

Abstract

In stock investment, an investor needs to understand the strategy of managing a stock portfolio to help make decisions when it's the right time to buy, sell and retain its shares, one way is to maintain diversification in the stock portfolio. The purpose of applying the concept of diversification is to avoid the risk of loss that can be obtained.

One way to maintain a diversified stock portfolio is to apply a quadratic spline to stock price data. In this research, grouping of shares is done through the process of clustering the stock price curve of the quadratic spline results so that their dimensions are reduced. The use of quadratic spline is so that stock price movements can be studied, if the share price movements are the same, then the coefficients of the spline will not be much different so that relatively similar stock price movements will be in the same cluster, then the goal is the stock price is completely different from each other. Portfolio return and risk values can be calculated by Equal Weight techniques.

In this study, the most efficient portfolio analysis results in the context of portfolio diversification is when the stock price data is reduced to 24 parts and grouped into 4 clusters, with a minimum portfolio risk of 0.0625 and a portfolio return of 0.0020.

Keywords: K-Means, quadratic spline, Stock