

Economy, *Insure* *Thyself*

BY ROBERT J. SHILLER

The basic principle of financial risk management is sharing. The more broadly diversified our financial portfolios, the more people there are who share in the inevitable risks—and the less an individual is affected by any given risk. The theoretical ideal occurs when financial contracts spread the risks all over the world, so that billions of willing investors each own a tiny share, and no one is over-exposed.

The case of Japan shows that, despite some of our financial markets' great sophistication, we are still a long way from the theoretical ideal. Considering the huge risks that are not managed well, finance, even in the twenty-first century, is actually still rather primitive.

A recent World Bank study estimated that the damage from the triple disaster (earthquake, tsunami, and nuclear crisis) in March might ultimately cost Japan \$235 billion

In today's era of natural disasters and economic crises, there is a better way to manage risk.

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(excluding the value of lives tragically lost). That is about 4 percent of Japanese GDP in 2010.

Given wide publicity about international charitable relief efforts and voluntary contributions to Japan, one might think that the country's economic loss was shared internationally. But newspaper accounts suggest that such contributions from foreign countries should be put in the hundreds of millions of U.S. dollars—well below 1 percent of the total losses. Japan needed real financial risk sharing: charity rarely amounts to much.

Insurance companies operating in Japan repaid some of the losses. The same World Bank study estimates that total claims accruing to insurers in Japan might ultimately cost these companies \$33 billion. Clearly, the insured risks were a small part of the total risk. Moreover, much of that risk, even if insured, continues to be borne in Japan, rather than being spread effectively to foreign investors, so Japan is still alone in bearing the costs.

Before the disaster, Japan issued about \$1.5 billion in earthquake-related catastrophe bonds as a risk management device: the debt is canceled if a precisely defined seismic event occurs. This design helped spread the earthquake risk from Japan to foreign investors, who could accept the risk and were enticed by higher expected yields.

Unfortunately, \$1.5 billion is little better than what charity could do—and still only a drop in the bucket compared to the extent of the damage. Worse yet, even this triple disaster often did not fit the definition of the seismic event defined by the bond indentures. We need far more—and better—catastrophe bonds.

Of course, compared to Japan's two "lost decades" since 1990, even this year's triple disaster pales in significance. Japanese real per capita GDP growth averaged 3.9 percent a year in the 1980s, but only 1.4 percent since 1990. If real per capita GDP growth had continued after 1990 at the rate of the 1980s, Japan's economy would be 60 percent larger than it is today—implying losses in the trillions of dollars.

Japan could have insulated itself from a good deal of the effects of GDP fluctuations if it had managed this risk accordingly. Though no country has ever practiced risk management on such a massive scale, it is important to consider such an innovation now.

I (among others) have been arguing for years that countries should cover their risks by issuing a different kind of national debt, tied to their own GDP or a similar measure of economic success. In its simplest form, the securities could be shares in GDP. My Canadian colleague Mark Kamstra and I have proposed issuing shares called "trills," which would pay a dividend each

year equal to a trillionth of that year's GDP, in domestic currency.

If the Japanese government had issued trills in 1990, when Japan's nominal GDP was ¥443 trillion, the dividend paid to investors the first year would have been ¥443. Every year thereafter, the dividend paid would fluctuate in response to changes in GDP. Investors around the world would take on Japanese GDP risk in return for an expected yield, just as with catastrophe bonds.

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The trills would most likely have sold for a very high price in 1990, perhaps with a dividend yield under 1 percent. After all, people in 1990, witnessing recent high growth rates, would have expected Japanese GDP to grow rapidly in subsequent decades.

In 2010, when GDP was still only ¥479 trillion, the same trills would pay a dividend of ¥479, not much larger than the initial yield and no doubt disappointing many investors. So, with lower growth expectations, the trills would likely have a much lower price now. That lower price would be a bane to investors but a boon to Japanese, compensating them for the losses that they have suffered.

When considering today's concern about Japan's high public debt-to-GDP ratio, now at 202 percent on a gross basis, one needs to reflect that the ratio would most likely be profoundly lower if Japan had in the past financed more of its deficit spending with trills instead of conventional debt, and issued them to investors around the world. A lower debt burden would certainly help Japan deal with its economic slowdown.

There is nothing we can do now to compensate for failures to manage risks in the past. But disasters and economic crises can have a silver lining if they spur fundamental innovation by forcing us to think about how to manage risks in the future. ◆