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A word from the Editor

The importance of mathematical tools – supported by the means of informatics – in the sphere of micro- and macroeconomics is still growing. This issue of the Economics and Business Review contains several papers devoted to the application of quantitative methods in economics and management. The development of this research area in Poland owes much to the work of Zbigniew Czerwiński, Professor at the Academy of Economics in Poznań (now the University of Economics and Business). Thanks to the experience that Zbigniew Czerwiński gained at Harvard University as a student of Wassily Leontief he was the founder of the Poznań School of Econometrics and Mathematical Economics. To commemorate his role, a conference on "The Application of Mathematics and Informatics in Economics" has been held at the Poznań University of Economics and Business every year since 2011.

In 2016 the main areas covered by the papers presented were devoted to risk analysis and modelling, mathematical economics and economic analytics. The key-note speakers of the conference were: Edward I. Altman, whose research concentrates on bankruptcy analysis and prediction, risk management, corporate finance and capital markets and Krzysztof Jajuga, whose research concentrates on risk management and financial engineering.

Five of the papers contained in this publication were presented at the conference and the two remaining strictly refer to the application of mathematical models in economics. Risk management is one of the most dynamically developing areas in economic sciences. One of the main driving forces for this development has been the practical challenge resulting from increasing financial risk. The first paper entitled **"From duration analysis to GARCH models – an approach to the systematization of quantitative methods in risk measurement"** by Krzysztof Jajuga makes an attempt to systematize some risk measures with regard to several criteria and provides related comments.

Edward I. Altman and Brenda J. Kuehne, the co-authors of the paper **"Credit markets and bubbles: is the benign credit cycle over?**" are aware of the fact that bubble theories are becoming quite common these days for several asset classes as well as in important growth areas of the world, such as China, India and the U.S. Therefore they compiled evidence in order to find answers to such questions like: Are we in the midst of an inflating credit bubble and, if so, when is it likely that the bubble will burst? On the other hand are we experiencing an extended period of opportunistic debt financing?

The aim of the study by Katarzyna Filipowicz, Tomasz Misiak and Tomasz Tokarski in the paper entitled **"Bipolar growth model with investment flows"** was to design a model of economic growth with investment flows between two types of economies (conventionally referred to as relatively rich and relatively poor economies). The paper analyses the long-term equilibrium of the growth model, both in terms of the existence of steady states of the system of differential equations and in terms of the stability of a non-trivial steady state.

With the increased interest in social media over recent years, the role of information disseminated through media such as Twitter has become more widely recognised. Karl Shutes, Karen McGrath, Piotr Lis and Robert Riegler in the paper **"Twitter and the US stock market: The influence of micro-bloggers on share prices"** examine the mention of stocks on the US markets (NYSE and NASDAQ) by a number of financial micro-bloggers to establish whether their posts are reflected in price movements. A substantial number of tweets were linked to the price movements of the assets mentioned and an event study methodology was used to ascertain whether these mentions carry any significant information or whether they are merely noise.

In the paper **"Can we invest based on equity risk premia and risk factors from multi-factor models"** the authors Paweł Sakowski, Robert Ślepaczuk and Mateusz Wywiał analyse two investment algorithms built on the weekly data of world equity indices for emerging and developed countries in the period of 2000–2015. They create seven risk factors using additional data about market capitalization, book value, country GDP and betas of equity indices. The first strategy utilizes the theoretical value of the equity risk premium from the seven-factor Markov-switching model with exogenous variables. The second algorithm works only on eight risk factors and applies them as input variables to Markowitz models with alternative optimization criteria.

In the paper "**Quantifying wage effects of offshoring: import-** ***versus*** **export-based measures of production fragmentation"** Joanna Wolszczak-Derlacz and Aleksandra Parteka examine the implications of the international fragmentation of production on wages in the light of recent methodological developments in offshoring measurement**.** The authors compare the results stemming from two contrasting ways of quantifying offshoring – the "old" one based on import statistics and the "new" one using the decomposition of gross exports and input-output information.

In the last paper **"Simple four-step procedure of parabolic B curve determination for OECD countries in 1990Q1–2015Q4"** Dariusz J. Błaszczuk proposes a procedure which can be implemented to estimate a short-term relationship between inflation and the GDP rate. The results obtained in the empirical analysis allow the author to determine the optimal GDP rate and corresponding inflation for all 26 OECD countries.

The selection of papers shows how extensive the application areas of quantitative methods in economics, finance and management actually are. The papers trace the most current economic problems. They are interesting not only for readers who are dealing with the construction of tools for economic analysis and management, but also for those who apply these tools in decision-making processes.

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