

## Naive Versus Efficient Diversification

---

**Azra Zaimović**

*University of Sarajevo, Sarajevo, Bosnia and Herzegovina*  
azra.zaimovic@efsa.unsa.ba

**Almira Arnaut-Berilo**

*University of Sarajevo, Sarajevo, Bosnia and Herzegovina*  
almira.arnaut@efsa.unsa.ba

This study investigates the performance of the naive 1/N portfolios relative to the mean-variance efficient portfolios and index replicating portfolios. We use the Sharpe ratio to measure the portfolio efficiency applied on sample and out-of sample portfolios from two capital markets, one developed (German) and one underdeveloped (Bosnian) in the pre- and post-crisis periods. We answer the question whether the active portfolio strategies are also more efficient.

Our research heavily relies on the research from DeMiguel, Garlappi and Uppal (2009), who found that naive 1/N diversification outperforms other optimizing portfolio models in the US stock market. Methods of determining efficient portfolios are mathematical and statistical problems, solved by applying convex, square or linear programming. According to the chosen methodology we applied our own software to solve optimization problems. We use Monte Carlo simulation to generate returns data in order to examine the persistence of the outperforming strategy in different periods.

**Keywords:** Risk, Naive Diversification, Efficient Diversification.

**JEL Classification:** G11