

# IEEE TRANSACTIONS ON FUZZY SYSTEMS

## Special Issue on Fuzzy Techniques in Financial Modelling and Simulation

### I. AIMS AND SCOPE

Computational intelligence has attracted a significant and increasing interest from the financial engineering and economics communities in recent years. Computational systems capturing sentiments, preferences, behaviour and beliefs, are becoming indispensable in virtually all financial applications, from portfolio selection to proprietary trading, algorithmic trading, and risk management. The bar has been raised with the revision of regulations, and the required compliance and risk management. The new rules should be implemented through new processes and supported by developing new computational tools.

The fuzzy systems domain provides an armoury of techniques to address the challenges currently encountered in the financial engineering area. Fuzzy logic can be used to effectively describe and incorporate financial experts' and market participants' intuition and behaviour, reaching beyond the capabilities of probabilistic models traditionally used in financial modelling. In addition, fuzzy techniques can be used in conjunction with probabilistic models or with other machine learning techniques, such as evolutionary optimisation methods or neural networks, in order to better address the challenges raised in this area.

The objective of this special issue is to bring together the most recent advances in the design and application of fuzzy approaches to real problems in financial engineering. A focus of interest is simulating scenarios at different level of granularity, as well as developing test environments for new financial and banking regulation, while accommodating behavioural aspects.

### II. TOPICS COVERED

This special issue solicits original contributions on *theoretical developments* for financial modelling and simulations based on the following paradigms:

- fuzzy time series
- fuzzy data mining
- fuzzy intelligent decision-making
- fuzzy optimisation
- fuzzy granular computing
- fuzzy systems
- fuzzy-rough approaches
- evolving fuzzy systems
- neuro-fuzzy systems
- support vector machines

*Application papers* of these paradigms to the following financial engineering areas are welcome:

- agent-based artificial financial markets
- financial-regulation test environments
- financial sentiment analysis, emotion mining
- financial scenarios modelling and simulation
- algorithmic trading
- instruments pricing
- financial forecasting
- risk management
- contagion analysis
- systemic risk modelling
- portfolio optimization
- trading strategies
- behavioural finance
- finance big data analytics

### III. IMPORTANT DATES

July 1, 2015: Submission deadline

Oct. 1, 2015: Notification of the first-round review

Nov. 1, 2015: Revised submission due

Dec. 15, 2015: Final notice of acceptance/reject

### IV. SUBMISSION GUIDELINES

Manuscripts should be prepared according to the instruction of the "Information for Authors" section of the journal found and submission should be done through the IEEE TFS journal website: <http://mc.manuscriptcentral.com/tfs-ieee> Clearly mark "Special Issue on Fuzzy Techniques in Financial Modelling and Simulation" in your cover letter to the Editor-in-Chief. All submitted manuscripts will be reviewed using the standard procedure that is followed for regular submissions.

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