

Research program:
“Alarm bells construction for the risk of contagion”

Annex Code 3

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Description

The research project focuses on the concept of systemic risk and, in particular, on the measures that can be used to assess its intensity. Systemic risk can be defined as the risk that an idiosyncratic event might cause, either directly or indirectly, losses in a given economic/financial system, significant enough to impair its regular functioning and to weaken its stability. The above definition is not limited only to financial losses: a serious loss of confidence in the international financial markets, for example, can be considered as a systemic event as well as the credit worsening of key entities.

Also due to the recent financial crisis, measuring systemic risk has become one of the pillars of the policies that supervisors worldwide, both at national and international level, rely upon in order to guarantee the stability of financial markets. In general, a paradigm shift in the approach underlying the efforts of such authorities: while in the past the different actors in the markets were considered independently from each other, in recent times a bigger importance is assigned on the interactions between these actors and the system seen as a whole. As a consequence, major financial institutions have enriched the usual risk indicators with new measures designed to model and account for the complex infective mechanisms that underlying systemic risk.

Objectives

The field of research covering contagion and systemic risk is rapidly expanding due to the high importance of the topics involved. Its relative novelty and the strong interest it attracts make this area of research a very promising one, providing ample space for innovative and original contributions.

One of the first results this project aims to achieve is the systematization of the highly heterogeneous body of work published on the topic in the last two decades. The criterion we intend to use for this systematization is innovative in its own: it is based on the analysis of the strategies adopted for the creation of the models underlying the risk indicators. Such approach allows for a fair comparison between different indicators as groups them according to the models used and, in particular, to the type and nature of the input data required. We believe that such systematization will represent a useful tool in order to aide researcher approaching the field for the first time.

Another result expected is the definition of a set of contagion risk indicators that are both applicable in real life and essential, i.e. avoiding redundancy and inefficiency. A set of indicators that is too wide is, in fact, difficult to monitor and to maintain when compared with a smaller one still capable of providing similar quality of information.

The extensions we intend to produce in the second phase of the project are characterised by their strong innovation. The use of information related to the joint probability of default allows a new calibration route for the models used by several indicators and opens the possibility of further developments, both theoretical (via new methodologies for the calibration of models) and practical (review of the results obtained in literature thanks to the revised calibration of the probability inputs).

Lastly, in the third phase we intend to extend the application of some of the methodologies used in previous phases from the pure financial context to other industrial settings. While,

usually, studies focused on default probability of the banking system, we intend to explore the applicability of similar techniques, modified where necessary, to problems of industrial planning and operative risk.

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