Surveillance of Minimum Variance Portfolio Composition

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Abstract

This paper elaborates the tools for the surveillance of the global minimum variance portfolio weights. Golosnoy and Schmid (2007) introduced EWMA-type control charts for this task based on the processes of the estimated weights as well as of their first differences. This paper proposes the new approximations to these processes exhibiting better stochastic properties for sequential monitoring purpose. The control schemes for the new processes are compared for different types of economically relevant changes using Monte Carlo simulations. The suggested procedures appear to be superior for the considered performance measures.

Keywords: statistical process control, EWMA control charts, multivariate normal distribution, optimal portfolio weights, volatility timing.

Subject classification: 62L10, 62P05, 91B28.

References

[1] Golosnoy V. and Schmid W. 2007. EWMA Control Charts for Optimal Portfolio Weights. *Sequential Analysis* 26: 195–224.