Act that require clearing agencies for security-based swaps to register with the SEC and that direct the SEC to adopt rules for such security-based swap clearing agencies.[64] Under these provisions, the Commission has authority over the clearing of single-name CDS, which are products that have unique characteristics affecting risk mitigation efforts by clearing agencies and market participants.[65] During the 2007–2009 financial crisis, the SEC had undertaken several measures in coordination with the CFTC and the FRB to improve transparency in the market for OTC credit derivatives,[66] and these efforts resulted in the establishment of CCPs for credit derivatives. Since the adoption of Title VII, the staffs from the SEC, CFTC, and FRB continue to work in close coordination to oversee clearance and settlement providers for security-based swaps, many of which are registered to provider clearing services with multiple regulators.

Title VIII of the Dodd-Frank Act, which enacts the Payment, Clearing, and Settlement Supervision Act of 2010 ("Clearing Supervision Act"), separately provides for the enhanced regulation of clearing agencies that are systemically important financial market utilities ("SIFMUs").[67] Pursuant to the Clearing

62 15 U.S.C. 78u(a).

63 15 U.S.C. 78s(h).

64 15 U.S.C. 78q-1(i), (j); Dodd-Frank Act, Sec. 763(b), 124 Stat. at 1768–69 (adding paragraphs (i) and (j) to Section 17A of the Exchange Act).

65 For example, single-name CDS is characterized by jump-to-default risk and nonlinear payoffs. See CCA Standards adopting release, supra note 9, at 70854–55.

66 See SEC Chairman Cox Statement on MOU With Federal Reserve, CFTC to Address Credit Default Swaps, https://www.sec.gov/news/press/2008/2008-269.htm

67 The definition of "financial market utility" (FMU) in Section 803(6) of the Clearing Supervision Act contains a number of exclusions that include, but are not limited to, certain designated contract markets, registered futures associations, swap data repositories, swap execution facilities, national securities exchanges, national securities associations, alternative trading systems, security-based swap data repositories, security-based swap execution facilities, brokers, dealers, transfer agents, investment companies, and futures commission merchants. 12 U.S.C. 5462(6)(B).

The Clearing Supervision Act provides that the objectives and principles for the risk management standards prescribed under the Clearing Supervision Act shall be to (i) promote robust risk management; (ii) promote safety and soundness; (iii) reduce systemic risks; and (iv) support the stability of the broader financial system. In addition, the Clearing Supervision Act states that the standards may address areas such as risk management policies and procedures; margin and collateral requirements; participant or counterparty default policies and procedures; the ability to complete timely clearing and settlement of financial transactions; capital and financial resources requirements for designated FMUs; and other areas that are necessary to achieve the objectives and principles described above. 12 U.S.C. 5464(b), (c).

Supervision Act, the FSOC has designated as systemically important[68] several clearing agencies for which the SEC is the supervisory agency.[69] Designated SIFMUs are required to file 60-days advance notice of changes to rules, procedures, and operations that could materially affect the nature or level of risk presented by the SIFMU ("advance notice").[70] The Clearing Supervision Act authorizes the SEC to object to changes proposed in such an advance notice, which would prevent the clearing agency from implementing the change.[71] The Clearing Supervision Act also provides for information sharing between the SEC and FRB regarding designated SIFMUs, as well as annual on-site examinations of those SIFMUs conducted by the SEC in which the FRB may also participate.[72] The Clearing Supervision Act further provides that the SEC and CFTC shall coordinate with the FRB to jointly develop risk management supervision programs for SIFMUs.[73] In addition, the Clearing Supervision Act provides that the SEC and CFTC may each prescribe risk management standards governing the operations related to payment, clearing, and settlement activities of SIFMUs for which each is the supervisory agency. In prescribing such standards, it directs the SEC and CFTC to do so in consultation with the FSOC and FRB and to take into consideration relevant international standards and existing prudential requirements.[74]

C. Rule 17Ad-22

In 2012, the SEC adopted Rule 17Ad-22 to strengthen its regulatory framework for clearing agencies with respect to governance, operations, and risk management.[75] The rule includes general requirements for clearing agencies as well as specific requirements for CCPs.[76] The SEC expanded Rule

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68 See 12 U.S.C. 5463. An FMU is systemically important if the failure of or a disruption to the functioning of such FMU could create or increase the risk of significant liquidity or credit problems spreading among financial institutions or markets and thereby threaten the stability of the U.S. financial system. See 12 U.S.C. 5462(9).

69 Section 803(8) of the Clearing Supervision Act defines the term "supervisory agency" in reference to the primary regulatory agency for an FMU. For example, it provides that the Commission is the supervisory agency for any FMU that is a registered clearing agency. See 12 U.S.C. 5462(8). To the extent that an entity is both a clearing agency registered with the Commission and registered with another agency, such as a designated clearing organization registered with the CFTC, the statute requires the two agencies to agree on one agency to act as the supervisory agency, and if the agencies cannot agree on which agency has primary jurisdiction, the FSOC shall decide which agency is the supervisory agency for purposes of the Clearing Supervision Act. See 12 U.S.C. 5462(8).

70 12 U.S.C. 5465(e)(1)(A); 17 CFR 240.19b-4(n). The SEC published a final rule concerning the filing of advance notices for designated clearing agencies in 2012. See Release No. 34-67286 (June 28, 2012), 77 FR 41602 (July 13, 2012); see also 17 CFR 240.17Ad-22(a)(8) (defining "designated clearing agency").

71 12 U.S.C. 5465(e).

72 12 U.S.C. 5466.

73 See 12 U.S.C. 5472; see also Risk Management Supervision of Designated Clearing Entities (July 2011), https://www.federalreserve.gov/publications/other-reports/files/risk-management-supervision-report-201107.pdf (describing the joint supervisory framework of the SEC, CFTC, and FRB) ("Risk Management Supervision Report").

74 See 12 U.S.C. 5464(a)(2). The SEC notes that, under Rule 17Ad-22(a)(8), a SIFMU for which the SEC is the supervisory agency is a "designated clearing agency." See 17 CFR 240.17Ad-22(a)(8).

75 See CA Standards adopting release, supra note 7, at 66225–26; see also 17 CFR 240.17Ad-22.

76 See 17 CFR 240.17Ad-22(b), (d).

17Ad-22 to establish enhanced requirements for SIFMUs and security-based swap clearing agencies in 2016.[77] Rule 17Ad-22(e) built on the existing framework by establishing new requirements for such clearing agencies, which it refers to as "covered clearing agencies." In April 2020, the Commission expanded the scope of covered clearing agencies to include all CCPs and CSDs registered with the Commission.[78]

Rule 17Ad-22(e) requires a covered clearing agency to establish, implement, maintain, and enforce written policies and procedures reasonably designed to address the following topics concerning its operation and governance:

- general organization (including legal basis, governance, a framework for the comprehensive management of risks, and recovery planning);
- financial risk management (including credit risk, collateral, margin, and liquidity risk);
- settlement (including settlement finality, money settlements, and physical deliveries);
- central securities depositories ("CSDs") and exchange-of-value settlement systems;
- default management (including default rules and procedures and segregation and portability);
- business and operational risk management (including general business risk, custody and investment risks, and operational risk);
- access (including access and participation requirements, tiered participation arrangements, and links);
- efficiency (including efficiency and effectiveness and communication procedures and standards); and
- transparency.

In the staff's view, the financial risk management requirements represent areas of particular focus under the SEC's supervisory framework following the 2007–2009 financial crisis. SEC staff believes it is critical for clearing agencies to mitigate counterparty credit risk—the potential that a clearing participant, settlement bank, or custodian will default on an obligation to the clearing agency.[79] Equally critical, a CCP needs to mitigate liquidity risk—the potential that a clearing participant or settlement bank will not be able to make a payment when due (even if it may be able to pay at some future time) and the clearing agency will therefore face a funding shortfall. In SEC staff's view, maintaining high standards for the collateral that a clearing agency will accept by using tools such as haircuts and concentration limits, in conjunction with an effective margin system, are important mechanisms for managing these and other risks.

77 See CCA Standards adopting release, supra note 9.

78 See CCA Definition adopting release, supra note 9.

79 For a derivatives CCP, counterparty credit risk generally arises from the potential that a participant will not meet its margin or settlement obligations or pay any other amounts owed to the CCP.

More broadly, the different elements of Rule 17Ad-22—beyond the financial risk management requirements in Rule 17Ad-22(e)—help ensure that the SEC can efficiently regulate clearing agencies depending on the specific activity and risks that each clearing agency poses to the U.S. markets.[80]

D. Regulation SCI

In 2014, the SEC adopted Regulation SCI to strengthen the technology infrastructure behind the U.S. securities markets by reducing the occurrence of systems issues, improving resiliency when systems problems do occur, and enhancing the SEC's oversight of the technology systems that support market infrastructure like clearing agencies.[81] Since its adoption, the SEC has established a monitoring and examination program to oversee compliance with Regulation SCI, as discussed further in Part IV.B.

Regulation SCI applies to registered clearing agencies,[82] as well as exempt clearing agencies that provide matching services.[83] The technology systems that underpin clearing agency operations are critical systems that drive the global financial markets, and Regulation SCI promotes a number of objectives intending to ensure that these systems are resilient and reliable. Such systems include those that set and calculate margin obligations and other charges, perform netting and calculate payment obligations, facilitate the movement of funds and securities, or effectuate end-of-day settlement. Critical SCI systems like these are held to heightened requirements,[84] including requirements for a two-hour recovery time objective following a wide-scale disruption and broader dissemination of major SCI events.[85] In addition, under Regulation SCI, for clearance and settlement systems to return to "normal operations" following a systems disruption, they must take all steps necessary to effectuate timely and accurate end-of-day settlement.[86]

IV. Overview of the SEC's Examinations Program

The Office of Compliance Inspections and Examinations ("OCIE") is responsible for conducting examinations of registered clearing agencies. OCIE's Office of Clearance and Settlement (OCIE-OCS) and its Technology Controls Program (OCIE-TCP) conduct these examinations and work in coordination with one another to ensure that the programs perform examinations in an effective, efficient, and consistent manner.

A. OCIE-OCS

OCIE-OCS conducts risk-based examinations focused on registered clearing agencies' compliance with the standards set forth in Section 17A of the Exchange Act, the applicable rules thereunder, and the

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80 CCA Standards adopting release, supra note 9, at 70793.

81 See Regulation SCI adopting release, supra note 8.

82 See 17 CFR 242.1000 (providing the definition of "SCI SROs").

83 See id. The exempt clearing agencies that provide matching services are DTCC ITP, Bloomberg STP LLC ("BSTP"), and SS&C Technologies, Inc. ("SS&C"). See Release Nos. 34-44188 (Apr. 17, 2001), 66 FR 20494 (Apr. 23, 2001) (granting an exemption to provide matching services to Global Joint Venture Matching Services US LLC, now known as DTCC ITP); 34-76514 (Nov. 25, 2015), 80 FR 75387 (Dec. 1, 2015) (granting an exemption to provide matching services to each of BSTP and SS&C).

84 17 CFR 242.1000 (providing definitions of "SCI systems" and "critical SCI systems").

85 17 CFR 242.1001(a)(2)(v); 17 CFR 242.1002(c)(3).

86 See id. at 72285 n.395.

clearing agencies' responsibilities as SROs, as described previously in Part III. It also examines exempt clearing agencies, described in Part III.A, to assess whether they are following the conditions of their exemptions and any other applicable SEC rules.[87]

OCIE-OCS conducts a rigorous biannual risk assessment to develop its examination plan, which leverages information from resources across the SEC, other federal agencies, and the clearing agencies. Staff applies the results of its risk assessment process to determine which clearing agencies to examine and which aspects of those clearing agencies' operations to focus on during each examination. Programs and areas of review often include, but are not limited to, core risk management areas such as margin systems, liquidity, default management, operations, and governance. OCIE-OCS may also initiate examinations of clearing agencies during the year based on tips, complaints, referrals, and emerging risk areas.

OCIE-OCS's perennial primary objective is satisfying the requirement in Section 807 of the Dodd-Frank Act that the SEC conduct, at least once annually, examinations of all clearing agencies that are designated as SIFMUs and for which the SEC is the supervisory agency.[88] These examinations must assess, among other things:

- the nature of the operations of, and the risks borne by, each SIFMU;
- the financial and operational risks borne and presented by each SIFMU to financial institutions, critical markets, and the financial system;
- the resources and capabilities of each SIFMU to monitor and control such risks;
- the safety and soundness of each SIFMU; and
- each SIFMU's compliance with the Exchange Act, the Clearing Supervision Act, and the rules and regulations promulgated thereunder.

OCIE fulfills this annual exam requirement by completing at least one risk-based exam of each SIFMU, which covers one or more of its core risk areas and related processes, and whether the SIMFU has remediated prior deficiencies. OCIE-OCS assesses each of the five requirements outlined above in its exams of such core risks, processes, and prior observations. OCIE-OCS staff must consult with the FRB on the scope and methodology of all exams of SIFMUs for which the SEC is the supervisory agency conducted pursuant to the Clearing Supervision Act,[89] and invites FRB staff to participate in all of these exams. Areas of examination focus for OCIE-OCS include:

- *Liquidity and Credit Risk Management*. Registered clearing agencies serving as CCPs play a critical role in reducing systemic risk in the U.S markets given their role as counterparty to all of their members and in ensuring market stability during normal and stressed market conditions. As a result, OCIE-OCS examines whether clearing agencies are effectively measuring, monitoring, and managing liquidity risks arising in and borne by them. Related, and equally important, OCIE-OCS has examined whether clearing agencies have robust margin systems to manage both the credit

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87 In addition to the three exempt clearing agencies that provide matching services and are subject to Regulation SCI, OCIE-OCS also examines Euroclear Bank SA/NV pursuant to the Commission's exemptive order. See Release No. 34-79577 (Dec. 16, 2016), 81 FR 93994 (Dec. 22, 2016).

88 12 U.S.C. 5466; see also supra Part III.B (discussing the requirements under the Clearing Supervision Act).

89 The SIFMUs for which the SEC is the supervisory agency are DTC, FICC, NSCC, and OCC.

exposures to their members and the credit risks arising from their clearance and settlement activities.

- *Default Management and Interconnectedness Risk***.** Beyond collecting sufficient financial resources to avoid a member default, default management is another critical line of defense for clearing agencies. As such, OCIE-OCS also examines whether clearing agencies have the authority and operational capacity to contain losses and manage liquidity demands if one or more of their members were to default and expose the entirety of their membership to material risk of loss. Areas of focus also include evaluating whether clearing agencies have created contingency plans to complete payment, clearing, and settlement processes if business disruptions were to occur. Given the interconnectedness of today's market participants, OCIE-OCS also examines the extent to which clearing agencies consider in their default scenarios the ripple effect caused by a default of one or more large interconnected entities.

- *Regulatory Risk.* With the advent of and significant push towards central clearing, credit, liquidity, and operational risks continue to concentrate within registered clearing agencies. Registered clearing agencies mitigate these risks by complying with the standards in Rule 17Ad-22 and other relevant provisions of the Exchange Act, which set forth a roadmap to identify and mitigate the primary risks arising in and borne by clearing agencies. In addition to the core risk management areas, some of which are highlighted above, OCIE-OCS also examines the clearing agencies' governance structure and reporting, as well as internal audit and legal functions, to assess compliance with these standards.

B. <u>OCIE-TCP</u>

OCIE-TCP provides examination oversight of SCI entities, which include all registered clearing agencies as well as certain exempt clearing agencies (together "SCI clearing agencies"). OCIE-TCP has conducted examinations for compliance with Regulation SCI since the rule's November 2015 general compliance date.

In determining the scope for each exam, OCIE-TCP uses a risk-based approach and considers a number of factors including, for example, identified examination priorities and risks, prior TCP examinations, reported SCI events, and system and staffing changes at the registrant over the prior twelve months. OCIE-TCP also performs examinations when circumstances warrant immediate attention, such as responding to a major SCI event or addressing a referral received from the SEC's Tips, Complaints, and Referrals system.

In its examinations, TCP evaluates SCI clearing agencies for compliance with the requirements of Regulation SCI, including:

- Whether they have established written policies and procedures reasonably designed to ensure that their systems have levels of capacity, integrity, resiliency, availability, and security to maintain their operational capability and promote the maintenance of fair and orderly markets and that they operate in a manner that complies with the Exchange Act;

- Whether they are fulfilling the rule's notification and dissemination obligations in connection to the occurrence of SCI events;

- Whether they are fulfilling requirements related to business continuity and disaster recovery plans testing; and

- Whether they are adhering to the recordkeeping obligations established by rule.

Regulation SCI examinations of SIFMUs often also cover one or more of the five areas required for the annual examinations discussed above.

OCIE-TCP routinely selects specific technical areas in which to focus its examinations. For example, OCIE-TCP has assessed SCI clearing agencies' policies and procedures related to security operations, including areas of governance and risk management, operational capabilities, and monitoring. TCP has also examined SCI clearing agencies to determine whether they are enforcing their vulnerability and patch management policies and procedures as well as to assess the reasonableness of these policies and procedures. OCIE-TCP has additionally focused on whether the Business Continuity Disaster Recovery ("BCDR") plans of clearing agencies include maintaining backup and recovery capabilities that are sufficiently resilient, geographically diverse, and reasonably designed to achieve the recovery time objectives established in Regulation SCI. OCIE-TCP has also reviewed whether these entities are fulfilling the BCDR plan testing requirements.

In recent years, OCIE-TCP has annually provided clearing agencies and certain other registrants an overview of select common examination deficiencies identified during examinations during the prior fiscal year. OCIE-TCP does this to raise awareness of issues that it has observed so that all SCI entities can consider whether those areas warrant focus within their organizations. The issues are included because of their potential impact to SCI entities and the frequency with which they have been observed to occur. Among the topics addressed in these letters are systems development and life cycle management, third party vendor risk and vendor management, business continuity and disaster recovery planning, IT governance, IT asset management, access controls, and vulnerability management. In addition, OCIE-TCP has addressed recordkeeping obligations and notifications that are required to be made to the SEC of SCI events.

C. <u>Examination Process</u>

As mentioned above, OCIE's examinations of registered and exempt clearing agencies, as all of the examinations it conducts, are risk-based. The scope of an exam is determined by an extensive process that takes into account a multitude of factors, including past examination observations and discussions with other SEC divisions and offices. In addition, throughout the examination process, OCIE may consult and coordinate with other SEC staff, including staff in the Division of Trading and Markets.

Examinations may be conducted on an announced or unannounced basis. When the examination is announced, OCIE sends a letter to the clearing agency notifying it of the examination and containing a request list that identifies certain information or documents that OCIE will review as part of the examination. During the course of the examination, OCIE typically visits the physical premises of the clearing agency to conduct examination work. During this time, OCIE conducts interviews of employees, managers, and, in some instances, senior managers and executives. OCIE may also tour the clearing agency's offices to gain an overall understanding of its organization, operations, and control environment.

During or after the on-site visit, the examination team will notify the clearing agency of issues or concerns identified during the examination to that point. During these meetings, the clearing agency will be given an opportunity to discuss any of the issues or concerns identified during the examination and to provide additional relevant information, remedial or otherwise.

The examination staff communicates any deficiencies to the clearing agency through an exit interview and then by issuing a deficiency letter summarizing potential deficiencies and material weaknesses. The examination staff requests that the clearing agencies respond in writing, describing how they will remediate the identified issues. Examination staff conducts follow-up examinations to evaluate the adequacy and timeliness of the clearing agencies' corrective actions. Examination staff may also refer to the Division of Enforcement deficiencies that it observes during an examination of a clearing agency.

D. Coordination with FRB

OCIE consults annually with FRB regarding the scope and methodology of the examinations conducted under the Clearing Supervision Act.[90] During these discussions, SEC and FRB staffs share their current examination priorities for each SIFMU.

Additionally, FRB may participate in SIFMU examinations that the SEC conducts pursuant to the Clearing Supervision Act.[91] Since passage of the Clearing Supervision Act, FRB has participated in nearly every examination conducted by OCIE pursuant to the Clearing Supervision Act, during which FRB staff received examination documentation, participated in interviews of SIFMU personnel, and shared its observations with OCIE.

E. Examination Priorities for 2020

On January 7, 2020, OCIE published its annual examination priorities, including its priorities with respect to clearing agencies, marking the eighth year of publication. Although from year to year OCIE focuses on different aspects of clearing agency operations, during fiscal years 2019 and 2020, OCIE-OCS examinations have covered: (1) compliance with Exchange Act Rule 17Ad-22 and other federal securities laws applicable to registered clearing agencies; (2) whether clearing agencies have taken timely corrective action in response to prior examinations; and (3) other areas identified in collaboration with the SEC's Division of Trading and Markets, as well as with other regulators.

OCIE-TCP priorities remain consistent in evaluating whether SCI entities have established, maintained, and enforced written SCI policies and procedures. Areas of focus in fiscal year 2020 include IT inventory management, IT governance, incident response, and third party vendor management, including the utilization of cloud services.

V. Trends and Other Developments

Below is a non-exhaustive description of certain trends that, in SEC staff's view, signal emergent risks or are likely to have a significant effect on both the national system for clearance and settlement and the global financial markets. SEC staff believes that they warrant continued discussion among the regulatory community and the private sector, and SEC staff intends to use this report to facilitate such discussion, mindful that the efforts and role of the clearing agencies are not static relative to these and other, broader trends prevalent across the global financial markets.

A. Heightened Regulatory Coordination and Focus on CCPs across Markets

Following the 2007–2009 financial crisis, the Group of Twenty ("G20") leaders expressed their view that all standardized OTC derivative contracts should be cleared through CCPs.[92] SEC staff is a key contributor in this ongoing dialogue and works collaboratively on a bilateral basis with domestic regulators and regulators from other jurisdictions to pursue common policy goals and objectives. Furthermore, the Clearing Supervision Act requires that the SEC, when developing rules for SIFMUs, take into account international standards and consult with the FRB and CFTC. Such bilateral engagement with other domestic regulators can help mitigate the potential for redundant regulation for clearing agencies and help ensure that regulations are targeted to appropriate outcomes. Staff also participates in multilateral

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90 See Section 807 of the Dodd-Frank Act.

91 See id.

92 Leaders' Statement at the Pittsburgh Summit (Sept. 24–25, 2009), https://www.treasury.gov/resource-center/international/g7-g20/Documents/pittsburgh_summit_leaders_statement_250909.pdf.

initiatives through the International Organization of Securities Commissions, the Committee on Payments and Market Infrastructures, and the Financial Stability Board ("FSB").

A number of recent market events, including market volatility experienced in response to the COVID-19 pandemic, highlight the benefits that can result from improved coordination. For example, the default in 2018 of a clearing member at Nasdaq Clearing, a European CCP providing clearance and settlement services, provided staff with an opportunity to compare margin requirements, default fund structures, and auction processes at U.S. clearing agencies against a real-word fact pattern, enabling SEC staff to consider and evaluate how such an event in the United States might impact an SEC-regulated CCP.[93] Coordination on both a bilateral basis and in multilateral forums can facilitate information sharing that enables or improves the quality of such internal analyses.

Similarly, the various Brexit scenarios, the COVID-19 pandemic, and other events characterized by the potential for significant price movements have provided a similar opportunity for staff to compare risk models and risk management procedures used by U.S. clearing agencies with those of CCPs serving other markets. In SEC staff's view, large price movements that occurred in cleared asset classes during the COVID-19 pandemic will necessarily become part of a CCP's historical stress scenarios going forward and, in so doing, inform future assessments of the resiliency of a CCP's financial resources.[94] In addition, SEC staff is working with FRB and CFTC staff to develop a framework for conducting supervisory stress tests that would pool knowledge and data from among the different CCP regulators.

B. Monitoring of and Response to the COVID-19 Pandemic

The COVID-19 pandemic resulted in increased market volatility and required clearing agencies to activate business continuity plans under which large percentages of employees have been working remotely. While clearing agencies seem to have responded well to the initial effects of COVID-19 in the United States,[95] they will need to continue monitoring events and market dynamics to ensure that they are well prepared in terms of operation and financial risk management.

SEC staff began monitoring the clearing agencies' pandemic preparations in February 2020, and staff increased its touch points with the clearing agencies to include daily reporting and daily

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93 More recently, during the COVID-19 pandemic, FICC ceased to act for one of its clearing members and subsequently liquidated the member's positions. See DTCC, Important Notice, Mar. 20, 2020, https://www.dtcc.com/-/media/Files/pdf/2020/3/20/GOV857-20.pdf; see also Costas Mourselas, ABN Winds Down Ronin Books After Vix Losses, Risk.net, Mar. 26, 2020, https://www.risk.net/risk-management/7513566/abn-winds-down-ronin-books-after-vix-losses. Although FICC did not allocate losses to other members to liquidate the positions, the event provided staff with an opportunity to evaluate the effectiveness of margin requirements and closeout procedures under a real-world fact pattern.

94 In the staff's view, such historical scenarios would include the effects of fiscal and monetary policy actions (e.g., changes in interest rates, the creation or expansion of available lending programs, asset purchases or sales, and stimulus measures) that took place during this time, as these may also impact CCP risk management, including margin requirements and requirements for prefunded financial resources. While some CCPs already maintained stress scenarios based on historical pandemic events, the market shocks associated with those scenarios have been well below the market movements experienced during the COVID-19 pandemic.

95 CCP12, CCPs Again Demonstrate Strong Resilience in Times of Crisis (July 1, 2020), https://ccp12.org/wp-content/uploads/2020/07/CCPs_again_demonstrate_strong_resilience_in_times_of_crisis.pdf.

communication with senior management on issues related to COVID-19. SEC staff observed a rise in CCP margin requirements beginning in late February that peaked in mid-March. During peak volatility in March, CCP participants generally satisfied intraday margin calls and settlement obligations, and the CCPs did not report credit deterioration among their clearing participants. While margin requirements remain elevated, as markets stabilized following March peaks those requirements have decreased significantly. Nevertheless, this experience has raised concerns regarding the possible pro-cyclical impact of CCP margin practices.[96]

As noted in Part V.A, one U.S. clearing agency ceased to act for a clearing member in March and subsequently liquidated that member's positions without allocating any losses to other members.[97] Staff continues to engage in heightened monitoring of CCP risk management and, as previously noted, SEC staff expects that the large price movements in cleared asset classes during the COVID-19 pandemic will necessarily become part of a CCP's historical stress scenarios going forward.[98] In addition, DTC suspended all physical securities processing services for approximately six weeks to minimize the risk of transmission of COVID-19 among its employees, who would otherwise be on site at DTC's vault that holds physical securities on deposit.[99] While this service disruption did not affect the electronic book-entry settlement of securities transactions, DTC instituted alternative methods of handling certain transactions, such as the use of letters of possession and an emergency rider in connection with underwriting new securities issues.[100]

C. Renewed Focus on the Clearing Infrastructure for U.S. Treasury Securities

The secondary market for U.S. Treasury securities has undergone significant structural changes in recent years as advances in technology, particularly the increased availability of electronic and automated trading tools, have increased access to the market for U.S. Treasury securities by a new and growing set of market participants. In 2018, the Treasury Market Practices Group ("TMPG"), a group of market professionals committed to supporting the integrity and efficiency of the Treasury, agency debt, and agency mortgage-backed securities markets, published a white paper on clearance and settlement in the secondary market for U.S. Treasury securities.[101] The TMPG white paper follows a 2015 joint staff report by the staffs of the Treasury Department, FRB, SEC, CFTC, and Federal Reserve Bank of New York, which

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96 See, e.g., Bank for International Settlements, BIS Bulletin No. 13: The CCP-Bank Nexus in the Time of Covid-19 (May 11, 2020), https://www.bis.org/publ/bisbull13.pdf.

97 See supra note 93 and accompanying text.

98 See supra note 94 and accompanying text.

99 See, e.g., DTCC, Important Notice, May 14, 2020, https://www.dtcc.com/-/media/Files/pdf/2020/5/14/13402-20.pdf; DTCC, Important Notice, Apr. 8, 2020, https://www.dtcc.com/-/media/Files/pdf/2020/4/8/13276-20.pdf.

100 See, e.g., DTCC, Important Notice, Mar. 12, 2020, https://www.dtcc.com/-/media/Files/pdf/2020/3/13/13099-20.pdf.

101 White Paper on Clearing and Settlement in the Secondary Market for U.S. Treasury Securities, TMPG Consultative Paper (July 2018), https://www.newyorkfed.org/medialibrary/Microsites/tmpg/files/CS-DraftPaper-071218.pdf ("TMPG white paper").

analyzed the uncharacteristic volatility that occurred in the U.S. Treasury market on October 15, 2014.[102] The joint staff report found that principal trading firms account for the majority of trading in U.S. Treasury securities, providing the vast majority of market depth, and questioned whether trades cleared by such firms outside of a CCP are subject to the same level of risk mitigation.[103]

Building on the joint staff report, the TMPG white paper maps the current structure of clearance and settlement for U.S. Treasury securities and highlights the lack of common understanding among market participants regarding the risk management implications of these structural changes, particularly the difference in counterparty risk that exists when a transaction is cleared centrally versus bilaterally.[104] The TMPG white paper explains how principal trading firms—those that typically use high speed and other algorithmic trading strategies—primarily clear their transactions bilaterally.[105] The TMPG white paper notes that "a majority of trades in the secondary Treasury market now clear bilaterally, a trend that is contrary to the direction of recent regulatory requirements in other markets."[106] In recognition of the potential risk management implications of the different mechanisms for clearance and settlement in the market for U.S. Treasury securities, the TMPG followed the white paper in 2019 with a summary of best practices for clearance and settlement, emphasizing for market participants the importance of understanding the level of counterparty risk each faces during clearance and settlement.[107]

Following the TMPG white paper, DTCC also published a white paper exploring the risk and resiliency issues raised by bilateral clearing for U.S. Treasury securities and describing recent initiatives by FICC to promote growth in central clearing.[108] In its white paper, DTCC describes the different types of risks that apply to bilateral clearing of U.S. Treasury securities, including: intraday and overnight counterparty credit risk; the potential for variation in risk mitigation techniques among bilateral counterparties, including with respect to margin collection, loss sharing arrangements, and balance requirements; the use of uncommitted arrangements to fund balances; and the reduced ability to net down or offset transactions.[109] DTCC also describes two programs at FICC intended to promote access to central clearing: (i) the Sponsored Membership Program, and (ii) the Centrally Cleared Institutional Triparty ("CCIT") service.[110] Following SEC review and approval of the Sponsored Membership Program, FICC expanded the range of firms that could participate in and the types of trades eligible for the program

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102 Joint Staff Report: The U.S. Treasury Market on October 15, 2014 (July 2015), https://www.treasury.gov/press-center/press-releases/Documents/Joint_Staff_Report_Treasury_10-15-2015.pdf ("joint staff report").

103 Joint staff report, supra note 102, at 6.

104 TMPG white paper, supra note 101, at 1.

105 Id. at 1, 10.

106 Id. at 2.

107 Best Practices for Treasury, Agency Debt, and Agency Mortgage-Backed Securities Markets (July 2019), https://www.newyorkfed.org/medialibrary/Microsites/tmpg/files/TMPG_BestPractices_071119.pdf.

108 Central Clearing in the U.S. Treasury Cash Market: Risk Mitigation Benefits and Initiatives for Promoting Further Adoption (May 2019), http://www.dtcc.com/~/media/Files/Downloads/WhitePapers/FICC-Central-Clearing-WP-Treasury-Market ("DTCC white paper").

109 DTCC white paper, supra note 108, at 2.

110 Id. at 5–6; see also infra notes 142–144 and accompanying text.

in 2017 and 2019, providing institutional investors with increased access to central clearing.[111] In 2017, FICC also expanded its GCF Repo Service to create the CCIT, which provides CCP services to transactions between its netting members and eligible institutional moneylenders.[112]

The Commission has previously noted that central clearing generally benefits the markets in which it is available, but clearing agencies can pose risk to the financial system as a whole, due in part to the fact that central clearing concentrates risk among the participants in the clearing agency.[113] Consequently, increased central clearing—or, for example, a move from voluntary clearing to mandatory clearing, holding the volume of transactions constant—would increase economic exposures against the clearing agency, and increased exposures raise the possibility that clearing agencies may serve as a transmission mechanism for systemic events. In SEC staff's view, proper risk management can help to mitigate these effects, and expanding access to central clearing to more market participants using existing CCPs can be a tool for promoting financial stability. The staff notes that it is important to balance the potential benefits of central clearing against the potential resulting changes in market structure and concentration of risk that may result as more market participants gain access to the CCP. In SEC staff's view, further coordination might be useful among domestic regulators to consider what tools might be appropriate mechanisms for improving risk mitigation in the bilateral market for U.S. Treasury securities.

D. Consolidation among Clearance and Settlement Providers and the Risks Associated with Single Points of Failure

Consolidation among market participants has continued in recent years, resulting in the increased concentration of clearance and settlement activity among a smaller set of firms. For example, in the secondary market for U.S. Treasury securities, one U.S. commercial bank offers settlement services to broker-dealers, down from half a dozen providers in recent decades.[114] Similarly, over ninety percent of the total notional amount of the U.S. market in credit derivatives is concentrated in four U.S. commercial banks.[115] In response to this trend, some market participants have stated that measures by CCPs to enhance their financial resources and meet the requirements of Rule 17Ad-22 have reduced direct access to the clearance and settlement infrastructure by small and medium-sized banks and broker-dealers.[116]

The CCPs for security-based swaps have undertaken initiatives to expand access to central clearing. For example, prior to its registration as a clearing agency, LCH designed and began offering a new membership tier to institutions that met existing membership criteria but chose not to be direct clearing members because of the price contribution and auction-bidding obligations required of all such

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111 DTCC white paper, supra note 108, at 5; see also infra note 143 and accompanying text.

112 DTCC white paper, supra note 108, at 6; see also infra note 144 and accompanying text.

113 CCA Standards adopting release, supra note 9, at 70849.

114 Katy Burne, BNY Government Securities Unit Formed to Settle Treasury Trades, Wall Street Journal, May 31 2017, https://www.wsj.com/articles/bny-government-securities-unit-formed-to-settle-treasury-trades-1496234700.

115 See Office of the Comptroller of the Currency, Quarterly Report on Bank Trading and Derivatives Activities, Third Quarter 2019, graph 4 (Dec. 2019), https://www.occ.gov/publications-and-resources/publications/quarterly-report-on-bank-trading-and-derivatives-activities/files/pub-derivatives-quarterly-qtr3-2019.pdf.

116 See, e.g., CCLF Order, infra note 141, at 55432–33 & n.102.

members.[117] Similarly, in the market for U.S. Treasury securities, FICC has introduced initiatives designed to improve access to central clearing, as discussed in Part V.B.[118]

In the staff's view, concerns about consolidation among clearing members and concerns about reduced access to central clearing highlight the complex balancing of benefits and costs that come with the provision of central clearing. As the Commission has previously explained, CCPs can promote lower transaction costs relative to bilateral clearing because CCPs provide a centralized risk management function that promotes a more efficient allocation of risk among market participants.[119] The Commission has also noted, however, that incentives for sound risk management at the CCP may be tempered by pressures to reduce the CCP's costs and maximize profits.[120] In this regard, the Commission has explained that CCPs necessarily make decisions that result in tradeoffs between the costs and benefits of risk management, and that those decisions are not always socially efficient because the decision-making process may not fully reflect the costs and benefits that accrue to other financial market participants.[121] The Commission has further explained that, even if the clearing agency does internalize the costs that it imposes on its own participants, it may still fail to internalize the consequences of its risk management decisions on other financial market participants who have relationships with clearing members.[122]

Thus, as a clearing agency considers ways to improve its risk management framework, it may have to weigh the benefits of such risk management against the costs of providing it, including the effect of those increased costs on incentives to clear and access to the clearing agency, while remaining mindful of the requirements in Rule 17Ad-22. In the staff's view, because access to clearing and sound risk management are both critical to a well-functioning CCP and to overall financial stability,[123] clearing agencies must endeavor to consider the full range of costs and benefits to market participants when undertaking new initiatives.

As described in Part II.F, consolidation has also occurred among clearing agencies themselves. Consolidation across the market for clearance and settlement, when considered alongside efforts to increase access to and reliance on CCPs, creates the potential for clearing agencies to become single points of failure within the broader market infrastructure. As a result, clearing agencies that experience operational disruptions or outages can pose a danger to the functioning of the broader financial system, similar to the danger posed by their potential to transmit systemic risk. Single points of failure in market infrastructure highlight the importance of and necessitate operational resilience and robust operational

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117 Letter from Francois Faure, Chief Compliance Officer, LCH to Parisa Abadi, CFTC, July 8, 2016, https://www.lch.com/sites/default/files/media/files/LCH_Select%20Membership_Self%20Certif_8%20July%202016.pdf.

118 See supra Part V.B; notes 108–112 and accompanying text.

119 CCA Standards adopting release, supra note 9, at 70866.

120 Id. at 70849.

121 Id.

122 Id. at 70849–50.

123 See, e.g., Mark Paddrik & Simpson Zhang, Central Counterparty Default Waterfalls and Systemic Loss, 4 (June 2020), https://www.financialresearch.gov/working-papers/files/OFRwp-20-04_central-counterparty-default-waterfalls-and-systemic-loss.pdf ("We estimate the resilience of the default waterfall if participation in central clearing is also reduced. We find that the changes in central clearing participation can have a large impact on the resilience provided by requiring more waterfall resources.").

risk management. Operational risk can arise from an array of sources, including, among others, deficiencies in information systems or internal controls, human errors or misconduct, management failures, unauthorized intrusions into corporate or production systems, or disruptions from external events such as natural disasters.[124] Rule 17Ad-22 and Regulation SCI contemplate the development by clearing agencies of a comprehensive framework for managing operational risks and ensuring systems integrity. Indeed, the rising importance of and attention to systems disruptions, business continuity planning,[125] and cybersecurity issues only further emphasize the need for a comprehensive framework that promotes systems availability and integrity. In this regard, OCIE recently published staff observations on cybersecurity and resiliency highlighting the important role that governance, risk management, incident response, vendor management, and training play in mitigating operational risk.[126]

To the extent that consolidation and heightened regulation of clearing agencies may serve as barriers to entry in the market for clearance and settlement—further raising the potential for a clearing agency to be the sole provider of a given service—new technologies may present opportunities to mitigate the risk of resulting single points of failure. For example, distributed ledger technology potentially could help reduce risks arising from a single point of failure.[127] With respect to clearance and settlement for securities, a clearance and settlement provider using distributed ledger technology could authorize participants in its network to propose, validate, and record updates to a synchronized ledger of transactions distributed across the network. If the ledger of a participant in the system became inoperable or compromised, the other participants potentially could continue to facilitate the processing of transactions. That said, while distributed ledger technology may have the potential to reduce certain risks, it introduces new questions regarding scalability, information security, interoperability, and governance. SEC staff continues to monitor and engage with market participants pursuing the use of distributed ledger technology in the market for clearance and settlement.[128]

In addition, SEC staff believes that new technologies could also be useful in assessing whether and how linkages and other redundancies could be added to existing market infrastructure to promote resiliency. For example, such technologies could facilitate the creation of backup clearing agencies or backup services, which could be used to reduce the prevalence of single points of failure in the current market infrastructure. In 2015, the Commission noted its belief that, on balance, the redundancy created by more interfaces and linkages within the clearance and settlement infrastructure increases resiliency and makes it more likely that market participants can continue to clear and settle trades in the event of a

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124 CCA Standards adopting release, supra note 9, at 70837.

125 For example, business continuity planning at the clearing agencies has included pandemic scenarios that contemplated the need for employees to work remotely at scale and the possibility of encountering differing circumstances across geographic locations.

126 OCIE, Cybersecurity and Resiliency Observations (2020), https://www.sec.gov/files/OCIE%20Cybersecurity%20and%20Resiliency%20Observations.pdf

127 Committee on Payments and Market Infrastructures, Distributed Ledger Technology in Payment, Clearing, and Settlement: An Analytical Framework (Feb. 2017), https://www.bis.org/cpmi/publ/d157.pdf.

128 See, e.g., Paxos Trust Company, LLC, SEC No-Action Letter (Oct. 28, 2019), https://www.sec.gov/divisions/marketreg/mr-noaction/2019/paxos-trust-company-102819-17a.pdf; DTCC, Project ION Case Study (May 2020), https://www.dtcc.com/~/media/Files/Downloads/settlement-asset-services/user-documentation/Project-ION-Paper-2020.pdf.

disruption.[129] Regardless of the ultimate technology or mechanism employed, SEC staff believes that existing rules for clearing agencies, including Rule 17Ad-22 and Regulation SCI, provide for a technology-agnostic regulatory framework designed to ensure that clearing agencies consider risks that may result from being a single point of failure and to accommodate a range of different solutions.

E. Efforts in Support of Resilience and Recovery Planning

In SEC staff's view, the disorderly failure of a systemically important clearing agency would pose a significant threat to the functioning of the U.S. securities markets and the broader financial system. Strong governance, operations, and risk management are important to ensuring that clearing agencies remain resilient during extreme but plausible stress scenarios. Systemically important clearing agencies must also anticipate and prepare for circumstances under which its business-as-usual operations may be insufficient to enable it to continue to provide critical services. Indeed, the clearing agency needs a concrete, actionable plan to continue to provide critical services in the face of extreme financial stress. To prepare for such a scenario, the clearing agencies have submitted, and the SEC has reviewed and approved, key aspects of their recovery plans.[130]

To be viable, a recovery plan should consider, in SEC staff's view, the need to close out multiple participants in default, balance positions to restore a matched book, address uncovered losses, liquidity shortfalls, or capital inadequacies, and replenish prefunded financial resources deployed prior to or during recovery. Because the markets they serve and the products they clear have unique characteristics, each of the clearing agencies may employ different tools as part of its recovery plan to achieve these objectives. In addition, because markets are dynamic and ever evolving—they may, for instance, see the introduction of new products, new types of market participants, new trading venues or practices, and new clearing mandates—so too must recovery plans adapt to ever-changing market circumstances. This will necessarily require that the clearing agencies evaluate, on an ongoing basis, the viability of their recovery plans and the effectiveness of any recovery tools. SEC staff expects that recovery planning will continue to be an area requiring heightened focus in the coming years.

Separate but distinct from recovery is the concept of resolution. Resolution describes the process by which resolution authorities would resolve a clearing agency that can no longer continue as a going concern. Resolution planning considers the strategies that the resolution authority would deploy to ensure the continuity of systemically important functions through sale or transfer and to achieve the orderly wind-down of the failed clearing agency. Given the close conceptual link between recovery and resolution, the role of the supervisory agency in overseeing recovery and the role of the resolution authority in carrying out a resolution, cross-jurisdictional cooperation among regulators is critical to ensuring effective planning on both fronts. SEC staff believes that the supervisor and the resolution authority should be working as a close team, such that, for example, the supervisor is thinking about when to involve the resolution authority in the recovery process as recovery begins. SEC staff also believes that such coordination should occur as soon as practicable in the recovery process.

With respect to resolution strategies more generally, the FSB published in 2017 *Guidance on CCP Resolution and Resolution Planning*, a report addressing, among other topics: the objectives of CCP resolution and resolution planning, the timing of entry into resolution, allocation of losses to equity

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129 See Release No. 34-76514 (Nov. 24, 2015), 80 FR 75387, 75401 (Dec. 1, 2015).

130 The proposed rule changes implementing recovery and wind-down plans for the clearing agencies are summarized in the Appendix. See infra notes 138, 165, 174, and 188.

holders in resolution, and crisis management groups ("CMGs") to coordinate resolution planning.[131] The guidance also addressed financial resources for CCP resolution and the treatment of equity in CCP resolution, two areas of continued work to determine whether additional guidance is appropriate.[132] Staff continues to participate in the development of this work, and to coordinate with its fellow regulators charged with a role in the resolution of CCPs. SEC staff also has begun to consider whether CMGs may be appropriate for systemically important clearing agencies that provide CCP services in multiple jurisdictions.

VI. Conclusion

The national system for clearance and settlement continues to develop in tandem with evolutions in market and trading practices, new technologies, and the risks and elements implicated by trends discussed in this report and those yet to come. Staff believes it is critical for clearing agencies to be dynamic in thinking about and reacting to trends in the market place, as such trends can illuminate new risks and new thinking about issues in clearance and settlement.

Critically, strong governance arrangements and robust risk management can help ensure that clearing agencies remain positioned to be dynamic amidst emerging trends and changes in the global financial system. As SEC staff has emphasized throughout this report, robust written rules, policies, and procedures are important to clearing agency functioning, but represent only the first step in achieving resilience and compliance. To achieve real-life outcomes that promote resilience and compliance, rules, policies, and procedures must be well designed to address all risks faced by a clearing agency, updated regularly and thoughtfully as practices or other circumstances change, and subject to sound governance that ensures they will be executed promptly and effectively. Only then can a clearing agency support in a positive way the continued development of the national system for clearance and settlement.

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131 FSB, Guidance on Central Counterparty Resolution and Resolution Planning (July 5, 2017), https://www.fsb.org/wp-content/uploads/P050717-1.pdf.

132 Recently, the FSB published further guidance on this topic for public consultation. See FSB, Guidance on Financial Resources to Support CCP Resolution and the Treatment of CCP Equity in Resolution (Consultative Document) (May 4, 2020), https://www.fsb.org/wp-content/uploads/P020520.pdf.

Appendix: Staff Summary of Recent Rule Changes and Advance Notices

A. DTC, FICC, and NSCC

The SEC is the supervisory agency for DTC, FICC, and NSCC, each a SIFMU since 2012. Because they are subsidiaries of DTCC, they often submit parallel changes to the SEC for review, so for clarity and brevity this section discusses the three clearing agencies together.

DTC provides CSD services for U.S. securities transactions in various types of eligible securities including, among others, equities, warrants, rights, corporate debt and notes, municipal bonds, government securities, asset-backed securities, depositary receipts, and money market instruments. FICC consists of two divisions, the Government Securities Division ("GSD") and the Mortgage-Backed Securities Division ("MBSD"). GSD provides CCP services for its customers with respect to the U.S. government securities market, and MBSD provides CCP services to the U.S. mortgage-backed securities market. NSCC serves as a CCP for virtually all broker-to-broker trades involving equities, corporate and municipal debt, American depositary receipts, exchange-traded funds, and unit investment trusts. NSCC nets and trades payments among its participants, reducing the value of payments that need to be exchanged by an average of 98 percent each day, and in 2018, cleared trades with an average daily value of $1,269.7 billion and an average daily volume of 106.2 million.[133]

Since the adoption of Rule 17Ad-22, the SEC has considered and approved a variety of rule changes proposed by DTC, FICC, and NSCC to enhance risk management.[134] Set forth below is a summary of significant changes, beginning with proposals addressing frameworks submitted with respect to each registered clearing agency, and then describing those that are specific to a particular clearing agency's individual initiatives.

- *Market Risk.* DTC, FICC, and NSCC adopted the Clearing Agency Stress Testing Framework setting forth the procedures for identifying, measuring, monitory, and managing each respective clearing agency's credit exposure to its members. Specifically, the framework describes: (i) the sources of each clearing agency's total prefunded-financial resources; (ii) their respective stress-testing methodologies; (iii) their respective stress-testing governance and execution processes; and (iv) their respective model validation practices.[135]

- *Credit Risk.* DTC, FICC, and NSCC adopted enhancements to the shared credit risk rating matrix ("CRRM") to help the clearing agencies evaluate the credit risks posed by certain members of each of the respective clearing agencies, as a result of providing services to such members. The enhancements enabled the CRRM to: (i) evaluate the credit risks of foreign banks and foreign trust

133 DTCC, 2018 Annual Report, http://www.dtcc.com/annuals/2018/.

134 Depending on the form of the particular proposed rule change discussed in this and the following sections, the SEC's consideration of these changes has either been in the form of approving a proposed rule change, issuing a notice of no objection to an advance notice, or both. For ease of review, this discussion simply discusses the respective registered clearing agency's proposals, all of which have either been approved or not objected to by the SEC unless noted otherwise.

135 Release No. 34-82368 (Dec. 19, 2017), 82 FR 61082 (Dec. 26, 2017) (SR-DTC-2017-005; SR-FICC-2017-009; SR-NSCC-2017-006), https://www.sec.gov/rules/sro/dtc/2017/34-82368.pdf.

companies, (ii) evaluate qualitative risks, and (iii) eliminate any potential distortion of a member's rating due to changes in the member's peer group.[136]

- *Liquidity Risk.* DTC, FICCC, and NSCC adopted the Clearing Agency Liquidity Risk Management Framework setting forth each respective clearing agency's liquidity resources and liquidity risk management practices, including the measurement and monitoring of respective liquidity risks.[137]
- *Recovery and Wind-Down.* DTC, FICC, and NSCC adopted recovery and wind-down plans ("RWPs") and related rules. The clearing agencies developed each of their respective RWPs in the event that they encounter scenarios that could potentially prevent them from being able to provide their critical services as an ongoing concern. The related rules are designed to: (i) facilitate the implementation of the RWPs when necessary and, in particular, allow each respective clearing agency to effectuate a strategy for winding down and transferring its respective business; (ii) provide members and participants with transparency around critical provisions of the RWPs that relate to their rights, responsibilities, and obligations; and (3) provide each respective clearing agency with the legal basis to implement provisions of the RWPs when necessary.[138]
- *Loss Allocation.* DTC, FICC, and NSCC adopted enhanced loss allocation rules designed to (i) modify each respective clearing agency's loss allocation processes, (ii) harmonize the loss allocation processes among the clearing agencies, (iii) reduce the time within which NSCC is required to return a former member's Clearing Fund deposit, (iv) amend FICC's MBSD rules regarding the use of MBSD's Clearing Fund, and (v) modify the application of DTC's Participants Fund and the voluntary retirement process and reduce the time within which DTC is required to return a former participant's actual Participants Fund deposit.[139]

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136 Release Nos. 34-80731 (May 19, 2017), 82 FR 24174 (May 25, 2017) (SR-DTC-2017-801; SR-FICC-2017-804; SR-NSCC-2017-801), https://www.sec.gov/rules/sro/dtc-an/2017/34-80731.pdf; 34-80734 (May 19, 2017), 82 FR 24177 (May 25, 2017) (SR-DTC-2017-002; SR-FICC-2017-006; SR-NSCC-2017-002), https://www.sec.gov/rules/sro/dtc/2017/34-80734.pdf.

137 Release No. 34-82377 (Dec. 21, 2017), 82 FR 61617 (Dec. 28, 2017) (SR-DTC-2017-004; SR-FICC-2017-008; SR-NSCC-2017-005), https://www.sec.gov/rules/sro/dtc/2017/34-82377.pdf.

138 Release Nos. 34-83953 (Aug. 27, 2018), 83 FR 44381 (Aug. 30, 2018) (SR-DTC-2017-803), https://www.sec.gov/rules/sro/dtc-an/2018/34-83953.pdf; 34-83954 (Aug. 27, 2018), 83 FR 44361 (Aug. 30, 2018) (SR-FICC-2017-805), https://www.sec.gov/rules/sro/ficc-an/2018/34-83954.pdf; 34-83955 (Aug. 27, 2018), 83 FR 44340 (Aug. 30, 2018) (SR-NSCC-2017-805), https://www.sec.gov/rules/sro/nscc-an/2018/34-83955.pdf; 34-83972 (Aug. 28, 2018), 83 FR 44964 (Sept. 4, 2018) (SR-DTC-2017-021), https://www.sec.gov/rules/sro/dtc/2018/34-83972.pdf; 34-83973 (Aug. 28, 2018), 83 FR 44942 (Sept. 4, 2018) (SR-FICC-2017-021), https://www.sec.gov/rules/sro/ficc/2018/34-83973.pdf; 34-83974 (Aug. 28, 2018), 83 FR 44988 (Sept. 4, 2018) (SR-NSCC-2017-017), https://www.sec.gov/rules/sro/nscc/2018/34-83974.pdf.

139 Release Nos. 34-83950 (Aug. 27, 2018), 83 FR 44393 (Aug. 30, 2018) (SR-DTC-2017-804), https://www.sec.gov/rules/sro/dtc-an/2018/34-83950.pdf; 34-83951 (Aug. 27, 2018), 83 FR 44331 (Aug. 30, 2018) (SR-FICC-2018-806), https://www.sec.gov/rules/sro/ficc-an/2018/34-83951.pdf; 34-83952 (Aug. 27, 2018), 83 FR 44354 (Aug. 30, 2018) (SR-NSCC-2017-806), https://www.sec.gov/rules/sro/nscc-an/2018/34-83952.pdf; 34-83969 (Aug. 28, 2018), 83 FR 44955 (Sept. 4, 2018) (SR-DTC-2017-022), https://www.sec.gov/rules/sro/dtc/2018/34-83969.pdf; 34-83970 (Aug. 28, 2018), 83 FR 44929 (Sept. 4, 2018) (SR-FICC-2017-022), https://www.sec.gov/rules/sro/ficc/2018/34-83970.pdf; 34-83971 (Aug. 28,

FICC-specific initiatives included:

- *Market Risk.* FICC adopted rules to: (i) change the calculation of GSD's value-at-risk charge; (ii) add a new component referred to as the "Blackout Period Exposure Adjustment;" (iii) eliminate the existing Blackout Period Exposure Charge and the Coverage Charge components; (iv) adjust the existing backtesting charge component; and (v) adjust the calculation for determining the existing Excess Capital Premium for certain members.[140]
- *Liquidity Risk.* FICC established a rules-based committed liquidity resource, the Capped Contingency Liquidity Facility ("CCLF"), to be funded by FICC's members on a contingent basis. CCLF is designed to provide FICC with a committed liquidity resource to meet its cash settlement obligations in the event of a member's (or affiliated family of a member's) default in extreme but plausible market conditions.[141]
- *GSD Fees.* FICC modified the GSD fee structure to reduce complexity and to better align pricing with the costs of GSD services.[142]
- *GSD Sponsored Member Program.* FICC adopted rule changes to expand the types of entities that are eligible to participate in GSD as sponsoring members and sponsored members.[143]
- *Centrally Cleared Institutional Tri-Party Service ("CCIT").* FICC established the CCIT at GSD, allowing the submission of tri-party repo transactions in GCF Repo Securities between GSD Netting Members that participate in the GCF Repo Service and institutional counterparties (other than registered investment companies), where the institutional counterparties are the cash lenders in the transactions.[144]

NSCC-specific initiatives included:

- *Market Risk.* NSCC adopted enhancements to its method for calculating the daily margin requirement for each NSCC member. Specifically, NSCC (i) added three new ways to calculate the

2018), 83 FR 44977 (Sept. 4, 2018) (SR-NSCC-2017-018), https://www.sec.gov/rules/sro/nscc/2018/34-83971.pdf.

140 Release Nos. 34-83223 (May 11, 2018), 83 FR 23020 (May 17, 2018) (SR-FICC-2018-801), https://www.sec.gov/rules/sro/ficc-an/2018/34-83223.pdf; 34-83362 (June 1, 2018), 83 FR 26514 (June 7, 2018) (SR-FICC-2018-001), https://www.sec.gov/rules/sro/ficc/2018/34-83362.pdf.

141 Release No. 34-82090 (Nov. 15, 2017), 82 FR 55427 (Nov. 21, 2017) (SR-FICC-2017-002), https://www.sec.gov/rules/sro/ficc/2017/34-82090.pdf ("CCLF Order").

142 Release No. 34-83401 (June 8, 2018), 83 FR 27812 (June 14, 2018) (SR-FICC-2018-003), https://www.sec.gov/rules/sro/ficc/2018/34-83401.pdf.

143 Release Nos. 34-80563 (May 1, 2017), 82 FR 21284 (May 5, 2017) (SR-FICC-2017-003), https://www.sec.gov/rules/sro/ficc/2017/34-80563.pdf; 34-85470 (Mar. 29, 2019), 84 FR 13328 (Apr. 4, 2019) (SR-FICC-2018-013), https://www.sec.gov/rules/sro/ficc/2019/34-85470.pdf; SR-FICC-2018-802 (Mar. 5, 2019), https://www.sec.gov/rules/sro/ficc-an/2019/ficc-2018-802-memo-deemed-approved.pdf. For further discussion, see Part V.B.

144 Release No. 34-80574 (May 2, 2017), 82 FR 21439 (May 8, 2017) (SR-FICC-2017-005), https://www.sec.gov/rules/sro/ficc/2017/34-80574.pdf. For further discussion, see Part V.B.

volatility component of its members' margin requirements and (ii) eliminated an outdated component of the margin calculation.[145]

- *Liquidity Risk.* In 2015, NSCC established a "Prefunded Liquidity Program" through the private placement of unsecured debt. The Prefunded Liquidity Program served to diversify NSCC's existing liquidity risk management resources, including NSCC's multibillion dollar clearing fund and credit facility, upon which NSCC can draw to meet its liquidity needs in the event of a default by an NSCC member.[146] The amount of the program was initially capped at $5 billion and was later expanded to $10 billion.[147]

- *Margin.* NSCC has made several changes to account for specific wrong-way risk in its margin model, which is present when NSCC acts as CCP to a transaction where the underlying securities are issued by the member (or an affiliate of that member) that is a counterparty to the transaction. In 2015, NSCC adopted changes to exclude from its volatility margining model a member's positions in securities that are issued by such member or its affiliate when the member is on NSCC's Watch List.[148] In 2017, NSCC expanded the application of this charge to all NSCC members while still maintaining a higher charge for members that present a greater credit risk to NSCC, such as those on the Watch List.[149] In 2018, NSCC enhanced its method for calculating the daily margin requirement for each member by adding three new ways to calculate the volatility component of its members' margin requirements and eliminating an outdated component of the margin calculation.[150]

- *Business Risk.* In 2017, NSCC instituted its Policy on Capital Requirements and Capital Replenishment Plan. The policy is designed to provide a framework for holding sufficient liquid net assets ("LNA") to cover potential business losses, and the plan is designed to provide a viable mechanism for raising additional LNA funded by equity, if needed.[151]

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145 Release Nos. 34-82780 (Feb. 26, 2018), 83 FR 9035 (Mar. 2, 2018) (SR-NSCC-2017-808), https://www.sec.gov/rules/sro/nscc-an/2018/34-82780.pdf; 34-82781 (Feb. 26, 2018), 83 FR 9042 (Mar. 2, 2018) (SR-NSCC-2017-020), https://www.sec.gov/rules/sro/nscc/2018/34-82781.pdf.

146 Release No. 34-75730 (Aug. 19, 2015), 80 FR 51638 (Aug. 25, 2015) (SR-NSCC-2015-802), http://www.sec.gov/rules/sro/nscc-an/2015/34-75730.pdf.

147 Release No. 34-82676 (Feb. 9, 2018) 83 FR 6912 (Feb. 15, 2018) (SR-NSCC-2017-807), https://www.sec.gov/rules/sro/nscc-an/2018/34-82676.pdf.

148 Release Nos. 34-76075 (Oct. 5, 2015), 80 FR 61244 (Oct. 9, 2015) (SR-NSCC-2015-803), http://www.sec.gov/rules/sro/nscc-an/2015/34-75899.pdf; 34-76077 (Oct. 5, 2015), 80 FR 61256 (Oct. 9, 2015) (SR-NSCC-2015-003), http://www.sec.gov/rules/sro/nscc/2015/34-76077.pdf.

149 Release Nos. 34-81545 (Sept. 7, 2017), 82 FR 43054 (Sept. 13, 2017) (SR-NSCC-2017-804), https://www.sec.gov/rules/sro/nscc-an/2017/34-81545.pdf; 34-81550 (Sept. 7, 2017), 82 FR 43061 (Sept. 13, 2017) (SR-NSCC-2017-010), https://www.sec.gov/rules/sro/nscc/2017/34-81550.pdf.

150 Release Nos. 34-82780 (Feb. 26, 2018), 83 FR 9035 (Mar. 2, 2018) (SR-NSCC-2017-808), https://www.sec.gov/rules/sro/nscc-an/2018/34-82780.pdf; 34-82781 (Feb. 26, 2018), 83 FR 9042 (Mar. 2, 2018) (SR-NSCC-2017-020), https://www.sec.gov/rules/sro/nscc/2018/34-82781.pdf.

151 Release No. 34-81105 (July 7, 2017), 82 FR 32399 (July 13, 2017) (SR-NSCC-2017-004), https://www.sec.gov/rules/sro/dtc/2017/34-81105.pdf.

- *Other Risk Management Initiatives.* NSCC adopted rule changes to: (i) accelerate its trade guaranty from midnight of one day after trade date ("T+1") to the point of trade comparison and validation for bilateral submissions or to the point of trade validation for locked-in submissions; (ii) add three new components to NSCC's Clearing Fund formula, in the form of a Margin Requirement Differential ("MRD"), a Coverage Component, and an Intraday Backtesting Charge; (iii) enhance NSCC's current intraday mark-to-market margin process; (iv) introduce a new loss allocation provision for any trades that fall within the proposed definition of "Off-the-Market Transactions;" and (v) make other related and technical changes.[152]

B. ICC

ICC provides CCP services for security-based swaps.[153] ICC is registered with the SEC as a clearing agency and the CFTC as a derivatives clearing organization. ICC has been designated systemically important, and the CFTC is its supervisory agency under the Clearing Supervision Act.[154]

Since the adoption of Rule 17Ad-22, the SEC has considered and approved a variety of rule changes proposed by ICC to enhance its risk management. For example, the SEC has approved several frameworks intended to manage risk broadly across ICC, including ICC's Risk Management Framework,[155] Back-Testing Framework,[156] Stress-Testing Framework,[157] and Model Validation Framework.[158] The SEC has also approved improvements to ICC's Risk Management Model Description Document, which describes ICC's methodology for calculating margin on cleared security-based swap transactions,[159] and

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152 Release No. 34-79598 (Dec. 19, 2016), 81 FR 94462 (Dec. 23, 2016) (SR-NSCC-2016-005), https://www.sec.gov/rules/sro/nscc/2016/34-79598.pdf.

153 ICC was deemed registered as a clearing agency pursuant to the Dodd-Frank Act. See supra note 39.

154 12 U.S.C. 5301 et seq.

155 Release Nos. 34-84457 (Oct. 19, 2018), 83 FR 53917 (Oct. 25, 2018) (ICC-2018-008), https://www.sec.gov/rules/sro/icc/2018/34-84457.pdf; 34-76733 (Dec. 22, 2015), 80 FR 81384 (Dec. 29, 2015) (ICC-2015-017), https://www.sec.gov/rules/sro/icc/2015/34-76733.pdf.

156 Release No. 34-85357 (Mar. 19, 2019), 84 FR 11146 (Mar. 25, 2019) (ICC-2019-001), https://www.sec.gov/rules/sro/icc/2019/34-85357.pdf.

157 Release Nos. 34-86378 (July 15, 2019), 84 FR 34990 (July 19, 2017) (ICC-2019-005), https://www.sec.gov/rules/sro/icc/2019/34-86378.pdf; 34-77982 (June 2, 2016), 81 FR 36979 (June 8, 2016) (ICC-2016-005), https://www.sec.gov/rules/sro/icc/2016/34-77982.pdf.

158 Release Nos. 34-86039 (June 5, 2019), 84 FR 27167 (June 11, 2019) (ICC-2019-004), https://www.sec.gov/rules/sro/icc/2019/34-86039.pdf; 34-83690 (July 24, 2018), 83 FR 36655 (July, 30 2018) (ICC-2018-004), https://www.sec.gov/rules/sro/icc/2018/34-83690.pdf.

159 Release Nos. 34-86838 (Aug. 30, 2019), 84 FR 47019 (Sept. 6, 2019) (ICC-2019-008), https://www.sec.gov/rules/sro/icc/2019/34-86838.pdf; 34-84457 (Oct. 19, 2018), 83 FR 53917 (Oct. 25, 2018) (ICC-2018-008), https://www.sec.gov/rules/sro/icc/2018/34-84457.pdf; 34-76733 (Dec. 22, 2015), 80 FR 81384 (Dec. 29, 2015) (ICC-2015-017), https://www.sec.gov/rules/sro/icc/2015/34-76733.pdf.

ICC's Liquidity Risk Management Framework, by which ICC assures that it has enough cash available to meet expected and unexpected financial obligations.[160]

The rule changes have also addressed particular aspects of risk management and operations, as highlighted in the categories below.

- *Operational Risk.* In 2014, ICC adopted an Operational Risk Management Framework, which details ICC's program of operational risk assessment and oversight.[161] Also in 2018, ICC adopted a New Initiatives Approval Policy, which sets forth ICC's policies and procedures for the review and approval of certain new initiatives to be offered or implemented by ICC.[162]
- *Credit Risk*. In 2017, ICC revised its auction procedures and tools for returning to a matched book after a Clearing Participant default or series of such defaults, amended its rules to collect additional initial margin to ensure that ICC maintains minimum pre-funded financial resources in compliance with applicable regulatory requirements, and clarified the governance requirements relating to the use of ICC's default management tools.[163]

C. ICEU

ICEU provides CCP services for interest rate, equity index, agricultural and energy derivatives, as well as European single-name CDS. ICEU's CDS clearing operations launched in July 2009.[164]

The SEC has considered and approved a variety of rule changes proposed by ICEU to enhance its risk management under Rule 17Ad-22(e). For example, the SEC approved several frameworks to manage risk broadly, including a proposed rule change regarding ICEU's Recovery Plan and Wind-Down Plan as well as updates to the Recovery Plan.[165] The SEC also approved revisions to ICEU's CDS Default Management Framework to be consistent with amendments to the ICEU recovery rules to address default management, recovery and wind-down for the CDS Contract Category. The proposed changes to this Framework related primarily to auction procedures, reduced gains distribution, partial tear-up, clearing member withdrawal and termination, clearing service termination, and governance during a default.[166]

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160 Release Nos. 34-81347 (Aug. 8, 2017), 82 FR 37917 (Aug. 14, 2017) (ICC-2017-011), https://www.sec.gov/rules/sro/icc/2017/34-81347.pdf; 34-81797 (Oct. 2, 2017), 82 FR 46844 (Oct. 6, 2017) (ICC-2017-012), https://www.sec.gov/rules/sro/icc/2017/34-81797.pdf.

161 Release Nos. 34-83071 (Apr. 19, 2018), 83 FR 18108 (Apr. 25, 2018) (ICC-2018-003), https://www.sec.gov/rules/sro/icc/2018/34-83071.pdf; 34-77769 (May 5, 2016), 81 FR 29312 (May 11, 2016) (ICC-2016-003), https://www.sec.gov/rules/sro/icc/2016/34-77769.pdf; 34-74399 (Mar. 2, 2015), 80 FR 12224 (Mar. 6, 2015) (ICC-2014-19), https://www.sec.gov/rules/sro/icc/2015/34-74399.pdf.

162 Release No. 34-85105 (Feb. 11, 2019), 84 FR 4570 (Feb. 15, 2019) (ICC-2018-011), https://www.sec.gov/rules/sro/icc/2019/34-85105.pdf.

163 Release No. 34-79750 (Jan. 6, 2017), 82 FR 3831 (Jan. 12, 2017) (ICC-2016-013), https://www.sec.gov/rules/sro/icc/2017/34-79750.pdf.

164 ICEU was deemed registered as a clearing agency pursuant to the Dodd-Frank Act. See supra note 39.

165 Release Nos. 34-83651 (July 17, 2018), 83 FR 34891 (July 23, 2018) (SR-ICEEU-2017-017), https://www.sec.gov/rules/sro/iceeu/2018/34-83651.pdf; 34-86364 (July 12, 2019), 84 FR 34455 (July 18, 2019) (SR-ICEEU-2019-013), https://www.sec.gov/rules/sro/iceeu/2019/34-86364.pdf.

166 Release No. 34-86783 (Aug. 28, 2019), 84 FR 46575 (Sept. 4, 2019) (SR-ICEEU-2019-014), https://www.sec.gov/rules/sro/iceeu/2019/34-86783.pdf.

The SEC has also approved a proposed rule change to adopt a new policy framework for establishing the risk appetite, monitoring and assessment, and management of pro-cyclicality in the risk models used by ICEU to manage default risk.[167]

The rule changes have also addressed particular aspects of risk management and operations, as highlighted in the categories below.

- *Operational Risk.* ICEU adopted a Model Risk Governance Framework, which would establish overall standards and principles for managing and mitigating model risk for all product categories that ICEU clears.[168] ICEU also formalized its Operational Risk Management Policy, which consolidates, clarifies, and codifies ICEU's current policies and practices with respect to management of operational risk, the stakeholders responsible for executing those processes, the frequency of review of the policy, and the governance and reporting lines for the policy.[169]

- *Credit Risk.* ICEU revised its CDS Clearing Stress-Testing Policy to re-categorize its CDS stress testing scenarios, add provisions addressing specific wrong-way risk, and implement new forward-looking credit event scenarios.[170] ICEU also adopted changes relating to default management tools, including CDS Default Auction Procedures and clarifying the governance regarding the use of default management tools.[171]

- *Margin.* ICEU modified its Collateral and Haircut Policy to incorporate certain changes to the calculation of absolute collateral limits for bonds provided as permitted cover by clearing members so as to more accurately capture the trading liquidity of each bond and would also revise the haircut calculation.[172]

D. LCH

LCH is regulated as a bank and as a CCP under French law, and LCH is authorized to offer clearing services in the European Union pursuant to the European Market Infrastructure Regulation. In the United States, LCH is registered with the SEC as a clearing agency for clearing security-based swaps and with the CFTC as a derivatives clearing organization.[173]

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167 Release No. 34-82313 (Dec. 13, 2017), 82 FR 60254 (Dec. 19, 2017) (SR-ICEEU-2017-013), https://www.sec.gov/rules/sro/iceeu/2017/34-82313.pdf.

168 Release No. 34-85128 (Feb. 13, 2019), 84 FR 5137 (Feb. 20, 2019) (SR-ICEEU-2018-024), https://www.sec.gov/rules/sro/iceeu/2019/34-85128.pdf.

169 Release No. 34-86184 (June 24, 2019), 84 FR 31132 (June 28, 2019) (SR-ICEEU-2019-009), https://www.sec.gov/rules/sro/iceeu/2019/34-86184.pdf.

170 Release No. 34-83243 (May 15, 2018), 83 FR 23506 (May 21, 2018) (SR-ICEEU-2018-001), https://www.sec.gov/rules/sro/iceeu/2018/34-83243.pdf.

171 Release No. 34-86259 (Jul. 1, 2019), 84 FR 32483 (Jul. 8, 2019) (SR-ICEEU-2019-003), https://www.sec.gov/rules/sro/iceeu/2019/34-86259.pdf.

172 Release No. 34-82659 (Feb. 8, 2018), 83 FR 6660 (Feb. 14, 2018) (SR-ICEEU-2017-011), https://www.sec.gov/rules/sro/iceeu/2018/34-82659.pdf.

173 Release No. 34-79707 (Dec. 29, 2016), 82 FR 1398 (Jan. 5, 2017).

Since approving LCH's registration in 2017, the SEC has considered and approved a variety of rule changes by LCH to improve its risk management. For example, the SEC approved LCH's adoption of plans for its recovery and wind-down and has approved updates to those plans.[174] The SEC has also approved improvements to LCH's margin framework, which describes LCH's methodology for calculating margin on cleared security-based swap transactions.[175] The SEC has also approved LCH's liquidity risk modelling framework, by which LCH assures that it has enough cash available to meet expected and unexpected financial obligations.[176]

The rule changes have also addressed particular aspects of risk management and operations, as highlighted in the categories below.

- *Operational Risk.* In 2018, LCH implemented a new electronic exercise platform for the exercise of options on index CDS.[177] This rule change improved the efficiency of the exercise of such options and eliminated the possible delays, errors, and miscommunications that can result from manual notification via email.
- *Onboarding of Clearing Members*. In 2019, LCH implemented improvements to its process for approving applicants for clearing membership.[178]

E. OCC

OCC serves as the only CCP for standardized U.S. securities options listed on SEC-registered national securities exchanges ("listed options"). OCC clears and settles listed options trades executed by it clearing members on a proprietary basis as well as for clients. In addition, OCC serves other financial markets, including the commodity futures, commodity options, security futures, securities lending, and the OTC options markets. OCC's role as the sole CCP for all listed options contracts in the U.S. makes it an integral part of the national system for clearance and settlement. In 2018, OCC cleared 5.24 billion total

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174 Release Nos. 34-83451 (June 15, 2018), 83 FR 28886 (June 21, 2018) (SR-LCH SA-2017-012, -013), https://www.sec.gov/rules/sro/lchsa/2018/34-83451.pdf; 34-87720 (Dec. 11, 2019), 84 FR 68989 (Dec. 17, 2019) (SR-LCH SA-2019-008), https://www.sec.gov/rules/sro/lchsa/2019/34-87720.pdf.

175 Release Nos. 34-80848 (June 2, 2017), 82 FR 26728 (June 8, 2017) (SR-LCH SA-2017-003), https://www.sec.gov/rules/sro/lchsa/2017/34-80848.pdf; 34-80849 (June 2, 2017), 82 FR 26721 (June 8, 2017) (SR-LCH SA-2017-004), https://www.sec.gov/rules/sro/lchsa/2017/34-80849.pdf; 34-82345 (Dec. 18, 2017), 82 FR 60781 (Dec. 22, 2017) (SR-LCH SA-2017-009), https://www.sec.gov/rules/sro/lchsa/2017/34-82345.pdf; 34-87485 (Nov. 7, 2019), 84 FR 61947 (Nov. 14, 2019) (SR-LCH SA-2019-005), https://www.sec.gov/rules/sro/lchsa/2019/34-87485.pdf.

176 Release No. 34-83691 (July 24, 2018), 83 FR 36635 (July 30, 2018) (SR-LCH SA-2018-003), https://www.sec.gov/rules/sro/lchsa/2018/34-83691.pdfhttps://www.sec.gov/rules/sro/lchsa/2019/34-87485.pdf.

177 Release No. 34-84410 (Oct. 11, 2018), 83 FR 52581 (Oct. 17, 2018) (SR-LCH SA-2018-004), https://www.sec.gov/rules/sro/lchsa/2018/34-84410.pdf.

178 Release No. 34-86376 (July 15, 2019), 84 FR 34955 (July 19, 2019) (SR-LCH SA-2019-003), https://www.sec.gov/rules/sro/lchsa/2019/34-86376.pdf.

contracts with an average daily volume of 20.5 million contracts.[179] The FSOC designated OCC as a SIFMU in 2012.

Since the adoption of Rule 17Ad-22, the SEC has considered and approved a variety of rule changes proposed by OCC to enhance its governance and risk management. At a high level, these changes have included adoption of several policies, frameworks, and Board governance documents designed to address particular overarching issues across OCC. For example, OCC's Board of Directors and Board Committee Charters provide that, in carrying out their responsibilities, OCC's Board and the committees would, among other things, generally support the stability of the broader financial system.[180] In 2017, OCC adopted a Risk Management Framework to describe OCC's framework to identify, measure, monitor, and manage all risks faced by OCC in the provision of clearing, settlement, and risk management services.[181] Additionally, OCC adopted a set of other policies related to risk management, including a margin policy,[182] collateral risk management policy,[183] counterparty credit risk management policy,[184] default management policy,[185] and model risk management policy.[186] Further, OCC enhanced its existing tools to address the risks of liquidity shortfalls and credit losses and to establish new tools by which OCC could re-establish a matched book and, if necessary, allocate uncovered losses following a default as well as provide for additional financial resources.[187] Concurrently, OCC formalized and updated its Recovery and Orderly Wind-Down Plan.[188]

OCC's changes have also addressed particular aspects of risk management as highlighted in the categories below.

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179 OCC, 2018 Annual Report, https://www.theocc.com/components/docs/about/annual-reports/occ-2018-annual-report.pdf.

180 Release No. 34-84473 (Oct. 23, 2018), 83 FR 54395 (Oct. 29, 2018) (SR-OCC-2018-012), https://www.sec.gov/rules/sro/occ/2018/34-84473.pdf.

181 Release No. 34-8232 (Dec. 7, 2017), 82 FR 58662 (Dec. 13, 2017) (SR-OCC-2017-005), https://www.sec.gov/rules/sro/occ/2017/34-82232.pdf.

182 Release No. 34-82658 (Feb. 7, 2018), 83 FR 6646 (Feb. 14, 2018) (SR-OCC-2017-007), https://www.sec.gov/rules/sro/occ/2018/34-82658.pdf.

183 Release No. 34-82311 (Dec. 13, 2017), 82 FR 60252 (Dec. 19, 2017) (SR-OCC-2017-008), https://www.sec.gov/rules/sro/occ/2017/34-82311.pdf.

184 Release No. 34-82312 (Dec. 13, 2017), 83 FR 60242 (Dec. 19, 2017) (SR-OCC-2017-009), https://www.sec.gov/rules/sro/occ/2017/34-82312.pdf.

185 Release No. 34-82310 (Dec. 13, 2017), 82 FR 60265 (Dec. 19, 2017) (SR-OCC-2017-010), https://www.sec.gov/rules/sro/occ/2017/34-82310.pdf.

186 Release No. 34-82785 (Feb. 27. 2018), 83 FR 9345 (Mar. 5, 2018) (SR-OCC-2017-011), https://www.sec.gov/rules/sro/occ/2018/34-82785.pdf.

187 Release No. 34-83916 (Aug. 23, 2018), 83 FR 44076 (Aug. 29, 2018) (SR-OCC-2017-020), https://www.sec.gov/rules/sro/occ/2018/34-83916.pdf.

188 Release No. 34-83918 (Aug. 23, 2018), 83 FR 44091 (Aug. 29, 2018) (SR-OCC-2017-021), https://www.sec.gov/rules/sro/occ/2018/34-83918.pdf.

- *Credit Risk.* In 2018, OCC adopted a new stress testing framework and revised its Clearing Fund methodology.[189] In 2019, OCC built its stress testing framework and Clearing Fund methodology by adopting additional changes related to new stress tests, modification of existing stress tests, and revised allocation of Clearing Fund requirements.[190]
- *Liquidity Risk.* In 2018, OCC adopted a new minimum cash contribution requirement for its Clearing Fund and revised its rules to provide for the pass-through of interest income earned on such cash contributions.[191] OCC also expanded its authority to borrow against the Clearing Fund in limited circumstances implicating same-day settlement.[192]
- *Margin.* Over the course of 2018 and 2019, OCC made numerous changes to its margin methodology, including: (1) obtaining daily price data, updating statistical parameters to reflect daily data, enhance risk factor correlation sensitivity and stability, and enhance value estimates for defaulted securities;[193] (2) introducing a new model to estimate the liquidation cost for all options and futures, as well as the securities in margin collateral;[194] and (3) adopting an add-on charge designed to cover exposures related to specific wrong-way risk.[195] OCC also updated its options pricing models in 2019.[196]
- *Capital Replenishment*. In 2020, OCC adopted a policy for capital management, which includes OCC's plan to replenish its capital in the event it falls close to or below target capital levels.[197]

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189 Release No. 34-83735 (Jul. 27, 2018), 83 FR 37855 (Aug. 2, 2018) (SR-OCC-2018-008), https://www.sec.gov/rules/sro/occ/2018/34-83735.pdf.

190 Release No. 34-87717 (Dec. 11, 2019), 84 FR 68985 (Dec. 17, 2019) (SR-OCC-2019-009), https://www.sec.gov/rules/sro/occ/2019/34-87717.pdf.

191 Release No. 34-82502 (Jan. 12, 2018), 83 FR 2825 (Jan. 19, 2018) (SR-OCC-2017-019), https://www.sec.gov/rules/sro/occ/2018/34-82502.pdf.

192 Release No. 34-82309 (Dec. 13, 2017), 82 FR 60262 (Dec. 19, 2017) (SR-OCC-2017-017), https://www.sec.gov/rules/sro/occ/2017/34-82309.pdf.

193 Release No. 34-83326 (May 24, 2018), 83 FR 25081 (May 31, 2018) (SR-OCC-2017-022), https://www.sec.gov/rules/sro/occ/2018/34-83326.pdf.

194 Release No. 34-86119 (Jun. 17, 2019), 84 FR 29267 (Jun. 21, 2019) (SR-OCC-2019-004), https://www.sec.gov/rules/sro/occ/2019/34-86119.pdf.

195 Release No. 34-87718 (Dec. 11, 2019), 84 FR 68992 (Dec. 17, 2019) (SR-OCC-2019-010), https://www.sec.gov/rules/sro/occ/2019/34-87718.pdf.

196 Release No. 34-86731 (Aug. 22, 2019), 84 FR 45188 (Aug. 28, 2019) (SR-OCC-2019-005), https://www.sec.gov/rules/sro/occ/2019/34-86731.pdf.

197 Release No. 34-88029 (Jan. 24, 2020), 85 FR 5500 (Jan. 30, 2020) (SR-OCC-2019-007), https://www.sec.gov/rules/sro/occ/2020/34-88029.pdf.