

NEW DIRECTIONS FOR UNDERSTANDING SYSTEMIC RISK

Federal Reserve Bank of New York
33 Liberty Street, New York, New York
May 18-19, 2006

Thursday, May 18

8:30 a.m.-8:45 a.m. Welcome and Overview of Conference Goals

Speakers: *Christine M. Cumming*, First Vice President and Chief Operating Officer, Federal Reserve Bank of New York
Charles Lucas, Member, Board of Mathematical Sciences, National Academy of Sciences

Industry consolidation, global networking, terrorist threats, and heavy dependence on computing: these and other trends introduce the possibility of new systemic risks, perhaps with increased ramifications. Ms. Cumming and Mr. Lucas will discuss the importance of understanding and managing systemic risk and set the stage for the conference as an opportunity for the central banking community to take a fresh look at systemic risk, aided by the insights of researchers who study similar risks in other complex systems.

8:45 a.m.-9:45 a.m. Background on Systemic Risk in the Financial Sector

Speakers: *Darryll Hendricks*, UBS
Thomas Daula, Morgan Stanley
D. Wilson Ervin, Credit Suisse 1

Three presentations will help to identify key issues relating to systemic risk in financial markets and institutions, describe the structure of financial markets, and give historical examples of risks that concern central bankers and market practitioners.

10:00 a.m.-12:30 p.m. Presentations on Current Research Directions

Speakers: *Roberto Rigobon*, Massachusetts Institute of Technology
Hyun Song Shin, Princeton University
Markus K. Brunnermeier, Princeton University
Chair: *Franklin Allen*, Wharton School, University of Pennsylvania

A panel of experts in systemic risk in the financial sector will present a cross-section of current work in this area. The chair will raise discussion topics for the panel and serve as moderator during a question-and-answer session with the audience.

12:30 p.m.-1:45 p.m. Welcome and Keynote Speaker

Welcome and Introduction: *Timothy Geithner*, President, Federal Reserve Bank of New York
Keynote Speaker: *Donald L. Kohn*, Governor, Board of Governors of the Federal Reserve System

1:45 p.m.-4:00 p.m. Panel Discussion: Models of Systemic Phenomena in Other Complex Interactive Situations

Panelists: *Yacov Haimes*, University of Virginia
Massoud Amin, University of Minnesota
Chair: *Charles R. Taylor*, Risk Management Association

Two researchers who model systemic phenomena in nonfinancial systems will each make a presentation. The first explores concepts and methods for analyzing risk in complex engineered systems. The second outlines concepts and methods for modeling systems, infrastructure reliability, and catastrophic failures in complex networks such as power grids. The speakers will address the treatment of heavy-tailed events, the modeling of networks, and the identification of vulnerabilities. The session chair will compare and contrast the approaches with those typically applied in studies of systemic risk in the financial sector and then open the floor for discussion.

APPENDIX A: CONFERENCE PROGRAM (CONTINUED)

4:15 p.m.-5:30 p.m. Presentation on Systemic Dynamics in the Federal Funds Market

Speakers: *Darrell Duffie*, Stanford University
Adam Ashcraft, Federal Reserve Bank of New York

The presenters will discuss preliminary results of a simulation of the systemic risk arising from settlement flows in the fed funds market.

Friday, May 19

8:00 a.m.-10:15 a.m. Panel Discussion: Models of Risks Facing Complex Systems

Panelists: *Simon Levin*, Princeton University
Morten Bech, Federal Reserve Bank of New York
Walter E. Beyeler, Sandia National Laboratories
Robert J. Glass, Sandia National Laboratories
Chair: *George Sugihara*, University of California, San Diego

This session presents two talks about the risks facing complex systems. The first speaker explores concepts and methods for analyzing behaviors of ecosystems, especially

as they adapt to or approach precipitous changes. The second talk, by a cross-disciplinary team of researchers, presents a pilot attempt to analyze critical nodes in the financial transaction system using tools and concepts that are not in common use in the central banking community. A discussion with conference participants will follow.

10:30 a.m.-12:00 p.m. Wrap-Up Panel Discussion: What Has Been Learned?

Panelists: *Douglas Gale*, New York University
Robert Litzenberger, Azimuth Trust
George Sugihara, University of California, San Diego
Vincent Reinhart, Board of Governors of the Federal Reserve System
Chair: *Timothy Geithner*, President, Federal Reserve Bank of New York

Panelists from the fields of finance, economics, and science will share observations on the conference findings and offer thoughts for the road ahead. Conference participants will be invited to respond.