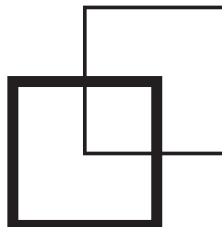
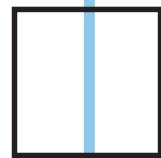
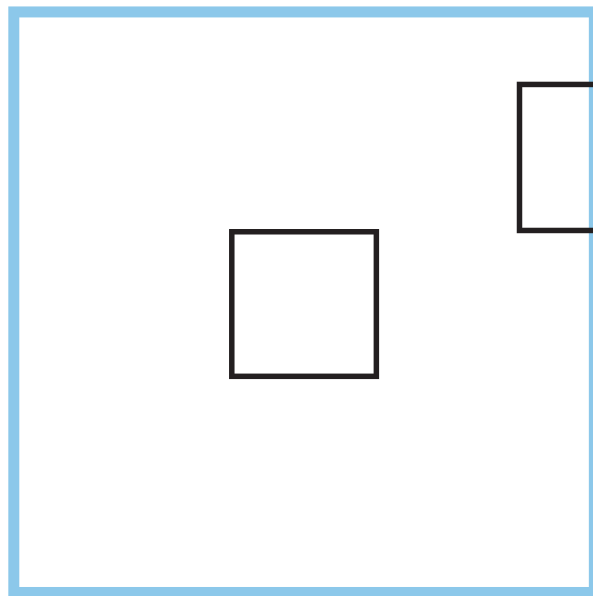
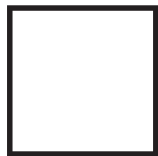
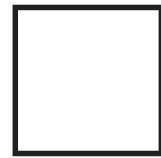
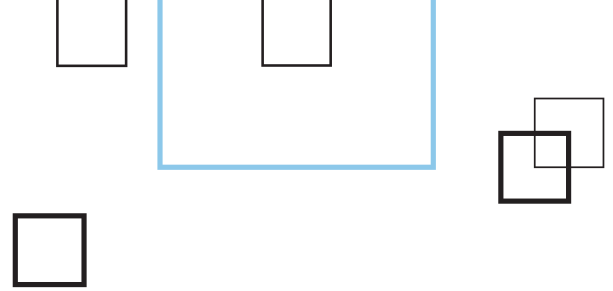




# **Beyond Uncleared Margin Rules: Using ISDA SIMM for intra-day margin optimization**

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## Exec summary

- Initial margining for over-the-counter trades aims to mitigate counterparty risk exposure by having counterparties post collateral to account for potential future credit losses
- The push towards central clearing and the introduction of uncleared margin rules has changed the risk management landscape significantly for less sophisticated financial institutions
- ISDA identified the need for a uniform initial margin method and introduced the ISDA SIMM calculation, a common methodology for calculating initial margin for non-centrally cleared derivatives which reflects market risk inherent in a portfolio and helps minimize counterparty disputes
- The buy side no longer need to rely on counterparties, but can perform their own initial margin calculation by engaging with a licensed ISDA SIMM vendor such as ICE Data Services
- It has become increasingly clear that initial margin can be a valuable risk management tool for more than just regulatory compliance

Ask anyone about initial margin (IM) prior 2008 and chances are they'd think you're referring to exchange-traded derivatives. The concept of initial margining for over-the-counter (OTC) trades was introduced post-global financial crisis, when it became apparent to regulators that a great deal of undercollateralized OTC positions existed in the marketplace. Initial margin is meant to mitigate counterparty risk exposure by having parties to a trade post collateral to account for potential future credit losses, as opposed to variation margin (VM), which accounts for daily (historical) changes in mark-to-market (MtM).

This focus on counterparty risk exposure resulted in two major developments in the derivatives space: (1) The mandatory clearing of certain OTC derivative transactions, which led to the creation of clearing houses such as ICE Clear Credit, and higher capital charges for non-cleared derivatives under Basel III. (2) The introduction of IM and VM requirements for uncleared derivatives under the BCBS-IOSCO 2015 framework<sup>1</sup>. IM for both cleared and bilateral transactions is based on Value-at-Risk at the 99th percentile over a fixed liquidation period, however, there is a minimum of three to five days for cleared trades but ten days for bilateral ones, as they are perceived riskier. Uncleared margin rules (UMR) further allowed a standard schedule approach towards calculation of IM (non risk-sensitive), which is meant to be simpler to implement but more conservative, and an internal model approach which takes market sensitivities into account.

## ISDA SIMM approach

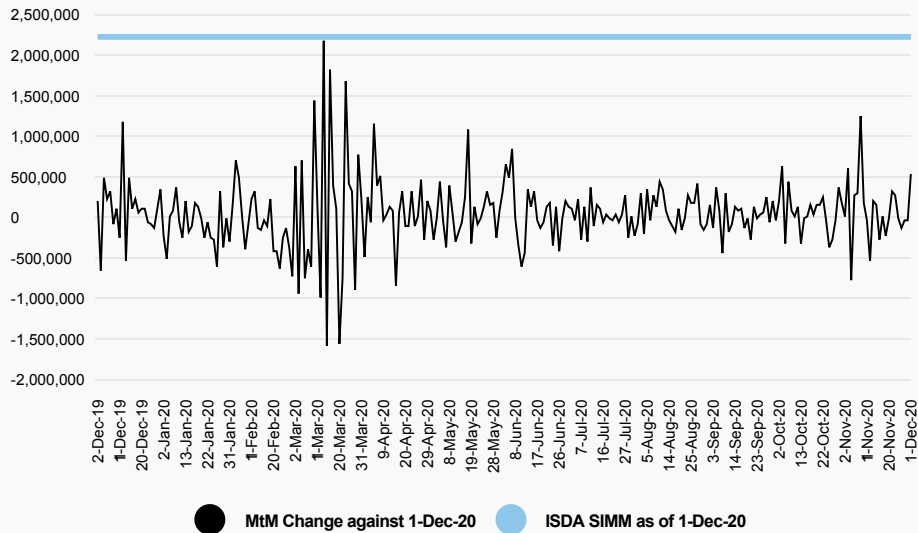
For medium- to smaller-size financial institutions, some of which are still not subject to IM requirements, ISDA identified the need for a uniform IM method for non-centrally cleared derivatives and introduced the Standard Initial Margin Model (SIMM), which a number of vendors, including ICE Data Services, are licensed to calculate. The ISDA SIMM is a sensitivity-based approach that defines the risk profile of a position in terms of its sensitivities to a set of risk factors that cover different asset classes, tenors and maturities; these sensitivities are then weighted and aggregated to compute initial margin. As such, the ISDA SIMM reflects market risk inherent in a portfolio while being transparent, using a Common Risk Interchange Format (CRIF). More importantly, adoption of ISDA SIMM by market participants across the board can minimize collateral disputes between counterparties, allowing for a smoother post-trade workflow.

In looking to assess the effectiveness of the ISDA SIMM, we considered a \$100MM equally weighted multi-asset class derivative portfolio<sup>2</sup> and how the ISDA SIMM performed against realized MtM changes. Comparing the IM to collect on a given value date, with realized MtM over the 3+1 back-testing period against that value date MtM, we found that realized MtM changes were consistently within the ISDA SIMM calculation. This held true even during times of market stress such as those evidenced in early 2020, due to the COVID-19 pandemic. The chart below compares the ISDA SIMM as of Dec 1, 2020 with MtM changes over the preceding 12 months. While the portfolio market value clearly spiked in the Mar-Apr 2020 period, the differences against Dec 1 never exceeded the ISDA SIMM for that value date, evidencing the robustness for ISDA SIMM even during times of market stress.

<sup>1</sup> <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD480.pdf>

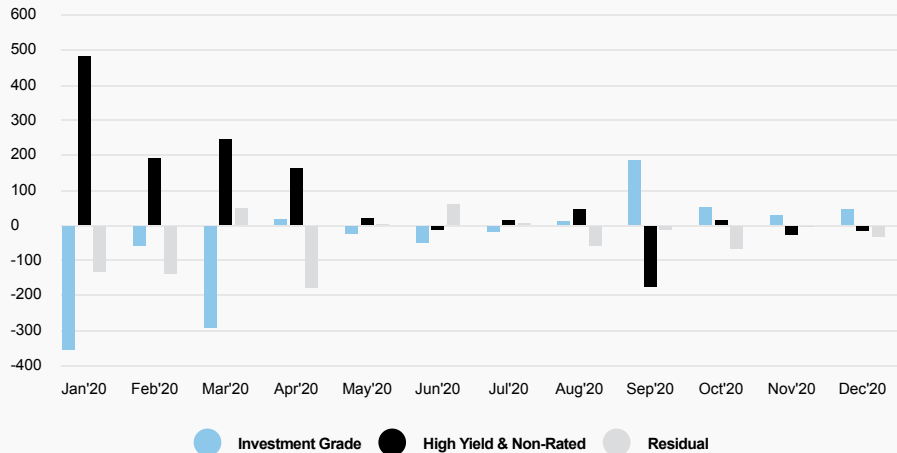
<sup>2</sup> Portfolio contains the following positions: 5Y USD Swap, 5Y5Y ATM USD Swaption, 5Y 3M Company CDS, 5Y CDX EM Series 32, 3M SPX ATM Call, 3M SX5E ATM Call, 3M IFEU Brent ATM Call, 1M IFEU Brent ATM Asian Put, 3M USDJPY Call, 3M USDJPY Put

## ISDA SIMM vs. realized MtM Changes



Furthermore, last year's volatility related to the pandemic offers a unique opportunity to assess the ISDA SIMM risk bucketing approach for credit and equities under the ISDA SIMM Crowdsourcing Facility, a collaboration between ICE Benchmark Administration and ISDA to identify consensus risk buckets<sup>3</sup>. Looking at credit risk bucketing, in Jan-Apr 2020 there was significant moving of votes between Investment Grade (IG) and High Yield (HY) & Non-Rated (NR) buckets, with more outflows from IG and more inflows into HY & NR. Moreover, changes to the voting patterns are especially noticeable in the Basic Materials/Energy/Industrials and Consumer Sectors (IG outflows / HY & NR inflows), and the Healthcare/Utilities/etc. Sector (IG inflows / HY & NR outflows), leading to the adjustment of IM to account for changes in perceived credit risk.

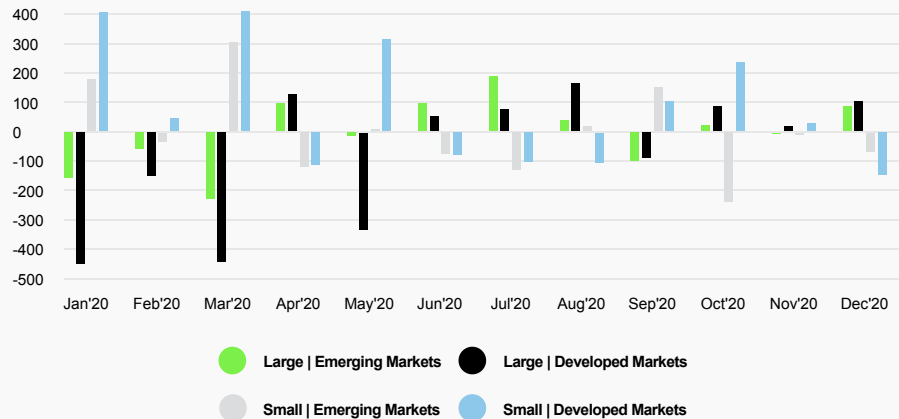
## Net Vote Change based on Credit Quality



Moreover, a review of equity risk bucketing over the same period shows a significant migration of equities from "Large" to "Small" size for both Developed and Emerging Markets, underscoring the loss in market capitalization as equity prices dropped. This change in voting pattern was more prevalent in Developed Markets, especially in the Consumers/Transport & Storage/Utilities and the Financials/Real Estate/Technology Sectors. Again, the ISDA SIMM model responded to the changing market conditions as market participants adjusted equity risk bucketing and consequently IM adjusted too.

<sup>3</sup> The Crowdsourcing Facility Works in the following way: Each day, submitting firms send their mappings of assets against ISDA SIMM risk buckets to IBA (their 'votes'). IBA calculates the resulting mappings, according to the calculation rules, and publishes the results to license holders. ISDA SIMM firms submit data for positions on their books that are in scope for uncleared margin requirements.

## Net Vote Change based on Equity Size & Region



The availability of a robust and market-accepted model such as the ISDA SIMM means that the buy-side community no longer needs to rely on or wait for their counterparties to calculate IM and the collateral that needs to be posted by each side, but can perform their own IM calculation. Moreover, fund administrators and prime brokers have a valuable role to play here as they can offer this service to their buy-side clients. ICE Data Services has been a long-standing provider of end-of-day valuations calculation services (i.e. VM) to these buy-side intermediaries and can also offer IM calculation. This allows fund administrators and prime brokers to not only help their clients meet regulatory requirements, but also have a robust and independent view of their OTC exposure and understand their collateral obligations promptly.

## Beyond UMR

The push towards central clearing and the introduction of UMR has changed the risk management landscape for less sophisticated financial institutions. More institutions are upgrading their risk management data and technology from end-of-day to intra-day and are introducing more risk mitigation tools. While margining itself has been around for years, UMR have brought more familiarity with IM. As such, ISDA SIMM is now looked upon as a solution for intra-day risk management challenges beyond collateral management against institutional counterparties.

For example, an interesting use case has arisen in the private banking sector: Last year's market stress due to COVID-19 clearly exposed the need to monitor and manage credit risk exposures on a real-time basis during times of volatility. While the persistently low interest rate environment continued to drive demand for derivative products, meeting that demand under a simplistic end-of-day credit risk monitoring framework during heightened market volatility posed many challenges. To address these, intra-day initial margining has been adopted as an efficient solution to increase client activity while maintaining effective risk management. Using IM based on an ISDA SIMM-like approach, a private bank can apply pre-trade risk simulation using real-time data linking up the risk methodology to a specific client and perform post-trade global risk calculations. Consequently, client derivatives risk exposures are calculated and managed dynamically, therefore maximizing activity with clients while observing prudent credit risk management.

The introduction of UMR has not been without bumps and delays, but IM is here to stay, as it becomes increasingly apparent that it can be a valuable risk management tool for more than just regulatory compliance.

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