



Tests for the weights of the global minimum variance portfolio in a high-dimensional setting

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Abstract: In this paper we construct two tests for the weights of the global minimum variance portfolio (GMVP) in a high-dimensional setting, namely when the number of assets p depends on the sample size n such that $\frac{p}{n} \rightarrow c \in (0, 1)$ as n tends to infinity. The considered tests are based on the sample estimator and on the shrinkage estimator of the GMVP weights. The asymptotic distributions of both test statistics under the null and alternative hypotheses are derived. Moreover, we provide a simulation study where the power functions of the proposed tests are compared with other existing approaches. A good performance of the test based on the shrinkage estimator is observed even for values of c close to 1.

Keywords: Portfolio analysis; Global minimum variance portfolio; Statistical test; Shrinkage estimator; Random matrix theory.

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