

Testing the Change in Correlation Structure across Markets: High-Dimensional Data

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Abstract : The Correlation Structure associated with a portfolio is subjected to vary across time. Studying the structural breaks in the time-dependent Correlation matrix associated with a collection had been a subject of interest for a better understanding of the market movements, portfolio selection, etc. The current paper proposes a methodology for testing the change in the time-dependent correlation structure of a portfolio in the high dimensional data using the techniques of generalized inverse, singular valued decomposition and multivariate distribution theory which has not been addressed so far. The asymptotic properties of the proposed test are derived. Also, the performance and the validity of the method is tested on a real data set. The proposed test performs well for detecting the change in the dependence of global markets in the context of high dimensional data.

Keywords : correlation structure, high dimensional data, multivariate distribution theory, singular valued decomposition

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