Listed FX Futures & Options
- Creation of a European Liquidity pool

ECB Working Group

25 May 2021
Exchange Traded FX Volumes (in notional) on Global Scale

FX Volumes - Trading in comparison¹

<table>
<thead>
<tr>
<th>Type</th>
<th>Daily Volume</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilateral (OTC) FX Derivatives</td>
<td>$6,595bn</td>
<td>(~98%)</td>
</tr>
<tr>
<td>On-Exchange (ETD) FX Derivatives</td>
<td>$140bn</td>
<td>(~2%)</td>
</tr>
</tbody>
</table>

On-exchange FX Volumes – ETD Trading by region¹

<table>
<thead>
<tr>
<th>Region</th>
<th>Daily Volume</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>$81bn</td>
<td>(58%)</td>
</tr>
<tr>
<td>Europe</td>
<td>$2bn</td>
<td>(1%)</td>
</tr>
<tr>
<td>APAC</td>
<td>$20bn</td>
<td>(14%)</td>
</tr>
<tr>
<td>Other</td>
<td>$37bn</td>
<td>(26%)</td>
</tr>
</tbody>
</table>

According to BIS data, 2% of the global FX activity is traded on regulated futures & options exchanges.

This activity takes place nearly exclusively on markets outside the EU territory, for example on exchanges in the US, Brazil, India and Russia.

¹ Sources: BIS Triennial FX Survey 2019, BIS On-Exchange Volumes 2019
Largest ETD FX Exchanges & Respective Trading Volumes (in contracts) in 2020

USA
Volume 2020: 239mn contracts
Mix ccy pairs & int. participants

Brazil
Volume 2020: 790mn contracts
Focus on USD/BRL, local

Argentina
Volume 2020: 113mn contracts
Focus on USD/ARS, local

Russia
Volume 2020: 870mn contracts
Focus on USD/RUB, local

South Korea
Volume 2020: 113mn contracts
Focus on KRW/USD, local

India
Volume 2020: 2,175mn contracts
Focus on USD/INR, local

South Africa
Volume 2020: 63mn contracts
Focus on USD/ZAR, local

Turkey
Volume 2020: 61mn contracts
Focus on TRY/USD, local

新加坡
Volume 2020: 27mn contracts
Asian ccy scope & participants

USA: ETD FX markets with international reach & participation and broad product scope
South Korea, South Africa, Turkey: ETD FX markets with regional focus and domestic participation and narrow product scope

Source: Futures Industry Association
Note: The underlying notional per contract can vary significantly between exchanges
Example 1 – local ETD FX market: Brazil – ETD FX Market Development

- Local participants have restricted access to FX Spot market (chartered banks only) & foreign currencies
- Accessibility, tax benefits in the Brazilian tax system (due to inherent netting) and subsequent increase in liquidity key characteristics of Brazilian ETD FX market
- All ETD FX derivatives in Brazil settle in cash (domestic currency)

On-Exchange FX Volumes

- 88% - Mini USD/BRL Future Notional $10,000
- 10% - USD/BRL Futures
- 2% - Other USD/BRL futures
- 0.1% - Other currency pairs

Exchange: B3
Source: Futures Industry Association
Example 2 – local ETD FX market: India – ETD FX Market Development

- Historically non-convertible domestic currency
- Exchange traded FX enables local participants to liquid FX hedging instruments
- Most ETD FX contracts with small notional value
- ETD FX derivatives in India typically settle in cash in the domestic currency

On-Exchange FX Volumes

<table>
<thead>
<tr>
<th>Year</th>
<th>Million Contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>96%</td>
</tr>
<tr>
<td>2017</td>
<td>96%</td>
</tr>
<tr>
<td>2018</td>
<td>97%</td>
</tr>
<tr>
<td>2019</td>
<td>97%</td>
</tr>
<tr>
<td>2020</td>
<td>94%</td>
</tr>
</tbody>
</table>

- 94% - USD/INR Future Notional $1,000
- 3% - GBP/INR Future
- 2% - EUR/INR Future
- 1% - Other

Exchanges: National Stock Exchange (NSE), Bombay Stock Exchange (BSE), Metropolitan Stock Exchange of India (MSEI), India International Exchange (INX)

Source: Futures Industry Association
Example 3 – global ETD FX market: USA – ETD FX Market Development

- ETD FX market in US with global reach and international participation
- Broad mix of pairs, including deliverable and non-deliverable currencies
- Accordingly, ETD FX derivatives available both with physical settlement and cash-settlement

Exchanges: CME Group, NADEX, ICE, Nasdaq OMX, CBOE
Source: Futures Industry Association
Since the financial crisis, regulatory amendments altered FX trading and FX markets

**Basel 3**
- Requirements to hold regulatory capital for derivatives transactions

**FX Market**
- Enhanced transparency & integrity in financial markets
- **MiFID II**
- **Uncleared Margin Rules**
  - Collateralization and exchange of bilateral IM for uncleared derivatives

EUREX
ETD Derivatives in combination with central clearing receive preferential treatment under current regulatory regimes

**Basel III**
Trades executed on exchanges benefit from lowest capital requirements (no CVA capital charge, 2% RWA risk weight) due to the well-proven risk methodologies of CCPs.

**Uncleared Margin Rules**
Exchange traded derivatives are exempt from uncleared margin rules. ETD trades do not account towards the average aggregate notional amounts (AANA) thresholds.

**MiFID II**
Exchanges ensure compliance with current regulation, such as MiFID II, and support highest levels of transparency and market integrity.

Exchange traded derivatives best suited to address statutory requirements.
Exchanges & Central Counterparties (CCPs): Multilateral Trading & Clearing provides significant benefits

Bilateral trading & clearing
OTC market structure - 1:n relationship

Multilateral trading & clearing
Exchange & CCP market structure - 1:1 relationships between CM and CCP

Benefits of multilateral clearing with Central Counterparty

Multilateral Trading
- Exchange provides access to all other exchange participants on an anonymous and undisclosed basis
- Trading takes place based on common exchange rules in central-limit order book (CLOB)
- Non-discriminatory pricing & exchange fees

Reduced systemic risk
- CCP takes over counterparty risk through trade novation
- CCP enforces strict risk control and adequate collateralisation of open positions
- Automatic multilateral netting reduces gross risk exposure

Increased transparency
- Awareness of concentration risk
- Independent position valuation by neutral institution
- Early warning function by daily mark-to-market

Efficiency gains
- Full automation and straight-through processing reduces manual errors
- Efficient use and management of collateral
- Increased capital efficiency by reduced balance sheet exposure & efficient use of collateral
## ETD FX Market Characteristics

<table>
<thead>
<tr>
<th></th>
<th>ETD FX</th>
<th>OTC FX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>Standardized (notional &amp; IMM dates)</td>
<td>Full Customization</td>
</tr>
<tr>
<td>Access</td>
<td>Single Relationship to Exchange / CCP (Self-clearing or via clearing broker)</td>
<td>Bilateral Credit (per counterparty or centrally via prime broker)</td>
</tr>
<tr>
<td>Execution Model</td>
<td>Central Limit Order Book (undisclosed)</td>
<td>Request for Quote / Stream (disclosed / undisclosed)</td>
</tr>
<tr>
<td>Pricing &amp; Fees</td>
<td>Non-Discriminatory</td>
<td>Individual</td>
</tr>
<tr>
<td>Netting</td>
<td>Multilateral Netting</td>
<td>Bilateral Netting / PB Netting</td>
</tr>
<tr>
<td>Collateralization</td>
<td>Collateralized (IM &amp; VM based on multilateral net)</td>
<td>Uncollateralized / Collateralized (e.g. VM only)</td>
</tr>
<tr>
<td>Capital Requirements</td>
<td>Lowest (no CVA capital charge, 2% RWA risk weight)</td>
<td>Typically high</td>
</tr>
</tbody>
</table>

ETD FX can complement traditional OTC FX markets, while its usage is currently dependent on client preferences, trading requirements, sensitivity to funding and technological constraints.
Bridging the OTC and ETD FX markets to boost market liquidity

Market participants are looking for a greater ability to switch between FX OTC and FX futures markets and improving this “translation” is a key focus for the market.

By improving the movement between markets, and adding FX futures to OTC FX users capabilities, it creates a virtuous circle that improves liquidity in both markets and enables end users to take advantage of the best price, irrespective of the underlying product.

Exchange and OTC FX providers continue to work on solutions to bridge this gap more effectively.
Client key drivers in Europe to consider FX futures to complement the traditional OTC FX market

Trading and clearing fees
Ensuring trading and clearing fees are in line with OTC markets is key for growth. Lowering the number of intermediaries and trading fees has helped create a more competitive futures offering.

Collateral/Credit
The ability of clients to obtain credit is a key factor for usage of FX futures. In addition, costs associated with posting margins are a consistent theme.

Spreads
FX Futures tick values have (generally) been falling across the global FX Futures markets and converging on OTC markets. This allows spreads to compress, pricing accuracy to increase and provide takers the best possible execution prices.

Portfolio Margining
By taking into account correlations between currency pairs, clients are able to significantly optimize the margins they need to post to the CCP.
There are multiple reasons to establish an EU based ETD FX liquidity pool.

Eurex & 360T are therefore working with market participants to establish a Euro denominated liquidity pool for FX Futures & FX Options within the EU to complement the existing FX market structure in Europe.

Reasons to establish an exchange traded FX liquidity pool in the EU

1. Lack of EU based ETD FX offering
2. Access to exchanges outside the EU can be costly or prohibitive for European participants
3. Evolving regulatory landscape
4. Increasing demand for ETD FX solution within the EU territory
5. ETD FX ability to complement traditional OTC FX market and to bridge liquidity
Eurex FX – European FX Exchange

Market Interest
Supporting the reported market interest, Eurex has seen continued volume growth in FX futures with the market continuing to expand with new LPs, end clients and clearing members.

Product Coverage
Eurex offers deliverable FX Futures (quarterly and monthly expirations), Calendar Spreads (to trade between expirations), Rolling Spot Futures and FX Options.
Thank you!

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Russia – ETD FX Market Development

- Trading predominantly in RUB denominated NDF pairs (USD/RUB, EUR/RUB) as well as EUR/USD without physical delivery
- ETD FX derivatives in Russia typically cash-settled

Exchange: Moscow Exchange (MOEX)
Source: Futures Industry Association
Under UMR, FX derivatives are becoming subject to bilateral margining requirements

- The Uncleared Margin Rules (UMR) are implemented globally leveraging the framework and recommendations set out by the BCBS IOSCO, requiring in-scope entities to exchange collateral for uncleared derivative transactions

Products in scope margin exchange
- All uncleared derivatives (incl. NDFs and FX Options), with exemption for physically settled FX Swaps & FX Forwards

Average Aggregate Notional Amount (AANA) Calculation:
- All uncleared derivatives (incl. FX Swaps and FX Forwards) between March and May period for next September implementation
Under Basel III, Banks are required to hold more regulatory capital for FX derivatives

- Under the Basel III regulatory framework, banks are subject to minimum capital requirements to cover unexpected losses and to remain solvent in a crisis. Banks must meet both risk based as well as leverage based capital requirements.

### Risk Based Capital Ratio

<table>
<thead>
<tr>
<th>Risk Based Capital Ratio</th>
<th>Based on risk weighted assets (RWA):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Based Capital Ratio = ( \frac{\text{Common Equity Tier 1 Capital}}{\text{Risk Weighted Assets}} )</td>
<td></td>
</tr>
<tr>
<td>Most banks operate within the range of 11% - 15%</td>
<td></td>
</tr>
</tbody>
</table>

### Leverage Ratio

<table>
<thead>
<tr>
<th>Leverage Ratio</th>
<th>Non-risk based backstop to a bank’s capital reserves:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage Ratio = ( \frac{\text{Tier 1 Capital}}{\text{Leverage Exposure}} )</td>
<td></td>
</tr>
<tr>
<td>Most banks operate within the range of 3.5% - 7%</td>
<td></td>
</tr>
</tbody>
</table>

### Risk covered under Risk Weighted Assets (RWA):

- Credit Risk, Counterparty Credit Risk (CCR), Credit Valuation Adjustment (CVA) Risk, Market Risk, Operational Risk, Large Exposure

### SA-CCR

- Standardized Approach to Counterparty Credit Risk (SA-CCR) comes into effect for European banks in June 2021 and is designed to improve the risk sensitivity of CCR
- As a result, capital charges for shorter-dates derivatives may rise under SA-CCR while the requirements for longer dated derivatives might be lower

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1) Tier 1 Capital comprises Common Equity Tier 1 and/or Additional Tier 1 instruments.
Under MiFID II, FX derivatives are increasingly subject to transparency requirements and transaction cost analysis

- The second Markets in Financial Instruments Directive (MiFID II) came into effect across the EU in 2018 to strengthen the integrity of financial markets in the EU
- This included a clearing obligation for certain OTC derivatives (such as interest rate swaps)
- While no clearing mandate has been introduced for FX derivatives, novel requirements referred to enhanced transparency (e.g. trade reporting) as well transaction cost analysis (e.g. best execution) for FX transactions