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Finite Sample Properties of Estimators for the Optimal Portfolio Weight

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Abstract: This paper considers the problem of estimating the optimal portfolio weight to the mean-variance model in finance when parameters are unknown. For this purpose, we consider the following two classes of estimators. One is the class of proportional type estimators and the other is the class of Stein type estimators. First, we derive an unbiased estimator of the optimal portfolio weight, which belongs to the class of proportional type estimators. Second, we obtain dominance results within each class. From this, we showed that the unbiased proportional estimator and the maximum likelihood estimator are inadmissible.

Key words: mean-variance model, simultaneous estimation, statistical decision theory, portfolio selection

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