

Power Analysis of the Ledoit-Wolf Test for Difference in Sharpe Ratios

Wenjia Chen 18-747-923

Master's Thesis M.A. UZH Business and Economics **Department of Banking and Finance** University of Zurich

Supervisor: Professor Dr. Marc Paolella Co-Supervisor: Dr. Patrick Walker

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Abstract

Investors and researchers use various performance tests to compare the performance of different portfolio strategies. Many apply the tests directly without checking the properties of them. Here, we aim to investigate the properties of Ledoit-Wolf test based on multiple settings and come up with an alternative performance test based on the abnormal rate of return.

We find that Ledoit-Wolf test is more sensitive to the change of Sharpe ratio that comes from change of mean but not volatility, but has low power in both case. Besides, the test results in a less power along with a higher Sharpe ratio out-performance in the strategy of minimum-variance with constraints. The alternative test is built up on simple linear regression and HAC covariance estimators, which has a higher power than Ledoit-Wolf test in different designs and for different observation periods.

Keywords: Ledoit-Wolf test, Sharpe ratio