

APRIL 2011

Fukushima and Derivatives Meltdowns

By Mark Roe

Financial commentators have likened Japan's earthquake, tsunami, and nuclear catastrophe to derivatives' role in the 2008 financial meltdown. The resemblance is clear enough: each activity yields big benefits and carries a tiny but explosive risk. But the similarity between the two types of crisis ends where preventing their recurrence begins.

For the Fukushima nuclear-power plant, a 1,000-year flood and ordinarily innocuous design defects combined to deprive the reactors of circulating water coolant and cause serious radiation leaks. In financial markets, an unexpected collapse in real-estate securities and design defects in the derivatives and repo markets combined to damage core financial institutions' ability make good on their payment obligations.

While the basic risks originated outside the systems – a tsunami for Fukushima, over-investment in real-estate mortgages for financial institutions – design defects and bad luck meant that the system couldn't contain the damage. In the United States, AIG, Bear Stearns, and Lehman Brothers – all with large derivatives and/or repo investments – failed, freezing up credit markets for a scary few weeks.

We now understand the Fukushima risks and design defects well. Not so for the derivatives risks that jeopardized the global economy. For Fukushima, crews are valiantly trying to stop the radiation leakage. But for derivatives, the analogous efforts are misdirected and won't save us from the financial fire next time. We are rebuilding derivatives and related financial structures atop the same, still-active faults.

Financial players use derivatives to transfer risk: one player assumes the risk of, say, euro fluctuation, but doesn't want yen risk, while for another, it's the opposite. So the former promises to deliver euros next June 1, while the latter promises to deliver yen. If one currency declines relative to the other, the loser pays the difference.

Repos are financing transactions. Financial firms sell assets, like Treasury bonds or real-estate securities, for cash, and promise to buy those assets back (i.e., to repurchase them or, for short, to do a "repo"), typically the following day. But, with the cash coming from short-term repos making up much of core financial firms' balance sheets, tremors in financial markets could hit them hard, drying up repo financing for a few, as occurred in 2008. Some, like Bear Stearns, then failed.

Individual derivatives and repo transactions are hardly nefarious. Each alone legitimately transfers risk to those better able to bear it, or backs financial holdings. But, when over-used by systemically vital firms, they can blow up the financial system, owing to its design defects. Even today, about 70% of the core US financial firms' liabilities are very short-term loans, like overnight repos.

In the US, the main design defects are in bankruptcy law, which exempts derivatives and repos from most regular bankruptcy constraints. For example, investors holding derivatives and repo contracts with a weakened financial institution can grab the firm's assets ahead of – and at the

expense of – its regular creditors, possibly sealing its fate, when, with a little extra time, the firm might have survived. Such runs were the ruin of AIG, Bear Stearns, and others during the financial crisis.

Worse still, because derivatives and repo investors jump to the head of the repayment line in so many ways, they have less incentive to foster market discipline by closely monitoring their counterparties' solvency and carefully rationing their exposure to any single counterparty. They typically get repaid, regardless.

True, someone has to come first. Other financial players take on more risk because derivatives and repo players' bankruptcy exemptions put them first. Usually, we would expect the others to have an interest in more market discipline. But the next player in line is too often the US government, as guarantor of too-big-to-fail financial institutions, and it is poorly positioned to regulate these markets on a day-to-day basis. It is not financially nimble; it is often captured by the regulated; and when economic times are good, no official wants to spoil the party.

The US Congress had a chance to fix this design defect in the major financial overhaul that it enacted last summer via the Dodd-Frank bill. But it didn't.

If investors in derivatives, repos, and credit-default swaps lacked favored treatment, they would behave differently. Above all, they would insist more often that their counterparties be well capitalized. They accepted the risk implied by ultra-thin capitalizations when it was mainly US government money on the line; they would be more reluctant to do so if it was mostly their own money that they were wagering.

The public perceives Fukushima-type risks and derivatives risks differently. Many fear nuclear risks, which are vivid, slowing the industry's development amid safety concerns. But the derivatives and repo markets present risks that are poorly understood, difficult to communicate in the media, and hard for politicians to debate and resolve. During a crisis, these markets attract public attention and scorn, but, as the economy steadies, ordinary people lose interest, leaving the financial industry to control its own destiny with legislatures.

For Fukushima-type risks, analysts are already discussing how nuclear plants can be designed and built to contain earthquake and tsunami risks via passive cooling. It is possible, the thinking now runs, to design and build nuclear plants that can keep the fuel rods cool even if all power is lost.

But little of importance has yet been done to prevent the damage that derivatives and repo bankruptcy priorities could cause in another financial-system meltdown. New rules to require end-users (such as oil companies using derivatives to guard against unexpected oil-price changes) and others to put up good collateral are being developed. But these rules don't address the main problem: the weakened incentives for market discipline for core financial institutions. It's as if we reacted to Fukushima by better handling gas emissions in oil-shale projects.

We should be examining how to make derivatives and repo investors assume the full risk of their decisions when dealing with systemically vital financial institutions. Instead, we survived the financial tsunami of 2008, only to rebuild in the same place, on the main financial fault-lines, using the same flawed design.

Mark Roe, a professor at Harvard Law School, is the author, most recently, of the Stanford Law Review article "The Derivatives Market's Payment Priorities as Final Crisis Accelerator."