

ABSTRACT

Stock portfolio is a group of financial assets which contain of some stocks owned by the company or individual. For getting an optimal portfolio is by produce maximal return and minimal risks by allocating proportion invested in portfolio. The method that used to minimize the risks is mean-variance Markowitz. In this final project we execute portofolio optimization with transaction costs. Multi-objective optimization is used for achieved optimum portofolio, because there are more than one objective function. The optimization algorithm that we use is multi-objective genetic algorithm NSGA-II. Some genetic algorithm parameters are population size, number of generations, crossover probability and mutation probability. The final result is an optimal proportion invested of portofolio and a form of graph efficient frontier, where it is a set of the best options for the investor which offer the minimum level risk at a given expected return. On the efficient frontier obtained by mean variance method is assume there is no sale or purchase transaction while on the efficient frontier obtained by multi-objective genetic algorithm NSGA-II is assume there are transactions or the purchase of a stock.

Keywords: *portofolio optimization, transaction cost, multi-objective genetic algorithm NSGA-II.*