Abstract

In investing in the stock market, things to consider are ways to do management or diversify the right portfolio. In choosing a portfolio, Markowitz has proposed several modern theories that combine expectations of return and return variance (risk). However, Markowitz's model only applies if the distribution of stock returns data is normally distributed. Addition of high moments, namely skewness, kurtosis and entropy of shannon and gini simpson are solutions for data that are not normally distributed. The addition of the first, second and subsequent moments creates a polynomial optimization problem created using Polynomial Goal Programming (PGP). PGP itself implements Minkowksi distance with high moments and entropy as its objective. In accordance, the optimal value of each goal can be known and substituted into the PGP model so that the output is obtained in the form of optimal values of each of the latest goals according to the PGP model applied. After applying the PGP model, the results of the latest optimal objective values will be compared between the models with each other. Obtained, the PGP performance model which means simpson's intentions and conveniences are better than Markowitz's models or models without optimization in terms of gaining profits and increasing risk in portfolio selection.

Keyword: portfolio, Polynomial Goal Programming (PGP), high moment , entropy