

## **Methods to measure value at risk of a portfolio: a case study on Sri Lanka Stock Exchange**

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In this study three different methods are used to measure and compare Value at Risk (VaR) of four different portfolios. Twenty securities which are used to calculate S&P 20 SL index in Colombo Stock Exchange were used to construct four different portfolios each worth Rs.100,000. Data was obtained from Colombo Stock Exchange during the period of 1<sup>st</sup> of January 2012 to 30<sup>th</sup> of September 2016. Four portfolios were constructed using the securities with the mean closing prices: less than Rs.100, Rs.100 - Rs.200, Rs.200 - Rs.300 and greater than Rs.300. Equally weighted VaR models were constructed for selected portfolio securities. VaR is calculated using three different methods namely Variance-Covariance method, Historical method and Monte-Carlo Simulation method at three different significant levels. When making decisions about a portfolio it is best to make decisions by considering the maximum loss that can be expected when investing in a particular portfolio. By comparing the values obtained in different portfolios the study concluded that, if the VaR is calculated at 90% or 95% of confidence, the best method is Monte Carlo method while if the VaR is calculated at 99% of confidence, the best method is Historical method. Further it could be seen that the portfolio that constructed using the securities with mean closing prices Rs.100-Rs.200 gives the lowest VaR value and the portfolio that is constructed using the securities with mean closing prices above Rs.300 gives the highest VaR value from all three methods.

**Keywords:** value at risk, variance covariance method, historical method, monte-carlo simulation method

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