



## The Human Foundations of Financial Risk

By Alex J. Pollock

*Why is it that “a prudent banker is one who goes broke when everybody else goes broke”? This witty line of John Maynard Keynes points us to the human elements at the base of financial bubbles and busts, including the housing and mortgage bubble that our sophisticated, globalized, and leveraged markets produced from 2003 to 2006; the subsequent debt market panics of 2007 and 2008; and the continuing bust, with announced write-offs and losses so far exceeding \$200 billion. The mathematical models used to design and evaluate structured mortgage securities, using vast computer power and reams of data, did not save us from the consequences of all-too-human behavior.*

Early in 2007, as the deflation of the great twenty-first-century housing and mortgage bubble was getting seriously underway, I saw a notice of a presentation on “the statistical foundations of risk.” Without denying the importance of that topic, I thought at the time that even more important are the *human* foundations of risk.

The subsequent defaults, losses, and panic have painfully confirmed this idea. Financial history is made colorful—as well as instructive—by numerous bubbles and busts whose general patterns do not change. Why? The human nature behind the bubbles does not change, whether the calculations of boundless profit opportunities from increased debt leverage are made with quill pens or advanced computers. As Charlie Munger of Berkshire Hathaway asked a decade ago, “How could economics not be behavioral? If it isn’t behavioral, what is it?”<sup>1</sup>

The housing and mortgage lending bust, now spreading massive losses and ending some notable financial careers, displays all the classic results of historically recurring credit overexpansions. These financial celebrations are always based on an optimistic and then a euphoric belief in the ever-rising price of some asset class—in this case, houses and condominiums. They are inevitably followed by a hangover of defaults, failures,

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dispossession of the unwise or unlucky, a self-reinforcing cycle of credit contraction and falling asset prices, announcements of Keynes’s “prudent bankers” suffering huge losses together, and late-cycle political reactions.

### Bagehot’s Wisdom

Two paragraphs of Walter Bagehot’s great *Lombard Street* cannot be reread too often by financial actors and policymakers:

The mercantile community will have been unusually fortunate if during the period of rising prices it has not made great mistakes. Such a period naturally excites the sanguine and the ardent; they fancy that the prosperity they see will last always, that it is only the beginning of a greater prosperity. They altogether [and all together] over-estimate the demand. . . . They all in their degree—and the ablest and cleverest the most—work much more than they should, and trade far above their means. Every great crisis reveals the excessive speculations of many houses which no one before suspected, and which commonly indeed had not begun or carried very far those speculations, till they were tempted by the daily rise of price and the surrounding fever.<sup>2</sup>

The good times of too high price almost always engender much fraud. All people are most credulous when they are most happy; and when much money has just been made, when some people are really making it, when most people think they are making it, there is a happy opportunity for ingenious mendacity. Almost everything will be believed for a little while.<sup>3</sup>

This was true when published in 1873, is true in 2008, and will be true in the future. Bagehot’s insights should have to be signed each year by all officers of financial firms before they sign their annual ethics statements. For, as Bagehot also pointed out, “[t]he mistakes of a sanguine manager are far more to be dreaded than the theft of a dishonest manager.”<sup>4</sup>

In the 1880s, the decade after *Lombard Street* was published, the expanding United States experienced a notable bubble and bust in western agricultural land. As described by James Grant (in a 2005 article warning about the housing bubble then in progress), western land prices steadily rose, with Kansas farmland, for example, appreciating by 300 percent or more from 1881 to 1887. The belief that prices would continue to rise was based on a plausible theory: that in the “new era” of American growth, there would be no more free western land for settlement and increasing numbers of pioneers would have to pay higher prices. Yields on western mortgages were high. The result was that “money descended like a flood upon those who made it their business to place loans in the West,” so farmers could borrow to buy land.

Later, of course, “disappointed pioneers handed over their farms to the loan companies by which they had been mortgaged or abandoned them outright”—the nineteenth-century version of mailing in the house keys. “In God we trusted, in Kansas we busted” is a motto ascribed to defaulted borrowers returning east.

“[I]n order to create a really big asset price bubble,” Grant concludes, “a critical mass of human beings is all that’s required.”<sup>5</sup>

## Models and Madness

Although bubble behavior looks stupid in retrospect, many intelligent people get caught up in it—and later by it. Note Bagehot’s point that it is not only “the sanguine and the ardent,” but “the ablest and the cleverest the

most.” Brilliant mathematical modelers and shrewd Wall Street bankers helped inflate the bubble of the early twenty-first century. Three hundred years before, among those entangled in the South Sea Bubble of 1720 was Isaac Newton, possibly the greatest genius in history. Newton sold his original investment in the South Sea Company for a 100 percent profit, but when the price continued to rise, he bought back in—and was stuck with a huge loss when the bubble turned to panic. Newton wrote in disgust, “I can calculate the motions of the heavenly bodies, but not the madness of people.”

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Can we calculate the madness of people any better now? Our experience with models in the most recent bubble suggests not. During the rapid house price inflation and accompanying overexpansion (as is so apparent after the fact) of risky mortgage credit, the market for mortgage securities became enamored with statistical treatments of risk. How well did these models cope with the human sources of risk as the behavior of the mortgage finance system

changed, partially in response to the models?

Did they pick up the effects of short memories—of the inclination to convince ourselves that we are experiencing “innovation” and “creativity” when all that is happening is a lowering of credit standards by new names—or of what are rightly considered unearned risk premiums being counted as profits and paid out as bonuses? Did the models adequately take into account the cumulative human forces of optimism, gullibility, short-term focus, genuine belief in momentum, extrapolation of so-far-profitable speculations, group psychology, and increasing fraud? Did the models keep up with the fact that as they were running, the behavior was changing?

Obviously, they did not. But all of these elements are among the human foundations of the bubble, and therefore also of the bust. As Grant wrote about the bust of two decades ago, “In technology, banking has almost never looked back. On the other hand, this progress has paid scant dividends in judgment. Surrounded by their computer terminals, bankers in the 1980s committed some of the greatest howlers in American financial history”<sup>6</sup>—just as they did this time, surrounded by vastly more computer power.

Nobel Prize-winning economist Robert Merton recently offered the following analogy on the relationship of technical improvement, changing behavior, and risk:

You'd say that a four-wheel-drive car is safer than a two-wheel-drive car. Now suppose we observed that over the last 15 years, the number of passenger accidents per passenger mile hasn't changed at all. And someone says, Now wait a minute: Has four-wheel drive made us safer? And the answer would be, Technically, no, because we're having just the same number of accidents we used to have. . . . What really happened is that people get something that will unambiguously make you safer *if you behave the same way you did before.*

That's the key element to understand first. The amount of risk we take personally, individually, or collectively is not a physical given constant. *We choose it.*<sup>7</sup>

This is a nice explanation of how, while the financial tools and rules get ever more sophisticated, financial markets create however much risk they want. So the experience of bubbles and busts ("serious financial accidents per decade") continues as before.

One form of behavior in particular—fraud—regularly accompanies bubbles. As Bagehot said in the second quoted passage above, optimism and mendacity go together as a matter of historical pattern.

"The propensities to swindle and be swindled run parallel to the propensity to speculate during a boom," Charles Kindleberger and Robert Z. Aliber observe, and "the implosion of an asset price bubble always leads to the discovery of fraud and swindles."<sup>8</sup> So the scandals of the subprime mortgage collapse, including both fooling of borrowers and lying by borrowers, are typical examples of succumbing to the temptation amidst the "surrounding fever."

### Everybody Wins (for a While)

The belief in the ever-rising price of the favored asset seems to be confirmed by success on all sides as the bubble expands. As long as the underlying asset price, of houses in this case, keeps rising, everybody—borrowers and lenders, brokers and investors, speculators and flippers, home builders and home buyers, rating agencies and bond salesmen, realtors and municipalities, and many others—wins, or at least seems to. Bubbles are notoriously hard to control because so many people are making money from them while they last.

In the housing bubble, politicians of both parties also thought they were winning as all sides cheered increasing

home ownership ratios and expanding "access" to mortgage credit.

If the price of an asset is always rising, more debt leverage always seems better. The credit experience of loans financing it will be good, with delinquencies, defaults, and losses all low. Thus, the risk of the loans seems to be decreasing, even while the risk is in fact increasing. The low delinquencies and defaults seem to confirm the success of the credit expansion and the accuracy of the lending models. Loan-to-value ratios rise, even while they should be being reduced. "Innovative" no-down-payment financing is promoted.

Expectations of house price increases entered the models of the recent bubble through the parameter of house price appreciation (HPA). What ultimately emerged was HPD: house price *depreciation*, which put the self-reinforcing asset price-credit performance cycle into reverse, accelerating delinquencies, defaults, and losses.

House price indices differ somewhat, but we can say that from U.S. residential real estate's peak aggregate value of about \$22 trillion in 2006, prices so far have fallen about 10 percent—a more than \$2 trillion loss of household wealth. Some reputable forecasts are for an additional 10–15 percent drop, which would mean an additional loss of household wealth of more than \$3 trillion and serious additional credit losses, which would likely spread throughout the banking system.

To update the slogan from 1880s Kansas, "In HPA we trusted, with HPD we busted."

### Minsky's "Financial Fragility"

Hyman P. Minsky (1919–96) was an insightful theorist of the human foundations of credit overexpansions and busts. His work is regularly rediscovered in times of financial crisis; discussions of the ideas of this old friend of mine have become a coincident indicator of financial distress. Lately, the term "Minsky Moment" has achieved currency. Its appealing alliteration aside, the term is not especially apt. Both the enthusiastic inflation of the bubble and the pain of its collapse and accompanying financial unwinding last a good deal longer than a moment.

The essential point of Minsky's theory is that busts do not result from some external force or shock to the financial system but rather are "endogenous"—they arise from the intrinsic nature of financial behavior. In other words, this is a theory about the psychology of risk. He writes,

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“Acceptable financing techniques are not technologically constrained; they depend upon the subjective preferences and views of bankers and businessmen.”<sup>9</sup>

In an age of democratized consumer credit, we should substitute “lenders and borrowers” for “bankers and businessmen.” But the key point is the “subjective preferences.” What is viewed as risky and dangerous, and what is viewed as normal and acceptable? This changes with time: “Success breeds a disregard of the possibility of failure; the absence of serious financial difficulties over a substantial period leads to the development of a euphoric economy in which *increasing short-term financing of long positions becomes a normal way of life.*”<sup>10</sup>

The short-term financing of long and risky positions, which comes to be seen as normal and safe when there appears to be plenty of liquidity to borrow, is what sets up the possibility of the ultimate liquidity panic. The panic occurs when the short-term, risk-averse investors all become frightened together and refuse to roll over their loans or investments upon maturity, suggesting instead, “Just send me back the money.” Under such circumstances, of course, this is just what it is impossible to do. A well-known example of this behavior is the bank run; in 2007, the same pattern was an international run on securitized mortgage financing.

But *ex ante*, these possibilities seem remote when short-term financing of long positions becomes viewed as normal and profitable. As late as the first half of 2007, for example, the financial world was being treated to discussions of the supply of “abundant liquidity,” a “global savings glut,” or even a “flood of global liquidity,” which would guarantee a firm market bid and narrow spreads for risky assets. And so it was said by many at the time that there was a new era of global liquidity.

Writing in 1986, Minsky continues: “As a previous financial crisis recedes in time, it is quite natural for central bankers, government officials, bankers, businessmen, and even economists to believe that a new era has arrived. Cassandra-like warnings that nothing basic has changed . . . are naturally ignored.”<sup>11</sup> As pointed out above, a perverse effect of bubbles, with their increasing risk, is that the low delinquencies and defaults in the period of easy credit seem to confirm the success of the debt expansion. So does the experience of ease in trading financial instruments, which is described as “abundant liquidity.”

During the bubble, much of the money everybody is making comes from the expansion of leveraged balance sheets. My bigger balance sheet and higher leverage become your revenues—in other words, the buildup of risky balance sheets premised on future loan payments and

future asset price appreciation becomes for a lot of other people an income cash flow. This feels good to everybody involved—as long as it lasts.

If the balance sheets are to be sustained rather than being written off, they must be “validated,” to use Minsky’s term, by the lender’s own cash flows—that is, by actually receiving the contracted-for interest and principal payments. The realization that this is not going to happen—for example, the widespread realization in early 2007 that a large proportion of subprime mortgages and subprime mortgage securities were going to default—means the balance sheets can no longer be believed. The end of belief

ends the bubble and begins the bust.

Central at this point is the role of short-term, highly risk-averse investors and lenders, dealing in such instruments as high-grade commercial paper, repurchase agreements, inter-bank placements, and bank deposits generally. These short-term investors have no upside potential—they are in it for a low but very safe yield. They do not intend to take credit risk, even if they are actually doing so. Above all, they have no desire to report to their boards or trustees that they have experienced losses on these reputed super-safe assets.

The realization by these investors, at more or less the same time, that they are *not* safe makes them all grow conservative at once. Viewed from the individual perspective of each, this is a completely rational response, but the aggregate result is to create a financial crisis in which the imagined “liquidity” disappears. There is a discontinuous withdrawal of short-term funding from assets now understood to be much riskier than heretofore believed; the graph of available funding follows the path of a man walking the plank who has just stepped off the end. Uncertainty and fear escalate, and prices fall to reflect huge uncertainty premiums—in other words, a panic.

Minsky viewed fragility as the result of a transition from conservative “hedge finance,” with long-term financing of long-term assets; through the increased profits of “speculative finance,” which “depends upon the belief—and the reinforcement of belief by performance—that refinancing of short-term debts will be available”; and finally, when asset

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prices fall, to “Ponzi finance,” in which old debt can only be repaid if new debt can infinitely increase. In summary:

The successful functioning of an economy within an initially robust financial structure will lead to a structure that becomes more fragile as time elapses. Endogenous forces make a situation dominated by hedge finance unstable, and endogenous disequilibrating forces will become greater as the weight of speculative and Ponzi finance increases.<sup>12</sup>

In slogan form, “stability creates instability.” For example, the “Great Moderation” of which the Federal Reserve was so proud thus creates the “Great Twenty-First Century Bubble and Bust.” Or, as succinctly stated by first-century historian of Rome Velleius Paterculus, “The most common beginning of disaster was a sense of security.”

Minsky’s followers think that “there is nothing that can be done to eliminate the inevitability of financial fragility as Minsky defined it.”<sup>13</sup> Perhaps we should hesitate to describe anything in human society as “inevitable,” but the Minsky theory is consistent with my experience and observation of financial events over four decades, as well as with my study of financial history. Note that it is above all a theory about human behavior, beliefs, memories, and “subjective preferences.”

## Political Reactions

Political reactions are also essential human factors in bubbles and busts. In the U.S. mortgage finance system, the government has been an effective promoter of higher loan-to-value lending, smaller down payments, riskier lending, and the use of government guarantees—all to increase “access” to credit and the home ownership ratio. These played into the mortgage credit overexpansion.

In the wake of a bust, there is always a predictable series of political activities: first, the search for the guilty; second, the fall of previously esteemed heroes; and third, legislation and increased regulation to ensure that “this will never happen again.” But, with time, it always does happen again. Consider in this context the statement of the comptroller of the currency in 1914 that with the creation of the Federal Reserve, “financial and commercial crises, or panics . . . seem to be mathematically impossible.”<sup>14</sup>

George Kaufman of Loyola University Chicago recently provided this ironic reflection: “Everybody knows Santayana’s saying that those who fail to study history are condemned to repeat it. Those who do study financial

history are condemned to first agonize over the patterns they recognize and then repeat it anyway.”<sup>15</sup>

Could universal knowledge of financial history among financial actors change the recurring bubble and bust behavior? Perhaps it could, but the project is utopian. In the meantime, although the dynamism and innovation of market economies seem to engender endogenous financial fragility, bubbles, and busts, they more importantly create a trend of increasing human well-being. It is easy to choose innovation and a long-term growth trend, even with these financial cycles, over socialist stagnation.

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AEI research assistant Karen Dubas worked with Mr. Pollock to produce this Financial Services Outlook.

## Notes

1. Charlie Munger, “The Psychology of Human Misjudgment” (remarks, Harvard Law School, Cambridge, MA, 1995), available at [http://vinvesting.com/docs/munger/human\\_misjudgement.html](http://vinvesting.com/docs/munger/human_misjudgement.html) (accessed May 1, 2008).

2. Walter Bagehot, *Lombard Street: A Description of Money Market* (1873; Westport, CT: Hyperion Press, 1962), 77.

3. *Ibid.*, 78.

4. *Ibid.*, 127.

5. James Grant, “Mankind’s Bubble Gene,” *Grant’s Interest Rate Observer* 23, no. 21 (November 4, 2005).

6. James Grant, *Money of the Mind: Borrowing and Lending in America from the Civil War to Michael Milken* (New York: Farrar, Straus and Giroux, 1992), 7.

7. Robert C. Merton, interview by Nate Nickerson, “On Markets and Complexity,” *Technology Review*, April 2, 2008, available at [www.technologyreview.com/Biztech/20501/](http://www.technologyreview.com/Biztech/20501/) (accessed May 1, 2008). Emphasis in original.

8. Charles P. Kindleberger, *Manias, Panics, and Crashes: A History of Financial Crises* (New York: Basic Books, 1978), 78. See also Charles P. Kindleberger and Robert Z. Aliber, *Manias, Panics, and Crashes: A History of Financial Crises*, 5th ed. (New York: Palgrave Macmillan, 2005), 143.

9. Hyman P. Minsky, *Stabilizing an Unstable Economy* (New Haven, CT: Yale University Press, 1986), 213.

10. *Ibid.* Emphasis added.

11. *Ibid.*

12. *Ibid.*

13. Jan Kregel, “Minsky’s Cushions of Safety,” *The Levy Economics Institute of Bard College Public Policy Brief* no. 93A (2008): 6.

14. *Annual Report of the Comptroller of the Currency*, 1914, 10.

15. George G. Kaufman (remarks, Enterprise Risk Management Symposium, Chicago, IL, April 15, 2008).