

July 2023

FX Market Structure Monthly

CHANGES IN SPREAD AND VOLATILITY FOR MAJOR MARKET PAIRS

FX spreads widened across the board in July, although not quite as sharply as in June. In July, 17 of the 23 pairs that we monitor, including four of the seven majors, recorded wider spreads in the 12:00-16:00 GMT trading window. Last month, 21 out of the 23 pairs registered wider spreads. Volatility in the pre-WMR trading window remained constant, increasing for 12 of 23 pairs this month, compared to increasing for 15 of 23 pairs in June.. After the uptick in spreads for the past two months, spreads for 17 pairs are wider now than three months ago but only four pairs including the EUR.USD have wider spreads than six months ago. No pair has wider spreads than 12 months ago.

READING THE RESULTS

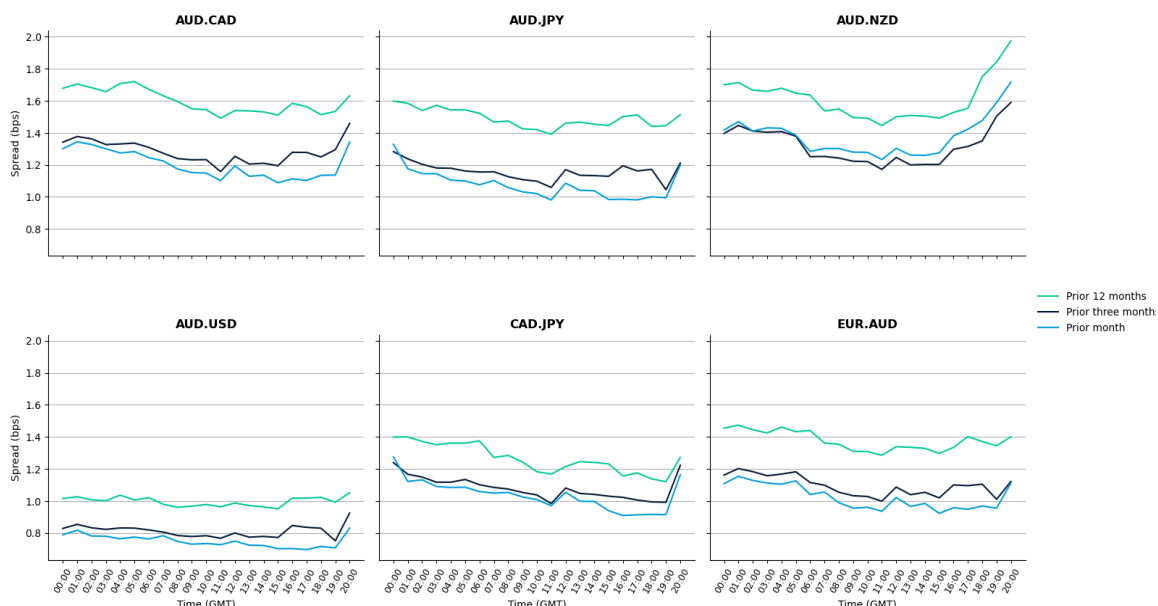
On the intraday charts, the green line represents the average spread or volatility for the past 12 months, the black line represents the past three months, and the blue line represents the past month. On the daily charts, the green area represents the 95th percentile confidence interval for the spread and volatility, showing the stability of the calculated median value.

SPREADS

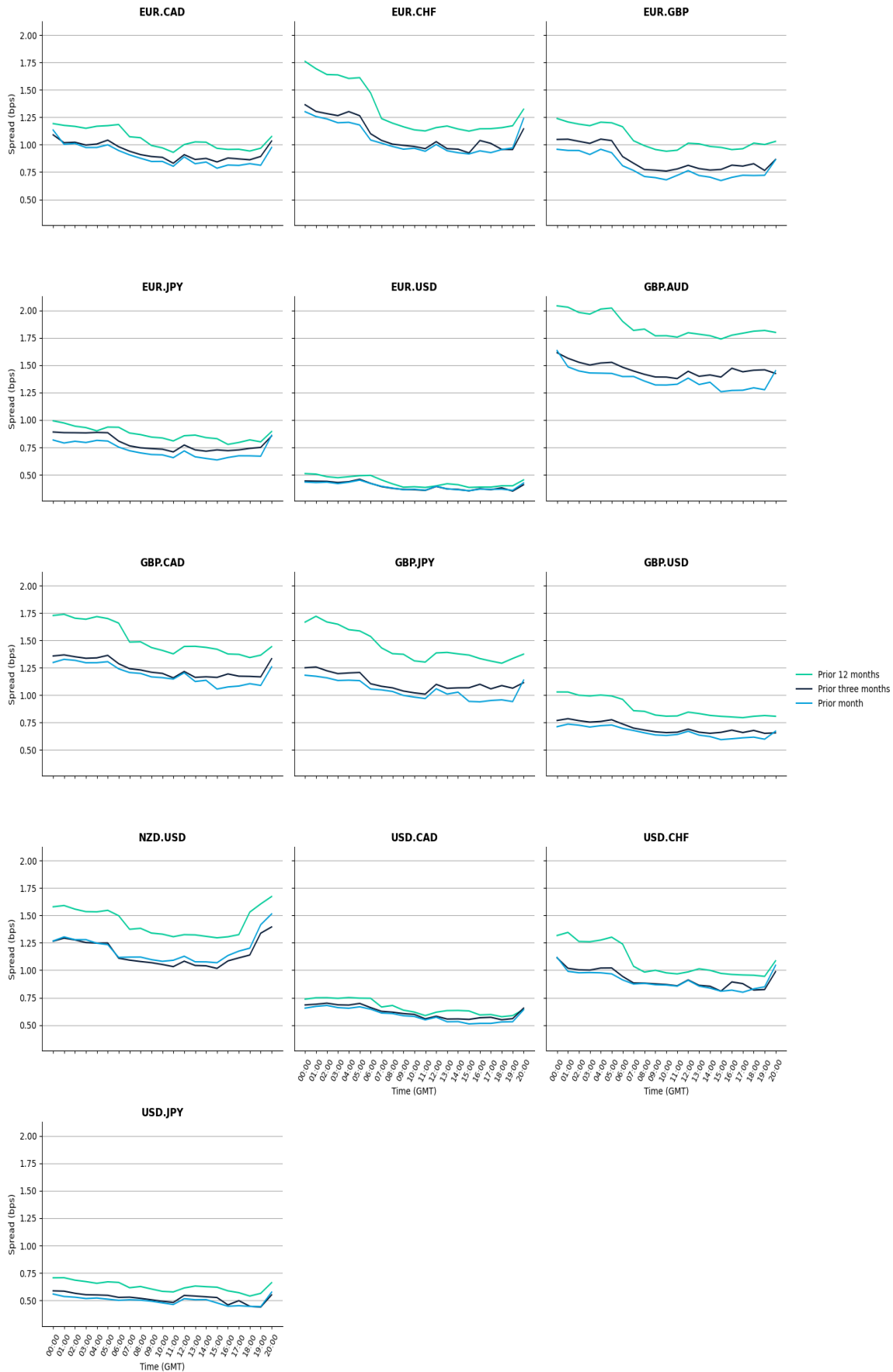
We've posited that increases in interest rates could lead to wider spreads as dealer's inventory costs increase. In late June, both the Norwegian and Swedish central banks increased their reference rates. But, contrary to our hypothesis, the pre-WMR trading spreads for the USD.NOK, USD.SEK, EUR.NOK and EUR.SEK fell by about two bps after the news broke. In July spreads remained at their lower levels. Next month we will have more data to comment on Japan's changes to its yield curve control policy to see how that affected quoted and realized spreads.

G-10 Currency Pairs: Average Hourly Spread, 00:00-20:00 GMT

Comparison over the past month, three months and year



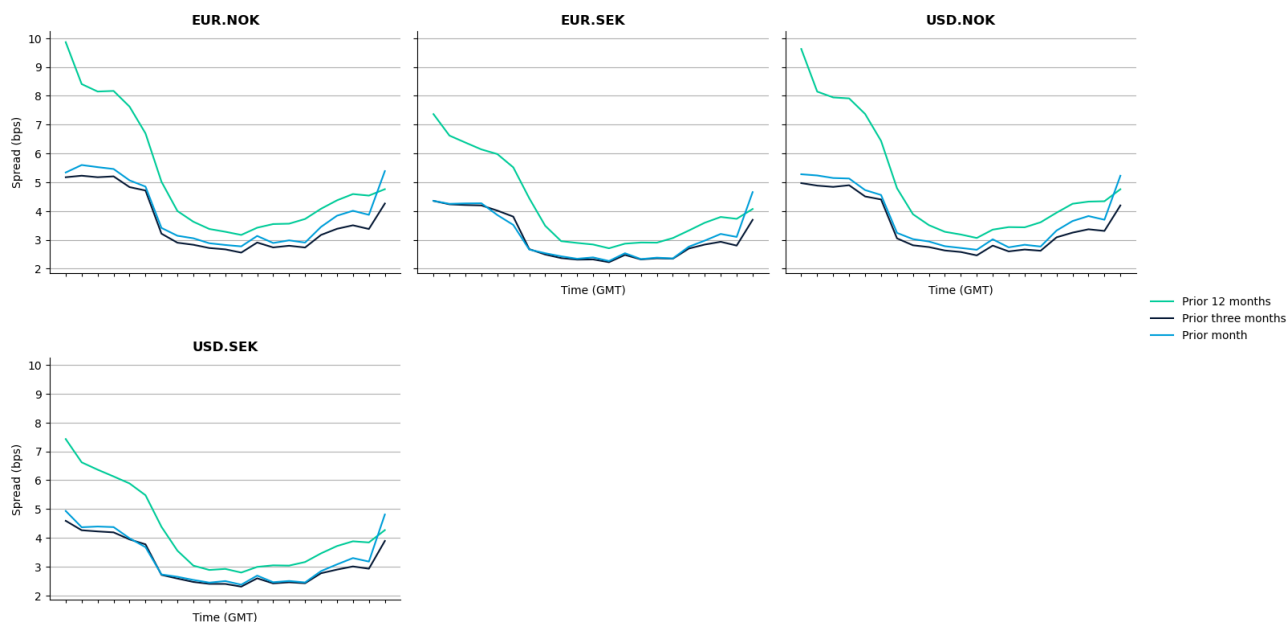
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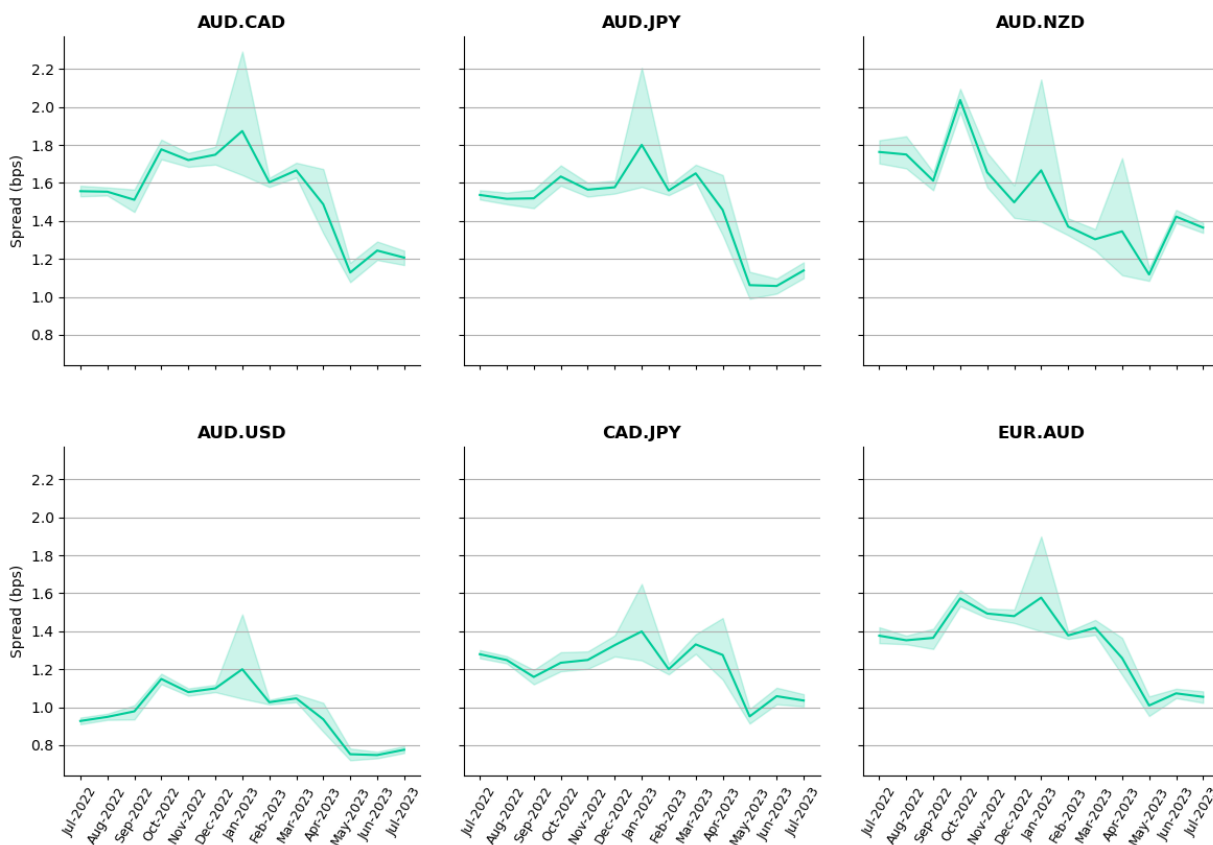
All chart sources: Virtu Financial, 2023. Spread and volatility calculations are derived from sources that Virtu believes to be reliable, but Virtu does not make any claims to its accuracy. USD.NOK, USD.SEK, EUR.NOK and EUR.SEK are shown in separate exhibits.



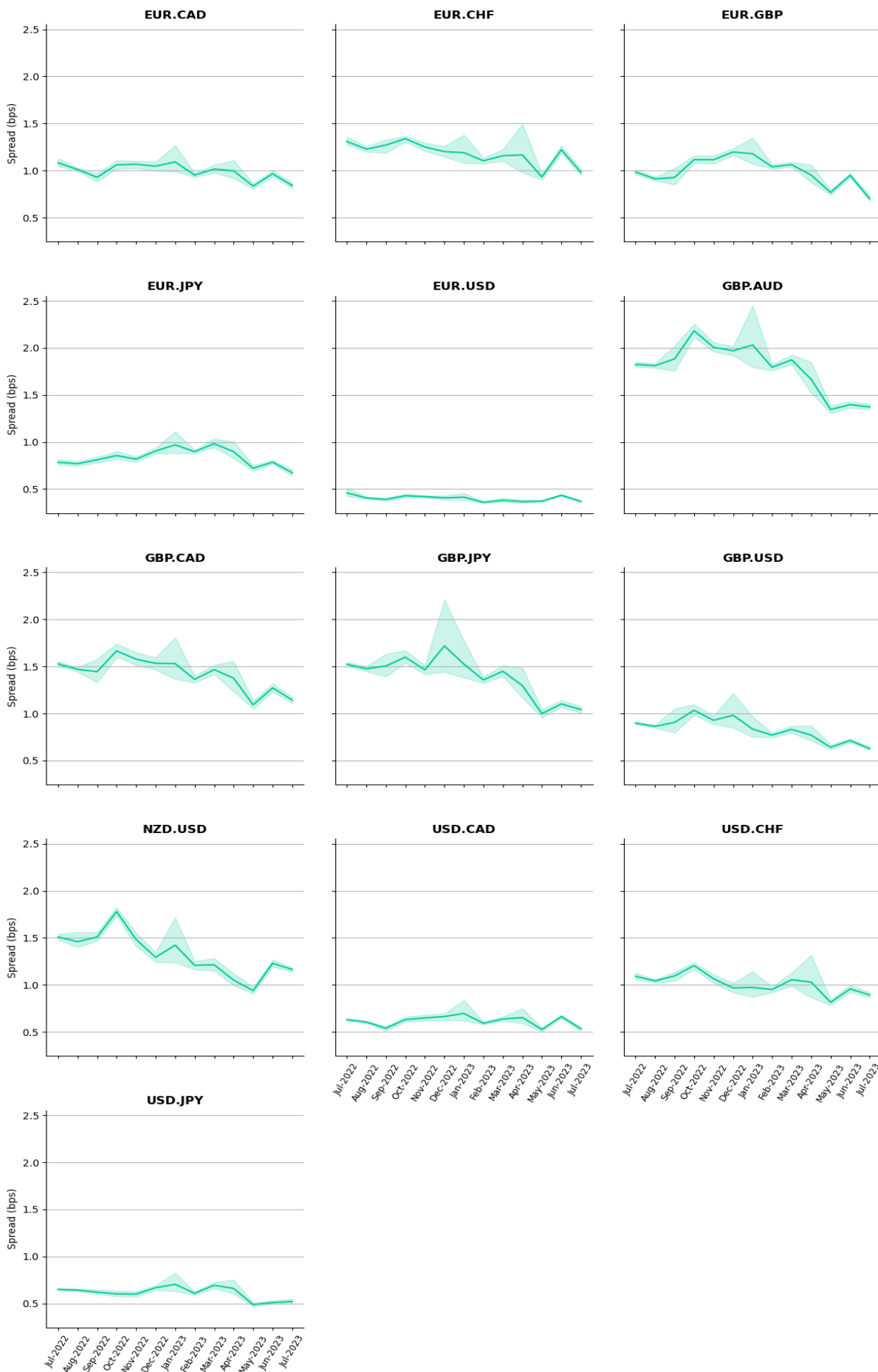
Scandinavian G-10 Currencies: Average Hourly Spread, 00:00-20:00 GMT Comparison over the past month, three months and year



G-10 Currencies: Average Daily Spread, 12:00-16:00 GMT July 2022-July 2023



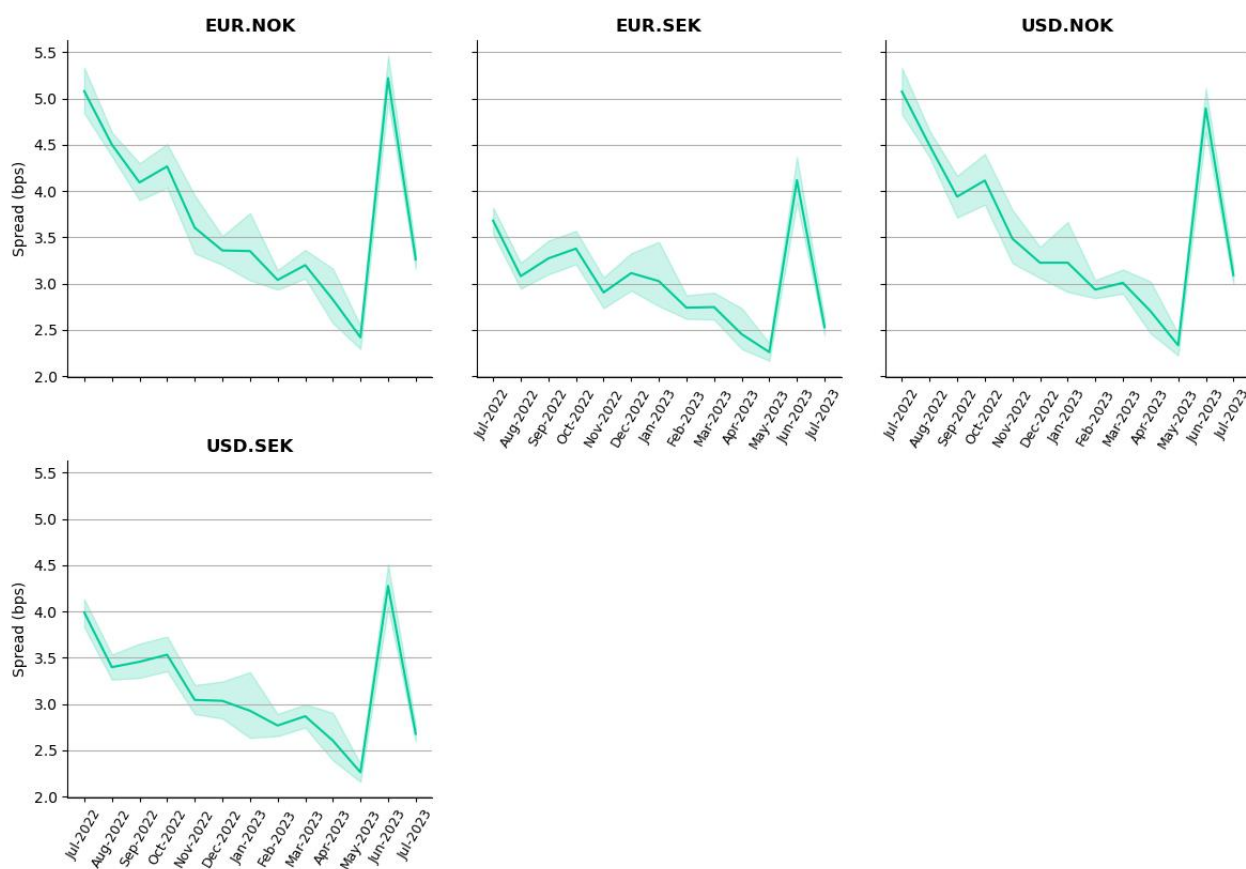
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Scandinavian G-10 Currencies: Average Daily Spread, 12:00-16:00 GMT July 2022- July 2023



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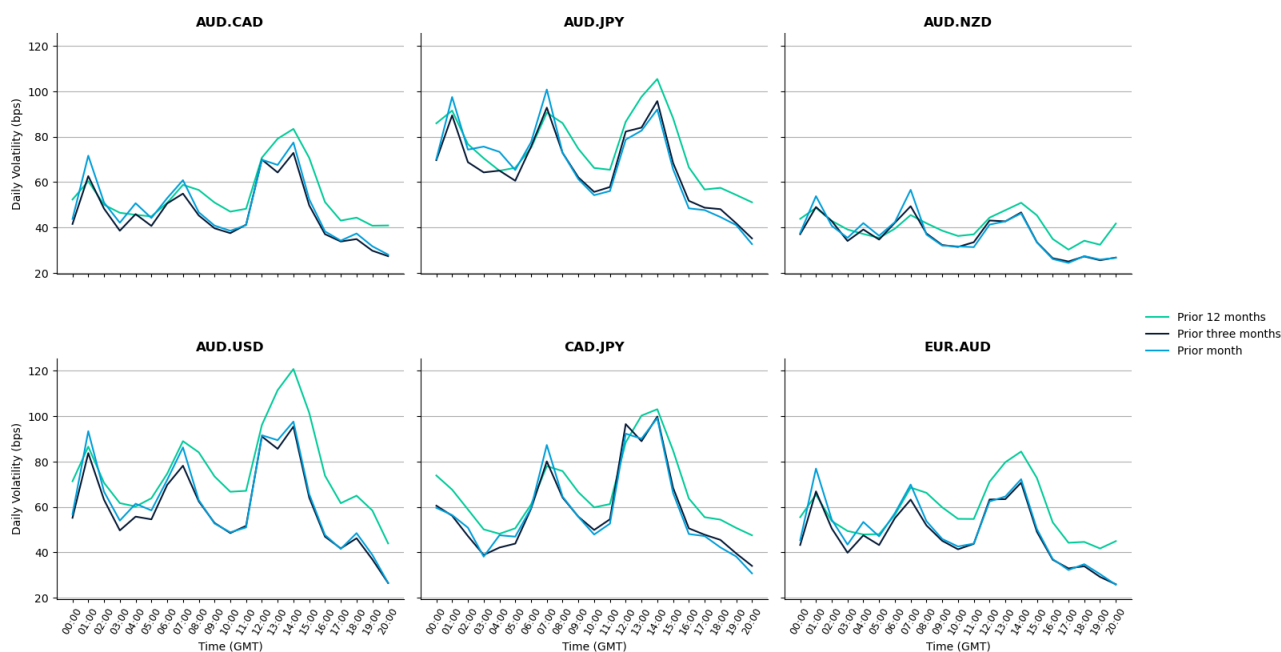


VOLATILITY

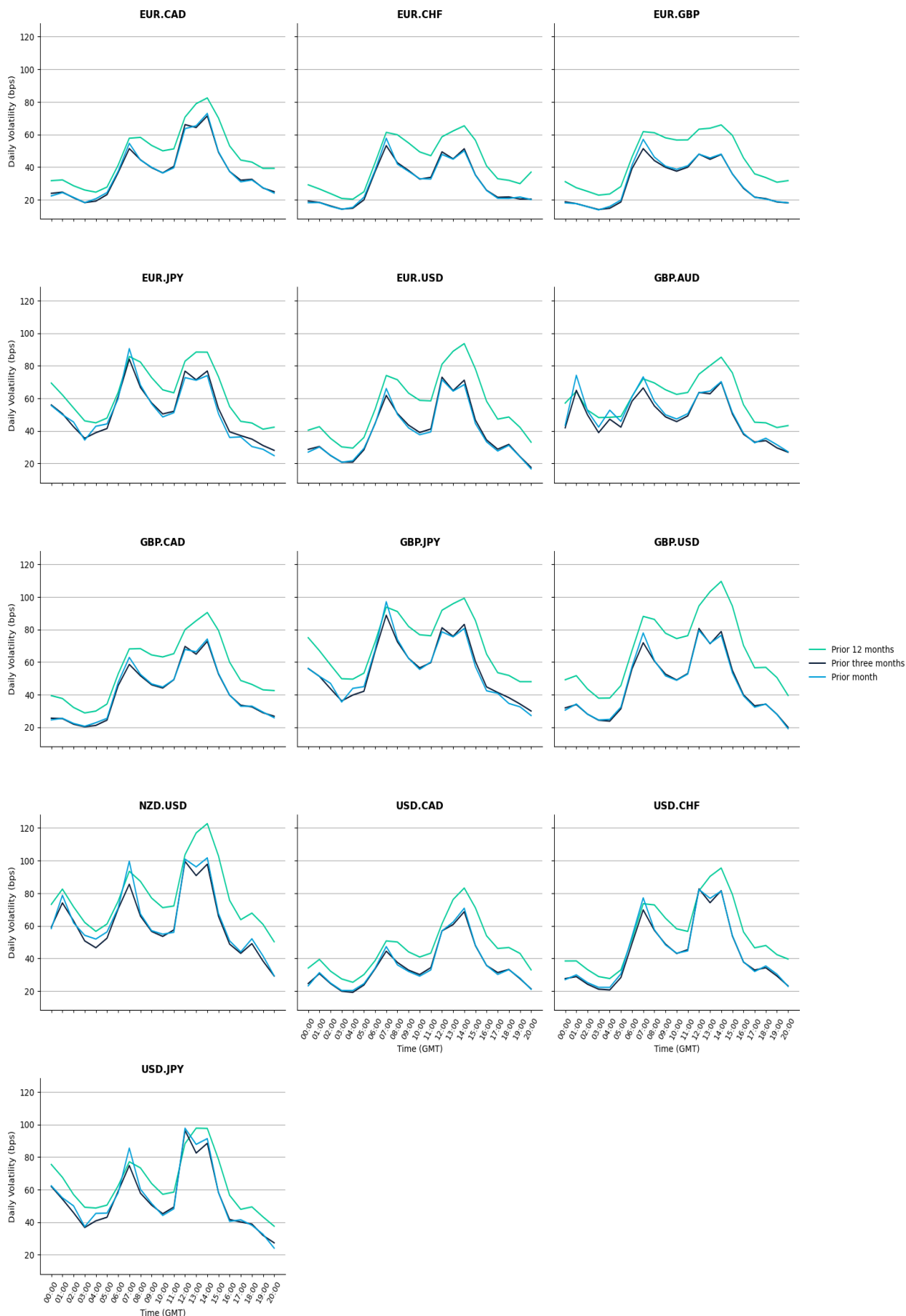
Daily FX spread volatility increased for 12 of the 23 pairs in the 12:00-16:00 GMT pre-WMR trading window after increasing for 15 pairs in June. Among the majors, volatility rose for AUD.USD, NZD.USD and USD.JPY when compared to one- and three-months ago. USD.JPY volatility was higher in July than at any time in the prior 12 months. Note the BOJ announced the changes to its yield curve control policy late in July. We're expecting a further increase in volatility for all JPY pairs in August.

On an intraday basis, we observed an increase in intra-day volatility in Asian, European and North American trading hours for nearly all JPY pairs, particularly the USD.JPY and EUR.JPY. Across all 23 currencies, 20 had higher volatility during Tokyo trading hours, the sharpest increase in volatility among the three regions. Volatility in New York desk hours, particularly after the 16:00 GMT WMR Fixing fell for most pairs most likely reflecting the slower pace of financial markets in July.

G-10 Currencies: Average Hourly Volatility, 00:00-20:00 GMT Comparison over the past month, three months and year



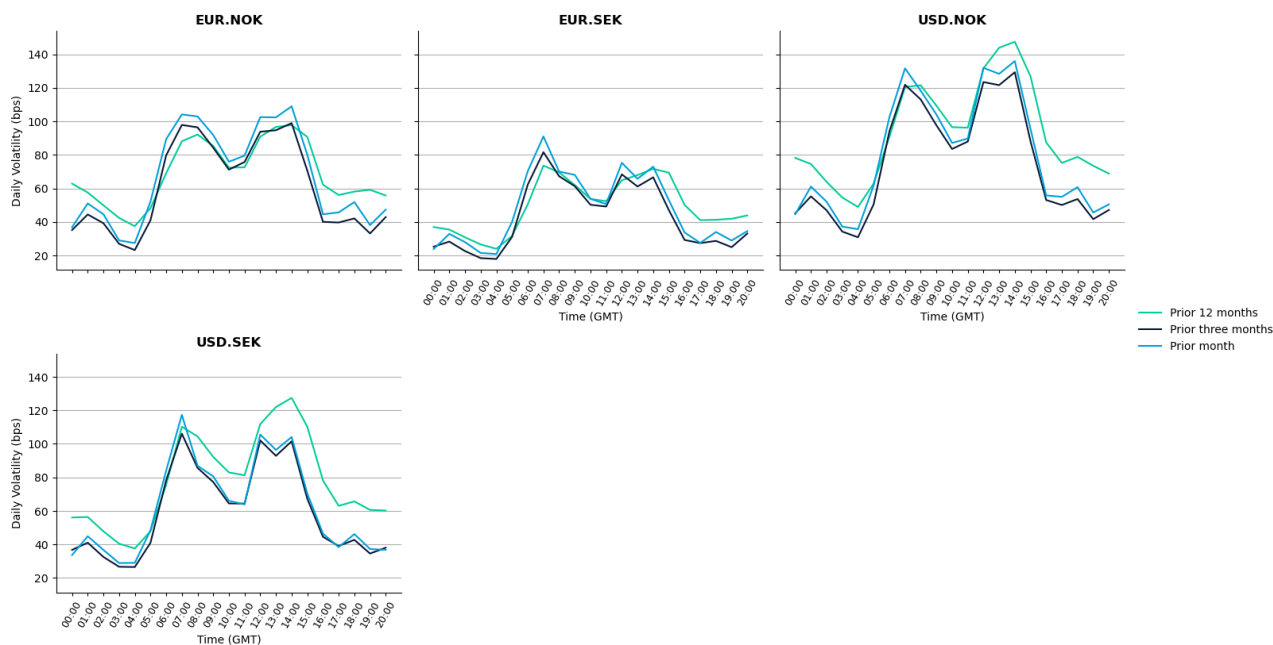
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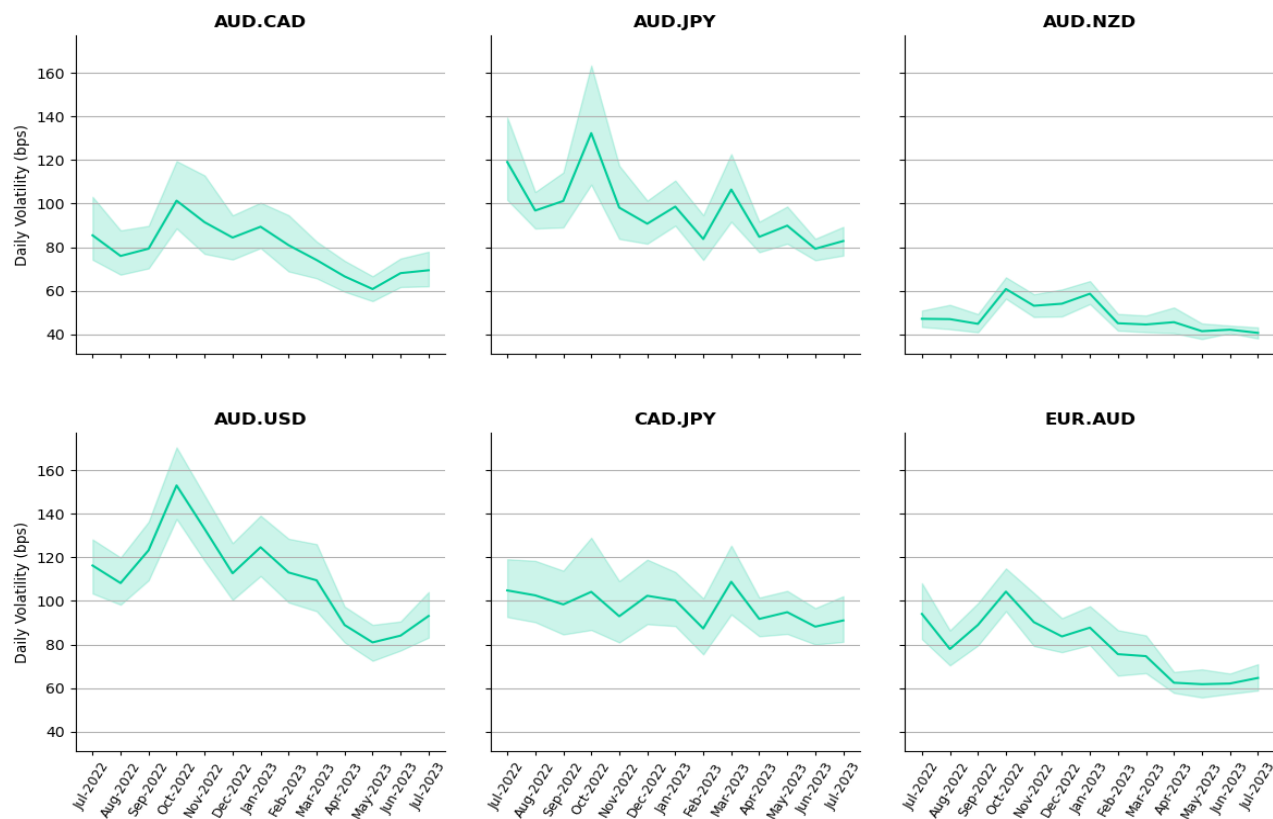
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Scandinavian G-10 Currencies: Average Hourly Volatility, 00:00-20:00 GMT Past month, three months and year

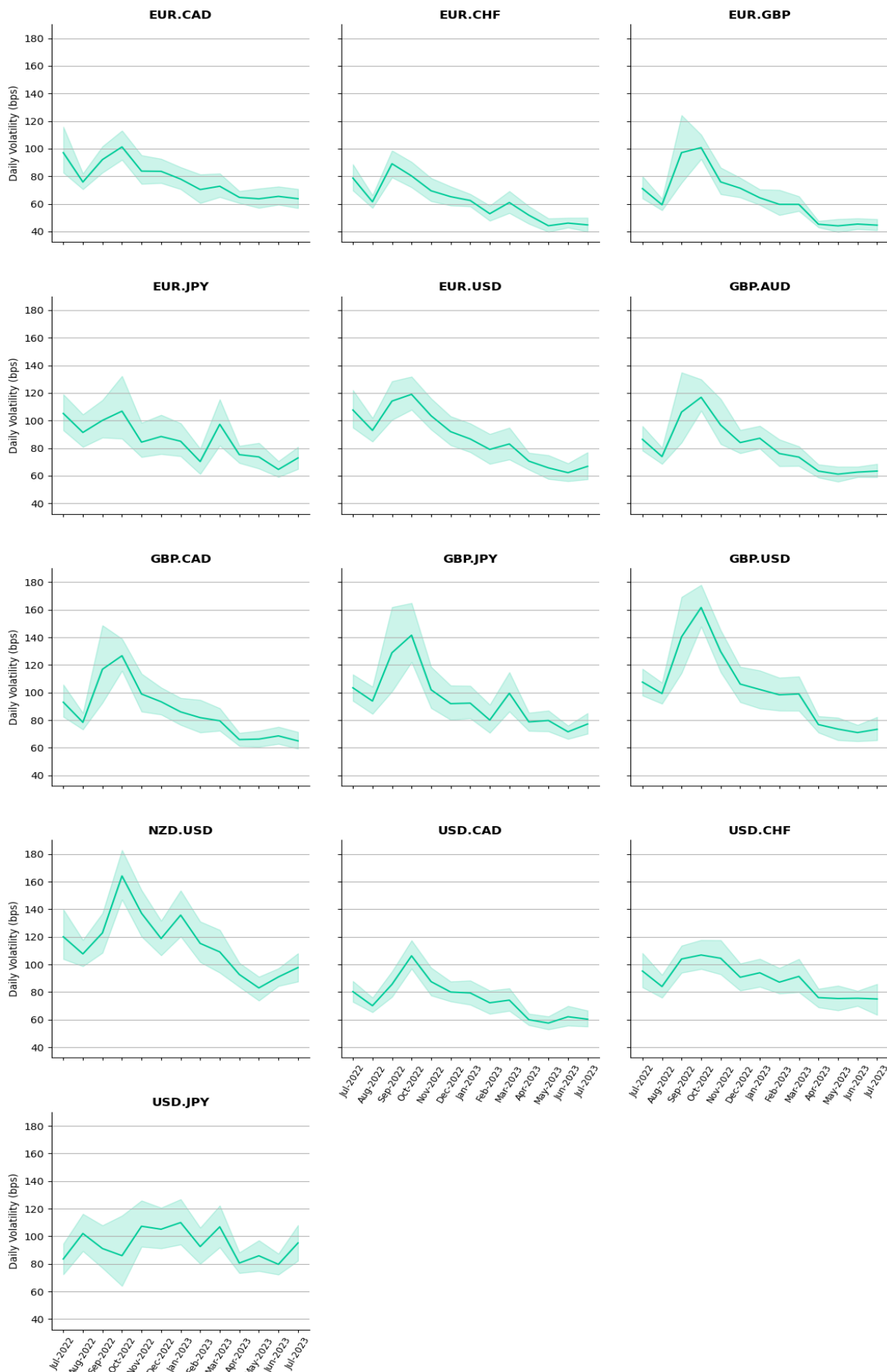


G-10 Currencies: Average Daily Volatility, 12:00-16:00 GMT July 2022-July 2023



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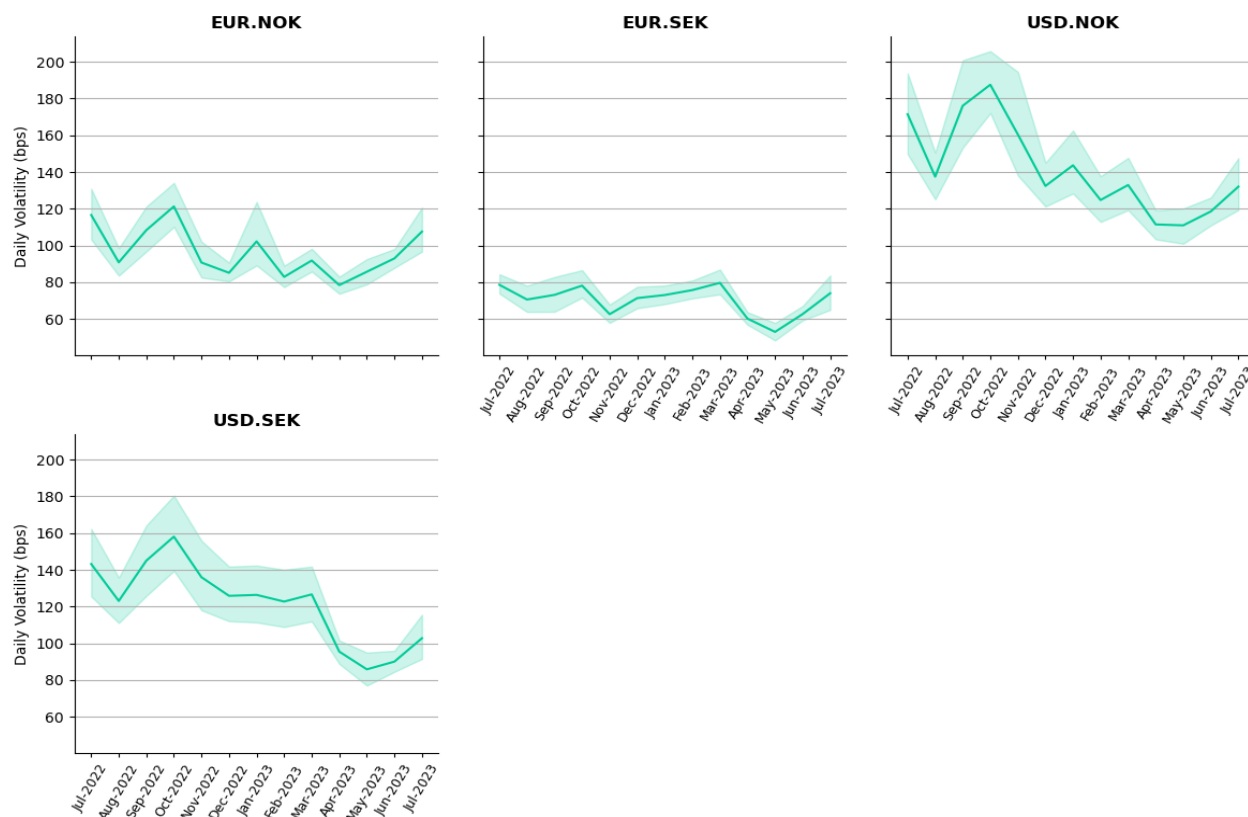
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Scandinavian G-10 Currencies: Average Daily Volatility, 12:00-16:00 GMT July 2022-July 2023



Have questions? To learn more, contact your regional Virtu Analytics representative.
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