

# Stock investment risk analysis using Value at Risk method with Bayesian Mixture of Mixture approach

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## ABSTRACT

In stock investment, the greater the profits desired by investors implies greater risk. The big changes in the stock market price encourage us to measure financial risk. The Value at Risk (VaR), a parametric method under the assumption of normally distributed data, is one of the most popular and accurate risk measurement methods. If the stock data does not match a normal distribution, then the normal Mixture distribution can be implemented on the data. In this study, we calculate the risk data of the shares of three companies incorporated in the Jakarta Islamic Index (JII) using the VaR method through the normal Mixture approach. The desired companies are PT. Astra International Tbk (ASII), PT. Telekomunikasi Indonesia Tbk (TLKM) and PT. Unilever Indonesia Tbk (UNVR). The data was taken in 2019. Parameter estimation is done using the Bayesian Markov Chain Monte Carlo (MCMC) approach. Based on the VaR value obtained, the highest risk occurs in TLKM by 0.124272, then followed by ASII by 0.02533735, and the lowest one is UNVR by 0.02298288.

Kata Kunci: *Mixture Normal, Mixture of Mixture, Bayesian, Value at Risk*