Uncleared Margin Rules

July 2019
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Uncleared Margin Rule (UMR) Background

The UMR framework was published by the Basel Committee of Banking Supervision (BCBS) and the International Organization of Securities Commissions (IOSCO).

Uncleared margin rules essentially impose “clearing-like” rules on over the counter derivative transactions requiring that counterparties are subject to Regulatory Initial Margin (IM) along with Variation Margin (VM) to maintain a trade.

The UMR rules have been adopted by multiple prudential regulators who have enforced the rules on those within their jurisdiction, with different protocols across jurisdictions.

Phased-in compliance with IM starting in 2016 and will phase through September 2020 based on gross notional outstanding.

All firms are already exchanging VM.

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**Market Participants in Scope**

- Financial and non-financial counterparties using non cleared derivatives with outstanding notional of uncleared derivatives exceeds a pre-defined threshold amount.
- This includes swap dealers, banks, hedge funds, asset managers, insurance companies, pension funds, corporates and the government sector.
- Over 1,000 firms are expected to be impacted in between September 2019-2021.
Calculating When You’re In Scope for IM

Your Average Aggregate Notional Amount (AANA) of uncleared derivatives and certain FX products during the Observation Period determines when you’ll be in scope for IM.

### IM Phases based on AANA

#### Thresholds in the US & EU

<table>
<thead>
<tr>
<th>Phase</th>
<th>Initial Margin Compliance Date</th>
<th>US (in USD), EU (in EUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 4</td>
<td>September 1, 2019</td>
<td>750 billion</td>
</tr>
<tr>
<td>Phase 5</td>
<td>September 1, 2020</td>
<td>50 billion</td>
</tr>
<tr>
<td>Phase 6</td>
<td>September 1, 2021</td>
<td>8 billion</td>
</tr>
</tbody>
</table>

#### Observation Periods for Phases 4–6

<table>
<thead>
<tr>
<th>Phase 4 – Sept. 1, 2019 Compliance date</th>
<th>Phase 5 – Sept. 1, 2020 Compliance date</th>
<th>Phase 6 – Sept. 1, 2021 Compliance date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation Period: March, April and May 2019</td>
<td>Observation Period: March, April and May 2020</td>
<td>Observation Period: March, April and May 2021</td>
</tr>
<tr>
<td>Calculated daily in U.S., monthly in EU</td>
<td>Calculated daily in U.S., monthly in EU</td>
<td>Calculated daily in U.S., monthly in EU</td>
</tr>
<tr>
<td>AANA threshold: &gt; 750 billion (USD, EUR)</td>
<td>AANA threshold: &gt; 50 billion (USD, EUR)</td>
<td>AANA threshold: &gt; 8 billion (USD, EUR)</td>
</tr>
</tbody>
</table>
Current State of UMR Compliance

50+ Groups Live
as of Sep 2018

All firms using same IM model
ISDA SIMM™

$130bn
Average Initial Margin amount collected daily

1.5M+ trades
Over 35 million risk sensitivities

Key Differences Compared to Bilateral Agreements

• Under the new regulations, each margin regime may require separate Credit Support Annexes (CSA) with lower thresholds and minimum transfer amounts, less flexible collateral, and a shift to daily movement of IM and VM on a T+1 basis

• Each firm account is measured on an individual fund/account level, rather than the firm being measured as an entire Investment Manager, adding complexity to compliance and costs

• IM for new trades must be segregated/held by 3rd party custodian, with no rehypothecation of collateral allowed, which greatly increases the total margin required in the ecosystem

• 10-day margin period of risk and absence of counterparty netting, results in significantly higher IM requirements for uncleared portfolios

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Client Challenges
Client Challenges for Initial Margin Compliance

Legal Documentation
Amend CSA documentation

Collateral Accounts
Set up custodial accounts

Notional
Reduce notional for AANA calculations

Daily Compliance
Calculate, communicate, reconcile and post IM

Margin
Minimize margin requirements
Client Challenge

- REDUCE NOTIONAL
- CALCULATE, COMMUNICATE, AND RECONCILE MARGIN
- REDUCE MARGIN

How CME Group Solutions Can Help

- Utilize Listed Futures
  - Voluntary OTC Clearing
  - triReduce Compression

- triCalculate
  - AcadiaSoft Initial Margin Exposure Manager powered by TriOptima
  - triResolve Margin

- Utilize Listed Futures
  - Voluntary OTC Clearing
  - triBalance
Client Challenge #1: Reduce Notional Outstanding
Notional Reduction: Clients Shift into Futures and Voluntary OTC Clearing

Over 1300 New Futures Large Open Interest Holders Since 2016

Voluntarily Cleared IRS is Growing 3x Faster than Mandated

G4 Products ADV ($bn) +22

Non-G4 Products ADV ($bn) +400%

Source: CFTC

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**Notional Reduction: Multilateral Compression**

**triReduce** reduces notional outstanding and line items in OTC derivatives portfolios, via multilateral compression cycles, whilst maintaining the market risk neutrality of each participant’s portfolio.

**How it Works**
1. Participants submit trades for matching on the triReduce website.
2. Participants agree parameters and tolerances.
3. triReduce runs its market leading compression algorithm.
4. Gross notional and line items are successfully reduced.

**Notional Reduction: Multilateral Compression**

- **FX:** FX Forwards, NDF
- **Rates:** IRS, OIS, Cross Currency, Inflation
- **Credit:** Index, Single Names
- **Commodities:** Oil, Nat Gas, Precious Metals

**Statistics**
- 1,509 Trillion in gross notional compressed
- 270 Subscribers across the globe
- 28 Currencies available for compression
- 194 Cycles completed in 2018
$1,509,000,000,000,000+ Notional Compressed by triReduce

Greatest capital efficiencies from the network effects of 270 clients, 4 asset classes and 6 CCPs

- **Broadest network of clients** globally enables maximum compression
- **16-year track record** with a trusted, consistent process and uniformity of compression runs
- **One-stop shop** for clients’ compression needs across Rates, FX, Credit, and Commodities
- **Full economic reconciliation** on all trades including stringent checks applied to valuations
- **Provides** an intuitive workflow, making it easy to use and minimizing operational overhead
Client Challenge #2: Calculate, Communicate, and Reconcile Initial Margin
ISDA Standard Initial Margin Model (SIMM™)

SIMM™ was developed by ISDA as an industry standard framework for calculating initial margin. The goal of a common industry model is to provide transparency, enable consistent regulatory oversight, allow for easy calculation via a standard structure, and to enable timely dispute resolution.

Background on SIMM

SIMM is only applied to new contracts entered into after each of the phase in dates.

6 asset classes: IR, Credit (Qualifying), Credit (Non-qualifying), Equity, Commodity & FX

4 product types: RatesFX, Credit, Equity & Commodity

\[ SIMM = SIMM_{RatesFX} + SIMM_{Credit} + SIMM_{Equity} + SIMM_{Commodities} \]
Calculate Margin Requirements with triCalculate IM Analytics

Generate the required delta, vega and curvature calculations for your trades in any of the SIMM™ product classes

Identifies and calculates SIMM™ sensitivities across Rates, FX, Credit, Equity and Commodity products. Sensitivities are generated and bucketed in the CRIF format required by AcadiaSoft Initial Margin Exposure Manager

Key Functionality:
1. Identifies and calculates all SIMM™ sensitivities efficiently using clients own trade file format
2. Embedded integration to AcadiaSoft’s Initial Margin Exposure Manager and with triResolve if desired
3. Provides back testing reports so clients can adhere with ISDA SIMM governance requirements
4. Leverage a hosted service: No hardware or software requirements
5. Onboard in under 30 days: Quick and easy to implement, “Pay as you go” service with no long term commitment
6. Receive independent OTC derivative valuations at no extra charge

Other Key Benefits:
1. Parties who are not yet in scope can use the service for hypothetical IM calculations and threshold monitoring
2. In scope parties can carry out “what-if” scenario analysis on IM optimization calculations

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Calculate Margin Requirements with triCalculate IM Analytics

Generate the required delta, vega and curvature calculations for your trades in any of the SIMM™ product classes.

Reports Available to Client via SFTP or Website:
- Trade Valuations
- SIMM Sensitivities (CRIF)
- SIMM IM Breakdown
- Schedule IM Amount
- IM Scenario Test Results
- Threshold Monitoring Analysis

CLIENT TRADE FILE .xls/.csv

MARKET DATA

→ Trade File Mapping & Cashflow Projection
→ Trade Valuation & Valuation Reconciliation
→ SIMM Sensitivity Calculation after Market Data Shifts Applied
→ Hypothetical IM Exposure Calculations

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Exchange Initial Margin calls with triResolve Margin

IM EXPOSURE MANAGER

IM Margin Call Amount Determination
View & process IM calls via dashboard
IM Dispute Analysis
IM collateral pledges to 3rd party custodian/tri-party

Single Margin Call dashboard allows streamlined processing of all VM/IM calls

VIA MARGINSPHERE

CALL EXCHANGE WITH COUNTERPARTS

VIA IMEM

IM RECONCILIATION & DISPUTE INVESTIGATION

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End to End Margin Solution

**Market Data**
- Initial Margin Back Testing
- Threshold Monitoring
- Sensitivity Calculation & CRIF Production

**Subscriber System**
- Live since 2017 for SIMM sensitivity calcs

**triCalculate**
- Trade Valuations
- Trade Data
- Trade Level Sensitivities
- Trade Valuations and Sensitivities

**triResolve**
- VM Exposure
- Reconciliation
- VM Dispute Analytics/Workflow
- AcadiaSoft IM Exposure Manager
- IM Exposure
- Reconciliation
- IM Dispute Analytics/Workflow

**triResolve Margin**
- VM/IM Call Calculation
- Margin Call Workflow
- Collateral Management
- Agreed Collateral Movements

**Connectivity to MarginSphere is included in triResolve Margin at no extra fee**

**Settlement System**
- Live since 2016 for RegIM

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Simplifying the Complicated for Initial Margin Compliance

One file in, one file out
Creating consistency and transparency

Ready today
Solution is live and offers rapid onboarding

Unrivalled automation
Freeing up your resources to focus on dispute resolution

Cost and resource efficient
Pay as you go pricing model with no hidden fees. No long term commitment required

Web-based
No implementation required, access to expert client support teams provided as standard

One-stop solution
No need for separate processes, benefit from triCalculate, triResolve and triResolve Margin
Client Challenge #3: Reduce Initial Margin
Multiple Product Choices to Express a Position

Margin Period of Risk (MPOR) is the period of time allocated to managing a default of a portfolio, and MPOR varies based on the products, their liquidity, and how the positions are carried.

**Bilateral OTC: 10-day MPOR**
Under UMR, the SIMM calculation must produce results higher than a CCP margin call.

**Cleared OTC: 5-day MPOR**
Excluded from UMR. Products available to clear at CME include: 24 currencies of IRS, USD swaptions, 11 Emerging market NDFs, 26 G10 NDFs and 7 cash settled FX Options. There has been an increase in voluntary clearing in the past few years. Clearing attracts favorable capital treatment.

CME OTC Clearing Margin Model allows for offsets (Portfolio Margining of OTC IRS against swaptions, Eurodollars, MAC Swap futures, Treasuries and Fed Fund futures. The risk reduction achieved by this program has shown capital efficiencies of up to 90% for certain portfolios, figures that remain unparalleled in the industry).

**Futures: 1-2 day MPOR**
Excluded from UMR. Products available on the CME exchange include; FX Futures, FX Link, Interest rate futures, equity futures and options, MAC swap futures and ERIS swap futures. Futures are available on standardized dates.
Margin Illustrations for FX Options

Capital Efficiencies Up to 89%
Optimize counterparty risk exposures

**triBalance** allows you to reduce bilateral and cleared counterparty risk for greater margin efficiencies, without changing the market risk of your portfolio.

### Solution Overview

- By adding offsetting trades into uncleared netting sets, counterparty risk and IM exposures are reduced.
- **triBalance** offers the largest network of firms optimizing uncleared margin.
- The cleared legs of the transactions are margined under a 5-day MPOR compared to 10-day for uncleared.
- Web based serviced with all-or nothing execution of new trades.
- The algorithm ensures both margin and capital are taken into account to achieve the highest IM reduction with the fewest number of trades and minimal notional.

**triBalance Workflow**
triBalance Optimization Across Three Major Asset Classes

Reduce IM by rebalancing your portfolio with triBalance

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Offsetting Product</th>
<th>Risk Type</th>
<th>Frequency of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>triBalance FX</td>
<td>FX NDF, FX Option</td>
<td>FX delta, vega, curvature</td>
<td>Weekly</td>
</tr>
<tr>
<td>triBalance IR</td>
<td>Swaption</td>
<td>IR delta, vega, curvature</td>
<td>Monthly</td>
</tr>
<tr>
<td>triBalance Equity</td>
<td>Index swaps, Single Names, and Baskets</td>
<td>Equity delta</td>
<td>Monthly</td>
</tr>
</tbody>
</table>

Illustration of Changes to Counterparty Risk

Counterparty risk before triBalance

Counterparty risk after triBalance

Delta in millions
Where Futures and OTC Clearing Fit In
Futures Example: Foreign Exchange Monthly Contracts

Since inception, IMM-dated Quarterly Futures have been the anchor within our FX franchise

- Provide deep pools of liquidity
- Central Clearing guarantees to mitigate credit risk
- Participation is varied across segments (makers/takers)
- Frequently used by participants as a proxy for Spot

In February 2017, CME launched FX Monthly futures to complement the existing Quarterlies in response to client demand

Value: Monthly expiries offer greater granularity along the forward curve, by expanding the breadth of forward dates and spread combinations available for our participants

Scope: Currently available on six key currency pairs: EUR/USD, JPY/USD, GBP/USD, AUD/USD, CAD/USD and EUR/GBP

Structure: Added three monthly expiries at the front of the current quarterly offering, making the first four months available

Now, alongside CME FX Link and Quarterly Futures, FX Monthlies create a comprehensive, efficient, central liquidity source for managing various FX forward & swap exposures

- Depth of liquidity of our FX franchise
- Capital efficiency of centrally cleared products: netting, lower capital charges and no CVA charges
- Elimination of credit and counterparty risk, through centrally-cleared model
- Cost-efficient solution to re-pricing of Prime Brokerage services impacted by Basel III and Uncleared Swap Margin Rules
- New outright and spread trading opportunities across the curve
- Margin efficiencies available across the whole of our FX complex
Futures Example: Equities

S&P 500 Total Return Index Futures
- Adoption in S&P Total Return (SPTR) futures in 2019 continues to accelerate as dealer’s transition from OTC to listed.
- 2019 ADV of 2,361K contracts ($330M notional), open interest has averaged 223,253 ($31.07B notional).
- Extended the curve in SPTR futures out 5 years on December 3, 2018; 13 additional quartiles & 3 additional Dec contracts

E-mini S&P Select Sector Futures
- Around-the-clock access to 11 individual S&P Select Sectors
- A record 14,159 ADV in 2018 ($1B notional), representing an 89% increase vs. 2017
- Volumes have slowed in 2019 (~8.5K ADV), due to the decrease in volatility in the overall marketplace. Between 2015 and 2018, quarterly ADV climbed 705% and OI rose 561%
- Sector Exposure in Futures Format: Capital Efficiency, Flexible Execution Features, Short sector exposure, IRS Rule 871(m), and UCITS Eligible

S&P 500 Dividend Futures
- Quarterly and Annual S&P Dividend futures provide an efficient tool to hedge or express a view on the U.S. dividend market.
- Launched Q3-2015, 556K+ contracts traded ($7.8B of dividends; $400B+ of equivalent SPX), Open Interest 109,468 ($1.6B).
Voluntarily Clear OTC Products

Efficiently manage risk by moving legacy positions into OTC Clearing (backload) and clear new swaps.

CME has added more than 175 participants since Phase I of UMR was implemented in September 2016.

Why Clear?

- Along with UMR tailwinds, the natural efficiencies realized at CME continue to draw new firms to OTC clearing
- The liquidity pool: CME has seen over 700 participants clearing to date.
- Significant reduction in the documentation required to onboard new liquidity providers
- Counterparty netting: CCP models allows market participants to replace multiple bilateral partners with a single CCP relationship allowing firms to net their positions with additional benefits:
  - all correlated risk positions netted together for one margin call
  - one counterparty for all reconciliations and payments
  - optimal opportunities for trade compression
  - freed up credit lines against the original executing dealer
- Reduced capital consumption. Facing a CCP removes counterparty risk giving favourable treatment to cleared trades when calculating the Risk Weighted Assets (RWA) of a bank's portfolio.
Case Study: Latin American IRS Clearing

Deep liquidity with a diverse set of participants…

- Over $18 trillion notional cleared to date
- 40+ liquidity-providing banks along with 13 FCMs live
- Leading regional financial institutions clearing, including pension funds, hedge funds, and banks
- Rapid adoption of CLP & COP, with volume reaching $100B cleared in 4 months, versus 2.5 years in MXN

…supported by unparalleled efficiencies

- Immediate margin offsets with CME’s 24 cleared IRS currencies
- Broad array of accepted collateral, including Mexican sovereign debt (Mbonos and Cetes)
- Portfolio margining opportunity with Interest Rate futures
- 17 compression cycles run to date in MXN and BRL, blending supported for all 4 currencies
Resources to Help You Get Ready for UMR

Visit cmegroup.com/umr for solutions to help with:

• Reducing total notional outstanding
• Meeting Daily Compliance Needs
• Minimize Margin Requirements
• FX Case Study
• FCA Fact Checker
• ISDA Checklist
• UMR Frequently Asked Questions
Q&A
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