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Comment Joseph G. Haubrich

In "The Quantification of Systemic Risk and Stability: New Methods and Measures," Romney B. Duffey reminds us that financial markets are complex human systems, and argues that there is a lot to learn from failures in other complex human systems, such as airline flight, power generation, and cardiac surgery. Two key lessons that emerge are the importance of learning and the proper measure of time. Learning has a somewhat paradoxical effect on failures: it is by experiencing failures that humans learn, and in turn adjust the system and create the techniques to prevent failures. This notion

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of experience, Duffey shows, can be a useful corrective for a financial risk-management community that all too often lapses into inappropriate physical analogies, such as hundred-year floods. Duffey shows that calendar time is often a poor gauge for failure probability, rather, what he terms “experience time” is more relevant. Thus the risk exposure for airlines depends on number of flights flown, for trains on miles traveled, and for ships on years afloat.

For financial crises, Duffey argues the relevant experience measure is cumulative Gross World Product. While he presents some evidence that crises match the pattern of failure in other systems, this seems clearly like a first attempt at financial experience time, and it would be interesting to see how other possibilities would work, such as accumulated trading volume or open interest. It may be that the contribution of these techniques is less to systemic (or even market) risk, but more to operational risk: to problems with the “plumbing” of trading and payments. Certainly in times where we have seen a flash crash and electronic trading takes an ever-larger share of the market, understanding “ops risk” becomes vital, as it can become a source of systemic risk itself.

Specific functional forms aside, one possible difference with financial systems is that as purposeful human systems, the innovative activity may not always be on the side of safety. Ed Kane (1981) coined the term “regulatory dialectic” to describe the financial innovation aimed at getting around rules. Certainly firms in other industries seek to minimize compliance costs, but finance may be different in the sense that much of the response is a desire to take on increased risk. To the extent that firms have an incentive to maximize the value of deposit insurance, grow to become too big to fail, or take correlated risk (Penati and Protopapakis 1988), the net effect of learning may be toward increased risk.

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