

## Actuaries Would Have Made a Difference

by W. James MacGinnitie

In the current financial markets turmoil, it is tempting to ask whether things might have turned out differently. ‘What if’ questions were a favorite of a history professor under whom I once studied. They of course are speculative, but in this case I think the pain in our financial markets would have been less if more actuaries had been involved. I offer 10 reasons:

1. Actuaries understand that the distribution function for most risks is not the bell curve or normal distribution, but rather one of several distribution functions that have longer, fatter tails. Too much of the risk analysis in capital markets used value-at-risk, which is based on the normal distribution. That makes it easy to manipulate mathematically, but it usually understates the chances of bad outcomes, both in frequency and in amount. Actuaries working in catastrophe reinsurance, and in coverages impacted by large verdicts, understand that large but infrequent events (‘Black Swans’) need to be included in the model.
2. Actuaries understand that while choosing the right model is very important, it’s even more important to calibrate it appropriately. A rich, long-term data set needs to be analyzed, not just the trades from the last few months. And extreme events shouldn’t be excluded on the basis that “that will never happen again.” In some actuarial models, such as catastrophe reinsurance, the only thing that really matters is the fat tail that encompasses those extreme events.
3. Actuaries understand ‘model drift.’ Most accounts of the subprime meltdown report that mortgages issued before 2005, and into 2006, have performed as modeled. Later issues have not, because underwriting standards deteriorated. Actuaries know that when underwriting standards are lowered, worse experience results, and should be reflected in the price, and in any reserves set aside to pay losses. And they are trained to inquire about changes in underwriting and other aspects of operations that might have an impact on experience. Because they are trained in all aspects of the enterprise, they are well-grounded in what questions to ask of whom, and they quantify model drift and current relevance.
4. Actuaries understand spirals, and seek to avoid them. A recent example is the business of worker’s compensation ‘carve out,’ when much of the medical and time loss coverage in worker’s compensation policies was reinsured in increasingly complex structures, akin to the derivatives of derivatives that are part of the current problems. The basic proposition was to take a business that was marginally profitable at the mine face, and by packaging, slicing, dicing and repackaging, with managers and brokers getting paid every step of the way, turn lead into gold. It didn’t work in that case, but it did lead to common prohibitions of reinsurance on reinsurance (derivatives on derivatives). Had similar prohibitions existed in the derivatives markets, a great deal of pain could have been avoided.
5. Actuaries are accustomed to developing values for liabilities where no deep liquid market exists, such as pension obligations, long-term care insurance and lawsuit liability. They frequently develop values for claims that have not yet been reported to the insurer. Similar techniques would be useful for many of the assets that are currently being marked to nonexistent market values. While such values would necessarily be uncertain approximations, they would be more realistic than those quoted by someone who wants to avoid acquiring the asset at any price.
6. Actuaries are used to taking a long-term view. With pension obligations extending for decades, as do life insurance policies and benefits, and also long-tailed casualty coverages, actuaries have to think about how things will play out over the long term.

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7. The Actuarial Control Cycle is a well-developed concept that would be helpful in the capital markets. In simple terms, it requires the actuary to model expectations, then measure actual results and use those measurements to recalibrate the model. This kind of feedback loop helps adjust course before the ship hits the sand. The model can be complex, with different feedback loops and frequencies. Too much of the capital markets is based on daily procedures, which can cause one to lose sight of both the forest and the trees by focusing on twigs.
8. Actuaries are accustomed to transparency. Their regulators require it. Their professional standards require an actuarial report to back their opinion, and it must contain sufficient detail so that another actuary can appraise the conclusions.
9. Actuaries have professional standards. They should only do work for which they are qualified. They should follow professional guidance from their accrediting organizations. They must continue their professional education to maintain currency. They are subject to a discipline code.
10. Actuaries accept a quasi-fiduciary obligation. Since the pension plans and insurance companies they customarily serve will need to deliver on their promises many years into the future, paying benefits to survivors and retirees, actuaries understand that they have an obligation to do their best to make sure that those benefits will be paid when they are needed. The contrast to the trader's mentality is stark.

Actuaries aren't perfect. There are examples of insurers and pension plans that failed, but the frequency is relatively small, and in many cases it was in spite of the actuary's advice.

As regulators, legislators and central banks seek to design a better future, it would be helpful to include more actuarial training and thinking.

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