eFX ‘Explainers’ eRisk Analytics

As part of our ‘Explainers’ series, we shed light on how the electronic FX market operates. There’s no better way to showcase this than through our proprietary analytics. This issue focuses on the key analytics tools, powered by eRisk.

Implied Rate

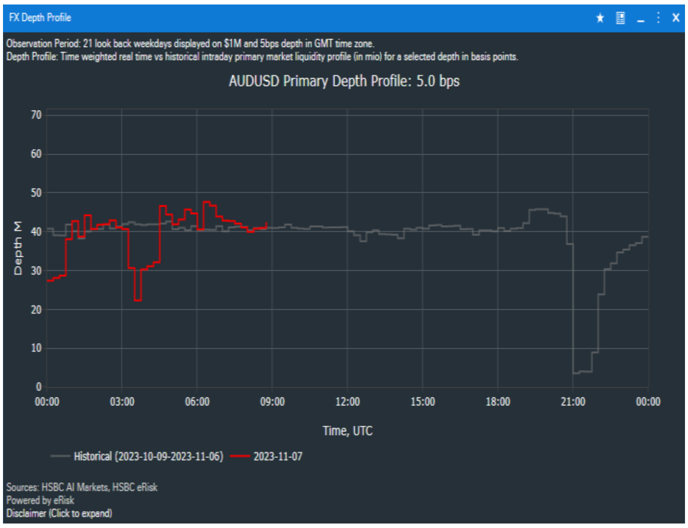
What is it?

- Visualisation of prices (bid, ask, mid and spread) in time series format and overlays prices from different sources, CPE (HSBC) and Primary (Market).

Feature highlight:

- Useful to look at the price action around key economic event. For example we can use **“audusd implied rate primary market**“ to see how the primary spread changed around RBA on the 7th November where ToB spread on primary jumped to 27pips after the RBA rates decision.

Depth Profile



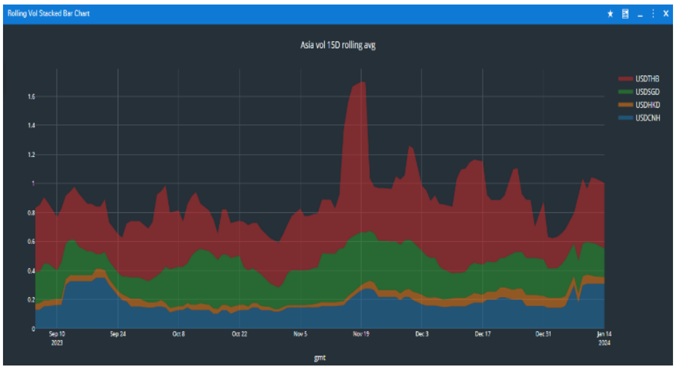
What is it?

- Visualisation of primary market depth for selected spread i.e. how much liquidity (visible) you can find within a defined depth on a given day vs. the historical average.

Feature highlight:

- We can visualise how the depth of the market changed for AUDUSD around RBA on the 7th Nov using **“depth profile usdcnh 1 month”.** The market has become much shallower, i.e. there is less visible liquidity 20mio AUD within 5bps depth vs 40mio during normal times, suggesting a worsening in liquidity around rates decisions.

Rolling Volatility Stacked Bar Chart



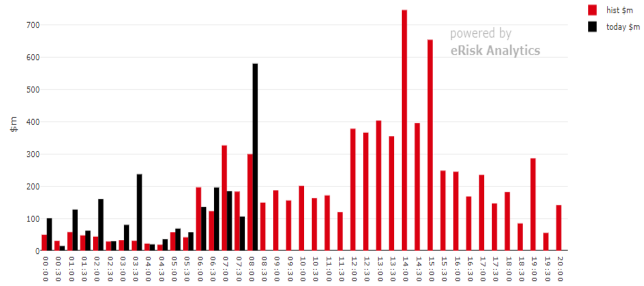
What is it?

- Visualisation of rolling average of volatility (based on 2-day return) for a group of currency pairs in a stacked bar chart format which is useful to see how volatility across of a group of pairs changes over time and how each of the currency pairs has contributed to that change.

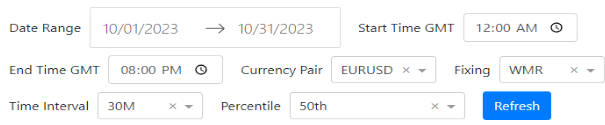
Feature highlight:

- We can use **"asia rolling vol stacked bar chart 3month"** to see the upticks in volatility among Asia pairs, with THB being the main driver of the increase in volatility vs its peers in Asia.

Benchmark Volume Profile



Visualisation of volume profile of the selected currency across different benchmark windows



Also available as a downloadable tabular format

time	volume_today	volume_hist
00:00	100.347	49.245
00:30	14.366	30.256
01:00	127.349	57.302
01:30	61.897	47.271
02:00	159.817	43.654
02:30	29.268	28.411
03:00	79.799	32.357
03:30	236.805	30.586
04:00	19.586	22.003
04:30	35.413	18.334
05:00	68.338	56.849
05:30	56.826	41.484
06:00	135.397	196.145
06:30	195.748	122.361
07:00	184.242	325.985
07:30	105.736	182.882
08:00	579.562	299.029

Feature highlights:

- Useful to see how much has been traded during benchmark windows on a given day compared to average historical values
  - Given day – realised volume traded in interbank in each fixing window for a given/selected day
  - Historical – realised volume of specified percentile of daily volume of each fixing window for the date range selected
  - In the example above we can see EURUSD volume during the 8AM(GMT) WMR benchmark window was almost twice the historical average of the previous monthSpot traders can hedge their long/short spot position by selling/buying futures, leaving them with basis risk (a.k.a. EFP – Exchange of Futures for Physical) – the risk that the difference between spot and futures moves significantly

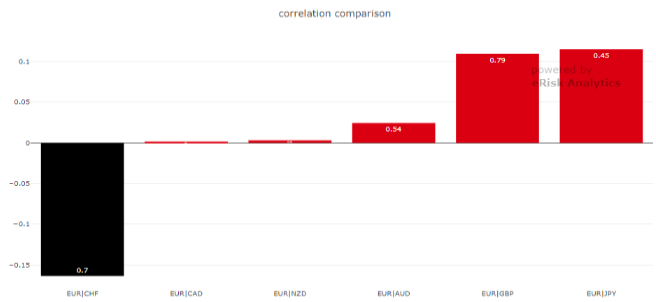
Correlation Index

Correlation index allows users to easily analyse the correlation between different currency pairs

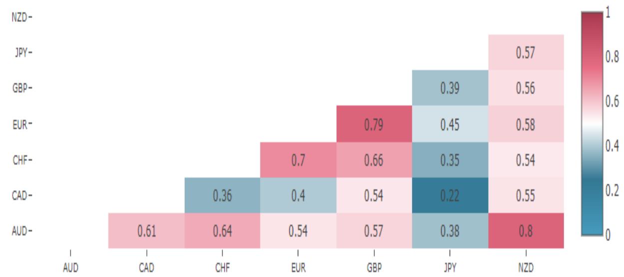
Feature highlights:

- Given day – realised volume traded in interbank in each fixing window for a given/selected day

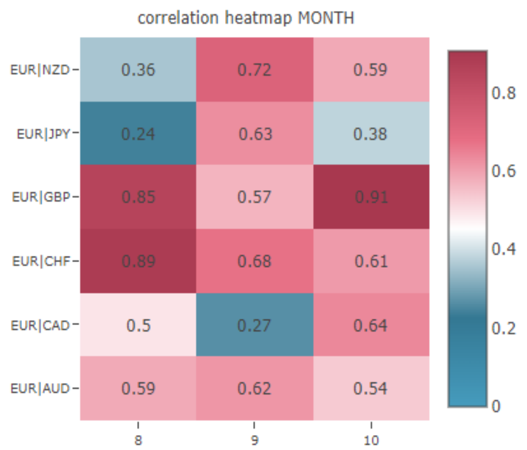
Comparison of correlation of returns of a group currency pairs between two periods of users choice where user can choose to see raw data or the absolute change



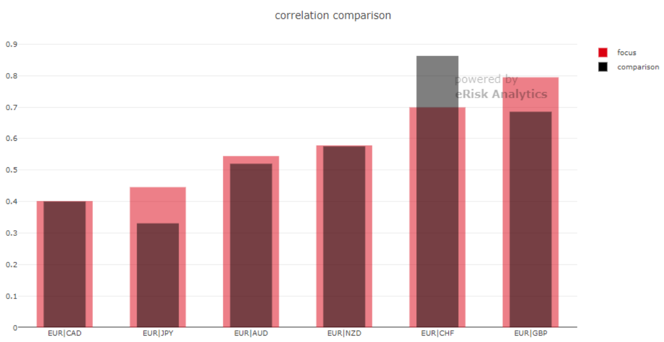
Correlation heatmap focus



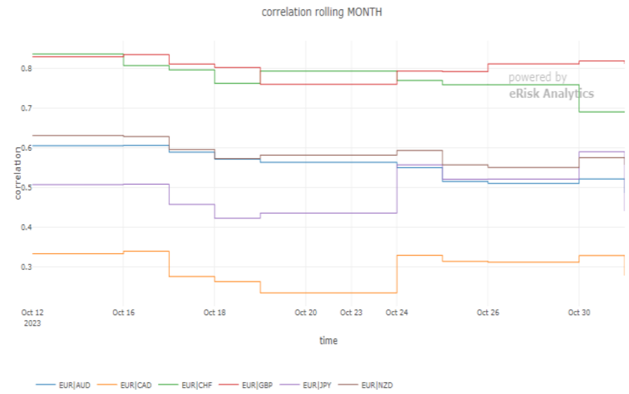
Change of correlation by month in heat map format



Raw data in graph format

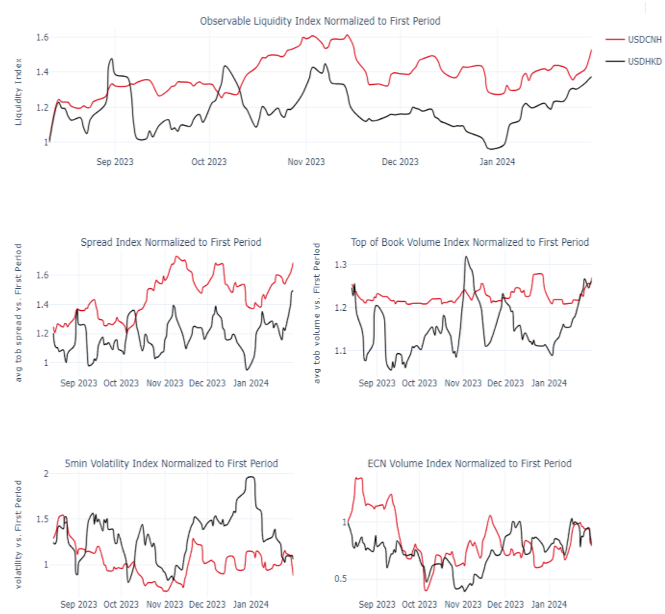


Long term evolution of correlation in time series format



Observable Liquidity Index

Time series for USDCNH and USDHKD Observable liquidity index



How is this computed?

It provides a basic assessment of liquidity by looking at interbank spread, visible top of book volume, market volatility and interbank (ECN) traded volume, available in both time series and hour of the day. The Index is a linear combination of these four features in a normalised format using optimised weights.

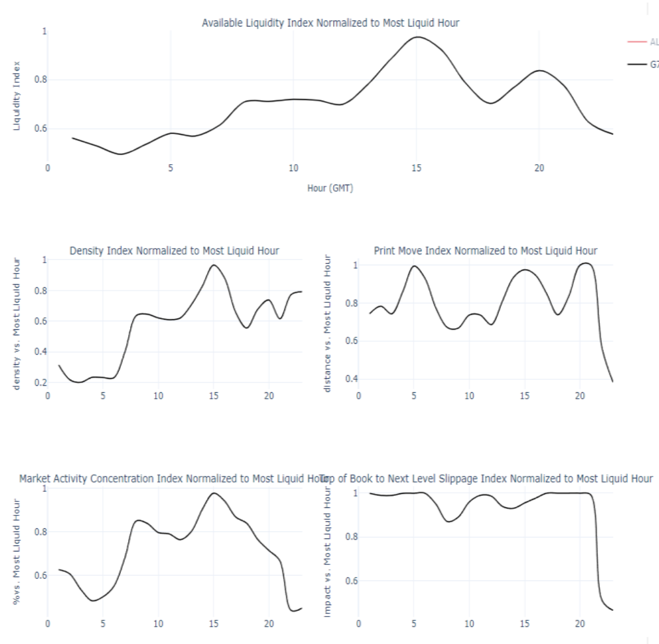
- Market Spread – average top of book spread of the primary market
- TOB Volume – average top of book visible size available on the primary venue
- Volatility – 5 minute logarithmic return of price
- ECN Volume – daily trading volume on all the trading venues HSBC has access to that provide volume data

How to read the Observable Liquidity Index?

- It is shown in two formats, time series and intraday by hour and can be run for individual currency pairs or a group of currency pairs such as G7, EM etc.
- Time series - a time series index normalised to the average of the first 5 working days in the observation window. The higher the index, the more liquid the currency pair / currency pair group is. Also shows how each of the features evolve through time
- Intraday by hour - calculated by taking the average of liquidity of each of the features by hour of day for all the days in the observation period, normalised to the most liquid hour. The closer the index is to 1, the more liquid the hour is. This is a good way to show the liquidity profile of a currency pair by the hour of day

Observable Liquidity Index

G7 Available liquidity index intraday by hour



How is this computed?

It provides a quantitative measure of liquidity by looking at more advanced features including **density**, **print moves**, **volume concentration** and **top of book to next level slippage** which are derived from market order book, market prints and market volume

- Density – average of market volume traded over 1min window divided by price move in that window
- Print move – 90th percentile of the 1-second mark-to-market price move after each print on the primary market
- Volume concentration – max of 1min volume traded as a % of the total volume traded over a 10min-window
- Top of book to next level slippage – max distance between the top of book price and the next best price

How to read the Observable Liquidity Index?

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eClient Flow Run & Alert

eClient Flow Run

- eClient Flow Run returns for comparison between today's client volume and historical average client volume (with percentage difference), breakdown by client category and currency pair
- Show direction of buy/sell on positive/negative net volume

Alerts Live Run

Ccy Pair	USDCNH
Client Category	Banks
direction	sell
Today's volume	-63.74 m
Historical Average Volume	-82.12 m
Today vs Hist (%)	-22

Feature highlight

- We We can use **"eclient flow run USDCNH banks 2023.11.08"** to answer questions such as what banks been doing in USDCNH on E. Here, we can see banks have been an active seller of USDCNH but with lower net volume vs. historical levels when they sold previously
- We can also use **"eclient flow run gross usdjpy 2023.10.27"** to see how the volumes have been across different client groups vs. historical average numbers. For example in the example below from Oct 27, we can see Retail Brokers only short $10.75MM USDJPY, much lower than historical average level

Alerts Live Run

Ccy Pair	USDJPY	USDJPY	USDJPY	USDJPY	USDJPY
Client Category	Banks	GB Corporates	Hedge Funds	Real Money	Retail Brokers
direction	buy	buy	buy	sell	sell
Today's volume	23 m	1 m	23 m	-5.71 m	-10.75 m
Historical Average Volume	19 m	23 m	43 m	-3.35 m	-63.43 m
Today vs Hist (%)	20	-95	-46	70	-83

eClient Volume Alert

- eClient Volume Alert aggregates net flow by client category and alerts if aggregated flow exceeds a user-defined threshold vs. the historical average

Feature highlight

- **"add eClientVolumeAlert usdcnh hedge fund 10mio 0%"** which triggers when the net flow for hedge funds exceeds the historical average net flow in USDCNH in either direction

Event Subscribe

Id	Event Type	Created By	parameter			
3441	eClientVolumeAlert	ZEXUAN LIU (polaris.z.liu@noexternalmail.hsbc.com)	Currency Pairs: USDCNH	Look Back Days: 30	Threshold Usd Vol: $10mio	Categories: Hedge Funds

- Triggered Alert

EClient Volume Alert

Request ID	Ccy Pair	Client Category	direction	Today's volume	Historical Average Volume	Today vs Hist (%)
3438	USDCNH	Hedge Funds	buy	93,640,223	63,288,800	47.96

Market Flow Run & Volume Spike Alert

Market Flow Run

- eClient Market Flow Run returns for gross market volume in the last 30 minutes, comparing between today's market volume and the historical average (with percentage difference), broken-down by currency pair

Feature highlight

- We can use **"market flow run G7 2023.11.02"** to look at the volume of G7 pairs on November 2nd, before the FOMC decision. We can see that ahead of FOMC, G7 pairs in general are less active, with the volumes of most of the pairs below the historical level

Alerts Live Run

Ccy Pair	AUDUSD	EURUSD	GBPUSD	NZDUSD	USDCAD	USDCHF	USDJPY
time	0 days 06:30:00	0 days 06:30:00	0 days 06:30:00	0 days 06:30:00	0 days 06:30:00	0 days 06:30:00	0 days 06:30:00
Historical average volume	2,210 m	2,633 m	700 m	449 m	517 m	219 m	4,097 m
Volume in last 30mins	60 m	73 m	42 m	42 m	45 m	7 m	278 m
Today's volume	1,361 m	1,531 m	370 m	253 m	398 m	237 m	3,101 m
Change in volume(%)	-38	-42	-47	-44	-23	+9	-24

Volume Spike Alert

- Volume Spike Alert aggregates gross volume in the market by currency pair and alerts if aggregated flow exceeds a user-defined threshold vs. the historical average volume

Feature highlight

- **"add volumeSpikeAlert usdcnh hedge fund 10mio 0%"** sends alerts to users if the market volume for USDCNH exceeds the historical average

Event Subscribe

Id	Event Type	Created By	parameter		
3443	volumeSpikeAlert	ZEXUAN LIU (polaris.z.liu@noexternalmail.hsbc.com)	Currency Pairs: USDCNH	Look Back Days: 30	Threshold Usd Vol: $10mio

- Triggered Alert

Volume Spike Alert

Request ID	Ccy Pair	Historical average volume	Volume in last 30mins	Today's volume	Change in volume(%)
3443	USDCNH	5,408,928,016	393,112,196	6,582,956,101	21.71

Appendix – Client Categories

See below the list of client categories for input, more than one category could be selected for query

Client Categories

- Banks
- Brokers
- CMB
- GB Corporates
- Hedge Funds
- Real Money
- Retail Brokers
- Sovereign Wealth Funds

User Input

- Select single category
  (i.e. GB Corporates)
  OR
- Link multiple client categories by "&" or ","
  (i.e. Banks, Brokers & CMB)

Appendix – Alert Management

Functions allowing users to easily manage their subscripted alerts on AI markets

Rule 1

"Show alert" → show all available alerts

Event Type → insert (eClientVolumeAlert/volumeSpikeAlert) to show specific list of alerts

Sample Input

show volumespikealert alert

Id	Event Type	Created By
2724	volumeSpikeAlert	Sin Yam Gordon Ho (gordon.s.y.ho@hsbc.com.hk)
2725	volumeSpikeAlert	Sin Yam Gordon Ho (gordon.s.y.ho@hsbc.com.hk)

Rule 2

Delete alert xxxx (alert ID) → delete specific alert

If desire to delete more than one alert → link up all alert IDs with ","

Delete alert all → delete all available alerts

Delete Event Type Alert all → delete all available alerts for the specific event

Sample Input

delete volumespikealert alert 2725

Id	Event Type	Created By
2724	volumeSpikeAlert	Sin Yam Gordon Ho (gordon.s.y.ho@hsbc.com.hk)

Appendix – Currency Pairs

See below the list of currency pairs/groups for input, more than one pair/group could be selected for query

Currency Groups

- **Scandie** = {EURSEK; EURNOK; EURDKK}
- **CE** = {EURRON; EURHUF; EURPLN; EURCZK}
- **ASIA** = {USDSGD; USDCNH; USDHKD; USDTHB}
- **EM** = {USDTRY; USDMXN; USDZAR; USDILS}
- **G7** = {EURUSD; USDJPY; USDCHF;AUDUSD; NZDUSD; GBPUSD; USDCAD}
- **Metals** = {XAUUSD; XAGUSD; XPTUSD;XPDUSD}
- **NDF** = {USDIDR; USDINR; USDKRW; USDPHP; USDTWD}

User Input

- Select single currency pair
  (i.e. EURUSD)
  OR
- Select single group:
  (i.e. Asia)
  OR
- Link multiple currency pairs/groups by "&" or ","
  (i.e. Asia & EURUSD)

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