4th International Conference On Mathematics and Statistics 2009

ICoMS-2009 UNIVERSITAS MALAHAYATI

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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PORTFOLIO OF CREDIT RISK BY FACTOR MODELS

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Abstract. Factor models are the models that can replicate realistic correlated default behavior. In factor models, the dependence between the individual defaults is driven by a small number of systemic factors. In this paper, a particularly simple class of default risk models is presented the conditionally independent models. These models were built up from the simplest case of a homogeneous portfolio to the complex case of multifactor portfolio with rating classes of two asset classes. The process in this financial assignment tries to find conditional default probability and analyze the default. The analysis, numerically, uses simple firm value model with the assistance Matlab-7 software. At the end of the explanation about factor models and default analysis, it is obtained that the number of conditional default probability in fortfolio depends very strongly on the default correlation between these obligors. The effect of default correlation can be very large, sometime as large as the default probabilities themselves. Therefore these effects must not be ignored in the portfolio risk management.

Keywords: Credit risk, correlation, portfolio, Beta distribution, factor models, Value-at-Risk.

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