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Preface

ISSUE ONE | **SYSTEMIC RISK**

THIS ISSUE OF LIMN examines the concept of systemic risk. Systemic risk has become a central topic of expert discussion and political debate amidst the financial crisis that began in 2008, but it also has resonances across many other domains in which catastrophic threats loom—including internet security, supply chain management, catastrophe insurance, and critical infrastructure protection. Following the broad orientations of the magazine, we have not tried to present a comprehensive exposition of the history and present uses of systemic risk. Instead, we have invited scholars to contribute genealogical and conceptual framings that can inform critical inquiry into this increasingly important concept. The result is not a traditional collection of academic articles but rather a set of brief, preliminary reflections, prepared on short notice, that address a common set of questions:

What are the contemporary domains in which the concept of systemic risk is most relevant, and what are the interconnections among these domains?

What historical points of reference might help render contemporary discussions of systemic risk intelligible, and provide genealogical framings for a critical analysis of systemic risk?

What are the political implications of a focus among government officials and technical experts on systemic risk?

As the contributions from Douglas Holmes, Onur Ozgöde and Grahame Thompson indicate, the concept of systemic risk has acquired a specific meaning in recent debates among economists and policy-makers about financial regulatory reform. Deregulation initiatives during the 1990s were based on the assumption that the risk of large-scale financial collapse could be mitigated by allowing individual firms to manage risks on their own portfolios. The recent financial crisis, however, shifted attention to risks that stem from the exposure of entire asset classes to "catastrophic" events—such as the exposure of mortgage-backed securities to a downturn in the US housing market—and to financial instruments—such as collateralized debt obligations—that concentrate rather than spread such risk. Reformers thus used the concept of systemic risk to analyze the vulnerabilities created by the accumulation of risk at critical points in the financial system, placing a particular accent on events that cause the co-variation of individual risks.[1]

The challenge posed by the co-variation of risks is also apparent in the domain of catastrophe insurance. Traditional models of insurantial risk assessment focus on loss-causing events (sickness, workplace injury, or death, for example) that are distributed over a population. Traditional insurance works because such individual risks do not co-vary. Life insurance, for example, is built on the proposition that the death of one policyholder in an insurance pool does not significantly change the risk of death of other policy-holders, and it is thus possible to "spread" individual risks across a population. Catastrophe insurance, which has become increasingly important in the last two decades as insurance companies have dealt with "superdisasters" such as 9/11 and the hurricanes of the early 1990s, presents a different problem. For an insurer in south Florida, a hurricane that caused losses for one insured property would also cause losses for other policyholders in its portfolio. In other words, in contrast to the usual assumption of insurance, losses from a catastrophe are likely to display high levels of co-variation. Here, too, systemic risk is something more than an aggregation of individual risks. It is, rather, an emergent property of the insurance system itself.

These discussions of systemic risk in finance and insurance point to a more general feature of the contemporary problematization of risk. Insurance and financial systems are crucial

to modern economies as mechanisms of security (in the case of insurance) and of economic growth (in the case of finance). But the very condition of their success in performing these functions—the ability of insurance to spread risk over populations, the ability of the financial system to allocate capital over a broad range of economic activities—also produces new vulnerabilities that grow and ramify as systems become increasing interconnected and complex. Here, the concept of systemic risk converges with the logic of what Ulrich Beck has called "modernization risk." For Beck, modernization risks—such as mass casualty terrorism, ecological crises, and global financial meltdowns—are generated by the success of modernization processes. In other words, they are a product of the very systems—of finance, of insurance, of transportation and communication, of industrial production—that provide for the health and well-being of populations. This connection was made explicit in a 2003 OECD study, analyzed here by Myriam Dunn, which focused on risks that affect not only individuals but also "the systems on which society depends": "Health services, transport, energy, food and water supplies, information and telecommunications are all examples of sectors with vital systems that can be severely damaged by a single catastrophic chain of events."

Seen in this way, it quickly becomes apparent that the problem of systemic risk is by no means new; indeed, it has consistently accompanied modernization processes over the last century. Timothy Mitchell (2009) has shown that the emergence of complex, integrated industrial systems created vulnerabilities such as the "choke-points" that were exploited by strikers and saboteurs in the early 20th century.[2] In our contribution on domestic preparedness for nuclear war we describe how military planners envisioned the industrial, energy, and transportation systems that were necessary for the conduct of modern warfare as simultaneously sources of vulnerability that could be targeted by an enemy. And as Deborah Cowen observes in her contribution here, the logistics systems that spread from the military to private business after World War II—making industrial supply chains vastly more efficient—also made the same businesses more vulnerable to disruption. New infrastructures have extended the logic of systemic risk into new domains, as in the case of digital information infrastructure—analyzed here by Christopher Kelty—which is a critical area for contemporary discussions of systemic risk. As Myriam Dunn documents, the concern with government information systems initially gave rise to the paradigm of Critical Infrastructure Protection in the United States, which was later extended to a broad range of vulnerable systems, from finance, to transportation, to health.

The juxtaposition here of contributions concerning disparate domains brings some surprising connections to light. For example, we see the common origins of certain approaches to envisioning systems at risk and to mitigating their vulnerability. Some techniques come from the sub-disciplines of operations research and systems analysis, as Martha Poon and Deborah Cowen demonstrate; others come from ecology and system dynamics, as we see in contributions from Benjamin Sims and Brian Lindseth. A notable feature of the present conjuncture is a very active process of borrowing, in which experts in one domain—finance or critical infrastructure protection, for example—adapt techniques that have developed in other domains for other purposes. As expertise in the mitigation of systemic risk proliferates, then, new assemblages are emerging that recombine disparate techniques and draw together disparate histories of techno-scientific and governmental practice.

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1 The term "co-variation" indicates the tendency of all the assets in a given class, or multiple asset classes, to respond in the same way to a given event.

2 The term "choke point" refers to any bottleneck in a production process whose disruption would severely reduce output.