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Letter from Editors

The first issue of volume 10 covers three very different areas of mathematical and statistical modelling in economic sciences which include foreign exchange rates volatility, insurance premium calculations and functional time series approach to environment pollution forecasting.

The first paper, written by Abderrazak Ben Maatoug, Rim Lamouchi, Russell Davidson and Ibrahim Fatnassi represents financial econometrics methods and is devoted to modelling realized volatility constructed from intra-daily high-frequency data. The authors explore the possibility of confusing long memory and structural breaks in the realized volatility of the EUR/USD, EUR/JPY, EUR/CHF, EUR/GBP, and EUR/AUD exchange rates. The results show strong evidence for the presence of the long memory, but also indicate structural breakpoints that match important events.

In the second paper, Joanna Dębicka and Beata Zmyślona propose an insurance model for premium calculation when several premium-paid states are involved. The authors derive a general matrix formula for the net period premium paid in more than one state. In order to avoid "overpayment", which implies higher premiums, they give a formula for replacement of lump sum benefit into annuity benefits paid in more than one state. The empirical example consists of dread disease insurances against the risk of lung cancer analysis based on the actual data for the Lower Silesian Voivodship in Poland.

In the third paper, Daniel Kosiorowski, Dominik Mielczarek and Jerzy P. Rydlewski investigate forecasting of a hierarchical functional time series. The authors present and critically discuss the functional time series approach and focus on an application of its methods to some environment protection problems. They compare the best predictor known from the literature with their own proposal. In the empirical part of the paper a model describing the day and night air pollution in Silesia region (divided into five sub-regions) is presented.