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What is systemic risk, anyway?

On October 30, the Center for Financial Innovation and Stability at the Federal Reserve Bank of Atlanta held a conference on Regulating Systemic Risk. The presentations mostly focused on the recent financial crisis and possible regulatory responses to those developments.

Oddly enough, the term systemic risk hardly came up even though it was a major part of the conference's title. Then again, maybe it wasn't so odd.

Systemic risk is a relatively new term that has its origin in policy discussions, not the professional economics and finance literature. A search of EconLit turned up the following: The first appearance of the term systemic risk in the title of a paper in professional economics and finance literature was in 1994. That appearance was in a review of a book written by a World Bank economist, not a journal article by an economist at a university.

Given its origin in policy discussions, perhaps it is not so surprising that the term "systemic risk" often is used with no apparent precise definition in mind. If it arose from a theoretical analysis as did a term it sometimes is confused with—systematic risk— there would be a very precise definition.[1]

The G10 Report on Consolidation in the Financial Sector (2001) suggested a working definition:

> "*Systemic financial risk* is the risk that an event will trigger a loss of economic value or confidence in, and attendant increases in uncertainly [sic] about, a substantial portion of the financial system that is serious enough to quite probably have significant adverse effects on the real economy."

While this is a reasonable definition in terms of the concerns in mind, the precise definitions and measurement of terms such as "confidence," "uncertainty," and "quite probably" are likely to be elusive for some time, if not forever. Furthermore, the definitions probably include a lot more than what usually seems to be meant by systemic risk. For example, the risks of an earthquake, a large oil price increase, and a coup fit in this definition. Or maybe "systemic risk" *should* include such events?

Even George G. Kaufman and Kenneth E. Scott (2003) define "systemic risk" in imprecise terms:

> "*Systemic risk* refers to the risk or probability of breakdowns in an entire system, as opposed to breakdowns in individual parts or components, and is evidenced by comovements (correlation) among most or all the parts."

To me, this definition is better than the G-10 definition because it does not confuse the event being analyzed (the breakdown) with the cause (the loss of confidence). Even so, a precise definition of "breakdown" may be elusive even if the term is evocative.

Darryll Hendricks (2009), who is a practitioner, suggests a more theoretical definition from the sciences in which the term originated:

> "A *systemic risk* is the risk of a phase transition from one equilibrium to another, much less optimal equilibrium, characterized by multiple self-reinforcing feedback mechanisms making it difficult to reverse."

This definition includes many words that aren't used in everyday English and is quite abstract, focusing on the mathematics to characterize the situation. That said, this definition has a better shot at being more precise in terms of economic and financial analysis of actual situations than does the G10's definition. But the economic content of this definition as it stands is zero.

One solution is the following: Kaufman and Scott's definition is a reasonably clear, tentative definition of the term that doesn't use too many other words that require definition. Hendricks's more theoretical definition or something like it probably is a helpful start to ways of thinking about systemic risk in analytical terms.

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[1]In the context of the capital asset pricing model, systematic risk is the risk associated with changes in the overall stock market. It can be defined similarly in other theories of asset returns.

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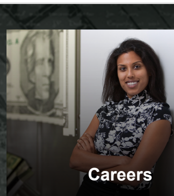

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