逢甲大學統計學系
學術專題演講

Professor Masanobu Taniguchi

Waseda University
School of Science & Engineering
Japan

時間：100 年 03 月 17 日　星期四　13:00-14:30

地點：商 1011 室(商學大樓十樓)

講題：Statistical Estimation of Optimal Portfolios for Dependent Returns

Abstract

In this talk, we discusses the asymptotic efficiency of Estimators for optimal portfolios when returns are vector-valued non-Gaussian stationary processes. We give the asymptotic distribution of portfolio estimators $\hat{g}$ for non-Gaussian dependent return processes. Next we address the problem of asymptotic efficiency for the class of estimators $\hat{g}$. First, it is shown that there are some cases when the asymptotic variance of $\hat{g}$ under non-Gaussianity can be smaller than that under Gaussianity. The result shows that non-Gaussianity of the returns does not always affect the efficiency badly. Second, we give a necessary and sufficient condition for $\hat{g}$ to be asymptotically efficient when the return process is Gaussian, which shows that $\hat{g}$ is not asymptotically efficient generally. From this point of view we propose to use maximum likelihood type estimators for g, which are asymptotically efficient. Also we report that the results are extended to the case when the return processes are locally stationary.

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逢甲大學統計學系
學術專題演講

Dr. Alex Petkovic
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時間：100 年 03 月 17 日　星期四　14:30-16:00

地點：商 1011 室(商學大樓十樓)

講題：　Robust Protfolio

Abstract

In this paper we study issues related to Optimal portfolio estimators and local asymptotic normality of the return process under the assumption that the return process has an $MA(\infty)$ representation with skew normal innovations. The paper is composed of two parts. In the first part we discuss the influence of the skewness parameter δ of the skew-normal distribution on the optimal portfolio estimators. Based on the asymptotic distribution of portfolio estimators $\hat{g}$ for non-Gaussian dependent return process, we evaluate an influence of δ on the asymptotic variance $V(\delta)$ of $\hat{g}$. In particular we study how small departure from normality influences the variance of the estimators. From this we evaluate the robustness and sensitivity of the portfolio via numerical computations. In the second part of the paper we assume that the MA coefficients and the mean of the return process depend on a lower dimensional set of parameters. Based on this assumption we prove the LAN property of the return's distribution when the innovations follow a skew normal law. The influence of δ on the central sequence of LAN is evaluated theoretically and numerically.

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逢甲大學統計學系
學術專題演講

Dr. Tomoyuki Amano

**Waseda University
School of Science & Engineering
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時間：**100 年 03 月 17 日 星期四 16:00-17:30**

地點：商 1011 室(商學大樓十樓)

講題：Asymptotic efficiency of estimating function estimators for nonlinear time series models

Abstract

The conditional least squares (CLS) estimator proposed by Tjostheim (1986) is convenient and important for nonlinear time series models.

However this convenient estimator is not generally asymptotically efficient. Hence Chandra and Taniguchi (2001) proposed a G estimator based on Godambe's symptotically optimal estimating function. For important nonlinear time series models, e.g., RCA, GARCH, nonlinear AR models, we show the asymptotic variance of the G estimator is smaller than that of the CLS estimator, and the G estimator is asymptotically efficient if the innovation is Gaussian. Numerical studies for the comparison of the asymptotic variance of the G estimator, that of the CLS estimator and the Fisher information are also given. They elucidate some interesting features of the G estimator.

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