MINUTES OF THE SEVENTH MEETING OF THE U.S. COMMODITY FUTURES TRADING COMMISSION'S MARKET RISK ADVISORY COMMITTEE APRIL 25, 2017

The U.S. Commodity Futures Trading Commission's ("CFTC" or "Commission") Market Risk Advisory Committee ("MRAC" or "Committee") convened for a public meeting on Tuesday, April 25, 2017, at 10:01 a.m., at the CFTC's Washington, DC, headquarters, located at Three Lafayette Centre, 1155 21st Street NW., Washington, DC 20581. The meeting consisted of three panel sessions. In Panel 1, CFTC staff responded to the Central Counterparty ("CCP") Risk Management Subcommittee ("Subcommittee") recommendations for CCP default management. Panel 2 discussed the cybersecurity threats with the emerging technologies in the swaps and futures markets. In Panel 3, participants shared their views on several key points concerning the state of the market.

MRAC Members in Attendance

Anat Admati, George G.C. Parker Professor of Finance and Economics, Stanford University Graduate School of Business, Representing Better Markets
Gerald Beeson, Chief Operating Officer and Chief Financial Officer, Citadel
Biswarup Chatterjee, Global Head of Electronic Trading & New Business Development Credit Markets, Citigroup
Tom Coyle, Vice President and General Manager, Chicago and Illinois River Marketing, LLC
Andrew Gray, Group Chief Risk Officer, Depository Trust and Clearing Corporation ("DTCC")
Michael Hennessy, Vice President, Treasury and Capital Markets, Federal Home Loan Banks of San Francisco
Jerry Jeske, Group Chief Compliance Counsel, Mercuria Energy, Representing Commodity Markets Council
Sebastiaan Koeling, Chief Executive Officer, Optiver, Representing Futures Industry Association's Principal Traders Group
Clifford Lewis, Independent Director, Eurex Clearing ("Eurex")
Glen Mackey, Chief Risk Officer, NRG Energy
Dennis McLaughlin, Group Chief Risk Officer, LCH Clearnet ("LCH")
Susan McLaughlin, Senior Vice President, Federal Reserve Bank of New York
Dale Michaels, Executive Vice President Financial Risk Management, Options Clearing Corporation ("OCC")
Richard Miller, Consultant, American Council of Life Insurers
Michael Modlock, Head of TriReduce North America, TriOptima
John Nixon, Group Executive Director, Americas for ICAP
Susan O'Flynn, Managing Director and Global Head of CCP Strategy Governance and Optimization, Morgan Stanley
Angela Patel, Senior Vice President, Putnam Investments
Edward Pla, Managing Director, Head of Clearing and Execution, UBS Investment Bank
Marnie Rosenberg, Global Head of Clearinghouse Risk & Strategy, JP Morgan
Marcus Stanley, Policy Director, Americans for Financial Reform
Robert Steigerwald, Senior Policy Advisor, Federal Reserve Bank of Chicago

Kristen Walters, Global Chief Operating Officer of the Risk and Quantitative Analysis Group, BlackRock
Luke Zubrod, Director of Risk and Regulatory Advisory Services, Chatham Financial
Scott Zucker, Chief Administrative Officer, Tradeweb

Invited Panelists/Guests in Attendance
Steve Chabinsky, White & Chase
Karl Schimmeck, Morgan Stanley
Gil Vega, CME Group ("CME")
Sunil Cutinho, CME

CFTC Commissioners and Staff in Attendance
Acting Chairman J. Christopher Giancarlo
Commissioner Sharon Y. Bowen
Petal Walker, Chief Counsel, Office of Commissioner Bowen, Designated Federal Officer
John Lawton, Acting Director, Division of Clearing and Risk ("DCR")
Sayee Srinivasan, Chief Economist, Office of the Chief Economist ("OCE")
Bob Wasserman, Chief Counsel, DCR
Scott Mixon, Associate Director, OCE
Kate Meyer, Risk Analyst, DCR
Nhan Nguyen, Special Counsel, Division of Market Oversight (DMO)

I. Opening Remarks

Petal Walker called the MRAC meeting to order.

Acting Chairman Giancarlo thanked and welcomed all attendees for coming to the meeting. He stated the meeting had three important ingredients: (1) a terrific and well-prepared agenda; (2) a great program with important topics; and (3) great participants, who put the time in to prepare their presentations.

Commissioner Bowen then welcomed everyone to the first MRAC meeting of 2017. She thanked Acting Chairman Giancarlo for attending, and his longstanding support for the work of the Committee. She also thanked the staffs of OCE, DCR, and DMO for providing technical support and also welcomed three new committee members: (1) Biswarup Chatterjee; (2) Dale Michaels; and (3) Marnie Rosenberg. Commissioner Bowen explained that DCR staff would be discussing the MRAC's CCP risk management recommendations that were voted on in November 2016. She also highlighted the importance of CCPs in the marketplace as well as risk management, and commented on cybersecurity and market risk. Regarding the state of the market, Commissioner Bowen noted that the panel would focus on the functioning of the derivatives markets, including issues such as volatility, liquidity, and rising interest rates.

II. Panel 1: Staff Response to CCP Risk Management Subcommittee's Recommendation for CCP Default Management

Susan O'Flynn facilitated the discussion.

Kate Meyer discussed the recommendations developed by the Subcommittee, adding that they are consistent with current CFTC regulations, and that DCR supports them. She noted two broad categories of recommendations: (1) coordination, harmonization and enhancement; and (2) porting.

Ms. Meyer conducted a slide presentation discussing five sub-topics for the first recommendation: (1) communication; (2) default management committees; (3) fire drills; (4) the auction process; and (5) customer participation in the auctions. She noted one significant accomplishment in the area of communication, which is the creation of a directory of global contacts so each CCP has the name and phone number of who to contact if there is a default of a significant clearing member with relationships at multiple CCPs. Ms. Meyer then discussed default management committees and their responsibilities, including seconded traders. She recommended that CCPs communicate with each other to avoid overlaps on the seconded traders list.

John Lawton discussed the current fire drill that commenced on April 24, 2017, with the CFTC, Bank of England, and Bundesbank participating. He explained that there was staff on site at the CME, LCH, and Eurex offices, and there would be a call later in the day to compare notes. Mr. Lawton stated that an auction will be held on Thursday, April 27, 2017, followed by a second call to compare notes and possible recommendations. Commissioner Bowen asked if the exercise was limited to just clearing members. Mr. Lawton said there will be some non-clearing members participating in the auction. Richard Miller asked what level of transparency can be expected when it comes to market feedback about the ongoing fire drill. Mr. Lawton replied that there is a single firm at each CCP in the exercise, and that it makes sense to talk about the lessons learned from the fire drill to those who were unable to participate.

Bob Wasserman discussed customer participation in auctions and the importance of porting. For example, he stated it is better to have a voluntary market-based tool and additional participants in the auction. Additionally, he remarked that having qualified non-clearing members participate increases the likelihood of success by expanding the scope of bids. On porting, he remarked that a successful port protects both the customers, who do not have to reestablish their positions, as well the markets, since the alternative is liquidate all customer positions.

Ms. Rosenberg commented on the harmonization of auction procedures for clearinghouses, especially those that clear interest rate swaps. She also asked about the work being done to harmonize some of those procedures and expressed the need to "streamline the dependency" on trader secondment across the market and her support for broader participation at auctions.

Sunil Cutinho echoed Ms. Rosenberg's comments, and also noted that CCPs want to establish a system that coordinates the resources during a default because the goal is not to deplete members or resources needed to manage risk. Mr. Cutinho explained that the CME Group shares with OCC an infrastructure for auction participants, and invited other CCPs to participate in the same infrastructure, and reduce the operational risks. Regarding communication in porting, Mr. Cutinho further explained that a CCP does not have end customer information as a normal course of business. He said, one of the biggest lessons learned from 2011, and MF Global is having

access to end customers when their clearing firm has an issue during the porting process. As a result, the CME Group now requires a firm to submit information about end customers, and the next step is to come up with a harmonized process to communicate. According to Mr. Cutinho, it makes sense for CCPs to coordinate with each other, because customers typically use a single clearing firm across CCPs and they net settle. And when porting customers to another clearing firm, you do not want to break that netting set in order to avoid a liquidity demand.

Concerning the standardization of the auction process, Mr. Michaels echoed Mr. Cutinho's comments, and as to broader participation, the OCC wants to have more than just clearing members, but also end users. Mr. Michaels explained that the OCC wants to bring other folks into the auction process, and now requires all members to test with the OCC to have a full bench of possible participants. Regarding portability, in connection with leverage ratio, Mr. Michaels emphasized the need for some type of temporary restraint on leverage ratio or other capital issues to ensure successful portability of clients in times of stress.

Dennis McLaughlin commented on the fire drill, and described the scenario involving a CCP member with significant Pattern Probability Strategy relationships going into default in the afternoon, raising the late-in-the-day problem for investing cash. Ms. O'Flynn added her appreciation for the cross-product nature of this exercise. She noted this will be a "great acid test" for clearing members' participation on a cross-product basis, but also the CCP communication and the coordination around those products.

Break (5 minutes)

III. Panel 2: Cybersecurity

Mr. McLaughlin facilitated the discussion.

Mr. McLaughlin discussed the National Institute of Standards and Technology's ("NIST") cybersecurity framework, which includes the following components: (1) identify the organization's key assets; (2) create strategies to protect such assets; (3) create a strategy to detect threats to key assets; and (4) respond/recover to any threats.

Mr. McLaughlin asked the panelists to discuss current cybersecurity considerations in the application of emerging technologies in the swaps and futures markets. Gil Vega described emerging technologies, such as the internet of things, distributed ledgers, and digital currencies. He noted that some of the considerations taken into account are to ensure the staff has knowledge of these technologies and their vulnerabilities. Karl Schimmeck discussed third-party risk management as a consideration, and the need to promote innovation since it is a "core component" to financial services.

Mr. McLaughlin then asked the panelists to discuss the current cybersecurity threat environment. Mr. Vega stated that the "respond and recover" component of the NIST framework has been a key focus to the financial services community because being attacked is a given. Mr. Schimmeck stated that it is becoming a "more dangerous landscape," and there have been discussions with the current administration, Department of Homeland Security, and the Federal

Bureau of Investigations regarding the protection of "critical infrastructure." Mr. Steve Chabinsky discussed the threats against confidentiality, integrity, and availability.

Mr. McLaughlin also asked the panelists to discuss how the industry is collaborating in order to respond to cyber threats. Mr. Schimmeck explained there are two main entities, the Financial Services-Information Sharing and Analysis Center and the Financial Services Sector Coordinating Council who work together with the government in collaborating with partners and other firms to share information on a daily basis. He stressed that the ability to share information rapidly is an "absolute essential" piece to where agencies need to focus their energy and resources. He also discussed the Financial Systemic Analysis & Resilience Center, which is focused on the critical infrastructure, to ensure entities that control the critical infrastructure of financial services are protected by way of advanced collaboration efforts.

Finally, Mr. McLaughlin asked panelists to discuss what regulators can do to help in this effort. Mr. Vega stated there needs to be continued focus on principles-based regulations. Mr. Schimmeck added that global harmonization among securities regulators would be helpful. Mr. Chabinsky commented that the Commission and other regulators need to think of harmonization even broader in scope than just federal regulators. Dr. Anat Admati noted that the private sector has more resources than the public sector to deal with the enormous risk of cybersecurity, and collaboration is critical. Mr. Chabinsky added that it is going to require the private sector and an international effort to understand how best to resolve this issue and a lot could be advanced on recommending the next steps in coordination with the government.

Break (10 minutes)

IV. Panel 3: State of the Market

John Nixon facilitated the discussion.

Mr. Nixon first asked the panelists to discuss the impact of Brexit and "other volatility" events on the markets. Kristin Walters noted that, from a risk perspective, certain events – such as Brexit and the recent U.S. elections – have relatively anticipated outcomes and often lead to periods of volatility.

Acting Chairman Giancarlo discussed the Brexit event, the difference between the heightened activity levels in futures, and the fairly quiet activities in the correlated swaps. He asked Ms. Walters whether market participants were reluctant to engage in products subject to regulatory reform, in particular Dodd Frank, and were choosing to participate in the futures market, or unregulated currency market. He also asked whether the quietness in the swaps markets following Brexit sheds light about the markets' comfort level with some of the changes that have been made.

Ms. Walters replied that she did not think so, and explained that in times of market stress there is much more activity in the most liquid markets. She also commented that BlackRock views the clearing of swaps to be a very significant plus for financial markets and as a risk reduction tool

overall. Regarding liquidity, she noted that she shares Mr. Wasserman's and others' concerns about liquidity issues and portability given regulatory capital requirements and leverage.

Mr. Cutinho commented on the impact of Brexit, noting that a lot of traders, even in the European time zone, had positioned themselves to participate in the Asian time zone. He also stated that he saw significant volatility in the Asian time zone, especially the Nikkei contract as well as a lot of activity in safe assets, such as gold, treasury futures, FX, and treasuries. Mr. Cutinho, agreeing with Ms. Walters, also commented on the evolving nature of liquidity and CCPs, remarking that CCPs must not create unanticipated demands on their clearing members as well as on clients in term of liquidity.

Mr. McLaughlin commented on the clearing of Euro products and associated concerns, including the impact of fewer members when a global liquidity pool is artificially fractured. For example, there are fewer members to share the losses from variation margin and gains haircutting, which increases the systemic risk. Mr. Chatterjee commented that the timing of when the event occurs is very relevant as to who can react to it. Regarding both Brexit and the U.S. election, he noted that the final news came out very late at night during U.S. hours, but the futures markets were open for business in Asia, which may have helped to dampen volatilities as the market opened in the U.S.

Mr. Nixon next asked panelists to discuss the state of liquidity for various types of products in the derivatives markets, including the impact of the CFTC's Swap Execution Facility ("SEF") regime. Mr. Chatterjee commented that the SEF markets are relatively satisfactory, but noted that liquidity and trading volumes have coalesced around a smaller number of venues, especially in credit default swap ("CDS") markets. He further noted that there was room for improvement in the CFTC's SEF regime, including the need for cross-border harmonization. He highlighted the market bifurcation that occurred at the onset of the Commission's regime, and stated that unless further efforts are made to address cross-border issues, further bifurcation along political/regulatory boundaries will arise. Lastly, Mr. Chatterjee said that continuous evaluation of the SEF regime would be beneficial, and that any changes or modifications should consider impacts to liquidity, as well as potential costs and benefits.

Jerry Jeske noted that the CFTC's lack of action to affirm the $8 billion as an appropriate threshold level for non-bank dealers is keeping market activity to a minimum and is hurting commercial end users. Mr. Jeske went on to explain that over 80 percent of the swaps market has a dealer on one side of a transaction under the current $8 billion threshold, and thus the Commission should seek other methods to address the limited market participants not currently captured in this threshold, rather than dropping it to $3 billion.

Mr. Nixon then asked panelists to discuss the interest rate environment. Mr. Chatterjee explained that the interest rate environment consists of three regions across the world: (1) the U.S.; (2) European zone; and (3) Japan. He noted that the fiscal and monetary policies in the U.S., key elections in the EU, and a focus on exchange rates in Japan will all have respective impacts. Richard Miller discussed the life insurers' ability to execute hedges in long duration products and the challenges finding liquidity in those marketplaces.

Mr. Nixon then asked panelists to discuss the application of the leverage ratio, and its effect on market efficiency and liquidity. This subject raised a substantial discussion among the participants. For example, Dr. Admati stated that the leverage ratio, as implemented, is poorly designed, and the regulations related to it are inadequate. Luke Zubrod explained that central clearing has become expensive in part due to the leverage ratio, and clearing firms must bear costs that result in higher minimum fees being passed on to the buy-side. Ms. Walters stated that as a risk manager, it makes sense to limit leverage.

Next, Mr. Nixon asked panelists to discuss the liquidity issues in the repo market. Among the discussions, Ms. O'Flynn explained that the interdealer market is functioning well; however, issues surrounding capacity, access, and pricing have impacted both clients and liquidity providers.

Lastly, Mr. Nixon asked the panelists to discuss the topic of uncleared margin. He specifically asked them to address the surge in clearing non-deliverable forwards ("NDFs") and inflation swaps after the margin rules were implemented, and the impact on liquidity, and whether the margin rules cause market participants to shift to other, lower-cost products to hedge market risk. Mr. Zubrod stated that, for end-users, the margin rules implemented on March 1, 2017, have been among the most consequential coming out of the Dodd-Frank reforms markets broadly, especially those with financial affiliates. He cautioned that while margin and clearing rules are meant to address credit risk, there is potential for liquidity risk to arise as a result. Mr. Zubrod further stated that end-users are at times forced to utilize less appropriate and/or more costly products and trading strategies to hedge risks.

Regarding the clearing of NDFs, Ms. O'Flynn explained that dealers have migrated towards clearing these products in part due to margin requirements, but it is still more expensive to clear. Jerry Jeske added that the CFTC should review its definition of what is a financial entity because it does not fit the purpose for many end users.

V. Closing Remarks

Acting Chairman Giancarlo stated that all of the remarks were very helpful across the board. He explained that when he views the issues, he considers whether they are supportive of the strength, vitality and durability of the markets necessary for risk transfer. He noted that without risk transfer, one cannot have healthy investment and that healthy investment is necessary for economic growth.

Commissioner Bowen thanked the facilitators, and stated the three panels were extremely substantive. She also thanked the key speakers who provided important insight for the Commission to consider. She further thanked the logistical staff, her staff, and Acting Chairman Giancarlo and his staff for participating in meeting.

Ms. Walker adjourned the MRAC meeting at 1:18 p.m.

I hereby certify that the foregoing minutes are accurate:

Petal Walker
Acting Chair, Market Risk Advisory Committee

10/31/17
Date