

February 2022

FX Market Structure Monthly

CHANGES IN SPREAD AND VOLATILITY FOR MAJOR MARKET PAIRS

FX spreads remained remarkably calm in February 2022. Volatility spiked for all currencies in our universe in the 24 hours following Russia’s initial assault on Ukraine. After the initial increase, volatility fell but remained elevated compared to pre-invasion levels. In our complete universe of 151 pairs, volatility for USD.TRY and EUR.TRY rose the most. Any reader interested in a more in-depth review of FX rates should contact their Virtu or Virtu Analytics representative directly.

READING THE RESULTS

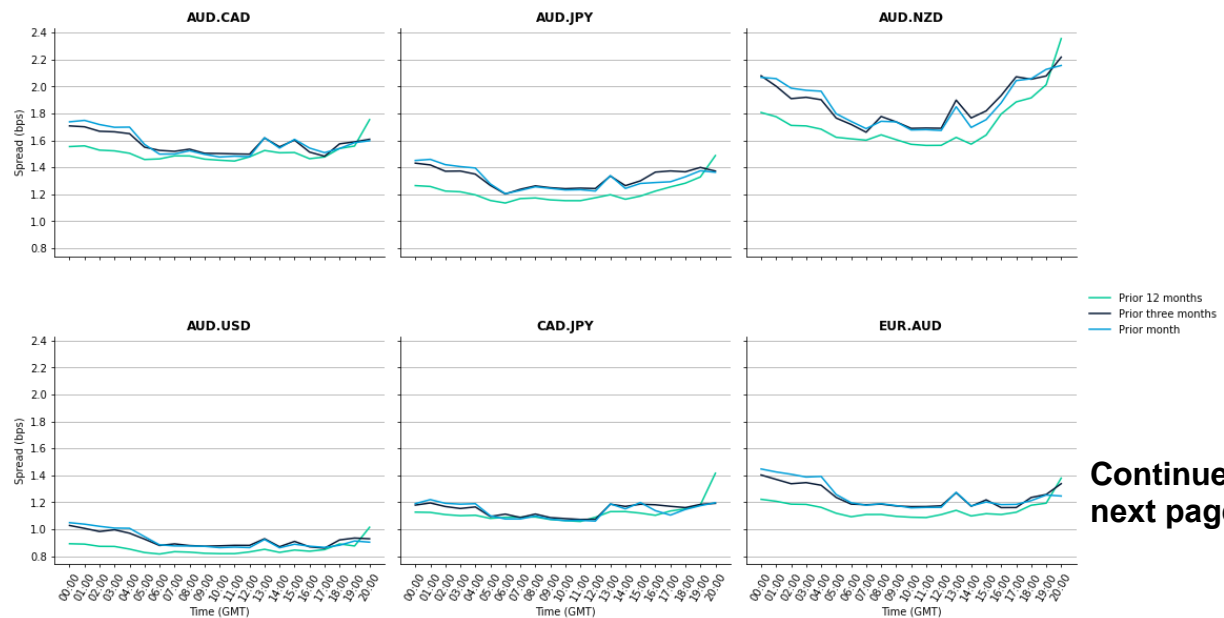
In the intraday charts, the green line presents the average spread or volatility for the past 12 months, the black line is for the past three months and the blue line is for the past month. On the daily charts, the green area represents the 95th percentile confidence interval for the spread and volatility,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

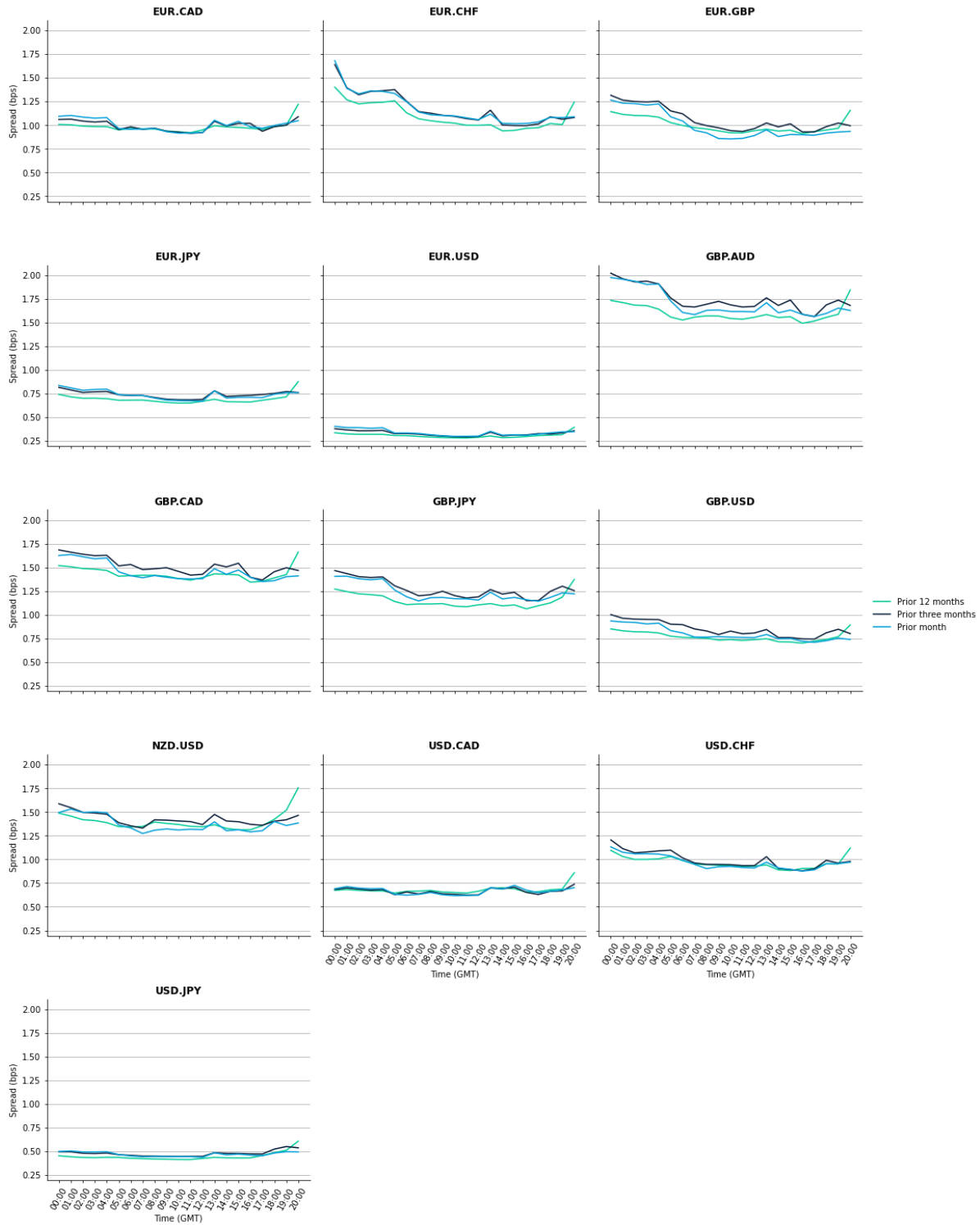
SPREADS

- On an hourly basis, four pairs: EUR.USD, USD.JPY, EUR.SEK and USD.SEK recorded wider spreads throughout the trading day.
- Spreads were, on average, consistently narrower for CAD, CHF and GBP versus nearly all other currencies.
- All four Scandinavian pairs continue to trade at wider 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

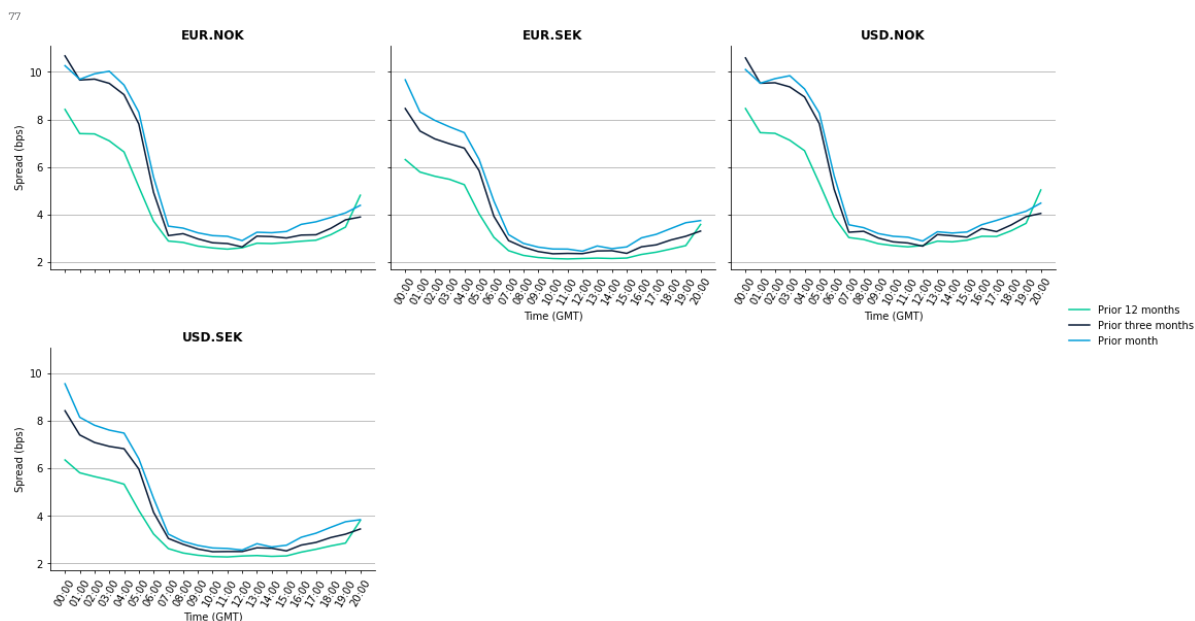




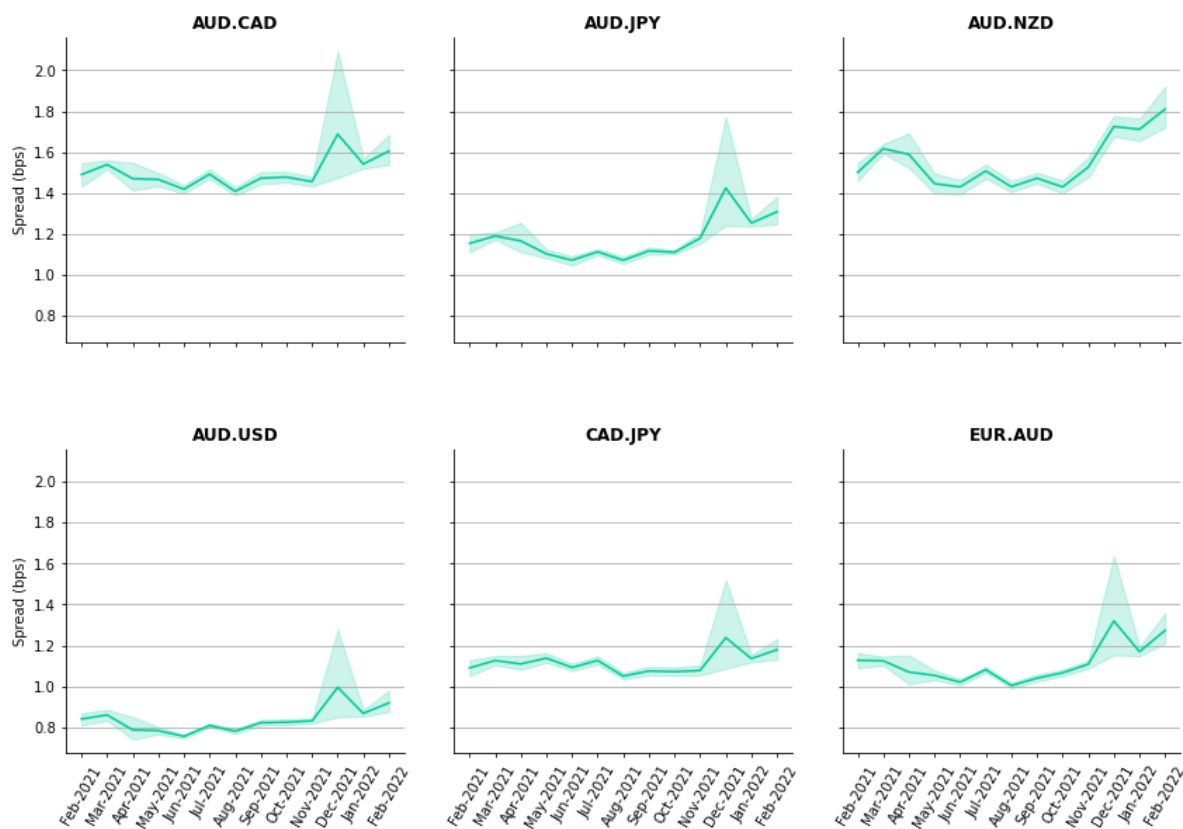
All chart sources: Virtu Financial, 2022. Spread and volatility calculations are derived from sources that Virtu believes to be reliable, but Virtu does not make any claims to its accuracy. USD.NOK, USD.SEK, EUR.NOK and EUR.SEK are shown in separate exhibits.



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 February 2021- February 2022



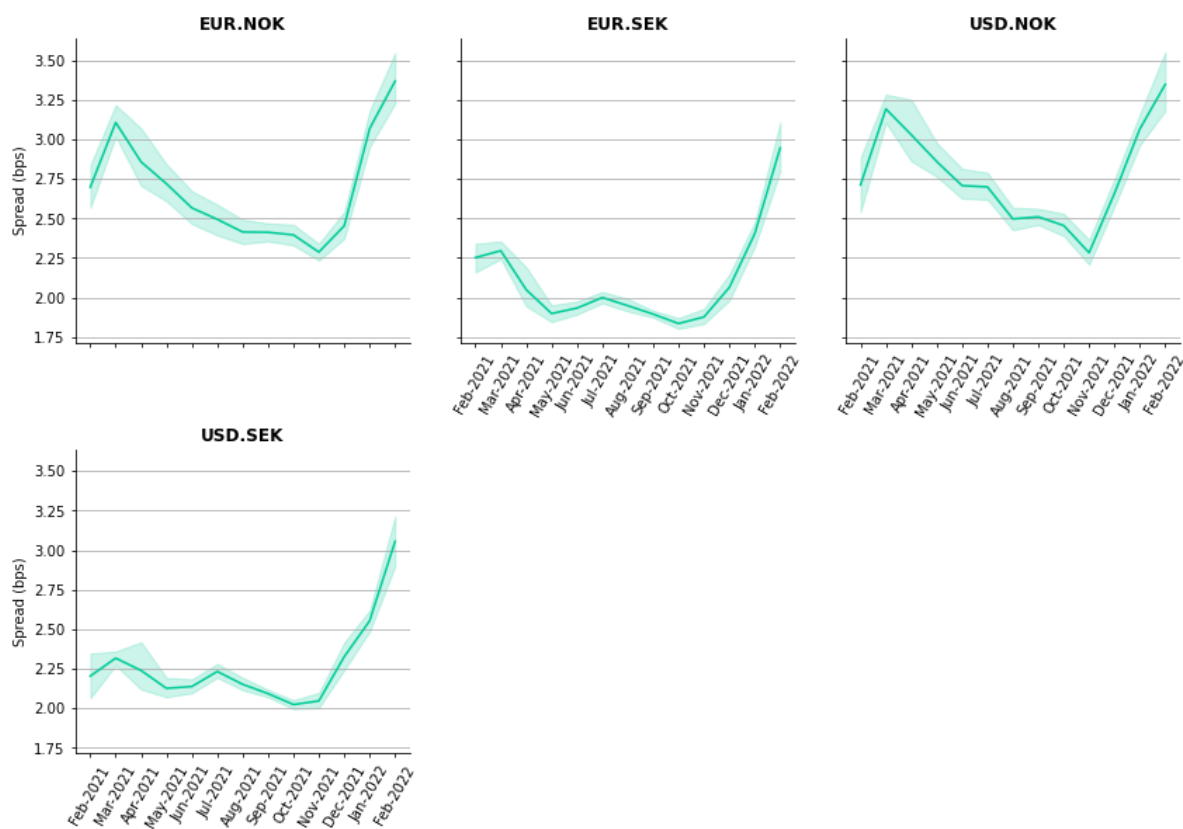
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Scandinavian G-10 Currencies: Average Daily Spread, 12:00-16:00 GMT February 2021-February 2022

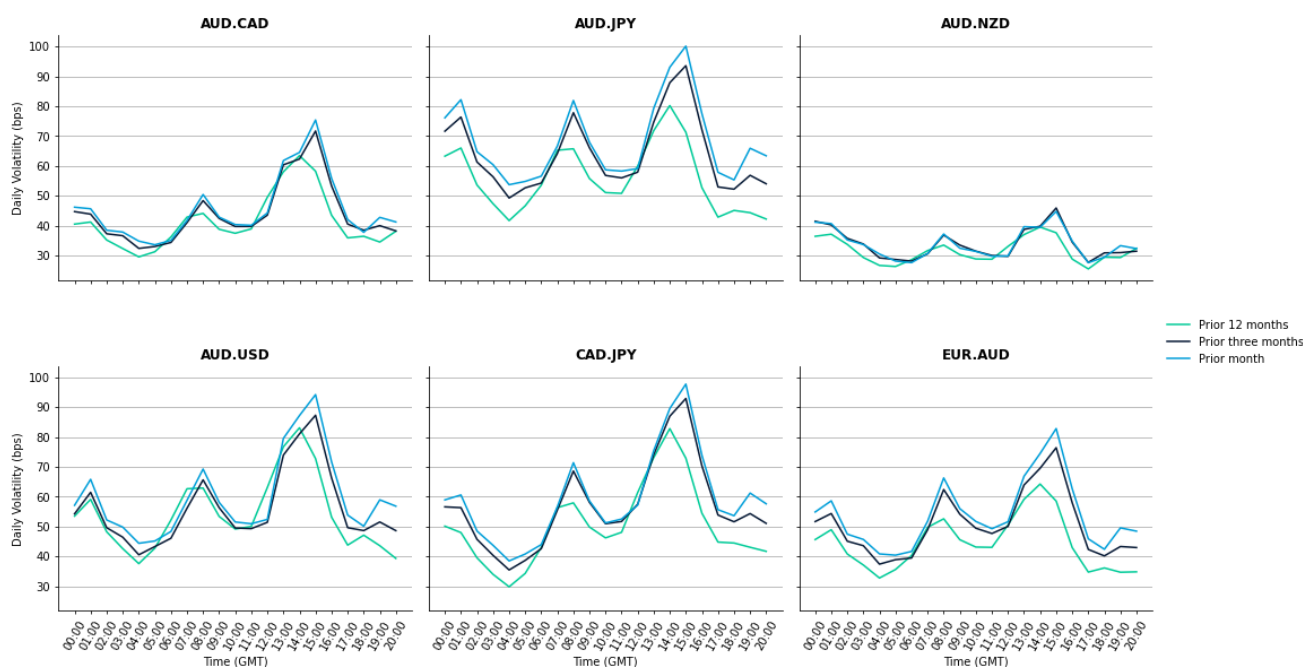




VOLATILITY

- Volatility spiked for all currencies in the 24 hours following Russia's initial assault on Ukraine. Volatility then fell but remained elevated compared to pre-invasion levels. In our complete universe of 151 pairs, volatility for USD.TRY and EUR.TRY rose the most.
- Continuing a trend that began in October, volatility rose for most G-10 pairs during the 12:00-16:00 GMT pre-WMR Fixing trading window. In February, 17 of the 23 pairs recorded higher volatility.
- Compared to three, six and 12 months ago, volatility was higher during the pre-WMR Fixing trading window for nearly all pairs. Only the GBP.EUR was less volatile in February compared to three, six or 12 months ago.
- Volatility increased throughout the trading day for four majors, AUD.USD, EUR.USD, GBP.USD and NZD.USD but declined for USD.JPY. Volatility for USD.CAD and USD.CHF showed no strong intra-day patterns.
- In February, volatility increased most significantly during London desk hours, possibly due to timely reactions relating to the Russia/Ukraine news.
- Among the Scandinavian pairs, volatility rose for all four pairs throughout the trading day. Intra-day volatility for all four pairs remains higher than three or six months ago.

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



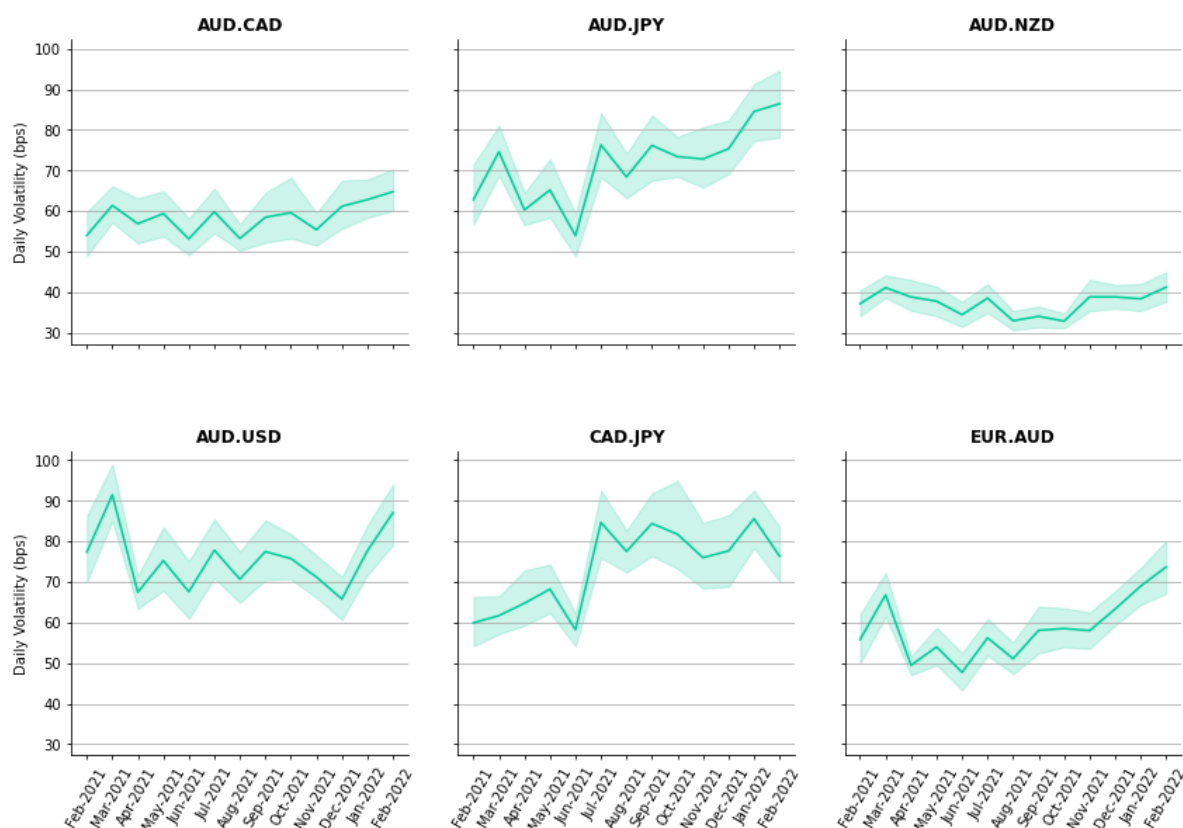
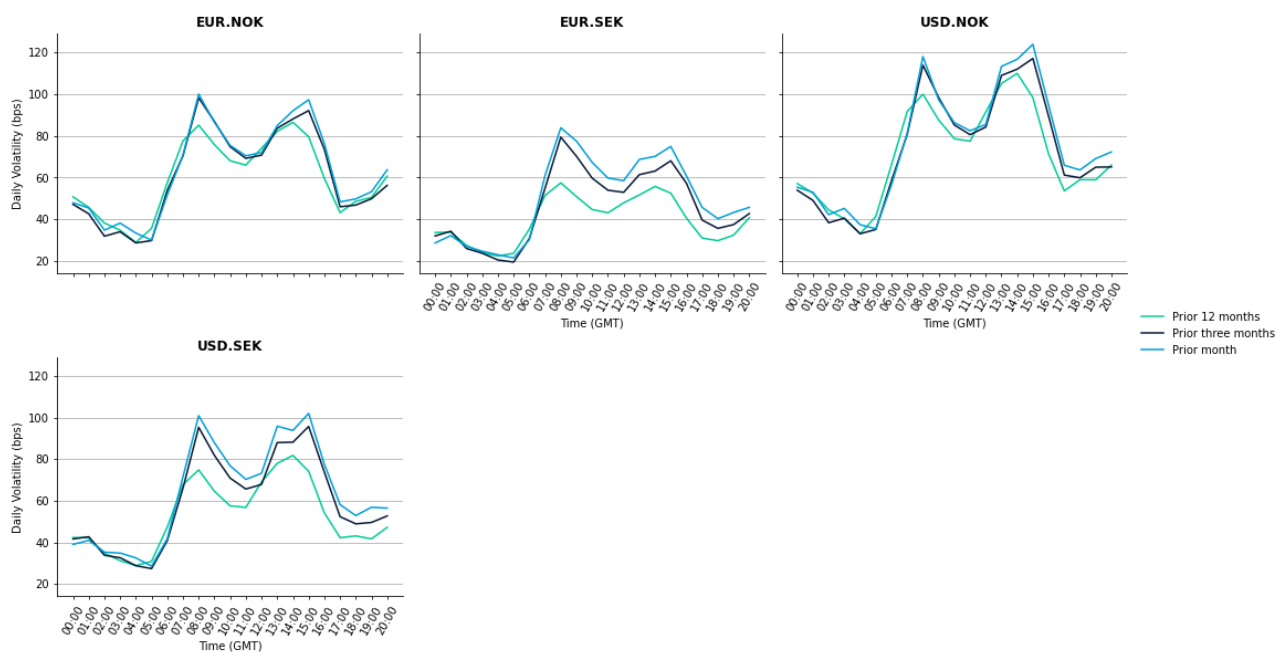
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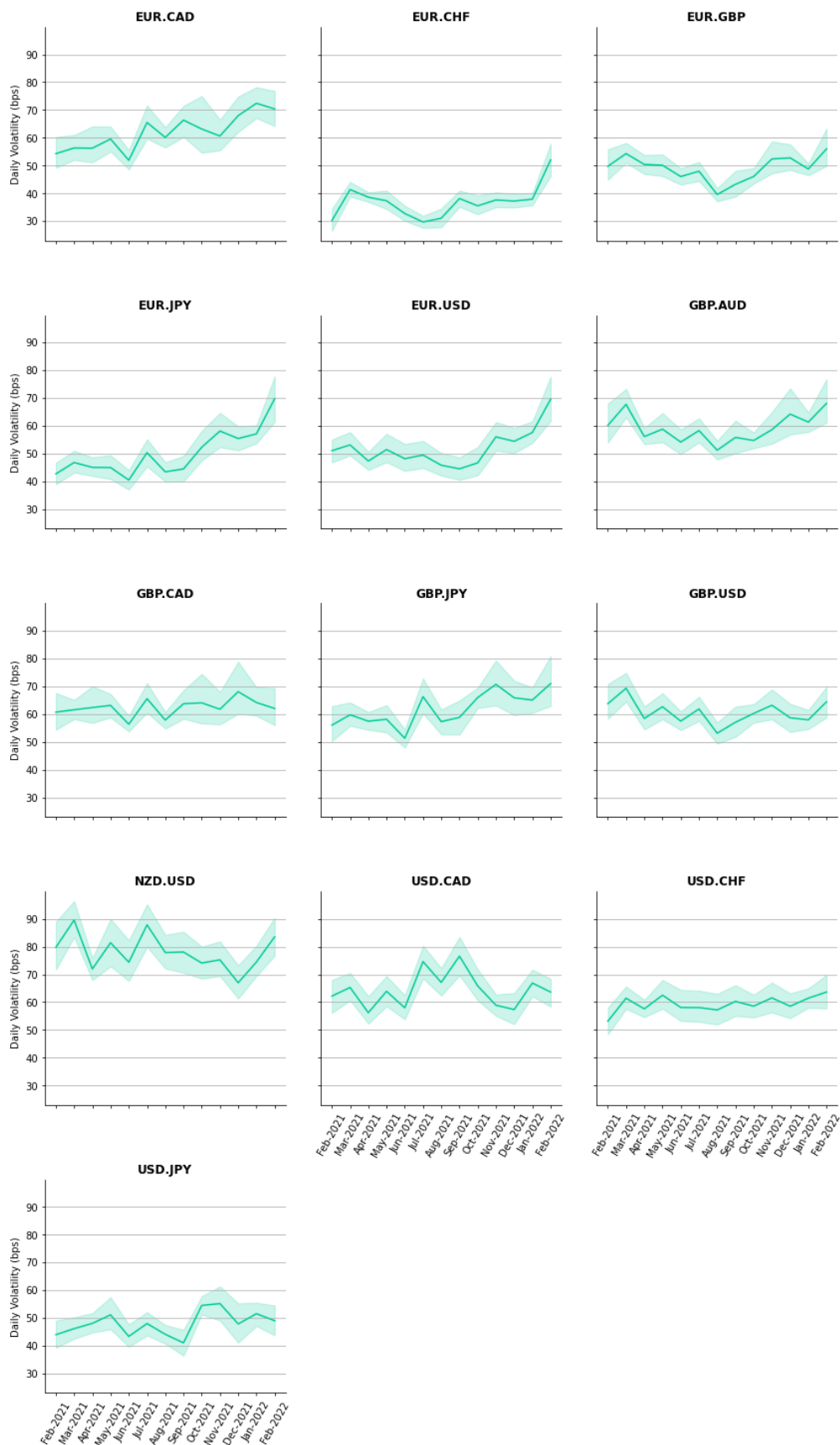
Scandinavian G-10 Currencies: Average Daily Volatility, 00:00-20:00 GMT Past month, three months and year



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G-10 Currencies: Average Daily Volatility, 12:00-16:00 GMT February 2021-February 2022



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Scandinavian G-10 Currencies: Average Daily Volatility, 12:00-16:00 GMT February 2021-February 2022



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