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FINANCIAL MARKETS MELTDOWN

What Can We Learn from Minsky?

L. RANDALL WRAY

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Preface

The current financial crisis has not only gripped the media on a daily basis and affected the average American in terms of housing and personal consumption, but it has also raised questions about the viability of the financial system. The U.S. economy is heading toward, or may already be in, a recession, and the Federal Reserve is attempting to stem the tide by reducing interest rates and acting as the lender of last resort. Stock markets have declined and become increasingly volatile, and the extent of the economic downturn is uncertain.

In a series of papers, Levy Institute scholars warned that the continuation of current practices and policies in the United States meant that a crisis was inevitable. Hyman P. Minsky's financial fragility hypothesis is frequently used to explain the current crisis. Minsky hypothesized that the structure of a capitalist economy becomes more fragile over a period of prosperity. As expressed in this brief by Senior Scholar L. Randall Wray, the belief that the world is now more stable and less vulnerable to "shocks" (the "Great Moderation") allowed greed to trump fear. According to Wray, Minsky would label the faith in the era of the Great Moderation a "radical suspension of disbelief."

Wray explains the historical development that led to today's complex and fragile financial system and how the seeds of crisis were sown long ago by lax oversight, risky innovations, and deregulation during a lengthy period of relative stability. Irrational exuberance, which was based on the belief in the "new economy" in the 1990s, and unprecedented real estate appreciation, which validated increasingly risky Ponzi finance in the 2000s, are the result of long-term, policy-induced, profit-seeking financial innovations.

The traditional role of banks evolved in order to mitigate the risk of another debt deflation rivaling the Great Depression. However, government relaxed regulations so that banks could take direct positions in all

aspects of the financial system. According to Wray, many of today's problems can be traced back to securitization (the "originate and distribute" financial model), leverage, the demise of relationship-based banking, and the dizzying array of extremely complex instruments that only a handful understand.

Asset price depreciation will not be restricted to residential real estate. As economic activity slows, there will be revelations of problems throughout the entire financial sector. Wray estimates that the combined losses could amount to several trillion dollars (in a \$13 trillion economy). Moreover, the United States will feel the effects of the current crisis for some time—perhaps a decade or more.

Wray notes that the policy initiatives of the George W. Bush Administration appear to be designed to help creditors rather than debtors, and he instead recommends much larger stimulus packages, which are probably politically infeasible. A return to stagflation looks increasingly likely, as it will be difficult for the United States to grow its way out of the problem.

Wray discusses lessons from Minsky that could be used to reformulate policy and deal with the present crisis. He calls for mortgage relief that stabilizes the real estate sector and reform that amends the bankruptcy laws. He also calls for preserving home ownership and creating a new institution in line with President Franklin D. Roosevelt's Home Owners' Loan Corporation. According to Minsky, government should act as the employer of last resort in order to eliminate involuntary unemployment and reduce inequality and poverty. Minsky preferred policy that would promote small- to medium-size financial institutions (rather than their consolidation), and policy that was biased toward market segmentation.

We must return to a more sensible model, with enhanced oversight of financial institutions, says Wray. Monetary policy should stabilize interest rates, maintain direct credit controls, and strengthen its supervisory and regulatory functions. Furthermore, bailouts will be required. As Minsky put it, "A financial crisis is not the time to teach markets a lesson by allowing a generalized debt deflation to 'simplify' the system."

As always, I welcome your comments.

Dimitri B. Papadimitriou, *President*

March 2008

Financial Markets Meltdown

In previous work, I examined the problems in the securitized subprime mortgage market that led to a crisis last summer (Wray 2007, 2008). Many commentaries on the mortgage securities meltdown have referred to the work of the late Hyman P. Minsky, probably the most astute observer of the financial system of the past century, with some even calling it a “Minsky moment” (Whalen 2007, Magnus 2007, Cassidy 2008). With 20/20 hindsight, pundits finally recognized the real estate bubble and the dangerous financial practices that had developed in that sector over the previous four or five years. A few now recognize that problems have spread far beyond mortgages and real estate. Still, the conventional view is that the damage will be contained through a combination of interest rate cuts and the fiscal stimulus package that will send checks to most taxpayers in late spring 2008. The majority of commentators, including officials at the Federal Reserve (Fed), still project a moderate reduction of growth, with recovery later this year. While it is believed that it could take residential real estate several years to recover, and while there are calls for reregulation of the home mortgage industry, few analyses recognize the true depth of the problems facing the financial system.

This brief will provide a Minskyan analysis of the forces that have brought us to the present situation, and will make some general policy recommendations to ameliorate the damage done to the financial structure over the past couple of decades by lax oversight, risky innovations, and deregulation. What we actually confront is a systemic failure resulting from a fundamentally flawed model—what has been variously called “market fundamentalism,” “transactions-oriented capitalism,” and, in Minsky’s phrase, “money manager capitalism.” Indeed, Minsky’s writings can shed a lot of light on the current problems, as well as on the direction that financial system reform ought to take. To be sure, this downturn might prove to

be shallow, the real estate sector might recover more quickly than most expect, and losses and write-downs at financial institutions might subside. Still, if the fundamental problem is with the design of the financial system itself, yet another crisis will arrive shortly to expose other flaws. For that reason, reform is needed.

Before proceeding, it is important to distinguish the framework adopted here from popular explanations that blame real estate sector excesses for the meltdown. Minsky would not attribute the crisis to “irrational exuberance” or “manias” or “bubbles.” Those who were caught up in the boom behaved “rationally,” at least according to the “model of the model” they had developed to guide their behavior. That model included the prospective course of asset prices, future income, behavior of policymakers, and ability to hedge risks or shift them onto others. It is only in retrospect that we can see the boom for what it was: mass delusion propagated in part by policymakers and those with vested interests. However, a large part of the blame must be laid on the relative stability experienced over the past couple of decades—the tranquility that made the boom possible also created fragility because, according to Minsky, *stability is destabilizing*. It is far too simple to attribute the current crisis to a speculative boom in real estate, to excessive monetary ease, or even to lax supervision. The causes are complex and have developed over a very long period. As such, solutions will also be multifaceted, tentative, and contingent upon continued evolution of the financial system, with an eye to longer-term trends that have made the system much more prone to crisis.

Money Manager Capitalism and the Systemic Nature of the Crisis

What was recently seen as “creative” and “innovative” democratization of credit is now viewed as misguided and culpable bungling—or worse.

—Alex J. Pollock (2007)

The financial system is a lot more trouble than it is worth.

—Warren Mosler (2008)

Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on a whirlpool of speculation.

—John Maynard Keynes (1964)

Irrational exuberance? No, the seeds of the current financial crisis were sown long ago. As I have previously documented, the story begins with the Fed’s increasingly aggressive use of interest rate changes in an effort to fine-tune the economy (Wray 2007, 2008). Each rate hike intended to fight inflation caused problems for commercial banks and thrifts that were subject to Regulation Q interest rate ceilings, as well as usury laws that limited loan rates, causing them to suffer “disintermediation” (retail deposit withdrawals) when market rates rose above legislated deposit rates. The interest rate ceilings allowed the Fed to engineer “credit crunches” by pushing market rates up. In addition, other rules and regulations that dated to the New Deal financial reforms also constrained practice to preserve safety and soundness.

However, as in Minsky’s scenario, financial institutions responded to each tight-money episode by innovating and creating new practices and instruments—making the supply of credit ever more elastic (Wray 1994). As time passed, the upside tendency toward speculative booms became correspondingly more difficult to contain. In addition, the Fed and Congress gradually removed constraints, allowing commercial banks to engage in a wider range of practices in order to better compete with their relatively unregulated Wall Street rivals. Still, deregulation and legal recognition of new practices were not, by themselves, sufficient to bring us to the present precipice. If these innovations had led to excessively risky behavior that generated huge losses, financial institutions would have been reluctant to retain them. According to Minsky, the remarkable thing about the postwar period is the absence of depressions. While recessions occur with regularity, they are constrained; while financial crises arise from time to time, the fallout is contained. This is due in part to the various reforms that date to the New Deal, but also to countercyclical movement of the “Big Government” budget, to lender-of-last-resort activity of the “Big Bank” Fed, and to periodic bail-outs arranged by the Fed, the Treasury, or Congress. As Minsky always argued, by preventing “it” (a debt deflation on the order of the 1930s collapse) from happening again, new practices and instruments were validated.

In other words, irrational exuberance is just the end result of long-term, policy-induced (and in turn, policy-validated), profit-seeking financial innovations that stretched liquidity and enabled prices of real estate and equity to reach unjustified and unsustainable levels. Just as the irrational exuberance that developed in equity markets in the 1990s was based on the belief that a “new economy” had created conditions in which dot-com companies could only rise in value—validating exploding stock prices—the 2000s saw unprecedented real estate appreciation that validated increasingly risky Ponzi finance. Yet, both bubbles were fueled by a combination of optimistic expectations that developed over many years, and the search for high returns by money managers of funds that had accumulated wealth over decades.

This growth of managed money continually eroded banks’ traditional lines of business, as pension funds, insurance funds, hedge funds, and so on provided an alternative source of funds in competition with bank loans. Initially, bank funding had an advantage over market sources of funding because banks could diversify risks across a large number of borrowers with different income sources. Further, banks had access to insured deposits as well as Fed lender-of-last-resort intervention, ensuring they could issue liabilities without facing much chance of a run. However, by the early 1970s, firms were already turning to the commercial paper market for short-term borrowing, taking business away from banks. As Minsky (1986) noted, an early crisis in the commercial paper market led to the practice of obtaining backup lines of credit with banks. On the one hand, banks then could earn fee income for provision of the backup facilities, but on the other hand, this practice reduced their competitive advantage in direct funding of business. Other market innovations allowed for diversification of risk in the form of issued securities collateralized by pooled loans—apparently eliminating the advantage banks had previously held.

Over time, new instruments continually eroded the bank share of assets and liabilities—which fell by half between the 1950s and the 1990s, as shown in Table 1.¹ The securities market share of private nonfinancial debt rose from 27 percent in 1980 to 55 percent in February of this year (Greenlaw et al. 2008). Banks were forced to become more market-oriented, settling for a smaller share of the financial system, while servicing Wall Street firms would replace some of the relationship banking they had lost. Minsky (1987) observed that banks appear to require a spread of about 450 basis points

Table 1 Financial System Assets Held by Type of Institution, 1960 to 2007 (in billions of dollars)

	1960	1970	1980	1985	1990	1995	2000	2005	2007
Total	635 (100%)	1,447 (100%)	4,507 (100%)	8,552 (100%)	13,541 (100%)	20,961 (100%)	35,701 (100%)	50,116 (100%)	60,384 (100%)
Depository Institutions ¹	347 (55%)	788 (54%)	2,342 (52%)	3,787 (44%)	4,877 (36%)	5,817 (28%)	8,128 (23%)	11,795 (24%)	13,769 (23%)
Insurance Companies ²	142 (22%)	252 (17%)	646 (14%)	1,095 (13%)	1,885 (14%)	2,804 (13%)	3,998 (11%)	5,595 (11%)	6,365 (11%)
Pensions ³	75 (12%)	212 (15%)	786 (17%)	1,775 (21%)	2,722 (20%)	4,789 (23%)	7,579 (21%)	9,111 (18%)	10,192 (17%)
Mutual Funds ⁴	23 (4%)	53 (4%)	146 (3%)	497 (6%)	1,155 (9%)	2,731 (13%)	6,387 (18%)	8,327 (17%)	11,170 (18%)
GSEs and Agency- and GSE-backed Mortgage Pools	12 (2%)	51 (4%)	309 (7%)	692 (8%)	1,498 (11%)	2,468 (12%)	4,458 (12%)	6,361 (13%)	7,626 (13%)
Nonbank Lenders ⁵	29 (5%)	71 (5%)	213 (5%)	363 (4%)	596 (4%)	705 (3%)	1,213 (3%)	1,857 (4%)	1,911 (3%)
Security Brokers and Dealers	7 (1%)	16 (1%)	45 (1%)	156 (2%)	262 (2%)	568 (3%)	1,221 (3%)	2,127 (4%)	3,095 (5%)
Others ⁶	0 (0%)	5 (0%)	19 (0%)	187 (2%)	547 (4%)	1,079 (5%)	2,716 (8%)	4,944 (10%)	6,255 (10%)

¹ Includes commercial banks, savings institutions, and credit unions.

² Includes life insurance and property-casualty insurance companies.

³ Includes private and public (state and local government employee retirement funds, and federal government retirement funds) pensions.

⁴ Includes money market mutual funds, mutual funds, and closed-end and exchange-traded funds.

⁵ Includes finance companies and mortgage companies.

⁶ Includes asset-backed securities issuers, real estate investment trusts, and funding corporations.

Source: Federal Reserve Board Flow of Funds Accounts

between interest earned on assets and that paid on liabilities. This covers the normal return on capital, plus the required reserve “tax” imposed on banks (reserves are nonearning assets) and the costs of servicing customers. By contrast, financial markets can operate with much lower spreads precisely because they are exempt from required reserve ratios, regulated capital requirements, and much of the costs of relationship banking.

To restore profitability, banks would earn fee income for loan origination, but by moving loans such as mortgages off their books, they could escape reserve and capital requirements. (They might continue to service the loans, earning additional fees.) There was no need to develop relationships with individual borrowers in order to assess creditworthiness, since loan pools diversified risks, risk raters evaluated the risks of the overall pools, and insurers protected against losses. To replace lost income, banks began to take direct positions in the poolers, the securities, and the insurers. They also provided backup liquidity guarantees to those involved in packaging and selling securities, and even gave money-back guarantees to holders of securities if the underlying loans went bad. Ironically, this meant that they were now exposed to default risk of borrowers they had never assessed. Indeed, as it turned out, no one had assessed those risks.

This is why the problem is not confined to subprimes or to an irrational real estate market. It is a systemic problem resulting from the notion that markets can properly assess risk based on complex, backward-looking models; that markets can hedge and shift risk to those best able to bear it; and that market forces will discipline decision making. In fact, each of those presumptions proved to be woefully incorrect. The models were constructed based on data generated during an unusually stable period in which losses were small, and required that the structure of the financial system remain constant. However, as Minsky (1986) observed, relative stability will necessarily encourage behavior that changes the financial structure (he used the terms *hedge*, *speculative*, and *Ponzi* to describe the transformation). This evolution, in turn, rendered the models increasingly useless even as they were used on a grander scale to justify falling interest rate spreads that implied virtually no defaults would ever occur. Further, as is now recognized, the models could not account for growing interrelations among debtors, increasing the systemic risk that insolvency by some would generate a snowball of defaults. This was another process that Minsky

always emphasized, and one that is enhanced by the high leverage ratios that became common in the 2000s as margins of safety were reduced. Further, as we now know, risk was not properly hedged, nor was it even necessarily shifted. Much of it came back directly to banks through buy-back guarantees, backup credit facilities, and bank purchases of securities.

And, finally, markets did not discipline behavior but in fact encouraged ever-riskier activities. For example, the increased competition coming from managed money narrowed interest rate spreads, but because managers of funds were in a desperate search for high returns, they were forced to ignore risk where it was underpriced. In other words, competition forced them to take on excessive risk given returns. Many did not even pretend to understand the instruments they were buying, as they were content either to rely on ratings agencies or to simply follow the leader down the path to inevitable destruction. As Keynes (1964) put it, “Worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally.”

Securitization and Leverage

That which can be securitized will be securitized.

—Hyman P. Minsky (1987)

It's not the things you don't know that cause disasters; it's the things you do know, but aren't true.

—Mark Twain (quoted in Black 2007)

As we know, there are “known knowns”; there are things we know we know. We also know there are “known unknowns”; that is to say we know there are some things we do not know. But there are “unknown unknowns”—the ones we don't know we don't know.

—Donald Rumsfeld (2002)

While the troubled instruments and institutions are varied, many of today's problems can be traced back to securitization—the pooling of assets to serve as collateral against issued securities. While seemingly innocuous, securitization has led to a dizzying array of extremely complex instruments that—

quite literally—only a handful understand. Warren Buffet has called the new instruments “financial weapons of mass destruction.” An exasperated Bank of America CEO proclaimed after massive losses on complex positions in such instruments, “I’ve had all the fun I can stand in investment banking,” as his firm announced plans to scale back such operations (Norris 2008a). Economist M. Cary Leahey (2007) said the problem is in “opaque hard-to-value credit derivatives,” which is why a bank might value derivatives at \$90 billion one day and at \$22 billion the next (Norris 2008b). Merrill Lynch (2007) opined that collateralized debt obligations (CDOs) “are arguably the most complex financial instrument ever to become mainstream.” Throughout the financial world, “mark to model” or even “mark to myth” substituted for “mark to market” because markets could not value the instruments.² By fall 2007, markets had lost faith in the models and the myths.

The current financial crisis began in the market for mortgage-backed securities (MBSs), especially in the subprime section of that market. It quickly spread to securities backed by “Alt A” mortgages (less risky than subprime, but too risky to qualify for conventional loans), and then to more exotic markets—CDOs, asset-backed commercial paper (ABCP), and other asset-backed securities (ABSs, including other types of consumer debt). Further, problems spread beyond specific asset classes to institutions such as special purpose vehicles (including special investment vehicles, or SIVs) and monoline insurers (which provide insurance for MBSs), and to major financial institutions (including private banks as well as government-sponsored enterprises like Fannie Mae). Still other financial instruments, such as municipal bonds and credit default swaps (CDSs), are threatened, although it is too early to say how hard they will be hit. Finally, the credibility of real estate agents, property appraisers, accountants, credit-rating agencies, mortgage brokers, and financial institution officers has been called into question because of practices that have developed over the past decade. It wasn’t supposed to happen this way—securitization was supposed to reduce risk and to shunt it to those best able to handle it. But, as George Soros (2008) said, “Everything that *could* go wrong *did* go wrong.” In this section, we will examine the phenomenon of securitization; later, we will look in more detail at its consequences.

Table 2 U.S. Credit Instruments by Type, 2007 (in billions of dollars)

Securitized Products	Dollars (Billions)	Percent
Total	10,228	100
MBSs	7,750	76
Residential	7,100	69
Subprime	1,300	13
Prime	5,800	57
Commercial	650	6
ABSs	2,478	24
Home Equity	596	6
Credit Card	343	3
Student Loans	236	2
Auto-related	199	2
CDOs/CLOs	302	3
Other*	802	8
Memo: CDSs	45,000	
Memo: Nonfinancial Corporate Debt	9,000	
Memo: Commercial Paper	2,500	
Memo: Leveraged Buyouts	13,300	

* Miscellaneous items, including equipment leases.

Sources: Leahey 2007, Lim 2007, Greenlaw et al. 2008

To put things in perspective, it is useful to get some idea of the relative sizes of these credit instruments. As of last year, activity in the world's over-the-counter derivatives market was about \$2.1 trillion *per day*, while world trade was just \$12 trillion *per year*. At the end of 2007, the total U.S. securitized bond market was estimated at about \$10.2 trillion, of which residential MBSs made up \$7.1 trillion (with subprimes totaling \$1.3 trillion of that) and commercial MBSs totaled \$650 billion (Table 2). Other ABSs totaled nearly \$2.5 trillion, almost \$600 billion of which was held in securities backed by home equity loans; securities backed by student loans and auto-related borrowing amounted to another \$435 billion; CDOs and collateralized loan obligations together equaled just over \$300 billion; and credit card ABSs reached \$343 billion. Total credit card debt has also been fast growing—the growth rate reached 9.3 percent in the fourth quarter of 2007 and now totals roughly \$1 trillion dollars (Merrill Lynch 2007; UBS Investment Research 2007; Leahey 2007).

In recent years, nonfinancial corporate debt has also been growing rapidly—three times faster than GDP—in spite of high profit rates, and now totals over \$9 trillion (Leahey 2007). Outstanding commercial paper peaked at \$2.5 trillion in mid-2007, with ABCP equal to \$1 trillion (Greenlaw et al. 2008). Leveraged buyouts in the first half of 2007 reached \$13.3 trillion (Lim Mah-Hui 2007). Estimates of the total quantity of CDSs are as high as \$45 trillion, having grown ninefold in the past three years. Of course, these are not directly comparable to credit derivatives because most will not be exercised.³ Bank exposure to CDSs is estimated at \$18.2 trillion, a sum nearly equal to the total value of U.S. residential real estate (\$20 trillion). Naturally, just citing gross estimates of the size of financial instruments does not necessarily say anything about risks to the financial system or to the “real” economy. However, these numbers do help to clarify why even single-digit percentage losses on financial assets can generate very big numbers relative to GDP.

Securitization is a “market-oriented” financial practice, in contrast to “bank-based” transactions in which activities are financed by loans held on bank balance sheets against deposits held in the banking system. Securitization has also been called the “originate and distribute” model, which accurately captures a distinguishing feature of the process: the institution that arranges the finance of activities does not hold the loan. Lots of presumptions about these instruments and practices have been exploded in recent months, including the belief that securitization shifted risks off bank balance sheets, that securitization allowed for diversification of risks while efficiently allowing investors to achieve the proper risk/return trade-off, and that securitization put risk into the portfolios of those best able to handle it. These were little more than bedtime stories told on Wall Street and in Washington to justify risky and unsupervised practices that were characteristics of what was variously called “financialization,” “market fundamentalism,” or “transactions-oriented capitalism.”

Minsky (1987) argued that securitization was part and parcel of the globalization of finance, as it creates financial paper that is freed from national boundaries. German investors with no direct access to U.S. homeowners could buy a piece of the action in U.S. real estate markets. The problem is that the incentive structure in which mortgage originators operated was sure to create problems. In the aftermath of the 2000 equity market

crash, investors in dollar assets looked for alternative sources of profits. The low interest rate policy of the Fed under former Chairman Alan Greenspan meant that traditional money markets could not offer adequate returns. Investors lusted for higher risks, and mortgage originators offered subprimes and other “affordability products” with ever-lower underwriting standards. Greenspan gave the maestro seal of approval to the practice, urging home buyers to take on adjustable rate debt.⁴

As originators would not hold the mortgages, there was little reason to worry about borrowers’ ability to pay. Indeed, since banks, thrifts, and mortgage brokers relied on fee income rather than interest, their incentive was to increase throughput, originating as many mortgages as possible. By design, the Orwellian-named “affordability products” were not affordable—at the time of reset, the homeowner would need to refinance, generating early-repayment penalties and more fees for originators, securitizers, holders of securities, and all others in the home-finance food chain. Ironically, this shift to “markets” reduced the portion of the financial structure that the Fed is committed to regulate, supervise, and protect—something that was celebrated rather than feared. The fate of homeowners was sealed by bankruptcy “reform” that makes it virtually impossible to get out of mortgage debt—another very nice “credit enhancement,” provided in this case by Congress.⁵ Subprime lenders often require borrowers to carry credit life insurance (conveniently sold by the lender’s subsidiary, with high premiums) that would pay off the mortgage in the event of death, further enhancing the securities.

Finally, some of the subprime loans are covered by mortgage insurance, but more importantly, insurance was sold on the securities themselves. Such insurers—often called monolines—include MBIA (the world’s largest financial guarantor), AMBAC, FGIC Corporation, and CFGI. These firms had traditionally insured municipal bonds and their foray into mortgage-backed securities seemed to be a sensible extension to a much more profitable sector that did not appear to be much riskier, since MBSs were rated by the agencies (Moody’s, Standard and Poor’s, Fitch). The health of the insurers, in turn, was assessed by the same ratings agencies, as well as by the ABX subprime index, which tracks the cost of insuring against defaults on subprime securities. Insurance allowed the debts to gain the highest

ratings—ensuring a deep market and low interest rate spreads (Richard and Gutscher 2007).⁶

The incentives to increase throughput, combined with credit enhancements, led banks to abandon their reluctance to purchase securities with the riskiest underlying debts. Ironically, while relationship banking had based loans on the relevant characteristics of the borrower (such as income, credit history, and assets), the new arrangements appeared to offer a nearly infinite supply of impersonal credit with no need to evaluate borrowers' ability to repay. Instead, "quant models" based on historical data regarding default rates of purportedly similar borrowers would replace costly relationship banking, enhancing efficiencies and narrowing interest rate spreads (Kregel 2007).

ABSs with high ratings would be purchased by hedge funds and others that would use the securities as collateral to raise funds for their purchase (much as in leveraged buyouts, where the firms to be purchased are used as collateral for the funds borrowed for their takeover). In many cases, banks provided the loans that were used to buy the ABS collateral that contained the mortgages the banks were trying to move off their balance sheets! The hedge funds, in turn, could leverage by factors of 20, 30, or more to hold the ABSs. By contrast, banks could leverage capital by a factor of perhaps eight, no more.⁷ This three- or fourfold increase of leverage is one of the reasons that "markets" based on securities could operate much more profitably than bank-based lending. As discussed, banks would live on origination and servicing fees, while at higher leverage ratios, hedge funds could be profitable at low interest rate spreads. These low spreads, in turn, required extremely low default rates as well as layers of insurance and backup lines of credit. Ironically, much of the risk returned to banks in the form of loans made to buyers of the securities, promises to buy back bad securities, and relations with monoline insurers.

It is even worse than that, however, because banks often kept the worst loans out of the packages, holding them on their books for extra returns, and because banks often retained an equity share in the securities—"skin money," used to demonstrate to buyers that the banks had confidence in the underlying mortgages they had originated or packaged. Ultimately, the move to "market-based" funding left banks holding much of the risks, but without the assessment of borrowers' ability to repay that relation-based

banking had used to reduce risk. Even the interest rate risk due to maturity mismatching, which played an important role in inducing banks and thrifts to move mortgages off their books, comes right back to banks in the form of solvency risk of SIVs and hedge funds. The risk simply moved from bank balance sheets, where it was regulated and more or less observable, to a place where it isn't regulated or observable—but where it still threatens bank solvency (Das 2007). How much is uncertain, but the combined risk could total \$1 trillion to \$2 trillion. And rather than shifting risk to those best able to bear it, the new financial system shifted risk “on to the shoulders of those least able to understand it” (Wolf 2007b).

Greed Trumps Fear: The Evolution to Fragility and Crisis

The abundance of liquidity is a function of creative debt leveraging. Like all leverage, it feels wonderful on the upside, but watch out how it can come back to bite you on the downside.

—Robert L. Rodriguez (2007)

Over a protracted period of good times, capitalist economies tend to move from a financial structure dominated by hedge finance units to a structure in which there is a large weight to units engaged in speculative and Ponzi finance.

—Hyman P. Minsky (1992)

Financial markets, and particularly the big players within them, need fear. Without it, they go crazy.

—Martin Wolf (2007a)

Superimposed on these developments—indeed, a necessary precondition—was a change in the “model of the model” adopted by market players. In the last few years, a revised view of economic possibilities has been developed that goes by the name “the Great Moderation” (Bernanke 2004, Chancellor 2007). The belief is that, due to a happy confluence of a number of factors, the world is now more stable, a condition characterized by a new economy that is far less vulnerable to “shocks.” Further, central banks have demonstrated both

willingness and a capacity to quickly deal with, and isolate, threats to the financial system. For example, according to conventional views, Greenspan was able to organize a successful response to the collapse of Long-Term Capital Management (LTCM) in 1998, and later rapidly lowered interest rates to steer the economy out of the recession triggered by the equity market tumble. More recently, Fed Chairman Ben Bernanke is supposed to have continued in the Greenspan tradition, responding to the subprime crisis by “pumping liquidity” into markets,⁸ by quickly lowering the Fed funds rate, by taking some of the “frown costs” out of discount-window borrowing—as a few of the major banks were induced to borrow unnecessary funds—and by lowering the penalty on such borrowing as the spread between the Fed funds rate and the discount rate was lowered. Even as energy and food prices fueled inflation, the Fed made it clear that it remains on guard against any residual fallout from mortgage losses.

The Great Moderation allowed greed to trump fear, and the revelations are piling up. First, there are the appraisers. New York State Attorney General Andrew Cuomo has sued the First American Corporation for colluding with mortgage lender Washington Mutual to overstate the value of homes (Barr 2007). Real estate appraisers across the country have complained that they were strong-armed by lenders to inflate values. Indeed, an industry group (Concerned Real Estate Appraisers from Across America) circulated a petition that was presented to Ben Henson, executive director of the Appraisal Subcommittee of the Federal Financial Institutions Examination Council, enumerating unfair practices that included withholding of business or payment if appraisers refused to inflate values, guarantee a predetermined value, or ignore deficiencies in the property.⁹ There is little doubt that inflated appraisals played a major role in fueling the speculative boom—just as they had helped to create the savings-and-loan fiasco in the 1980s by rubber-stamping values in “daisy chains,” and other fraudulent schemes (Wray 1994).

The ratings agencies were also complicit because their appraisals of the securities were essential to generating markets for risky assets.¹⁰ Ratings agencies worked closely with the underwriters that were securitizing the mortgages, to ensure ratings that would guarantee marketability.¹¹ Further, they were richly rewarded for helping to market mortgages, since fees in that area were about twice as high as those awarded for rating corporate

bonds—the traditional business of ratings firms. Moody’s got 44 percent of its revenue in 2006 from rating “structured finance” (student loans, credit card debt, and mortgages) (Lucchetti and Ng 2007).¹² Furthermore, mortgage securitizers relaxed their due diligence tests even as lenders relaxed loan standards (Rucker 2007). If anything, raters should have been lowering ratings. But it wasn’t until the summer of 2007 that agencies finally began to slash ratings when they were forced to recognize the flaws in their models.

Of course, much has already been written about borrower greed. The subprime market bloomed, with increasingly risky instruments and practices, as “low doc” loans (less documentation required) evolved to “no docs” and to “liar loans” (borrowers were allowed, and even encouraged, to lie about income and other information relevant to the application process), and finally, to “Ninja loans” (no income, no job, no assets). Certainly, some of this was fraudulent (on the part of both lender and borrower), but much was also based on the belief that real estate values could only go up—thus, Ponzi finance was encouraged by the relative tranquility of the market.

Minsky would label the faith in the era of the Great Moderation a “radical suspension of disbelief.” As Alex Pollock (2007) testified before the U.S. House of Representatives, “Booms are usually accompanied by a plausible theory about how we are in a ‘new era,’ . . . It is first success, and then observing other people’s success, which builds up the optimism, which creates the boom, which then sets up the bust.” The radical suspension of disbelief that allowed markets to ignore downside potential created “optimism and a euphoric belief in the ever-rising price of some asset class—in this case, houses and condominiums—providing a surefire way for both lenders and borrows to make money.”¹³ In sum, the nature of the financial system changed in a fundamental manner that ensured its evolution toward fragility.

The models used to value the securities could not take into account structural changes to the economy or of systemic risk. Goldman Sachs said that according to its computer models, its losses on one of its global equity funds was a “25-standard deviation event,” something that should happen once every 100,000 years (Tett and Gangahar 2007). Satyajit Das, a hedge fund consultant, quipped, “People say these are one-in-a-100,000-years events but they seem to happen every year” (quoted in Tett and Gangahar 2007). The models were based on data derived from only a few years’ experience that coincided with an unusually good period for house prices.

Further, since similar models are widely used, the models themselves drive the market—generating “herding behavior” that can have devastating results when all are simultaneously “selling out position,” as Minsky would put it. James Norman, a managing director in Deutsche Asset Management’s quantitative strategies group, admitted, “Quants are valuation-driven, and when there is a lot of selling, valuations don’t matter” (Brewster 2007). The new system required accurate appraisals of values of the underlying assets and accurate evaluation of the risks of the securities. However, the apparent success of the “originate and distribute” approach encouraged erosion of margins of safety, ever-riskier practice, collusion, and misrepresentation in the belief (or at least hope) that nothing could go wrong. But the behavior induced by these beliefs changed the structure of the financial markets so that *everything* would go wrong.

Retribution

To be exact, our economic leadership does not seem to be aware that the normal functioning of our economy leads to financial trauma and crises, inflation, currency depreciations, unemployment, and poverty in the midst of what could be virtually universal affluence—in short, that financially complex capitalism is inherently flawed.

—Hyman P. Minsky (1986)

It’s sort of a little poetic justice, in that the people that brewed this toxic Kool-Aid found themselves drinking a lot of it in the end . . . What has happened is a repricing of risk and an unavailability of what I might call “dumb money,” of which there was plenty around a year ago.

—Warren Buffet (quoted in Dabrowski 2008)

Hope is a crappy hedge.

—Erik R. Sirri (2007)

The combination of low interest rates and rising real estate prices encouraged a speculative frenzy that would end only if rates rose or prices stopped

rising. Of course, both events were inevitable, indeed, were dynamically linked, because Fed rate hikes would slow speculation, attenuating rising property values, and increasing risk spreads. When losses on subprimes began to exceed expectations that had been based on historical experience, prices of securities began to fall.¹⁴ Problems spread to other markets, including money market mutual funds and commercial paper markets, and banks became reluctant to lend even for short periods. With big leverage ratios, owners faced huge losses, greatly exceeding their capital, and began to deleverage by selling, thus putting more downward pressure on prices.¹⁵ By early 2008, some of the credit markets for municipalities had dried up as monoline insurers faced problems.¹⁶

Projections of losses on residential MBSs range from about \$200 billion to \$500 billion, with some outside projections reaching \$1 trillion.¹⁷ Considering that total home values are more than \$20 trillion, and given that projections of eventual average house price declines of as much as 30 percent, this amounts to a total loss of household wealth of \$6 trillion.¹⁸ Of course, all of these losses will not be realized—since only about half of the value of homes is mortgaged, and since most people will not have to sell their homes in a depressed market, total realized losses will be far less than the notional loss. Thus, the estimate of \$1 trillion might set an outside estimate of losses to be realized in the residential real estate sector—with actual losses depending on the ultimate depreciation of home values, on the depths to be reached in the coming recession, and on the ease with which households are allowed to work out debt positions.

It is also worth noting that problems are now showing up in home equity loans. During the real estate boom, homeowners had used such loans not only to remodel homes, but also to finance consumption purchases and to pay down credit card debt. Delinquency rates doubled during 2007 and are continuing to climb. JPMorgan Chase holds \$95 billion of home equity loans and expects losses of \$450 million during the first quarter of 2008, rising to a billion dollars by the end of the year. Unfortunately, lenders are last in line for payment when homeowners default on debt since mortgage holders are paid first when a home is foreclosed. Indeed, some homeowners seem to recognize that “there are few repercussions if they stop making payments on their home equity loan” (Sidel 2008). Total losses are hard to project, but some large lenders have 12 to 19 percent of their assets in home

equity loans, including National City Corporation, SunTrust Banks, Washington Mutual, and Wells Fargo.

It is hard for many observers to believe that even double-digit default rates on subprime loans could amount to large losses because (a) surely the homes must have some value even after foreclosure, and (b) subprime loans represent only about 6.5 percent of the total value of homes. However, the loss on a typical subprime foreclosure can be substantial for two reasons. First, down payments were small or nonexistent, and with falling real estate prices, equity can be hugely negative. According to Greenlaw et al. (2008), if home prices fall by 15 percent, the proportion of homeowners with negative equity will rise to 21 percent (10.5 million households), with perhaps \$2.6 trillion of mortgage debt under water.¹⁹ Second, foreclosure can be a long process, taking up to two years or even longer. During that process, the loan servicer takes over mortgage payments and has first claim on proceeds from the sale of the house. In a study of foreclosures, the financial services firm UBS shows that losses can reach above 90 percent of the value of the loan (UBS Investment Research 2007). Losses don't stop there, however. Vacant houses that are going through foreclosure negatively impact real estate values in the neighborhood, and add to the inventory of unsold homes. Further, local government suffers loss of tax revenue even as expenditures rise to take care of vacant properties—meaning that other public services must be reduced as the economy stagnates.²⁰ Delinquencies on subprimes are still rising, and historically, nearly half of subprime delinquencies have resulted in foreclosures; that rate could go up as house values fall and foreclosure cases tie up the courts. Hence, even if losses had not spread beyond subprime loans, the impact on the economy would be large.²¹

But problems have already spread far beyond residential real estate. Small- and medium-size banks—squeezed out of the mortgage and credit card business in recent years—focused on construction and commercial real estate lending. Of particular concern are loans in the construction sector, exposing banks to large direct losses. Many of them have more construction loans outstanding than bank capital—up from only a third of capital a few years ago. When construction loans go bad, they go very, very bad, because unfinished projects result in big losses (Norris 2007). Further, small banks hold commercial real estate loans equal to nearly 300 percent of their capital; at midsize banks, holdings equal 272 percent of capital. Even moderate

losses on such loans could wipe out much of their capital (Dash 2008). As discussed, nonfinancial corporate debt has been growing three times faster than GDP. Collateralized debt obligations (mostly business loans) are another half trillion dollars. If default rates by firms rise to what has been normal recession experience, total losses on nonfinancial corporate debt could approach \$400 billion (Veneroso 2007).

Banks have already taken significant hits due to conduits and SIVs they set up to hold MBSs or CDOs. The banks received fee income and provided backup credit, while SIVs borrowed short term in the commercial paper market to invest long term in securities. SIVs currently hold about \$450 billion in assets of which \$168 billion is residential MBSs. While traditional commercial paper has 100 percent bank backing in the form of lines of credit, SIVs typically have only 10–15 percent. When problems appeared, the banks were hit with a double whammy: they couldn't roll over or issue new commercial paper (a liquidity problem), and the value of their assets plummeted (a solvency problem), thus forcing them to default on commercial paper and to sell assets. In many cases, banks had to rescue their SIVs, paying off the commercial paper and taking bad assets onto their books. On November 7, 2007, Moody's reviewed all 33 SIVs and took action on 16; downgrades on some lowered asset values to 70 percent of liabilities (UBS Investment Research 2007). If losses were typically in the range of 30 percent, this could mean another \$150 billion in losses overall.

Over the course of the real estate boom, households used their homes as cash-out ATMs; when real estate markets started to collapse and home equity loan standards tightened, homeowners turned to their credit cards. Financial markets responded, following the securitization path blazed earlier by subprime lending. Because bankruptcy reform made it hard for consumers to get out of credit card debt, charge-off rates remain relatively low (UBS Investment Research 2007). Historically, credit card debt (now about \$1 trillion) has been far riskier than mortgage debt, with high charge-offs in recessions. Delinquency rates reached 6.3 percent in the 1991–92 recession and 5.6 percent in 1997–98, and already stood above 4 percent last November. UBS believes charge-offs could reach as high as 7 percent, as the market is already pricing in spreads that indicate expected losses greater than in 1997–98. However, the synergistic effects of massively negative home equity, rising unemployment (should the recession deepen), and rising

inflation (especially of energy prices) could lead to higher defaults and losses. “Never in history has the American family skidded into recession with so much debt” (Elizabeth Warren, quoted in Nocera 2008). Perhaps \$70 to \$100 billion of losses on credit cards and credit card ABSs can be expected as an outside estimate.

As discussed, credit default swaps (CDSs) are above \$45 trillion in aggregate, having grown ninefold in the past three years (Seides 2007). Much like MBSs, these were created (in the mid-1990s) to allow Wall Street to take loans away from commercial banks—in this case, commercial loans. These are much like giant insurance funds, but with almost no loss reserve. If losses were to reach 5 percent, we are talking about real money on the order of \$2.25 trillion. Banks are the primary sellers of CDSs (40 percent of the total), with estimated exposure at more than \$18 trillion. Hedge funds sold almost \$15 trillion of the CDSs (for comparison purposes, total hedge fund assets are currently about \$2.5 trillion). Risk is supposedly fully hedged, but judging from the bank experience with subprimes, a lot of the risk could come back to haunt them. About a third of the CDSs are essentially derivatives of “junk”—below-investment-grade credits. Just as with the case of subprimes, the “junk” was transformed into tranches that included highly rated paper. As the historical mortality on “junk” is 28 to 47 percent, a 5 percent loss experience on CDSs is not out of the question (Seides 2007).

Leveraged buyout operations have been booming, dwarfing those of the Michael Milken era of the 1980s. The total euphemistically named “high yield” bond market is up 70 percent since the last recession. In each year since 2004, more than 40 percent of all new debt issued was junk (Seides 2007). Indeed, almost every aspect of the subprime story can be told by substituting “junk bonds” for “securitized subprimes”: paltry yield spreads; loose lending standards; highly leveraged positions; emphasis on throughput, not quality; separation of risk assessors from risk takers; and the imprimatur of ratings agencies to bless them. Total “junk debt” now stands at \$2.5 trillion. In the last recession, defaults on similar debt ran about 22 percent, with recoveries at only 40 percent of the value of the deals. It is not inconceivable that losses on “junk” could reach \$400 billion. As Seides puts it, never before have we entered an economic downturn with so much risky paper riding on the fortunes of companies known to have such poor credit quality. Those

left holding the bag will be the sellers of CDSs, the owners of CDOs, and the guarantors. The magnitude of risk is a multiple of that in subprimes.

Hence, the aggregate losses on residential mortgages, SIVs, CDOs and other consumer debt, commercial MBSs, and other business debt could reach well over \$1 trillion. The direct losses on residential real estate could amount to several trillion. Adding in CDS losses (that are inherently hard to project) as well as losses in the “unknown unknowns” category, we could achieve realized losses amounting to another few trillion dollars. A trillion here and a trillion there—it adds up to large numbers even in a \$13 trillion economy. One pundit remarked that the subprime fallout *will* be contained—to *planet Earth*—as losses spread throughout the financial system (Mauldin 2007). While some still deny that the MBS crisis will spill over substantially into the “real” economy, it is clear that many policymakers, as well as many of Wall Street’s elite, are no longer complacent.

In the postwar period, the United States has not seen a nationwide real estate crisis. However, there have been regional crises in which house prices fell significantly, and these can give some idea of the time that will be required for recovery. California had a fairly severe housing downturn in the 1990s, with prices falling by 15 percent over a period of five years (Greenlaw et al. 2008). The foreclosure rate began to rise (ultimately by about 20 percent) as soon as home prices started falling, but it did not peak until home prices started to rise six years later. It took over eight years for home prices to fully recover, while foreclosure rates were still substantially higher even a decade after the downturn began. If the California case is relevant, the United States will be feeling the effects of the current crisis for a long period—perhaps a decade or more (also similar to the Japanese experience).

Indeed, there are some reasons to believe that if the United States moves into recession, the damage would be even more severe than it was in California. California had an advantage in that the United States experienced robust growth during the Clinton years, which no doubt helped to pull the state out of the doldrums. Further, the current downturn comes after a period in which lending standards were far looser than those that prevailed in California shortly before its real estate bust, and after a decade of deficit spending the private sector is much more indebted today than it was in the early 1990s. Finally, as documented above, securitization spread far beyond mortgages, with practices similar to those used in subprime securitization

adopted in other sectors. For these reasons, asset price depreciation will not be restricted to residential real estate, and losses in one sector will generate recursive losses in others. In short, recovery could be a long time coming.

Policy and Reform

Implicit in the legislation which I am suggesting to you is a declaration of national policy. This policy is that the broad interests of the Nation require that special safeguards should be thrown around home ownership as a guarantee of social and economic stability, and that to protect home owners from inequitable enforced liquidation in a time of general distress is a proper concern of the Government.

—President Franklin D. Roosevelt, Message to Congress on
Small Home Mortgage Foreclosures (1933)

There is substantial evidence that financial markets succeed because of strong enforcement and regulation, not in spite of it.

—Linda Chatman Thomsen, Enforcement Chief for the SEC
(quoted in Johnson 2007)

The history of capitalism is punctuated by deep depressions that are associated with financial panics and crashes in which financial relations are ruptured and institutions are destroyed. . . . The history of money, banking, and financial legislation can be interpreted as a search for a structure that would eliminate instability. Experiences show that this search failed and theory indicates that the search for a permanent solution is fruitless.

—Hyman P. Minsky (1986)

Over the course of the real estate boom, home ownership rates rose from 64 to 70 percent; however, much of this growth was fueled by loans that were Ponzi from the beginning. Former Federal Reserve Governor Edward M. Gramlich tried to get Greenspan to intervene as early as 2000. Why, he wondered, are the riskiest loans given to the least sophisticated borrowers (Krugman 2007)? As it happens, the rise of ownership rates was nothing but

a mirage that at best sucked away what little accumulated wealth low-income home buyers had managed to put toward a down payment; and given revised bankruptcy laws, they might work for years to get out of the debt they had incurred to acquire a house and furnishings they no longer own. The financial engineers turned housing from mere abodes into assets that could be traded like dot-com equities—with long-run consequences (Goodman 2007).

Studies show that, of the ARMs made in 2003, almost all were refinanced to avoid resets at higher interest rates. If there was a “business model” behind the extension of finance to those who could not afford to service their loans, it was based on rapidly rising home prices and the ease of refinancing at lower rates—in other words, it was what Minsky called a Ponzi finance scheme. But with house price appreciation far beyond anything experienced in history and with the certainty that the Fed would eventually raise rates, there was no chance that this business model would be sustainable. And, as we have discussed, it is not just subprimes that relied on a “radical suspension of disbelief”: even as the chickens have come home to roost in the residential real estate sector, we await revelations of growing problems throughout the entire financial sector as economic activity slows.

The problem is systemic and derives from a fundamentally flawed model that viewed the move to markets as something that would increase efficiency, lowering interest rate spreads while spreading and reducing risk. This was accomplished by reducing reliance on relationship banking and allowing markets to take over much of the financial sector. Yet, as Minsky always argued, the fundamental banking activity is guaranteeing creditworthiness. This requires a skeptical loan officer who carefully evaluates borrowers, and who reduces the probability of default by establishing a long-term relationship such that credit is renewable only if the borrower fulfills his obligations. The shift to the market “originate and distribute” model meant that individual creditworthiness was never assessed. However, banks guaranteed creditworthiness anyway, through a wide variety of exceedingly complex and mostly hidden agreements with the originators and holders of securities. Indeed, it is becoming apparent that banks are exposed to *far more* risk than they had been under the old banking model, but without any of the long-term relations with debtors that characterized it. Further, the interest rate spreads had been reduced so low by a system that valued quantity over

quality that there was no hope that gross earnings could cover losses if defaults rose even slightly. (Minsky always jokingly referred to business models that try to make up for losses on the carry trade by increasing volume—but that is precisely what the entire financial system required.) Add to the mix corruption, control fraud, rogue traders, deception, insider trading, “pump and dump” campaigns, and predatory lending practices and you’ve got a recipe for a painful outcome.

There are two immediate policy issues facing us: first, what, if anything, can be done to ameliorate the fallout from the current crisis; second, what can be done to prevent recurrence of such a situation in the future? Since both of these issues will require further study and debate I only offer some general guidelines. In the remainder of this section, I look at policy to deal with the crisis; in the concluding section, I will discuss lessons we have learned from Minsky that would help to formulate policy for the longer run.

There are a number of initiatives designed to deal with the current crisis, some issuing from the private sector and others being pushed by policymakers. Unfortunately, most of those being put forward by the Bush Administration appear to be designed to help creditors rather than debtors. Treasury Secretary Henry M. Paulson Jr. had proposed that banks put together a \$75 billion stabilization fund—but this was vetoed by the private sector. President Bush has proposed freezing mortgage rates for those who are currently up-to-date on their payments—which will do nothing for those who are already in trouble, and only postpones the day of reckoning for others. The Fed has lowered rates and developed a new auction facility to provide reserves without the frown costs of borrowing at the discount window. It also is lending safe Treasury debt against asset-backed securities in an effort to halt the ever-falling prices of such debt. However, credit spreads were still widening even after the announcement of such policies in early March.

After a run on Bear Stearns, the Fed arranged a loan to JPMorgan so that it could lend against MBSs provided as collateral.²² The problem began because creditors of Bear Stearns demanded more collateral and the firm was not able to provide acceptable assets. JPMorgan is the main clearing bank for Bear Stearns, and it apparently would not accept the risks imputed to the MBSs offered; further, markets are so fearful of such assets that Bear Stearns could not raise funds by selling them. The Fed’s loan to JPMorgan

is “nonrecourse,” which means that the firm faces no risk: if the MBSs go bad, the Fed will suffer the loss. Ironically, the Fed’s intervention came on the day of the 75th anniversary of President Roosevelt’s reopening of financial institutions after the “banking holiday” of 1933, and required invocation of one of the New Deal era’s provisions that allows the Fed to lend to “individuals, partnerships, or corporations.” While some decried the Fed’s “bailout,” it feared that the run could spread to other broker-dealer firms and to their lenders and trading partners (Andrews 2008, Morgenson 2008). The Fed appears to be willing to ignore inflation pressures as well as moral hazard problems, putting its role as lender of last resort first and foremost in an all-out effort to prevent a panic. This is, of course, the prescribed solution to liquidity problems; however, it cannot do much if real estate prices continue to fall and delinquencies continue to rise.

Time and economic growth can go a long way toward restoring financial health: if incomes can grow sufficiently, it becomes easier to service debt. Recent growth has been mostly fueled by exports, partly thanks to a depreciating dollar. However, any serious U.S. slowdown will be contagious, hurting exports as growth slows around the globe. The private sector cannot be the main source of demand stimulus, as it has been running up debt, spending more than its income for a decade. While the budget deficit will increase as the economy slows, this results from deterioration of employment and income (which lowers taxes and increases transfers)—thus, the rising deficit will not proactively create growth, although it will help to constrain the depths of recession. The president and Congress have agreed upon a modest economic stimulus plan, but in current conditions it is far too small to turn around the economy. A much bigger stimulus package is required, but that is probably politically infeasible even with a change of administration. Matters are made worse by creeping inflation—mostly fueled by energy and food prices—which will temper government’s willingness to use policy to fuel growth. Indeed, the return of stagflation looks increasingly likely. Thus, it is difficult to see how the United States can grow its way out of this problem.

Washington has called on Freddie Mac and Fannie Mae to take a bigger role in home lending in order to relieve pressures. The problem is that these institutions are already experiencing their own problems. While limits on their holdings have been lifted and there is discussion about relaxing loss

reserve requirements, there is a fundamental inconsistency in the mandates given to these government-sponsored entities (GSEs): although expected to support home ownership in a crisis, they must also maintain strong balance sheets of their own. This makes it difficult for them to operate in the public interest when such action is most needed. Markets are even shunning agency-insured MBSs—and the problems are not limited to those based on subprimes, as fears of losses have spread to Alt-A mortgages.

What is needed is mortgage relief. Congress proposed legislation to allow modification of mortgage terms so owners could keep their homes, though the Bush Administration and financial institutions are teaming up to defeat the effort. If Congress prevails, this could help to stabilize the real estate sector. Reform should go even further, with bankruptcy laws amended to allow those who had been subjected to predatory lending to escape subprime loans. The borrower should then be able to refinance the home at its current market value, and with the borrower's original equity (if any) intact.²³ Relief might be limited to loans for primary residences, and up to a limited home value (such as median price for the Standard Metropolitan Statistical Area). As President Roosevelt argued in announcing his plan to save the “small homes,” the goal would be to preserve home ownership, not to protect real estate speculators.²⁴ Following Roosevelt's lead, we may need to create a new institution to get us through the worst real estate crisis since the 1930s. He created an agency similar to the Reconstruction Finance Corporation, the Home Owners' Loan Corporation (HOLC), to take on the tasks of saving small homeowners. The HOLC successfully refinanced 20 percent of the nation's mortgages, issuing bonds to raise the funds. While about 20 percent of those loans eventually were foreclosed, the agency actually managed to earn a small surplus on its activities, which was paid to the Treasury when the HOLC was liquidated in 1951. Clearly, there are lessons to be learned from that experience: refinance is preferable to foreclosure, as it preserves home ownership and communities, while also putting money where it is most needed.

Meanwhile, bailouts *will* be required (Magnus 2008). Of course, they validate bad behavior and can encourage worse. However, a financial crisis is not the time to teach markets a lesson by allowing a generalized debt deflation to “simplify” the system, as Minsky put it, by wiping out financial wealth so that only equity ownership remains.²⁵ There is a fine line that must be

walked, allowing the worst abusers (especially the perpetrators of fraud) to lose while protecting the relatively innocent. Because financial markets cannot be allowed to learn lessons “the hard way,” regulations and oversight must be strengthened to slow the next stampede toward a speculative bubble. Problems have already spread far beyond residential real estate, as this brief has made clear. Even with the reforms outlined here, there could be cascading failures across entire classes of financial assets. State and local governments will probably require assistance as tax revenue falls, community needs increase, and the ability to borrow and to service debt suffers. As the value of assets held by pension funds, insurance companies, and hedge funds plummets, pressures to sell will rise. Interest rate spreads have risen throughout the financial system as trust in counterparties has evaporated.

Thus far, most of the schemes floated by public and private officials have failed because no one has been able to persuade participants to go against their own narrow private interests. The Bear Stearns rescue is a case in point—JPMorgan agreed to provide lending only if it did not have to bear risk. Norris (2008c) recalls the crisis of 1907, when J. P. Morgan was able to pressure the presidents of New York trust companies to kick in contributions to forestall the crash by threatening to allow every one of them to fail individually. Today, it is difficult to identify anyone willing and able to play that role. Indeed, most of the prominent candidates (Greenspan, Robert Rubin, Paulson) are too closely identified with the interests of particular Wall Street firms.²⁶ At the Fed, Bernanke, Frederic Mishkin, and Donald Kohn all seem to recognize the scope of the problem, and they seem to have risen to the occasion. While the Fed will continue to play its role as lender of last resort, the crisis has gone far beyond a liquidity problem, and addressing insolvency will require participation of private players as well as the Treasury.

The White House has finally offered a plan; however, officials emphasized that it is more geared toward preventing future crises than to resolving the current one (Labaton 2008). It would rely mostly on state regulators and private industry to tighten oversight of financial markets but might include more regulation of mortgage lending that would require federal legislation. The proposal would provide only a limited role for the federal government, based on the administration’s wish to avoid “burdensome regulation.” Not surprisingly, industry representatives welcomed this “regulation lite” approach, which “relies on the same market participants—from mortgage

brokers to credit-rating agencies and Wall Street firms—that government officials and other experts blame for the current crisis” (Labaton 2008). Democrats criticized the plan and announced a proposal for federal funding to provide billions of dollars to states to allow them to buy homes in foreclosures, and would permit FHA to guarantee loans used to refinance troubled mortgages.

Congress is considering regulations on mortgage originators that would establish new licensing requirements, put restrictions on incentives for saddling borrowers with riskier loans, and provide liability for financial institutions that sell mortgages (Hulse 2007). In addition, Congress would set new standards to be met by originators regarding the ability of borrowers to make payments. Unscrupulous lending was a big part of the subprime boom, with little oversight of mortgage brokers and with substantial incentive to induce borrowers to take on more debt than they could handle, at interest rates that would reset at a level virtually guaranteed to generate delinquencies. The evidence is overwhelming that variable rate mortgages (VARs) lead to more foreclosures; hybrid VARs are even more dangerous. There is a proper place for VARs and hybrid VARs, but that is not with the typical subprime borrower, who has little reserve if things go bad. Congress should investigate limits to marketing of VARs and hybrids to low-income borrowers and first-time buyers.

Policy should avoid promoting the consolidation of financial institutions—a natural result of financial crises that can be boosted by policy-arranged bailouts. Minsky always preferred policy that would promote small- to medium-size financial institutions. Unfortunately, policymakers who are biased toward “free markets” instinctively prefer to use public money to subsidize private-institution takeovers of failing financial firms. The Roosevelt alternative should be adopted: temporary “nationalization” of failing institutions, with a view to eventually returning them to the private sector at a small profit to the U.S. Treasury. And, again following Minsky, policy should return to a bias toward market segmentation, with greater regulation of the banking, protected, sector. Minsky also always advocated smaller financial institutions, but halting the trend to bigness will be difficult (Minsky 1986).

The “originate and distribute” model has shown its weakness and is unlikely to survive in its present form. Risk raters, property appraisers, quant models, and broker’s markets cannot substitute for relationship

banking. Managers of money funds that are too big to fail must be constrained, because they will inevitably get caught up in the next financial fad. Market forces induce each to try to beat the market, but that requires ignoring greater risk to obtain the higher returns. To be sure, there is nothing to be gained by preventing everyone from taking on excessive risk. However, there is a clear public interest in the management of pension and insurance funds, which are supposed to be biased toward safety and soundness. Hedge funds and private equity funds are a different matter, but even these need some supervision and regulation because of the potential impacts they can have on the economy—as LTCM, Enron, and other examples have shown.

Conclusion: What We Learned from Minsky

Minsky argued that the Great Depression represented a failure of the small-government, laissez-faire economic model, while the New Deal promoted a highly successful Big Government/Big Bank model for financial capitalism. The current crisis just as convincingly represents a failure of the Big Government/Neoconservative (or, outside the United States, what is called “neoliberal”) model that promotes deregulation, reduced supervision and oversight, privatization, and consolidation of market power in the hands of money manager capitalists. In the United States, there has been a long-run trend that favors relatively unregulated “markets” over regulated banks that has also played into the hands of neoconservatives. The current financial crisis is a prime example of the damage that can be done by what has been called the “post-regulatory environment” (Thomas 2008).

The New Deal reforms transformed housing finance into a very safe, protected business based on (mostly) small, local financial institutions that knew their markets and their borrowers. Home ownership was promoted through long-term, fixed-rate, self-amortizing mortgages. Communities benefited, and households built wealth that provided a path toward middle-class lifestyles (including college education for baby boomers and secure retirement for their parents). This required oversight by regulators, deposit insurance courtesy of the FDIC and the Federal Savings and Loan Insurance Corporation, and a commitment to relatively stable interest rates. Other policies identified by Minsky as “paternalistic capitalism” also helped to build a robust economy: cooperation with unions to ensure rising wages and thus

growing consumer demand; a social safety net that also encouraged consumption; student loans that enhanced earnings capacity; and a sense of shared responsibility to take care of the young, the old, and persons with disabilities. Together, these policies reduced insecurity, enhanced trust, and promoted economic stability.

Over time, however, the economy gradually evolved toward fragility. The Cold War favored investment in the leading industries, where wages were already high. Inequality grew as other sectors and workers with less education fell behind. Social programs were cut, and trickle-down economics favored the growth of inequality. Policy increasingly turned to promotion of investment in particular, and business in general, to fuel growth—rather than relying on growing consumption fueled by growing household incomes. Because a large portion of investment in our type of economy must be externally financed, this policy mix increased the importance of finance. At the same time, the absence of a depression in the postwar period allowed financial wealth to accumulate, albeit increasingly in the hands of an elite. A formally “anti-government” bias led to the erosion of many of the New Deal reforms. In practice, however, the rising conservative ideology never really embraced a return to the prewar small-government form of capitalism, but rather merely substituted a meaner “big government” for the paternalistic government of the early postwar period. Hence, the Big Government/Neoncon model replaced the New Deal reforms with self-supervision of markets, with greater reliance on “personal responsibility” as safety nets were shredded, and with monetary and fiscal policy that is biased against maintenance of full employment and adequate growth to generate rising living standards for most Americans. In short, the government was neither smaller nor less interventionist. However, its constituency had shifted away from America’s middle class and toward Wall Street’s money managers.²⁷

The model is in trouble—and not just with respect to the mortgage mess, as the United States faces record inequality and destruction of the middle class, a health care crisis, an incarceration disaster, and other problems beyond the scope of this analysis (see Wray 2000, 2005). We must return to a more sensible model, with enhanced oversight of financial institutions and with a housing finance structure that promotes stability rather than speculation. We need policy that promotes rising wages for the bottom half (or even three-quarters) of workers so that borrowing is less necessary to maintain

middle-class living standards, and policy that promotes employment, rather than transfer payments—or worse, incarceration—for those left behind. Minsky always advocated job creation programs so that government would act as an employer of last resort—the only way to ensure that the supply of jobs would be adequate to maintain continuous full employment. Not only would this eliminate involuntary unemployment, but he also showed that it could be used to reduce inequality and poverty, while also ensuring that the government’s budget would swing countercyclically to offset recessionary forces as well as inflationary forces in a boom.

Monetary policy must be turned away from using rate hikes to preempt inflation and toward stabilizing interest rates, direct credit controls to prevent runaway speculation, and supervision and regulation—its proper role. Minsky advocated support for small banks, and creation of a system of community development banks—the latter only partially achieved under President Clinton—as a viable alternative to the predatory lending practices that *did* increase the supply of credit to low-income borrowers and neighborhoods, but which is now resulting in foreclosures and vacancies.²⁸ Unfortunately, we turned American home finance over to Wall Street, which operated the industry as if it were a casino. The swing toward markets and away from regulated banking greatly increased risk, while at the same time it necessarily extended government assurance to the unregulated institutions for the simple reason that the government cannot allow a financial crisis to threaten the economy. What Bernanke called “The Great Moderation” is also known as the “Greenspan put”—the belief that no activity is too risky because the Fed will intervene if things go bad. Unfortunately, it is Chairman Bernanke who is left to clean up the mess left by years of lax oversight and deregulation that operated to the advantage of Wall Street.

Minsky insisted that “the creation of new economic institutions which constrain the impact of uncertainty is necessary,” arguing that the “aim of policy is to assure that the economic prerequisites for sustaining the civil and civilized standards of an open liberal society exist. . . . If amplified, uncertainty and extremes in income maldistribution and social inequality attenuate the economic underpinnings of democracy, then the market behavior that creates these conditions [has] to be constrained” (Minsky 1996). It is likely that the current crisis will make it politically feasible to devise and to put into place such institutions.

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Notes

1. Not only did banks face competition in their loan business, but they also lost retail deposits when market rates rose above Regulation Q limits. They were forced to rely more heavily on costlier “hot money” jumbo CDs packaged by Wall Street firms such as Merrill Lynch. By raising deposit insurance limits to \$100,000, policy encouraged Wall Street competitors and took away another advantage that relationship banking had relied upon.
2. For example, at the end of September 2007, Citibank put together a package of mortgage securities, planning to sell CDOs that it valued at \$2.7 billion. However, it was unable to sell them and later wrote down the value by \$2.6 billion, or 95 percent (Norris 2008a).
3. As discussed below, CDSs are like credit insurance that expose sellers to risk, some of which can be hedged. The problem is that loss reserves held against CDSs are extremely small, so sellers’ equity is at risk should default rates rise.
4. According to Greenspan (2004), fixed rate mortgages “effectively charge homeowners high fees for protection against rising interest rates and for the right to refinance.” The new financial instruments would not only help homeowners but also allow for “dispersion of risk to those willing, and presumably able, to bear” it, while acting as a shock absorber to prevent “cascading failures” (Greenspan 2002).
5. However, in a ruling that has sent shockwaves through the mortgage securities market, a federal judge in Ohio has thrown out 14 foreclosure cases, ruling that mortgage investors had failed to prove they actually owned the properties they were trying to seize (Morgenson 2007). Because the securities are so complex and documentation lax, the judge found that their claims to the properties were weak. Josh Rosner, a mortgage securities specialist, said, “This is the miracle of not having securities mapped to the underlying loans. There is no industry repository for mortgage loans. I have heard of instances where the same

loan is in two or three pools” (quoted in Morgenson 2007). It is possible that this could prove to be one of the weak links in the slice-and-dice securities market. There have been similar cases throughout the nation, as well as growing numbers of lawsuits against real estate buyers’ agents (this is the first real estate crisis in which the majority of residential purchases involved buyers’ agents with a fiduciary responsibility to buyers) and mortgage brokers (Streitfeld 2008).

6. It is important to stress, however, that the AAA rating of the MBSs relied on an AAA rating for the insurer; and if losses on the MBSs led to larger-than-expected losses by the insurers, the monolines would be downgraded, leading to downgrading of the MBSs they insured—generating a recursive cycle of downgrading. That is, the whole business model of the monolines *requires* a triple-A rating; in turn, the securities market itself also relies on, and affects, the AAA ratings of the insurers. This is why problems with the monolines have shaken markets in recent weeks.
7. This is due to capital requirements; for example, those imposed by Basel II agreements. With a capital requirement equal to 12.5 percent, banks leverage equity by a maximum factor of eight. Basel II does not distinguish between corporate bonds, MBSs, or CDOs—if they are rated triple-A, they are all treated the same. Banks were encouraged to “game” the capital requirements by holding the riskiest assets given a rating. This probably played a role in the large losses posted by banks on their holdings (Rodriguez 2007). Further, though asset management was designed to economize on capital, banks were able to increase leverage ratios above eight. According to estimates provided by Greenlaw et al. (2008), the actual leverage ratio averaged just under 10 for commercial banks, 8.4 for thrifts and credit unions, 25 for GSEs, and 32 for brokers and hedge funds.
8. This term is misleading, as it implies that the Fed could simply fly in Milton Friedman’s helicopters and drop bags of Federal Reserve notes where they’re needed most. Actually, the Fed stood ready to lend reserves at the discount window and to supply them to the federal funds market through bond purchases to keep the Fed funds rate on target. To modify a popular old saying, “You can’t pump on a string”—that is, the Fed could only supply the reserves desired by the market.
9. See www.appraiserspetition.com

10. Some consultation between raters and securitizers was, of course, necessary to ensure that the pooled mortgages would find the appropriate market. Problems would arise only if the ratings were not appropriate to the pools.
11. In what could be interpreted as an attempt to shift blame away from raters, Fitch claims that “poor underwriting quality and fraud may account for as much as one-quarter of the underperformance of recent vintage subprime RMBS[s]” (Pendley, Costello, and Kelsch 2007). In a detailed examination of a sample of 45 subprime loans, Fitch found the appearance of fraud or misrepresentation in virtually every one; it also says that “in most cases” the fraud “could have been identified with adequate underwriting, quality control and fraud prevention tools prior to the loan funding.” Further, Fitch’s investigation concluded that broker-originated loans have “a higher occurrence of misrepresentation and fraud than direct or retail origination.”
12. Together, Moody’s and Standard and Poor’s control 80 percent of the ratings market. In 2006, Moody’s generated \$2 billion of revenue, with pretax profits of \$1.1 billion (a 50 percent profit rate!). Ironically, the top shareholder of Moody’s is Warren Buffett, who floated a proposal to bail out the municipal bond insurers after the monolines faced a crisis that resulted in part from their move into provision of insurance for the MBSs rated by Moody’s (Wolff 2008).
13. Or, as Charles Kindleberger put it, “The propensity to swindle grows parallel with the propensity to speculate during a boom. The implosion of an asset price bubble always leads to the discovery of fraud and swindles” (quoted in Pollock 2007).
14. Modeling by the Bank of England (2007) shows that a hypothetical portfolio of subprime mortgage credit default swaps (composed of AAA and AA subprime mortgages originated in 2006) lost 60 percent of value in July 2007.
15. Note that in a world of high leverage ratios, reducing exposure means that many multiples of CDOs relative to one’s own funds must be sold (if equity is \$1 billion, to reduce exposure by half requires sales of \$7.5 billion when leverage is 15-to-1).
16. The “auction-rate” market for securitized government debt has collapsed—putting both holders of securities and debtors in a bind.

Essentially, these are long-term securities but with interest rates that reset periodically in auctions. Sellers had expected the securities to have unquestioned liquidity but now cannot sell them. Debtors are penalized with very high interest rate resets due to collapse of the auctions—threatening to turn yet another liquidity problem into a solvency problem.

17. Greenlaw et al. (2008) project mortgage debt losses at \$400 billion, but admit that number will grow if house prices continue to fall, with defaults snowballing through conventional mortgages.
18. Nationwide, home prices plummeted at a pace of 8.9 percent in the fourth quarter of 2007. The S&P/Case-Shiller National U.S. Home Price Composite Index for 10 metropolitan areas fell by almost 10 percent year-over-year in 2007, the biggest decline in the index's history. For the first time ever, prices fell in every market covered by the index. And the pace of home price depreciation accelerated in the fourth quarter: the composite index for the 10 markets fell at an annual rate of 21 percent.
19. It is estimated that more than 10 percent of American homeowners (8.8 million) already have negative equity; that percentage is expected to rise above 15 percent by the end of the calendar year (Andrews and Uchitelle 2008). More than 30 percent of homeowners who purchased homes in the past two years have negative equity (Kane 2008).
20. Twenty-four states had already reported declining tax revenue due to the housing crisis by December 2007 (Simon 2007). The losses to local governments average more than \$34,000 per foreclosure (Morgenson 2008).
21. Greenlaw et al. (2008) estimate that if the loss on mortgage securities amounts to \$400 billion, then the hit to GDP will be as much as 1.5 percentage points, *in addition to* the more direct negative impacts of collapsing residential investment and the wealth effects on consumption resulting from depreciating real estate values. These additional losses are attributed to impacts on financial institutions that force them to deleverage, reducing credit availability.
22. Two days later, on March 16, it was announced that JPMorgan would buy Bear Stearns for \$2 per share (down from a high of \$171 the previous year), agreeing to take over all counterparty risks and using the likelihood of losses and lawsuits to justify the low purchase price. At the same time, the Fed made an unusual move in cutting the discount rate by 25 basis points on a Sunday evening in advance of a Federal Open Market

Committee meeting the following Tuesday. It also created yet another lending facility for big investment banks to secure short-term loans of reserves against a range of collateral. Later, JPMorgan raised its offer price to \$10 per share in response to widespread criticism that it had perhaps received one of the best deals—arranged and guaranteed by the Fed—in recent history.

23. Only if the creditor can show that the borrower had defrauded the originator (through, for example, doctored W-2 forms or bank account statements) would the borrower be held liable for the original loan.
24. According to the Center for Responsible Lending, there is no difference in the delinquency rates for speculators and owner-occupants. Further, the proportion of all completed foreclosures on securitized subprime adjustable rate loans made in 2006 that were attributable to speculators was just 7 percent, while owner-occupants accounted for 93 percent. In other words, speculators are a very small part of the problem in the universe of subprime ARMs.
25. See also, Samuelson (2007).
26. Ironically, Greenspan's narrow interest would now seem to put him in favor of snowballing defaults, as he has joined John Paulson's hedge fund as an advisor; Paulson has made billions betting against the housing market boom that Greenspan's policies helped to fuel (Zuckerman 2008). In a troubling piece published in the *New York Times*, Ben Stein castigates Goldman Sachs, "whose alums are routinely Treasury secretaries, high advisers to presidents, and occasionally a governor or United States senator," questioning whether Henry Paulson (no relation) should be running the Treasury given the questionable practices of his former firm over the past few years. Stein argues that while "Goldman Sachs was one of the top 10 sellers of CMOs for the last two and a half years," it "was also shorting the junk on a titanic scale through index sales—showing . . . how horrible a product it believed it was selling" (Stein 2007).
27. Readers will remember President Bush's famously candid remarks at a fundraising dinner for the Archdiocese of New York in December 2000: "This is an impressive crowd—the haves and the have-mores. Some people call you the elite. I call you my base."
28. See Papadimitriou and Wray (1998) for a summary of Minsky's policy proposals.

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