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INTRODUCTION: DERIVATIVES PROVIDE ESSENTIAL RISK MITIGATION

For more than a century, Americans have relied on U.S. derivatives markets to stabilize the cost of living. These markets allow farmers and ranchers to hedge production costs and delivery prices so that consumers can always find plenty of food on grocery store shelves. They are the reason why American consumers enjoy stable prices, not only in the supermarket, but in all manner of consumer finance from auto loans to household purchases. Derivatives markets influence the price and availability of heating in American homes, the energy used in factories, the interest rates borrowers pay on home mortgages, and the returns workers earn on their retirement savings.

And not just consumers. More than 90% of *Fortune* 500 companies use derivatives to manage commercial or market risk in their worldwide business operations.⁴ These markets allow the risks of variable production costs, such as the price of raw materials, energy, foreign currency, and interest rates, to be transferred from those who cannot afford them to those who can.

Even Americans not actively participating in commodity futures markets are affected by the prices generated by them. Commodity futures markets provide a critical source of information about future harvest prices. For example, a grain elevator uses the futures market as the basis for the price it offers local farmers at harvest. In return, farmers look to exchange prices to determine for themselves whether they are getting fair value for their crop. The U.S. Department of Agriculture (USDA) uses that same information to make price projections, determine volatility measures, and make payouts on crop insurance.⁵

In short, derivatives serve the needs of society to help moderate price, supply and other commercial risks to free up capital for economic growth, job creation and prosperity. While often derided in the tabloid press as “risky,” derivatives – when used properly – are tools for efficient risk transfer and

⁴ See Kuprianov (2009)

⁵ E.g., USDA (2017).

mitigation. It has been estimated that the use of commercial derivatives added 1.1% to the size of the U.S. economy between 2003 and 2012.⁶

And yet, global derivatives markets have not always performed as well as they should.

The 2008 Financial Crisis and Derivatives Reform

Ten years have passed since the start of the 2008 financial crisis. In September 2008, Lehman Brothers filed for Chapter 11 bankruptcy protection. Its failure was a consequence of the bursting of a double bubble of housing prices and consumer credit, as lenders became concerned about a fall in property values and repayment of mortgages. An extraordinary “run-on-the-bank” ensued with rapidly falling asset values preventing U.S. and foreign lenders from meeting their cash obligations. This marked the beginning of a financial crisis that was devastating for far too many businesses and families.

Over-the-counter (OTC) derivatives contributed to the financial crisis⁷ through American International Group’s (AIG) writing of credit default swaps (CDS) protection on mortgage products – a substantial part of AIG’s failure – and through synthetic mortgage collateralized debt obligations (CDOs), which had made their way onto bank balance sheets. Perhaps most important, however, was the lack of reliable information about OTC derivatives positions contributing to the “fog of war.” Very simply, government authorities did not have the data to accurately assess the implication of the failures of Bear Stearns, Lehman Brothers and AIG on derivatives counterparties throughout the financial system.

⁶ The Milken Institute found the following economic benefits to the U.S. economy from derivatives: “[b]anks’ use of derivatives, by permitting greater extension of credit to the private sector, increased U.S. quarterly real GDP by about \$2.7 billion each quarter from Q1 2003 to Q3 2012; [d]erivatives use by non-financial firms increased U.S. quarterly real GDP by about \$1 billion during the same period by improving the firms’ ability to undertake capital investments; [c]ombined, derivatives expanded U.S. real GDP by about \$3.7 billion each quarter; the total increase in U.S. economic activity was 1.1% (\$149.5 billion) between 2003 and 2012; [b]y the end of 2012, use of derivatives boosted U.S. employment by 530,400 (0.6%) and industrial production 2.1%.” See Prabha et al. (2014).

⁷ In contrast to exchange-traded derivatives such as listed futures and options, which performed reliably and well throughout the 2008 financial crisis.

It became clear that financial market regulatory reform was needed. It was time for swaps intermediation to be a regulated activity, just as it is in markets for other major financial products. It was time for greater transparency in swaps risk exposure and market pricing. It was time for central counterparty clearing to replace bilateral arrangements whenever possible to better allocate risk. And, it was time for swaps dealer firms to hold appropriate levels of capital against their swaps exposures.

At the 2009 Pittsburgh G-20 Summit, global leaders agreed to work together to support economic recovery through a “Framework for Strong, Sustainable and Balanced Growth.” They pledged to work together to “implement global standards” in financial markets, while rejecting “protectionism.”⁸

The G-20 leaders agreed upon several fundamental principles to reform over-the-counter derivatives markets, namely: regulation of swaps trading and execution, reporting of swaps transactions, increased central counterparty clearing of swaps transactions, and swap dealer capital requirements.

The United States moved first, with Congress enacting many of the Pittsburgh reforms into law under Dodd-Frank. Among U.S. regulators, the Commodity Futures Trading Commission (CFTC) has been the most active, implementing most of the swaps reforms under Title VII of Dodd-Frank by 2014.⁹ In Europe, swaps market reform was first implemented in the form of EMIR in

⁸ See G-20 Leaders' Statement, The Pittsburgh Summit, Sept. 24-25, 2009 at p. 2, available at http://www.treasury.gov/resource-center/international/g7-g20/Documents/pittsburgh_summit_leaders_statement_250909.pdf (G-20 Statement).

⁹ See <https://www.cftc.gov/LawRegulation/DoddFrankAct/Rulemakings/ClearingRequirement/index.htm> (clearing), https://www.cftc.gov/LawRegulation/DoddFrankAct/Rulemakings/DF_18_RealTimeReporting/index.htm (reporting), and <https://www.cftc.gov/PressRoom/PressReleases/pr6853-14> (trade execution).

2012¹⁰, to be followed by MIFID II, much of which first came on line at the start of 2018.¹¹

We now have more than four years of U.S. experience with the current CFTC regulatory framework with its varied strengths and shortcomings. Four years provides a significant sample size, if not a long period of history, to evaluate the effects of these reforms and their implementation. Based on a careful analysis of that data and experience, we are in position to address flaws, recalibrate imprecision and optimize measures in the CFTC's initial implementation of swaps market reform.

Swaps Reform Implementation Version 2.0

In many ways, regulatory frameworks are like software applications. The modern software industry is built upon a range of common methodologies and developmental frameworks, such as the software development life cycle designed to preserve the value of software over the time. That value can be enhanced by addressing flaws, improving functions, meeting additional requirements, becoming easier to use, more efficient, accommodating newer technology, and expanding the user base.

Regulatory frameworks also have a development cycle. In the United States context, the cycle begins with Congressional passage of an authorizing statute. Then, it advances through regulatory agency action subject to relevant administrative procedural requirements, including public input and comment.

¹⁰ See EMIR: Official Journal of the European Union. "Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories." See <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32012R0648>.

¹¹ See MiFID II: Official Journal of the European Union. "Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU. See <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0065>.

The maintenance stage is primarily in the hands of regulatory agencies, which gather data and empirical information and can propose rule changes or provide rule relief as appropriate. Their task is also to preserve the value of the core regulatory framework over time. The value can be enhanced by expanding the user base, meeting additional requirements, improving features, clarifying terms of use, and increasing efficiency.

Like software users, market participants will always look to participate in well-designed, regulatory frameworks. Trading counterparties seek neither the least nor the most regulated marketplaces, but marketplaces that have the right balance of sensible, objective and well-maintained regulation – in other words: good software. It is in the interest of the United States to achieve such balance in swaps market regulation.

Financial regulators have a duty to apply the policy prescriptions of their legislators in ways that enhance markets and their underlying vibrancy, diversity and resiliency. That duty also includes the responsibility to review past policy applications continuously to confirm they remain optimized for the purposes intended. It further includes anticipating changing market dynamics and the impact of technological innovation.

The authors believe that commitment should include a responsibility to pursue improvements to the CFTC Version 1.0 implementation of swaps reform that enhances market health and safety, while respecting the spirit of global swaps reform and the law embodied in the Dodd-Frank Act.

The purpose of this White Paper is to assess the CFTC's current implementation of swaps market reform in the areas of swaps central counterparties, swaps reporting, swaps execution, dealer capital and the end user exception. It looks at both areas of recognized success and deficiency. In numerous areas, it makes considered recommendations for improvement.

This White Paper considers the CFTC's particular implementation of swaps reform from a perspective that is pro-reform, aligned to Congressional

intent and that better balances market durability and systemic risk mitigation with healthy trading liquidity. Its purpose is to establish a vision for the future. The day-to-day work of the CFTC demands diligence and concentration. Yet, it must be undertaken with awareness of complex issues yet to be resolved and an overall sense of forward direction. This White Paper is intended to identify those issues and chart that direction.

The time has come to take stock of global swaps market reforms to balance better systemic risk resiliency with vibrant and durable financial markets essential for sustainable economic growth and broad-based prosperity. The time has come for Swaps Regulatory Reform Version 2.0.

1. SWAPS CENTRAL COUNTERPARTIES

Swaps clearing is probably the most far-reaching and consequential of the swaps reforms under Dodd-Frank. Its implementation by the CFTC has succeeded in significantly increasing the volume of swaps transactions cleared by central counterparties (CCPs). According to data collected by the CFTC on U.S. reporting entities, about 85% of both new interest rate swaps and new credit default swaps were cleared in 2017. Precise data as far back as 2010 are not available, but the Bank for International Settlements (BIS) estimated minimum global clearing rates at that time of about 40% for interest rate swaps and 8% for credit default swaps.¹²

The challenges of swaps regulatory reform, therefore, have been to ensure the following: (1) that CCPs hold resources that are sufficient to render them safe and sound under extreme but plausible conditions; (2) that, should these resources ever prove insufficient, CCPs have transparent and credible recovery plans to maintain their viability without government assistance; and (3) that government resolution plans are in place should these recovery processes fail or seem likely to fail, and should authorities deem it necessary to intervene.

Over the past several years, there has been substantial progress in ensuring the safety and soundness of swap CCPs and in their development of recovery plans. Nevertheless, government resolution plans remain very much work in progress. The purpose of this section, therefore, is not to suggest changes in the direction of policy with respect to CCPs, but rather to encourage continued progress and to point out current and future challenges. While some of the exposition here may be relevant for CCPs to other types of transactions, the focus of this discussion is very much on CCPs that clear swaps.

A. CCP Risk and Risk Mitigants

A prerequisite to understanding the challenges of regulating CCPs is an understanding of the nature of the risks of clearing.

¹² Wooldridge (2016).

Consider the case of an interest rate swap (IRS). A bank agrees to receive a fixed rate of interest from – and pay a floating rate of interest to – a swaps dealer. When that swap is cleared, the swaps contract changes in several ways.

First, the CCP interposes itself between the bank and the dealer. The bank makes all of its contractual payments to the CCP, which passes them to the dealer. The dealer makes all of its payments to the CCP, which passes them to the bank. It is in this sense that CCPs run a perfect “matched book.” Every payable is matched, in timing and amount, by a perfectly offsetting receivable.

Second, as the swap changes in value, the party that loses value agrees to pay variation margin to the CCP, to be passed on to the party that gains value.¹³ Continuing with the IRS example, say that interest rates increased over the day. Then the bank loses money on the swap: It had agreed to receive a fixed rate, which, now that rates have increased, is relatively low. It had also agreed to pay a floating rate, which is now relatively high.

The exact amount of money that the bank loses depends on the maturity and size of the swap. If it happens that the bank loses \$1 million in value on the swap over the day, then the bank would have to pay the CCP \$1 million in variation margin, which would, in turn, be paid to the dealer.

The third change to a swap contract when it is cleared is that the CCP assumes the legal obligation to make all payments. If the bank were to default, so that it no longer made payments to the CCP, the CCP would nevertheless be obliged to make payments to the dealer. Conversely, if the dealer were to default, the CCP would continue to pay the bank. In other words, after a default, the CCP no longer has a perfectly matched book.

¹³ This discussion reflects the relatively recent treatment of variation margin as settlement, which means that variation margin payments are, in fact, payments from one party to another, like daily settlement payments in futures markets. Previously, variation margin payments in swap markets were transfers of collateral from one party to the other.

The risk to the CCP, therefore, is that one of the counterparties loses value on its position and defaults—before having made its variation margin payment for the day. In that situation, the CCP does not receive variation margin from one side of a trade but is nevertheless obligated to pay variation margin to the other side. Furthermore, since the CCP's book is no longer matched, the CCP runs the risk of incurring future variation margin payables with no offsetting receivables.

To restore its matched book, the CCP needs to replace the swaps of the defaulting counterparty. In the context of the example, if the bank defaults on its swap to receive fixed and pay floating, the CCP has to find another counterparty to receive fixed and pay floating.¹⁴

Under perfect conditions, finding another counterparty to step in to the bank's position would cost very little. Once the CCP has paid the outstanding variation margin obligations of the defaulting bank, the value of the bank's swap position is zero. Therefore, any market participant that wants to receive fixed would be willing to take over the bank's position at little cost.

In practice, however, the CCP might have to pay someone a nontrivial amount to take over the bank's position, particularly if the defaulting bank's position is large, and if markets are under stress. The costs of replacing defaulted positions are known as "liquidation" costs, because the defaulted positions have to be extinguished, or liquidated, and then taken over by another counterparty.¹⁵

¹⁴ A matched book is typically restored by auctioning the defaulted positions to surviving clearing members. See CPMI-IOSCO (2017), paragraph 4.5.3. Members are incentivized to participate in such auctions both through opportunities to profit from such participation and through potential juniorization of their guaranty funds, in which some portion of guaranty fund losses are first allocated to members making poor bids.

¹⁵ More precisely, as soon as possible after a default, a CCP hedges the market risk of no longer having a matched book. Then, through an auction, the CCP transfers the defaulted positions and the hedges to one or more clearing members. In practice, most of the liquidation costs are incurred in the hedging rather than the auction phase of replacing defaulted positions.

In summary, then, the risk of clearing to a CCP is that, should a clearing member default, the CCP must make any outstanding variation margin payment and must bear the costs of restoring its matched book.

This section now describes exactly how risk is mitigated at swap CCPs. The CFTC is very involved in the process, through oversight of risk management practices, requiring and scrutinizing daily risk reports, and thorough, periodic examinations. The section concludes with challenges to improving CCP risk mitigation even further.

Clearing Members

Settlement accounts at CCPs are limited to clearing members, which are subject by CCPs and by regulation to rigorous, ongoing requirements with respect to financial resources, risk management and operational capabilities.¹⁶

In the example presented, the bank and the dealer are both clearing members that deal directly with the CCP. A particular bank might not be a member, however, in which case it would deal with the CCP through the intermediation of a clearing member. In that case, the bank's ultimate performance to the CCP would be safeguarded by a guarantee from the clearing member.

Initial Margin

CCPs collect initial margin, or a "performance bond," to ensure that they can meet their obligations in the event of a member default, as described above.

Returning to the example, the bank might have posted \$3 million of initial margin against its swap position. Should it default, with an unpaid variation margin obligation of \$1 million, the CCP would use \$1 million of the initial margin to make that variation margin payment. Subsequently, should it cost \$500,000 to

¹⁶ See Reg. §39.12(a), 17 CFR 39.12(a). Risk management requirements include the incorporation of daily stress tests, which estimate potential losses under extreme but plausible market events.

replace the bank's position and restore the matched book, the CCP would recover that sum from the bank's initial margin as well.

In this more detailed example, as long as the variation margin obligation and the replacement cost sum to less than the \$3 million of available, initial margin, the CCP bears no loss as a result of the member's default.

By regulation, the CCP must set the initial margin of each position at an amount commensurate with its risk. At a minimum, this includes enough initial margin to cover a 99% tail event over a "margin period of risk," which, for swaps, is typically five days.¹⁷ In other words, in the event of a member default, a CCP will have enough initial margin on hand to cover five days of variation margin obligations in an adverse 1-in-100 five-day market move.

To cover the potential costs of replacing defaulted swaps, CCPs typically increase initial margin requirements above the market risk charges just described. Larger and less liquid positions are typically charged the most, commensurate with the greater risks inherent in their potential liquidations.

Additional Prefunded Resources: Guaranty Fund and Skin-in-the-Game

Despite best efforts to ensure that clearing members are creditworthy and that initial margin is adequate, there is always the possibility that combinations of clearing member failures and adverse market moves in excess of margin would leave a CCP with losses. To protect itself from these rare events, a CCP is required to have additional prefunded default resources.

Current CFTC regulations require a "cover-two" standard for large and complex CCPs.¹⁸ This means that the total amount of prefunded default

¹⁷ Reg. §39.13(g)(2)(iii), 17 CFR 39.13(g)(2)(iii). Clearing members must collect margin from the customers they introduce to the CCP. See Reg. §39.13(g)(8)(i), 17 CFR 39.13(g)(8)(i) and Reg. §39.13(g)(8)(ii), 17 CFR 39.13(g)(8)(ii). Furthermore, customer margin is posted to the CCP on a "gross" rather than "net" basis; that is, margin must be calculated separately for each customer and then summed across customers. Reg. §39.13(g)(8)(i)(A), 17 CFR 39.13(g)(8)(i)(A).

¹⁸ More specifically, the "cover-two" standard applies to CCPs that clear products with a more complex risk profile or that are systemically important in multiple jurisdictions. See Reg.

resources must be sufficient to cover losses from the failure of the two clearing members whose default – under extreme but plausible market stress – would cause the largest aggregate loss.

Almost all of the additional prefunded resources are collected from members as guarantee fund contributions. A very small portion is known as “skin-in-the game,” and is contributed by the owners of the CCP.

The owners of a CCP naturally have a strong incentive to keep a CCP viable and safeguard its reputation for strong risk management. Skin-in-the-game is intended to strengthen those incentives: CCP owners that have funds directly at risk in the event of a costly default have all the more reason to be vigilant risk managers.¹⁹

Unfunded Resources

The final category of resources available to a CCP is “assessments” or “cash calls,” which clearing members have agreed to provide in case of need. The magnitudes of potential assessments vary by CCP, but are almost always capped by rule. In one case, for example, which provides for a relatively low level of total resources, prefunded default resources plus maximum assessments are set to a “cover-four” standard.

Some have questioned whether clearing members will honor assessments in the midst of a financial crisis, after the CCP has gone through all of its prefunded resources. This question will be discussed later in this section, but for now it will be noted that clearing members who have positions at the CCP are legally obliged to provide funds in accordance with CCP rules.

§39.33(a)(1), 17 CFR 39.33(a)(1), and CPMI-IOSCO (2012), Principle 4, paragraph 3.4.19. Other CCPs are subject to a “cover-one” standard.

¹⁹ CCPs are required to hold funds, separate from skin-in-the-game, to ensure that they can continue operations for some time after disruptions arising from non-default events. See Reg. §39.11 and 39.33.

The Waterfall

CCP rules define a “waterfall” that allocates losses across resources. The typical order of a waterfall for a swaps CCP, from first to last allocations, is as follows:

- Margin of the defaulting customer or member;
- Guaranty funds of the defaulting member;
- Skin-in-the-game;
- Guaranty funds of non-defaulting members; and
- Assessments on non-defaulting members.

Challenges

To summarize, should a member default, a CCP is exposed to any unpaid variation margin obligations and any costs of liquidating the swaps of the defaulting member. To mitigate these risks, beyond monitoring the creditworthiness of its members, a CCP collects initial margin, default fund contributions from its members and puts up some skin-in-the-game itself. The total of these prefunded resources are set so as to cover losses arising from the combination of extreme market events and the default of the two largest clearing members. Furthermore, a CCP also has the legal right to call for a predetermined amount of additional funds from its non-defaulting members.

So far, so good. But challenges do remain to ensure the safety and soundness of CCPs in extreme scenarios.

Liquidity of Prefunded Resources. CFTC regulations require that CCPs hold margin in safe and liquid assets. These requirements restrict both the securities that members post as margin and the CCPs’ investments of cash posted as margin. Nevertheless, since the default of one or more clearing members may very well be part of a larger financial crisis, a CCP with a sufficient amount of resources to meet its obligations might have difficulty converting those resources into cash as quickly as needed.

To the extent that prefunded resources are held as cash deposits in commercial banks, there is a risk that, in a crisis, funds cannot be drawn as contractually stipulated. A depository might fail, leaving the CCP, at least temporarily, without access to its funds.

Similarly, cash invested through high-quality repurchase agreements (repo), that is, through loans secured by high-quality collateral, are subject to the risk of the failure of repo counterparties. In such cases, the CCP would have to take ownership of the collateral and sell it to raise cash.

Title VIII of Dodd-Frank, mindful of these risks, permitted the Federal Reserve to allow CCPs that have been designated as systemically important to deposit money directly with the Federal Reserve.²⁰ These deposits are, of course, riskless in terms of U.S. dollars.

While accounts at the Federal Reserve give selected CCPs a truly riskless place to hold funds, they do raise an unsettled policy question. The CCP “industry” is extremely concentrated, which itself presents certain risks to the financial system. Does giving these large CCPs access to Federal Reserve accounts raise barriers to entry? Should Federal Reserve accounts be available to smaller CCPs and potential CCP entrants that meet various registration and regulatory requirements?

The prefunded resources of a CCP that are held in securities are exposed to another sort of liquidity risk. In a crisis, with many market participants selling securities to raise cash, a CCP might find it difficult and expensive to do the same. On the one hand, almost all CCP security holdings are presently in the highest quality government bonds, which tend to be in great demand during a crisis. On the other hand, all such bonds are not equally liquid, and there are no guarantees in a liquidity crisis.²¹

²⁰ Title VIII, Section 806(a).

²¹ Securities posted as margin are typically subjected to dollar limits and are typically accepted at a “haircut” from their market values. For example, \$100 worth of corporate bonds might count for

It is important, therefore, to continue to be vigilant about the investment of prefunded resources, from diversifying exposures to depositories and repo counterparties to monitoring and managing the liquidity risk of securities holdings. The CFTC examined clearinghouse liquidity along these lines in the 2017 iteration of its CCP stress tests.²²

Title VIII of Dodd-Frank addresses the liquidity risk of margin held in securities by allowing the Federal Reserve, “in unusual or exigent circumstances,” to make collateralized loans to CCPs designated as systemically important.²³ As a last resort, therefore, should a CCP have trouble selling the securities it holds to raise cash, it can temporarily borrow money from the Federal Reserve, to be repaid as the securities are sold.

This provision of Title VIII raises similar policy issues as the accounts provision. Does the possibility of last-resort lending encourage unhealthy market concentration, and, if so, should that safety net be extended to smaller CCPs and potential entrants? Does the Dodd-Frank change to Section 13(3) of the Federal Reserve Act, requiring that emergency lending be of “broad-based eligibility,” overly restrict what can be done to assist non-designated CCPs?

Correlated Defaults and Network Effects. Traditionally, counterparty credit risk management seeks to ensure that an entity could survive the default of its largest counterparties. To that end, it is sometimes assumed that more than one counterparty could default at about the same time. It is challenging, however, to understand the relative likelihoods of numerous, near-coincident defaults.

A next generation of methodologies should explicitly capture correlations across defaults, to gain insight into the probabilities of near simultaneous defaults. One approach relies on correlations across positions at various

only \$80 against margin requirements. These haircuts are intended to protect against both loss of value and costs of liquidation in stressful market environments.

²² Commodity Futures Trading Commission (2017).

²³ Title VIII, Section 806(b).

financial institutions.²⁴ Another approach – of particular interest since the most recent crisis – studies networks of relationships that might spread defaults across the system.

Network analysis would highlight a broad range of connections between financial entities. First, members of one CCP might very well be members of another as well. Second, CCP members are exposed to defaults of their counterparties and customers. Third, all of these entities are linked not only through cleared derivatives exposures, but also through other financial positions, like prime brokerage balances, repo financing, credit lines, uncleared derivatives, commercial paper holdings, and loans.

Analyzing correlations of positions and networks is challenging, of course, because CCPs have regular, detailed information only on the cleared derivatives exposures of their members. The CFTC has information on both cleared and uncleared derivatives exposures of U.S. reporting entities, but not on their non-derivatives exposures.

In any case, correlated defaults and network effects are active areas of regulation and research that deserve continued attention.²⁵ Meanwhile, near-term comfort may be derived from the CFTC's 2016 stress tests, which showed that clearing members with significant losses at one CCP in a given stress scenario did not tend to have significant stress losses at other CCPs in that same scenario.²⁶

Liquidation of Defaulted Swaps Positions. Should a clearing member default, its positions have to be replaced by the CCP to restore the matched book. The cost of replacing these positions will depend on the trading liquidity of

²⁴ See, for example, Menkveld (2017).

²⁵ Commodity Futures Trading Commission (2016, 2017), for example, were stress tests that analyzed the concurrent effects of clearing member defaults on all CCPs at which they are members. CPMI-IOSCO (2018) calls for stress tests across multiple CCPs. Relevant and recent academic research includes Glasserman, Moallemi, and Yuan (2016), Heath et al. (2016), and Poledna, S., et al. (2015).

²⁶ Commodity Futures Trading Commission (2016).

the swaps in question for the position size to be replaced in a stressed market environment.

A significant portion of the total margin collected by CCPs is for protection against liquidation costs.²⁷ It should be noted, however, that quantifying these costs is particularly difficult. Market savvy traders know how much it costs to liquidate large positions under current market conditions. Anticipating these costs in future, unknown, stressed conditions is an entirely different matter.

The margin charge for liquidation costs should, therefore, continue to be a subject of continued thought and scrutiny. Furthermore, an important criteria for accepting new, less liquid products for clearing should be the ability of CCPs to quantify their replacement costs under difficult market conditions.

Design of the Waterfall. As described above, the CFTC sets a standard for the total quantity of prefunded resources, i.e., margin, default fund contributions and skin-in-the-game. The CFTC does not dictate the relative contributions of members in the form of default fund contributions and those of CCP owners in the form of skin-in-the-game.

The issue here is whether incentives are aligned so as to achieve a socially optimal level of risk taking at a CCP. As discussed earlier, CCP owners certainly have incentives to control risk. But owners also have incentives to expand their business, perhaps to the point of taking more than a socially optimal level of risk. CCP members that have contributed to the mutualized default fund have incentives to monitor the owners and prevent excessive risk taking. And members of swap CCPs are, for the most part, large and sophisticated financial institutions with the financial resources to protect their economic interests. Ultimately, this issue touches on broader questions about incentive structures at CCPs.²⁸

²⁷ See, for example, Roberson (2018).

²⁸ See, for example, Cox and Steigerwald (2016), McPartland and Lewis (2017), and Saguato (2017).

B. Recovery

The previous section described the mass of resources available at a CCP to cover losses from member defaults. And, even through the most recent financial crisis, no CFTC-registered derivatives clearing organization has needed more to handle a default than the margin of the defaulting counterparty.

But what if, despite all of the regulations, careful risk management and financial buffers described above, the CCP cannot cover all of its losses? To deal with these extreme scenarios, CFTC regulations require that large and systemically important CCPs have credible recovery plans to remain viable as going concerns without resorting to government assistance.²⁹ In fact, the rule-based nature of CCP operations is what allows for the possibility of reliable recovery tools.

Essential elements of a recovery plan are comprehensively allocating any and all remaining losses, restoring a matched book and replenishing financial resources. One strategy that has gained traction is to combine gains-based haircuts (GBH), which can comprehensively allocate variation margin obligations,³⁰ with partial “tear-ups,” which can ensure the restoration of a matched book.³¹

Recall that CCP payment obligations arise from the need to make variation margin payments to swaps counterparties whose positions have gained in value. Therefore, a dependable way to limit CCP payments to resources available is to “haircut” variation margin payables. GBH does just that: Variation margin payments due to clearing members and their customers are reduced, *pro rata*, to the point that payables no longer exceed available resources.

²⁹ Reg. §39.39, 17 CFR 39.39. Recovery plans are required for systemically important derivatives clearing organizations (DCOs), as well as Subpart C DCOs that have elected to become subject to Subpart C of Part 39 of CFTC regulations.

³⁰ CPMI-IOSCO (2017), paragraphs 4.212-4.2.16. See also Lukken et al. (2017).

³¹ CPMI-IOSCO (2017), paragraphs 4.5.17-4.5.20. See also Lukken et al. (2017).

GBH is not, however, a comprehensive recovery solution on its own. GBH does ensure that a CCP does not owe more in variation margin than it can pay, but it does not ensure that the CCP has enough resources to replace defaulted positions, that is, to restore a matched book.

To that end, the comprehensive strategy being described includes tear-ups. To the extent that a CCP lacks the resources to replace positions, it tears up, according to an *ex ante* formula, some selection of offsetting, non-defaulted positions until the matched book is restored.

The combination of GBH and tear-ups is a comprehensive recovery solution, as required, but is far from a panacea. With respect to GBH, garnishing the gains of counterparties that happen to have had realized gains over a particular clearing cycle is quite arbitrary. It could turn out, for example, that haircutting the payments of those counterparties might cause them to fail on their obligations, thus destabilizing the financial ecosystem even further.

Tear-ups can also be disruptive. Counterparties that had executed cleared swaps to hedge or take on particular market positions must, after tear-ups, do without these hedges or positions or scramble to replace them.

To summarize, since the passage of Dodd-Frank, CCPs and regulators have made substantial progress in putting recovery plans in place. Even in extreme scenarios, a CCP should be able to allocate all losses and restore a matched book using the fallback strategies of GBH and tear-ups. Some challenges remain, however, three of which will be discussed here.

Transparency and Predictability

Recovery plans should be as transparent and predictable as possible. This means that, subject to the constraints of protecting confidential and sensitive business information, market participants should have a solid understanding of what a CCP can and will do in various market scenarios. In this way, clearing

members and their customers can measure, manage and control their own risks as effectively as possible, as CCPs take their extraordinary recovery measures.

While much has been done to articulate recovery plans, indications are that, for whatever reasons, they are not broadly accepted as complete. In one survey, fewer than 20% of investors claimed to understand the waterfall at the CCPs at which they cleared.³² And many market participants have called for greater transparency and predictability of recovery plans.³³

Uncertainty Surrounding Assessments

In terms of direct expense, it is, of course, cheaper for clearing members to commit to make assessments as necessary than to increase prefunded contributions.

But assessments add uncertainty to the recovery process. Although assessments are legally binding, clearing members and market participants might have doubts, in the midst of a crisis, as to who will and who will not honor assessments.

Doubts about the willingness and ability of clearing members to come through with assessments might very well be overblown. Internal CFTC analysis has shown that, for most clearing members, potential assessments are a relatively small percentage of capital. Also, clearing members, by the nature of their businesses, have a strong interest in the continued viability of the CCP and its clearing services.

Nevertheless, it is hard to dispute the assertion that assessments increase the uncertainty surrounding recovery. For that reason, there have been calls to replace assessments with additional prefunded resources.³⁴

³² McPartland (2015).

³³ See JPMorgan Chase & Co. (2014), pp. 2-3; Kennedy (2017), p. 14; Martin (2017), p. 2.

³⁴ See, for example, JPMorgan & Chase Co. (2014), p. 3, and Lubben (2017).

The Role of Regulators in Recovery Planning

While regulators must ensure that credible recovery plans are in place, they should be reluctant to mediate the disparate interests of CCPs, swap dealers and end users.

Swap dealers, for example, tend to care most about being “position good.” With very large and complex books of swaps, they want to keep their positions and exposures to the market intact, even at the cost of some losses from GBH over some period of time.

Asset managers, on the other hand, tend to care most about being “money good.” They might prefer one day of GBH followed by full tear-ups, after which they would attain their desired market exposures by means other than cleared swaps.

Regulators should primarily insist on credible recovery plans but, as in the case of rules concerning prefunded resources, remain quite cautious in becoming more prescriptive about the workings of those plans.

C. Resolution³⁵

This final section discusses the situation in which recovery plans have not sustained derivatives clearing activity. Perhaps market participants lost faith in the recovery process, the CCP and its members, so that everyone rushed to close out all swaps positions. Or perhaps recovery was successful, in the sense of fully allocating losses and restoring a matched book, but neither clearing members nor owners of the CCP were willing to replenish guarantee funds and skin-in-the-game so that clearing services can resume.

In such an eventuality, authorities will either need to allow clearing activity to disappear or, instead, to intervene. Before moving on, however, it is worth noting that in this dire scenario, in which several large financial institutions that had been clearing members have defaulted, and in which surviving industry has

³⁵ For a more detailed discussion along these lines, see Duffie (2015).

neither the financial strength nor the confidence to put new resources into a CCP, there will almost certainly be systemic problems that are more pressing than preserving or restoring derivatives clearing services.

In any case, prudence dictates that resolution plans be made. Title II of Dodd-Frank provides for the orderly resolution of a CCP should authorities decide to intervene.³⁶ In this eventuality, resources from the orderly liquidation fund (OLF) could be made available to ensure continuity of clearing services.

The provision of OLF funds under Dodd-Frank is limited, however, to 10% of the balance sheet assets or 90% of the fair value of the assets available for repayment of the financial company in question.³⁷ These restrictions would appear to be particularly binding when applied to CCPs, which typically do not own significant assets relative to the size of their businesses, as do other financial companies.

But in the case of a CCP that has already experienced member defaults, assets could include first-position claims against the estates of the defaulting

³⁶ Some have argued that it is not clear that Title II applies to CCPs. See, for example, Lubben (2015) and Steigerwald and DeCarlo (2016). The view here and elsewhere, however, is that it does. See, for example, JPMorgan Chase & Co. (2014). p. 4. Section 201(a)(11) of the Dodd-Frank Act defines “financial company” to include, among others, companies that are predominantly engaged in activities that the Board of Governors of the Federal Reserve (Federal Reserve) has determined are “financial in nature or incidental thereto” for purposes of section 4(k) of the Bank Holding Company Act of 1956. 12 U.S.C. § 1843(k). In 2013, the Federal Deposit Insurance Corporation (FDIC) issued regulations establishing the criteria for determining whether a company is predominantly engaged in such activities for purposes of Title II. 78 FR 34712. Activities that derivatives clearing organizations (DCOs) typically engage in are explicitly identified as “financial activities.” Furthermore, section 210 of the Dodd-Frank Act confirms that systemically important DCOs are eligible for resolution under Title II. Section 210(m)(1)(B) provides that the FDIC shall, in connection with the liquidation of any covered financial company or bridge financial company that is a commodity broker, “apply the provisions of subchapter IV of chapter 7 of the Bankruptcy Code, in respect of the distribution to any customer of all customer property and **member property**, as if such covered financial company or bridge financial company were a debtor for purposes of such subchapter” (emphasis added). The term “member property” is defined in subchapter IV of chapter 7 of the Bankruptcy Code as “customer property received, acquired, or held by or for the account of a debtor that is a clearing organization, from or for the proprietary account of a customer that is a clearing member of the debtor.” 11 U.S.C. § 761(16). The term “clearing organization” is defined as a DCO that is registered with the Commission. 11 U.S.C. § 761(2). Accordingly, the term “member property” in section 210(m)(1)(B) is a specific reference to a provision that is applicable directly and only to DCOs, and statutory interpretation frowns upon interpreting a provision of a statute as “mere surplusage.”

³⁷ Dodd-Frank Act, Section 210(n).

members. These claims might provide a base upon which the OLF could advance funds and eventually be repaid. In addition, as provided by Dodd-Frank, any failures to repay OLF advances would be recouped from broad assessments against the financial sector.

The most important work in progress with respect to resolution of systemically important CCPs is coordination between the Federal Deposit Insurance Corporation (FDIC) and the CFTC. Title II of Dodd-Frank provides for the appointment of the FDIC as receiver, given its historical experience in resolving banks. The CFTC, however, has indispensable expertise as the primary regulator of swap CCPs.

The two agencies, therefore, are working closely to coordinate the planning and execution of any CCP resolution.³⁸ The more transparent the intentions of regulators in a crisis, the better market participants can manage their own risks and minimize cascading disruptions.

D. Conclusion

The clearing requirement of Dodd-Frank has successfully moved large quantities of over-the-counter derivatives to swaps CCPs. As a result, swaps clearing has become subject to heightened vigilance by market participants, clearing members, the CCPs themselves and regulators.

While much progress has been made along these lines, particularly with respect to daily risk management and recovery planning, this section has pointed out some issues that require further attention. With respect to government initiated and supervised resolutions, the ball is very much in the courts of the FDIC and CFTC.

³⁸ In 2017, the CFTC and FCIC established a dedicated joint working group to establish protocols for coordinated action in the event of resolution of systemically important CCPs.

2. SWAPS REPORTING RULES

A. Background

The global swaps market had operated since its birth with a lack of regulatory transparency and broadly disseminated price discovery for market participants. With the passage of Dodd-Frank, the CFTC was given broad responsibility to implement reporting of swap data. The CFTC faced the challenge of creating something that had not existed before. What has resulted thus far is an imperfect reporting regime.

When the CFTC began implementing the trade reporting requirements of Dodd-Frank, the swaps industry lacked uniform data standards that could be applied by all swaps participants in their various internal systems and interactions with counterparties. The legislation provided for new entities called Swap Data Repositories (SDRs) to accept CFTC-prescribed trade data. These SDRs have since developed as separate, but related, businesses tied to existing large conglomerates with preexisting infrastructures and data standards serving particular asset classes and market participants.

The CFTC adopted a largely principles-based approach to swap data reporting requirements, befitting its tradition as a principles-based regulator of wholesale markets. Data reporting has, however, proven to be an area where specificity is a prerequisite, and uncertainty or optionality regarding what and how to report leads to unsatisfactory data reporting. In the initial swap data reporting regulations, the CFTC did not provide sufficient technical specification clearly illustrating the exact information to be reported, including clear definitions, form and manner, allowable values, and mappings to existing data schema.

Neither the CFTC nor key components of the reporting ecosystem properly addressed through rule-making or the associated comments all the nuances and activities present in swaps markets that needed to be reported, identified all the challenges that reporting would entail, or predicted the unintended consequences of some decisions. SDRs were allowed to apply their

own data schema and develop unique templates for reporting, sometimes accepting whatever their clientele wished to report based on legacy systems or requiring an unnecessary number of data elements to represent the terms of a swap transaction. This construct does not facilitate efficient reporting from counterparties that have been forced either to build new reporting systems from scratch, cobble together existing technology to meet the regulatory need, or rush to press other unrelated reporting mechanisms into service.

B. Present Day

Improvements in Swaps Data Reporting

The current state of swaps data reporting, both for public transparency and regulatory reporting, has improved considerably since the original publication of the CFTC's swap data reporting requirements in 2012. With the benefit of experience, staff, reporting counterparties and SDRs have worked together to ensure that data is more timely, more complete and more accurate, as interested parties have adjusted to the reporting landscape and have gained familiarity with their ongoing obligations to report.

The result is that substantial progress toward improving swap data integrity has occurred. For example, in 2014, roughly half of all reports for the highly standardized credit default swaps (CDS) lacked complete price information, and approximately 15% of all CDS trades lacked a legal entity identifier, making it difficult to identify the counterparty. However, by early 2018, roughly 95% of all CDS trades had complete counterparty and price information.

International Swaps Data Harmonization

Now that other major market regulators around the globe have implemented their swaps regulation, the CFTC is no longer tackling the challenge of reporting swap transactions unilaterally. Today, the CFTC cooperates with the global regulatory community, trade repositories and reporting counterparties to harmonize technical guidance in a coordinated fashion for key derivative terms,

such as transaction and product identifiers via the Committee on Payments and Market Infrastructures (CPMI), the International Organization of Securities Commissions (IOSCO), and the Financial Stability Board (FSB).

The CFTC serves as co-chair of the CPMI-IOSCO Harmonization Group that in 2017 issued final guidance regarding unique transaction identifiers³⁹ (UTIs) and unique product identifiers⁴⁰ (UPIs). UTIs will facilitate consistent global aggregation and analyses of OTC transactions by ensuring that transactions are not double-counted across jurisdictions. UPIs will be assigned to each distinct derivative product, enabling regulators to analyze activity by product type. In April 2018, CPMI-IOSCO published final detailed technical guidance on critical data elements representing data fields that are essential to regulators' ability to perform meaningful analysis on global swap data. In addition to identifying these critical fields, the guidance provides standardized definitions and reporting formats, facilitating global standardization and consistent reporting, so that market participants will be able to report the same field consistently.

Impact of Public Transparency and Trading Liquidity

Swaps data reporting is intended not only to provide a basis to identify systemic risk, but also to increase market transparency and to foster price discovery, both of which are important to healthy trading liquidity. Transparency and liquidity are cornerstones of the type of swaps trading that the CFTC has a mission to promote: open, transparent, competitive, and financially sound markets.⁴¹ Meeting that mission requires an appropriate calibration of transparency and liquidity.

³⁹ See International Organization of Securities Commissioners Committee on Payments and Market Infrastructures (2017a). Last December, the Financial Stability Board issued a final implementation plan for UTIs, recommending that all jurisdictions implement UTIs no later than the end of 2020. See Financial Stability Board (2017).

⁴⁰ See International Organization of Securities Commissioners Committee on Payments and Market Infrastructures (2017b).

⁴¹ See CFTC mission statement at CFTC.gov.

Transparency requirements reduce information asymmetries and engender confidence in prices, both of which can reduce transaction costs and ultimately improve liquidity. But post-trade transparency requirements should not be unvaryingly immediate as to make it difficult, especially for reliable liquidity providers, to trade large positions for fear of being “picked off” by a competitor exploiting such transparency. The history of markets tells us that absolute transparency requirements can harm liquidity by driving participants out of the market through the introduction of associated trading risk.⁴² The rules should be tailored to the innate liquidity profiles of their associated swaps products. This is especially important for the large-size trades whose liquidity is most sensitive to the reporting requirement related to transparency.

The current reporting regime, in certain instances, allows for a time delay in the public dissemination of a “block trade” that is above a specified notional size. The rules also cap the public dissemination of notional amounts up to a specified size rather than broadcast the actual notional amounts for such transactions. These rules are intended to ensure that (1) public dissemination of large trades does not materially reduce market liquidity and (2) that public dissemination of large trades does not disclose the names or identities of the parties.

Market participants have different opinions on the appropriateness of the current transaction size thresholds and of the current length of the delay in public dissemination based on their particular role in the market. The challenge is to modify the existing reporting regime for large trades through adjustments to transaction size thresholds or dissemination delay duration in order to optimize transparency and price discovery without jeopardizing healthy trading liquidity. The challenge is great, especially considering that standard measures of liquidity, such as bid-ask spreads and market depth, may not be relevant when considering the quality of large trade liquidity and the ability of market participants to buy or sell specific instruments without moving markets.

⁴² See Gemmill (1996).

The CFTC should continue to work with market participants to address these issues. A literature review of contemporary academic and market practitioner research concerning the impact of public transparency, in general, and real-time reporting, specifically, identifies varying benefits and costs associated with market transparency. The existing literature has examined several instances when transparency and reporting rules have changed and provides an opportunity to quantify the relative impacts. One practical difficulty in executing such studies is that data might exist for the period after transparency is implemented, but it is often unavailable during the period before transparency.

The major market change examined in the literature is the introduction of transparency into the OTC corporate bond market through the Trade Reporting and Compliance Engine (TRACE) overseen by the Financial Industry Regulatory Authority (FINRA).⁴³ Bessembinder, Maxwell, and Venkataraman (2006)⁴⁴ examined a database of insurance company bond trades and concluded that, following the introduction of TRACE, trading costs for the bonds in this phase declined by half. They also found a smaller reduction in trading costs also declined for bonds with prices that were not publicly disseminated; they attributed this decline to the use of the newly available public information on prices of some bonds.

In a different study, Asquith, Covert, and Pathak (2013)⁴⁵ noted that earlier studies of TRACE implementation focused on relatively high-grade bonds. They concluded that trading activity in the least active, high-yield bonds fell immediately and sharply after transaction prices for those bonds began being disseminated. Bonds in this final phase of TRACE experienced a 41% decline in trading once reporting began. The authors concluded that this decline might reflect the fact that bonds in this group were relatively more opaque than the more active bonds in the earlier groups. This larger quantity of information might

⁴³ See <http://www.finra.org/industry/trace>.

⁴⁴ See Bessembinder, et al (2006).

⁴⁵ See Asquith, et al (2013).

lead to less trading demand. On the other hand, the decline might reflect the response of dealers to the new environment.

We encourage further research and analysis from industry and academia to assist the CFTC in considering adjustments to public reporting requirements to better optimize trading liquidity with the benefits of transparency in the swaps market.

C. Next Steps

CFTC staff has begun the process of assessing the effectiveness of its swap reporting rules with the intent of improving the data reporting requirements, as outlined in the CFTC’s 2017 Roadmap to Achieve High Quality Swaps Data (Roadmap).⁴⁶ A wide range of market participants provided feedback via written comments, and interested entities discussed their comments with CFTC staff. Under consideration are changes to the reporting rules, including Parts 43, 45, and 49 of the CFTC’s regulations, with the goal of having more complete, more accurate, and higher-quality data available to the CFTC and to the public, in fulfillment of the purposes of Dodd-Frank and in order to help the CFTC perform its regulatory responsibilities.

Verification of Data Accuracy and Completeness

The next step in the Roadmap process should be to update requirements for SDRs and swap counterparties to verify⁴⁷ the accuracy and completeness of data that has been reported to the SDR. The Commodity Exchange Act⁴⁸ section 21(c)(2) requires SDRs to “confirm with both counterparties to the swap the accuracy of the data that was submitted.”⁴⁹ The CFTC should update the current confirmation requirements⁵⁰ to more clearly require both SDR and reporting

⁴⁶ See Commodity Futures Trading Commission (2017a).

⁴⁷ The Commission plans to refer to this process as verification of swap data, as opposed to confirmation of swap data, in order to reduce any confusion caused by the use of the word “confirmation” in multiple contexts within Commission regulations.

⁴⁸ 7 U.S.C. § 1, et. seq.

⁴⁹ 7 U.S.C. § 24a(c)(2).

⁵⁰ See 17 CFR 49.11 (containing the swap data confirmation requirements).

counterparties to perform the verification of swap data, similar to a portfolio reconciliation exercise. This can be accomplished through SDRs providing regular reports detailing the swap data they maintain to the relevant reporting counterparties, followed by the reporting counterparties reviewing the data and responding to the SDR with a verification that the data is accurate or an indication that the data is not accurate. Any incorrect or missing data would then be corrected.

There are other changes worth considering that will provide more clarity for reporting requirements and correction requirements, increase consistency between CFTC regulations related to data reporting, harmonize certain requirements with the requirements of other regulators, and provide the CFTC with more flexibility to adapt to new technology that may improve the efficiency and ease of data reporting.

Validation of Incoming Data

Another enhancement to the Roadmap process is to include requirements for SDRs to validate data as it arrives. SDRs sometimes validate a subset of data that is reported to them, but current SDR validations are inconsistent and do not always aid in making accurate and complete data available to the public and the CFTC. Providing a unified set of validations that correspond to the updated data fields will provide consistency that will help reporting entities and SDRs comply with the data reporting requirements.

Validations of this nature are very similar to what the European Securities and Markets Authority (ESMA) has already enacted within its jurisdiction. Not only should data quality improve but international harmonization should also improve as the largest global SDs and SDRs are already subject to these requirements and have built appropriate systems in response. The new validation requirements will also make clear that reporting entities must correct and resubmit data that fails a validation in a timely manner in order to satisfy their reporting obligations.

Changes to Regulatory Reporting – Part 45

Also worth considering are significant changes to Part 45 of CFTC regulations, which relate to swaps recordkeeping and regulatory reporting. Part 45 perhaps best evidences the tremendous implementation challenges imposed by Dodd-Frank. The swaps data quality issues to be remedied stem from that first iteration of regulatory reform.

Part 45 currently requires that market participants submit reports regarding each new swap to an SDR as soon as technologically practicable after execution of the swap. However, the CFTC did not previously define the data fields that are required to be submitted or how swap terms are to be represented within data fields. This lack of specificity gave leave to SDRs and market participants to represent similar swaps and swap terms in varying ways. The general lack of standardization has complicated regulatory use of swaps reports.

It is worth considering allowing market participants to have additional time to submit fewer swap messages per transaction, each containing a more defined list of data fields that describe the swap. The defined list of data fields would not require fewer fields at the expense of effective regulation or exclude information integral to accomplishing the CFTC mission. Allowing additional time for the submission of a swap report may increase the overall quality of data submission.

It is also worth considering whether to adjust the regulatory reporting requirement to a T+1 timeframe, which represents another aspect of harmonization with reporting requirements within overseas regulatory counterparts such as ESMA. The intention is to allow reporting counterparties to complete the confirmation process and agree on the terms of the swap with their counterparty before reporting to the SDR.

Newly defined required data fields and associated allowable values should allow the CFTC to implement the swaps reporting data standards that CPMI-IOSCO published and to remove any uncertainty as to the form, manner, and allowable values of required data elements. The refined list of required data

elements should expand to include additional collateral/margin and valuation data elements to tackle the systemic risk problem. Yet again, this type of risk-related information is already being reported by systemically important players in other jurisdictions. The reporting of fewer, yet better defined and standardized, data fields should improve both the quality of swaps reporting and regulators' ability to utilize swaps data for priority use-cases.

Real-Time Public Reporting

Block trades are eligible for a time delay in their public reporting requirement, as well as exemption from certain other trading rules. In the years since the implementation of CFTC public reporting regime for swaps trading, it is apparent that some aspects of the reporting regime work well and some aspects need additional clarification or modification. This is especially so with respect to block trade classification. Consideration should be given to a pilot program to study the effects of varying cap sizes, block sizes and time delays potentially across different SEFs, asset classes and/or specific products. Such a study should utilize the best data sets possible to generate an actionable and concrete proposal on balancing public transparency and trading liquidity.

Any resulting rule modifications should address the balance between liquidity and transparency for large trades. Instead of making modifications to the block size, cap size and dissemination delays in a vacuum, these levels should be modified based not only on input from market participants but also on CFTC analysis of the reported data over time. Different sectors of the swaps market carry different levels of risk. Thus, a sophisticated and dynamic reporting regime that distinguishes among products, entities, markets and asset classes is needed – not one-size-fits-all.

There are many complexities and confounding variables in the swaps markets. Different asset classes might need different solutions, and even products within a particular asset class may behave differently and have varying liquidity profiles in the context of the block size and dissemination delay. They

therefore may require different block sizes and dissemination delays. Several variables factor into the propriety of a particular rule set: different methods of execution, SEF or OTC execution, and involvement of an introducing broker or not, to name a few. The requisite over-engineering to address these nuances is unlikely to be perfect and would definitely not follow the spirit of keeping regulations simple and straightforward.

In addition to TRACE, the Municipal Securities Rulemaking Board employs a real-time price dissemination tool called Electronic Municipal Market Access (EMMA), which displays all municipal bond transactions. Admittedly, corporate and municipal bonds possess different characteristics than swaps, but that should not discount the lessons that can be learned from these approaches. Similar to swaps, both of these bond product types trade over-the-counter, via voice-based methods, employing blocks, by large asset managers and insurance companies. Further insight must be gained as to why the same concerns that swap market participants express are not prevalent in TRACE and EMMA or how the regulators overcame those challenges in each case.

Also worth considering is the ongoing development of other transparency regimes in the global financial market. Domestically, the Department of Treasury is considering whether Treasury bond secondary market transactions should be publicly disseminated. Currently, the vast majority of swaps that trade in Europe are not subject to any public disclosure within days of trade execution.⁵¹ In contrast, the vast majority of swaps traded in the United States are disclosed publicly, for free, in real time. The current contrast in these two transparency regimes is striking.

⁵¹ Swap transparency in Europe depends in large part upon whether a product is deemed liquid. If a product is not deemed liquid, trades in that product are subject to a publication delay of between two days and four weeks. The vast majority of products are currently not deemed liquid. See <https://www.esma.europa.eu/policy-activities/mifid-ii-and-mifir/transparency-calculations>.

D. The Future

There is exciting potential on the horizon for continued technological advancement to improve swap data by making reporting systems more reliable, more automated and less expensive. The evolution of distributed ledger technology (DLT) could allow the CFTC and other regulators or entities to access swaps data automatically and seamlessly from reporting counterparties every time a swap is executed or updated on a particular blockchain, without human intervention or the use of other intermediaries. This functionality could increase the speed with which regulators could access data and increase the reliability of the data, while reducing the costs of making the data available to regulators. More specifically, CFTC access could, in the future, be incorporated from the outset into distributed ledgers of reporters. In this way, the Commission would be updated on new or amended swap transactions as they happen, allowing for near-real-time oversight of the swaps markets, including the Commission's surveillance and risk monitoring responsibilities.

Sharing of Data and Greater Access via DLT

As the financial crisis demonstrated in 2008, the derivatives market is global and necessitates regulatory coordination. Access to swaps data across jurisdictional boundaries is a critical step in allowing regulators to perform their supervisory and regulatory functions. It will also help regulators better understand the risks their regulated entities are assuming and the impact of such risks on the broader markets.

The CFTC should collaborate with other authorities to cultivate the development of "regulator nodes" on distributed ledgers. The full potential of DLT in trade reporting is to transcend the fragmented regulatory structure by providing reference to a single, validated record of all financial transactions/positions across regulated markets.

Reporting and Recordkeeping via DLT

Financial market regulators should encourage innovation and allow the germination of applications in the regulatory space. Blockchain will most likely be adopted for reporting and recordkeeping in financial markets when individual firms discover utilities that decrease operational and expense burdens and present a viable return on investment. DLT would add value if it increased the standardization of information collected and improved the immediacy and robustness of market oversight. Regulatory use of FinTech is affected by a number of variables that could erode the benefits of incorporating these technologies. The use of distributed ledgers will need to be subject to uniform standards that allow regulators to access and utilize the data made available. Right now, data itself and the methods of its transmission are not sufficiently standardized to be fully utilized in regulatory reporting.

Further issues of inconsistency could also arise in the future if the design of distributed ledgers is not subject to uniform standards. With a multitude of various stage DLT solution providers vying for clientele, interoperability across blockchains becomes a concern for regulators hoping to access and understand the data. Without standards, instead of several SDRs with different approaches to data, there could be dozens or even hundreds of different distributed ledger data transmission systems. Such disaggregated data would be nearly unusable by regulators, mooting the benefits of using distributed ledgers for data reporting.

Even if interoperability develops as FinTech matures and extends its uses, through approaches such as the ISDA Common Domain Model, the CFTC would need the technology, expertise and resources to understand and consume information on the blockchain. The CFTC would need to develop a long-term technology plan and determine the return on investment of rebuilding its technology infrastructure and analysis methods to take advantage of FinTech as the reporting and recordkeeping method of the future.

In order for the CFTC and market participants to reap the benefits of FinTech, a number of considerations need to be accounted for in any longer-term technology strategy. The CFTC should endeavor to ensure that its regulations remain technologically neutral, as much as possible, requiring market participants to comply with principles or set parameters, such as timing requirements or allowable values for data fields, without prescribing how these principles or parameters must be met. As the requirements of CFTC regulations will apply to market participants regardless of the technology they utilize, creators of FinTech – and the market participants that intend to use them – should consider from the outset how new technology will further compliance with CFTC regulations.

In order to facilitate this process of market participants and technology purveyors designing and implementing new technology – and then demonstrating the compatibility of this technology – the CFTC may be assisted by legislative changes that would allow it to be more flexible in accommodating new innovation. The CFTC's LabCFTC⁵² initiative provides a key focal point for market participants and technology companies to discuss their ideas with CFTC staff. However, in many instances, legislative changes would be necessary to allow the CFTC to conduct actual testing of new technology products. Throughout any planning, testing or implementation process for any new FinTech, one consideration must remain paramount: security. New technology, even with its potential to greatly improve the efficiency and reliability of data reporting, would carry the potential to be exploited by bad actors looking for illegal access to non-public personal and transaction information. For example, the application of DLT that allows for the instantaneous and seamless availability of up-to-date proprietary, non-public trade data would be a tempting target for hackers who would use the same data for illicit profit.

⁵² See Commodity Futures Trading Commission (2017b). LabCFTC is the agency's focal point to promote FinTech innovation and fair competition by making the CFTC more accessible to FinTech innovators and serving as a platform to inform the CFTC's understanding of new technologies. Further, LabCFTC will be an information source for the Commissioners and the CFTC staff on responsible innovation that may influence policy development. More information about LabCFTC can be found at www.cftc.gov/labcftc.

The CFTC, technology purveyors and market participants must consider the security aspects and implications for any new technology during the entire time that it is being tested or is in use. Such security measures must be adequate to protect all sensitive and proprietary data, including the personal information of market participants and their employees and the non-public data related to swap trades. Such measures should include robust controls limiting the data collected to only that which is necessary for the purpose and controls that limit the access to that data to only those persons who need the data for an immediate job function.

The CFTC and market participants should also consider ways to compartmentalize databases in order to prevent a single intrusion from accessing all of the data maintained by an entity or the CFTC. Steps to anonymize data when it is not actively in use would also be prudent. Diligent information security is critical. Even one failure could result in ruined credibility for all those involved, significant financial losses and, potentially, a reluctance to continue using new technology.

E. Conclusion

The future of regulatory reporting and recordkeeping will likely look very different going forward. The openness of the Roadmap process and inclusion of public participation in the CFTC's various data reporting and FinTech work streams signals its aim to be transparent and collaborative – both in getting the reporting standards right and utilizing the next generation of technology through which that data passes. It is beneficial for market participants and technology firms to include the CFTC in their efforts and to collaborate for the mutual benefit of regulators and the derivatives markets.

This paper recommends close collaboration between CFTC staff and market participants to recalibrate the trade data reporting regime so that it is specific, accurate and useful enough to: (1) capture systemic risk in addition to

market abuse and manipulation; (2) harmonize with globally accepted risk data fields; and (3) achieve transparency while promoting healthy trading liquidity.

3. SWAPS EXECUTION RULES

A. Introduction

Congress provided statutory goals for Dodd-Frank’s new swap execution facility (SEF) framework: “to promote the trading of swaps on [SEFs];” and “to promote pre-trade price transparency in the swaps market.”⁵³ Congress required that all swaps subject to the clearing requirement (clearing mandate swaps) be executed on a SEF or designated contract market (DCM) unless no DCM or SEF makes the swap available to trade or for swap transactions subject to the clearing exception⁵⁴ (the Trade Execution Requirement). Congress chose not to mandate that SEFs utilize any particular method of trading or execution. Instead, Congress defined the term SEF to mean a “trading system or platform in which multiple participants have the ability to execute or trade swaps ... through any means of interstate commerce....”⁵⁵

The CFTC promulgated regulations providing a process that allows DCMs or SEFs to identify clearing mandate swaps that are “made available to trade” (MAT) and thus subject to the Trade Execution Requirement.⁵⁶ These swaps must be traded or executed via specified execution methods⁵⁷ and not “through any means of interstate commerce.” Additionally, CFTC regulations require that

⁵³ CEA section 5h(e); 7 U.S.C. 7b-3(e).

⁵⁴ CEA section 2(h)(8); 7 U.S.C. 2(h)(8). The Act and Commission regulations provide a clearing exception where one of the counterparties to the swap is an end user or an affiliated entity of an end user. See CEA section 2(h)(7); 7 U.S.C. 2(h)(7) and 17 C.F.R. 39.6. In addition, Commission regulations provide a clearing exemption for swaps between eligible affiliated counterparties pursuant to 17 C.F.R. 50.52. The preamble to the final rules promulgating the process for determining whether a swap is “made available to trade” (“MAT”) similarly provides that inter-affiliate swaps that are exempt from clearing under Commission regulation 50.52 also are not subject to the Trade Execution Requirement. See 78 Fed. Reg. 33,606 n.1.

⁵⁵ CEA section 1a(50); 7 U.S.C. 1a(50).

⁵⁶ See 17 C.F.R. 37.10, 37.12, 38.11 and 38.12; “Process for a Designated Contract Market or Swap Execution Facility To Make a Swap Available to Trade, Swap Transaction Compliance and Implementation Schedule, and Trade Execution Requirement Under the Commodity Exchange Act,” 78 Fed. Reg. 33,606 (Jun. 4, 2013).

⁵⁷ 17 C.F.R. 37.9(a)(1), 37.9(a)(2), 37.10, and 37.12.

a SEF offer an order book for all swaps it lists, even for non-MAT swaps that are not otherwise subject to the Trade Execution Requirement.⁵⁸

Based on experience with SEFs over the past four years and on feedback from market participants and academics, it is clear that many of the current rules missed the mark set by Congress. They have stunted swaps trading on SEFs in two ways: first, by limiting the execution methods for swaps subject to the Trade Execution Requirement; and second, by adopting an overly narrow definition of what it means for a swap to be “made available to trade,” unnecessarily limiting the swap transactions that are required to be traded on SEFs. The adverse effect of such limitations has been to incentivize a significant amount of price discovery and liquidity formation to take place off-SEF, such as through registered Introducing Brokers. These ad hoc limitations have also fragmented swaps trading into numerous artificial market segments, increased market liquidity risk and hindered swaps market technological innovation, among other adverse consequences.

Congressional goals of conducting swaps trades on SEFs with pre-trade price transparency is best achieved by permitting SEFs to offer any means of interstate commerce and eliminating the artificial requirement that all SEFs create and maintain an Order Book (the Order Book Requirement) for the trading and execution of swaps subject to the Trade Execution Requirement.⁵⁹ In addition, this paper proposes eliminating the MAT process and expanding the category of swaps subject to the Trade Execution Requirement to include all swaps that are subject to the Commission’s clearing mandate, unless no SEF or DCM lists the swap for trading.

⁵⁸ 17 C.F.R. 37.3(a)(2).

⁵⁹ This paper proposes that the methods of execution available to trade swaps subject to the Trade Execution Requirement should align with the methods of execution currently available to trade swaps not subject to the Trade Execution Requirement.

The rest of this section's discussion focuses on three areas:

- A brief background regarding the Dodd-Frank Act's statutory framework for the Trade Execution Requirement and related CFTC regulations (i.e., the MAT process and execution methods);
- The CFTC's underlying policy rationale and assumptions upon which it predicated its regulatory framework for swaps trading, including the prescriptive methods of execution for swaps subject to the Trade Execution Requirement and the Order Book Requirement and why and how this framework should be reformed; and
- Why it is appropriate to eliminate the MAT process and expand the category of swaps subject to the Trade Execution Requirement to include all swaps subject to the clearing mandate.

B. Background: The Trade Execution Requirement, MAT Process and Execution Methods

Section 2(h)(8) of the Act establishes the Trade Execution Requirement and requires that all clearing mandate swaps be executed on a SEF or DCM, unless no SEF or DCM has made such swap "available to trade" or the swap is otherwise subject to a clearing exception. The Act, however, does not specify a process for determining whether a clearing mandate swap is "made available to trade." As a result, the CFTC first had to determine whether it should establish a MAT process and, if so, what that process should be. Initially, the CFTC considered whether every clearing mandate swap automatically should be deemed MAT if it were listed by a SEF or DCM. Alternatively, the CFTC considered whether a clearing mandate swap should satisfy additional factors before it is deemed MAT. In the latter case, the CFTC also considered whether the MAT determination should be made by SEFs or the CFTC.⁶⁰ Ultimately, the CFTC adopted a MAT process based on stated criteria and driven by SEFs and DCMs.

⁶⁰ See generally 78 Fed. Reg. 33,606 (June 4, 2013).

Under current regulations, both the CFTC and SEFs or DCMs play a role in the MAT process.⁶¹ SEFs and DCMs initiate the MAT process by submitting to the CFTC the SEF's or DCM's determination that a swap is MAT, either for CFTC approval⁶² or through the self-certification process.⁶³ Pursuant to CFTC regulations, a SEF's or DCM's determination must consider at least one of the following criteria:

- (1) whether there are ready and willing buyers and sellers;
- (2) the frequency or size of transactions;
- (3) the trading volume;
- (4) the number and types of market participants;
- (5) the bid/ask spread; or
- (6) the usual number of resting firm or indicative bids and offers.

The CFTC is responsible for reviewing a SEF's or DCM's MAT determination, and may only deny approval or certification of a SEF or DCM filing if it finds that the submission is inconsistent with the Act or CFTC regulations.⁶⁴ Otherwise, the swap will be deemed to be MAT, and transactions involving the MAT swap will be subject to the Trade Execution Requirement.⁶⁵

CFTC regulations create two categories of swap transactions, which determine how swaps can be traded and executed on a SEF: (1) Required Transactions (i.e., any transaction involving a MAT swap that is not subject to a clearing exception or exemption),⁶⁶ and (2) Permitted Transactions (i.e., any transaction that is not a Required Transaction).⁶⁷ Required Transactions must be traded and executed on a SEF through either an Order Book or a request-for-quote (RFQ) system that operates in conjunction with an Order Book and in which the RFQ is sent to at least three unaffiliated participants (RFQ-to-3

⁶¹ 17 C.F.R. 37.10 and 38.12.

⁶² 17 C.F.R. 40.5.

⁶³ 17 C.F.R. 40.6.

⁶⁴ 78 Fed. Reg. pp. 33,607 and 33,610.

⁶⁵ See note 6 above.

⁶⁶ 17 C.F.R. 37.9(a)(1).

⁶⁷ 17 C.F.R. 37.9(c)(1).

System).⁶⁸ Permitted Transactions may be traded and executed through any method of execution.⁶⁹

A SEF must offer an Order Book for each swap it lists (the Order Book Requirement).⁷⁰ Thus, even if a SEF does not list a MAT swap, the Order Book Requirement obligates SEFs to incur the costs of developing and maintaining Order Books for the trading and execution of Permitted Transactions.

C. The CFTC’s Regulatory Framework Should be Reformed

The Regulatory Framework Disincentivizes Swaps Price Discovery and Liquidity Formation from Taking Place on SEFs

Historically, swaps products trading has always taken place in institutional marketplaces. Until the passage of the Dodd-Frank Act, the United States generally had not permitted retail participants to transact swaps products, and that largely remains the case today.⁷¹ Traditionally, swaps traded in two environments: a wholesale marketplace of primary dealer firms intermediated by firms called “inter-dealer brokers;” and a secondary marketplace in which swaps dealers transacted directly with their “buy-side” institutional customers.

Those wholesale marketplaces operated by inter-dealer brokers combined in one location human brokers who acted as agents for their dealer clients soliciting bids and offers and engaging in price discovery via electronic platforms where trades were matched and reported back to their legal counterparties. These inter-dealer platforms were “one-stop shops,” where liquidity could be sourced, prices discovered, bids and offers made, and trades executed.

⁶⁸ 17 C.F.R. 37.9(a)(2).

⁶⁹ 17 C.F.R. 37.9(c)(2).

⁷⁰ 17 C.F.R. 37.3(a)(2). For purposes of the Order Book Requirement, the Commission defines an “Order Book” to mean: “(i) An electronic trading facility, as that term is defined in section 1a(16) of the Act; (ii) A trading facility, as that term is defined in section 1a(51) of the Act; or (iii) A trading system or platform in which all market participants in the trading system or platform have the ability to enter multiple bids and offers, observe or receive bids and offers entered by other market participants, and transact on such bids and offers.”

⁷¹ With the passage of the Dodd-Frank Act, retail participants (i.e., non-Eligible Contract Participants under CEA Section 1a (18)) were first permitted to trade swaps on DCMs. CEA Section 2(e). By contrast, SEFs are limited to permitting trading by Eligible Contract Participants as defined under the Act. CEA Section 2(e)p; 7 U.S.C 2(e).

Prior to Dodd-Frank, these inter-dealer platforms were not subject to a comprehensive regulatory framework with respect to registration or designation criteria or core principles.⁷² This approach was premised on the view that as a marketplace without retail participation, U.S. swaps markets would be adequately self-regulated by its professional participants. Accordingly, inter-dealer brokers of swaps were not subject to CFTC registration.

Dodd-Frank changed that legal framework by requiring that certain swaps transactions be traded and executed on regulated SEFs or DCMs, licensed by the CFTC. It would seem to follow that the CFTC would have imposed similar measures utilized in other regulated asset classes to raise industry conduct: registration of platforms, standardized codes of personnel conduct and personnel proficiency examinations. But besides establishing the basic SEF registration requirement, the CFTC set off on a different path.

Rather than permitting SEFs to operate by “any means of interstate commerce” as Congress provided, the CFTC’s SEF rules constrained swaps trading of “Required Transactions” to two methods of execution: an Order Book or an RFQ-to-3 System. Based on these prescriptive execution methods, the CFTC further grafted into its SEF rules a number of market practice rules from the futures regulatory framework that are antithetical to swaps trading, such as establishing a 15-second “cross-trade” requirement and permitting off-SEF execution of block trades. Additionally, the CFTC interpreted the SEF core principles in ways that are not conducive to the traditional environments in which swaps liquidity is formed and price discovery is conducted.

⁷² Some inter-dealer platforms were exempt commercial markets (ECMs) or exempt boards of trades (EBOTs). ECMs could trade contracts involving exempt commodities (i.e., any commodity other than an excluded commodity and agricultural commodities) on electronic trading facilities between a subset of ECPs known as eligible commercial entities. A facility that elected to operate as an ECM was required to comply with certain informational and recordkeeping requirements. EBOTs were facilities that traded contracts involving commodities (other than securities or securities indexes) that had a nearly inexhaustible deliverable supply and either no cash market, or a cash market so liquid that any contract traded on the commodity was highly unlikely to be susceptible to manipulation. EBOT transactions were limited to ECPs and subject to minimal trading prohibitions, including anti-fraud and anti-manipulation restrictions.

In effect, the CFTC's SEF rules are an attempt to re-engineer the traditional market structures and practices of swaps execution. Instead of raising the standards of conduct of the professionals handling swaps transactions, the SEF rules seek to dictate the business models of swap-trading platforms.

Among other adverse consequences has been sharp fragmentation of global trading liquidity into numerous disjointed market segments. Since the start of the CFTC's SEF regime in October 2013 and accelerating with mandatory SEF trading in February 2014, global swaps markets have divided into separate trading and liquidity pools: those in which U.S. persons are able to participate and those in which U.S. persons are shunned. Liquidity has been fractured between a U.S. person market on one side and a non-U.S. person market on the other.

According to a survey conducted by the International Swaps and Derivatives Association (ISDA), the market for euro interest-rate swaps (IRS) has effectively split.⁷³ Volumes between European and U.S. dealers have declined 55% since the introduction of the U.S. SEF regime.⁷⁴ The average cross-border volume of euro IRS transacted between European and U.S. dealers as a percentage of total euro IRS volume was 25% before the CFTC put its SEF regime in place and has fallen to just 10% since.⁷⁵

⁷³ See ISDA (2015) and Stafford (2014). Beginning in October 2013 after the SEF rules' compliance date, European dealers dramatically moved away from trading with U.S. counterparties, beginning to trade almost exclusively with other European counterparties in the market for euro IRS. In October 2013, 91% of euro IRS trades took place between two European counterparties, while only 9% occurred between a U.S. and a European dealer. By August 2014, these numbers moved to 96% and 3%, respectively. Recently, in June 2015, 89% of euro IRS trades were between two European counterparties, while 10% of euro IRS trades were between a European and U.S. counterparty. Compare these figures with those from a month before the SEF rules' compliance date, when 71% of euro IRS trades were between two European counterparties and 29% were between a U.S. and European dealer. This has been a clear shift in trading behavior for European dealers. See ISDA(2015), pp., 3, 15–16. This observation is also supported by an ISDA survey wherein 68% of non-U.S. market participant respondents indicated that they have reduced or ceased trading with U.S. persons. ISDA (2013) pp. 3–4.

⁷⁴ ISDA (2015), pp. 2, 18.

⁷⁵ ISDA(2015), p. 18.

“ensure that multiple participants have the ability to reach multiple counterparties.”⁹⁴ It further believed that this would “increase the likelihood that the requestor will execute at the best possible price”⁹⁵ and facilitate pre-trade transparency.⁹⁶

On the other hand, the CFTC considered a number of concerns raised by industry participants in response to the proposed RFQ rule regarding the potential harm of information leakage to the non-executing RFQ recipients.⁹⁷ By requiring that an RFQ be sent to at least three recipients, the CFTC found what it believed was an acceptable balance between the benefits of requiring multiple recipients in an RFQ with the costs of potential information leakage.

Time has shown that there is scarce public policy benefit in the one-size-fits-all RFQ-to-3 System requirement. Indeed, market participants note that, when appropriate, they often voluntarily include more than three recipients in their Required Transaction RFQs, and that if the RFQ-to-3 System requirement were eliminated, they would still continue such practice. Consistent with this feedback, Riggs et al. (2017)⁹⁸ found that customers in the D2C index CDS markets use RFQ protocols for Required Transactions for almost all transactions and that customers include more than three recipients in an RFQ about 55% of the time, with an average of four recipients.

However, in many situations, the RFQ-to-3 System requirement can harm requestors, thus sending fewer quotes may be desirable. The CFTC recognized in the preamble to the Part 37 rules that while including more recipients in an

⁹⁴ 76 Fed. Reg. 1,220.

⁹⁵ 78 Fed. Reg. 33,561.

⁹⁶ 78 Fed. Reg. 33,496.

⁹⁷ See 78 Fed. Reg. p. 33,561. (“While the Commission believes that the five market participant requirement promotes the statutory goal of pre-trade transparency because the RFQ requester will have access to quotes from a larger group of potential responders, the Commission is sensitive to commenters’ concerns about this requirement, such as the potential for increased trading costs and information leakage to the non-executing market participants in the RFQ. To address these concerns, while still complying with the statutory SEF definition and promoting the goals provided in section 733 of Dodd-Frank, the Commission is revising final § 37.9(a)(3) so that a market participant must transmit an RFQ to no less than three market participants.”)

⁹⁸ See Riggs, et al (2017).

their businesses. For this reason, a relative threshold – e.g., the ratio of ENNs to assets, which would capture the complexity of a business with respect to swaps – could be a useful addition to the regulatory toolkit.

A final problem with the current MSE threshold is that it excepts end users only from initial margin requirements. As discussed above, however, in the context of payment thresholds, cost-benefit considerations argue for excepting from variation margin requirements firms that do not pose much systemic risk and for whom liquidity considerations are not part of their day-to-day business.

It will be challenging for the CFTC to implement these recommendations on its own. While they are all consistent with the requirements of Dodd-Frank, they are not consistent with the rules of other domestic regulators or international standards or guidance. More specifically, notional amounts are the current norm with respect to setting thresholds, and variation margin payments are currently required without threshold.¹⁵⁸

In addition to an MSE threshold, the Commission might provide relief to end users by reconsidering how it interprets the definition of a financial entity in the Commodity Exchange Act 2(h)(7)(C)(i). A narrower definition, consistent with other terms used in that section, could bring additional clarity and relief to a variety of end users, including treasury affiliates, certain types of special purpose vehicles, and even some energy firms.¹⁵⁹

F. Uncleared Margin Requirements Should Not be Prescriptive

Dodd-Frank describes the standard for setting uncleared margin requirements as follows:

“To offset the greater risk to the swap dealer ... and the financial system arising from the use of swaps that are not cleared,” the margin requirement “shall help ensure the safety and soundness of

¹⁵⁸ See Basel Committee on Banking Supervision (2015), Requirements 2.1 and 2.5, p. 10.

¹⁵⁹ On the desire for such relief, see, for example, Coalition for Derivatives End-Users (2017), pp. 7-11, and Giancarlo (2015), section I, part B.

the swap dealer... and be appropriate for the risk associated with the uncleared swaps held as a swap dealer...”

This standard is somewhat challenging to understand from an economic perspective. The latter part of the standard clearly states that margin on a swap should be set according to the risk posed to the swap dealer. Of what relevance, then, is the premise that uncleared swaps present greater risks to the dealer and the financial system?

To highlight the problem, what if a particular uncleared swap (e.g., an interest rate swap with highly customized cash flows) is less risky than a particular cleared swap (e.g., a swaption)? The “appropriate for the risk” part of the standard would say that required margin for the uncleared swap should be lower, but this outcome would violate the starting premise.

The ambiguity of the statute may very well be a patchwork of two distinct standards. One standard, which considers only counterparty risk, appeared in earlier drafts of the legislation.¹⁶⁰ According to this standard, uncleared margin safeguards swap dealers and, in so doing, reduces systemic risk. Furthermore, requiring uncleared margin to be comparable with cleared margin removes opportunities for a regulatory arbitrage in which counterparties alter derivatives contract terms solely to avoid clearing and cleared margin requirements.¹⁶¹

Another standard, however, starts with the premise that uncleared swaps are particularly dangerous with respect to systemic risk. From this perspective, uncleared margin should be set higher than cleared margin so as to discourage the use of uncleared products.

This standard is most clearly evident in the text of international standards, where uncleared margin requirements are described as having “two main

¹⁶⁰ See 155 Congressional Record H14747. This draft does not include the introduction, “To offset the greater risk...,” but the rest of the standard is, word-for-word, nearly identical.

¹⁶¹ This regulatory arbitrage possibility is a strong argument in favor of the Commission’s requirement of two-way initial margin on uncleared swaps. If the counterparty to the dealer alone had to post, which is a reasonable reading of the statute, then there would be a strong incentive to avoid clearing and the two-way margin requirements of CCPs.

benefits,” namely, the “reduction of systemic risk” and the “promotion of central clearing.”¹⁶²

But the standard also appeared in some remarks leading up to Dodd-Frank. CFTC Chairman Gary Gensler, for example, in a speech in Europe in March 2010, called for higher margin on uncleared swaps, which “leave institutions with greater risk” and “leave the system more interconnected.”¹⁶³ And Senator John Kerry, a few months before passage of Dodd-Frank, said that margin on uncleared swaps would “offset the greater risk they pose to the financial system and encourage more trading to take place in transparent, regulated markets.”¹⁶⁴

The difficulty is that these two standards for uncleared margin are not compatible from a policy perspective. Margin requirements on uncleared derivatives can either be set to reflect counterparty risk, thus avoiding regulatory arbitrage, or they can be set higher, to discourage uncleared trades and promote clearing.

These conflicting standards were sufficiently present for the matter to be addressed in a letter from two leading, majority Senators, Christopher Dodd and Blanche Lincoln, to two leading, majority Representatives, Barney Frank and Collin Peterson, just after the final conference report leading up to Dodd-

¹⁶² Basel Committee on Banking Supervision (2015), p. 3. The text there goes on to say as follows: “Margin requirements for non-centrally cleared derivatives would be expected to reduce contagion and spillover effects by ensuring that collateral is available to offset losses caused by the default of a derivatives counterparty. Margin requirements can also have broader macroprudential benefits, by reducing the financial system’s vulnerability to potentially destabilizing procyclicality and limiting the build-up of uncollateralised (*sic*) exposures within the financial system... Margin requirements on non-centrally cleared derivatives, by reflecting the generally higher risk associated with these derivatives, will promote central clearing, making the G20’s original 2009 reform programme (*sic*) more effective.”

¹⁶³ Gensler (2010): “... we must explicitly regulate derivatives dealers. In so doing, we can set higher capital requirements as well as specific margin requirements for tailored and other bilateral transactions. Without being brought to central clearing, these so-called “bespoke” transactions leave financial institutions with greater risk, leave the system more interconnected and justify higher requirements.”

¹⁶⁴ Kerry (2010).

Frank.¹⁶⁵ Senators Dodd and Lincoln, “to provide some additional background on legislative intent,” come down squarely in favor of the counterparty risk standard:

“In cases where a Swap Dealer enters into an uncleared swap with an end user, margin on the dealer side of the transaction should reflect the counterparty risk of the transaction. Congress strongly encourages regulators to establish margin requirements for such swaps... in a manner that is consistent with Congressional intent to protect end users from burdensome costs...

“It is... imperative that regulators do not assume that all over-the-counter transactions share the same risk profile... As regulators set capital and margin standards... they must set the appropriate standards relative to the risks associated with trading... Regulators should seek to impose margins to the extent they are necessary to ensure the safety and soundness of the Swap Dealers...”¹⁶⁶

The Dodd-Lincoln letter failed in its purpose, however. The CFTC’s first rule proposal rejected the comparable standard:

“Given the Congressional reference to the “greater risk” of uncleared swaps and the requirement that margin for such swaps “be appropriate for the risk,” the Commission believes that establishing margin requirements for uncleared swaps that are at least as stringent as those for cleared swaps is necessary to fulfill the statutory mandate.”¹⁶⁷

The CFTC’s final rule in 2016 no longer contained this language, but the pure risk-based standard was never implemented. In his statement about the

¹⁶⁵ Christopher Dodd was chair of the Senate Committee on Banking, Housing, and Urban Affairs. Blanche Lincoln was chair of the Senate Committee on Agriculture, Nutrition, and Forestry. Barney Frank was chair of the House Financial Services Committee. Collin Peterson was chair of the House Committee on Agriculture.

¹⁶⁶ Dodd and Lincoln (2010).

¹⁶⁷ 76 Fed. Reg., p. 23734.

final rule, Commissioner Giancarlo highlighted the CFTC's adoption of the standard to promote clearing in light of statutory language:

“Today’s rule ... reflect[s] a disingenuous reading of the Dodd-Frank Act to favor cleared derivatives over uncleared swaps. In fact, there is no provision in the law directing regulators to set punitive levels of margin to drive hedging market participants toward cleared products. Imposing punitive margin levels will hazard a range of adverse consequences from raising the commercial cost of risk hedging to reducing trading liquidity in uncleared swaps markets and incentivizing... products... unsuitable for clearing into clearinghouses... More critically, punitive margin on uncleared swaps will increase the amount of inadequately hedged risk exposure on America’s corporate balance sheets...”

The most obvious manifestation in the rules of the standard to promote clearing is that uncleared margin must be set to a ten-day margin period of risk (MPOR), that is, to cover ten days of market risk before a position is liquidated, or “closed out.” Margin at clearinghouses, on the other hand, is required to cover only a five-day MPOR. In volatility terms, the risk of uncleared swaps is thus assumed to be about 40% higher than that of cleared swaps.¹⁶⁸

Not only does this standard favor cleared over uncleared swaps, but it is also remarkably coarse. Since there are many different kinds of uncleared swaps, the assumption that a ten-day MPOR is appropriate for all of them is, to say the least, heroic.

The essential problem with the uncleared margin rule, however, is its over-prescriptiveness. Assuming that there is a fixed waiting time before close out and then that close out happens at prevailing market prices is but one approach

¹⁶⁸ At least part of the reason for adopting the ten-day MPOR was that it had already been accepted as a Basel capital standard. In any case, since volatility increases with approximately the square root of time, the ratio of the volatility of a ten-day close-out period to a five-day close-out period is the square root of 2, or about 1.4.

to calculating margin, and not even up to industry standards. One better approach, for example, is to calculate market risk for a waiting period appropriate for that portfolio, add an assumed market impact cost for hedging the portfolio at that time, and then assume a gradual liquidation and lifting of the hedge without further market impact.

This alternate approach has two advantages. The first, and most obvious, is that it is portfolio specific. The second is that it focuses attention on the real risk of defaults and liquidations: the market impact cost of the hedge. The regulatory modeling approach pushes attention away from this key element of swaps default risk.

Another example of the over-prescriptiveness of the margin rule is portfolio offsets. The rules require that each swap be placed into one of four product types: commodities, rates/currency, credit, and equity. Risks, or volatilities, are then calculated within each product type and added together. As a result, offsetting long and short exposures, and risk offsets due to correlations across swaps, are recognized *within* but not *across* product types.

Offsets are, indeed, a tricky problem in finance. Correlations that prevail in normal times might very well not prevail in a crisis. But the regulatory solution is very prescriptive and coarse. Consider, for example, an investment firm that specializes in convertible bonds. Its whole business is to cross rates, credit and equity markets, and it should devote resources to designing appropriate risk models. Forcing the current regulatory margin framework on this business seems counterproductive.

An unintended consequence of the over-prescriptiveness of the rules is that the industry has collectively produced the Standard Initial Margin Model (SIMM) for uncleared swaps, which has been approved by regulators (subject to firm specifics and controls). But having a single, global model for swaps is not desirable.

First, with the availability of a globally approved standard model, businesses have less incentive to come up with better models.

Second, no model is perfect. And if all businesses use the same imperfect model, risk will eventually accumulate in the products that are treated too leniently by the model. Evidence of this phenomenon is just in the rear view mirror. One of the greatest regulatory errors leading up to the 2007-2009 financial crisis and the European sovereign debt crisis was the imperfect setting of Basel capital risk weights on mortgage-backed securities and peripheral European government bonds. Banks then herded into those risks, and the comeuppance, when it came, was systemic.¹⁶⁹

In fact, small fractures in the uncleared margin framework are becoming apparent. Because the rules impose a higher MPOR on uncleared products but pay little attention to the market impact costs of liquidation, SIMM charges too much for small, relatively liquid positions and too little for large, relatively illiquid positions.¹⁷⁰ This result is ironic. Despite the regulatory intent to set higher margin on uncleared products, the rules have unintentionally resulted in setting too low a minimum for particularly dangerous situations, namely large positions in relatively illiquid, uncleared swaps.

Widespread adoption of SIMM might also fail in regulatory cost-benefit considerations. Large and sophisticated end users, who might pose the most systemic risk and who have the resources and incentives to design better models, are pushed into a relatively coarse framework. Smaller and less intensive end users of derivatives, however, who pose little systemic risk and for whom swaps risk management is expensive, are forced into a complex and hard-to-use framework.

This paper recommends a non-prescriptive regulatory standard – e.g., margin must cover a 99 percentile adverse event. Then, let market participants

¹⁶⁹ See Acharya and Richardson (2009) and Acharya and Steffen (2014).

¹⁷⁰ See Roberson (2018) and Cuntinho (2014).

come up with appropriate, business-specific models, which would then have to be approved by their respective regulators. Third-party vendors of margin models will, as under current rules, be encouraged. Regulators can continue to offer relatively simple, and, by necessity, conservative, models for those that choose not to invest in their own or in third-party models: If an entity lacks the sophistication, resources or incentives to master margin models, a simple, conservative model may then be appropriate.¹⁷¹

Regulators will certainly find it a challenge, with respect to both expertise and resources, to examine, approve and exercise surveillance over uncleared margin models. But, once the assumption has been made that the financial industry cannot be relied on to police itself, the active scrutiny of models is an essential dimension of regulation.

G. Conclusion

The Dodd-Frank Act required various market participants to clear standardized swaps and required swap dealers to collect margin on uncleared swaps. With respect to reducing systemic risk, the benefits of these requirements were judged to be worth the concomitant costs.

At the same time, Dodd-Frank exempted commercial end users from these requirements. These market participants are not sources of systemic risk and would find the requirements particularly costly. The fate of many financial end users, by contrast, was not as clear, particularly with respect to uncleared margin requirements.

This paper argues that smaller financial end users should be excepted from the requirements through a material swaps exposure threshold, for the same reasons that commercial end users are exempt. Larger financial end

¹⁷¹ Some argue that a proliferation of internal models will lead to disputes over posted margin. First of all, market participants settle on prices of a myriad of securities each day. Surely they can also come to agreements about how much margin to post. Second, disputes over margin models are productive and will likely lead to better and better models.

users, however, that may well be sources of systemic risk, should be subject to the clearing and uncleared margin requirements.

This paper also argues, along the lines of other issues in this White Paper, that uncleared margin rules can – and should – achieve their objectives without being as prescriptive as under current law. A less prescriptive approach would encourage sound and innovative risk management and would be less likely to encourage model herding, which is itself a source of systemic risk.

APPENDIX: TREATMENT OF SWAPS BY COMPONENTS OF CAPITAL REQUIREMENTS

Current Exposure Method (CEM)

Common metrics for counterparty risk are Exposure at Default (EaD), which is the sum of Current Exposure (CE) and Potential Future Exposure (PFE). To illustrate how CEM evaluates counterparty risk through these metrics, consider the example shown in Table 1, which elaborates on an example presented earlier.

A dealer had paid fixed to a pension fund on \$100 million notional of a ten-year interest rate swap and, just recently, received fixed on \$75 million notional of a matched-maturity swap from that same pension fund. Interest rates have risen since the initiation of the initial swap, such that the market value of the swap to the dealer is positive \$8 million. The dealer has collected this \$8 million from the pension fund over time in the form of variation margin.

In addition, the pension fund posts an additional \$375,000 as initial margin. As reported above, the dealer estimated that a three standard deviation move in the market value of a \$100 million ten-year swap was \$1.5 million. Proportionately, then, its estimate of the corresponding move on the pension fund's net \$25 million notional amount is one-fourth that \$1.5 million, or \$375,000.

The counterparty risk to the dealer of this swap position is very small. The dealer has \$8,375,000 in collateral against a CE of \$8 million and an estimated PFE of \$375,000.¹⁷² CEM, by contrast, does not recognize this swap position as having very low risk because it does not appropriately account for the risk-reducing effects of netting and margining.

¹⁷² The dealer's estimate of the PFE can be too low, of course, but that possibility is not relevant here. In this example, the volatility estimates of the dealer and CEM are exactly the same.

CEM starts with the assumption that the PFE for an interest rate swap is a multiplier times notional amount, where the multiplier takes on one of three values, depending on the maturity of the swap. For swaps with more than five years to maturity, the multiplier is 1.5% of notional.

This 1.5% multiplier is quite reasonable for a ten-year swap, and the example here was constructed to be consistent with that parameter: The dealer also assumed that \$1.5 million was the right amount of initial margin on a \$100 million ten-year swap. Similarly, as shown in Table 1, the PFE of \$75 million notional is the proportionate \$1.125 million.

CEM proceeds, however, by drawing an unreasonable conclusion about the PFE of the portfolio. The basic idea is to allow some offset against the sum of the PFEs, in this case, \$2.625 million. The offset, however, is based on the net market value of the position relative to its gross market value. But the market value of a trade depends on current interest rates relative to the interest rates at the time a trade was initiated. Market values have very little to do with market risk, that is, with the volatility of future changes in market value. Hence, CEM's offset is not risk-based.

Proceeding with the example, then, CEM computes the ratio of net to gross market value, in this case \$8 million divided by \$8 million, which equals 1, and then computes PFE as $40\% \times \$2.625 \text{ million} + 60\% \times 1 \times \2.625 million , or \$2.625 million.¹⁷³ (The 40% and 60% are fixed parameters of CEM.) In other words, in this example, CEM gives no offset for the fact that the dealer is paying fixed on one swap and receiving fixed on the other.

To emphasize how CEM is insensitive to risk, consider the alternate market values shown in Table 1. In this case, the ratio of net to gross market value is \$9 million divided by \$15 million, or 0.6. The PFE according to CEM is $40\% \times \$2.625 \text{ million} + 60\% \times 0.6 \times \2.625 million , or \$1.995 million. CEM gives

¹⁷³ This example is simplified: CEM actually uses market values since the last exchange of variation margin. This simplification does not change the point, however, that CEM's netting calculations are far from risk-based.

a long-short offset in this case, but the risk of the position has not changed!¹⁷⁴
 And, of course, the \$1.995 million PFE is still much higher than the economic reality.

Table 1. Current Exposure Method: Illustration From the Dealer Perspective

Notional Amount	PFE	Market Value	Collateral	Alternate Market Value
\$100 mm (Paying fixed)	\$1.5 mm	\$8 mm	\$8.375 mm	\$12mm
\$75 mm (Receiving fixed)	\$1.125 mm	\$0		-\$3mm

An additional problem with CEM is that, in calculating EaD, it does not properly account for margin. EaD should equal CE plus PFE minus margin. For the moment, then, returning to the original market values and accepting CEM's large estimate of PFE, EaD should be the \$8 million CE, plus the \$2.625 million PFE, offset by the \$8.375 million of margin, for a net EaD of \$2.25 million.

CEM, however, does not allow margin to offset PFE. Hence, the \$8 million CE is offset by the \$8.375 million of margin, but none of the \$2.625 million PFE is offset. As a result, according to CEM, EaD is equal to the PFE of \$2.625 million in the measurement of an essentially riskless position.

In short, CEM fails as a risk-based measure of swaps counterparty risk. It does not net swap exposure in a risk-based manner, and it does not allow the full use of margin to reduce exposure. In other words, from the perspective of required capital, CEM does not provide risk-based incentives for dealers to reduce risk by putting on offsetting trades or by collecting more margin.

¹⁷⁴ An even stranger situation can arise in which the dealer is paying or receiving fixed on both swaps, but one has a positive market value and one a negative market value. Then, CEM would give an offset between the two, even though the risk of both is in the same direction!

A final problem with CEM applies to options positions. An option has a “delta,” which denotes its sensitivity to the price of an underlying security. Consider, for example, \$100 notional amount of a 0.5-delta option on the stock of company XYZ. That option has the same sensitivity to the price of XYZ stock as $\$100 \times 0.5$, or \$50, of stock. CEM, however, in computing the exposure of this option, uses the \$100 notional amount of the option, with no delta adjustment.

Standardized Approach for Counterparty Credit Risk (SACCR)

SACCR was designed to address the shortcomings of CEM. The calculation of PFE is significantly more reflective of risk. With respect to interest rate risk, for example, in place of CEM’s three coarse maturity buckets, SAACR uses duration, which is a direct measure of interest rate sensitivity. SACCR also adjusts the notional amount of options for their deltas.

SACCR handles netting of the PFEs of individual trades by dividing the overall portfolio into “hedging sets,” for example, swaps on the same commodity, interest rate swaps in the same currency and the same maturity bucket, and foreign-exchange swaps on the same pair of currencies. PFE offsets are generally allowed within but not across hedging sets, although some offset is allowed across maturity buckets for interest rate swaps in the same currency.

SACCR’s treatment of netting is still, in many ways, coarse and arbitrary, but that is the nature of prescriptive, regulatory models. By necessity, netting boils down to a set of assumptions about how individual securities or swaps change in value relative to one another, and those assumptions might not, as the future unfolds, be realized. An internal risk model would posit a set of correlations and, in best practice, test the robustness of the results by stressing those assumed correlations. Prescriptive, regulatory models are more likely to make simpler and more conservative assumptions, like full netting within and limited or no netting across hedging sets.

With respect to margin, CEM allows margin to offset current exposure but not PFE. Margin offset in SACCR depends on the application. When SACCR is

used in connection with leverage ratio calculations, any excess margin may not offset PFE, as in CEM. In connection with market risk calculations, however, SACCR allows excess margin to offset PFE, though less than dollar-for-dollar. To take one data point for the purposes of illustration, if excess margin equals PFE, SACCR allows PFE to be reduced by about 40%.

In summary, SACCR is more risk-based than CEM, but is still highly prescriptive with respect to risk offsets. Also, depending on the application, SACCR ranges from disallowing any margin offset to PFE to allowing quite limited offsets.

Global Systemically Important Bank (GSIB) Capital Surcharge

The GSIB surcharge is designed to increase capital levels at banks that are deemed to be systemically important. The U.S. implementation of the surcharge uses five indicators: size, cross-jurisdictional, inter-connectedness, complexity, and short-term wholesale funding.

The size indicator is computed using CEM. As a result, GSIB inherits all of the problems of CEM with respect to swaps: inadequate netting and margin offsets, and the failure to adjust options to their delta exposures.

The complexity indicator is affected by swaps through notional amount. While notional amount is typically misleading with respect to market risk or counterparty risk, it is a reasonable proxy for complexity. A swap dealer's book may be perfectly hedged with respect to market risk, and it may have collected sufficient margin to virtually eliminate counterparty risk. But if a dealer's book has a very large notional amount, created by hundreds of thousands of positions, there is operational risk and "complexity."

Supplementary Leverage Ratio (SLR)

The fundamental idea of the Basel III leverage ratio, and its U.S. implementation, the SLR, is to require a minimum amount of capital as a percentage of total assets. But since some "assets" are off balance sheet, the

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