Cboe DataShop

Cboe EU HHI (Market Concentration) Data Specification

FILE NAMING CONVENTION

Historical

- 1 file per trade date per day for each exchange
- {Exchange}_HHI_YYYY-MM-DD.zip (zipped CSV)
  {Exchange} is BXE, CXE, DXE

Subscriptions

- 1 file per trade date per day for each exchange
- Schedule: Delivered End-of-Day, typically around 10-11pm UTC.
- {Exchange}_HHI_YYYY-MM-DD.zip (Zipped CSV)
  {Exchange} is BXE, CXE, DXE

SYMBOL UNIVERSE

- The symbols covered are the constituent symbols of the Cboe European Equity Indices as of TRADING_DT, listed as follows:
  - BUK100P,BUK250P,BNL25P,BNL30P,BFR40P,BDE40G,BDK25P,BSE30P,BES35P,BCH20P,BIT40P,BCHM30P,BFRM20P,BDEM50P,BNLM25P,BFI25P,BBE20P,BDES50P,BAT20P,BIE20P,BNO25P,BPT20P

PRIVACY SUPPRESSION

- TOTAL_VOLUME, counterparty counts (FIELDS #15-16), and regular HHI metrics (FIELDS #5-7) are computed over Lit + Dark + PAB combined; aggressive and passive HHI metrics (FIELDS #8-13) are computed over Lit + Dark only (PAB excluded).
- For each row, if the number of trades contributing to the row is < 10, then the dataset will null out all HHI metrics (FIELDS #5-13) and counterparty counts (FIELDS #15-16)

FIELDS

#	Column Name	Type	Description	Notes
1	TRADING_DT	Datetime	Trade (market) date	
2	SYMBOL	String	Instrument symbol	
3	CURRENCY	String	Traded currency code	
4	MARKET_NAME	String	Country/market name derived from listing venue	
5	HHI_ALL	Numeric	HHI across all trades	Null if TRADE_COUNT < 10
6	HHI_BUY	Numeric	HHI across buy-side trades only	Null if TRADE_COUNT < 10
7	HHI_SELL	Numeric	HHI across sell-side trades only	Null if TRADE_COUNT < 10
8	HHI_AGGRESSIVE	Numeric	HHI across aggressive (taker) trades. Subset identified via liquidity flag = ‘Remove’	Null if TRADE_COUNT < 10
9	HHI_AGGRESSIVE_BUY	Numeric	HHI across aggressive buy-side	Null if TRADE_COUNT < 10
10	HHI_AGGRESSIVE_SELL	Numeric	HHI across aggressive sell-side	Null if TRADE_COUNT < 10
11	HHI_PASSIVE	Numeric	HHI across passive (maker) trades. Subset identified via liquidity flag = ‘Added’	Null if TRADE_COUNT < 10
12	HHI_PASSIVE_BUY	Numeric	HHI across passive buy-side	Null if TRADE_COUNT < 10
13	HHI_PASSIVE_SELL	Numeric	HHI across passive sell-side	Null if TRADE_COUNT < 10
14	TOTAL_VOLUME	Numeric	Total traded quantity (all trades)	
15	NUMBER_OF_COUNTERPARTIES_BUY	Int	Distinct counterparties on the buy-side	Null if TRADE_COUNT < 10
16	NUMBER_OF_COUNTERPARTIES_SELL	Int	Distinct counterparties on the sell-side	Null if TRADE_COUNT < 10

METHODOLOGY

HHI (Herfindahl-Hirschman Index)

- A measure of the concentration of trading activity between members who trade each instrument.
- It is measured using the HHI which sums the square of the percentage share of trading of each member, resulting in a number between 0 and 1.
- The closer the number is to 1, the more concentrated the market activity is towards a single member.
- In the other direction, the closer it is to 0, the more distributed trading is across members.

Example:
Symbol: ASML

- Firm A trades: 1,000 shares
- Firm B trades: 500 shares
- Firm C trades: 500 shares
- **Total: 2,000 shares**

Market Shares:

- Firm A: 1,000/2,000 = 0.50
- Firm B: 500/2,000 = 0.25
- Firm C: 500/2,000 = 0.25

HHI Calculation:

- HHI = $(0.50)^2 + (0.25)^2 + (0.25)^2$ HHI = 0.25 + 0.0625 + 0.0625 HHI = 0.375
- Interpretation: Moderately distributed (closer to 0 than 1)

INCLUDED BOOK TYPES

HHI data includes Lit, Dark, and PAB executions (on-book), and excludes Off-Book, Cboe LIS, and VWAP-X.

Book Type	Included	Notes
LIT ONLY	Yes	Lit continuous book
LIT SWEEP	Yes	Lit sweep
DARK ONLY	Yes	Non-displayed/dark on-book
DARK SWEEP	Yes	Non-displayed/dark on-book
DARK SCAN	Yes	Non-displayed/dark on-book
DARK PAB	Yes	Non-displayed/dark auction variant
DARK PAB – DOE	Yes	Non-displayed/dark auction variant
DARK PAB – AON	Yes	Non-displayed/dark auction variant
DARK PAB – DOE & AON	Yes	Non-displayed/dark auction variant
PAB ONLY	Yes	Periodic Auction Book
PAB LIT	Yes	Auction executions on lit venue

EXCLUDED BOOK TYPES

Book Type	Included	Reason
OFF-BOOK	No	Executed away from central order book
Cboe LIS	No	Large-in-Scale; typically non-displayed
VWAP-X	No	Program trade mechanism; treat as non-displayed in strict policy
DEFAULT – UNKNOWN BOOK	No	Excluded unless mapped to Lit/Dark/PAB