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Risk Management and Financial Crises

by Joseph G. Haubrich

It is a universal truth that the existence of risk implies the existence of failure. Not all types of risk are the same, however, and all failures are not created equal.

In fact, failure can occur for several reasons, each of which teaches a different lesson in risk management.[1] One involves the breakdown of management controls. Consider rogue traders such as Nick Leeson, whose losses single-handedly brought down the venerable firm of Barings Brothers. In such a case, the firm bears more risk than it had intended and it suffers the consequences. Perhaps losses by naïve and unsophisticated investors should also be counted in this category. There certainly were investors, among them Gibson Greetings and Odessa College (the small Texas school that sank most of its funds in such risky derivatives as "inverse floaters" and "structured principal-only strips") who testified in court that they had been misled.[2]

The second category comprises cases in which management knowingly takes a risk and loses: It assumes the intended level of risk but gets a bad draw. Think of the Hunt brothers, who were holding 200,000,000 ounces of silver in 1979, just before the price plummeted. Or the many well-known funds, such as Piper Jaffray, that were caught unawares by the interest rate spike of 1994.[3]

The third possibility is perhaps a bit more subtle: The firm bears an amount of risk that is privately optimal—that is, management understands and accepts the extent of its exposure—but that amount of risk is not *socially* optimal. The prime examples here are the Great Depression of the 1930s and the savings and loan crisis of the 1980s. This third possibility is particularly disconcerting because it defies standard notions of risk management. It is not like estimating a firm's expected monthly loss from interest rate movements, a task which, however difficult, is at least based on a fairly clear underlying concept.

The fact is that distinctions between the private and social aspects of risk management remain murky. The most basic questions—why firms hedge, or whether they even should—are unresolved. And uncertainty about the private versus the social benefits of risk reduction complicates the job of sorting out who is managing risk correctly. Admittedly, researchers have spun stories about smoothing taxes or avoiding bankruptcy costs, about differences in the costs of internal and external funds, and about information disparities between managers and owners.[4] These stories differ as to how much hedging takes place and whether it's the socially correct amount. For example, financial distress can carry high costs—a long, painful bankruptcy may entail extensive legal fees, destroy the manager's reputation, and generally eat up the firm's value. Prudent managers, wishing to avoid this cost, would be careful about the amount of risk their firm undertook. To the extent that the bankrupt firm loses its value to society, this is socially prudent as well. But the picture changes (particularly from the social standpoint) if hedging is used merely to minimize corporate taxes. This makes it hard to decide whether a firm is bearing the socially correct amount of risk. It is even harder to assess quantitatively how much socially inappropriate risk the firm bears.

Some financial failures occur when people don't understand the risks they take. Others are simply bad luck. But the most important cases happen when private risks have an additional social aspect.

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Unfortunately, getting this wrong can be very expensive, not only for the firm involved, but also for the entire economy—witness the Great Depression and the S&L crisis.

Sad Examples

I cite these examples because they are two cases in which there is some consensus about why the social cost of the risk exceeded its private cost. Admittedly, many details remain controversial, and economic historians still debate the exact causes of the Depression and which S&L crook looted the most.

In the Great Depression, U.S. banks were made vulnerable by branching restrictions that forbade them to diversify geographically. A bank in Kansas, say, couldn't lend money to New York foundries or to farms in Florida. This lack of geographic diversification meant that a shock to the local economy could destroy a bank when its loans turned sour and its depositors wanted their money back. (Canada, whose depression resembled that of the United States in many other respects, differed in this one: It allowed branch banking and had no bank failures.)

The grave danger posed by local bank problems was the possibility of contagion, leading to a panic that damaged banks across the country. Such a panic, of course, is a classic case in which the social cost of risk is higher than the private cost; individual banks do not take into account the effect their failure could have on others. To help defend against this, clearing houses often acted as lender of last resort.[5] In the Great Depression, however, the lender-of-last-resort role had been transferred to the Federal Reserve, which performed it poorly if at all.[6] As Milton Friedman wrote, "This was precisely the kind of situation that had led to a banking panic… One of the major objectives of the Federal Reserve System was to prevent such a development. In the event it failed to do so."[7] Thus the risk remained, but banks lost their incentive to manage it. The social mechanism designed to handle the risk malfunctioned.

In the savings and loan crisis, deposit insurance gave insolvent thrifts an incentive to "go for broke." Because equity is an option on a firm's value, a bankrupt or nearly bankrupt firm could maximize its value through speculation rather than hedging—that is, by increasing risk instead of decreasing it. In other words, when a thrift invested in a risky venture (an Arizona shopping mall, for example, or a Houston office building), the thrift could return to profitability if the project succeeded. If the project failed, it was the FSLIC, not the S&L, that took the hit. It was a classic "heads I win, tails you lose" bet. In most businesses, such a plan would not work because anyone lending to an insolvent firm would expect to receive a high interest rate. For S&Ls, however, deposit insurance removed the risk premium that would otherwise have shown up in funding costs. Even if an S&L went bankrupt, its depositors got their money back (up to $100,000). Again, the social mechanism designed to manage the risk did not operate as planned.

Lessons Going Forward

How does this bear on more recent events? Clearly it argues for exposing perverse incentives that distort the social and private incentives to hedge, whether they reside in the global financial system or the local school board. Attempts to explain the Asian crisis or the latest financial failure overlay a point that relates to many current events. Once you start considering incentives, you cannot view all failures or breakdowns in risk management as consequences of anomalous asset price movements akin to an earthquake or 40 days of rain, though correctly calculating such events is hard enough. This arises for several reasons.

The first one is the problem of correlated risks and the too-big-to-fail principle: If you are sure to be rescued because your failure could take down the global financial system, then you have an incentive to get dangerously large, a new sort of debtor's leverage. If you are rescued during a systemic crisis, when lots of other banks are in trouble, then you have an incentive to bear the same risk as others. Everyone has an incentive to bet on the same thing.[8] That is, instead of taking a chance on the real estate market in Greenwich, Connecticut, you bet on mortgage rates or emerging markets. The many cases in which the guarantees are only implicit worsen the problem because they are open ended, lacking any fixed, defined limit on the size of the bailout.

A second problem involves reputation effects and managers' career concerns. Suppose that managers are rewarded for high returns in good times but not punished for poor performance in bad times. Capable managers show their stuff in good times by rolling out the IPO, growing the business, and so forth. In hard times, however, everyone does poorly and no one can tell good managers from bad. So bad managers take risky bets in the hope of looking good—and good managers do the same in the hope of looking even better.[9] You get what economists call a "signal-jamming" equilibrium. Managers take on too much risk in an effort to be top dog.

Conclusion

Incentive problems have an insidious danger. They can lead to self-justifying measures that trap society in a downward spiral of increasing risk. By encouraging excessive risk, such measures make risk too easy to find. (Are the banks failing? We must need more insurance.) In effect, the system evolves to become especially vulnerable to the risks that are always present.

Despite the problems, it is possible get things "roughly right" by using economic theory to pierce the veil. For deposit insurance or in cases where hedging depends on tax or bankruptcy law, getting it roughly right means designing a social program that at least does not make matters worse. Research can make its greatest contribution to solving the problem of risk management by discovering where incentives are misaligned and guiding us in their realignment. In other cases, say where managers are working to protect their reputations, there may be no social program or legislative agenda that solves the problem. In those cases, research may help individual firms mitigate their problems or may alert policymakers to the problems' potential implications. Neither task is necessarily easy but, in the words of Thomas Paine, "we have this consolation with us, that the harder the conflict, the more glorious the triumph."[10]

Footnotes

1. Christopher L. Culp, Steve H. Hanke, and Andrea M.P. Neves, "Derivative Diagnosis," *The International Economy*, May/June 1999, pp. 36, 37, and 67.

2. Charles W. Smithson, *Managing Financial Risk: 1995 Yearbook.* New York: Chase Manhattan Bank, 1995.

3. Stephen Ross, "'A Billion Dollars Just Isn't What It Used to Be': Lessons from Two Decades in the Risk Management Morgue," *Risk*, May 1999, pp. 64–66.

4. Clara C. Raposo, "Corporate Hedging: What Have We Learned So Far?" *Derivatives Quarterly*, Spring 1999, pp. 41–51.

5. Gary B. Gorton, "Clearing Houses and the Origin of Central Banking in the United States," *Journal of Economic History*, vol. 45, no. 2 (June 1985), pp. 277–83.

6. Milton Friedman and Anna J. Schwartz, *A Monetary History of the United States, 1867–1960*. Princeton, N.J.: Princeton University Press, 1963. See also Gorton (1985), above.

7. Milton Friedman, *A Program for Monetary Stability*. New York: Fordham University Press, 1960, p. 18.

8. Alessandro Penati and Aris Protopapadakis, "The Effect of Implicit Deposit Insurance on Banks' Portfolio Choices, with an Application to International 'Overexposure,'" *Journal of Monetary Economics*, vol. 21, no. 1 (January 1988), pp. 107–26. See also Janet Mitchell, "Strategic Creditor Passivity, Regulation, and Bank Bailouts," Center for Economic Performance, Discussion Paper no. 1780, December 1997.

9. Raghuram Rajan, "Why Bank Credit Policies Fluctuate: A Theory and Some Evidence," *Quarterly Journal of Economics*, vol. 109 (1994), pp. 399–442. See also Jeremy Stein, "Efficient Capital Markets, Inefficient Firms: A Model of Myopic Corporate Behavior," *Quarterly Journal of Economics*, vol. 44 (December 1989), pp. 1335–50.

10. Thomas Paine, *The American Crisis*, no. 1 (December 19, 1776).

Joseph G. Haubrich is an economist and consultant at the Federal Reserve Bank of Cleveland.

This commentary is based on his remarks as a panelist at the National Bureau of Economic Research conference, "Risk Measurement and Control: What Have We Learned, and What Do We Need to Know?" which was held at the Federal Reserve Bank of New York on May 26, 1999.

Federal Reserve Bank of Cleveland
Research Department
P.O. Box 6387
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