

ABSTRACT

The measurement of risk in fixed-income instruments is crucial in portfolio management, particularly during periods of return volatility. This study aims to analyze the risk of eight corporate bonds in the Indonesian financial sector over the period from October 9, 2020 to October 9, 2025. Risk is measured using Value at Risk (VaR) as an indicator of the maximum potential loss at a given confidence level and time horizon. VaR estimation is conducted using the Delta–Gamma Value at Risk approach, which incorporates bond price sensitivity to return changes through the Delta parameter derived from modified duration and the Gamma parameter derived from convexity. The magnitude of potential losses is calculated based on the outstanding nominal value of each bond. Furthermore, model accuracy is evaluated through backtesting procedures. The results show that the BBKA01BSBCN1 bond, with a nominal value of IDR 65 billion, exhibits the highest VaR of 35.75%, reflecting a maximum potential loss of IDR 23.24 billion. In contrast, the BBRI02ECN1 bond, with a nominal value of IDR 2,350 billion, records the lowest VaR of 4.69%, corresponding to a maximum potential loss of IDR 110.28 billion. Variations in risk across bonds are influenced by credit ratings and maturity profiles, where higher-rated bonds with shorter durations tend to exhibit lower risk. Backtesting results indicate that none of the eight bonds experienced exceedances. Overall, BBRI02ECN1 and BBRI02DCN2 are considered the most attractive for investment as they offer a balance between risk and return, while BBKA01BSBCN1 is less recommended due to its higher risk exposure.

Keywords: Value at Risk, Delta–Gamma, corporate bonds, market risk, duration, convexity, backtesting, financial sector