Strengthening Systemic Risk Regulation

by Alfred O. Weller

In 1942 after the second battle of El Alamein, Winston Churchill said, "Now this is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning." In this context, United States regulation of systemic risk is at the start of its beginning. This note describes some of the challenges to be overcome.

Federal law, as of January 3, 2007, addresses systemic risk in Title 7 Agriculture (Commodity Futures Trading Commission), Title 12 Banks and Banking, Title 15 Commerce and Trade (Commodity Futures Trading Commission), and Title 22 Foreign Relations and Intercourse (Treasury reports to Congress on international monetary system). On July 21, 2010 HR 4173 the Dodd-Frank Wall Street Reform and Consumer Protection Act became Public Law 111-203. The new law provides for consideration of systemic risk in review of hedge funds, in liquidation proceedings, and in reports to Congress by the Financial Stability Oversight Council. Further, it provides for possible collection of data on systemic risk by modifying the Investment Advisers Act of 1940.

These laws define the start of the beginning. Although systemic risk is commonly defined as risks leading to the collapse of a financial system or market, current legal definitions are not yet broad enough to comprehend all possible reasons for the collapse of a financial system or market. In fact, a strong argument can be made that insofar as finance exists to support industry and trade, systemic risk should be defined in terms of the collapse of an economy (or subeconomy) and not just financial features of an economy. Evolution of systemic risk regulation will involve definitions, scope and tools.

1. INCIDENCE

We begin with a historical example of Enterprise risk management. In October 1936 the USS Enterprise was launched at Newport News. She became the most decorated United States ship in World War II because of her service in managing a systemic risk known as Japan. Countries including the United States, the United Kingdom and Australia also had to deal with this systemic risk, not to mention the valiant men and women who served in the military forces of these countries. In this example, the enterprises affected by the systemic risk include people, organizations and countries. The point is that systemic risks affect different enterprises differently and the enterprises subject to systemic risk are not homogeneous or uniform. Successful regulation of systemic risk must recognize the diversity of the individual participants in the system that is at risk and protect each of them. None are expendable. In actuarial terms, the quantification of potential incidence by participant is a traditional actuarial exercise known as individual risk rating. Producing comparable estimates for groups of participants across geographic areas or industries is more commonly termed rate-making. Systemic risk regulation without this actuarial support regarding incidence is necessarily handicapped. Regulators need to know who and what are at risk.

2. MARKET DATA

The model for systemic risk in the earlier United State laws is Long-Term Capital Management (LTCM), a hedge fund that became insolvent in the last millennium. The Federal Reserve decided that its demise posed a systemic risk to many Wall Street firms and implemented a sort of bailout by lowering interest rates. For this reason, early laws on systemic risk view systemic risk as arising from trades by a single enterprise and therefore "preventable" by closely monitoring individual enterprises. More recent laws view systemic risk as a market phenomenon and therefore look to "mitigate," not "prevent," systemic risk. But the U.S. laws still address monitoring individual enterprises and have not yet evolved to collecting market data in order to monitor systemic risk as a market phenomenon. Data collection

relating to evaluation of risk has long been the province of professional actuaries. Data collection and review on a market basis constitute a second key step toward effective systemic risk regulation that depends on actuarial skills.

In regard to market perspective, systemic risk can arise from causes analogous to the Yellowstone eruption, the New Madrid earthquake, tsunamis associated with island volcanoes, and other catastrophic events that affect many enterprises simultaneously and are not revealed by review of individual institution data. Market data can be crucial to successful identification of such systemic risk phenomenon. For example, is the long-term decline in U.S. employment and average wages a reduction in aggregate demand and a contributing cause to current economic problems? Identification of exposure to high frequency low individual severity systemic risk is not yet directly addressed by U.S. law, but corresponding stop-loss aggregate insurance protections have long been a reinsurance product managed by actuaries. Such analysis will be an important part of data collection and review on a market basis.

3. TIME DEPENDANCE

Systemic risk also varies over time. The probabilities associated with systemic risks are anything but constant. Systemic risk requires ongoing monitoring of data to enable prompt regulation as needed. Such assessment is apt to be crucial to regulation keeping pace with market phenomena. Early indicators of evolving risk and the need for corrective regulation are again an area in which actuaries offer special skills and abilities. Assessing changes in systemic risk in order to facilitate early regulatory action is a challenge that also parallels traditional areas of actuarial practice.

Generally systemic risk arises in the context of an inventory of unexpired business and new business. Current market positions can be risky because of a lack of synergy with earlier trades and conversely. Such phenomena are familiar to any actuary who has ever worked on a self-insurance program, a pension, or an insurer financial statement. Actuaries are trained to recognize the interaction of contracts maturing or developing and estimates of potential loss affecting an enterprise. Analysis of data at various stages of maturity is an important issue in understanding systemic risk and virtually a daily activity of actuaries. Properly recognizing temporal changes in systemic risk will require such analysis.

4. MONITORING EFFECTS OF REGULATION

Actuaries do not just make predictions; they monitor what happens and refine their predictions over time. Measurement of systemic risk would not be worth much if the effectiveness of regulatory actions could not be tracked and honed to control problems that are discovered. For example, quarterly financial statements requiring quarterly checking of the accuracy of actuarial estimates is common. Systemic risk measures may need more frequent tracking and honing. Regulators will need to monitor the effects of their action. Actuaries are trained not just to assess systemic risk but also to assess the effectiveness of regulatory measures in controlling systemic risk. Need and ability match.

5. MEASURING SYSTEM STRENGTH

Today's U.S. laws discuss systemic risk but are silent on measuring the strength of systems and how this strength compares to the corresponding systemic risks. Measures for systems need to be created. Capital requirements for individual enterprises exist throughout the world and have generally been created with input from actuaries. Measuring system strength (indeed simultaneously measuring the strength of multiple systems) is not yet a solved problem, anymore than colonies on Mars are a solved problem. But

just as we have confidence that our scientists can solve the problem of interplanetary travel, the writer believes that actuaries together with other professions will solve the problem of assessing system strength as a key step in regulating systemic risk.

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To summarize, we are at the dawn of systemic risk regulation with many issues to resolve. These paragraphs argue that actuarial contributions can significantly accelerate progress in systemic risk regulation. Issues such as incidence and scope of risk, design of market data collection and review, recognition of time dependence of systemic risk, monitoring effects of regulation, and designing measures of strengths for relevant systems are used to illustrate possible actuarial roles.

Systemic risk offers an opportunity to apply actuarial science to improve our nation because there is a need for actuarial services in order to do the job properly. Actuarial involvement will be driven by need, not compliance considerations. Current U.S. laws barely define systemic risk, let alone the need for actuarial services to properly regulate it. No section of U.S. laws mandates that an actuary or actuaries be part of the Financial Stability Oversight Council (or even part of the Office of Financial Research). We are at the start of the beginning of systemic risk regulation. Actuaries will become involved in systemic risk regulation because the people on the Financial Stability Oversight Council will be expected to and will want to do their jobs well. In this case, well means rapidly establishing a sound regulatory framework, which in turn means involving professional actuaries and their skills in risk management.

The best America is yet to come. Systemic risk regulation has an important role to play in building a better United States. Systemic risk regulation will get there faster with strong professional actuarial contributions.

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