

# Goodness-of-fit tests for centralized Wishart processes

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## Abstract

In this paper we present several goodness-of-fit tests for the centralized Wishart process, a popular matrix-variate time series model used to capture the stochastic properties of realized covariance matrices. The new test procedures are based on the extended Bartlett decomposition derived from the properties of the Wishart distribution and allows to obtain sets of independently and standard normally distributed random variables under the null hypothesis. Several tests for normality and independence are then applied to these variables in order to support or to reject the underlying assumption of a centralized Wishart process. In order to investigate the influence of estimated parameters on the suggested testing procedures in the finite-sample case, a simulation study is conducted. Finally, the new test methods are applied to real data consisting of realized covariance matrices computed for the returns on six assets traded on the New York Stock Exchange.

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