

ICE Data Services Initial Margin Calculation Services

Since 2016, the new BCBS-IOSCO margin framework for non-cleared derivatives has been introduced and applied to jurisdictions globally. This is a key part of the reform agenda put in place by the Group of Twenty (G20) as a response to the 2008 financial crisis and seek to reduce systemic risk in the non-centrally cleared OTC derivatives markets by ensuring appropriate collateral is available to offset losses caused by the default of a counterparty. The framework discusses the two approaches covered entities can use to calculate initial margin (IM): schedule-based (grid) or an approved model-based calculation, including having dispute resolution procedures in place.

The ISDA Standard Initial Margin Model (ISDA SIMM™) is a common methodology for calculating initial margin for non-centrally cleared derivatives, developed as part of ISDA's Working Group on Margin Requirements (WGMR). The margin calculations depend upon the identification of ISDA SIMM Risk Buckets for each underlying asset. The grid methodology is a simple calculation intended for covered entities who cannot calculate initial margin amount based on a quantitative model. ICE offers initial margin calculation service based on both the ISDA SIMM methodology as well as the grid methodology.

Choice of Services

Initial Margin calculation incorporating the ISDA's SIMM™ methodology¹:

1. Pre-trade and post-trade Initial Margin calculation incorporating ISDA's SIMM™ methodology on ad hoc and end of day basis
2. Risk sensitivity calculations delivered in standard CRIF file format, covering a wide range of derivative instruments, from simple to complex, which can be used as an input in the user's own initial margin calculations
3. "1+3 standard" static backtesting (1 year of stress and 3 years of most recent continuous portfolio market conditions) calculation and daily dynamic backtesting calculation
4. Initial Margin monitoring against the exchange threshold or any other customized threshold to help track the initial margin exposure

Initial Margin calculation incorporating the grid methodology:

1. Pre-trade and post-trade Initial Margin calculation incorporating grid methodology on ad hoc and end of day basis
2. Initial Margin monitoring against the exchange threshold or any other customized threshold to help track the initial margin exposure

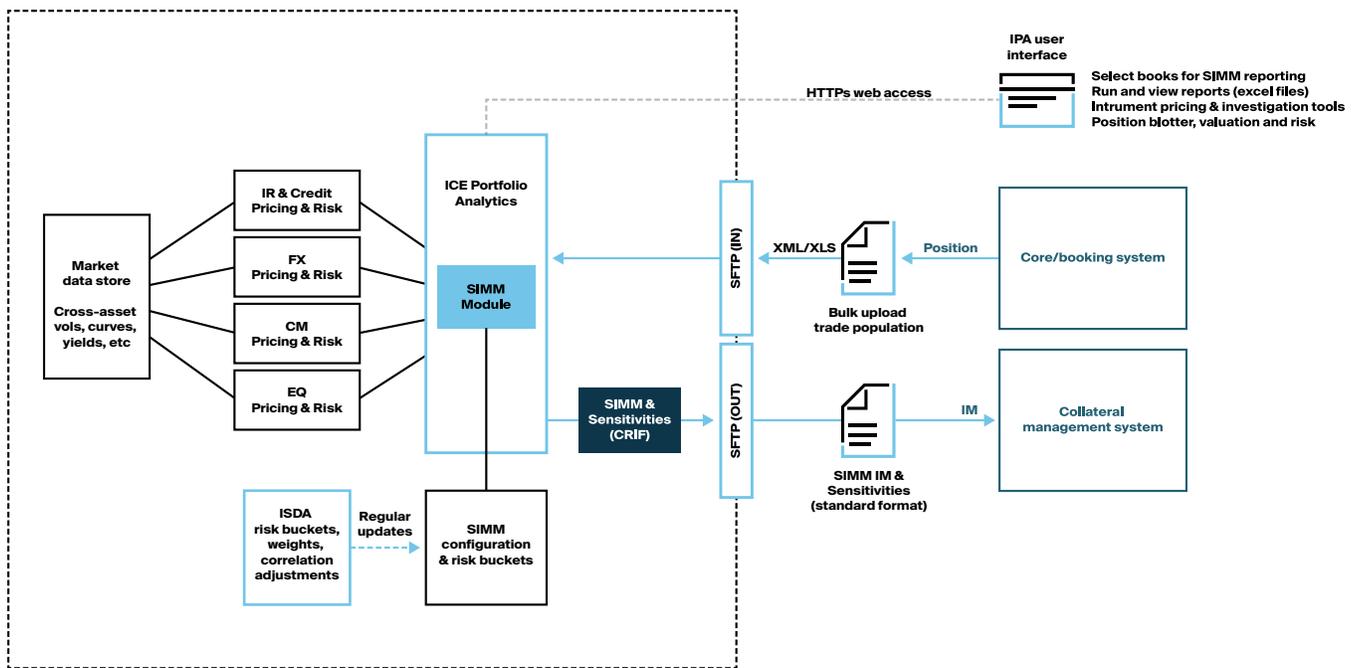
Optionally, scheduled MTM valuations and Variation Margin (VM) calculations can be added to support workflows on an ongoing basis.

¹The calculations provided under this service follow the ISDA SIMM methodology published by ISDA. ICE Data Derivatives, Inc. does not guarantee the accuracy or completeness of the ISDA SIMM methodology and is not responsible for any errors or omissions that may be part of the ISDA SIMM methodology.

Operational Workflow and Delivery Mechanism

- Clients upload their trade population into the IPA platform in bulk using provided templates
- Clients have the ability to view uploaded trades online, select instruments, choose initial margin methodology, and optionally also view their books, prices and run valuation and risk analytics in the IPA platform
- Calculations are run, producing the standard sensitivities report (CRIF) and initial margin results including total initial margin and breakdown by counterparties, product class and risk class
- Reports can be deposited in a Secure FTP server and can be picked up by the client or automatically pushed to client servers, and are also available online from the IPA platform's user interface

The diagram below shows the architecture of the main component of the calculation service, as well as the high level operational workflow and delivery mechanism:



Benefits

- Extensive coverage across multiple assets classes and instruments from vanilla to advanced
- Calculation powered by ICE Data Derivatives' derivatives market data
- Flexible workflow, easy integration with other systems, fast implementation of cloud-based infrastructure
- User interface with the ability to view initial margin reports at trade and counterparty level and interact with the system
- Optional access through the IPA platform that can help price, verify and investigate discrepancies both historically and in real time.
- Continuously calibrate the SIMM methodology according to ISDA updates
- Calculation supports ISDA SIMM Crowdsourcing facility data²
- Can be integrated with various collateral management systems
- "Follow the sun" dedicated support team available for technical issues, model validation and price challenges

² It is subject to direct agreement with ICE Benchmark Administration.

Frequency

On-demand or on-schedule, intraday and end of day

Other Information

- Report can be delivered in a Zip format with a margin report in Excel®, and CRIF text files for each counterparty as per preset Credit Support Annex/netting rules
- Users can export the CRIF file (ISDA SIMM buckets) to calculate margin in external system
- Users can also import an external CRIF file to generate SIMM report
- Backtesting report includes CRIF text files, Basel traffic light results and shortfall amounts for each counterparty

Limitations

This document contains information that is confidential and proprietary property and/or trade secret of Intercontinental Exchange, Inc. and/or its affiliates, is not to be published, reproduced, copied, modified, or used without the express written consent of Intercontinental Exchange, Inc. and/or its affiliates (the "ICE Group").

This document is provided for informational purposes. The information contained herein is subject to change and does not constitute any form of warranty, representation, or undertaking. Nothing herein should in any way be deemed to alter the legal rights and obligations contained in agreements between the ICE Group and its respective clients relating to any of the products or services described herein. Nothing herein is intended to constitute legal, tax, accounting, or other professional advice. The information contained herein is provided "as is" and the ICE Group makes no warranties whatsoever, either express or implied, as to merchantability, fitness for a particular purpose, or any other matter. The ICE Group makes no representation or warranty that any data or information (including but not limited to evaluations) supplied to or by it are complete or free from errors, omissions, or defects. Without limiting the foregoing, in no event shall the ICE Group have any liability (whether in negligence or otherwise) to any person in connection with the information contained herein.

Services provided by ICE Data Derivatives, Inc. are not and shall not constitute, or be construed, as investment advice by ICE Data Derivatives, Inc.

Analytics available from ICE Data Derivatives, Inc. are a point in time output and as such dependent on and take into account the information available to ICE Data Derivatives, Inc. at the time of calculation. ICE Data Derivatives, Inc. does not have access to all relevant trade related data or dealer quotes, and the utility of the output may diminish depending upon amount of available data underlying the analysis. The inputs utilized in each of the analytics services described herein depend on the methodologies employed by each such service and may not be the same as the inputs used in the other analytics services. There are many methodologies (including computer-based analytical modelling) available to calculate and determine information such as the analytics described herein. ICE Data Derivatives, Inc. analytics may not generate results that correlate to actual outcomes, and/or actual behavior of the market, such as with regard to the purchase and sale of instruments. There may be errors or defects in ICE Data Derivatives, Inc. software, databases, or methodologies that may cause resultant data to be inappropriate for use for certain purposes or use cases, and/or within certain applications. Certain historical data may be subject to periodic updates over time due to recalibration processes, including, without limitation enhancement of ICE Data Derivatives, Inc. models and increased coverage of instruments. Although ICE Data Derivatives, Inc. may elect to update the data it uses from time to time, it has no obligation to do so.

Trademarks of the ICE Group include: Intercontinental Exchange, ICE, ICE block design, NYSE, ICE Data Services, ICE Data and New York Stock Exchange. Information regarding additional trademarks and intellectual property rights of the ICE Group is located at www.intercontinentalexchange.com/terms-of-use. Other products, services, or company names mentioned herein are the property of, and may be the service mark or trademark of, their respective owners.

ABOUT INTERCONTINENTAL EXCHANGE: Intercontinental Exchange, Inc. (NYSE: ICE) is a Fortune 500 company and provider of marketplace infrastructure, data services and technology solutions to a broad range of customers including financial institutions, corporations and government entities. It operates regulated marketplaces, including the New York Stock Exchange, for the listing, trading and clearing of a broad array of derivatives contracts and financial securities across major asset classes. Its comprehensive data services offering supports the trading, investment, risk management and connectivity needs of customers around the world and across asset classes. As a leading technology provider for the U.S. residential mortgage industry, ICE Mortgage Technology provides the technology and infrastructure to transform and digitize U.S. residential mortgages, from application and loan origination through to final settlement.

ABOUT ICE DATA SERVICES: ICE Data Services refers to a group of products and services offered by certain of the ICE Group companies and is the marketing name used for ICE Data Services, Inc. and its subsidiaries globally, including ICE Data Indices, LLC, ICE Data Pricing & Reference Data, LLC, ICE Data Services Europe Limited and ICE Data Services Australia Pty Ltd. ICE Data Services is also the marketing name used for ICE Data Derivatives, Inc., ICE Data Analytics, LLC and certain other data products and services offered by other affiliates of Intercontinental Exchange, Inc.