Preface

Systemic risk has long been identified as a potential for financial institutions to trigger a dangerous contagion mechanism from the financial economy to the real economy itself. One of the commonly adopted definitions of systemic risk is: "risk of disruption to the flow of financial services that is

(i) caused by an impairment of all or parts of the financial system; and
(ii) has the potential to have serious negative consequences for the real economy".

Evident from this definition, or from any of its variants that one can find in the growing literature on the subject, are two characteristic aspects. The first one being that such a risk takes place at a much larger scale than that of an individual institution. The second one being that it eventually spreads to the real economy outside the financial system through various "leakage" mechanisms, of which the last crisis has given some examples: liquidity shrinkage, fire sale of assets, drop in market value of derivatives...

This type of risk, long confined to the monetary market, has spread widely in the recent past, culminating in the subprime crisis of 2008. The understanding and control of systemic risk has therefore become an extremely important societal and economic question. Such problems are now extensively being studied by people from disciplines like economics, finance and physics. The contributions by physicists are relatively new.

The Econophys-Kolkata VI conference, the 6th event in this series of international conferences, held during October 21–25 last year, was dedicated to address and discuss extensively these issues and the recent developments. Like the last event in the series, this one was also organized jointly by the École Centrale Paris and the Saha Institute of Nuclear Physics, and was held at the Saha Institute of Nuclear Physics, Kolkata.

This proceedings volume contains the written versions of most of the talks and seminars delivered by distinguished experts from all over the world, participating in the meeting, and accepted after refereeing. For some completeness in the cases of one or two important topics (like in the case Many-agent Games), some reviews, by experts who could not attend, were invited and incorporated in this volume.

These Proceedings volume is organized as follows: Part I dedicated to the study of systemic risk, network dynamics and other empirical studies. Part II devoted to model-based studies. We have also included Part III for "miscellaneous reports", to present some on-going or preliminary studies. Finally, we have summarized in a brief "discussion and comments" Appendix, some of the remarks made by the participants during the various interesting and animated exchanges that took place during the panel discussion in the conference.

We are grateful to all the participants of the conference for their participation and contributions. We are also grateful to Mauro Gallegati and the Editorial Board of the New Economic Windows series of the Springer-Verlag (Italia) for their support in getting this Proceedings volume published as well, in their esteemed series.[1]

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[1] Past volumes:

(i) Econophysics of Order-driven Markets, Eds. F. Abergel, B.K. Chakrabarti, A. Chakraborti, M. Mitra, New Economic Windows, Springer-Verlag, Milan, 2011.
(ii) Econophysics & Economics of Games, Social Choices and Quantitative Techniques, Eds. B. Basu, B.K. Chakrabarti, S.R. Chakravarty, K. Gangopadhyay, New Economic Windows, Springer-Verlag, Milan, 2010.
(iii) Econophysics of Markets and Business Networks, Eds. A. Chatterjee, B.K. Chakrabarti, New Economic Windows, Springer-Verlag, Milan, 2007.
(iv) Econophysics of Stock and other Markets, Eds. A. Chatterjee, B.K. Chakrabarti, New Economic Windows, Springer-Verlag, Milan, 2006.
(v) Econophysics of Wealth Distributions, Eds. A. Chatterjee, S. Yarlagadda, B.K. Chakrabarti, New Economic Windows, Springer-Verlag, Milan, 2005.