CME Margin Services

Security. Neutrality. Transparency.

February, 2014

CME Group

CME Margin Services Overview

Tools for calculating initial margin and optimizing portfolio risk across all CME Group Products

- Simple website access with optional web-service API
- Portfolio Optimization for additional capital efficiencies
- Timely margin funding information for trade execution and reconciliation
- Interaction with CME margin models
- Initial margins calculations and "what if" scenarios independent of CME and Clearing Member reporting
- Indicative margins for OTC IRS and CDS published daily through CME CORE
- Dedicated support team available for onboarding and risk analytics (clearingmiddleoffice@cmegroup.com)

Services	**CME Clearing Online Risk Engine (CORE) GUI** cmegroup.com/core	**CME CORE API** cmegroup.com/marginservices	**CME Optimizer** cmegroup.com/marginservices
Description	CME CORE is an interactive margin calculator enabling customers to analyze risk across **all CME Group products**.	CME CORE API allows customers to integrate with the features of CME CORE and have real-time access to Margin Calculations.	Industrial-strength back-office processing tool to assist Clearing Members in offering IRS/Futures portfolio margin capital efficiencies.

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CME Margin Services Usage

Clearing Members, Customers and 3rd party providers are live and connected to CME CORE and Margin API

18,000+

CME CORE visits in 2013

400% growth YoY in number of margin calculations for Q4 2012 vs. Q4 2013

155%

Increase in the daily average number of API calls since September 2013

1200+

CME CORE Users in 2013

CME Optimizer is being used by all firms live with the portfolio margin program – achieving $1B+ in margin efficiencies in 2013

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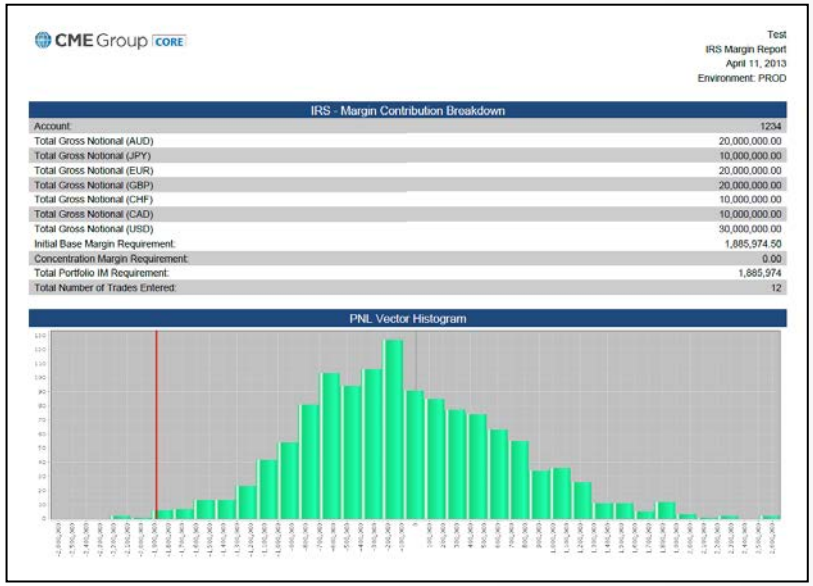
Transparent Margins through CME CORE

Now Available: All CME Group Products - Futures, Options and Cleared OTC

CME CORE enables you to calculate and evaluate your initial margin requirements for **all CME Group Products**

Create New or Load Existing Portfolio → **Validate and Calculate Initial Margin Requirement** → **Analyze and Review Results**



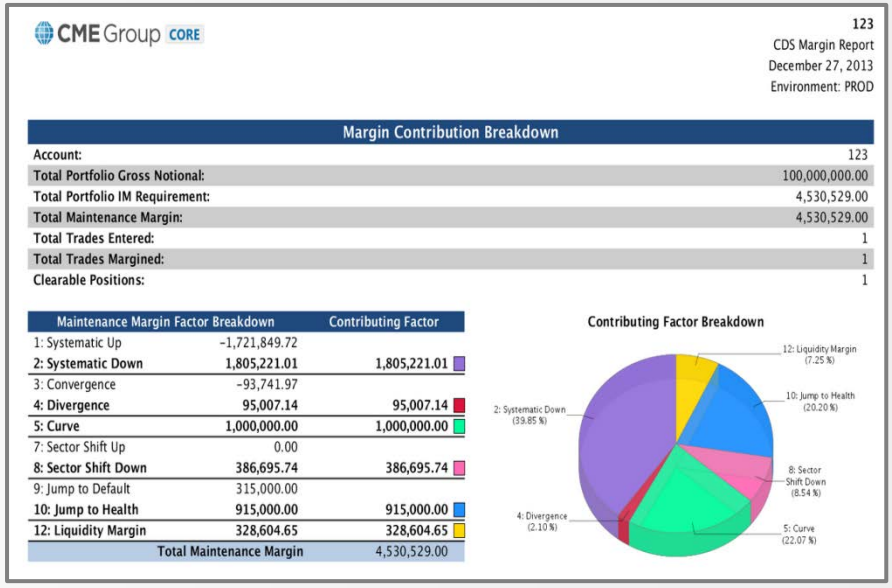
CME Group CORE

Test
IRS Margin Report
April 11, 2013
Environment: PROD

IRS - Margin Contribution Breakdown

Account:	1234
Total Gross Notional (AUD)	20,000,000.00
Total Gross Notional (JPY)	10,000,000.00
Total Gross Notional (EUR)	20,000,000.00
Total Gross Notional (GBP)	20,000,000.00
Total Gross Notional (CHF)	10,000,000.00
Total Gross Notional (CAD)	10,000,000.00
Total Gross Notional (USD)	90,000,000.00
Initial Base Margin Requirement:	1,885,974.50
Concentration Margin Requirement:	0.00
Total Portfolio IM Requirement:	1,885,974
Total Number of Trades Entered:	12

PNL Vector Histogram



CME Group CORE

123
CDS Margin Report
December 27, 2013
Environment: PROD

Margin Contribution Breakdown

Account:	123
Total Portfolio Gross Notional:	100,000,000.00
Total Portfolio IM Requirement:	4,530,529.00
Total Maintenance Margin:	4,530,529.00
Total Trades Entered:	1
Total Trades Margined:	1
Clearable Positions:	1

Maintenance Margin Factor Breakdown		Contributing Factor
1: Systematic Up	-1,721,849.72	
2: Systematic Down	1,805,221.01	1,805,221.01
3: Convergence	-93,741.97	
4: Divergence	95,007.14	95,007.14
5: Curve	1,000,000.00	1,000,000.00
7: Sector Shift Up	0.00	
8: Sector Shift Down	386,695.74	386,695.74
9: Jump to Default	315,000.00	
10: Jump to Health	915,000.00	915,000.00
12: Liquidity Margin	328,604.65	328,604.65
Total Maintenance Margin		4,530,529.00

Contributing Factor Breakdown

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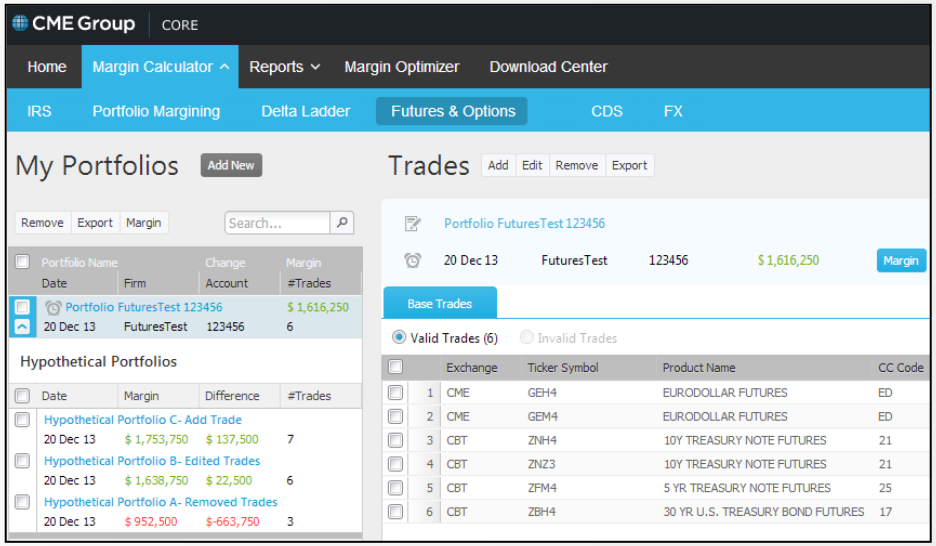
CME CORE – Now Available for Futures and Options

CME CORE supports all **CME Group Futures and Options** to run indicative margin requirements

- Support of all CME Group products through manual entry or file upload
- User friendly UI allowing users to run incremental margin runs while keeping base portfolios in tact
- Simple maneuverability to identify portfolio changes



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CME CORE – Cleared OTC and Portfolio Margining

Calculate **Margin Savings** Today on **Cleared OTC IRS vs Interest Rate Futures**

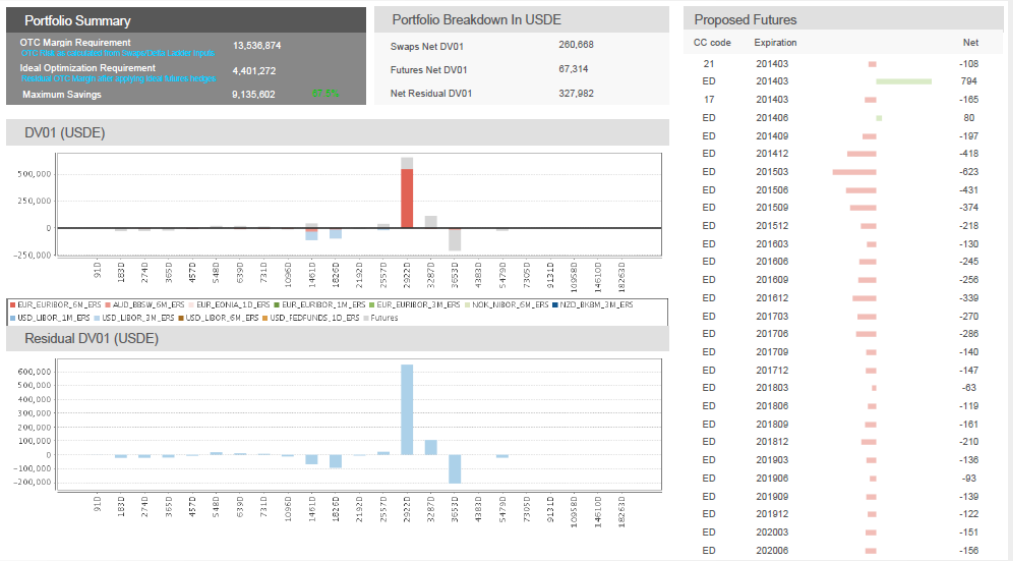
- Load cleared and/or hypothetical positions into CME CORE to view initial margin calculations and portfolio margining savings
- Benefit from up to 90% in margin savings via portfolio margining of Cleared OTC IRS vs. Eurodollar and Treasury futures

Access **Margin Optimization**

- Calculates the ideal allocation of user defined futures to move into an OTC account to minimize portfolio risk, and in turn, minimize IRS margin requirements
- Provides detailed optimization reporting best futures hedge to minimize portfolio risk

Access **Ideal Optimization**

- Calculate the ideal allocation of futures to hedge the OTC account and minimize portfolio risk
- Looks at the portfolios OTC Swap risk and calculates the



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CME CORE– OTC IRS Trade Termination Analysis

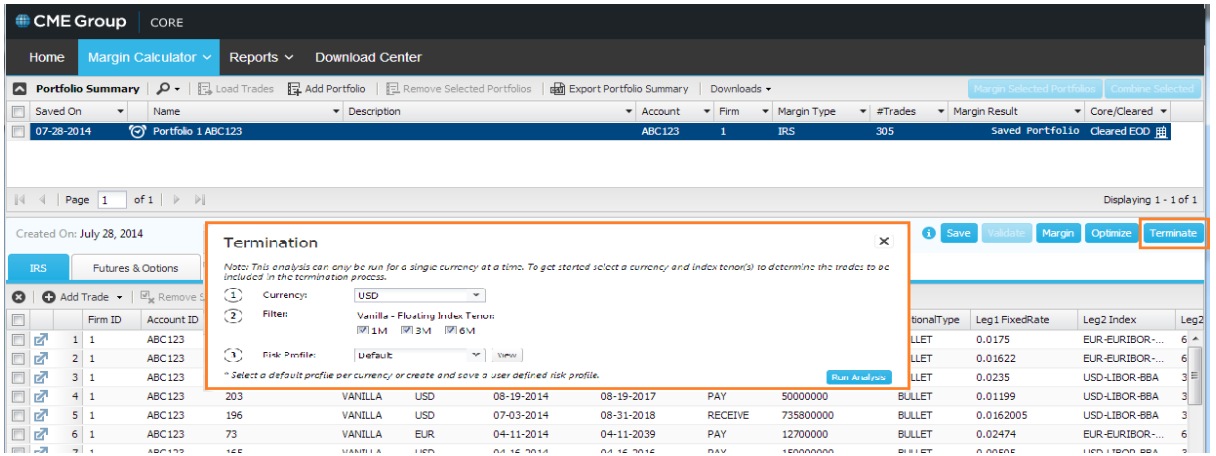
Run **Termination Analysis** Today on **Cleared USD, EUR, GBP, JPY Vanilla IRS**

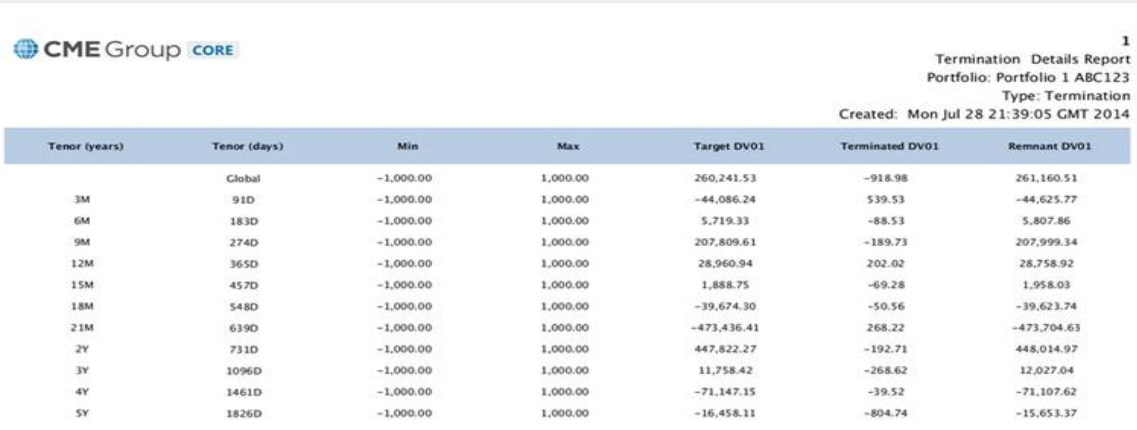
Load cleared and/or hypothetical positions into CME CORE to view Termination analysis

Recommends the termination of Vanilla IRS trades by currency based on user defined DV01 thresholds

Termination Benefits

- Reduces line items and lowers total notional outstanding
- Termination allows portfolio to be filtered by currency, floating index tenor, and DV01 risk at individual tenor buckets
- Provides detailed Termination reporting: Target, Remnant and Terminated trade analysis
- Export Terminated Portfolio in CME Trade Register Format





Tenor (years)	Tenor (days)	Min	Max	Target DV01	Terminated DV01	Remnant DV01
	Global	-1,000.00	1,000.00	260,241.53	-918.98	261,160.51
3M	91D	-1,000.00	1,000.00	-44,086.24	539.53	-44,625.77
6M	183D	-1,000.00	1,000.00	5,719.33	-88.53	5,807.86
9M	274D	-1,000.00	1,000.00	207,809.61	-189.73	207,999.34
12M	365D	-1,000.00	1,000.00	28,960.94	202.02	28,758.92
15M	457D	-1,000.00	1,000.00	1,888.75	-69.28	1,958.03
18M	548D	-1,000.00	1,000.00	-39,674.30	-50.56	-39,623.74
21M	639D	-1,000.00	1,000.00	-473,436.41	268.22	-473,704.63
2Y	731D	-1,000.00	1,000.00	447,822.27	-192.71	448,014.97
3Y	1096D	-1,000.00	1,000.00	11,758.42	-268.62	12,027.04
4Y	1461D	-1,000.00	1,000.00	-71,147.15	-39.52	-71,107.62
5Y	1826D	-1,000.00	1,000.00	-16,458.11	-804.74	-15,653.37

CME CORE API

CME CORE API allows users to write to an external API to send and receive margin requests in real-time for straight-through processing

API Features:

- Programmatically integrate into CME Group Margin Service
- Standard web service REST framework
- Same features as CME CORE UI
- API onboarding support
- Uses lightweight markup languages
- CME Group API design/communication protocol alignment

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Customer On-Boarding Resources

CME CORE – Interactive Margin Calculator

- Get started by -
  - Visiting https://cmecore.cmegroup.com/core/
  - Click on "**Need to register?**" to create a SMART Click ID
  - Once you receive a SMART Click ID, email cme.core@cmegroup.com to request entitlements to CME CORE. Please provide your SMART Click ID and specify the asset class you would like to access in CME CORE.

CME CORE API

- Speak with our dedicated team who works with both sell- and buy-side clients to help in technology integration and engagement in supporting testing efforts
- To get started, the end user will submit a fully documented API License Agreement
- For more information, please contact cme.core@cmegroup.com

Additional Information

- Recommended Internet browsers: Chrome, Firefox, Internet Explorer (version 9.0 or higher)
- Existing Internet Explorer 7.0 users can utilize a Chrome plug-in (https://developers.google.com/chrome/chrome-frame/)
- Please note: CME CORE has 24/5 availability and support with daily data refreshes. The NR Margin API comes down on Wednesdays at 12:00 p.m. for weekly maintenance.

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