Forum for Financial Stability at the Deutsche Bundesbank

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"Assessing and Communication of Risks in Complex Systems"

Summary of the discussion

Participants: Professor Gaby-Fleur **Böl** (Head of Department Risk Communication, Federal Institute for Risk Assessment), Professor Jon **Danielsson** (Director of the Systemic Risk Centre, London School of Economics), Matthias **Gärtner** (Press Spokesman, Head of Communication Strategy and Press, Federal Office for Information Security), Susanne **Glasmacher** (Head of Press and Public Relations, Robert Koch Institute), Professor Friedrich **Hesse** (Chair for Applied Cognitive Psychology and Media Psychology, University of Tübingen), Cecilia **Skingsley** (Deputy Governor, Sveriges Riksbank)

Chair: Professor Claudia **Buch** (Vice-President, Deutsche Bundesbank)

Introduction

According to the Financial Stability Act, which came into effect in January 2013, the Bundesbank's task is to contribute to maintaining financial stability. In order to fulfil this mandate, the Bundesbank analyses risks to financial stability and identifies and proposes appropriate policy measures. This is why the exchange of ideas with researchers and market participants is important. In 2016, the Bundesbank set up the Forum for Financial Stability at the Deutsche Bundesbank in order to create a more formal setting for such an exchange of ideas. The forum's meetings are held under the Chatham House rule.

Public institutions in several fields have to assess and communicate risks arising in complex systems and are hence faced with various challenges. Because financial stability is a multidimensional concept applied to the complex system of markets, macroprudential policy faces similar challenges. The probability of an adverse event may be estimated only with a high degree of uncertainty, and relevant events might even be overlooked. Policy decisions often need to be made before conclusive evidence is available. Communication is arguably the first instrument used when responding to detected risks. One particular challenge is that the information is often complex, uncertain, difficult to understand, and potentially misleading.

From an interdisciplinary angle, participants in the Forum discussed the challenges in communicating risks and uncertainties in a complex environment. Similarities and differences between the fields were elaborated by the experts from academia and public institutions on communicating various types of risks (e.g., food and health risks, IT risks, and risks related to financial markets). Participants explored two overarching questions. First, in terms of communicating risks and uncertainties, what are the challenges involved in and what are the methods used? Second, what is the experience of communicating risks and uncertainties in complex systems? In particular, the experts discussed which methods and concepts had been applied so far and what lessons had been learned.

How to Communicate the Unknown?

The emergence of the internet and the digitalisation of media mean that the amount of **information** available to scientists, business executives, practitioners of medicine, and public institutions has undergone a rapid increase. While all participants perceive the potential benefits of big datasets, such as improved early warning systems and crisis management, they also stressed the problems of inference and interpretation of the data. Big datasets are complex and often difficult to assess, while the human brain has a limited capacity to absorb and process large quantities of information. Advanced algorithms and better digital visualisation tools are needed to extract the relevant information and draw causal inferences. Some participants argued that information is not the same as knowledge, experience, or even social interaction. Hence, recent technological innovations, such as robot doctors and regulatory technology, should be used only with great caution. Others stressed that, from their own experience, people are relatively good at imagining abstract problems, and are able to weigh up the risks and rewards of their decisions, such as taking out or not taking out a mortgage loan, at the individual level.

Participants debated the timing and content of communication. Some argued in favour of a timely and transparent communication, because otherwise the public might believe that the authority is hiding something. On the downside, the public institution may be too early in making known information that subsequently turns out to be incorrect when more data and research are available, and this could damage the authority's reputation. While participants discussed the appropriate degree of **transparency**, they all agreed that building up and preserving reputation, i.e., trust management, as well as maintaining relationships with stakeholders is vital for any public institution. Moreover, participants pointed out that it is crucial to have a good sense of how the audience will react to a given communication, and this, in turn, depends on whether or not the public trusts the authority. Advocates of a more paternalistic approach recommended not being too transparent, because the audience's reaction might be hard to predict and, hence, have unintended consequences.

Finally, participants discussed the role played by **journalists and media** when communicating risks and uncertainties in complex systems. Some argued that the interests of the media and their fluctuation over time are a major issue. While journalists typically show keen interest in certain topics in times of crisis, such as during a financial market crisis or a flu pandemic, it is difficult for public institutions to convey their messages in normal times. In addition, journalists and, in particular editors, might be reluctant to address potentially complex issues, such as financial market regulation, or at least may believe that their readers are not interested in such topics.

Experience with Communicating Risks and Uncertainties

Based on their own experience in the communication of risks and uncertainties in a complex environment, participants reported that there is a gap between the actual risks, as measured for instance by academic or their institutions' research, and the risks perceived by the public. Hence, changing the **awareness and behaviour** of the audience is an important but also difficult task that may take some time. According to some participants, the communication of simple recommendations and heuristics, which are easy to understand, is, however, in many circumstances sufficient to change the awareness and behaviour of the public even if the

problem at hand is complex. Similarly, risk profiles that use simple words or traffic lights to indicate hazard and exposition, not a complex scaling, have proven useful in this context. While these tools are often criticized because of their simplicity, they are better suited to narrow the gap between perceived and actual risk than complicated recommendations. In addition, participants argued, based on their own research, that people understand that initial recommendations are repealed from time to time in light of new information and adjust their behaviour accordingly.

Besides differing perceptions of risk, the participants discussed a number of additional factors that may explain why regulators in various fields have difficulties in changing the public's behaviour in the desired direction. First, the expected individual reward of a change in behaviour might be too small. Second, some individuals may have difficulties in taking due account of side effects and the delayed impact of actions. Third, there may be incentives for free riding. Fourth, participants argued that, in some markets, companies may even find it beneficial to maximise complexity in order to play off this complexity against the regulator and to boost their profits. And, finally, experts in public institutions are sometimes affected by the **curse of knowledge** when it comes to communication with major stakeholders outside their authority. Since experts spend a lot of time on investigating a particular problem, they may finally think that everybody outside has the same knowledge. And when they go public, experts are then surprised that nobody fully understands their message. In order to communicate effectively in a crisis, it is therefore important to have the relevant competence, routines, allocation of roles and systems in place before a crisis breaks out.

Participants concluded that different public institutions in various fields had comparable experience in assessing and communicating risk and uncertainty. Experts in IT, food, health, financial markets, etc., are all faced with similar challenges. Closing the gap between the communication of a particular risk and the change in behaviour of the public seems to be the most important, but also the most difficult challenge. Participants agreed that the reputation of the public institution and the relationships with stakeholders is of fundamental importance in this context.