

ABSTRACT

The present study has been conducted for the purpose of ascertaining the most accurate method for evaluating the extreme risk associated with major technology stocks in the United States. The selection of stocks was made with particular reference to Apple, Microsoft, Alphabet, Amazon, and NVIDIA. In the intricate and ever-evolving financial landscape, conventional methods such as Value at Risk (VaR) frequently prove to be inadequate in capturing events that are rare but have the potential to have substantial impact. To address this shortcoming, this study proposes a novel integration of the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model with the Extreme Value Distribution (EVD) approach, complemented by Conditional Value at Risk (CVaR), to formulate a more robust and conservative risk measurement. The findings indicate that the GARCH-EVD-CVaR approach generates risk estimates with enhanced precision, particularly in volatile market contexts. Specifically, the GARCH-EVD model reduced Akaike Information Criterion (AIC) values by an average of 25.3 points and decreased Value at Risk (VaR) estimates by up to 14% at the 99% confidence level. In practice, this model helps institutional investors conduct more accurate portfolio stress tests and offers regulators a framework for assessing systemic tail risk under volatile market conditions.