

If a well-capitalized bank attempted to recoup its losses by restricting lending and rebuilding capital ratios, every \$1 loss would reduce lending by approximately \$8 to \$10. It is likely that the (resistant) U.S. consumer who had financed most of his/her spending on the back of bank lending against housing collateral created by an overexuberant real estate market may finally start to retrench. Thus, the economy will be caught between the Scylla of falling consumer spending and the Charybdis of increasingly restrictive credit conditions. The offset of an increase in exports due to the dollar's decline would not be sufficient to prevent a recession.

Conclusion

The commentators were right to draw attention to the fact that the current crisis has all the attributes of a Ponzi financing scheme that risks turning into a full-scale debt deflation. However, it is clear that the crisis is not the result of a traditional endogenous Minsky process in which narrowing margins of safety lead to fragility.

In the current crisis, the cushions of safety have been insufficient from the beginning—they are a structural result of how creditworthiness is assessed in the new “originate and distribute” financial system sanctioned by the modernization of financial services. The crisis has simply revealed the systemic inadequacy of the evaluation of credit—or, what is the same thing, the undervaluation and mispricing of risk. This is basically due to the fact that those who bear the risk are no longer responsible for evaluating the creditworthiness of borrowers.

In the traditional Minsky process, bank profitability depended on the ability to evaluate the credit of borrowers and to hedge the risk of borrowing short and lending long. In the current situation, the profits of the credit rating agencies are independent of their ability to correctly evaluate risk. It has been suggested that the agencies' profits are correlated with the overestimation of creditworthiness and the undervaluation of risk. This is a crucial failing in a modern system that is supposed to excel in the pricing of risk and the distribution of risk to those who are best equipped to bear it. But if there is no efficient means of evaluating risk, it cannot be distributed efficiently.

This situation has two related consequences. The first is that the attempt to provide increased transparency for the balance sheets of financial

institutions in order to provide a more efficient evaluation of risk (by requiring that the value of assets be reported on a market rather than book value basis, or “marking to market”) may be counterproductive when there is no market for the assets held by those institutions. This is precisely where the credit rating agencies have failed to provide correct evaluations. If the prices are determined by the risks as assessed by models of statistical correlation, then the values are no better than the models that produce them—that is, they are no better than the presumption that the future will replicate the past, which is not true except in periods of stability. Indeed, this is one of the reasons why the current crisis started with an inbuilt deficiency of safety. The calculation of the required cushion based on a past history of stable results makes the decline in safety instantaneous, and already embodied in current assessments. The introduction of FASB 157 and 159 accounting regulations for measuring the fair value of these types of Level 3 assets was intended to ameliorate the problem. However, it now appears to provide additional imprecision in the methods used to evaluate risk.

While the present crisis is often presented as a “repricing” of risk, it is telling that the investment vehicles to meet the crisis, such as a Master-Liquidity Enhancement Conduit superfund to purchase and provide a safe haven for the assets of financial structures, will tend to reproduce the existing systemic causes of mispricing. There does not appear to be a transparent method of determining the prices of assets acquired by the investment vehicles. Indeed, the notion of “repricing” risk can only be justified on the presumption that current prices are undervalued, and that the market will eventually provide correct evaluations. But if the market is not capable of valuing these structured assets correctly, the marking to market is not the best method by which to judge the solvency of the institution that used them. The alternative, whereby the originating banks take the assets back onto their balance sheets (which appears to be the solution preferred by the larger banks involved), also confirms that there is no effective pricing mechanism for collateralized obligations.

The second consequence of the inability to evaluate risk is the ironic fact that, in November 2007, the various U.S. financial regulatory and supervisory agencies finally agreed on the method for implementing the Basel II risk-based capital framework. Under this framework, credit rating agencies are given a major role in evaluating the credit risks of bank assets. Instead

of improving risk management, the present crisis suggests that Basel II may provide an inbuilt bias in favor of the underestimation of risk, and thus the undercapitalization of banks, that produces a more fragile financial environment. This is underlined by the fact that Basel II does not recognize the difference in risks for similar ratings on the different instruments noted above, creating the possibility for the same kind of arbitrage that was present in the original accord.

The crisis also raises the question of the U.S. regulatory structure. While the Fed is charged with regulating bank and financial holding companies, most of the difficulties have involved holding company–created special entities that issue securities and are thus subject to securities market regulations. These entities bear a close resemblance to the bank affiliates that were the source of fraud and malfeasance in the 1920s (the New Deal regulations were designed to eliminate such illegal practices). The Enron crisis was caused by similar abuses by off-balance-sheet “unaffiliated” affiliates, so banking regulators will have to find a way to bring them within the effective control of financial supervisors.

The crisis not only suggests lacunae in the current regulatory and supervisory system, but also raises questions about the ability of the Federal Reserve to ensure stability by supporting asset prices, as suggested by Minsky. Martin Mayer’s book *The Fed* (2001) has already addressed the difficulty of controlling bank lending through actions that influence bank balance sheets when banks *no longer hold* loans on their balance sheets. In the “originate and distribute” system, the amount of lending is determined by the ability to distribute—that is, by the appetite of capital markets for securitized loans. The Fed’s only method of control was to influence capital market–interest rate expectations. It also means that the Fed has lost much of its ability to control the rate of growth of the money supply, since the absence of loans also means an absence of deposits, and deposits represent a major proportion of M2 assets. Much of this creation of liquidity is now transferred to off-balance-sheet entities such as the SIVs that borrow short and lend long, much like banks.

Former Chairman Alan Greenspan proved an adept and fortunate practitioner of this approach, which, with one exception, is more an art than a science. In his recent autobiography, Greenspan admits that the Fed is powerless to reign in expectations that lead to asset bubbles.¹³ However, he

suggests that this does not represent a crucial policy defect because the Fed can always deal with a bubble's collapse. He is presumably basing this observation on the Fed's experiences in 1987, 1989, and 2000; however, these years experienced equity market bubbles that were cured with a quick injection of liquidity to ensure the solvency of institutions and to stabilize market-traded equity prices. The present crisis presents much greater difficulties, as banks express extreme liquidity preference and attempt to offset real losses by rebuilding capital. The discount window cannot provide funds to rebuild bank capital.

From this perspective, the current crisis has little to do with the mortgage market (or subprime mortgages *per se*), but rather with the basic structure of a financial system that overestimates creditworthiness and underprices risk. The bottom line is that the system has been structured to make credit too cheap, leading to the assumption of excessive risk in order to provide higher returns. There is nothing that can be done to eliminate the inevitability of financial fragility as Minsky defined it. Fragility can only be damped by systemic policies that Minsky identified as being the purview of Big Government (e.g., a government expenditure or employment plan to support incomes and employment) and a Big Bank (e.g., a central bank willing to support asset prices through the discount window). It is, however, possible to eliminate fragility that emerges as a direct result of flaws in the structure and regulation of the system itself. This is the task that confronts the U.S. financial system today.

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Notes

1. See, for example, the London *Economist* ("Buttonwood: Ponzificating," March 17, 2007); *Institutional Investor* (E. Chancellor, "Ponzi Nation," February 7, 2007); *Pimco* (P. McCulley, "Global Central Bank Focus: The Plankton Theory Meets Minsky," March 2007); the *Financial Times* (G.

Magnus, “What This Minsky Moment Means,” August 22, 2007); and the *Wall Street Journal* (J. Lahart, “In Time of Tumult, Obscure Economist Gains Currency: Mr. Minsky Long Argued Markets Were Crisis Prone; His ‘Moment’ Has Arrived,” August 18, 2007).

2. Benjamin Graham and David L. Dodd, in *Security Analysis* (New York: Whittlesey House, 1934), introduced the concept in the discussion of earnings coverage, and noted that the term was first used in Moody’s *Manual of Investments* prior to 1930 to mean the ratio of the balance after interest to the earnings available for interest on a bond (p. 108). The “Exceptional Margins of Safety as Insurance against Doubt” (p. 231) comes closest to Minsky’s idea. It is also possible that Minsky was influenced by an essay of Keynes’s (“The Consequences to the Banks of the Collapse of Money Values,” dated August 1931 and republished in *Essays in Persuasion* in 1932): “For the banks allow beforehand for some measure of fluctuations in the value of both particular assets and of real assets in general, by requiring from the borrower what is conveniently called ‘margin.’ That is to say, they will only lend him money up to a certain proportion of the value of the asset which is the ‘security’ offered by the borrower to the lender. Experience has led to the fixing of conventional percentages for the ‘margin’ as being reasonably safe in all ordinary circumstances” (pp. 170–01).
3. According to J. P. Morgan, “A man I do not trust could not get money from me on all the bonds in Christendom.” Quoted in Ron Cernow, *The House of Morgan: An American Banking Dynasty and the Rise of Modern Finance*, New York: Atlantic Monthly Press, 1990, p. 154.
4. This approach is outlined more fully in J. A. Kregel, “Margins of Safety and Weight of the Argument in Generating Financial Fragility,” *Journal of Economic Issues*, Vol. 31, No. 2, June 1997.
5. J. M. Keynes, *The General Theory of Employment, Interest and Money*, London: Macmillan, 1936, pp. 149–50.
6. As Keynes noted in *Essays in Persuasion* (1932), bankers will always prefer to fail in a “conventional way” by following the decisions of others rather than risking being unconventionally right. This is still true today, as can be seen in the declaration of Charles Price, the former head of Citigroup, as questions arose over the subprime mortgage crisis: “When the music stops, in terms of liquidity, things will be complicated.

But as long as the music is playing, you've got to get up and dance. We're still dancing" (quoted in the *Financial Times*, July 10, 2007).

7. For an early presentation of this aspect of banking and its implications for monetary policy, see M. Mayer, *The Bankers: The Next Generation*, New York: Truman Talley Books, 1997, and *The Fed: The Inside Story of How the World's Most Powerful Financial Institution Drives the Markets*, New York: Free Press, 2001.
8. Most banks use Fair Isaac Corporation-generated FICO scores, originally developed for applicants for credit cards and automobile loans, and they have virtually no history in assessing subprime borrowers. According to HSBC Finance Director Douglas Flint (quoted in the *Wall Street Journal*, February 8, 2007), "What is now clear is the FICO scores are less effective or ineffective' when lenders are granting loans in an unusually low interest-rate environment." According to the *New York Times* (L. Browning, "The Subprime Loan Machine," March 23, 2007), these scores were then used in automated underwriting programs, such as those developed by Edward N. Jones, a former NASA engineer for the Apollo and Skylab missions. Through his private software company in Austin, Texas, Jones and his son, Michael, designed a program that used the Internet to screen borrowers with weak credit histories in seconds. The old way of processing mortgages involved a loan officer or broker collecting reams of income statements and ordering credit histories, typically over several weeks. But, by retrieving real-time credit reports online and then using algorithms to gauge the risks of default, the Joneses' software allowed subprime lenders "to grow at warp speed."
9. Mortgage securitizations have been part of U.S. financial markets since the 1930s, and residential mortgage-backed securities (RMBS) became particularly important after the savings and loan crisis of the 1980s. The simplest variety is a participation certificate that gives the holder the right to the interest and principal payments of a pool of residential mortgages. The holder of a mortgage-backed bond (MBB) receives income from underlying mortgages, whose value exceeds the face value of the bond sufficient to meet prepayment and default. Pass-through securities are the most common mortgage-backed securities, with credit ratings determined by probability of default, and

may have additional credit enhancements provided by the originator. The introduction of real estate mortgage investment conduits in the Tax Act of 1986 made it possible to create separate cash flows from the underlying mortgages in order to provide particular payment and risk profiles, such as interest-only or principal-only securities. The collateralized mortgage obligation combines the two previous varieties, but with multiple types of MBBs having different rights to the cash flows of the underlying mortgages. The current crisis is characterized by the creation of RMBS with subprime and Alt-A mortgage collateral. Subprime mortgages represented an average of 8 percent of all originations in the 2001–03 period, rising to an average of 20 percent in the 2005–06 period, when over 80 percent of such mortgages were securitized with an average value of approximately \$450 billion per annum. For additional detail on the statistical data provided in these notes, see L. Randall Wray, “Lessons from the Subprime Meltdown,” Working Paper No. 522, Annandale-on-Hudson, N.Y.: The Levy Economics Institute, December 2007.

10. About half of the originations in 2005 and 2006 were classified with little or no documentation.
11. In the 2004–06 period, an average of approximately 90 percent of subprime mortgages were at adjustable rates, with interest-only, balloon-repayment subprime mortgages representing 40 percent in 2005. It is important to note that these are not the equivalent of a European-style variable-rate mortgage in which the payment varies with changes in market mortgage rates. Rather, these mortgages provide for an adjustment of the rate regime at some future date. A common variety, called a two-step 2-28 or 3-27, provides a low introductory rate for two or three years and then resets, for the balance of the loan period, to a fixed rate determined by the market rate at the time, plus a margin. Another hybrid adjustable-rate mortgage (ARM) known as an $n/1$ starts out with a low introductory rate that lasts n years and then is adjusted annually, with n varying between three and 10 years. ARMs differ from standard, fixed-rate mortgages in that they often include a prepayment penalty.
12. According to financial analyst Robert L. Rodriguez, in a speech before the CFA Society of Chicago on June 28, 2007, the global rating agency

Fitch reported that their credit rating models were primarily determined by FICO scores and a continuation of the prior 50-year experience of home price appreciation. Fitch admitted that if prices were to decline by 1 percent to 2 percent for an extended period of time, the model would break down completely and impair tranches as high as AA or AAA.

13. In his recent autobiography, Greenspan suggested that his attempts to use interest rates to halt expectational bubbles only aggravated them; see *The Age of Turbulence: Adventures in a New World*, New York: Penguin, 2007, pp. 200–02.

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