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13-15 August 2009

Proceedings of

4TH INTERNATIONAL CONFERENCE ON MATHEMATICS AND STATISTICS (ICOMS 2009)

Jointly Organized By :

UNIVERSITAS MALAHAYATI BANDAR LAMPUNG

Muslim Statisticians and Mathematicians Society in South East Asia (MSMSSEA)

Universiti Malaysia Terengganu

PREFACE

The Fourth International Conference on Mathematics and Statistics is an annual program belong to MSMSSEA (Muslim Statisticians and Mathematicians Society in South East Asia) in collaboration with Institute Statistics of Malaysia (ISM), Persatuan Matematik Malaysia (PERSAMA), Indonesia Mathematics Society (Indo MS), Universitas Malahayati, and Universiti Malaysia Terengganu.

The Participants of the conference are about 100 coming from more than 20 higher institutions, among others Universitas Gadjah Mada (UGM), Institut Teknologi Bandung (ITB), Universitas Indonesia (UI), Institut Pertanian Bogor (IPB), Universitas Putra Malaysia (UPM), Institut Teknologi Sepuluh Nopember (ITS), Universitas Kebangsaan Malaysia, Waseda University Japan, Chinese Academy of Science Sanghai China, University of Twente Netherland, Nasional University of Malaysia, International Islamic University Malaysia, Universitas Guna Darma, Universiti Islam Antar Bangsa Malaysia, Universitas Sriwijaya, Lembaga Sandi Negara.

I hope this conference will be a big class for professor in Mathematics and Statistics and their students to exchange ideas and share of knowledge and experience. This kind of conference will surely have a positive impact on higher education in general as well as in the development of mathematics and statistics and its applications. In addition the conference will encourage the faculty members to do more and more research.

On behalf of the Steering Committe, we would like to express our deepest gratitude to the Foundation of Alih Teknologi, Rector Universitas Malahayati, International advisory Board Members, and to all participants we are also grateful to all organizing committee members and all the reviewers, without those efforts such a high standard for the conference could not have been achieved.

Bandarlampung, 11 August 2009

Dr. Iing Lukman
The ICOMS4 Chairman

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MVAR NORMAL VS MVAR STUDENT BY NON-CONSTANT VOLATILITY AND THE LONG MEMORY EFFECT

Sukono[1], Subanar[2] & Dedi Rosadi[3]
[1*] Department of Mathematics, Faculty of Mathematics and Natural Science, Padjadjaran University,
Bandung - Indonesia, e-mail : fsukono@yahoo.com
[2,3] Department of Mathematics, Faculty of Mathematics and Natural Science, Gajah Mada University, Yogyakarta - Indonesia, e-mail : subanar@yahoo.com & dedirosadi@ugm.ac.id

Abstract. Objective of the paper is to investigate the comparison between *the modified Value-at-Risk* (*MVaR*) by the standard normal distribution and *MVaR* by the standard Student-*t* distribution approaches, especially when the volatility is non-constant then considering the effect of long memory. In *MVaR*, to calculate the risk rate of investment in addition to involving the average and standard deviation, the skewness and kurtosis also must be considered, especially for the return assets with non-normal distributed. Furthermore, empirically it will be compared *MVaR* by the standard normal distribution approach and *MVaR* by the standard Student-*t* distribution approach, to see the ability of each approach in capturing the effect of non-normality of return assets distribution.

Keywords: asymmetry distribution, Fat tails, *MVaR*, ARFIMA, GARCH.