

December 2024

FX Market Structure Monthly

CHANGES IN SPREAD AND VOLATILITY FOR MAJOR MARKET PAIRS

Trading activity typically slows during the holiday season and this past December was no different. We observed a reduction in volatility and narrower spreads across most currency pairs, reversing the trend of the past few months. However, Scandinavian pairs were a notable exception, showing continued increases in spreads for the month. Additionally, some USD pairs experienced wider spreads and sharper price movements, likely driven by the U.S. election, which introduced market shifts and bolstered confidence in the dollar.

READING THE RESULTS

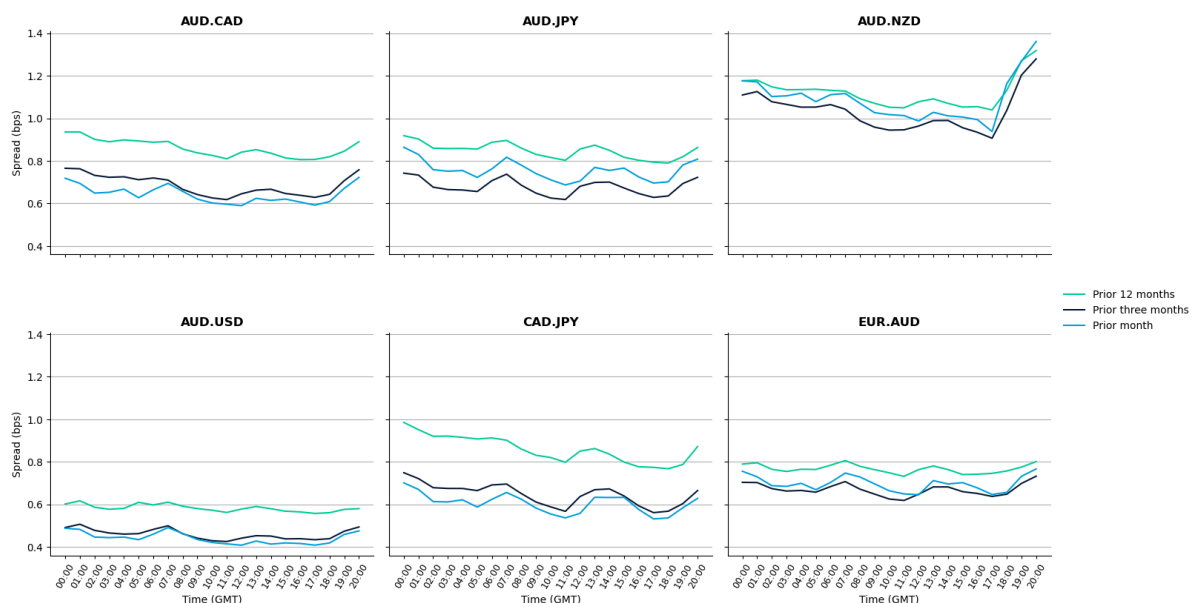
On the intraday charts, the green line represents the average spread or volatility for the past 12 months, the black line represents the past three months, and the blue line represents the past month. On the daily charts, the green area represents the 95th percentile confidence interval for the spread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

SPREADS

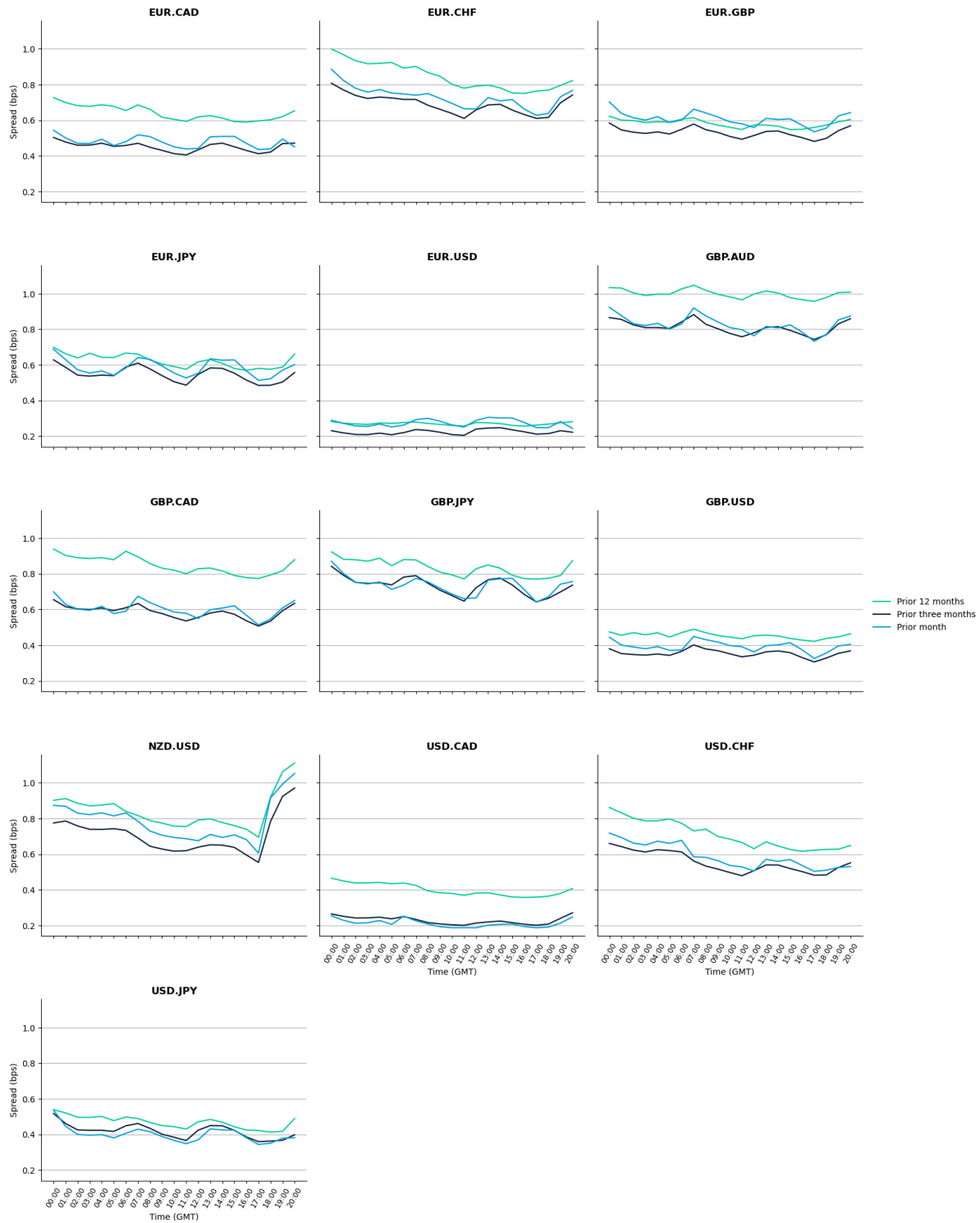
During the pre-WMR trading window (12:00-16:00 GMT), unlike previous patterns, we did not witness a general increase in spreads across most currency pairs. However, Scandinavian pairs, continued to show signs of elevated spreads, reflecting trends observed in previous months. Over time, we have consistently seen widening spreads for EUR.USD, GBP.USD, and USD.CHF pairs, underscoring the U.S. dollar's role as a key driver of market movement and increasing spreads. Overall, the intraday movement of spreads has stayed consistent with historical patterns.

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

Comparison over the past month, three months, and year



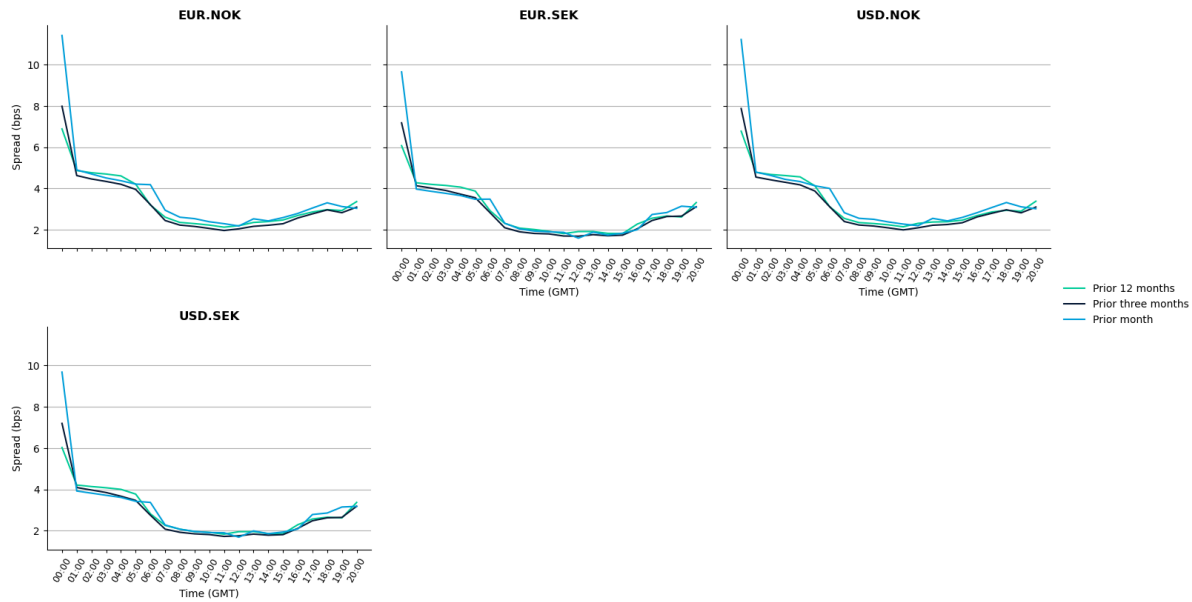
Cont'd. on next page...





Scandinavian G-10 Currencies: Average Hourly Spread, 00:00-20:00 GMT

Comparison over the past month, three months, and year



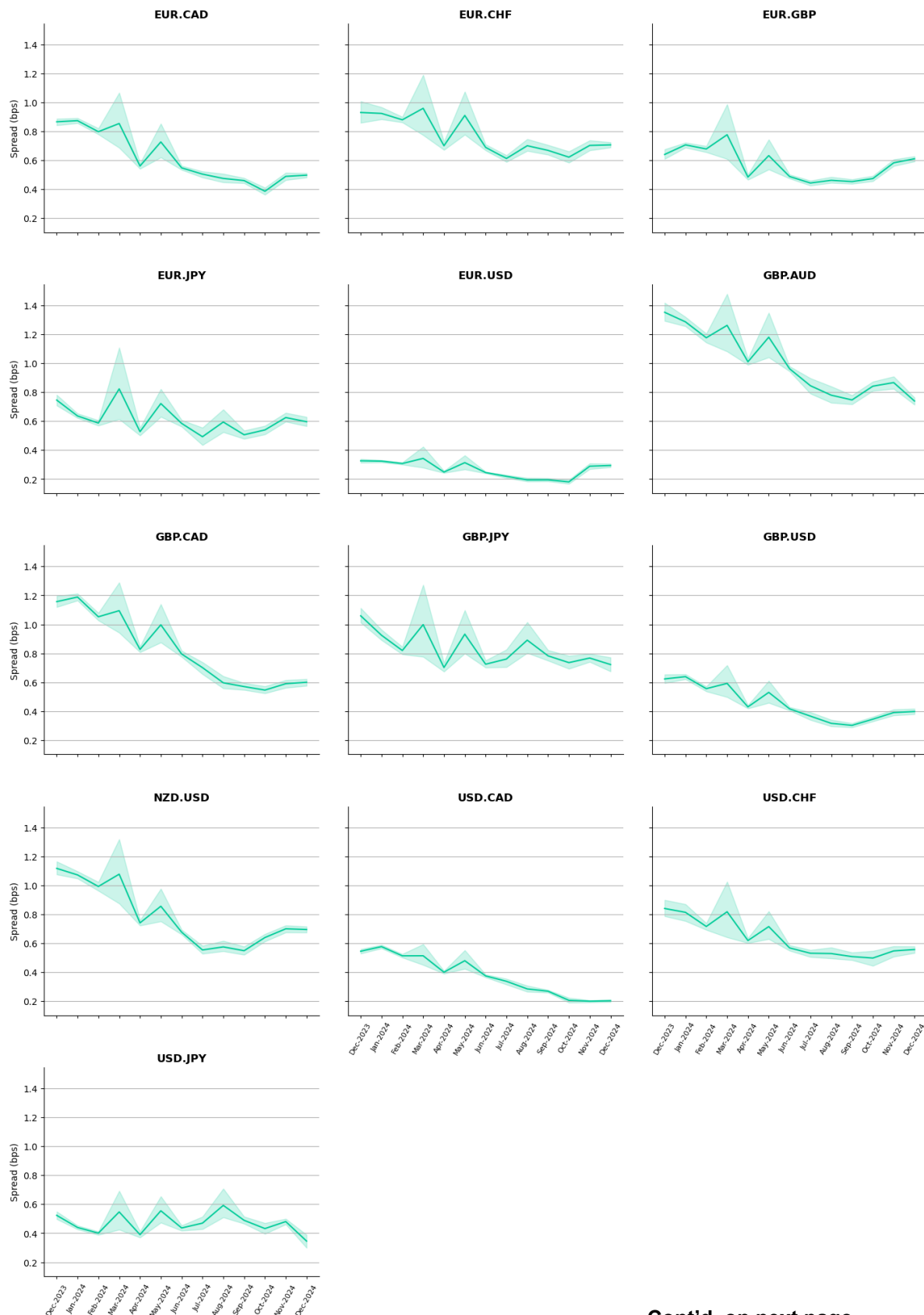
G-10 Currencies: Average Daily Spread, 12:00-16:00 GMT

November 2023 – November 2024

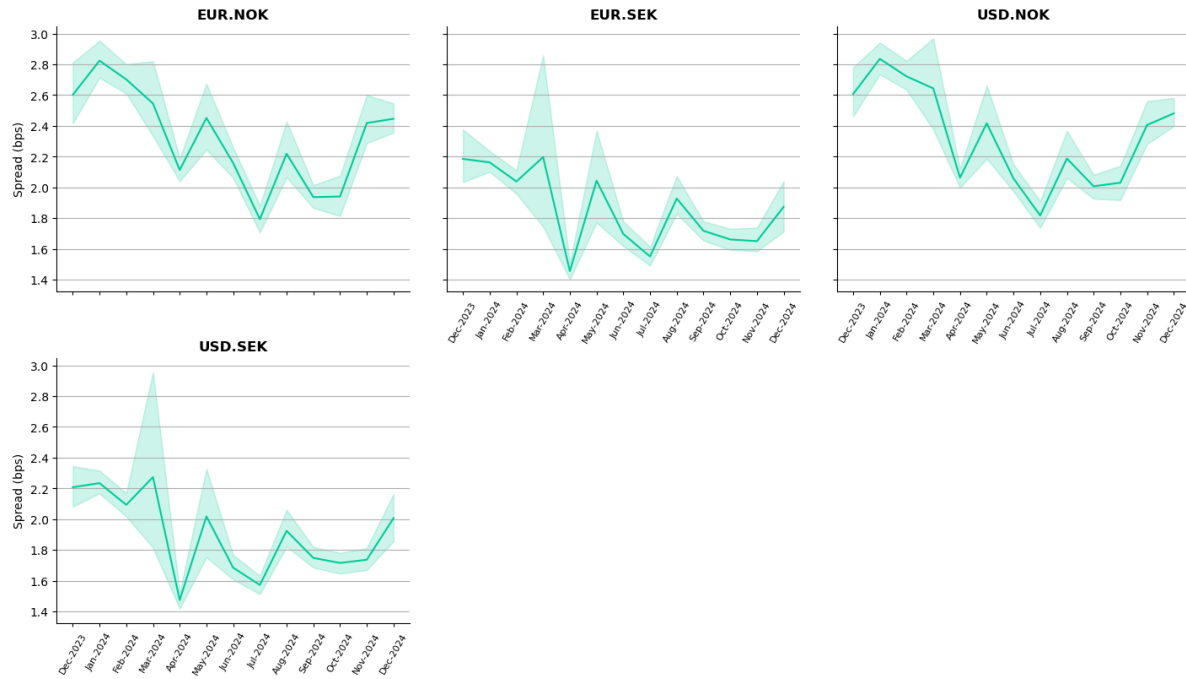




Scandinavian G-10 Currencies: Average Daily Spread, 12:00-16:00 GMT November 2023 – November 2024



Cont'd. on next page...





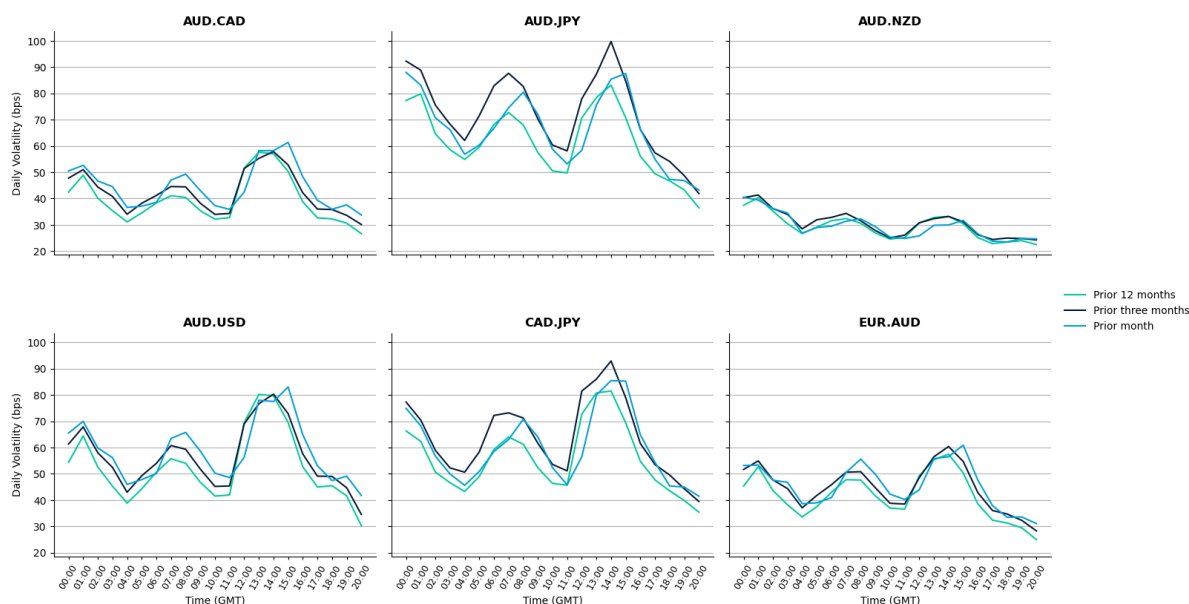
VOLATILITY

FX volatility has followed a similar pattern to spreads. During the pre-WMR trading period (12:00-16:00 GMT), most currency pairs experienced reduced volatility last month, likely due to reduced market activity during the holiday season. The only major currency pair that saw an increase in volatility during this period was USD.CAD. Compared to 12 months ago, volatility has risen for six of the seven majors, though the increase is modest.

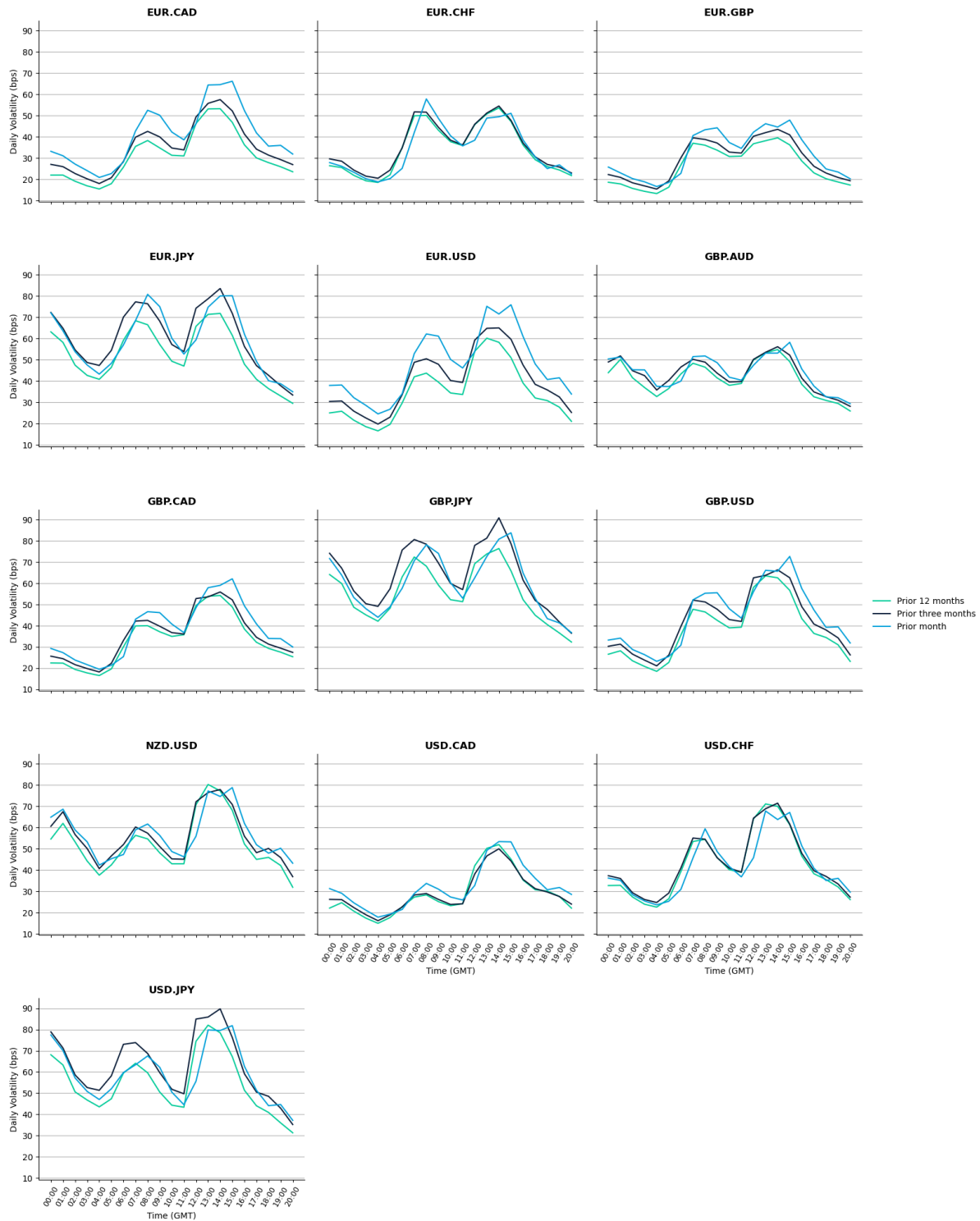
Examining the average hourly volatility graphs reveals that daily volatility follows a consistent trend, with heightened activity around the hours of 04:00 to 10:00 GMT, and 12:00 to 17:00 GMT. The size of the increase varies among currency pairs, with the most significant movements observed in JPY pairs.

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

Comparison over the past month, three months, and year



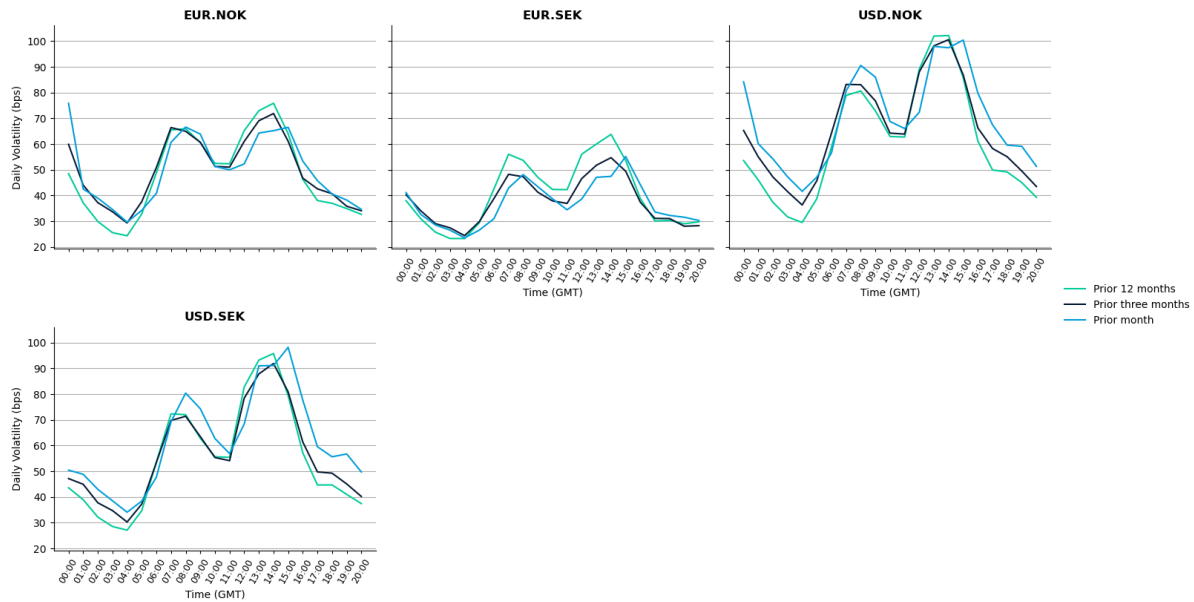
Cont'd. on next page...





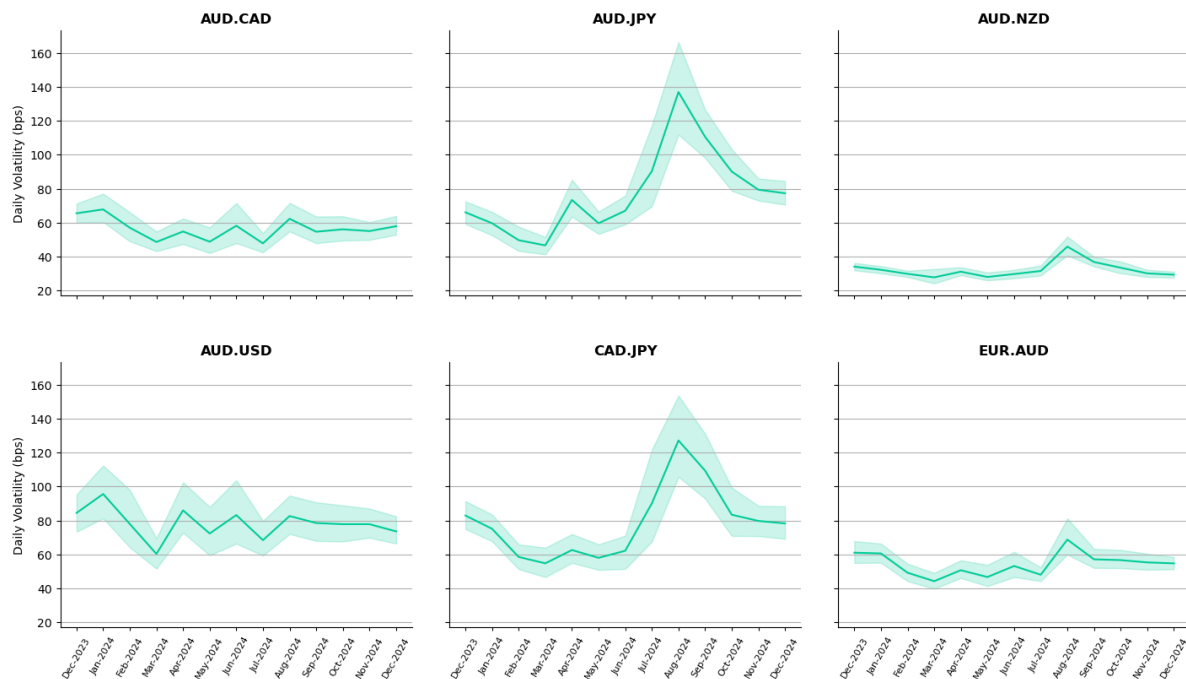
Scandinavian G-10 Currencies: Average Hourly Volatility, 00:00-20:00 GMT

Comparison over the past month, three months and year



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

November 2023 – November 2024

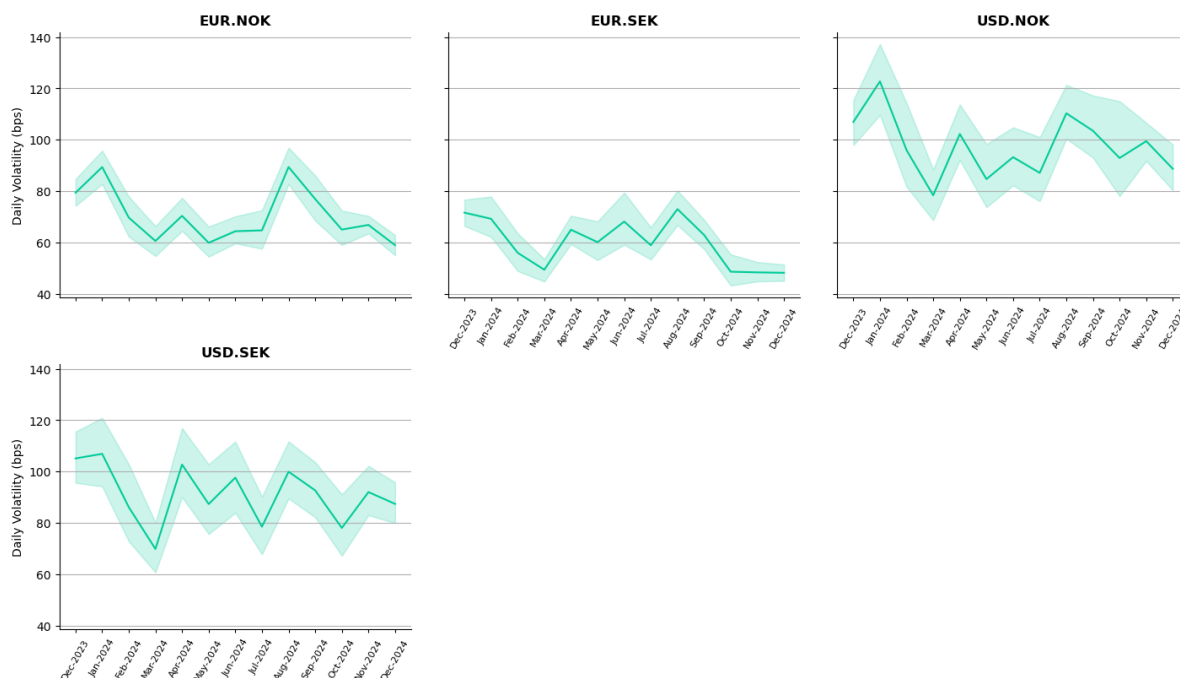




Scandinavian G-10 Currencies: Average Daily Volatility, 12:00-16:00 GMT November 2023 – November 2024



All chart sources: Virtu Financial, 2025. 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.



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

© 2025 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, Hong Kong or Australia, where such products and services are offered by Virtu ITG Ventures Limited, Virtu ITG Hong Kong Limited or Virtu ITG Australia Limited, registered in Ireland No. 295549 ("VIVL"), Hong Kong CE No. AHD810 ("VIHK") and Australia AFSL No. 219582 ("VIAU"), respectively. 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 Canada Corp., member Canadian Investor Protection Fund and Canadian Investment Regulatory Organization; in Europe, Virtu Europe Trading Limited, registered in Ireland No. 283940 ("VETL") (VETL 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 VETL and VFIL is North Dock One, Fifth Floor, 91-92 North Wall Quay, Dublin 1, Ireland, D01 H7V7; 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, 2025. 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.