Exchange Briefing: Cboe Europe Derivatives and EuroCCP

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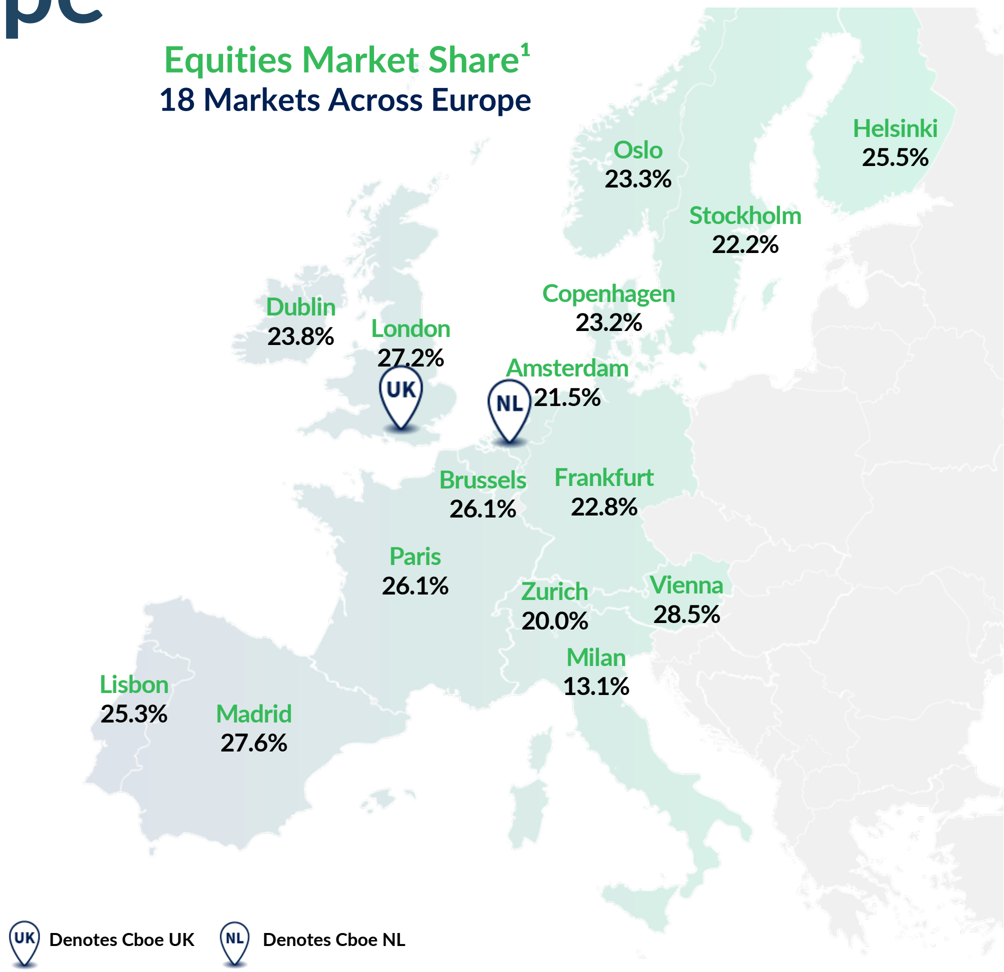
Re-cap of who we are in Europe

#1 intraday equities market share[1]

Market data includes **1 in every 2 equity trades** in Europe

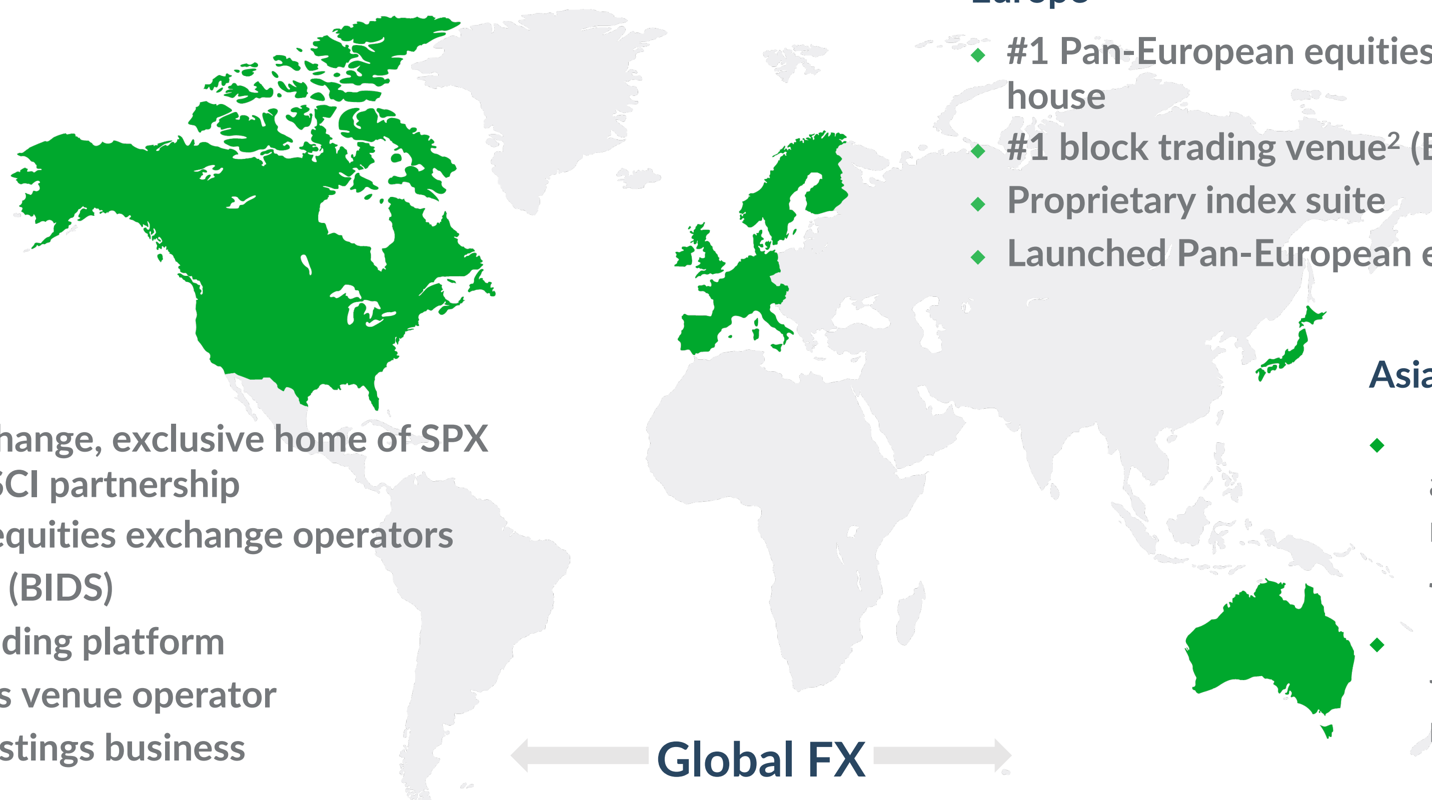
#1 Pan-European equities clearing house in EuroCCP[2]

EuroCCP paved way for derivatives expansion



[1]Cboe Europe Equities Market Share Data for 2021 Continuous Trading only
[2]Market share of European clearing houses based on average activity cleared through September 30, 2021

We are a Significant Segment of Cboe's Unrivaled Global Derivatives and Securities Network



Europe

- #1 Pan-European equities exchange[1] and clearing house
- #1 block trading venue[2] (BIDS)
- Proprietary index suite
- Launched Pan-European equity derivatives

North America

- #1 U.S. Options Exchange, exclusive home of SPX and VIX options, MSCI partnership
- One of largest U.S. equities exchange operators
- #1 block ATS in U.S. (BIDS)
- Leading U.S. ETP trading platform
- #2 Canadian equities venue operator
- Growing Canadian listings business

Asia Pacific

- Largest independent alternative equity markets in Australia and Japan
- High proportion of retail flow and recurring revenues

Global FX

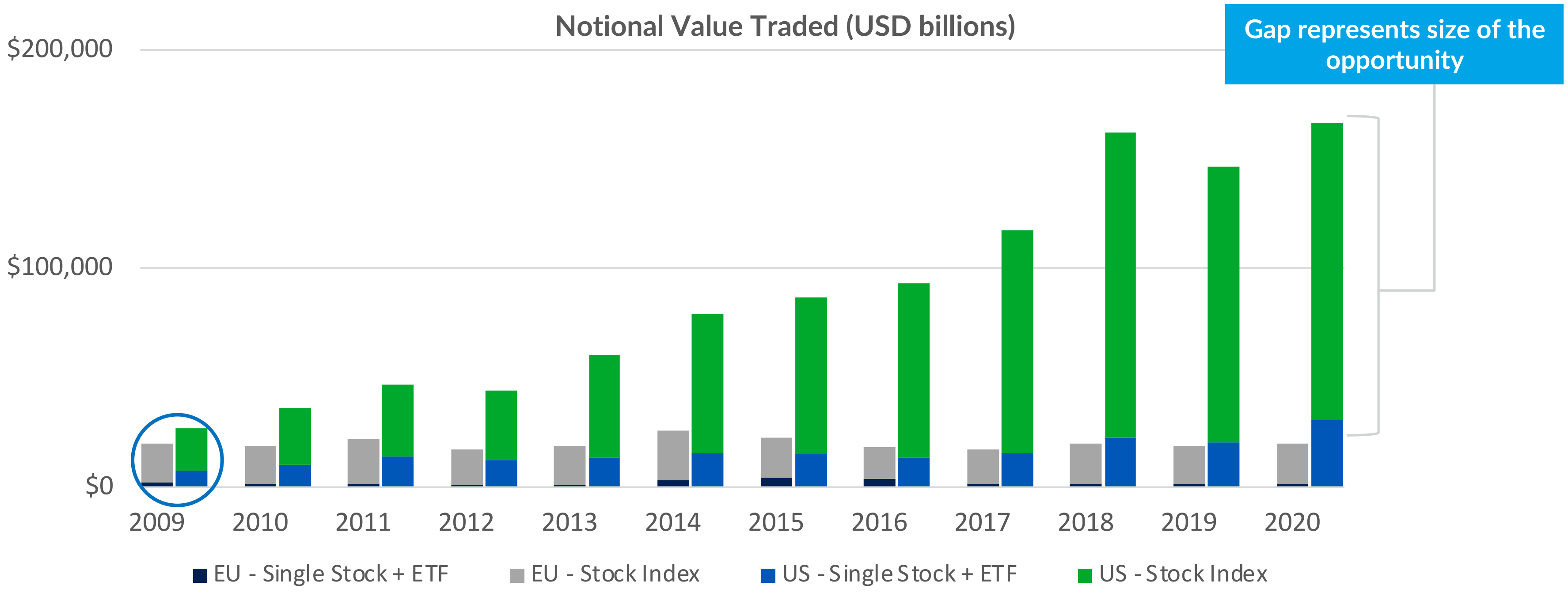
Uniform Data & Access

[1]Continuous trading only
[2]Source: big xyt, August, October and November 2021

The European Equity Derivatives Opportunity

Equity + Index Options Market Landscape[1]

Europe vs U.S.



[1]Source: WFE, FIA, OCC and Cboe market data

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European Equity Options Landscape is Different, But…

Limited on-screen liquidity prevents active participation from U.S. quantitative trading firms in the European options market

On screen trade sizes deemed too low for participants to execute market strategies

Current European model has led to an environment where pre -arranged OTC style transactions blocked/reported to exchanges is the norm rather than the exception

Order book liquidity providers bypassed in favour of RFQ/block trading market structure

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Fragmented Derivatives Landscape

Current Market Structure

	Trading		Clearing
	Venue A Trading Connectivity	→	Venue A Clearing Margin Pool
	Venue B Trading Connectivity	→	Venue B Clearing Margin Pool
	Venue B Trading Connectivity	→	Venue B Clearing Margin Pool
	Venue B Trading Connectivity	→	Venue B Clearing Margin Pool
	Venue C Trading Connectivity	→	Venue C Clearing Margin Pool
	Venue D Trading Connectivity	→	Venue D Clearing Margin Pool
	Venue E Trading Connectivity	→	Venue E Clearing Margin Pool

CEDX Model

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…Improvement is Long Overdue

Our approach and rationale

- Develop an attractive on screen size and market depth
- Fully transparent
- One-stop shop for pan-European derivatives trading and clearing

US Quantitative Trading Firms

Familiarity with US options market structure and deep liquidity are seeking similarly structured liquid markets in Europe

Users of Cboe's US Options Venues

Leverage options leadership and experience by importing US style market model and functionality to Europe

Screen Trading and STP execution

Equity derivatives market structure that facilitates, encourages and prioritises on screen market orders

Algos & AIMS

Introduction of automated price improvement auction process to complement the central order book

Pan-European Approach

Introduction of a broad range of futures and options on Cboe's regional and country indices

Cost Focus

Structured Products, D1 & Balance Sheet Optimisers - cost effective venue for issuers to hedge their structured product exposure

Phased Product Expansion

12
Index Futures and Options

8
Index Futures and Options*

Weekly Index Options*

Single Stock Options*

Q3, 2021

- Live with futures and options on five Cboe country indices and one Cboe pan-European index

Q2, 2022

- Expansion to cover Italy, Norway, Spain, and Sweden

Q2/Q3, 2022

- Initially on our phase 1 set of indices

2023 and Beyond

- Pan-European Universe
- Participants' priorities will inform the sequencing of names we bring to market

**subject to regulatory approvals*

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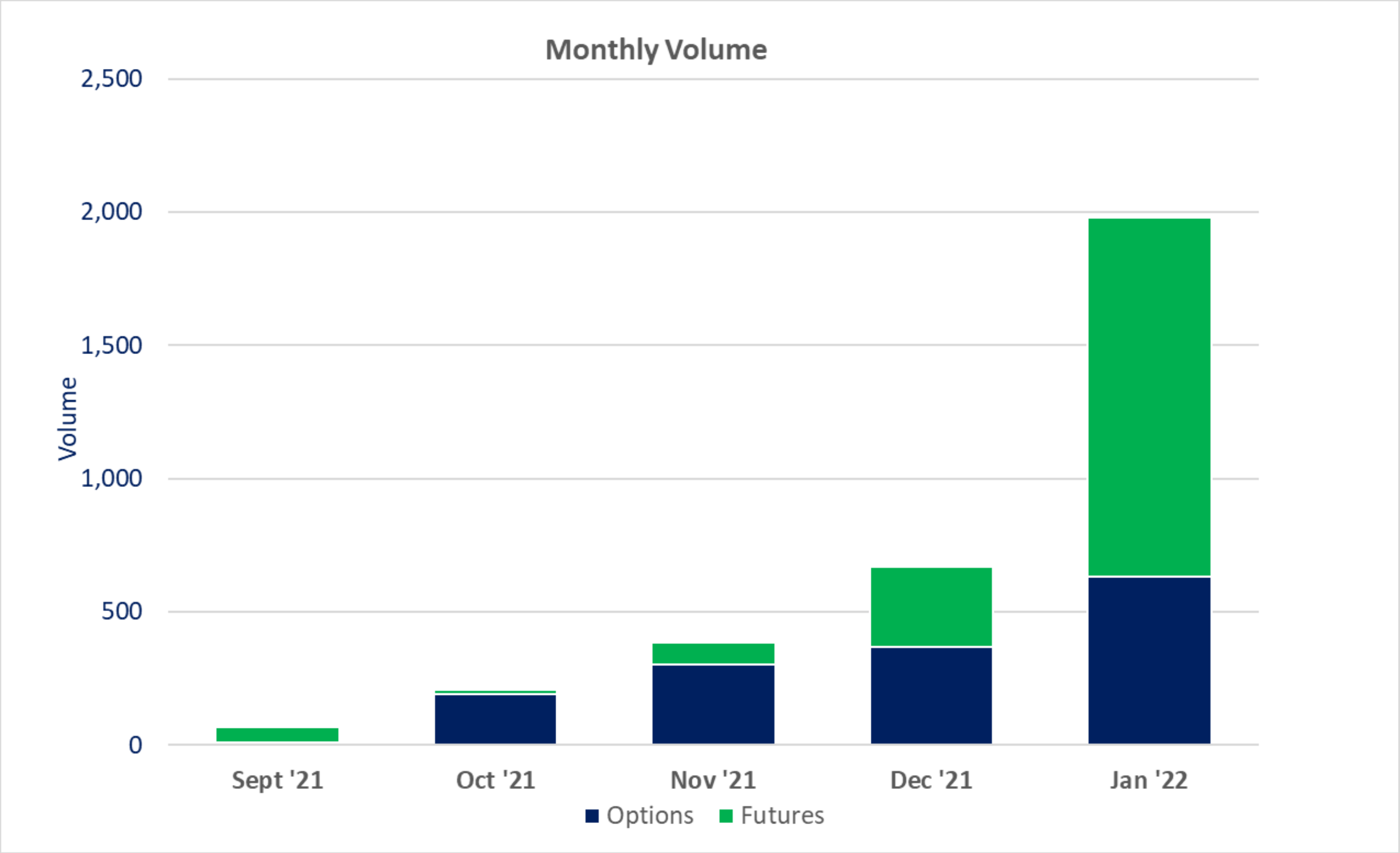
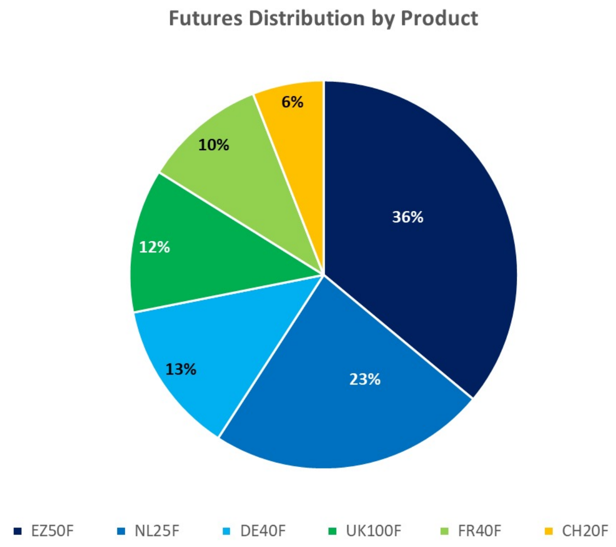
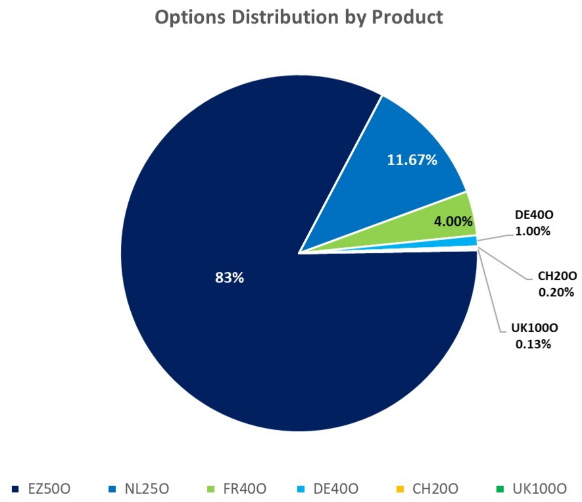
Connectivity, Data and Vendors

- Index Licensing
- Market Data
- Trading Software Vendors
- Data Centre Connectivity
- Middle and Back Office Vendors

Connectivity, Data and Vendors







EuroCCP

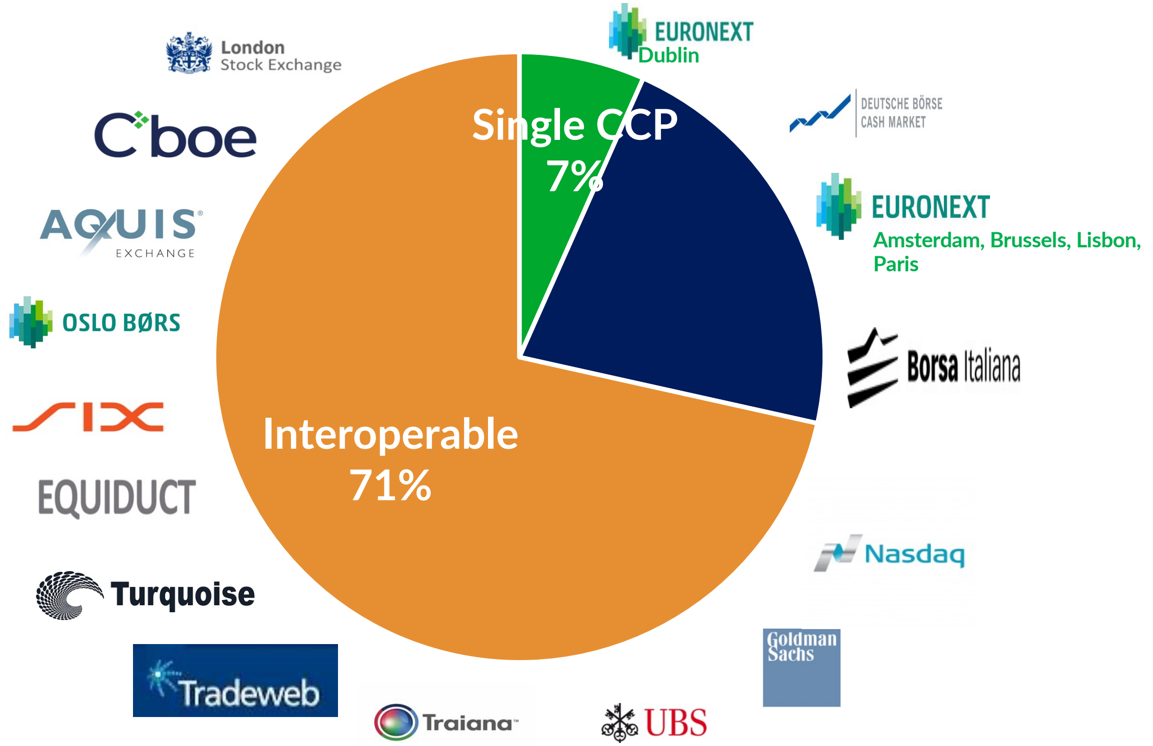
EuroCCP – Key Highlights

- Acquired by Cboe Global Markets on 1 July 2020
- Europe's leading cash equity CCP, championing open access, competition and low cost clearing; now also clearing equity derivatives in support of Cboe Europe Derivatives
- Strong user led governance and client centric model
- Systemically important, regulated by AFM/DNB in the Netherlands as well as ESMA and a European College of Regulators. Regulatory standards and scrutiny of CCPs expected to continue to strengthen
- Organisational resiliency and continuous enhancement of risk management are a key focus
- Diversification efforts include further derivatives expansion, ETF clearing and other post-trade services

We have an extensive pan-European footprint

EuroCCP has achieved connectivity to close to 95% of European equity markets

European Equities Landscape – CCP Split by Volume H1 2021



- EuroCCP is the most connected CCP in Europe with access to c. 94% of equities trades executed on 47 platforms, including 12 national stock exchanges
- Priorities include growing use of preferred clearing, connectivity to LSE IOB/IET and potentially other European markets (Spain, Austria, Poland)

Note: Interoperability provides trading firms with the ability to select a CCP of their choice from a number of valid alternatives. To interoperate, CCPs establish arrangements with one another so that a user of one CCP can execute a trade with a counterparty that has chosen another.

Diversification is a key part of our strategy

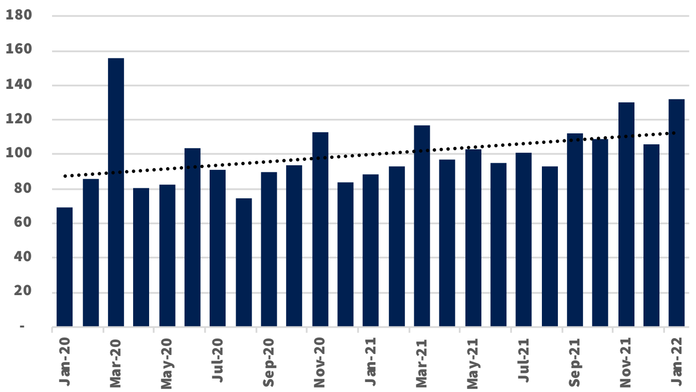
EuroCCP Strategic Priorities		
Strengthen the organization	➡	Continue to improve risk management Strengthen operations and IT Develop our people
Protect and grow cash equities	➡	Retain and grow business from existing and new clearing members Continue to expand pan-EU venue coverage
Diversify into new products & services	➡	ETFs clearing – issuance & OTC markets Equity Derivatives – product roadmap
Seek further opportunities	➡	Further asset class diversification? Geographic expansion? Digital?

Key facts and recent performance

Cash equities

- 48 clearing members
- Approx. 30% market share of the European cash equities market
- 2021 client trade volumes 1.24bn vs 1.12bn in 2020, representing 11% increase
- Over 75,000 instruments cleared

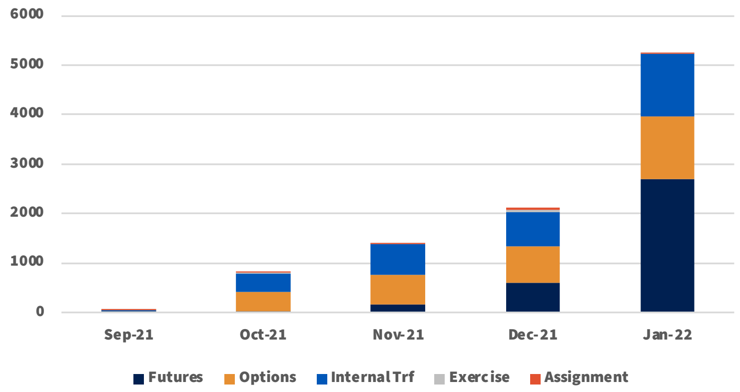
Total volumes 2020 to 2022 YTD
(in millions)



Equity Derivatives

- Equity Derivatives clearing services launched on 6 September 2021 in support of Cboe Europe Derivatives
- 5 Monthly expiries successfully processed to date
- Increasing usage of post trade account management services, with 1,284 lots in January processed already achieving 70% of the 2021 volume

Total Lots by Transaction Type



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Risk Management - overview

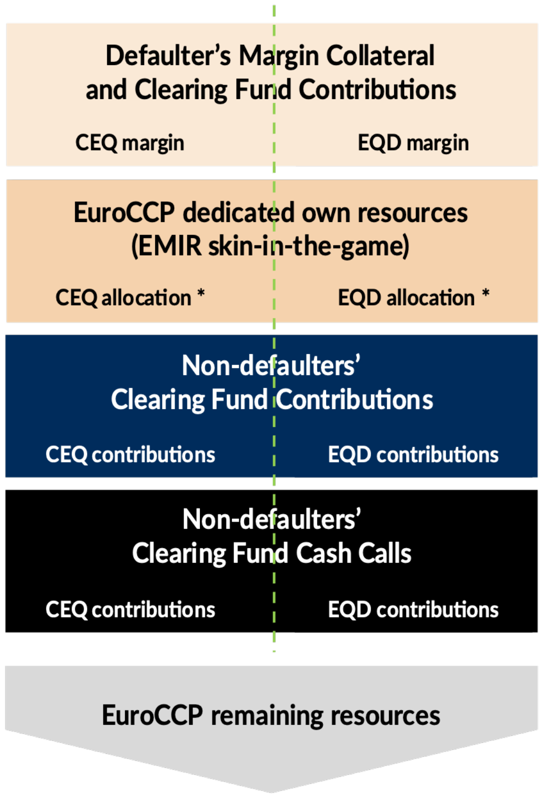
Risk Management

- Core IM is calculated as the weighted sum of two components: a Filtered Hist-Sim (75% weight) and a Stress Hist-Sim (25% weight).
- Each component is calculated as the weighted sum of a portfolio-based Conditional Value-at-Risk (CVaR) (80% weight), and the sum of CVaRs calculated at gross individual product level (20% weight), per ESMA RTS article 27.
- Margin Period of Risk (MPOR) for both models is 3 days.
- In accordance with EuroCCP's risk appetite the overall confidence level is 99%.
- Additional margin add-ons are calculated to cover risks not captured by the core IM model.

Default Waterfall

- The EuroCCP default waterfall recognises EQD as a separate product class, alongside the existing CEQ product class, under a single default waterfall and default fund structure.
- In all cases, the resources related to a particular product class (i.e. CEQ or EQD) must be applied first to any loss attributable to that product class until such loss is fully absorbed.
- If thereafter, any residual resources remain available, then those remaining resources can be utilised with respect to losses incurred in the other product class.
- EuroCCP's existing recovery tools are available to be deployed in the event that all financial resources have been utilised

EuroCCP Default Waterfall



Clearing Connectivity – overview

Account Set up

- Fully EMIR compliant Account Structure
- House Account, Client Accounts (Omnibus and Segregated) and Indirect Clearing accounts all available
- Position and Margin Netting can be configured per Account

Connectivity

- EuroCCP supports connections via either FIXML over Websphere MQ, or Fix connectivity. Daily member files are retrieved via SFTP folders, created specifically for each member

Post Trade API & Clearing GUI

- Post-trade API & GUI provides details of: Trade Splits, Trade Open / Close Adjustments, Give-Up / Take-Ups (supported until T+5), Close-Outs, Position update intraday, Position report intraday

Margin API

- Online user interface tool for Clearing Participants that includes Portfolio & Margin Simulation (direct or via Vendor connectivity)

End of Day Reporting

- Core reporting facility available with further functionality being developed

Key Takeaways

New Exchange six months old, 2022 focus is on:

- Increase the number of participants and vendors connected
- Expand portfolio of products – concentration is on index products for 2022
- Prepare the groundwork for pan-European single stock products in 2023

Thank You!

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