**FRE. 6131**

**Project Report**

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1. **Introduction**

UMR, which means the uncleared margin rules, is the international margin posting framework on the non-centrally cleared derivatives that the global regulators implemented. It was introduced by the BCBS and IOSCO in 2016 as one of the major reforms to mitigate systemic risk in the financial industry following the 2008 financial crisis.

Uncleared margin rules began to be phased-in on September 1, 2016 for the largest market participants. Broader implementation of variation margin requirements occurred later in 2017, and the initial margin requirements continue to phase-in until 2020 and 2021. So far, the phase 4 of the initial margin rules for non-cleared derivatives is being posted. Although the whole process has been given a vital delay until September 2021, the new uncleared margin rules will eventually push thousands of buy side financial institutions that had non-centrally cleared derivatives to comply with the uncleared margin rules. The uncleared margin rules will require firms to post collateral for their non-cleared derivatives trades, which includes FX forwards, cross-currency swaps, swaption, exotics and equity options, on a third-party.

Uncleared margin rules are assigned to all financial firms and systemically important non-financial firms. The rules have been capturing firms from various phases over the last 3 years. Many buy-side firms with a notional exposure above $8bn of bilateral derivatives should be familiar with the exchange of variation margin already. However, initial margin may well be a new concept for a lot of firms.

Since the uncleared margin rules caused much trouble and higher collateral cost to many financial firms, especially the smaller ones. Therefore, the 5-step phase in process was expended to 6 phases. In September 2020, financial institutions with notional value exceeding 50 billion euros at non-centrally cleared derivatives; and by September 2021, all the financial institutions with non-central cleared notional amount exceeding 8 billion euros will comply with the UMR.

It is no hard to tell that for many firms which have big positions at non-cleared derivatives may find it is not easy to cope with the UMR. New risk managing system need to be set up, new team need be constructed, and most importantly, the initial margin and variation margin need to be posted and thus their capital structure will be different. At least before September 2020, many financial institutions with non-cleared notional amount above 8 billion euros but below 50 billion euros will not be fully prepared for the uncleared margin rules. Therefore, many chances and challenges exist in this field; and it is worthwhile to learn about.

1. **Qualitative Challenges**

As what we can learn from the ISDA-SIFMA’s policy guide, the preparation for meeting these UMR requirements will take a lot of time, and will involve intensive work to ensure systems, processes and documentation are in place. Firms should consider taking the following steps when preparing to comply with regulatory initial margin requirements. These are not necessarily presented in chronological order – the precise order and timing will depend on a firm’s specific circumstances.

There are 8 steps for any firms that need to be prepared for the UMR. In general, there are 8 steps: 1: identify in-scope entities early 2: make early disclosures to counterparties 3: exchange information on compliance 4: identify special cases 5: establish custodial relationships 6: prepare for compliance 7: negotiate/execute documentation 8: finalize preparations

Step 1, This should include all entities that are: (i) in-scope for variation margin (VM) requirements; and (ii) estimated to have an aggregate average notional amount (AANA) of non-cleared derivatives that exceeds the level for the relevant future phase-in date

Step 2, Firms should disclose the status of estimated in-scope entities to counterparties in order to provide enough time to complete all steps with each party. Disclosure will need to occur 12-18 months before the IM go-live date, but: o More time will be needed for later phases, because more counterparties will fall in-scope at the same time. o Where a principal uses multiple investment managers, consideration will need to be given to which entity makes the necessary calculations and disclosures, and how this is best achieved. o Disclosure of relevant contact information is also encouraged to facilitate counterparty communications, particularly if this differs across legal entities in a group.

Step 3, Important decisions need to be made about how firms will comply with the IM requirements. This information should be exchanged with each counterparty.

Which custodian(s) will you and your counterparties use to post IM?

Step 4, Determine whether any special cases apply.

This might include considering the impact of non-netting jurisdictions, local law/language documents, stamp tax, registration of security and entity specific regulatory requirements (eg, UCITS).

Consider legal opinion coverage required for compliance with the regulations.

Step 5, Firms should establish relationships with the relevant custodians, and provide information on all in-scope counterparty relationships.

This includes the custodian(s) you will use, and each custodian your counterparties will use. The work necessary to establish those relationships may depend on the type of custodian being used.

KYC checks may need to be performed, which can take several weeks or months.

Step 6, Firms will need to build up the necessary capacity for compliance in advance.

Prepare regulatory IM calculator (ie, ISDA SIMM and/or regulatory grid). o

Prepare/map internal data inputs, including connection to the ISDA SIMM Crowdsourcing Utility (for equity and credit). o

Develop calculation capacity, or set up with a vendor. o Conduct portfolio matching/ISDA SIMM test calculations with counterparties. o Obtain regulatory approval for use of the model, if necessary.

Develop operational capacity as necessary (including any needed IT or other systems development): o Develop support for multiple IM and VM credit support annexes (CSAs) and collateral call issuance/reconciliation processes. Set up with any vendor(s) if needed.

Step 7, The necessary documentation will need to be negotiated and put in place with each counterparty ahead of the implementation date. A bilateral IM CSA or collateral transfer agreement/security agreement for each counterparty pair.

A trilateral account control agreement or similar documentation for each counterparty/custodian trio. This may involve additional documents if you are accessing a custodian via an intermediary.

Step 8, Check all necessary relationships are up and running, and everything has been tested.

Ensure account opening procedures are completed at all relevant custodians and internally within your firm’s own systems.

Test segregated account transfers with custodians.

Test with all applicable third-party collateral managers.

1. **Quantitative Requirement**

Once we understand the background of UMR, the second question for us is which derivatives and what are their principal exposure amount that in-scope for UMR. Firstly, the uncleared derivative instruments include FX options, Non-deliverable forwards (NDFs), Physical FX forwards, Swaptions and some other Hedging trades. Asset managers, banks, hedge funds, corporates, pensions and more may be subject to the requirements. Secondly, the notional threshold is calculated by Average Aggregate Notional Amount (AANA) over certain 3-month period. AANA is what the regulators use to determine whether a firm is within the scope for initial margin in the UMR.

AANA is based on the open gross notional value of all non-centrally cleared derivatives during the designated calculation observation period for the phase.

two key distinctions require this proposed framework. First, methodologies used for capital calculations are not appropriate for initial margin for noncleared derivatives. It is important to note that the first main objective outlined by the final guidelines, "Reduction of systemic risk," is a very different one than the general aim of capital calculations regularly employed on similar portfolios by prudentially regulated institutions. While the latter aims to accurately reflect all reasonable types of risk such a portfolio may have, the former need not. For example, it may make sense to include FX volatility skew scenarios into a capital simulation, but this is not a systemically relevant type of risk which would be important for the purposes of universal two-way initial margin aimed at reducing systemic risk. Thus, while both types of portfolios of non-cleared derivatives ultimately have the same potential underlying risk factors, only a subset of them which are systemically relevant, such as USD interest rates, commodities prices, or broad credit spread movements, would be required to protect against such systemic risks. Further, the timing of capital calculations can be slower and the amount of transparency lower (counterparties will not need to independently verify these calculations every day) than is a pre-requisite for the current purpose. Second, bilaterally agreed methodologies are also not a realistically tenable solution. During a period of market stress, the effort required to independently verify calculations and resolve disputes (many of which would likely be due to changes in transparent, unilaterally-determined market parameters used by the calculating party, such as correlation or volatility) would promote neither of the objectives of the final guidelines, and rather likely increase systemic risk due to an accident. Thus, ISDA proposes to develop a standardized model which market participants can use that is better suited to the current purpose. The key aims of such a model include: • Efficiency, speed, transparency and reproducibility • Non-procyclicality • Being governable and extensible • Not limiting entry to market The successful development and deployment of such a model will require an agreement with regulators around issues discussed above such as calculations based on Greeks and a framework for approval via a number of reference portfolios and periods. The successful implementation of a standardized model also will require coordination among regulators in their model approval process.

SIMM model (which replace the VaR)

SIMM model is the initial margin calculating methodology offered by ISDA. My plan is that firstly understand the SIMM model; then take IRS and FX as an example and come up with a strategy that lower the margin cost calculated by SIMM model. The basic methods may include compressing the notional amount, replicate the OTC exposure by using non-OTC product, etc.

What the lower rated counterparty can do? 🡪 Use CCP’s solution SIMM uses sensitivities as inputs. Risk factors and sensitivities must meet the definitions provided within Section C.

3. Sensitivities are used as inputs into aggregation formulae which are intended to recognize hedging and diversification benefits of positions in different risk factors within an asset class. Risk weights and correlations are provided in Sections D-I.

There are six risk classes: • Interest Rate • Credit (Qualifying) • Credit (Non-Qualifying) • Equity • Commodity • FX and the margin for each risk class is defined to be the sum of the Delta Margin, the Vega Margin, the Curvature Margin and the Base Corr Margin (if applicable) for that risk class. That is: (page 1 formula 1)

There are four product classes: Interest Rates and Foreign Exchange (RatesFX) • Credit • Equity • Commodity,

Within each product class, the initial margin (IM) for each of the six risk classes is calculated as in paragraph 5 above. The total margin for that product class is given by the formula:

（page2-1,2）

1. **CCP’s Solution (and other)**

ISDA SIMM is symmetrical between Pay and Receive. I have therefore taken the average of Pay and Receive for all CCPs in CHARM.

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ISDA SIMM, on a standalone basis, is higher than CCPs for all cases.

But this may change on a portfolio basis. Our 1,000 test trade portfolio shows the following:

ISDA SIMM IM at $136m

If all trades were at LCH an IM of $121m

If all trades were at CME an IM of $104m

These differences are not as great as we would have predicted.

Remember that ISDA SIMM is calibrated for a 10-day holding period, but a ~99% confidence interval. Using a rule of thumb of “square-root 10 over 5” for the effect of the longer holding period, we would expect an IM 1.4 times higher for ISDA SIMM compared to CCP models.

However, this is offset by a lower confidence interval. ISDA SIMM is calculated at a 99% interval, where-as CME and LCH use 99.7% (and it is Expected Shortfall, average of worst six, for LCH). This reduces the difference. It is hard to say by how much given the different sample periods.

Finally, we note that;

These comparisons exclude Liquidity Add-Ons from all calculations. There is provision for Concentration Thresholds within ISDA SIMM, but ISDA are yet to implement these.

I have to highlight the effect of netting. ISDA SIMM will be grossed-up between counterparties. This analysis assumes you trade with only one counterparty. See my recent blogs here and here to see the effects of grossing-up across multiple counterparties.

The next step is to examine multi-currency portfolios. There is a (relatively) low correlation co-efficient of 27% under ISDA SIMM between interest rate risk in different currencies.

CME Group offers the broadest set of global solutions to help you overcome challenges throughout the entire UMR process. These solutions enable you to meet IM requirements, gain capital efficiencies, as well as minimize costs and core business disruptions

1. Reduce your total notional outstanding 2. Minimize margin requirements

Minimizing exposure against each counterparty and optimizing net funding amounts can help lower bilateral margin requirements.

Use voluntary clearing

Use CME Group cleared OTC products where possible to lower requirements from 10-day margin on uncleared bilateral exposures to the 5-day margin on cleared OTC.

For example:

How One Firm Added up to 89% in Capital Efficiencies

Uncleared margin rules (UMR) are expected to directly impact a number of buy side firms over the course of 2019 and 2020 as phases 4-6 come into force.

The Average Aggregate Notional Amount (“AANA”) is calculated to evaluate whether a given financial entity is above the relevant threshold for the impact of UMR. Regulatory regimes in both the U.S. and EU currently include the uncleared gross notional of both deliverable FX forwards and FX options.

For entities above the UMR threshold that are then subject to calculating the Initial Margin requirements it is worth noting that deliverable FX fowards are not included in this calculation. As such bilateral FX options are included in the calculation without typical delta hedges.

The example below based on real client data helps to illustrate the netting and model benefits that exist in relation to Initial Margin funding that can be achieved by using OTC clearing and/or Exchange Traded Products. Furthermore, delta hedges can also be cleared to enhance the IM efficiencies of using OTC clearing or ETD.

1. **Reference**

[1] ISDA. 2019. “SIMM Methodology, version 2.2.” White Paper. ISDA, July.

[2] ISDA. 2018. “Initial Margin for Non-Centrally Cleared Derivatives: Issues for 2019 and 2020.” White Paper. ISDA-SIFMA, July.

[3] ISDA. 2018. “Getting Ready for Initial Margin (IM) Regulatory Requirements.” White Paper. ISDA, July.