

One's perspective on the cause (or causes) of financial crises will have big implications for the actions necessary to avoid them. Charles Kindleberger and Hyman Minsky saw crises as inevitable products of economic expansion. This betokens the "animal spirits" to which John Maynard Keynes referred and to which many behavioral economists have been drawn. If irrational behavior is the whole story of crises, then the equivalent of a "good cold shower" would be a remedy. On the other hand, Charles Calomiris and a new generation of information economists point to the impact of real shocks and poor transparency as the basis for the propagation of crises. This seems closer to what we observed in the events of 1907. Certainly, improving system transparency would forestall some of the panic behavior one sees in crises.

Our seven elements embrace these and other factors. This approach, drawn from a detailed history of one crisis, is broadly consistent with some of the large-scale assessments of financial crises,⁵⁸ encompassing a wide range of other explanations. Much as one might prefer a "silver bullet," single explanation, the research evidence remains imperfect enough to exclude with confidence all factors but one. Therefore, in hopes of promoting thoughtful anticipation and response to financial crises, we choose to highlight the broader range suggested by 1907.

At any moment, many of the seven drivers of crises reside in the economic environment. Though it is uncertain when and where they will align in ways to produce a crisis, history emphasizes that financial crises occur without respect to the nature of regulations or the institutions they govern. One of the most dangerous statements in the markets is, "This time it's different." We doubt that history will repeat itself in exactly the same way as 1907, but the drivers we generalized from that crisis can and do recur. The economic situation in the early twenty-first century thus offers some arresting parallels to 1907:

- **System-like architecture.** The global financial system in the twenty-first century is vastly larger and more complicated owing to economic growth, proliferation of products and services, entry of new players (such as hedge funds and institutions from emerging

countries), cross-listing of securities among global markets, arbitrage among markets, and so on. New credit derivatives and other exotic contracts might help to reduce risk, but they have never sustained a live test: No one knows whether they will dampen or amplify a crisis.

- **Buoyant growth.** The world economy has been growing at historically rapid rates for some time, owing significantly to explosive growth in emerging countries, such as China, India, Brazil, and Russia. Rapid growth can absorb the liquidity in the financial system and fuel a mentality of speculation. Newly minted millionaires may not bring to their investing the discipline and long experience necessary to weather a crisis.
- **Inadequate safety buffers.** Instant telecommunications and computer-based trading strategies eliminate the delays that existed in 1907—time to think and assess has dwindled. Today, money travels at the speed of light. Though regulatory safety buffers (such as the Basel Accords) are much stronger, their enforcement remains largely at the national and local levels. The largest financial institutions are supranational, and some fear, beyond the detailed oversight of any one regulatory jurisdiction. Have prudential banking practices been maintained in the Middle East, South America, and Asia? The “Asian flu” crisis of 1997 sprouted in part from concerns about the capital adequacy of banks in Thailand. Rumors circulate about the soundness of banks in China and other East Asian countries. The roughly 9,000 hedge funds in the world are unregulated and control over \$1 trillion in investment capital directly and, depending on the degree of leverage they employ, perhaps a total of \$4 to \$10 trillion—many of these funds are conservatively managed; but we should worry about the aggressive funds that employ extreme leverage, well above the industry average. In the United States, a spike in real estate prices grew from low interest rates and aggressive lending practices such as adjustable-rate mortgages and the waiver of down payments. Enron, the Detroit automakers, and numerous corporations demonstrated that when off-balance-sheet items such as special-purpose entities, pensions, and health care obligations were taken into account, the firms were very highly levered. Generally, the huge imbalance of

trade between the United States and the rest of the world impairs confidence in the dollar—virtually no one expects the dollar to strengthen against other currencies, thereby reducing the country's macroeconomic flexibility.

- **Adverse leadership.** Two leaders, Vladimir Putin, president of Russia, and Hugo Chavez, president of Venezuela, dramatically weakened the respect for private capital in their countries through attacks on wealthy individuals, confiscation of corporate assets, and use of oil output and other natural resources as instruments of foreign policy. The failure of the Doha Round of trade-liberalization negotiations triggered an outpouring of antiinvestor sentiment, aimed mainly at the developed nations. In most emerging nations, the indifference with which leaders view official corruption and disrespect for the sanctity of contracts and rights of investors eats like rust at the investor confidence in those countries. Protectionist sentiment seems to be rising—not merely toward commercial trade, but also toward flows of investment capital. In 2005, Franz Muntefering, head of a major political party in Germany, criticized foreign private equity investors as “swarms of locusts that fall on companies, stripping them bare before moving on.”⁵⁹ In 2006, Korea considered enacting laws that would prevent hostile takeovers by foreign firms. In the United States, rhetoric and policy proposals by political leaders can impair investor confidence—consider recent headlines on such topics as foreign trade, job and industrial protection, national health care, government deficits, “soak-the-rich” tax schemes, CEO pay, and the growing gap between the richest segment of the population and the rest.
- **Real economic shock.** A shock can be identified only in hindsight. It takes but a little imagination to derive some possibilities: a pandemic of avian flu, an oil price spike to \$100 a barrel, a major terrorist strike on the order of 9/11, the outbreak of major (read: nuclear) war (India/Pakistan, Iran/Israel), and an implosion of a major financial institution, such as a hedge fund. The stability of the hedge fund industry has been of special interest since the failure of Long-Term Capital Management in 1998. Amaranth Capital Partners, a \$6 billion fund, failed in 2006. Andrew Lo and others⁶⁰

have highlighted the growing integration between hedge funds and banks that can lead to greater systemic risk. Of vital importance is the correlation or linkage among these institutions to cause trouble to radiate through the system. Hedge funds may take significant risks in their trading strategies; their use of leverage amplifies those risks dramatically; their linkages with banks could cause instability to travel.

- **Undue fear, greed, and other behavioral aberrations.** Market sentiment changes continuously and is sometimes at variance from what rational pricing and trading would suggest, as blogs and financial newspapers attest daily. Two notable shifts from buoyant optimism to fear occurred during the respective boom and slump in Internet stocks in 1998–2001 and real estate in 2002–2006. The extent to which these shifts were consistent with changes in economic fundamentals remains a subject of research, though conventional wisdom seems to hold that these swings were aberrations rather than rational movements in the markets.
- **Failure of collective action.** The prompt leadership by the New York Federal Reserve bank to organize a group of institutions to take over the investment positions of Long-Term Capital Management in 1998 was reminiscent of J. P. Morgan's leadership in 1907. The Bank for International Settlements has organized a Committee on the Global Financial System that monitors the stability of global markets for the G10 countries.⁶¹ But in a globally complex financial system, will such collective action be possible if the crisis is triggered beyond the reach of any of today's regulators?

The events of 1907 suggest that these seven factors are mutually reinforcing. Rapid growth leads to optimism that for a time may stimulate more growth. Insufficient information fuels optimism and delays collective action. Imperfect information and optimism promote a tendency to discount the effect of real shocks to the system when they occur. Real shocks, absence of shock absorbers, and lack of collective action may amplify the conditions of instability. The factors come and go in the economy; at any point in time, a few of them are almost certainly present, and their presence individually is insufficient to cause financial market instability. Rather, it is the convergence of some or all of the