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Hideki Takayasu (Ed.)

Empirical Science of Financial Fluctuations

The Advent of Econophysics

With 195 Figures



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Preface

The environment surrounding world financial markets is changing drastically. Fluctuations are now so complex that they are beyond the scope of conventional economic theories and could potentially disrupt the world economy. Currency exchange has been liberalized, round-the-clock trading through computer networks is brisk, and financial derivative products are becoming more complicated and diverse. To avoid the disorder resulting from financial fluctuations, problems should be dealt with not on an individual, profit-seeking basis, but jointly. It is imperative that economists collectively analyze data on current financial and monetary activities using the most sophisticated scientific instruments and engage in extensive discussions of the results.

That was the aim of the international workshop “Empirical Science of Financial Fluctuations,” organized by the *Nihon Keizai Shimbun* in Tokyo, November 15–17, 2000. Attended by more than 60 researchers from 17 countries, the workshop represented a melting pot of physicists, information scientists, economists, and financial practitioners seeking to establish empirical facts regarding financial fluctuations. These proceedings give numerous examples of empirical findings based on actual data from financial markets, together with basic theoretical and computational approaches.

The workshop was supported by: the Bank of Japan; the Financial Markets Department, Economic Planning Agency, Government of Japan; the Economic Research Institute; the Japan Center for Economic Research; the Physical Society of Japan; and the Japan Association for Evolutionary Economics. On behalf of all participants, I would like to thank those supporters, as well as the following companies without whose financial support the workshop would not have been possible: Osaka Securities Exchange; Canon, Inc.; Sony Corporation; Information Service International–Dentsu, Ltd.; Dresdner Kleinwort Benson Limited; and Mitsui and Co., Ltd.

As the chief organizer, I am grateful for the cooperation of the organizers T. Shimizu (Bank of Japan), J. Uno (OptiMark Systems, Inc.), and H.E. Stanley (Boston University). I would also like to thank keynote speakers H.E. Stanley, R.N. Mantegna, J.D. Farmer, Y.-C. Zhang, and M. Ausloos. Special appreciation is extended to the members of the conference secretariat, as represented by K. Kamohara, for their kind efficiency and to the staff of Springer-Verlag, Tokyo, for editorial support. Finally, I would like to thank all the authors for their contributions to this volume.

H. Takayasu
Tokyo 2001

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