Remembrance of Crises Past

How did we get into this mess, and what should we be doing to prevent it from happening again? The past offers some lessons, say two economic historians.

“The one-dollar bill is the most ubiquitous piece of paper in America,” writes currency collage artist Mark Wagner, who cuts up thousands of them to create pieces such as *I.O.U.* (left); his works are collected by dozens of institutions, including the Museum of Modern Art, the Walker Art Center, the Library of Congress, and the Smithsonian Institution. (Mark Wagner, *I.O.U.*, 2008, currency collage on panel; 12 x 16 inches.)

By Philip T. Hoffman and Jean-Laurent Rosenthal

THE PAST AS PROLOGUE

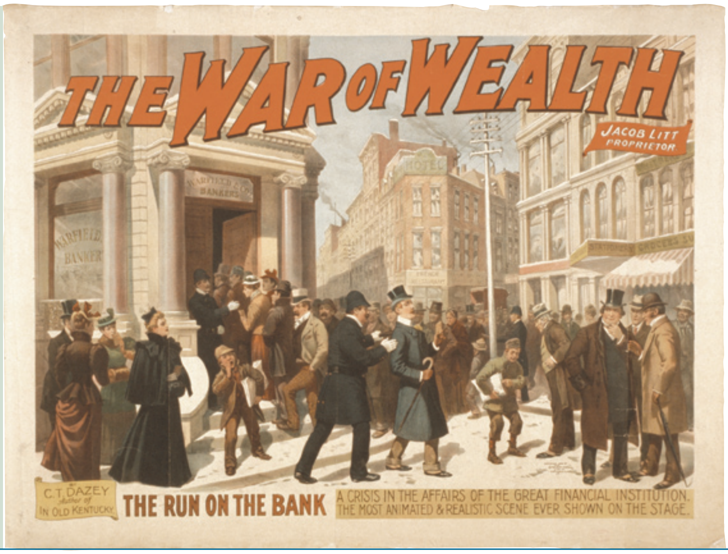
If we are to believe our financial leaders, the current crisis is, as a stunned Alan Greenspan told Congress, a “once in a century credit tsunami”—difficult to anticipate and completely unlike anything in the past. Or as former secretary of the treasury Robert Rubin explained in an interview with the *New York Times*, “Clearly, there were things wrong. But I don’t know of anyone who foresaw a perfect storm, and that’s what we’ve had here.”

What strikes economic historians, though, is just how much this crisis resembles past financial collapses. Financial debacles often originate, as this one did, in a combination of an asset boom (in this case, rising housing prices) and a financial innovation (subprime mortgages and mortgage-backed securities such as bonds). Investors add this innovation to their portfolios, thus increasing its price by increasing the demand for it. The rapid price increase then convinces investors to buy more of the high-return and deceptively safe asset, and financial intermediaries strive to boost the supply. With swelling demand *and* supply, the quality of the asset soon begins to fall as the middlemen (the mortgage originators, asset brokers, and rating agencies) relax their standards for, say, creditworthiness. Meanwhile, investors borrow money to buy up even more of the new asset. At some point so much money is invested in dubious assets that the market inevitably breaks down, and if the collapse is large enough, the bad news cascades through the rest of the credit system and the economy as a whole. The beleaguered actors in the drama then rush for public assistance, saying, in effect, “Who knew?”

In fact, everybody knew—or should have known. Financial crises have repeatedly dotted the history of the United States (and the world), and they show no signs of going away. The U.S. was struck by a crisis originating in the real-estate sector as early as 1837. Real-estate prices had been soaring in the Midwest in the 1830s, and many states began bold plans to improve their road and canal systems. To fund these public works, they borrowed heavily in England in anticipation of higher real-estate taxes. When farm prices fell in 1837, the market for land crashed and 11 states defaulted on their bonds.

And a very close parallel to the current situation can be found in the mortgage crisis that battered the country in the 1890s. The origins of this crisis lay with the opening of the Great Plains to wheat farming. Settlers who wanted to improve or enlarge their farms could try to get credit from their local savings and loan associations, but these entities had limited funds. Furthermore, most households on the frontier were net borrowers, making interest rates relatively high. Western mortgages were thus attractive investments for eastern capitalists, and they created companies that hired loan agents on the Great Plains to find borrowers and make mortgage loans. The capitalists then issued bonds in Europe that were backed by the mortgages. Problems arose when a drought hit, and farmers throughout the Plains defaulted on their loans. The East Coast and European investors suffered the most, because competition among the mortgage companies had led them to drop the requirement that loan agents carefully check on the value of the borrowers’ collateral. Rising real-estate prices, mortgage-backed securities, and competition leading to lax underwriting standards—sound familiar?

Our current predicament began with the spread of the now-infamous adjustable subprime mortgages, more than half of which are now in arrears. These mortgages were repackaged with other, sounder ones and resold at high prices based on a mathematical model whose fundamental flaws we’ll discuss presently. Meanwhile, in the real world, decreasing or even eliminating the required down payment was allowing people with little savings (which frequently correlates with a shaky or nonexistent credit history) into the market. Consequently, more and more homes were being sold to buyers who could only meet their payments if housing values continued to rise while interest rates remained low. With benefit of hindsight it is clear that our real-estate boom depended on both home prices going up at least 10 percent per year for the foreseeable future, and nominal interest rates staying below 5 percent. It does not take a genius to see that these two conditions were unlikely to continue to hold for long. The resulting crash, however, is particularly severe, because the underlying market—for residential housing—involves a very large share of all the wealth in the country, and because the associated credit market dwarfs all the others. At a towering 14 trillion dollars, it is one-third larger than the national debt and accounts for 44 percent of all the outstand-



This poster for an 1895 melodrama depicts a scene familiar to 19th-century Americans—the United States experienced financial panics in 1819, 1837, 1857, 1873, and 1893.

ing private credit in the United States.

Similarly, in the 1930s, the Great Depression may have begun with a stock-market crash, but it wreaked such havoc in the housing and mortgage markets that the Federal Savings and Loan Insurance Corporation (FSLIC) and the Federal National Mortgage Association (Fannie Mae) were formed to ward off any future housing collapses. Since then, it may seem that we have escaped crises in mortgage markets, but that is not the case. The savings-and-loan crisis of the late 1980s as well as severe regional housing downturns (including one in the 1990s in Southern California) serve as reminders that residential real estate may be the oldest asset market on the planet, but it still contains an important element of risk.

When they formulated the complex mathematical models that allowed them to price mortgage-backed securities, financial firms ignored this history. The models are based upon the fundamental observation that what really matters is the overall trend in the value of your portfolio, not how the price of a given asset changes. In other words, it doesn't matter what each of your individual investments does—pork bellies may go up while soybean futures crash, but as long as the winners go up by more than the losers go down, you'll be fine. The key is diversification—don't put all your eggs in one basket, or all your money into pork bellies. In this case, the models presumed that since the bonds backed by subprime mortgages were really mostly backed by ordinary mortgages taken out by people with solid credit histories, the risk was sufficiently diversified that the bonds deserved very high ratings—which the brokers heartily encouraged, because it made the prices go up even further.

The only way to lose would be if *everything* went south at the same time, a phenomenon called undiversifiable risk. So the key issue, then, was how to measure that undiversifiable risk. To do this, financial firms relied upon data series that are merely a couple of decades long, or at best stretching back to World War II. It was as if the past were irrelevant. In a crisis, though, that can be a fatal mistake. During a crisis, as we all know today, virtually all private assets move in the same direction—down. There are therefore moments of enormous undiversifiable risk, but they are rare, at most occurring once every quarter century.

It may seem foolhardy to estimate the likelihood of such low-frequency events from such a short history—it's as if we only relied on the earthquake record of the Los Angeles basin over the last 25 years to calculate the likelihood of the Big One. But that is precisely what financial firms did. The 1985–2005 time series had another drawback as well: the housing boom began about when the dot-com bubble burst. The one acted as a cushion against the other, so homeowners who hadn't seriously overinvested in dot-coms didn't suffer *too* badly. After 2003 the housing and stock markets rose together, which was further good news. But the short span of data did not contain instances when the two markets dropped in tandem, as they have done recently, and so the financial firms overlooked this possibility.

Why were all the bright minds of Wall Street and all our financial regulators so blind to such a mistake? Once again, a look back provides an explanation. To begin with, Americans share a belief that technological change nullifies the past, and in particular makes the more distant past devoid of any useful lessons. Second, all of us who dabble in finance—even if only to save for retirement—yearn for investments that provide high returns without risk. Accepting the lessons of the past (and of modern financial theory) would force us all to realize that such portfolios are about as feasible as perpetual-motion machines. Third, regulators in the past few decades have faced tremendous political pressure not to intervene in financial markets. The real-estate boom was extremely popular. Republicans appreciated the expansion of the mortgage market as an element in constructing the "ownership society." Democrats promoted Fannie Mae and Freddie Mac's purchase of securities based on low-income mortgages as a way to extend access to credit to less-advantaged groups. Would-be homeowners favored relaxed lending standards because it allowed them to enter the housing market with less of a down payment. Those who were already homeowners gleefully reduced their retirement savings, since their houses were worth so much more. Not only that, they even practiced a kind of negative saving by using home-equity credit lines for big-ticket purchases, including fancy vacations—using their homes as ATMs, essentially. The construction industry could not but enjoy the fruits of high housing demand, as did real-estate agents, mortgage brokers, and local governments, which rely on property taxes for much of their budgets. And of course, the financial industry found the boom highly profitable. A message like "the higher the rise, the harder the fall" was clearly not welcome, but that, unfortunately, was the only message history offered.

Rising real-estate prices, mortgage-backed securities, and competition leading to lax underwriting standards—sound familiar?

SURVIVING LARGE LOSSES

For the past 12 months, our attention has been focused on attenuating the short-term impact of the crisis. The U.S. and other governments have enacted large-scale stimulus packages, spent billions shoring up shaky balance sheets, and pledged billions more to reassure individuals that their bank deposits are safe. These acts have transformed the financial landscape. The few surviving large independent investment banks have morphed into bank holding companies in order to enjoy the benefits of backing by the Federal Reserve. In the commercial banking world, intervention to salvage institutions battered by large capital losses has created four truly national banks, which hold a shockingly large share of all deposits. Such concentration would have been unthinkable a mere decade ago, or even a few months ago. To be sure, the creation of large national banks is a good thing for many reasons, among which are that they can give consumers access to ATMs across the country, and that they take advantage of economies of scale in the information technologies that underpin the banking business today. Nonetheless, the absorption of Washington Mutual by J. P. Morgan Chase and of Wachovia by Wells Fargo was driven by expediency, rather than by careful planning for the long-term health of the American financial system. And as the recent near-collapse of Citigroup demonstrates, even big banks can have huge problems if they are not properly supervised.

These structural changes will have consequences long after the flow of government money comes to a halt. What more—if anything—should be done? An understanding of the long-term evolution of financial markets suggests two fundamental rules that should guide further change: the mortgage problem must be addressed at the level of the homeowner, and partial regulation is bad regulation.

The heart of the current financial crisis is that some homeowners cannot afford the payments they have contracted to make, while others find defaulting attractive because the value of their homes has dropped well below what they owe. As mortgage losses mount, banks have to reduce their ability to make new loans—most banks have requirements that limit their lending to some percentage of the firm's capital. The decline in bank stocks has aggravated the problem, forcing banks to hold on to whatever income they earn simply to meet prudent balance-sheet requirements. Given that banks have lost about 40 percent of their overall value, it is not surprising that credit has been tight.

One can imagine two solutions to this problem. First, if banks were forced to hold higher reserves to cover future losses on risky loans or on investments in exotic derivative contracts, future crises would be less severe, because banks would be better prepared for them. Such a requirement would also make nonstandard investments more costly, because they would require idling more capital to cover any potential losses. Banks would therefore have less incentive to load up on risky bets. However, there is a problem—in a world of complicated asset portfolios, government regulators are at a very serious disadvantage in deciding what a prudent reserve ought to be. If the regulators are too conservative, they will stifle innovation; if they are too lax, they invite crises. And in the absence of long historical data series for guidance, the task of creating portfolio rules may well smack of reading tea leaves. (One could, of course, hire armies of economic historians to put together the necessary data series, but that would take years.)

The alternative, which we favor, is to focus directly on mortgages, and require that buyers make a minimum down payment and demonstrate that they have enough income to service their loan. Such requirements are not new, but they have never had the force of law. In the 19th century, it was standard to limit mortgages to half the value of the property. With such a high down payment, an income requirement was unimportant. When the last real-estate bubble burst in Los Angeles in the 1990s, it was difficult to get a loan with less than a 20 percent down payment. Whether the minimum down payment now should be 20, 15, or 10 percent is something that can be debated. If we choose to impose low down payments, we should tack on income verification standards, as is done with conventional mortgages. We should also make sure that homeowners cannot take out home equity loans that would push them beyond a prudent loan-to-value ratio. A higher down payment requirement will, of course, freeze some people out of the market and thus reduce the demand for owner-occupied housing, particularly expensive housing. But it will also cut the likelihood of crises, by insulating the financial system from defaults triggered by small price declines. In any case, it is clear that loans with no down payment are recipes for disaster. With down-payment and income-verification rules in place, homeowners might be putting in fewer granite countertops, but they wouldn't be fretting about their pensions.

Rules about income and down payments are easy to write, and easy to enforce. Our long-standing, county-level mortgage-registration system already keeps track of all loans backed by a particular piece of real estate, and we have adequate, if not perfect, means of assessing both housing values and income. Of course, the real-estate and banking sectors may not like having such rules imposed by legislation. They may argue that they are moving in this

This 1910 cartoon by Frank A. Nankivell for *Puck* magazine shows John Pierpont Morgan with his right arm encircling New York City's financial district while his left reaches for a child's piggy bank. The caption across the bottom reads, "The Central Bank—Why should Uncle Sam establish one, when Uncle Pierpont is already on the job?"

direction on their own. But one should bear in mind that industry standards of this sort tend to disappear in boom times, leading inexorably to the next crisis. Now is the time to implement such safeguards legislatively, while the chastened banking and real-estate industries' traditional opposition to public regulation is stilled by their desperate need for government largesse.

PARTIAL REGULATION IS BAD REGULATION

More broadly, the Federal Reserve should be given authority over all financial actors—not just commercial banks, and not just big entities, but *all* financial firms. Currently the Fed has a very specific set of mandates that give it clear authority over commercial banks, but little formal power over investment banks or insurance companies, and no hold at all over hedge funds. While its powers over investment banks and insurance companies have expanded in the current crisis, the financial sector has balked at giving it authority over hedge funds.

The Fed's shackles have historical roots. The Federal Reserve system was created in response to the Panic of 1907, when the discovery of stock-market shenanigans led to runs on many commercial banks. The United States had no central bank, so a group of private financiers led by J. P. Morgan wound up pledging tens of millions of dollars of their own money to stabilize the system. Yet even after this crisis the idea of a central bank was regarded with deep suspicion in many quarters, so in a compromise the Federal Reserve was created to monitor and provide liquidity to commercial banks across the U.S., while ignoring investment banks and allowing states to maintain their authority over other businesses, such as savings and loans and insurance companies.

Although the Federal Reserve's role has grown in recent decades, as banks have become truly national for the first time in our history, its purview is still limited by other federal agencies such as the Federal Deposit Insurance Corporation and the Securities and Exchange Commission, and its ability to regulate many financial actors remains at best indirect. Since it has no authority over hedge funds or insurance companies, in theory it has no obligation to help them out when they get into trouble. The founding philosophy was that if such a firm should fail, tough luck—that's the investors' problem. However, the current crisis has taught us that we don't believe in tough luck. The argument will no doubt be made that giving the Fed such oversight will stifle innovation, and it may well be true that innovation in financial markets might be slowed by more stringent regulation. On the other hand, for political and practical reasons the Fed cannot let big firms that are independent of its authority fail. Implicitly, these firms are getting the benefits of possible Fed assistance in the future. That can make them take undue risks, leaving taxpayers with the bill. They therefore have to submit to regulation by the Fed.

Leaving aside the political pressures that can be exerted to have the Fed save a huge hedge fund such as Long Term Capital Management, or an insurance company such as AIG, there are also practical reasons for allowing the Fed to take on such rescue operations. The first is that these institutions are enmeshed in a web of contracts with the firms that the Fed regulates. As the failure of Lehman Brothers shows, the collapse of one of these firms can have dramatic effects on the rest of the financial system; letting AIG fail would have led to even worse consequences. The problem is not simply that some firms are too big to fail. Rather, it is that if any segment of the financial market gets out of control, it can send shock waves throughout the system, even when the firms in crisis are small. The subprime mortgage market, after all, was only about 10 percent of the value of all mortgages and only 20 percent of the new mortgages in 2006, but its demise has triggered real estate's worse crisis in 80 years. Thus no big firm can stand outside the Fed's purview, and no large segment of the financial market can escape its authority.

If we do let one part of the market escape the Fed's regulation, all sorts of problems can arise. Consider how banks reacted to competition from unregulated hedge funds. As the hedge funds racked up large returns with their new financial techniques, traditional banks faced a drain of clients and talent that migrated to the innovators. The banks lobbied for some mechanism that would stanch the flow, and a solution was found by allowing them to hold much of their high-risk activities in Special Investment Vehicles, essentially dummy corporations, so as to keep them off their books—and thus outside the scope of regulators, and beyond the ken of most investors. When the subprime problem surfaced, some of the banks had to bring this activity back onto their balance sheets, shocking investors with huge losses. Had the playing field been level, no such sleight of hand would have occurred.

IT'S HARD TO MAKE PREDICTIONS, ESPECIALLY ABOUT THE FUTURE

Requiring down payments on mortgages and giving the Federal Reserve authority over the entire financial system will reduce the damage crises do, but these two measures will not eliminate crises altogether.

Financial markets have the very difficult task of directing resources towards high-return investments while diversifying risk. Without a crystal ball, investors have to guess about the future, and sometimes they will be wrong.

Nevertheless, our two rules should be adopted now, for we know that this will not be the last crisis to hit, and for the moment we have a coalition that is eager for reform. Now is the time to design financial markets to be robust—not just in regard to the history of the last couple of decades, but to a very broad set of events. We should assess risks not just with short sets of recent data but with evidence from the past.

These difficult times are also ushering in complex transformations in our households and in our international relationships. The days when Americans could believe that long-run prosperity was compatible with a personal savings rate near zero are now over. From the mid-1980s to the present, we enjoyed unprecedented run-ups in stock prices, and then in housing values, that created personal wealth with little or no effort on our part. We should not expect such good luck in the future. Given the increasingly large fraction of the population that is elderly, an increase in Social Security benefits is unlikely. If Americans want to retire comfortably, they will have to save.

In part because this is an election year, the crisis has been managed largely as a domestic problem. However, it is international, and will continue to affect the whole world. A latent fuel to the credit boom that moved us to this crisis was the world's willingness to lend us money, including the billions of dollars that China had amassed in foreign-exchange reserves and the large stakes that many foreign banks had taken in our mortgage market. While increasing our savings rates may wean us from a habit of foreign borrowing that is even more dangerous than our dependence on foreign oil, it will not change the fact that the financial market is global. Venice, Paris, and London have all been the centers of the financial world, only to be supplanted after various crises rocked them. If we want New York to remain the world's preeminent financial center, we must insure that our financial house is in order. e&s

Philip T. Hoffman, an Axline Professor of Business Economics and professor of history, earned his PhD from Yale in 1979, and arrived at Caltech as a lecturer in 1980. His highly collaborative research applies the tools of the social sciences to track long-term historical changes in politics, societies, and their economies to try to understand why some countries grow rich, while others remain mired in abject poverty. This includes studying the evolution of financial institutions such as stock exchanges and their effect on economic growth, and also such broader questions as why the West managed to conquer the rest of the world. (His December 2006 Watson lecture on this subject is available on the Caltech Streaming Theater website.)

Jean-Laurent Rosenthal is the other Axline Professor of Business Economics and the Executive Officer for the Social Sciences. He earned his PhD with Hoffman in 1988, and his research also focuses on the interaction between institutions and economic growth. He, Hoffman, and Gilles Postel-Vinay of the Laboratory of Applied Economics at the Institut National de la Recherche Agronomique (the National Institute for Agricultural Research) in Paris, France, have studied the growth of mortgage markets from the 17th to the end of the 19th century in France. Rosenthal, Thomas Piketty of the Paris School of Economics, and Postel-Vinay are working on a large-scale data-collection project to document the evolution of the distribution of wealth in France from 1800 to the present.

Hoffman and Rosenthal's most recent book (with Postel-Vinay) is **Surviving Large Losses: Financial Crises, the Middle Class, and the Development of Capital Markets** ***(Harvard University Press, 2007). Previous books include*** **Finance, Intermediaries, and Economic Development,** ***which they edited with Stanley L. Engerman of the department of economics at the University of Rochester in Rochester, New York, and the late Kenneth L. Sokoloff, a professor of economics at UCLA (Cambridge University Press, 2003), and*** **Priceless Markets: The Political Economy of Credit in Paris, 1660–1870,** ***also written with Postel-Vinay (University of Chicago Press, 2000).***

This article was edited by Douglas L. Smith.

Hoffman (left) and Rosenthal (right).