

April 2022

FX Market Structure Monthly

CHANGES IN SPREAD AND VOLATILITY FOR MAJOR MARKET PAIRS

In April, G10 FX spreads narrowed slightly from March’s spike but remain elevated from three and six months ago. In an unusual pattern, spreads narrowed for 15 of the 23 pairs we track during the 12:00-16:00 GMT trading window. Yet, outside of that window, over half of the pairs traded widened. These observations, coupled with the behavior of the less-liquid Scandinavian pairs, may indicate that market liquidity has only returned during the most active time of the trading day.

READING THE RESULTS

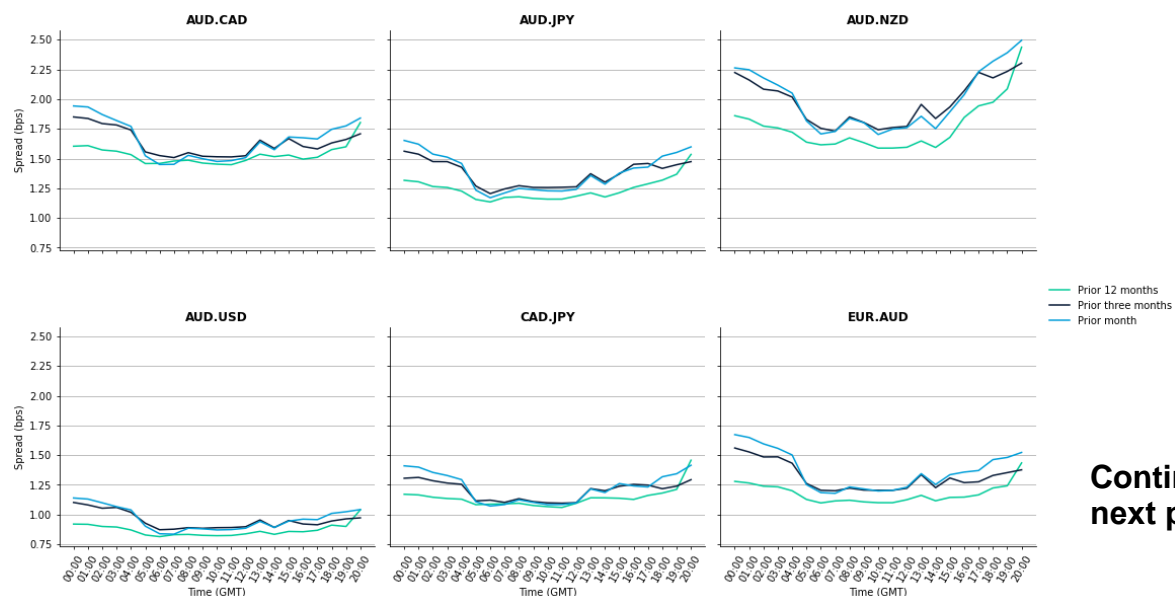
In the intraday charts, the green line presents the average spread or volatility for the past 12 months, the black line is for the past three months and the blue line is for the past month. On the daily charts, the green area represents the 95th percentile confidence interval for the spread and volatility,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

SPREADS

- During the 12:00 to 16:00 GMT trading window, only one major pair, USD.JPY, recorded wider spreads than one month ago.
- GPD.USD and EUR.GBP showed the most consistent narrowing of intra-day spreads. On average, both pairs traded wider than last month for only two hours of the trading day.
- In contrast, EUR.USD and USD.CAD traded wider on average for nearly the entire trading day.
- For the first time in four months, the four Scandinavian pairs recorded mixed spreads during London trading hours, rather than continuing to widen.

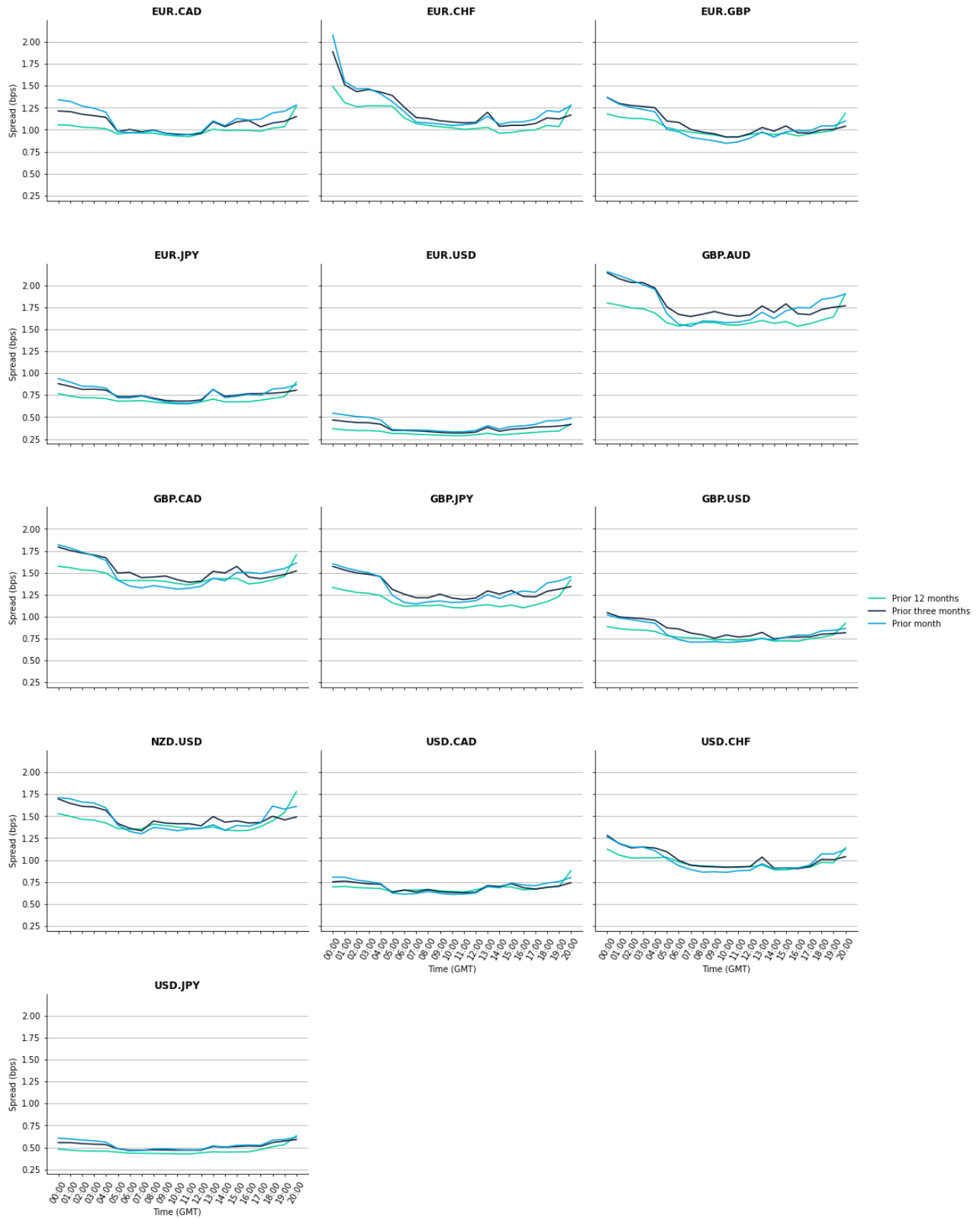
G-10 Currency Pairs: Average Hourly Spread, 00:00-20:00 GMT

Comparison over the past month, three months and year



Continued next page...

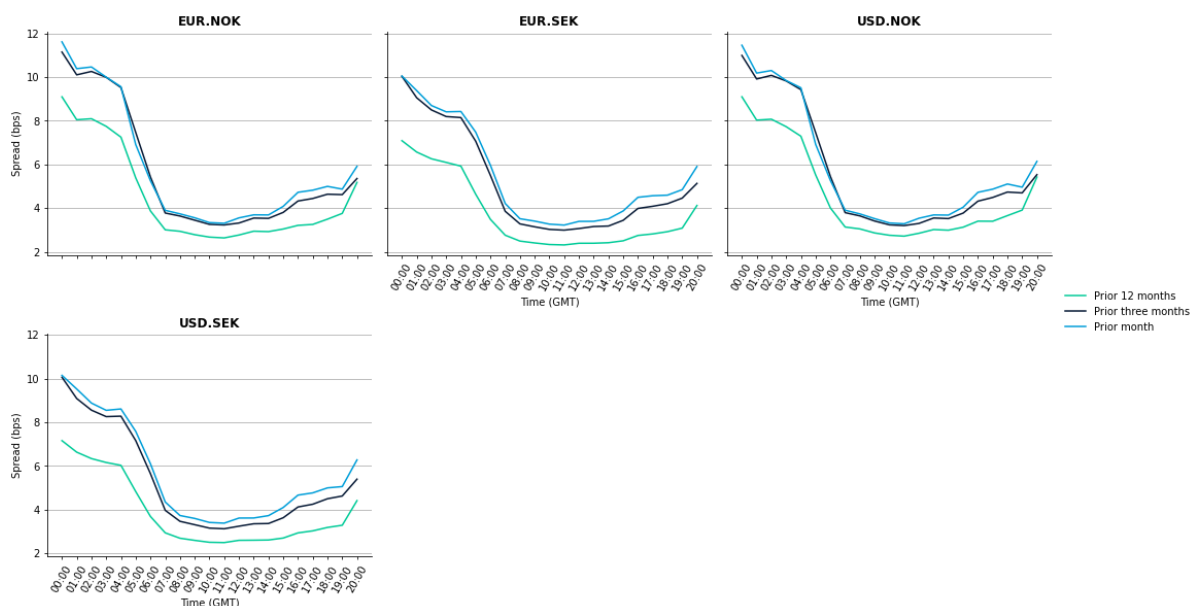
All chart sources: Virtu Financial, 2022. Spread and volatility calculations are derived from sources that Virtu believes to be reliable, but Virtu does not make any claims to its accuracy. USD.NOK, USD.SEK, EUR.NOK and EUR.SEK are shown in the separate exhibits



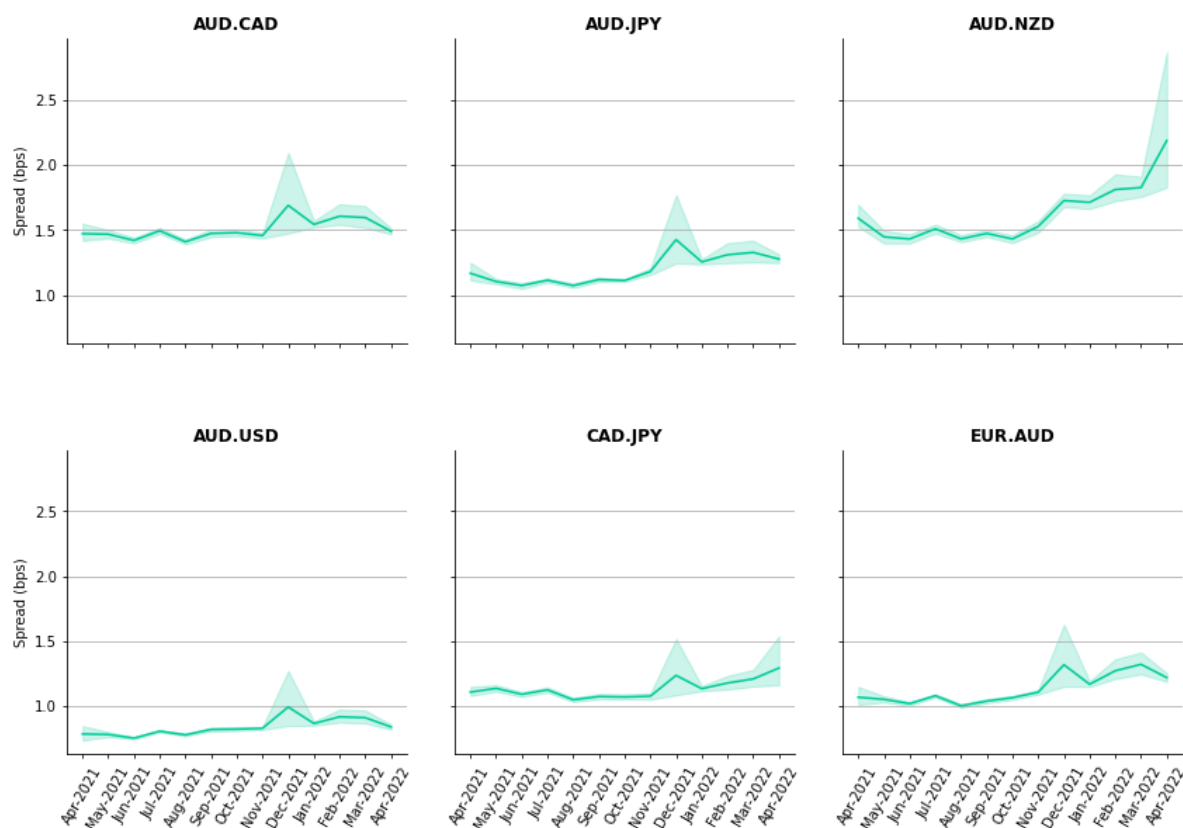
All chart sources: Virtu Financial, 2022. Spread and volatility calculations are derived from sources that Virtu believes to be reliable, but Virtu does not make any claims to its accuracy. USD.NOK, USD.SEK, EUR.NOK and EUR.SEK are shown in separate exhibits.



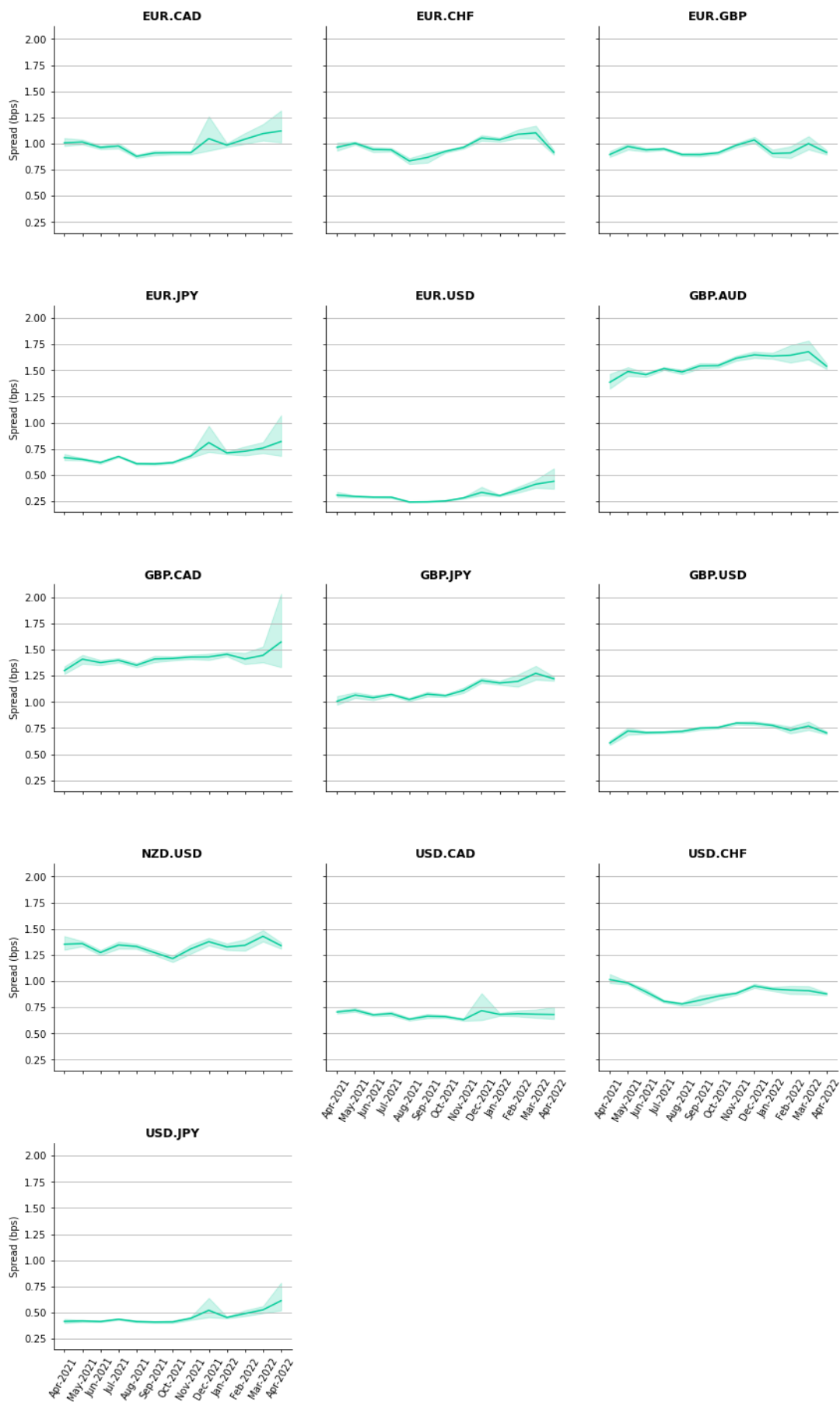
Scandinavian G-10 Currencies: Average Hourly Spread, 00:00-20:00 GMT Comparison over the past month, three months and year



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



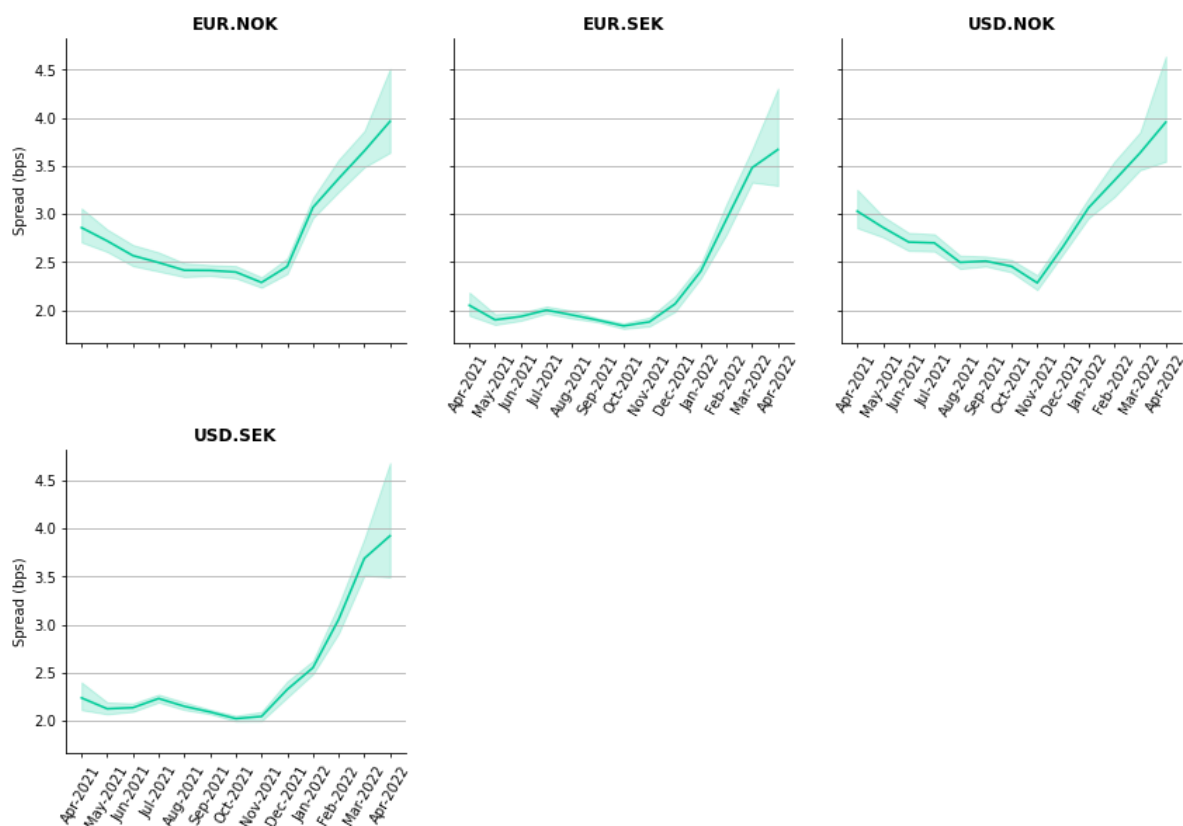
Continued next page...



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 Daily Spread, 12:00-16:00 GMT April 2021-April 2022



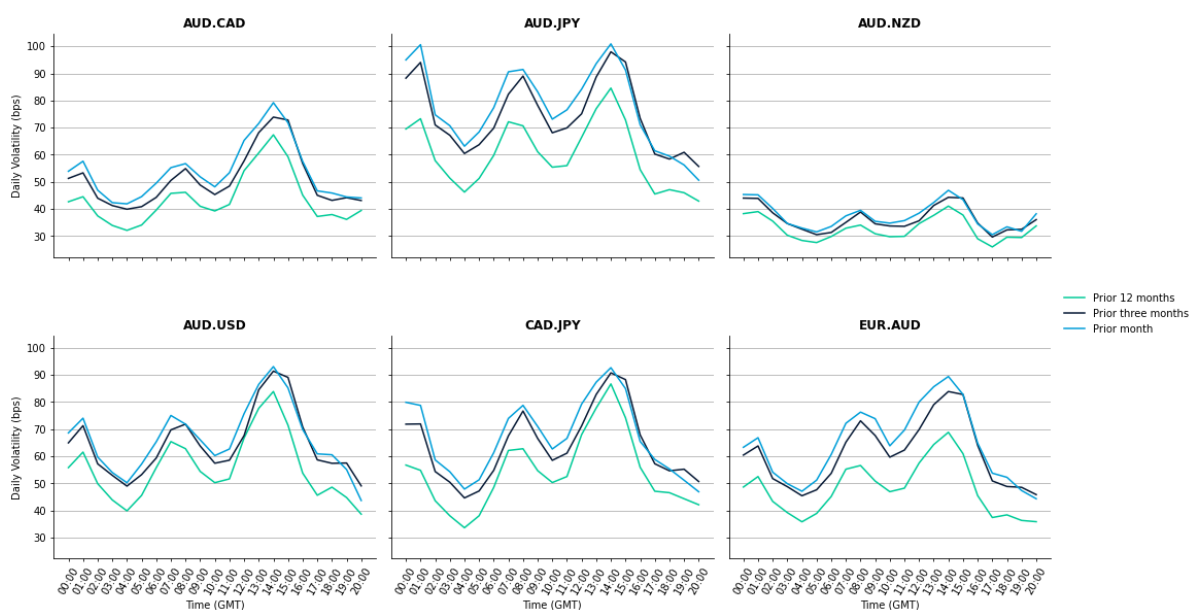
Continued next page...



VOLATILITY

- While volatility was up marginally in April, the increase was not uniform throughout the trading day. From 04:00-08:00 GMT volatility increased up for 21 of 23 pairs while from 08:00-12:00 GMT volatility rose for only two pairs. Furthermore, from 13:00-15:00 GMT, volatility increased for about half of the pairs while dropping for nearly all pairs from 15:00-19:00 GMT. The pattern is consistent with the earlier observation that the FX market remains jittery with thinner liquidity at traditionally less liquid times of the day.
- Looking at intra-day patterns, USD.JPY registered increased volatility throughout the trading day while both the volatility for EUR.CHF and EUR.GBP reversed last month's rise and recorded lower volatility throughout the day.
- Among the Scandinavian pairs, intra-day volatility remained relatively constant, the first time in four months that volatility has not uniformly increased. EUR.SEK and USD.SEK saw smaller increases in volatility than EUR.NOK or USD.NOK.

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

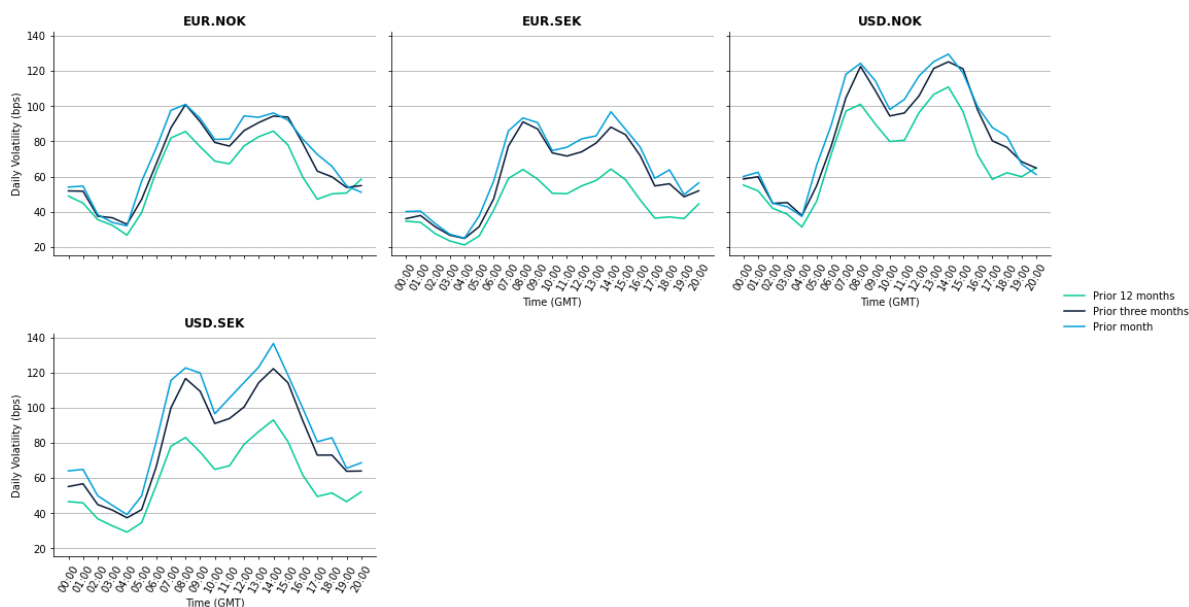


Continued next page...

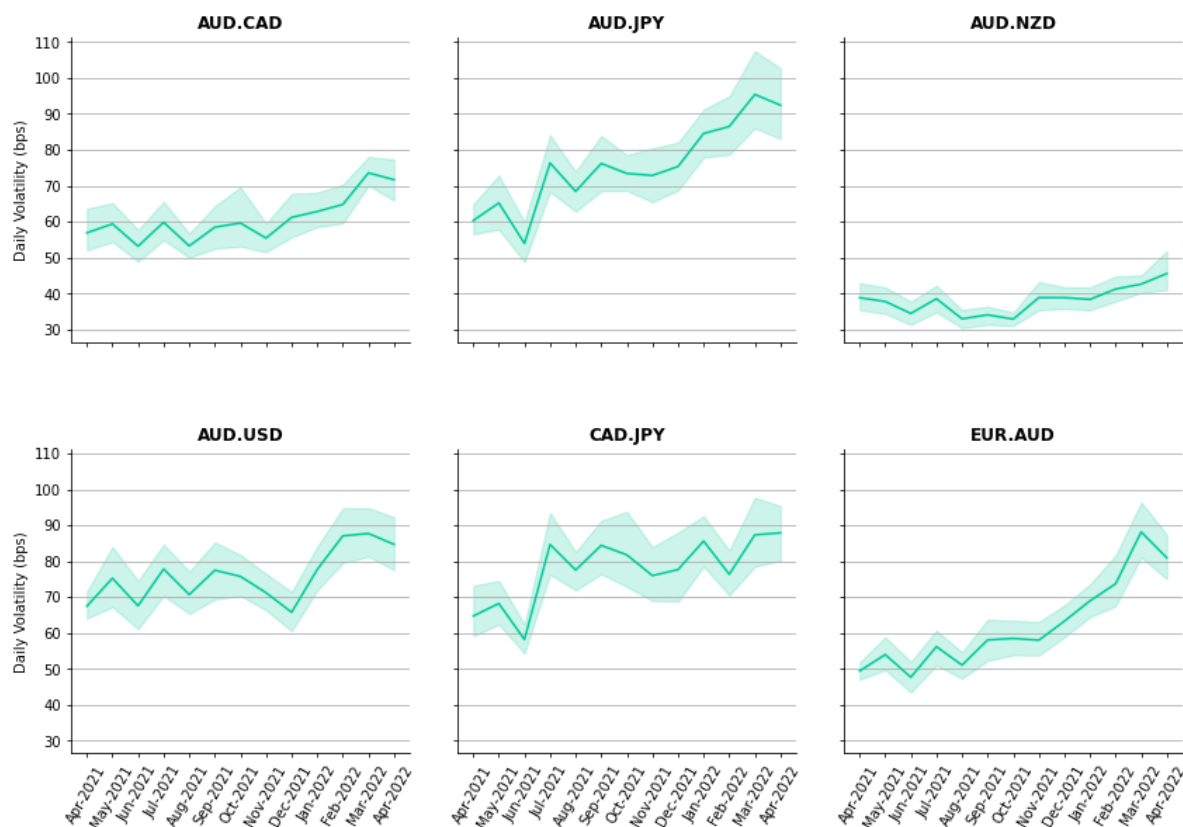




Scandinavian G-10 Currencies: Average Daily Volatility, 00:00-20:00 GMT Past month, three months and year



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



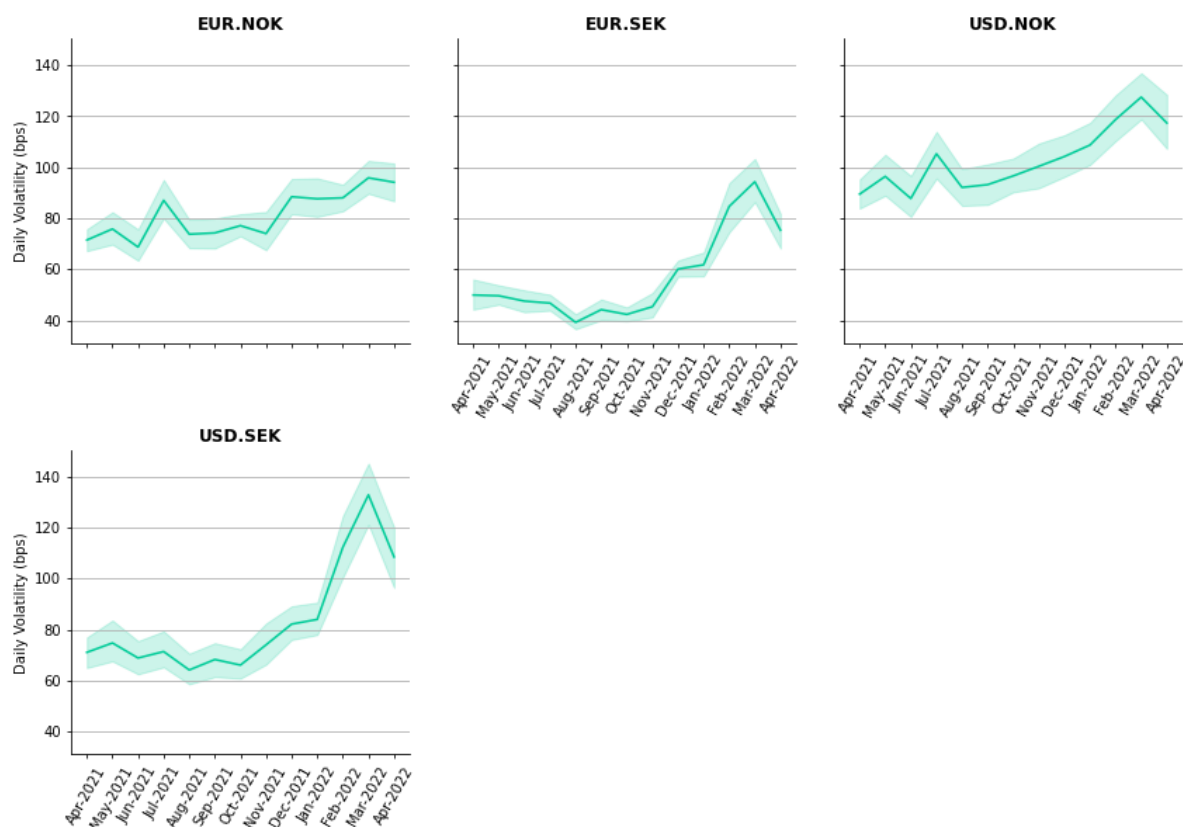
Continued next page...



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 Daily Volatility, 12:00-16:00 GMT April 2021-April 2022



Have questions? To learn more, contact your regional Virtu Analytics representative.
AMERICAS +1.866.265.4519 | **APAC** +852.3405.3755 | **EMEA** +44.20.7670.4000
analytics@virtu.com | www.virtu.com

© 2022 Virtu Financial, Inc. All rights reserved. Not to be reproduced or retransmitted without permission. These materials are for informational purposes and are not intended to be used to make trading or investment decisions, they are not intended as an offer to sell or the solicitation of an offer to buy any security or financial product, and are not intended as advice (investment, tax or legal). The information contained herein includes Virtu proprietary information and/or has been taken from sources we believe to be reliable, but we do not represent or warrant that such information is accurate or complete and it should not be relied upon as such.

Analytics products and services referenced herein may not be subject to oversight by regulatory authorities in one or more jurisdictions, including in Europe, where such products and services are offered by Virtu ITG Ventures Limited, registered in Ireland No. 295549 ("VIVL"). VIVL does not engage in regulated activity.

Securities products and services are offered by the following subsidiaries of Virtu Financial, Inc. In the U.S., Virtu Americas LLC, member FINRA and SIPC; in Canada, Virtu ITG Canada Corp., member Canadian Investor Protection Fund and Investment Industry Regulatory Organization of Canada; in Europe, Virtu ITG Europe Limited, registered in Ireland No. 283940 ("VIEL") (VIEL is authorized and regulated by the Central Bank of Ireland), and Virtu Financial Ireland Limited, registered in Ireland No. 471719 ("VFIL") (VFIL is authorized and regulated by the Central Bank of Ireland). The registered office of VIEL and VFIL is Whitaker Court, Whitaker Square, Sir John Rogerson's Quay, Dublin 2, Ireland; in Asia, Virtu ITG Hong Kong Limited (SFC License No. AHD810), Virtu ITG Singapore Pte Limited (CMS License No. 100138-1), and Virtu ITG Australia Limited (AFS License No. 219582).

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.