Cleared OTC FX
Products and Margin

March, 2019
Global FX Clearing Solution
The broadest and most capital efficient FX clearing solution to meet your needs

- **Single guaranty fund**: a diverse pool of products across asset classes amounting to a >$4 billion Base Guaranty Fund*. The result is a secure and cost effective solution which is an 1/11th of the cost on incremental funding compared to other NDF clearing providers.

- **Unparalleled portfolio margining opportunities** between cleared FX and exchange listed FX Futures and Options, with NDF margin reductions of up to 90% against emerging market futures and 56% against G10 futures**. The regulatory authorization for enabling portfolio margining between ETD FX and OTC FX products is now also in place.

- **The first FX Blending solution**, which significantly reduces notional outstanding and line items.

- **The only cleared cash-settled FX Options solution**, which provides superior cost and capital efficiencies to physically delivered options solutions, which are cost prohibitive.

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* CME Base Guaranty Fund as of December 2018  ** for the potential IM off-sets available
Global FX Clearing Solution

Benefits Realized Within Clearing

- Access to new counterparties previously unattainable for legal/credit reasons
- Frees up bilateral credit lines allowing for increased volume
- Pre-trade credit checks to speed up execution and clearing acceptance
- Balance sheet efficiencies from a Leverage Ratio, RWA, LCR perspective helping to generate cost savings

<table>
<thead>
<tr>
<th>CME Cleared Product Scope</th>
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<tbody>
<tr>
<td><strong>OTC FX NDFs</strong></td>
</tr>
<tr>
<td><em>11 Currency Pairs</em></td>
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<tr>
<td><strong>OTC FX CSFs</strong></td>
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<tr>
<td><em>26 Currency Pairs</em></td>
</tr>
<tr>
<td><strong>OTC FX Options</strong></td>
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<tr>
<td><em>7 Pairs Cash Settled</em></td>
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**OTC FX NDFs**: USD/BRL, USD/CLP, USD/COP, USD/PEN, USD/CNY, USD/KRW, USD/RUB, USD/INR, USD/PHP, USD/IDR, USD/TWD

**OTC FX CSFs**: EUR/USD, AUD/USD, GBP/USD, USD/CHF, USD/SEK, USD/DKK, NZD/USD, USD/NOK, USD/HKD, USD/HUF, USD/ILS, USD/MXN, USD/SGD, USD/PLN, USD/ZAR, USD/CZK, USD/TRY, USD/THB, USD/CAD, USD/JPY, AUD/JPY, EUR/JPY, CAD/JPY, EUR/AUD, EUR/CHF, EUR/GBP

**OTC FX Options**: AUD/USD, EUR/USD, USD/CAD, USD/JPY, EUR/GBP, GBP/USD, USD/CHF

10am NY auto exercise (with settlement in quote currency)
Options out to 2 years including any strikes. Fixing Rate is WM/R 10am NY
# FX Forwards and FX Options

## Highlights
- All OTC FX products reside within the base risk waterfall of CME consequently offering material capital efficiencies and portfolio margining opportunities versus ETD FX products
- Portfolio margining of OTC FX Options versus 11 NDFs and 26 CSFs is live in production
- Trade submission is platform agnostic via CME ClearPort – including interfaces such as Traiana, Bloomberg and MarkitServ

## What is driving this recent activity

<table>
<thead>
<tr>
<th>Dealers</th>
<th>Clients</th>
</tr>
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<tbody>
<tr>
<td>• Initial Margin Optimisation (UMR)</td>
<td>• Access to more dealers and cleared liquidity</td>
</tr>
<tr>
<td>• Capital (Leverage Ratio/ GSIB)</td>
<td>• Remove counterparty risk</td>
</tr>
<tr>
<td></td>
<td>• Free up bilateral credit lines</td>
</tr>
<tr>
<td></td>
<td>• Operational consistency and ease of allocations</td>
</tr>
<tr>
<td>• Ability to trade with more/new clients</td>
<td>• UMR Preparedness</td>
</tr>
<tr>
<td>• Mitigate settlement risk on non-CLS currencies</td>
<td>• Alternative to FX Prime Brokerage</td>
</tr>
<tr>
<td></td>
<td>• Alternative to physically settled FX contracts</td>
</tr>
</tbody>
</table>

## How can CME help
- Broad FX offering across Futures, Options and Cleared OTC.
- FX Clearing is totally free of charge for all clients until the end of 2019
- Working closely with all vendors looking to facilitate the ease and access of clearing including: Traiana, RESET, EBS, FX CONNECT, FX GO, FX ALL etc.
The Benefits of Clearing FX: IM Efficiencies

Example: The CME FX Options solution delivers material IM efficiencies versus the ISDA SIMM requirements on bilateral activity.
CME Group is the Largest FX Futures Exchange

CME Group Foreign Exchange Futures
Aggregate Number of Large Open Interest Holders*

Change over Selected Periods

<table>
<thead>
<tr>
<th>Period</th>
<th>Change</th>
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<tbody>
<tr>
<td>Last 4 Weeks</td>
<td>+2.9%</td>
</tr>
<tr>
<td>Last 13 Weeks</td>
<td>+7.8%</td>
</tr>
<tr>
<td>Last 52 Weeks</td>
<td>+8.8%</td>
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</tbody>
</table>

1,177

* The CFTC defines large open interest holders as having at least 400 open contracts in Major Foreign Currency futures and at least 100 open contracts in Other Foreign Currency futures.

Source: CFTC

Record Number of Participants in CME FX

CME FX Futures has reached record Large Open Interest Holders of 1,177

The growing number of firms holding large exposure using futures indicates the continued industry adoption of standardized, exchange-traded products as the FX market continues its evolution.

FX Link: a seamless connection between our FX futures and the OTC FX marketplace – so you can use one CME Globex spread to more easily access the efficiencies of FX futures and better manage your FX exposures.

New RecordsReached in 2019, FX Link is available for USD/CHF, NZD/USD, AUD/USD, EUR/USD, GBP/USD, USD/CAD, USD/JPY and USD/MXN.
Portfolio Margin Solution for FX

Benefits Realized Within Clearing

➢ CME has offered portfolio margining services for ETD versus OTC products since 2012
➢ The existing offering for IRS is supported by 15 FCMs and used by >700 client accounts every day to generate savings of c. $3bn
➢ The regulatory authorization for enabling portfolio margining between ETD FX and OTC FX products is now in place
➢ CME can conduct analysis to show the benefits of portfolio margining ETD FX versus OTC FX now.
➢ The table below shows some examples of potential savings available via the CME portfolio margining solution.*

<table>
<thead>
<tr>
<th>Contracts Included in Portfolio Margining</th>
<th>Initial Margin Off-Set</th>
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</thead>
<tbody>
<tr>
<td>Non-Deliverable Futures Versus OTC NDFs</td>
<td>84%</td>
</tr>
<tr>
<td>Non-Deliverable Futures vs OTC CSFs</td>
<td>39%</td>
</tr>
<tr>
<td>G10 Futures Versus OTC CSFs</td>
<td>93%</td>
</tr>
<tr>
<td>G10 Futures Versus OTC NDFs</td>
<td>41%</td>
</tr>
<tr>
<td>G10 Futures Versus G10 OTC FX Options</td>
<td>28%</td>
</tr>
</tbody>
</table>

* Figures in table from analysis conducted on January 11 2018
Initial Margin Methodology

Margin Model Goals

➢ Captures potential loss over MPOR from all risk factors that affect the portfolio
➢ Achieves 99% coverage across a comprehensive set of Risk Profiles
➢ Anti-procyclical yet appropriately react to changes in FX risk factors and volatility regimes
➢ Scales to other currency pairs as well as Portfolio Margin with listed and other products
➢ Provide transparency to market participants via CME CORE & Deployable Libraries
➢ Makes easier the deployment of analytics for pre- and post-trade services

Methodology

Leverage the Historical VaR framework to portfolio margin FX portfolio of NDFs, G10 NDFs and Options

Initial Margin*

75% $VaR
25% $VaR
Liquidity / Concentration Add-On
Valuation Uncertainty Margin (Option Only)

Margin Tools

CME CORE and the Margin API will support initial margin calculations for portfolios of supported FX products

* $VaR is “Filtered” $VaR model using EWMA volatility (scaled). $VaR is Stress VaR anti pro-cyclical component. The confidence level of the VaR is 99.7%. Requirement of 99% Coverage
Key Benefits

➢ Access to CME’s OTC FX margin methodologies to calculate indicative margin requirements for NDF, CSF and FXO portfolios
➢ Includes ISDA SIMM calculations to compare CME cleared versus bilateral IM requirements
➢ Provides CME CORE users with an insight into CME Group’s global product suite (11 OTC FX NDFs, 26 OTC FX CSFs and 7 OTC FXO).
➢ Users can perform hypothetical, what-if, margin analysis to assess the impact of clearing additional trades within their existing portfolio.
Disclaimer

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