

December 2021

FX Market Structure Monthly

CHANGES IN SPREAD AND VOLATILITY FOR MAJOR MARKET PAIRS

Looking at the enclosed charts, FX spreads widened in December throughout the trading day for most of the 23 G-10 pairs as the Omicron variant spread globally. Volatility did not increase as sharply. Spreads widened for 21 of the 23 pairs during the four hours prior to the WMR Fixing trading window, continuing November's trend. In December, 20 pairs recorded wider spreads than three months ago and 19 pairs had wider spreads than six months ago. Among the majors, spreads increased for all but GBP.USD while volatility increased for only EUR.USD.

Intraday spreads increased for all pairs during Tokyo and London trading desk hours. In New York, spreads were not uniformly higher, with spreads for the GBP.USD and GBP.CAD narrowing during US desk hours.

READING THE RESULTS

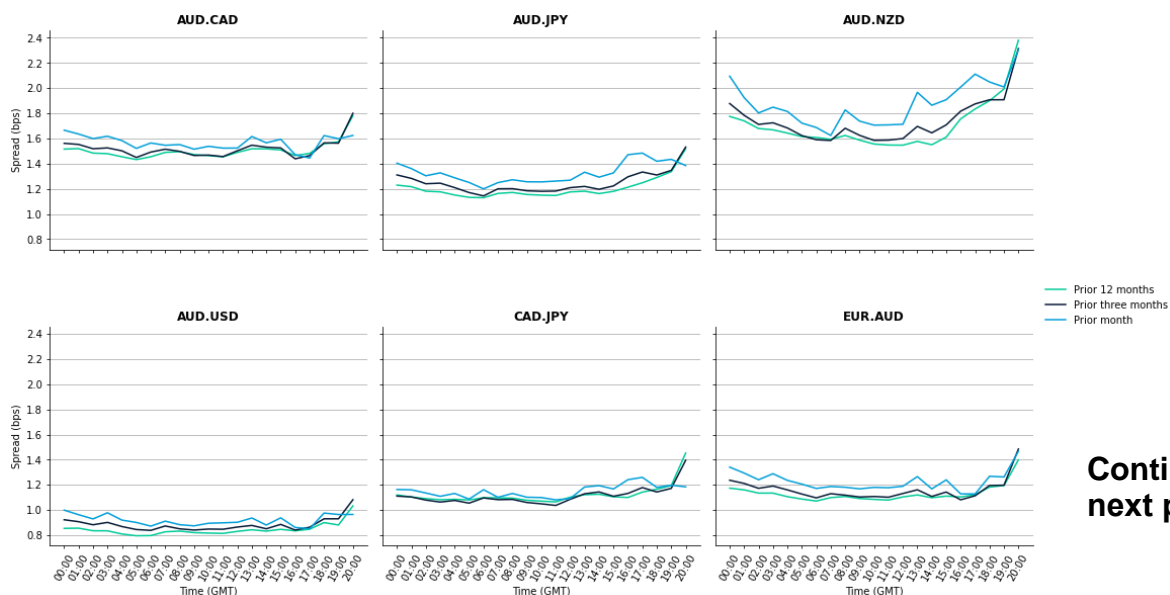
In the intraday charts, the green line presents the average spread or volatility for the past 12 months, the black line is the past three months and the blue line is for the past month. On the daily charts, the green area represents the 95th percentile confidence interval for the spread and volatility,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

SPREADS

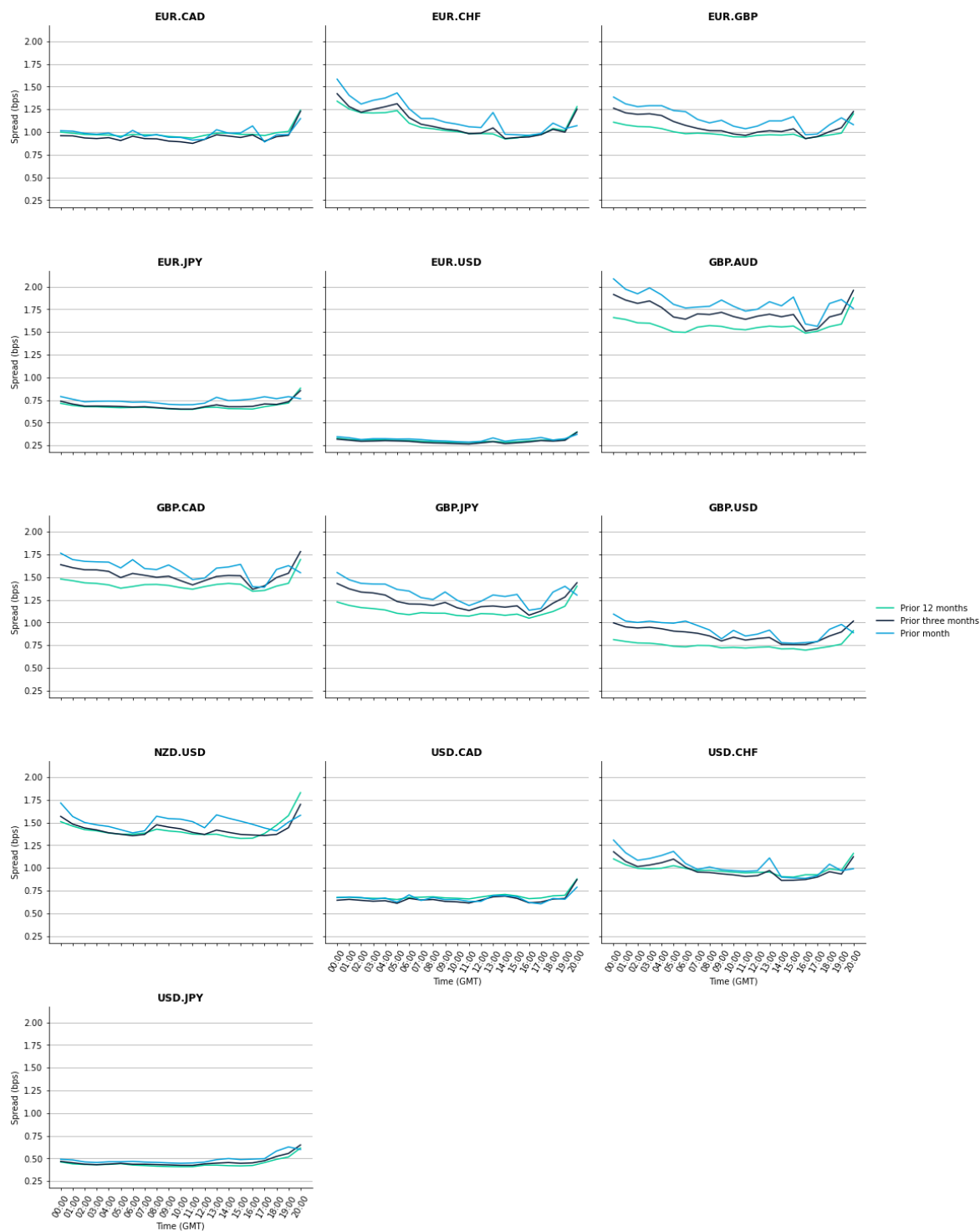
- Average hourly spreads increased consistently for all but the GBP.USD and GBP.CAD. Spreads are higher than six months ago for all but the USD.CAD and EUR.CAD.
- In December, spreads for the four Scandinavian pairs widened. Only the EUR.NOK trades at tighter levels globally than three or six months ago.

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

Comparison over the past month, three months and year



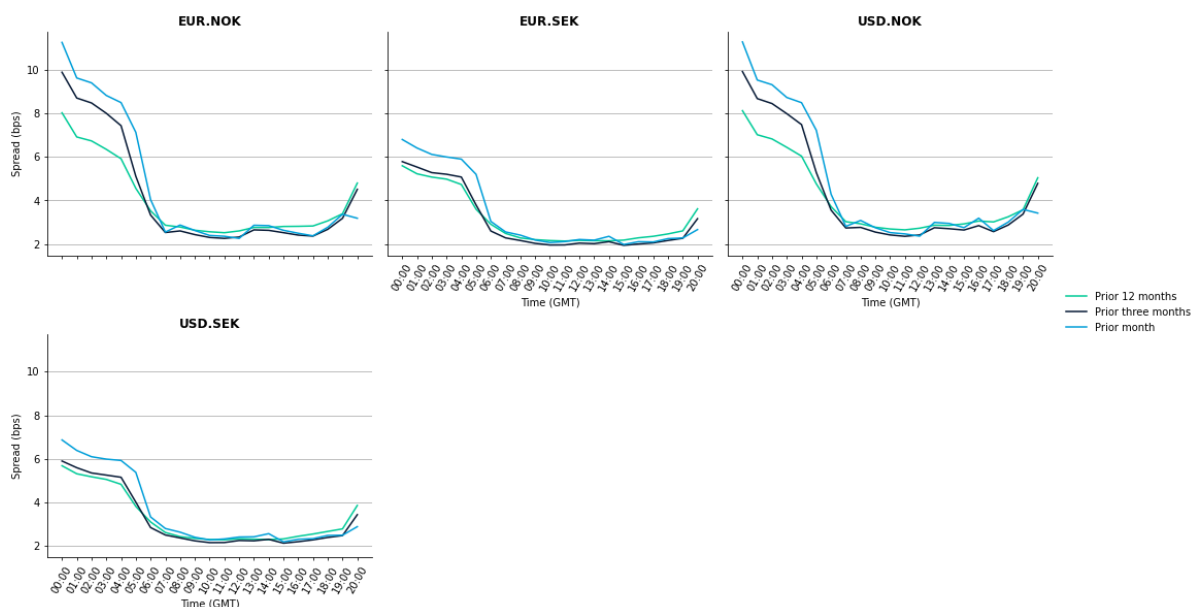
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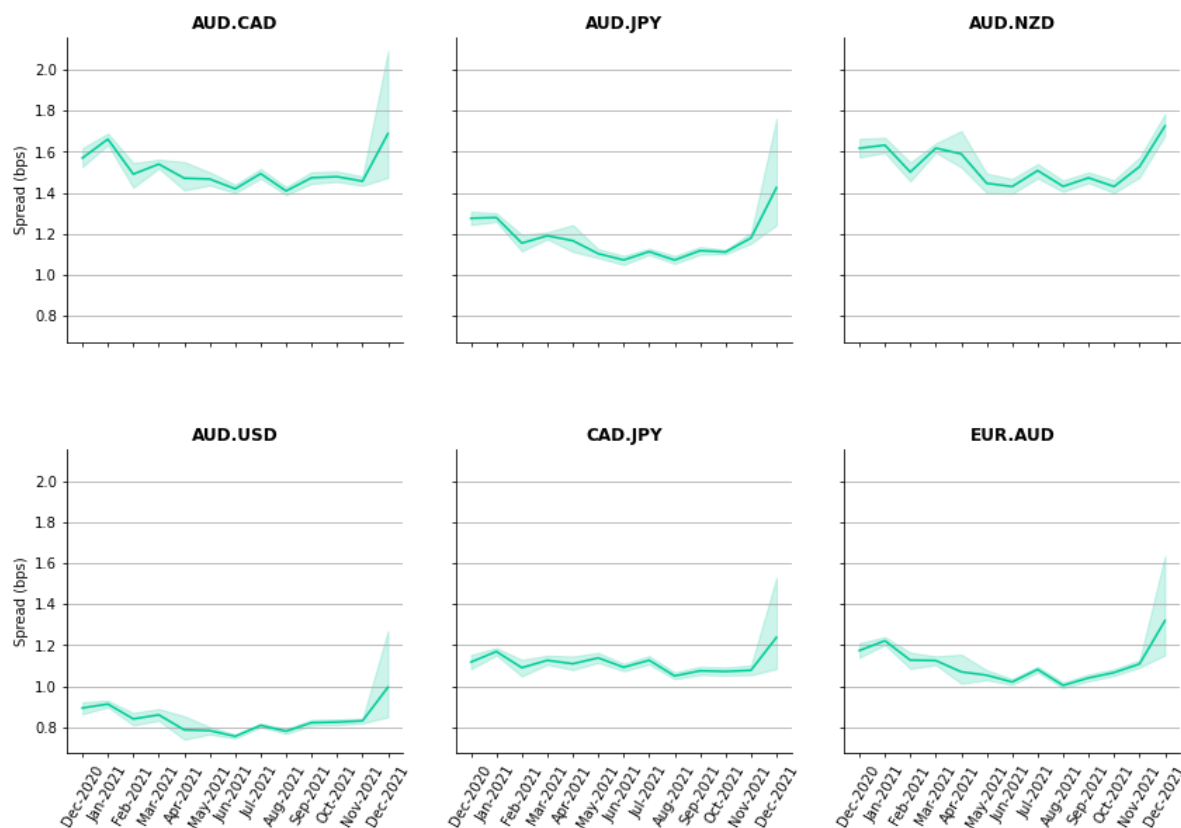
All chart sources: Virtu Financial, 2022. Spread and volatility calculations are derived from sources that Virtu believes to be reliable, but Virtu does not make any claims to its accuracy. USD.NOK, USD.SEK, EUR.NOK and EUR.SEK are shown in separate exhibits.



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 December 2020-December 2021



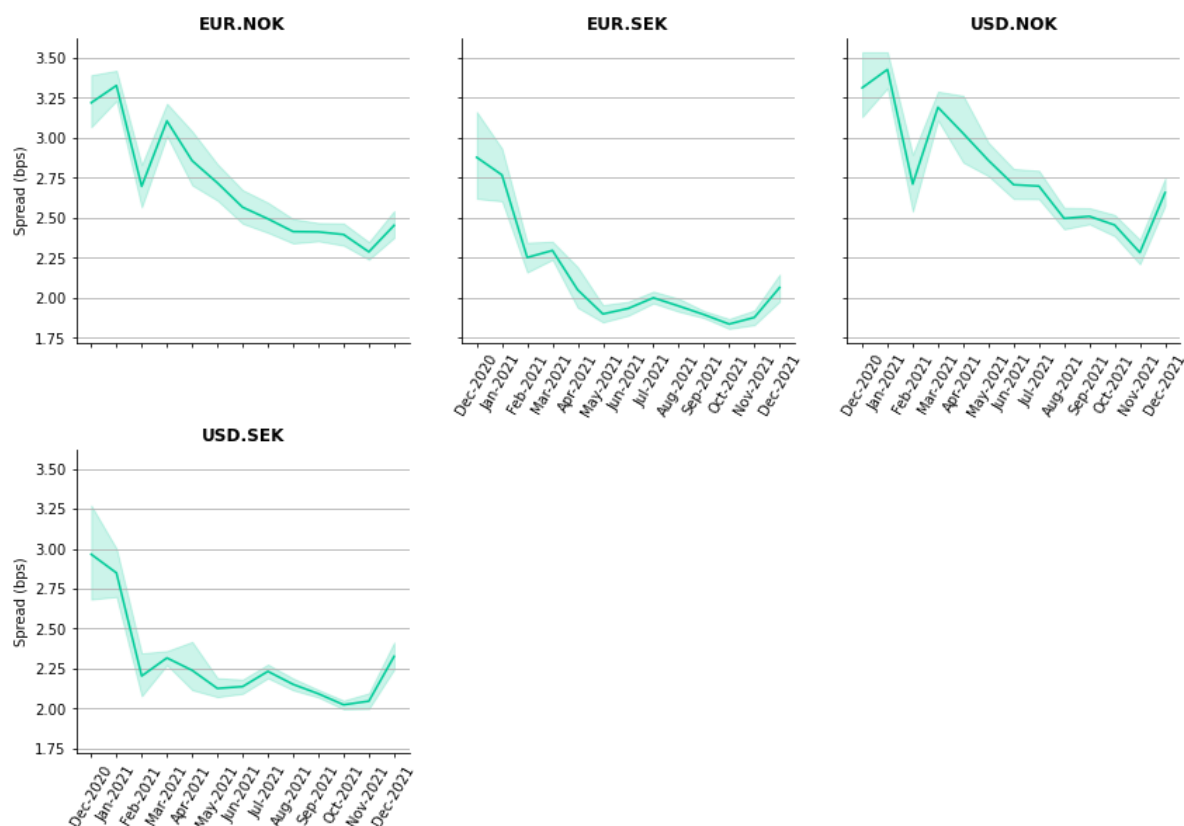
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Scandinavian G-10 Currencies: Average Daily Spread, 12:00-16:00 GMT December 2020-December 2021



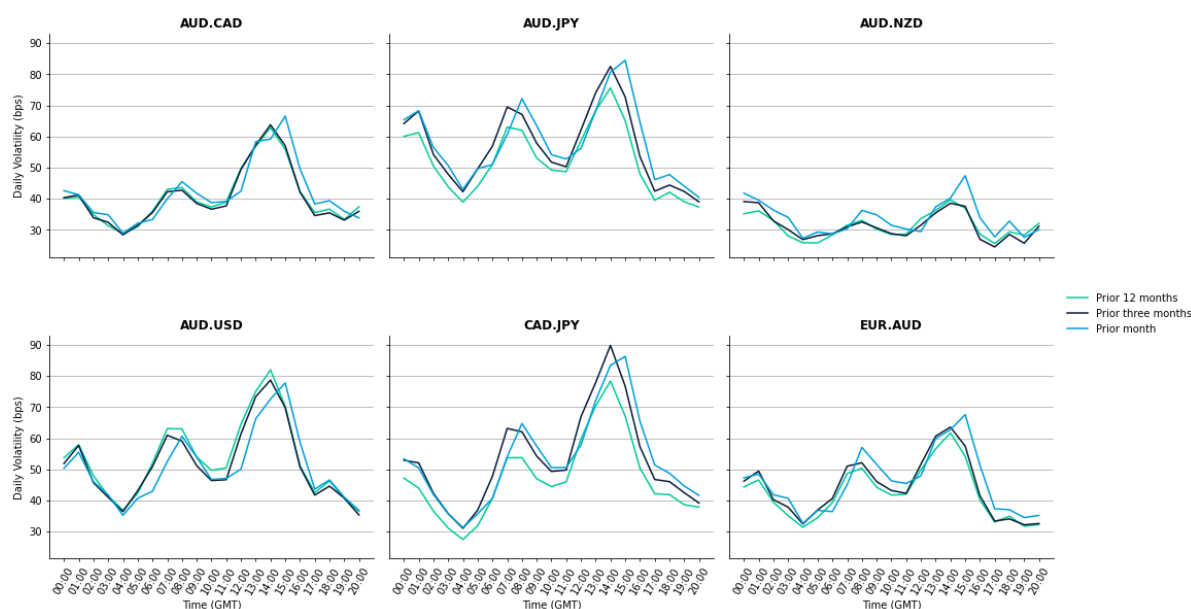


VOLATILITY

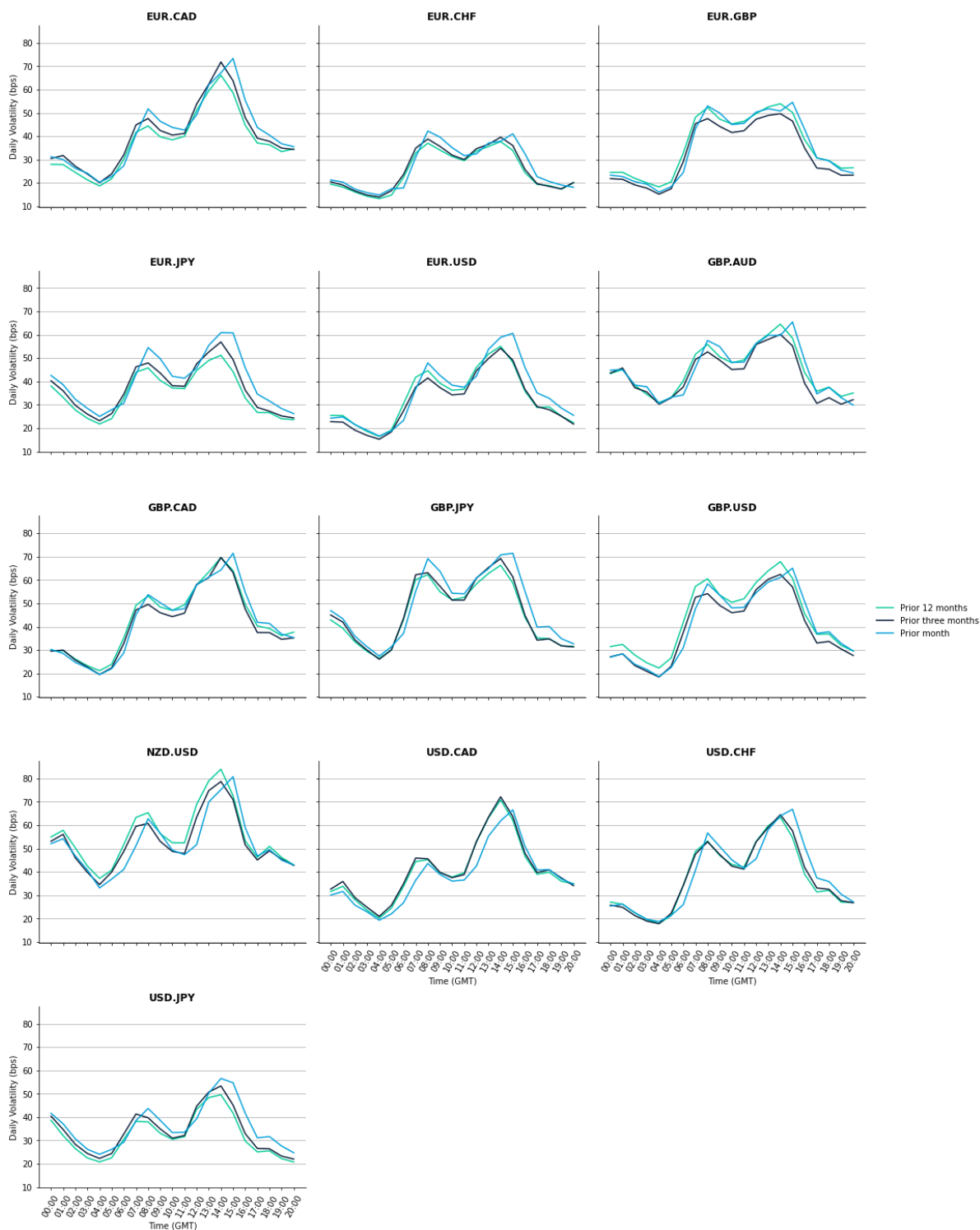
- In an unusual pattern, intra-day volatility for the major pairs was subdued in December while it increased for the minor and the Scandinavian pairs. While volatility remained the same or dropped for the EUR.USD, GBP.USD and USD.JPY, it rose uniformly for AUD.JPY, CAD.JPY, EUR.AUD, EUR.CAD and GBP.CAD.
- Over the 12:00-16:00 GMT pre-WMR Fixing trading window, volatility increased for 14 of 23 pairs compared to last month. Relative to three months ago, volatility during the pre-WMR Fixing trading window is higher for 14 pairs. December's volatility was higher than the average daily volatility recorded by 19 pairs six months ago.
- Among the Scandinavian pairs, volatility rose for all four pairs during both pre-WMR Fixing trading and more generally throughout London desk hours. Intra-day volatility for all four pairs is higher now than three or six months ago.
- For the month, intra-day volatility was muted during Tokyo hours but increased as New York and London opened. From 00:00 to 10:00 GMT, on average, volatility for eight of 23 pairs rose. But, from 10:00 to 20:00 GMT, average daily volatility for 15 pairs rose.

G-10 Currencies: Average Daily Volatility, 00:00-20:00 GMT

Comparison over the past month, three months and year

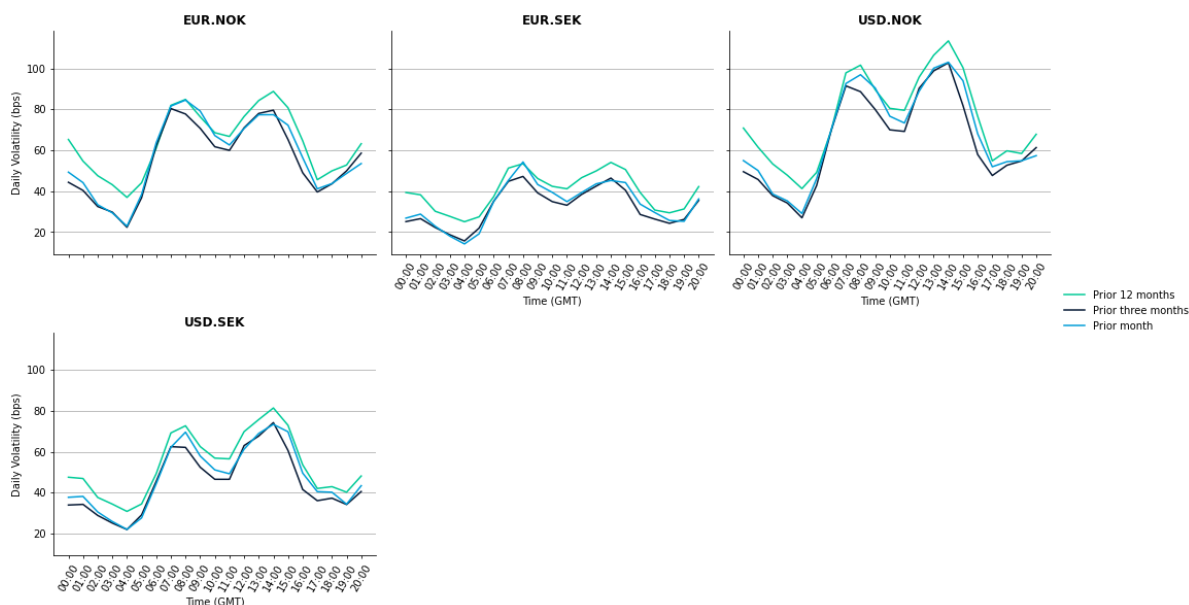


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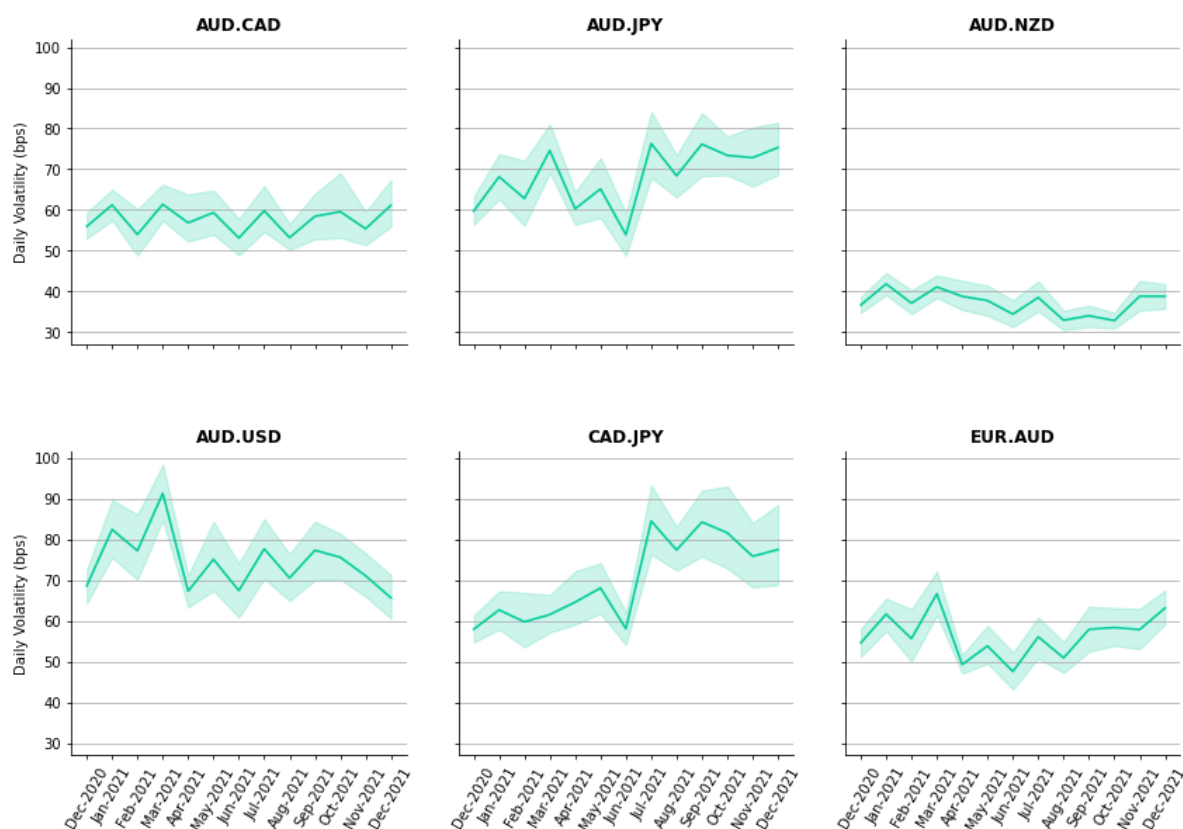




Scandinavian G-10 Currencies: Average Daily Volatility, 00:00-20:00 GMT Past month, three months and year



G-10 Currencies: Average Daily Volatility, 12:00-16:00 GMT December 2020-December 2021



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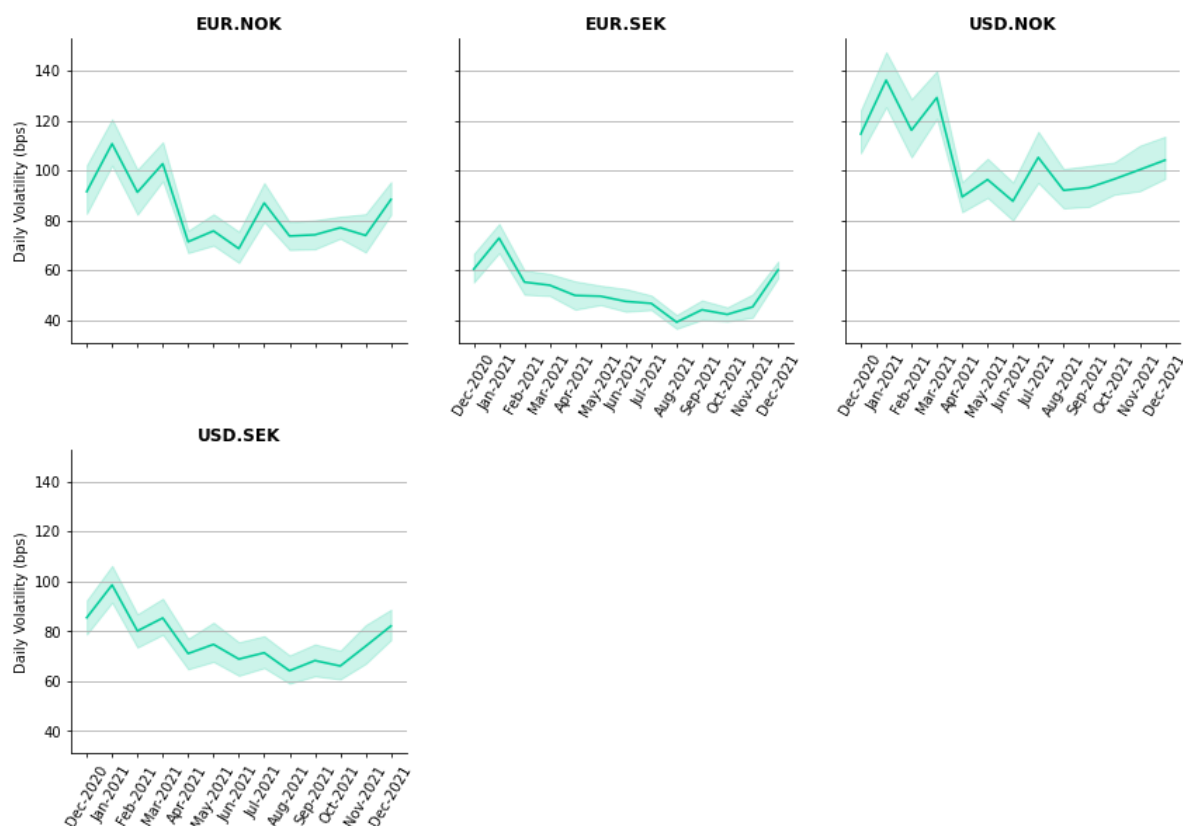
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Scandinavian G-10 Currencies: Average Daily Volatility, 12:00-16:00 GMT December 2020-December 2021



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

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