The Mean Gini Efficient Boundaries of Project Portfolio

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ABSTRACT

The seminal model for modern portfolios analysis seeks an optimal point of trade-off between standards deviation and return mean – called mean variance model (MV). Although proposed for securities analysis, it might be many other applications, such as the analysis of portfolios of projects. Indeed, projects portfolio analysis (PPA) is the focus of this study. Although MV approach is very intuitive, researchers have been searching alternatives to this model due to two restrictive features: its assumption that asset return are normally distributed and that the utility function is quadratic. Notwithstanding, normally distributed returns are not usually observed in practical applications, such as PPA, where return distribution are specified either as beta or triangular distributions. Among the alternative various models mean and Gini (MG) stands out. MG approach is as simple as MV analysis, but does not rely neither on return distribution nor the shape of utility function. Indeed, MG deals with MV limitations with other benefits: efficient MG portfolios are necessary condition for stochastic dominance analysis. Such features are very attractive to use MG approach for PPA. However, in researches where MG model is used for PPA, interdependence among projects is usually ignored. In this poster, we will show that when interdependence is present, efficient frontier on PPA may be significantly impacted. For this sake, we inserted Gini correlation between research projects, and draw the efficient frontier for different scenarios. The result shows that by considering such interdependence, the efficient frontier may significantly change. That is, the researches presented so far, although innovative, may be improved by simulating interdependent projects, according to the standard of Project Management Institute (PMI).

KEYWORDS: Projects Portfolio. Mean Gini. Correlation Gini. Efficient Boundaries.