



Initial Margin for Non-Centrally Cleared Derivatives:
Issues for 2019 and 2020

July 2018

This paper is intended for discussion purposes only. Drafts of this document are subject to change as views and issues develop further.

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I. Introduction

In response to the global financial crisis of 2008-2009, the G20 agreed to a financial regulatory reform agenda covering the over-the-counter derivatives markets and market participants.¹ Among these agreed reforms were recommendations for the implementation of margin requirements for non-centrally cleared derivatives. The Basel Committee on Bank Supervision and International Organization of Securities Commissions (BCBS-IOSCO) subsequently developed and finalized their *Final Framework on Margin Requirements for Non-Centrally Cleared Derivatives* (BCBS-IOSCO Final Framework),² which sought to establish international standards for such requirements, to be phased in over time.³

Regulators around the world have since implemented margin requirements for non-centrally cleared derivatives generally in accordance with the Final Framework, but with some critical differences in certain instances. These rules are commonly referred to as the Uncleared Margin Rules (UMR), and margin collected and posted under UMR is referred to as “regulatory margin.” As agreed in the revised implementation timeline to the Final Framework, UMR began to be phased-in on September 1, 2016 for the largest market participants. Broader implementation of variation margin (VM) requirements occurred in March 2017, while initial margin (IM) requirements continue to phase-in annually through 2020.⁴

The final phases of UMR will occur on September 1 of 2019 and 2020, when a large number of additional counterparties will be brought into scope for IM requirements. The significant number of counterparties coming into scope in the final phases will create an untenable rush of demand on market resources across participants and service providers in a relatively short time period. This in turn will result in significant operational and technology builds that must be undertaken to meet the swell of demand. Further complicating matters is the number of contractual agreements, which are often heavily negotiated, that must be put into place. If not done in a timely manner, newly in-scope counterparties (NISCs) may not be

¹ G20 Pittsburgh Summit (Sept. 24-25, 2009).

² See “*BCBS-IOSCO Final Framework on Margin Requirements for Non-Centrally Cleared Derivatives*” (Sept. 2013), available at: <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD423.pdf>.

³ This included the implementation of requirements relating to (i) initial margin, which is intended to cover exposures that may arise in the period from the default of one party to the time when the portfolio of non-centrally cleared OTC derivative transactions are closed out or replaced, and (ii) variation margin, which is intended to cover the daily change in market exposure on the portfolio in question.

⁴ In March 2015, BCBS-IOSCO revised the implementation timeline for the Final Framework. See: <https://www.bis.org/bcbs/publ/d317.htm>.

able to trade non-centrally cleared derivatives, limiting their options for both taking on and hedging risks, and also potentially impacting liquidity in the derivatives markets.

The effort that will be undertaken in anticipation of September 2019 and 2020 far surpasses that associated with the previous phases of implementation. Larger institutions brought into scope for IM in earlier phases were able to absorb the implementation timeline, build and costs of compliance in a manner that NISCs for the final phases may not. The fundamental challenges for market participants during the final phases of IM implementation are distinct from and more intense than those experienced in previous phases, and thus likely to result in broader systemic impact.

In this paper, the International Swaps and Derivatives Association (ISDA) and the Securities Industry and Financial Markets Association (SIFMA) (together, the Associations)⁵ seek to highlight the significant challenges market participants will encounter during the final phases of IM implementation and identify the key tasks and resulting hurdles that must be overcome to ensure an orderly implementation that avoids disruption to the functioning of the derivatives market.

II. Executive Summary

The OTC derivatives market faces substantial challenges as new counterparties come into scope in 2019 and 2020. These challenges result primarily from:

- The large number of counterparties coming into scope
- The extensive operational and technological builds
- The expected rush of demand on market resources across participants and service providers
- The need for organization-wide market participant preparations, including:
 - Documentation/legal team negotiation of relevant trading and service agreements
 - Risk team review of processes and collateral eligibility
 - Operation team development and testing of new processes
 - Technology team build-out and testing of crucial data and calculation capabilities
 - Model approval, monitoring, remediation, and operational reviews

Considering the significant and far-reaching preparations required for the final stages of IM phase-in, NISCs, custodians, middleware providers, counterparty swap dealers and regulators, among others, must engage in

⁵ See Appendix A for a description of trade associations.

immediate dialogue and planning. Even with the prompt development of implementation plans, effective compliance may not prove achievable for many NISCs.

Newly In-Scope Counterparties

NISCs need to formulate their strategies and plans immediately. NISCs must first engage in complex self-assessment to determine and disclose to counterparties which of their entities will be in scope. They will need to adapt existing or negotiate and execute new credit support annexes, custodial arrangements, eligible collateral schedules and account control agreements with counterparties and custodians alike. NISC infrastructures will need to be modified or built from scratch. Decisions on whether to use the grid- or risk-based IM calculation methodologies will have significant commercial impacts on funding and trading, thus requiring careful consideration and planning.

Dealers

Like NISCs, dealers will also need to adapt existing or negotiate and execute new credit support annexes, custodial arrangements, eligible collateral schedules and account control agreements with counterparties and custodians. Given the anticipated number of NISCs associated with the final phases of UMR, the amount of time, resources and bandwidth necessary for these documentation efforts will be immense.

Custodians

Custodians need to develop and present clear readiness plans to the market by the end of 2018. These plans should delineate expectations for the timing of negotiations, collateral operational terms (e.g., daily settlement deadlines and operational terms in each region/country) and systems testing. NISCs will require custodial readiness plans as a prerequisite to the development of their implementation plans. Testing of infrastructure must take place by 1Q 2019 to allow NISCs and custodians adequate time to diagnose issues and implement appropriate solutions.

Middleware and Reconciliation Services Providers

Middleware and reconciliation service providers should deliver detailed specifications and readiness plans by the end of 2018. Thousands of portfolios and counterparties will need to be onboarded. Clear plans from middleware providers, with details on services offered and deadlines that must be met to ensure service access by relevant IM phase-in dates, will allow counterparties to build implementation plans and understand negotiable terms. Testing of associated infrastructure will need to take place by 1Q 2019 to allow NISCs and vendors sufficient time to diagnose and address issues that arise.

Industry and Trade Associations

ISDA, SIFMA and other associations are working with their members to raise awareness of the significant challenges that will accompany the final phases of UMR implementation. As discussed later in this paper, ISDA is conducting a quantitative exercise that provides estimates regarding the number of new counterparties coming into scope and amount of IM likely to be exchanged during the implementation of these final phases. This data will illustrate the challenges the market will face, and further assist counterparties, dealers, custodians, technology/middleware providers, consultants, and legal service providers in defining their resourcing needs and commitments. Such context will also help market participants, regulators and standard setters consider approaches that may ease the implementation challenges described in this paper.

Regulators

As a better understanding of the qualitative and quantitative impact of the final phases of UMR develops, market participants would benefit from certain regulatory recalibrations provided in a timely manner to provide effective relief. Absent appropriate regulatory action, there is significant risk of market disruption, given the challenges described in this paper which hinder market participants from coming into compliance, thereby potentially preventing their ability to trade.

Any modifications to existing UMR requirements should aim to be consistent across jurisdictions. Inconsistent rules or applications across jurisdictions will cause additional confusion, complexity and implementation delays. Many portfolios cross jurisdictions, not only across national or regional boundaries (e.g., between the US and EU) but within them (e.g., the US Commodity Futures Trading Commission (CFTC) and US Prudential Regulators)⁶, and counterparties need to have a clear and consistent sense of the applicable rules for their portfolios. Further, any mitigating modifications to UMR requirements must be implemented as soon as possible in order to provide effective and necessary relief.

⁶ The US federal prudential regulators include the Federal Reserve Board, the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency, the Federal Housing Finance Agency and the Farm Credit Administration (collectively, the US Prudential Regulators).

III. Background

The large number of counterparties to be brought in scope during 2019/2020 will lead to significant implementation challenges that are different from, and largely exceed, those associated with the implementation of regulatory VM in March 2017

Margin requirements for non-centrally cleared derivatives first came into force in September 2016. In accordance with the BCBS-IOSCO Final Framework, US rules phased in IM requirements starting with firms with an average notional amount of non-centrally cleared derivatives (over certain 3-month periods) starting at USD 3 trillion in September 2016 (Phase 1 firms) and lowering over time. In 2019, firms with USD 750 billion in derivatives balances across their groups will come into scope under the rules, with the notional amount threshold dropping dramatically to USD 8 billion in 2020.⁷ Non-US regimes have adopted largely equivalent timelines and thresholds.

Initial and Variation Margin Phase-In Schedule for Major Jurisdictions

Country	Phase I (IM/VM) Sept 2016	Phase II (VM)⁸ March 2017	Phase II (IM) Sept 2017	Phase III (IM) Sept 2018	Phase IV (IM) Sept 2019	Phase V (IM) Sept 2020
<i>US</i>	USD 3 t	USD 8 b	USD 2.25 t	USD 1.5 t	USD 0.75 t	USD 8 b
<i>EU</i>	EUR 3 t	EUR 8 b	EUR 2.25 t	EUR 1.5 t	EUR 0.75 t	EUR 8 b
<i>Japan</i>	JPY 420 t	JPY 1.1 t	JPY 315 t	JPY 210 t	JPY 105 t	JPY 1.1 t
<i>Canada</i>	CAD 5 t	CAD 12 b	CAD 3.75 t	CAD 2.5 t	CAD 1.25 t	CAD 12 b
<i>Switzerland</i>	CHF 3 t	CHF 8 b	CHF 2.25 t	CHF 1.5 t	CHF 0.75 t	CHF 8 b
<i>Singapore</i>	SGD 4.8 t	SGD 13 b	SGD 3.6 t	SGD 2.4 t	SGD 1.2 t	SGD 13 b

Currently in-scope dealers have engaged in a quantitative exercise that seeks to articulate the size and scope of the challenges market participants will face during the implementation of these final phases, including estimates regarding the number of new counterparties coming into scope and amount of IM to be exchanged. According to data gathered by ISDA, dealers estimate that they could face over 1,000 NISCs and

⁷ See “Margin and Capital Requirements for Covered Swap Entities,” 80 Fed. Reg. 74840 (Nov. 30, 2015); see also “Margin Requirements for Uncleared Swaps for Swap Dealers and Major Swap Participants,” 81 Fed. Reg. 636 (Jan. 6, 2016).

⁸ In the EU, the phase-in of margin requirements is further complicated by the need for non-financial counterparties to determine whether they are above or below the threshold for margin exchange requirements. Smaller non-financial companies (NFC-’s) are not required to exchange margin in the EU, while all non-financial end-users are generally exempted from this requirement under US regulations.

9,000 new relationships in this final phase.⁹ When taking into consideration multi-managed accounts, the relationship estimate rises to 9,400. The number of contractual documents and account set-ups each dealer will need to execute will be multiples of the number of NISCs Phase 1 dealers will face, exacerbating the challenge. For example, based on the above estimate of 9,400 new relationships (each of which will require new or amended documentation that must be tested and uploaded into systems), 18,800 segregated IM accounts must be set up and tested (2 per relationship for the posting and collection of IM).

It is anticipated, however, that many counterparty relationships may not generate regulatory IM amounts that exceed applicable IM thresholds (requiring actual IM exchange). Under the US UMR, swap dealers and their counterparties may agree to a USD 50 million IM exchange threshold across the entire group.¹⁰ If a threshold is agreed to, counterparties need not exchange IM until the threshold is passed. If NISCs never reach this IM exchange threshold, the documentation, custodial accounts and operational capabilities will lie dormant.

Compliance with IM regulations represents a change in market practice and, thus, NISCs may not have familiarity with, or operational systems capable of handling, the various requirements posed by UMR

Regulatory IM raises very different challenges from those faced in March 2017 when regulatory VM rules became effective. Unlike VM, which is a one-directional payment, regulatory IM is a two-way gross payment with liquidity and funding implications. Counterparties were generally familiar with VM concepts (e.g., how to calculate and move the collateral) prior to the March 2017 VM effective date, and many were already voluntarily exchanging VM with swap dealers prior to the regulatory mandate.

To date, regulatory IM has been largely confined to the interdealer market. For most NISCs, regulatory IM presents a broad departure from historical practice, introducing new issues and requirements, including those relating to documentation, segregation and custodial arrangements, funding, operations, IM calculation concepts, set-up and margin performance monitoring. Material operational enhancements will be required, including: in-scope trade identification, synchronization of IM calculations for operational requirements (e.g., time zone effects, collateral delivery cutoff times, T+1 settlement), modified workflow related to the implementation, associated testing of the ISDA Standard Initial Margin Model or ISDA SIMM™

⁹ As these estimates are based on submissions by most (but not all) currently in-scope dealers, these numbers will be higher when viewing the entirety of market participants.

¹⁰ Non-US/EU swap regimes have roughly equivalent thresholds.

(SIMM) and grid-based calculators, collateral management and funding, standard risk file creation and dispute management processes and collateral funding/management at segregated custodial accounts. NISCs will need to implement extensive front-to-back alignment in order to achieve compliance.

Even where certain market participants are not directly subject to UMR, they will need to engage in necessary preparations to ensure their trading can continue without disruption. For example, while both dealers and their counterparties are directly subject to UMR requirements in the EU and Japan, in the US only dealers¹¹ are directly subject. Irrespective of whether one or both of the counterparties to a transaction are directly subject to UMR requirements, both will be required to have in place necessary documentation and custodial arrangements, among other tasks – thus indirectly requiring those market participants otherwise not subject to UMR to prepare. Absent such preparation from all sides, certain trading relationships will not be able to continue, negatively impacting the liquidity and functioning of the derivatives market.

IV. Challenges for Newly In-Scope Counterparties

NISCs will likely find implementation more challenging than those entities that came into scope during previous phases, and a push by NISCs to comply immediately before the deadline may congest or overwhelm industry resources

The challenges facing NISCs are largely driven by the time required for preparation and the scale of the tasks facing market participants as a whole. NISCs coming in-scope during the final phases will likely find implementation more challenging than those coming into scope during previous phases, given that there may be less familiarity and experience with some of the critical rule requirements and fewer resources to devote to necessary and comprehensive planning - all in a condensed timeframe. Should NISCs delay final preparations, they will require the attention of key infrastructure components (e.g., dealers, custodians, middleware vendors and consultants) at the same time, congesting industry resources and creating compliance bottlenecks. Further, the impact of the final phases of implementation will be global, as NISCs with global trading patterns face UMR requirements in multiple jurisdictions.¹²

¹¹ Such requirements will also generally apply to major swap participants (MSPs) under US rules. For the purposes of this paper, the term “dealer” should be read to include MSPs when referring to US rules.

¹² It should also be noted that other major regulatory developments will require significant attention from market participants at the same time the final phases of UMR are occurring. This includes preparations relating to Brexit and amendments to requirements for qualifying financial contracts, among other regulatory initiatives. Market participants will thus find themselves balancing significant bandwidth and resource demands on multiple fronts.

A. Entity Assessment and Disclosure

Market participants may have difficulty determining their aggregate average notional amounts (AANAs), and communicating that determination to counterparties in a timely manner

As an initial matter, market participants will need to self-identify whether they fall within scope of IM requirements. In the absence of effective and timely self-identification to trading counterparties, there will be significant market uncertainty regarding which entities are, or will become, in-scope. Given that the AANA is calculated based on a party's market wide trading activity, it may be impossible for individual dealers to unilaterally assess whether a counterparty is in-scope.

First, market participants will need to identify which of their entities, if any, are trading in-scope UMR products for IM purposes. Though there are some jurisdictional differences (e.g., equity options) the global margin rule sets largely apply to all non-centrally cleared OTC derivative transactions (unless a specific exemption applies). Absent equivalence decisions by regulators to address the lack of harmonization across jurisdictions, multiple and potentially conflicting requirements could apply to the same transaction, complicating such self-assessments.

Having confirmed that they are trading in-scope products, the next step is to self-identify which of their entities, if any, may come into scope during the remaining phases of IM implementation (i.e., identify which entities will become NISCs) and, importantly, to understand which UMR rule sets apply to these entities. Entity analysis should include all entities that are (i) in-scope for VM requirements and (ii) estimated to have an AANA of non-cleared derivatives that may exceed the future phase-in levels. Definitive determinations can only be made after the AANA observation window (typically between March and May for a September implementation). Importantly, however, market participants must conduct estimates long before the observation window in order to have enough time to prepare.¹³ AANA calculations are complex and may require systems development work to account for the following: AANA determinations must be determined at the consolidated corporate group level; calculations may need to be made in multiple currencies (depending on which jurisdictions' rules apply); AANA must be determined at the principal level (i.e., aggregated across investment managers, where used); and calculations across both in- and out-of-scope products must be reviewed for consistency given differences in jurisdictional coverage.

¹³ It is likely such calculations will need to be done one year in advance of implementation, followed by confirmation in May, with final preparations taking place from May through to the September implementation.

Once self-identified, NISCs need to promptly disclose their anticipated status to trading counterparties. Early disclosure to counterparties is of the utmost importance. Given the number of counterparty relationships that will be affected in the final phases, self-disclosures should be provided at least 24 months before the relevant IM go-live date for the final phase in stage in September 2020. This step is again complicated for an asset manager where a fund principal uses multiple managers, as it will need to consider which entity should make the calculations and disclosures, and ensure disclosures are made to all counterparty dealers. Absent prompt self-disclosure by NISCs, dealers will have no definitive mechanism to determine in-scope entities, and disruptions in trading may result.

B. Credit Support Annexes

The scale of new credit support annexes to be negotiated is immense, and documentation challenges are exacerbated by the proliferation of netting sets caused by the phase-in of, and differences between, global margin rules

Under the applicable margin rules, all counterparties must adapt existing or negotiate new Credit Support Annexes/Deeds and Collateral Transfer Agreements (together, CSAs) incorporating IM rules and practices.¹⁴ Although standard form templates for CSAs are published by ISDA, they will require extensive negotiations of terms, including: eligible collateral; operational requirements (e.g., collateral transfer timings); SIMM versus grid coverage for risk; jurisdictional nexus of each counterparty; and pledge account and custodial arrangements.

As part of their agreement assessment, NISCs will need to examine their trade populations and, in conjunction with counterparties, determine if multiple CSAs (or another approach) will be utilized to maintain legacy transactions,¹⁵ or whether all trades (inclusive of legacy transactions) will be subject to regulatory IM as of the relevant Phase go-live date. Such decisions will have operational and financial impact. For example, NISCs may already track legacy trades for purposes of VM, but will be faced with an additional documentation and operational build, requiring the mapping and tracking of each

¹⁴ CSAs are documents which govern bilateral margin collateral arrangements between counterparties for derivatives transactions, usually supplementing the schedule to an ISDA Master Agreement. ISDA has published various forms of CSA used by counterparties in Phases 1 to 3 and is working to develop forms for use in Phases 4 and 5. Depending on the custodial arrangement being used, certain amendments may need to be made to a CSA, or a specific form of Collateral Transfer Agreement will need to be used. There is no single “one-size-fits-all” form.

¹⁵ Regulators have generally provided that derivatives transactions entered into before the effective date of new rules (otherwise known as “legacy trades” or “legacy transactions”) are not deemed subject to these new requirements (subject to certain conditions).

transaction to the proper CSA for regulatory IM purposes. If an NISC opts to subject all trades (both legacy and new) to regulatory IM requirements by consolidating into one CSA in order to avoid the operational complexities associated with tracking and mapping multiple CSAs for all of its transactions, higher IM amounts will result (with the accompanying cost and liquidity impacts), as well as other operational challenges associated with subjecting legacy transactions to regulatory IM requirements. Thus, which CSA governs a given transaction would depend on when that transaction has taken (or will take) place.

The table below illustrates the types of documentation that might be needed:

Governing Documentation for VM and IM

Document Type	VM Terms	IM Terms
<i>Master Agreement</i>	Covers all transactions	Covers all transactions
<i>Legacy CSA</i>	Covers transactions executed before March 2017	Covers transactions executed before applicable IM Phase-In date
<i>Regulatory VM CSA</i>	Covers transactions post-March 2017	Not applicable
<i>Regulatory IM CSA</i>	Not applicable	Covers transactions executed post applicable IM Phase-In

Swap dealers are devoting substantial resources to the onboarding of NISCs - but should a large number of NISCs delay in preparation, logjams will emerge. To help avoid such impediments, NISCs should begin negotiating terms as far in advance as possible. NISCs, however, may not have a clear understanding of IM calculations and market participant resources that may facilitate their calculation programs (e.g., middleware providers or consultants).

While market participants are evaluating various streamlined CSA negotiation processes and standardized templates, which could serve to mitigate some of these challenges, other factors may limit their practical benefits. For example, uncertainty regarding the viability of future infrastructure capabilities and solutions may impede negotiation progress until it is too late in the implementation cycle to avoid significant market disruptions for certain NISCs. CSAs, documentation templates and negotiation processes will also need to reflect any changes in operating assumptions and regulations, such as the availability of reconciliation platforms, use of dealer IM calculations, dispute processes and custodial account setup assumptions.

NISCs may underestimate the significant efforts that will be required for compliance. While the first phases of UMR implementation included the largest dealers which facilitated standardized templates,

given the low AANA thresholds applicable to the final phases, NISCs during these final phases will be extremely diverse and thus likely to result in more complex negotiations. An additional complicating factor stems from the differences among global UMR rule sets and applicable laws. CSA provisions also vary based on custodial platforms. Given these significant complexities, there is a risk that, even with the potential benefits of streamlined CSA negotiation processes and standardized templates, significant challenges to timely negotiation of final CSAs will remain.

Consequently, despite best efforts, NISCs may find themselves facing unexpected delays in preparation as they sort through these issues and determine appropriate solutions - ultimately running out of time.

C. Custodial Arrangements

Market participants will face significant challenges in executing extensive volumes of documentation and building connectivity with custodians

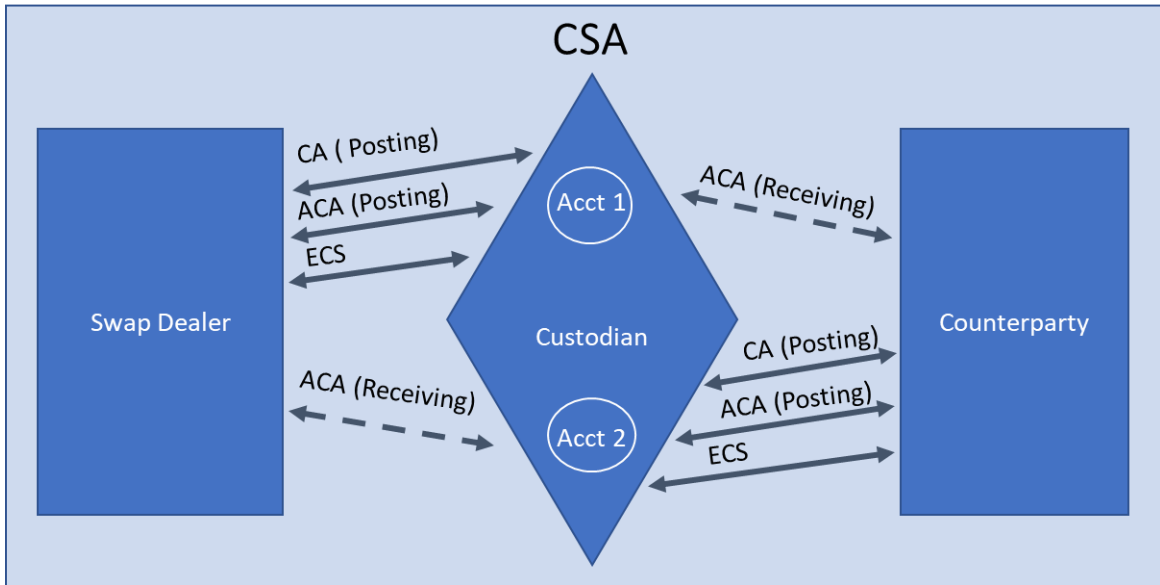
UMR requires that in-scope firms segregate their regulatory IM at a third-party custodian. Since 2016, in-scope entities for regulatory IM have been required to open accounts, execute extensive documentation and build connectivity with the custodians offering UMR-compliant custodial services. These custodial arrangements require the negotiation and execution of custodial agreements and eligible collateral schedules, which have proven extremely time-consuming in the previous UMR phases. These custodial arrangements trigger numerous other obligations. For example, NISCs must satisfy anti-money laundering (AML), know-your-customer (KYC) and other onboarding requirements at each custodian. For new custodian relationships, these AML and KYC processes can take months, and are in addition to requirements related to the verification of third-party service provider cybersecurity. In addition, infrastructure pipelines with custodians that communicate collateral exchange and status must be built and tested months in advance.

1. Account Control Agreements

NISCs and custodians need to negotiate and execute custodian account control agreements (ACAs) and pledge agreements (where required), and set up segregated accounts for the posting and collection of collateral for each relationship that will post and collect IM.

Figure 1 (below) illustrates that counterparties and their custodians may need to set up four custodial relationships: Firm A to post to its custodian; Firm B to receive from Firm A's custodian; Firm B to post to its custodian; and Firm A to receive from Firm B's posting custodian. All four relationships require formal documentation and account opening.

Figure 1: The relationship between a swap dealer, custodian and counterparty



Note: Separate custodial accounts are required for posting and receiving IM; both accounts require a bilateral CA (Custody Agreement) and a tri-party ACA (Account Control Agreement) and ECS (Eligible Collateral Schedule), all governed by a single CSA (Credit Support Annex).

For the 2016, 2017 and 2018 IM phase-in dates, custodians have generally required ACA execution by the June prior to the relevant September UMR go-live date. This June deadline was intended to ensure sufficient time to set up the accounts and conduct required testing. Even with these early deadlines, custodians often faced considerable challenges in setting up and testing all accounts prior to the regulatory effective date introducing uncertainty as to when certain pairs were fully onboarded.

In order to prepare for the onboarding of thousands of new accounts that will be needed for the final phases of UMR, custodians may require an even earlier deadline, meaning that relevant agreements (e.g., ACAs, Pledge Agreements, Eligible Collateral Schedules (ECSs)¹⁶, custody agreements) will likely need to be fully negotiated by the end of the first quarter of the respective phase-in year. Custodians will need greater insight into how many and which counterparties will be coming into scope in the final phases. The number of entities provides critical information for

¹⁶ An ECS is a list of all collateral that may be used to secure a transaction, as deemed eligible per applicable margin rules; these lists may vary by jurisdiction.

custodians to establish these deadlines, but they also require a firm understanding of NISC readiness. Complicating matters further, such information is not readily available. In order to meet custodian deadlines, it will be critical that NISCs conduct early AANA calculations to determine their in-scope population well before the final AANA period begins, so they can effect complete documentation negotiations with custodians. This will strain an already condensed timeline.

2. Eligible Collateral Schedules

Once custodial arrangements are finalized, counterparties must then agree to ECSs. These negotiations have proven extremely time-consuming in prior phases.

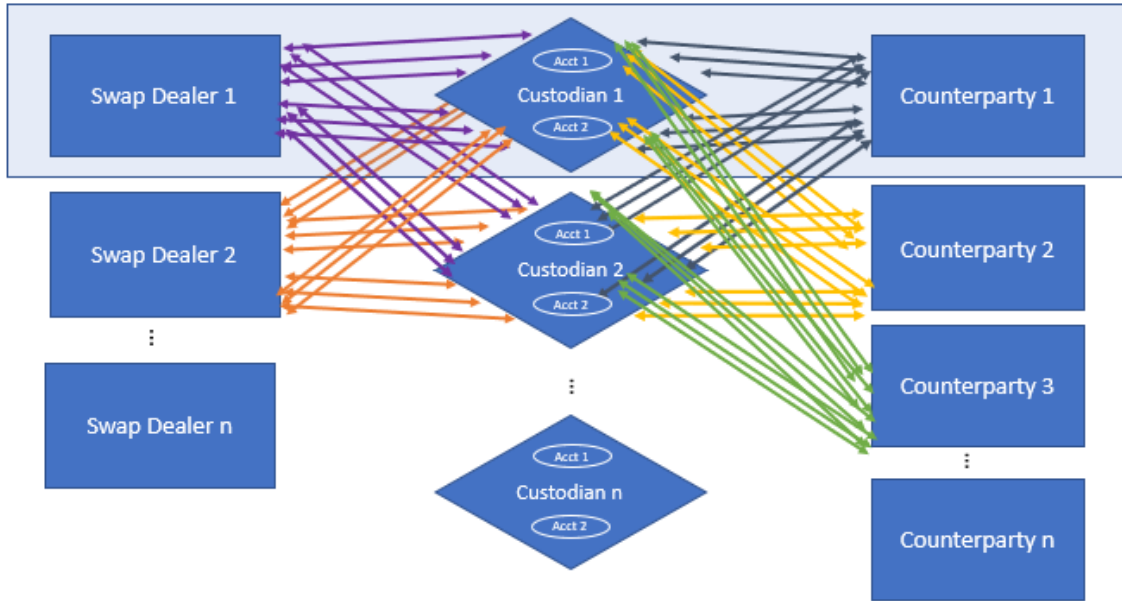
3. Connectivity

NISCs that have not previously utilized custodians, or who are expanding their custodial relationships, will need to set up infrastructure pipelines with custodians to communicate collateral exchange and status. Such connectivity will require lead time to build and properly test. In addition, custodians may require membership and other various terms and conditions, which may require extensive legal review and approval.¹⁷

New custodians may enter the market to provide IM segregation services in advance of the final phases. While such new entrants would be beneficial, this could trigger the need for additional collateral enforceability opinions and other necessary documentation. New entrants may also vary connectivity to existing infrastructure (i.e., SWIFT messaging, API connectivity), potentially requiring additional operational and documentation modifications for dealers and NISCs. The scale and timing of negotiations and operational testing is a significant hurdle. A rush of due diligence checks, negotiations, implementation, and testing in the months approaching go-live dates is likely to create bottlenecks for custodians and swap dealer firms with large numbers of NISCs. Delays in implementation and onboarding may create significant market uncertainty and perhaps leave NISCs without sufficient access to derivative markets. Figure 2 shows the increased complexity as the number of counterparty relationships grows.

¹⁷ For example, Euroclear requires membership if no prior relationship has been established.

Figure 2: With more NISCs, the complexity involving custodial accounts increases dramatically



Note: Light blue highlighted area is the relationship illustrated in Figure 1

Resource constraints will be intensified by the large number of counterparty relationships that will have to be repapered even though such relationships may not exceed applicable IM thresholds

As previously noted, it is anticipated that many counterparty relationships may not generate regulatory IM amounts that exceed applicable IM thresholds (requiring actual IM exchange). Under the US UMR, swap dealers and their counterparties may agree to a USD 50 million IM exchange threshold across the entire group. If NISCs never reach this IM exchange threshold, their custodial accounts will lie dormant, never to be used to transfer collateral. For other NISCs, IM levels may not cross a USD 50 million threshold until trades accumulate over a period of months or years. Market participants will thus need to expend critical bandwidth to negotiate CSAs, make custodial arrangements, build connectivity (and potentially engage in other preparatory steps) with counterparties that may never be required to exchange IM, which could be more appropriately used to prepare for larger counterparties that will need to exchange IM immediately.

D. Determination of In-Scope Trades, Netting Sets

Calculating IM will be difficult for NISCs, given differences in product scope between jurisdictions and between regulatory VM and IM

Previously, it was noted that potentially in-scope entities need to consider whether they trade in-scope products. IM calculations require counterparties to have a clear and detailed understanding of their portfolio of in-scope trades under all applicable rule sets. Each NISC must develop the capability to identify which trades in a trading relationship are subject to regulatory IM and which are not. The task is complex, particularly when layered upon the already existing calculations for VM (inclusive of tracking exempt legacy portfolios). Product sets for regulatory IM may be different than those for VM. Often, firms exchange VM for a broader product set (e.g., physically settled FX, equity options), while regulatory IM requirements in some jurisdictions may allow for the exemption of certain products.¹⁸

Adding further complexity to the exercise is the fact that trade portfolios may be governed by multiple jurisdictions with conflicting product rule sets. For the same trading portfolio, Counterparty A may be subject to US Prudential rules, while Counterparty B may be subject to the EU's European Market Infrastructure Regulation (EMIR) and US CFTC rules. For example, certain equity options may be in-scope under the EU or Japanese rules, but excluded under US Prudential and CFTC rules.¹⁹ In the US, there are multiple and inconsistent margin regimes: bank swap dealers are subject to the US Prudential Regulators' rules for non-centrally cleared swaps and security-based swap transactions, while non-bank swap dealers are subject to CFTC and/or US Securities and Exchange Commission (SEC) requirements.²⁰

¹⁸ Local regulators provide guidance on whether a broader product set may be included in the IM calculation.

¹⁹ Equity options are temporarily exempt under EU requirements until January 4, 2020.

²⁰ Under the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), jurisdiction is split between the CFTC and SEC. The CFTC has jurisdiction over commodities, interest rate swaps, broad index credit default swaps (CDS) and broad index equity swaps, collectively defined as swaps. Dealers engaging in swap transactions over a certain de minimis amount must register as swap dealers. The SEC has jurisdiction over single name and narrow index CDS and equity swaps, collectively defined as securities-based swaps (SBS). Entities engaging in SBS transactions over a certain de minimis amount will be required to register as security-based swap dealers (SBSDs). There is a small subset of swaps that have characteristics of both (defined as "mixed swaps") and are under joint jurisdiction. Further complicating this landscape, which capital and non-centrally cleared margin requirements apply is determined by entity type: US Prudential Regulators have jurisdiction over bank swap dealers and SBSDs; the CFTC has jurisdiction over non-bank swap dealers; and the SEC has jurisdiction over non-bank SBSDs. For simplicity, unless otherwise specified, we refer to swaps generically to include all such products covered by the Dodd-Frank Act (and analogous foreign laws/regulations) and "swap dealers" to include bank and non-bank swap dealers and SBSDs.

Additionally, as with VM, some entities (particularly within a fund structure) may be subject to requirements in a jurisdiction where netting is not enforceable, which may complicate implementation from a legal opinion and calculation perspective. Building the capability to identify applicable jurisdictions, define product category and determine whether a trade is executed in a legally enforceable netting jurisdiction to accurately and consistently generate rule-compliant netting sets across counterparties is a challenging exercise for even the most sophisticated market participants.

The complexity of the global interplay is further illustrated by the following:

1. Lack of Global Harmonization and “Higher of” IM

Though many jurisdictions’ margin regulations are based upon the globally agreed BCBS-IOSCO Final Framework, national regulators have interpreted the Final Framework and adopted their own respective rule sets in non-identical manners. Consequently, UMR are not globally uniform. These differences lend additional complexity to an already complex construct. Absent equivalency determinations which grant substituted compliance, where market participants are subject to overlapping rule sets, they may need to calculate and exchange the “higher of” the netting sets where they are subject to overlapping uncleared margin rule sets (e.g., one transaction could be subject to both US Prudential Regulator rules, as well as rules in Australia, the EU, Hong Kong or Singapore).²¹

2. Legacy and In-Scope Portfolio Management

NISCs will face operational difficulties in building systems to allow for the partitioning of portfolios to account for multiple netting sets

As previously noted, NISCs must have the ability to partition trading portfolios into multiple netting sets for IM purposes: legacy trade sets (not subject to regulatory IM) and regulatory IM trade sets (transactions occurring on or after the applicable phase-in date). As a result of the UMR phase-in process, counterparty portfolios may be subject to multiple netting sets and CSAs (or CSA provisions) with different start dates.

²¹ To date, the CFTC has issued comparability determinations only with national authorities in the EU and Japan with regards to margin requirements. US Prudential regulators have yet to issue a comparability determination. The EU has issued comparability to the CFTC rules (with certain limitations relating to counterparty scope), as have Australia, Hong Kong and Singapore.

The infrastructure development necessary to deal with these implications will be complex and time-consuming. It is possible that some firms will seek to address this issue by simply electing to apply IM requirements to all transactions (or all transactions executed post-March 2017). This practice, while providing simplicity in implementation, would potentially increase IM requirements significantly. The sheer complexity of implementation may thus drive a result that was not intended by the rule set, with resulting ramifications for funding and liquidity.

3. Regulatory vs. Non-Regulatory Initial Margin

The interplay of regulatory IM and non-regulatory IM (independent amounts/IM exchanged voluntarily) presents a conundrum for swap dealers and their counterparties alike. Historically, swap dealers have, in certain circumstances, required non-regulatory IM from their counterparties to cover potential closeout risks. Typically, non-regulatory IM arrangements are one-way and are not subject to UMR requirements, such as minimum exchange thresholds and mandatory third-party segregation, among others.

As counterparties come into scope for regulatory IM on new portfolios, swap dealers may continue calling for non-regulatory IM on legacy portfolios.²² Swap dealers may apply a “higher of” approach, where historical non-regulatory IM calculations exceed regulatory IM. The interplay between regulatory and non-regulatory IM thus increases the operational and technology burden on counterparties and dealers alike.

E. Initial Margin Model Implementation

At the outset, NISCs must determine the margin calculation methodology that will be utilized, based on the advantages and disadvantages of each methodology. Once chosen, the NISC will need to demonstrate both the conceptual soundness and proper implementation of relevant methodology, as well as ongoing performance monitoring.

1. Calculation Methodologies

UMR allows for the use of standardized schedules published in the relevant uncleared derivative margin rules (“grid methodology”) or approved internal models to calculate daily margin posting requirements. SIMM is the only internal model currently approved and in use. These methodologies present differing cost-benefit analyses, as well as operational and technical considerations. NISCs will need to engage in complex and resource-consuming analyses to select

²² Many dealers are also applying a variety of hybrids, such as using the “higher of” non-regulatory margin and regulatory margin (since regulatory margin is a minimum and not a maximum).

their preferred methodology and, irrespective of their choice, the implementation will be extremely demanding.

a) *Grid Methodology*

Use of grid methodology, which may seem simple in theory, will be difficult to implement in practice

The grid methodology appears conceptually simpler than internal models such as SIMM, since margins are based upon tables directing users to apply different percentages to notional by product type and tenor. The use of grid methodology, however, raises challenging implementation issues. When utilizing grid methodology, users must identify proper netting sets and apply percentages to derivatives notional amounts for in-scope products, often a difficult task where competing product rules apply. Further, tenor applications are ambiguous (e.g., callable or extendable derivatives have a range of possible tenors) and applicable notional amounts can be unclear (e.g., some products, such as variance swaps, trade in units other than notional amounts). Regulations do not provide clear guidance for the treatment of such products, which will result in inconsistent interpretations and increased margin disputes. Importantly, the grid approach does not effectively take into consideration offsetting risks. Consequently, although the grid methodology may be simpler conceptually, it raises significant implementation challenges and results in higher IM amounts because of its lack of risk sensitivity.

b) *Internal Model / ISDA SIMM™*

SIMM offers advantages to market participants versus grid methodology

The vast majority of UMR IM implementations to date have been achieved using internal models, with the SIMM as the only internal model currently approved and utilized. SIMM's wide use can be attributed to several factors:

- (a) SIMM presents a simplified risk-based model that recognizes offsetting risks.
- (b) Use of a common model between trading counterparties minimizes, and helps to quickly resolve, margin disputes. Use of individual firm models, in this context, would generate IM values that are very difficult to reconcile.
- (c) SIMM allows market participants greater ability to predict liquidity requirements.
- (d) SIMM is well known to regulators (who must often approve internal models) and has been improved since its early adoption. While new industry models may appear, they would require regulatory approval – itself a significant hurdle - before broad adoption could take place.
- (e) While firms often have enterprise risk systems or capital models, they are largely unsuited for daily margining. They may be too complex for operational needs (such as reconciliation) or too computationally burdensome to meet daily margin call deadlines.
- (f) SIMM's transparency allows for timely identification of calculation discrepancies.
- (g) The support environment for SIMM, including messaging formats, middleware services, and governance structures, is well established.

2. Evidence of Proper Implementation

In order to utilize SIMM, NISCs will need to take the following steps in order to apply SIMM on their own or via middleware services:

a) *Model Inputs*

NISCs cannot access SIMM benefits without large infrastructure enhancements

Model inputs for the SIMM calculation will require a large infrastructure enhancement for NISCs.

Firms must provide consistent model inputs for each netting set which cover the following:

- i. *Proper netting sets/in-scope products*
 - a. Similar to grid methodology, users will need to identify in-scope transactions for their regulatory margin portfolios.
- ii. *Sensitivity calculations/sensitivity mapping*
 - a. Users must calculate sensitivities (i.e., deltas, vegas) for each transaction consistently with their counterparties, preferably following a “best practices” for SIMM or other internal models. They must then map each of these sensitivity values to risk factors.
 - b. ISDA provides a “crowdsourcing utility” to enable market participants to map risk factors consistently by using market consensus mappings (e.g., for each credit name or equity issuer).
- iii. *Jurisdictional concerns (higher of)*
 - a. When inconsistent UMR regulations apply, users must calculate the “higher of” margin across the conflicting jurisdictions.
- iv. *Production of data exchange files*
 - a. Model inputs need to be expressed in consistent and defined data file formats for use by counterparties and middleware providers/vendors. ISDA has defined standardized formats via the Common Risk Interchange Format (CRIF).

As a large number of firms come into scope in the final phases, proper functioning markets will depend on sound implementation of margin processes and calculations. Regardless of the methodology used (e.g., internal models or grid methodology), incorrect implementation by a firm creates knock-on problems for its counterparties through increased margin disputes.

Currently there is no standard to reflect to a user's counterparties whether that user has implemented a model properly, nor a mechanism to signal whether a firm's process and infrastructure build are adequate. Market participants may need to have some measure of confidence that their counterparties using internal models or grid methodology have provided suitable evidence of proper and robust implementation.

3. Margin Monitoring

Applying different margin monitoring standards across NISCs will complicate model governance

Many regulators (including those in the US, Europe and Japan) require monitoring of margin. Requirements may include back-testing and monitoring of risks not well covered by SIMM or other models. Any margin shortfalls relative to risk parameters (99% confidence level using 10-day risk horizons, etc.) must be remediated through additional margin amounts. This ongoing monitoring requires development, analysis, and support, posing a significant burden for implementation.

ISDA has published and applied margin monitoring requirements and standards under SIMM. These rules are currently applied to SIMM model users and are known to regulators, especially those in the US and Japan. Global SIMM governance standards not only cover firm-level requirements, but also apply to industry level monitoring addressing SIMM changes and ensuring that they are consistent on a global scale.

Guidelines require that all firms:

- Identify any margin shortfalls through historical portfolio level "profit and loss" analysis;
- Bilaterally agree to add-on margin to remediate shortfalls; and
- Report margin portfolio shortfall issues to ISDA and regulators

Applying such margin monitoring standards to all firms, including financial end users, in 2019 and beyond poses a significant challenge. NISCs may struggle to implement and operate margin monitoring processes. Under US rules, monitoring requirements generally apply only to swap dealers.²³ The requirements, however, apply directly to all market participants subject to EU and Japanese rules, making compliance especially difficult for in-scope smaller dealers and other market participants who will need to roll out and manage expensive monitoring and margin remediation capabilities. In addition, margin methodology governance structures (e.g., the ISDA SIMM

²³ Such requirements will also generally apply to MSPs under US rules.

Governance Forum) and regulators may face difficulties in managing monitoring programs and ensuring industry wide governance quality over hundreds, or thousands, of participants.²⁴

4. Model Approval

NISC compliance may be delayed in regimes requiring NISCs to seek regulatory model approval

Where NISCs are directly subject to UMR, regulators require them to obtain regulatory approval on internal models. This entails material preparation for covered market participants, requiring significant expertise, time and resources.²⁵ In some jurisdictions (e.g., the US, Japan and, potentially, Europe), regulators must pre-approve internal model use. As part of this process, users must establish the conceptual soundness of the models used, as well as demonstrate suitable implementation within certain processes and proper data inputs (i.e., risk factor inputs). Users must also demonstrate proper internal governance for model usage, covering areas such as dispute management, model performance tracking and remediation where IM levels fall short of regulatory standards (i.e., one-tailed 99% risk coverage using a 10-day risk horizon).

Conceptual soundness approvals lack a clear benefit or utility

Even where NISCs seek to utilize SIMM, a model that is broadly used and governed under an industry-wide and cross-regulator framework, each NISC will need to secure its own conceptual soundness approval.²⁶ Requiring NISCs to submit applications and obtain requisite model approvals in such cases, however, creates another (duplicative and largely unnecessary) step that slows down preparations for the final stages of IM phase-in. Each NISC will need to engage in arduous approval processes and related exercises for SIMM, despite these efforts being largely duplicative to those

²⁴ Each quarter, SIMM users (currently, Phase 1 and 2 dealers) produce SIMM risk coverage statistics, which ISDA centrally collects in a standardized monitoring process. ISDA then analyzes the industry-wide SIMM performance monitoring results and shares results with global regulators. ISDA, regulators and the industry use the quarterly SIMM performance monitoring reports to identify any global SIMM enhancement needs. SIMM enhancements are coordinated, ensuring that one SIMM version applies globally, rather than having various counterparties or jurisdictions make bespoke changes to SIMM. The industry and regulators share an interest in maintaining a single model: users are provided methodology clarity and consistency across jurisdictions and counterparties, while regulators have a single methodology to track, understand and approve.

²⁵ At the same time, regulators will face challenges in relation to the significant time and resources that will be required to review and approve internal models.

²⁶ As previously described, ISDA carries out quarterly and annual monitoring and back-testing exercises to ensure that SIMM functions properly across the vast majority of portfolios. ISDA also sets remediation standards in the event outlier portfolios do not function well under SIMM.

performed either by ISDA or other NISCs and market participants. Further, SIMM users cannot seek to make unilateral changes or customizations to the model, as such changes would create disputes and jeopardize industry-wide consistency of the model. In fact, US regulators currently require that SIMM users always implement the latest version of SIMM. Thus, there is little additional benefit to requiring NISCs to engage in a conceptual soundness exercise where there is no opportunity for differentiation when implementing a universal model.

F. Margin Reconciliation

Absent margin reconciliation services, IM dispute management will be an operationally burdensome and impractical task across multiple counterparty relationships

Counterparties need to compare margin calculations with their trading counterparties and identify sources of disputes. While this is crucial for more complex SIMM-based IM calculations, grid methodology calculations will also require reconciliation.

Currently, in-scope swap dealers exchanging IM (largely under SIMM) use a single middleware reconciliation service provider to help them review and identify sources of disputes regarding IM calculations. Dealers electronically send their portfolio characteristics via CRIF files (holding risk sensitivities and risk factor mappings, trade identifiers, etc.) to the middleware service, which provides tracking and reconciliation services on each bilateral portfolio. Without such infrastructure providing a common interface and reconciliation scheme, IM dispute management would be an operationally burdensome and impractical task across multiple counterparty relationships.

Standardization of the reconciliation process is critical to the reduction of counterparty risk. Without common and robust IM reconciliation and processing venues, IM management across a large number of market participants would be impracticable. Accordingly, NISCs will need to procure access to reconciliation service providers. This procurement of a reconciliation service provider increases the timeline for onboarding.

Onboarding NISCs to margin reconciliation service providers will require the following:

Connections to Middleware Providers

Middleware providers will need to provide NISCs (and their swap dealer counterparties for new entrants) with clear build requirements, who in turn will need to either build their own connections, engage with consultants, or have their trading system providers prepare such connections. Middleware

providers will need to develop and communicate their plans for expanding their platforms and offerings to handle the expected wave of additional IM counterparties coming into scope in 2019 and 2020.

Testing Resources

All connections will require testing for data integrity. Service providers will likely require consistent data from both counterparties in order to perform their calculation or reconciliation functionality. This task must begin sufficiently before go-live so that NISCs have time to identify and address issues before re-testing. It is unclear whether service providers are adequately planning for this timeline.

Onboarding Resources

Given the large number of NISCs for the final phases of UMR, significant onboarding resources will be required to address implementation issues. It is unclear at this time whether service providers and the consultant community are sufficiently prepared to provide the crucial assistance that will necessarily be required in a timely manner.

Credible Plans

Given the scale of onboarding needs, middleware providers should provide credible plans and specifications to the industry as soon as possible

Even with careful preparation and proper resourcing, onboarding will be congested, and firms will face multiple bottlenecks considering the number of participants seeking to exchange regulatory-compliant IM in 2020 (or 2019). NISCs must immediately initiate data infrastructure assessments, or risk delayed onboarding and connectivity.

Middleware reconciliation services and/or other IM processing platforms must prepare for the number of clients coming into scope in 2019 and 2020. At issue is not only infrastructure functionality and scale, but also client servicing. NISCs will span the globe, and they will require operational and technical support to a degree not experienced in the earlier phases of UMR. The new demands on such platforms will be substantial. As a result, NISCs entering in the final phases of implementation may find themselves with limited, delayed or, in extreme cases, no effective access to the key services which they require from middleware providers and processing platforms. Without these services, NISCs may face disruptions to their ability to trade and hedge effectively.

At the same time, and separate from their capacity to onboard, middleware reconciliations services and/or other IM processing platforms will need to ensure they have capacity to provide day-to-day services for the vastly increased number of NISCs following the final stages of UMR phase-in. NISCs, smaller dealers and other market participants alike, especially where rules apply directly to all (as in the

EU and Japan), may find the requirement to roll out and manage expensive monitoring and margin remediation capabilities especially difficult.

The number of middleware providers looks likely to increase. A proliferation of alternative reconciliation service providers, however, may degrade the network benefits and consistency offered by a single provider. A plethora of data formats (presumably CRIF-based), communications protocols, service times and support organizations would further tax market participants, who would need to build multiple processes across multiple platforms.

While vendors have announced that they intend to build SIMM calculators, simply providing SIMM calculation services will be insufficient to meet NISCs' needs. Calculations themselves comprise only a portion of margin processing. NISCs' main difficulties may lie in preparing data for SIMM/internal model or grid-based margin: identifying netting set trades, applying proper jurisdictional rules, calculating sensitivities and mapping them. To date, vendors have not published plans detailing how they might assist NISCs to address these issues.

G. Liquidity and Funding

The combination of rising demand for collateral and increased margin call activity will dramatically impact both liquidity and risk, posing significant funding and operational challenges

To meet regulatory IM requirements, NISCs will likely require new and flexible sources of liquidity. The amount of collateral required to be posted to and by NISCs may be substantial regardless of their IM calculation methodology – whether using a grid or internal model. The use of grid methodology (which is not risk-sensitive and typically results in much higher IM amounts than SIMM), however, represents a real and significant funding cost to all market participants. NISCs' counterparties (primarily swap dealers) will also be required to post IM and face increased costs that may lead to diminished trading or negative pricing impacts.

The form of collateral can raise as many issues as the amount of collateral. Custodians in the US are reluctant to accept cash for IM because they are subject to leverage capital standards that impose restrictions on their ability to accept cash and other low-risk assets that qualify as IM. Since custodial services are generally low-return, fee-based business lines, bank custodians are often unwilling to provide unlimited balance sheet space to accept IM. NISCs, on the other hand, may see cash posting as an attractive option if they do not have other eligible collateral available. In addition, cash is relatively easy to settle quickly - an important consideration when collateral must settle the same day as the call (as under US rules). If cash is widely adopted, however, it creates complications with certain

jurisdictions (i.e., Europe), where rules limit the amount of cash that can be held at a single custodian. Widespread use of cash would require additional custodians to be added, creating additional significant complexity.

Conversely, some NISCs may prefer to post securities which they have on hand, such as equities or corporate bonds. Equities and corporate bonds, however, may present problems for the receiving party. Corporate bonds must be monitored according to in-house ratings which are typically proprietary. Equities need to be screened to conform to regulations requiring that they are components of specific country equity indices. Custodians, swap dealers and NISCs may have trouble conforming to the myriad of regulations governing non-sovereign security collateral.

Securities may also pose difficulties in that they are often subject to settlement cycles which may exceed applicable margin settlement requirements.

V. Work Needs to Be Done

The OTC derivatives market faces substantial challenges as new counterparties come into scope in 2019 and 2020. These challenges result primarily from: (1) the large number of counterparties coming into scope; (2) the extensive technological build and organizational requirements; and (3) the expected rush of demand on market resources during a relatively condensed period. Considering the broad and detailed preparation required for the final phases of UMR, all concerned market participants – the NISCs, custodians, middleware providers, swap dealers, industry trade associations and regulators – need to engage in immediate dialogue and planning now. Even then, timely compliance may prove elusive for NISCs.

The overall preparation burden for market participants - and in particular for NISCs, custodians and middleware providers - is immense. This is exacerbated by the short-term, non-repeating nature of the work at hand. Legal teams must develop templates and negotiate documents. Risk teams must review processes and collateral eligibility. Operations teams must work out new processes. Technology teams must build crucial data and calculation capabilities. Custodians and middleware providers must onboard NISCs (and, as needed, their counterparty swap dealers) and conduct necessary testing. Compared to the efforts of Phase 1 firms that went live in 2016 – who spent two to three years readying their infrastructure, processes and documentation - this will be a significant challenge when one considers the number of counterparties coming into scope and their levels of readiness, as well as the extremely compressed timeframe during which all of this must occur.

Many firms will rely on external third parties to provide short-term resourcing and expertise. Given, however, the sheer number of participants coming into scope at once, reliable professional help will be in high demand and may be stretched, or simply unavailable.

A. Newly In-Scope Entities' Readiness

Most importantly, NISCs need to formulate their strategies and plans immediately. NISCs must first engage in complex self-assessment to determine and disclose to counterparties which of their entities will be in scope. They will need to adapt existing or negotiate and execute new credit support annexes, custodial arrangements, eligible collateral schedules and account control agreements with counterparties and custodians alike. For market participants planning to use internal models or those choosing to utilize grid methodology for calculations (and/or outside service providers), infrastructure needs to be modified or built from scratch. Decisions on whether to use the grid methodology or risk-based methodologies such as SIMM will have significant commercial impacts on funding and trading.

For NISCs who are unable to achieve timely compliance, the potential risks are significant. NISCs may be unable to access their historical OTC trading venues and may require alternative means to hedge their exposures. Cleared product market alternatives may not, in all instances, provide viable alternatives. Further, cleared products may not offer the same diversity of products and customization present on the OTC market. Cleared products may also raise significant margin, onboarding and operational considerations. As a result, NISCs may be effectively blocked from the prudent hedging products that best suit their needs.

B. Custodian Readiness

Custodians need to present clear readiness plans and expectations for negotiating, onboarding and maintaining collateral operations for a large number of counterparties. These plans need to set expectations for negotiation timing, collateral operational terms (e.g., daily settlement deadlines and operational terms in each region/country), and testing of any communications. Custodian plans must be available by the end of 2018 so that NISCs can assemble their final build plans. Testing of infrastructure needs to take place by 1Q 2019 to allow NISCs and custodians time to diagnose problems and give these market participants and vendors sufficient time to put fixes into effect.

C. Middleware Readiness

Middleware and reconciliation service providers should provide detailed specifications and readiness plans to potential clients. They also need to find ways to onboard thousands of portfolios and counterparties quickly. Clear plans from middleware providers, with details on services offered and

deadlines that must be met to ensure service access by relevant IM phase-in dates, would help counterparties build their own implementation plans and understand negotiable terms. Middleware vendor plans must be available by the end of 2018 so that NISCs can assemble their final build plans. Testing of infrastructure would need to take place by 1Q 2019 to allow NISCs and vendors sufficient time to diagnose problems and implement fixes.

D. Dealer Role

Dealers may play an important role in mitigating implementation challenges for the final phases of IM implementation. Swap dealers already in scope are familiar with UMR and are active in industry efforts to prepare for the final phases. That said, the task will still be immense. As previously highlighted, dealers will need to engage in time- and resource-intensive efforts, including adapting existing or negotiating and executing new CSAs, custodial arrangements, ECSs and ACAs. The bandwidth necessary for these tasks will be significantly amplified given the number of NISCs in the final phases.

NISCs may face difficulties in obtaining required regulatory approvals and/or developing required governance processes to effectively implement SIMM and grid methodology.²⁷ Dealers may be better placed than NISCs to effect IM calculations (e.g., netting set identification, margin calculation inputs, data standards, and monitoring requirements). Many dealers may already calculate not only the margin they must collect, but also the amount that they expect to post to counterparties in order to validate their counterparties' margin calls. It is plausible that dealers could use existing infrastructure to calculate the regulatory IM that their clients should call. Dealers, NISCs and regulators will likely discuss this potential role in greater detail in the months to come.

There are significant legal, operational, compliance and regulatory issues dealers must thoughtfully consider, however, before agreeing to assume regulatory IM call calculations on behalf of clients. This includes challenges and concerns relating to: calculation validations and dispute reconciliation; resource constraints for the dealer population (given that significantly more resources may be required to resolve IM disputes, versus VM disputes); and differing requirements for validation and governance under the various UMR rule sets globally. Dealers may, for example, face difficulties in providing fully detailed dispute reconciliation on a mass scale, given the need to examine risk sensitivities, mappings and jurisdictional differences around portfolio makeup (i.e., equity options subject to rules in Japan but not

²⁷ NISCs may also face difficulties connecting to a middleware provider to streamline margin reconciliation/validation operations, where needed.

in the US; CFTC and US Prudential differences around securities-based swaps; “higher of” margin conflicts between jurisdictions).

A counterparty who wishes to dispute despite not having IM calculation capabilities presents more complications. For instance, the dealer and the counterparty may face difficulty in agreeing on dispute process rules where the client cannot calculate IM, or cannot provide IM input factors in an operationally efficient form. Such disputes can occur in two directions - on the amount that the counterparty posts to the dealer, and on the amount that the dealer posts to the counterparty. These amounts may differ depending on portfolio characteristics (i.e., the asymmetric risk profiles of options can create asymmetric post and call IM amounts). Dealers providing calculations also need to consider whether they are comfortable with calculating the margin amounts that they will post to counterparties.

Dealers may also find it difficult to take on certain regulatory obligations on behalf of counterparties. Global rule sets apply differing obligations with respect to IM models, in-scope portfolios, monitoring and governance. For example, EU and Japanese rules require that all counterparties (even non-dealers) receive model approval, undertake margin monitoring and remediate margin shortfalls where risk is not fully covered, among other requirements. A counterparty facing questions from its regulator may ask that the dealer provide evidence or support for model approval, including governance and implementation details, on its behalf. For a dealer facing hundreds of NISCs across multiple jurisdictions, meeting these obligations for its counterparties may not be achievable. Thus, the feasibility of dealers conducting IM calculations on behalf of counterparties will require effective solution sets that include significant guidance from global regulators.

E. Industry and Trade Associations

As noted earlier, ISDA is currently working to finalize a quantitative analysis exercise among the currently in-scope swap dealers that seeks to more accurately measure and scope the challenges the market will face during the implementation of these final phases, including estimates regarding the number of new counterparties coming into scope and amount of IM likely to be exchanged. This data will help counterparties, dealers, custodians, technology/middleware providers, consultants, and legal service providers to define their future resourcing needs and commitments. Such context would also help market participants, regulators and standard setters consider alternative approaches that address issues described in this paper.

F. Regulators

Many regulatory authorities are cognizant of the difficulties associated with the implementation of margin rules, as evidenced by the granting of the “VM Big Bang” conformance periods.²⁸ Indeed, in its margin framework, BCBS-IOSCO expressed that it is open to reviewing the current regime, should a credible quantitative data analysis show that changes are appropriate.²⁹ Further, in its “Capital Markets Report,” the U.S. Department of the Treasury recognized that some recalibration of current margin requirements may be appropriate.³⁰

There are a wide range of actions that market participants and regulators may consider as a better quantitative understanding of the final phases on implementation comes into focus. Market participants are also reviewing how to ease concerns on model approval (where required), margin calculations and reconciliation processes.

Any modifications to existing uncleared margin rules should be consistent across jurisdictions. Inconsistent rules or applications across jurisdictions will cause additional confusion, complexity and implementation delays. Many portfolios cross jurisdictions, not only across national or regional boundaries (e.g., US/EU) but within them (e.g., US Prudential Regulators/CFTC), and counterparties need to have a clear and consistent sense of the applicable rules for their portfolios. Further, any modifications to UMR must be implemented as soon as possible in order to allow for effective and necessary relief.

²⁸ See Press Release from BCBS-IOSCO amending original implementation timeline recommendations, available at: <https://www.bis.org/press/p150318a.htm>.

²⁹ See “Key Principle 8” of the BCBS-IOSCO Final Framework which states, “[t]he requirements described in this paper should be phased in so that the systemic risk reductions and incentive benefits are appropriately balanced against the liquidity, operational and transition costs associated with implementing the requirements. In addition, the requirements should be regularly reviewed to evaluate their efficacy, soundness and relationship to other existing and related regulatory initiatives, and to ensure harmonisation across jurisdictions,” available at: <https://www.bis.org/bcbs/publ/d317.pdf>.

³⁰ See U.S. Department of the Treasury Report, “A Financial System That Created Economic Opportunities: Capital Markets” (pages 127-129); available at: <https://www.treasury.gov/press-center/press-releases/Documents/A-Financial-System-Capital-Markets-FINAL-FINAL.pdf>.

VI. Conclusion

The final phases of IM phase-in pose a substantial challenge for market participants, third-party service providers and the market as a whole. Readiness requires detailed discussion and close collaboration across firms, regulators and other stakeholders in an extremely timely manner.

The issues described in this paper warrant immediate attention. Large dealers spent two to three years building out their data, systems, and organizations to support regulatory IM calculation and maintenance for 2016 Phase 1 go-live. In the six months prior to September 2016, the Phase 1 firms struggled to finalize CSAs, custodial agreements, collateral schedules, collateral and netting opinions, perfect security interests and establish accounts with custodians. These difficulties existed even though the first phase involved comparatively fewer entities (approximately 100 counterparties for each dealer). Phase 1 provides important perspective regarding the challenges that should be expected for future phases. Phase 1 preparations went to the wire, with many firms working to complete documentation right up to the start date. Further, establishing custody accounts by the deadline proved a colossal challenge for some, as custodians were unable to effectively address an account set-up backlog. The progress Phase 1 dealers were able to achieve in 2016 was significant. NISCs, however, may experience less success, and many may not currently appreciate the scale of the task or the crowded implementation environment ahead of them as they prepare.

Even with the application of appropriate resources, many NISCs will be unable to achieve compliance by their relevant phase-in date. Impediments are driven by the extensive demands of implementation, as well as the lack of clarity regarding the potential for necessary solutions (both from the regulatory and market participant communities) that would allow development of implementation programs. Initial tasks, like data cleansing and entity scoping, can prove critical for timely compliance. If an immediate effective implementation program is not adopted by NISCs and regulators and third-party service providers (inclusive of custodians) do not provide effective solutions for NISCs, market disruptions may ensue, limiting market participant access to liquidity and curtailing the ability to prudently manage risks.

We look forward to an ongoing dialogue to find and implement solutions to the challenges raised in this paper. Please do not hesitate to contact the undersigned.



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APPENDIX A: About the Associations

Since 1985, **ISDA** has worked to make the global derivatives markets safer and more efficient. Today, ISDA has more than 900 member institutions from 68 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities firms, and international and regional banks. In addition to market participants, members also include key components of the derivatives market infrastructure, such as exchanges, intermediaries, clearing houses and repositories, as well as law firms, accounting firms and other service providers. Information about ISDA and its activities is available on the Association's website:

www.isda.org. Follow us on Twitter @ISDA.

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Appendix B: Initial Margin Phase-In Draft Task Schedule

The Draft Task Schedule is meant to provide a visual understanding of the significant number of tasks, work streams and dependencies that must be completed by the relevant phase-in dates. This should not be considered in isolation from the significant challenges surrounding the tasks, which described at length in this paper. Where it is understood that work may be underway, but the timeline is unclear, we have noted as “in progress.” Where tasks are expected, but the timeline is unclear, we have noted as “TBD.”

Issues raised in the paper will also be the topic of discussion by regulators, both collectively at the WGMR and individually at the jurisdictional levels. Regulators will need to consider and then communicate their feedback to the industry by the end of 2018 for the tasks discussed to proceed as laid out below. The timeline is an illustration of what would have to be accomplished to meet the current deadlines and requirements. The task schedule is not final or exhaustive, nor an indication that the timelines are achievable.

	2018						2019												2020									
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	
Topics for Industry Discussion for Agreement on Basic Standards																												
Calculations/Disputes	█																											
SIMM Governance - NISC Expectations	█																											
Custodian Issues	█																											
Eligible Collateral	█																											
Reg/Non-Reg IM	█																											
Netting Sets	█																											
Build Considerations	█																											
Multiple CSAs	█																											
Collateral Operation Effects	█																											
ISDA Documentation																												
2019/2020 Document and Process Design (taking in to account topics above)							█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Distribution of Draft ISDA Documentation in Workstream Discussions							█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Publication of Final ISDA Documentation Design																												

	2018						2019						2020															
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	
NISC Tasks																												
IM Calculations	In Progress																											
IM Monitoring	In Progress																											
Operational Change	In Progress																											
Multiple CSAs/Agreement Data	In Progress																											
Higher Of	In Progress																											
Netting Set Identification	In Progress																											
SIMM Sensitivities	In Progress																											
SIMM Mapping	In Progress																											
SIMM Monitoring	In Progress																											
SIMM Overrides	In Progress																											
IM Model Approval	In Progress																											
Crowdsourcing Linkages	In Progress																											
Negotiation Protocol Linkages	In Progress																											
Custodian Linkages	In Progress																											
Middleware Reconciliation Services Linkages	In Progress																											
Portfolio Testing/Reconciling w/ Dealers																												

	2018						2019						2020															
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	
Custodian/Reconciliation Platform Workstreams																												
Custodian Onboarding Plan Presentations	TBD																											
Reconciliation Platform Onboarding Plan Presentations	TBD																											
2019																												
2019 Client Negotiations																												
2019 Custodian Setup																												
2019 Middleware Reconciliation Services Setup																												
2020																												
2020 Client Negotiations																												
2020 Custodian Setup																												
2020 Middleware Reconciliation Services Setup																												
Dealer Tasks																												
Budget Definition																												
Calculations for Clients	TBD																											
Dispute Management	TBD																											
Negotiation Protocol Linkages	TBD																											
Testing New Pipes																												

	2018						2019						2020															
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	
Custodian Tasks																												
Scaling	TBD																											
Onboarding Planning	TBD																											
Testing Pipes	TBD																											
Reconciliation Platforms Tasks																												
Scaling	TBD																											
Onboarding Planning	TBD																											
Enhanced Services	TBD																											
Testing																												