**Editorial**

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# Special Issue: Monitoring Systemic Risk: Data, Models and Metrics

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The financial crisis of 2007–2009 has underlined the importance of interconnectedness among financial institutions and markets [1], the insufficiency of monitoring the balance sheet of individual financial institutions in isolation, and the necessity of adopting a system-wide view of financial stability. In the wake of the crisis, regulators have sought well-grounded and forward-looking indicators for monitoring the development of systemic risks in the financial system. The construction and interpretation of indicators and the identification and collection of relevant data for computing such indicators have proven to be major and ongoing challenges.

The design of indicators for monitoring systemic risk requires the prior identification of contagion mechanisms and calls for an interplay between theory and empirical research. Many researchers have attempted to tackle the challenge of understanding the mechanisms underlying systemic risk. This two-part special issue grew out of a one-week workshop on *Monitoring Systemic Risk: Data, Models and Metrics*, organized by Rama Cont (Imperial College), Michael Gordy (Federal Reserve Board) and Christian Gourieroux (CREST and University of Toronto). The workshop, held in September 2014, was hosted by the Isaac Newton Institute of Mathematical Sciences (Cambridge, UK) as part of a semester-long program on "Systemic Mathematical modelling and interdisciplinary approaches" (www.newton.ac.uk/event/syr). The workshop gathered together more than 100 researchers from various disciplines – mathematical finance, economics, econometrics and operations research – together with regulators, central bankers and industry risk professionals, to discuss how mathematical modeling may contribute to the modeling and monitoring of systemic risk.

Further material and video recordings of all lectures are available for download from the website of the workshop at www.newton.ac.uk/event/syrw02.

The contributions to this Special Issue underline some key issues that arose during the discussions at the workshop: estimation and validation of risk measures for capital adequacy, models of interconnectedness and centrality in banking networks, fire sales spillovers and portfolio overlaps.

We thank the Isaac Newton Institute of Mathematical Sciences (Cambridge) for hosting and supporting the workshop and Old Mutual for its financial support of the program "Systemic Risk: Mathematical Modeling and Interdisciplinary Approaches".

## References

[1] J. L. Yellen, Interconnectedness and systemic risk: Lessons from the financial crisis and policy implications, Speech at the American Economic Association/American Finance Association, 2013, https://www.federalreserve.gov/newsevents/speech/Yellen20130104a.pdf.

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