

# Stress testing is coming, but are you ready for it?

**Ryan Ogaard** explains how stress testing could affect capital locations



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Stress testing generally refers to reviewing how a company's finances respond to an extreme scenario. As a process, stress testing is familiar to most corporations as they go about the prudent management of their business and continually ask themselves "what if" type questions. In particular, insurance companies over the years have examined how they would fare financially if there were a repeat of such events as the 1906 San Francisco earthquake and fire, the 1923 Great Kanto earthquake in Japan, or Hurricane Andrew in 1992. Since the early 1990s insurers have increasingly used sophisticated catastrophe modeling for insight into not only the magnitude, but also the probability of stress scenarios relevant for their business.

Regulators around the world are increasingly encouraging, even requiring insurers to use stress testing as a means to evaluate capital adequacy. A key factor in the impetus to utilise stress testing is the activity of the International Association of Insurance Supervisors (IAIS). This voluntary organisation of insurance regulators published a report in January, 2003 titled, "Principles of Capital Adequacy and Solvency." Principle 10 states that capital adequacy and solvency regimes

have to be supplemented by risk management systems. A subsequent publication by IAIS, "Stress Testing by Insurers Guidance Paper," provides more detail on how regulators and others can use stress testing to address Principle 10.

Canada was one of the first countries to require stress testing. In the mid-1990s, Canadian regulators supplemented their traditional capital adequacy regulations with stress testing for property and casualty insurers. Canada's Dynamic Capital Adequacy Testing (DCAT) is a stress testing model that uses a risk-based capital formula set forth by the Canadian regulators.

The DCAT analysis includes a base scenario, as well as several adverse scenarios, which stress the insurer's capital. Risk categories that are the most detrimental to the insurer's financial condition are expected to be reported in detail and supported by an actuarial opinion of the insurer's capital level and its ability to meet future obligations under plausible adverse scenarios.

More recently, in July 2004 the United Kingdom's Financial Services Authority (FSA) incorporated its Consultation Paper 190, "Enhanced

Capital Requirements (ECR) and Individual Capital Assessments (ICA) for Non-Life Insurers," into the Prudential Sourcebook. The new regulation includes both a risk-based capital formula, known as the Enhanced Capital Requirements, and a stress testing requirement, known as the Individual Capital Adequacy Standards (ICAS).

The PSB now requires insurers to perform stress testing to determine whether a company's Individual Capital Assessment (ICA) needs to be increased. The stress testing looks at credit risk, market risk (as related to the value and credit risk of invested assets) and liquidity risk. Add to this operational risk from inadequate systems and controls, insurance risk (including catastrophes), claim reserves and loss ratio volatility, business risk factors, including interest rate risk, securitisation risk, residual risk, concentration risk, high impact, low probability events and cyclical and capital planning and pretty much all the bases are covered!


The PSB provides guidance as to what factors to consider in modelling these risks, but not the parameters or models themselves.

The FSA plans to review companies' ECR calculations and ICA analyses as part of its regularly scheduled supervisory visits with insurers. ECR cal-

culations are currently required and ICA analyses are submitted to the FSA in 2005.

Even the European Union-based Solvency II regime for insurance regulation, designed to be implemented in the EU countries in 2009 or 2010, is expected to include stress testing as part of its capital adequacy program. Given this international activity, it is probably not premature to speculate on the coming of stress testing to United States solvency regulatory systems.

Most US companies are using stress testing to some extent already in their risk management process and often in discussions with stakeholders. The AM Best Company, for example, currently requires insurers to include extreme (1 in 100 or 1 in 250 year) catastrophe scenarios as part of the Best's Capital Adequacy Ratio (BCAR) formula.

The worldwide use of more complex stress testing and more detailed evaluations of capital adequacy is an increasingly growing trend. Given the growing use of stress testing and the reliance placed on it by insurance regulators, it is likely to lead to a more uniform notion of capital adequacy throughout the global insurance industry. 

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