Value-at-Risk Models and the Energy Sector: A Case of the Stock Exchange of Thailand

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Abstract

Energy companies play a crucial role in serving economic welfare throughout the supply chain. However, energy companies are more exposed to energy commodities' risk than other sectors. This can potentially cause them to possess more market risk. Therefore, if a Value-at-Risk (VaR) model is applied to this sector, it might lose its accuracy due to its volatility. This paper examines the appropriation of three VaR models including Historical Simulation VaR, Delta-Normal VaR, and Monte Carlo simulation VaR when they are applied to energy stocks in the Stock Exchange of Thailand (SET). The backtesting methodology includes Kupiec's POF test, Independence Test, and Christoffersen's Interval Forecast test. The results indicate that the Historical Simulation VaR is the most fitted model when compared to the other two models.

Keywords—Energy Companies, Stock Market, Market Risk, Value-at-Risk, backtesting, Monte Carlo Simulation