

Analysis of the Predictive Performance of Value at Risk Estimations in Times of Financial Crisis

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Abstract : Measuring and mitigating market risk is essential for the stability of enterprises, especially for major banking corporations and investment bank firms. To employ these risk measurement and mitigation processes, the Value at Risk (VaR) is the most commonly used risk metric by practitioners. In the past years, we have seen significant weaknesses in the predictive performance of the VaR in times of financial market crisis. To address this issue, the purpose of this study is to investigate the value-at-risk (VaR) estimation models and their predictive performance by applying a series of backtesting methods on the stock market indices of the G7 countries (Canada, France, Germany, Italy, Japan, UK, US, Europe). The study employs parametric, non-parametric, and semi-parametric VaR estimation models and is conducted during three different periods which cover the most recent financial market crisis: the overall period (2006-2022), the global financial crisis period (2008-2009), and COVID-19 period (2020-2022). Since the regulatory authorities have introduced and mandated the Conditional Value at Risk (Expected Shortfall) as an additional regulatory risk management metric, the study will analyze and compare both risk metrics on their predictive performance.

Keywords : value at risk, financial market risk, banking, quantitative risk management

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