

# Preface

The notion of copula provides an efficient way to describe the interrelationships of random variables and offers a great flexibility in building multivariate stochastic models. Since its discovery in the early 1950s, copulas have contributed to understand better the various facets of stochastic dependence and have allowed to break away from the standard assumptions (like multivariate Gaussian distribution), which generally underestimate the probability of joint extreme risks.

Nowadays, copula-based dependence models are rapidly gaining considerable popularity in several fields and are becoming indispensable tools not only in finance, insurance, risk management and econometrics but also in biostatistics, hydrology or machine learning. For example, they are widely used for the modelling of market, credit and operational risk, as well as for the aggregation of risks and portfolio selection. Moreover, such a large interest in the applications of copulas has spurred researchers and scientists in investigating and developing new theoretical methods and tools for handling randomness and uncertainty in practical situations.

The workshop “Copulae in Mathematical and Quantitative Finance”, which took place in Cracow (Poland) on 10th–11th July 2012, has represented a good opportunity for intensive exchange of ideas about recent developments and achievements that can contribute to the general development of the field. The talks presented at this event have focused on several interesting theoretical problems as well as empirical applications.

In order to make all these contributions available to a larger audience, we have prepared this volume collecting both surveys giving an up-to-date account of some aspects of copula models and extended versions of talks presented at the workshop in Cracow.

Our special thanks go to the authors for their willingness to contribute to this volume and to our colleagues whose contribution as reviewers was essential in the preparation of the volume.

The professional work of the scientific and organizing committees was greatly appreciated, as well as the support of the co-sponsors of this conference.

Finally, we are indebted to our publisher Springer, in particular to Alice Blanck for her assistance in the editorial process.

Bolzano, Italy  
Berlin, Germany  
Warszawa, Poland  
January 2013

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Copulae in Mathematical and Quantitative Finance  
Proceedings of the Workshop Held in Cracow, 10-11 July  
2012

Jaworski, P.; Durante, F.; Härdle, W.K. (Eds.)  
2013, XII, 294 p. 38 illus., 24 illus. in color., Softcover  
ISBN: 978-3-642-35406-9