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A Fixer-Upper for Finance

Robert Hockett

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A FIXER-UPPER FOR FINANCE

ROBERT HOCKETT*

ABSTRACT

Three facts bear notice in connection with our current financial troubles. The first is that the First World War, before the Second began, was known as "the Great War." The second is that the global Depression that struck between those two wars—which, thankfully, it appears we can still label "Great" for the time being—commenced with the burst of a multiyear real estate price bubble prior to the 1929 stock market crash. The third is that the United States accordingly addressed *that depression through mutually reinforcing new regimes not only of financial regulation, but also of home mortgage finance—the very reforms that brought us "securitization" and the familiar thirty-year, fixed-rate mortgage. Our present difficulties, moreover, stem directly from recent departures from that originally bipartisan package of mutually reinforcing mortgage and finance-regulatory innovations.*

Approaches to today's financial crisis have been strangely unmindful of the history, innovations, and bipartisanship just mentioned. They have also been inattentive to the well-established historical linkage between protracted economic contractions on the one hand, and paired stock and

* Professor of Law, Cornell University Law School. Thanks to Chris Barrett, Kaushik Basu, Neil Buchanan, Kevin Clermont, Mike Dorf, Robert Frank, John Geanakoplos, George Hay, Jeff Madrick, Jerry Mashaw, Chris Mayer, Geoff Miller, Maureen O'Hara, Roberta Romano, Robert Shiller, Laura Underkuffler, and the editors for helpful discussions and suggestions. Thanks also to participants in the 2009 Cornell Law School Faculty Retreat, the 2009 Yale Law School Corporate Law Roundtable, the University of Iowa College of Law Faculty Workshop, the Notre Dame Law School Faculty Workshop, and the 2010 University of Chicago *Lumen Christi* Conference of Catholic Economists for stimulating discussion and helpful suggestions.

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real estate crashes on the other. That is surprising not only because these matters are so salient right now. It is surprising also because the reason *for the historical link between real estate slumps and broader economic contractions is not hard to find: For the overwhelming majority of Americans, homes are by far the most valuable assets they own. When their values plummet, wealth, credit, consumer confidence, and spending soon follow. The lesson for today is quite clear: No approach to our present financial crisis that does not address the mortgage crisis at its core can succeed in the long run, or even the short run.*

This Article prescribes means of addressing our current financial crisis by addressing the mortgage crisis at its core. It targets both the short and the long term. In a manner that is sensitive both to the historical roots and to the still operative etiology of the current crisis, it develops a fully integrated, systematic protocol for treating our present financial ills.

The Article first structurally characterizes the nature of credit-fueled asset price bubbles and the financial pathologies to which they give rise. It emphasizes that this structure is compatible both with long-term informational efficiency on the part of asset markets, and with individual rationality on the part of market participants. The challenge presented by asset bubbles, the Article argues, is not individual irrationality or informational inefficiency, but a classic coordination problem. Mistaken assumptions to the contrary account in large measure for our failure to have prevented, and for our ineffectiveness thus far in addressing, the present crisis. Coordination problems require coordinative responses. Absent such responses to credit cycles and financial systems conceived as wholes, piecemeal regulatory measures cannot properly discharge their functions.

The Article next shows our current difficulties indeed to have stemmed from a classic credit-fueled asset price bubble first in the stock, then in the housing markets over the decade ending in 2006. This bubble was strikingly reminiscent both of that which preceded the 1928–29 American real estate and stock market crashes and ensuing deflation, and of more recent such stories in Asia. The Article then lays out responsive near-term solutions to the present crisis as thus characterized, followed by longer-term measures that will maintain health both in real estate finance and in the financial system more generally. The key to a short-term solution lies in employing those institutions we first put into place to deal with our last great real estate bubble and burst, that of 1928. Those institutions are the Federal Housing Administration and its recently renationalized GSE siblings, Fannie Mae and Freddie Mac.

The key to longer-term maintenance, the Article then argues, is two-fold. Above all, we must restore the Federal Reserve's original role as bubble-preventive credit-regulator—what the Article calls "regulation as modulation." Complementary to this task will be the development of more effective bubble-detection methodologies, which can be developed *but, as public goods, are currently underprovided. Likewise complementary to credit modulation will be the extension of familiar disclosure and firewall protections from those older fields of finance where they have been operative since the 1930s, to new fields of finance that have developed more recently in the shadows. Getting finance and the credit-debt cycle right, the Article concludes, will get the business cycle and stable growth right as well. Stop bubbles, and we will stop bursts and deflations alike.*

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I. INTRODUCTION: REAL ESTATE, RECESSION, AND KEEPING THE GREAT DEPRESSION "GREAT"

Unnerving though it is to recall them right now, three facts bear noting in connection with our present financial troubles. The first is that the First World War, before the Second commenced, was popularly known as "the Great War." The second is that the 1930s-era global Depression we can still thankfully call "Great" began with the burst of a multiyear asset price bubble in the American *real estate*, *then* stock markets.[1] The third is that we addressed this depression most effectively by developing what, at the time, were remarkably innovative, mutually reinforcing new systems of mortgage finance and financial regulation.[2] Both the Hoover and Roosevelt Administrations designed these systems to operate in tandem.[3] Together they brought us not only those familiar forms of bank and securities regulation still largely operative today and well recognized to be products of their era, but also securitization and the familiar thirty-year,

1. *See, e.g.*, FREDERICK LEWIS ALLEN, ONLY YESTERDAY: AN INFORMAL HISTORY OF THE NINETEEN-TWENTIES 234–50 (1931); JOHN KENNETH GALBRAITH, THE GREAT CRASH: 1929, at 3–7 (1954); CHARLES P. KINDLEBERGER & ROBERT ALIBER, MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES 117–21 (5th ed. 2005). Our present woes issue from a story in which this order—real estate, then stock—is simply reversed, we shall see.

2. *See infra* Part III.

3. *Id.*

fixed-rate mortgage—curiously *less* widely recognized today to stem from that era.[4]

Some or all of these observations might come as news to nonexperts. In the received telling, the tale of the 1930s depression places the stock market crash of October 1929 center stage, with a nod perhaps given the bank runs of 1932 and Roosevelt's "bank holiday" of March 1933.[5] Real estate and mortgage finance seldom find their way into the story at all. At best they receive rare passing mention—along with flappers, jazz, and raccoon coats—as token emblems of those excesses routinely catalogued under the heady rubric of "The Roaring 20s."[6]

But emphasis on the role of real estate finance in the 1930s depression will not surprise many financial historians or central bankers. It is a virtual commonplace among these that the worst, most protracted economic slumps—including most recently those in Japan and the rest of East Asia—*typically* emerge from conjoined stock and real estate crashes.[7] Why might that be? The principal reason is right under our noses: Homes are, in most developed economies, by far the most valuable assets most people own and borrow against;[8] when *they* plummet in value or are lost in foreclosure, personal wealth, credit, purchasing power, and consumer confidence rapidly follow.[9] Stock and bond portfolios, as most citizens'

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4. The standard introductory textbooks on financial institutions and markets speak of securitization almost as something that emerged spontaneously in the 1990s, rather than by statutory design in the 1930s. *See, e.g.*, FRANK FABOZZI ET AL., FOUNDATIONS OF FINANCIAL INSTITUTIONS AND MARKETS (3d ed. 2002); MEIR G. KOHN, FINANCIAL INSTITUTIONS AND MARKETS (2d ed. 2003). By way of what I hope is a refreshing contrast, see ROBERT HOCKETT, CASES AND MATERIALS ON FINANCE, FINANCIAL INSTITUTIONS, AND FINANCIAL REGULATION (forthcoming 2010). *See also* Robert Hockett, *A Jeffersonian Republic by Hamiltonian Means: Values, Constraints, and Finance in the Design of a Comprehensive and Contemporary American "Ownership Society,"* 79 S. CAL. L. REV. 45 (2005) [hereinafter Hockett, *A Jeffersonian Republic by Hamiltonian Means*].

5. The "bank run" scene of Frank Capra's *It's a Wonderful Life* is particularly popular for these purposes. I myself use it in teaching Financial Regulation. Much more such footage is on view at the Roosevelt Library in Hyde Park, New York. It is telling—and gratifying to a finance professor—to note that among the many accomplishments of the first Roosevelt Administration touted on campaign flyers during the 1936 reelection campaign now on display at that library, upwards of half are finance-regulatory in nature.

6. *See, e.g.*, Galbraith, *supra* note 1, at 3–8 (a droll and revealing, if not altogether systematic, case in point).

7. Asia is not alone here. It is noteworthy that *all* of the most conspicuous financial crises of recent decades critically involved stocks and real estate together. These include the cases of Japan in the late 1980s and early 1990s; Sweden and Mexico in the middle 1990s; Thailand, Singapore, and South Korea in the late 1990s; Argentina at the turn of the millennium; and now the U.S. *See, e.g.*, KINDLEBERGER & ALIBER, *supra* note 1, at 142–64; *see also* Jean-Claude Trichet, President, Eur. Cent. Bank, Mas Lecture: Asset Price Bubbles and Monetary Policy, *available at* http://www.ecb.int/press/key/date/2005/html/sp050608.en.html (last visited May 18, 2010) [hereinafter ECB Speech].

8. *See, e.g.*, KINDLEBERGER & ALIBER, *supra* note 1, at 117–21; ECB Speech, *supra* note 7.

9. *See, e.g.*, KINDLEBERGER & ALIBER, *supra* note 1; *see also* ROBERT J. SHILLER, IRRATIONAL

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distantly *second* most valuable asset holdings, simply amplify the waves generated by real estate fluctuation.[10] Scarce wonder, then, that the Hoover and Roosevelt Administrations addressed our last, "Great" depression through a package of mutually complementary mortgage-finance and finance-regulatory reforms.[11]

Against this well-established historical backdrop, it was perplexing, in late 2008 and much of 2009, to find the principal national and global responses to our recent financial woes boasting every stratagem *but* that of forthrightly arresting our real estate crash and attendant foreclosure crisis.[12] Real estate seemed to be taken by most for a mere side show or sadly peripheral "human interest story"—something like the 1930s-era bread lines or Steinbeck novels—rather than central to our broader national and transnational financial turmoil. In consequence, our governments seemed to be fiddling, with no discernible melody, while a great city burned: the city of Hoover- and Roosevelt-designed mortgage finance and financial regulation, which made the United States, in large part, a nation of homeowners and stockholders.[13]

What, then, *have* we been doing? Congress and the White House first agreed on a stopgap financial "bailout" plan early in October 2008.[14] The so-called "Troubled Asset Relief Plan" (TARP; the Plan) was remarkable in several respects. As a fiscal matter, the Plan's sheer size—over $700 billion, with no assurance that this would be all—was unprecedented in both real and nominal terms.[15] As a legal matter, the sheer breadth of barely reviewable discretion that the TARP afforded Treasury pressed hard against constitutional limits on executive branch authority.[16] Lawyers

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EXUBERANCE (2d ed. 2005) [hereinafter SHILLER, IRRATIONAL EXUBERANCE]; ROBERT J. SHILLER, THE SUBPRIME SOLUTION: HOW TODAY'S GLOBAL FINANCIAL CRISIS HAPPENED, AND WHAT TO DO ABOUT IT (2008) [hereinafter SHILLER, THE SUBPRIME SOLUTION].

10. For more on American patterns of securities ownership, see Robert Hockett, *What Kinds of Stock Ownership Plans Should There Be? Of ESOPs, Other SOPs, and "Ownership Societies,"* 92 CORNELL L. REV. 865 (2007).

11. *See infra* Part III.

12. *See infra* Part IV.A.

13. One might even call this "city" an "ownership society." *See, e.g.*, *infra* Part IV.A; *see also* Hockett, *A Jeffersonian Republic by Hamiltonian Means*, *supra* note 4; Robert Hockett, *Whose Ownership? Which Society?*, 27 CARDOZO L. REV. 1 (2005).

14. Emergency Economic Stabilization Act of 2008, Pub. L. No. 110-343, 122 Stat. 3765 (2008).

15. Adjusted to 2008 dollars, the S&L cleanup cost $150 billion. *See, e.g.*, CHARLES R. MORRIS, THE TWO TRILLION DOLLAR MELTDOWN: EASY MONEY, HIGH ROLLERS, AND THE GREAT CREDIT CRASH 83 (2008).

16. *See, e.g.*, John Schwartz, *Some Ask If Bailout Is Constitutional*, N.Y. TIMES, Jan. 16, 2009, at A16, *available at* http://www.nytimes.com/2009/01/16/us/politics/16challenge.html; *see also* Fabius Maximus, Legal experts discuss if the Paulson Plan is legal, Sept. 21, 2008, http://fabiusmaximus.

seemed widely agreed that the original, three-page version of the TARP delegated authority far in excess of constitutional limits.[17] The amended, 400-page version—at least "as applied" to the crisis—did not fare much better. For at least as striking as the TARP's fiscal scale and delegated executive scope was the remarkably *restless*, if not capricious, character of actions taken under the Plan after enactment.

Secretary Paulson originally pitched the TARP in September 2008 as a proposed "buy-up" of mortgage-backed securities (MBSs), said to be clogging the credit markets.[18] That, we shall see, was a worthwhile aim—but it was quickly abandoned. Paulson next began speaking, in mid-October of 2008, of "buying-*in*" to troubled financial institutions by purchasing nonvoting shares in them.[19] Paulson held that the equity injection strategy would render lendable funds more quickly available to lenders, restoring liquidity to credit markets more expeditiously than the original buy-up plan.[20] By early November, Treasury reported that the

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wordpress.com/2008/09/21/paulson-plan/ (cataloguing some of the many weblog entries by law professors at the time of the bailout bill discussions).

17. *See, e.g.*, Andrew Ross Sorkin, *A Bailout Above the Law*, N.Y. TIMES, Sept. 23, 2008, at C1, *available at* http://www.nytimes.com/2008/09/23/business/23sorkin.html?scp=1&sq=troubled%20asset%20relief%20&%20september%202008&st=cse; Posting of David Zaring to The Conglomerate, http://www.theconglomerate.org/ 2008/09/the-bailout-sta.html (Sept. 20, 2008); Posting of Eric Posner to The Volokh Conspiracy, http://volokh.com/ archives/archive_2008_09_14-2008_09_20.shtml#1221958868 (Sept. 20, 2008, 22:01 EST); Posting of Eric Posner to The Volokh Conspiracy, http://volokh.com/archives/archive_2008_09_14-2008_09_20.shtml#1221830018 (Sept. 19, 2008, 10:13 EST); Posting of Lawrence R. Velvel to Commondreams.org, http://www.commondreams.org/view/2008/09/19-0 (Sept. 19, 2008).

18. *Turmoil in US Credit Markets: Recent Actions Regarding Government Sponsored Entities, Investment Banks and Other Financial Institutions: Hearing Before the S. Comm. on Banking, Housing, and Urban Affairs*, 115th Cong. 2 (2008), *available at* http://banking.senate.gov/public/_files/PAULSONTestimony92308.pdf (statement of Henry J. Paulson, Jr., Secretary of the United States Treasury).

19. Edmund L. Andrews & Mark Landler, *White House Overhauling Rescue Plan*, N.Y. TIMES, Oct. 11, 2008, at A1, *available at* http://www.nytimes.com/2008/10/12/business/12imf.html?scp=3&sq=troubled%20asset%20relief%20&%20october%202008&st=cse.

20. *Id.* Not so, per the institutionally sensitive "financial accelerator" and "credit rationing" accounts of financial institutions developed by monetary economists in recent decades. *See, e.g.*, JOSEPH E. STIGLITZ & BRUCE C.N. GREENWALD, TOWARDS A NEW PARADIGM IN MONETARY ECONOMICS (2003); Ben Bernanke & Mark Gertler, *Banking and Macroeconomic Equilibrium*, *in* NEW APPROACHES TO MONETARY ECONOMICS: PROCEEDINGS OF THE SECOND INTERNATIONAL SYMPOSIUM IN ECONOMIC THEORY AND ECONOMETRICS 89 (William A. Barnett & Kenneth J. Singleton eds., 1987); Ben Bernanke & Mark Gertler, *Agency Costs, Net Worth, and Business Fluctuations*, 79 AM. ECON. REV. 14 (1989); Ben Bernanke & Mark Gertler, *Financial Fragility and Economic Performance*, 105 Q.J. ECON. 87 (1990); Ben Bernanke, Mark Gertler & Simon Gilchrist, *The Financial Accelerator and the Flight to Quality*, 78 REV. ECON. STAT. 1 (1996); Joseph E. Stiglitz & Andrew Weiss, *Credit Rationing in Markets with Imperfect Information*, 71 AM. ECON. REV. 393 (1981).

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buy-in plan would entirely supplant the earlier buy-up plan.[21]

In mid-November, however, Treasury announced it would enter the short-term debt markets as well, once again "buying-up" rather than just "buying-in."[22] Then, near the end of November, the plan changed again. Now Treasury would resume purchasing "toxic" assets, but more kinds than MBSs.[23] Finally, in December 2008, talk turned toward employing TARP moneys to tide over automakers as well, a course of action that, by early 2009, had begun to be taken.[24] And so things have more or less continued to the present, even since a new Treasury's taking of the reins to spend from the final installment of TARP funds, and subsequently to recoup many of those funds from their original recipients.

Throughout all of these pivots and changes of direction, a few voices softer than Treasury's were offering proposals that targeted the proximate *cause* of our present financial distress.[25] That, as suggested a moment ago, is our recently corrupted system of *home mortgage* finance. In particular, it is the ongoing foreclosure crisis afflicting our post-bubble real estate markets.[26] With time and continued tumult, these proposals—which are much better focused as a financial matter, and less constitutionally troubling as a legal matter than TARP was thought by many to be—have come gradually to be more widely heard.[27] Now, even President Obama,

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21. More on Henry Paulson's Bailout Update, http://dealbook.blogs.nytimes.com/2008/11/12/henry-paulsons-bailout-update/?scp=44&sq=troubled%20asset%20relief%20&%20novmber%202008&st=cse (Nov. 12, 2008, 11:15 EST).

22. Edmund L. Andrews, *U.S. Shifts Focus in Credit Bailout to the Consumer*, N.Y. TIMES, Nov. 13, 2008, at A1, *available at* http://www.nytimes.com/2008/11/13/business/economy/13bailout.html?scp=4&sq=troubled%20asset%20relief%20&%20novmber%202008&st=cse.

23. Alan S. Blinder, *Missing the Target with $700 Billion*, N.Y. TIMES, Dec. 21, 2008, at BU4, *available at* http://www.nytimes.com/2008/12/21/business/economy/21view.html?scp=46&sq=troubled%20asset%20relief%20&%20novmber%202008&st=cse; Jeff Zeleny, *Obama and Bush Working to Calm Volatile Market*, N.Y. TIMES, Nov. 25, 2008, at A1, *available at* http://www. nytimes.com/2008/11/25/us/politics/25obama.html?scp=45&sq=troubled%20asset%20relief%20&%20novmber%202008&st=cse.

24. *See* Posting of Steven M. Davidofff to Dealbook, http://dealbook.blogs.nytimes.com/2008/12/09/the-new-auto-bailout-bill/?scp=7&sq=automobile%20manufacturers%20bailout&st=cse (Dec. 9, 2008, 9:56 EST).

25. *See infra* note 26.

26. *See, e.g.*, R. Glenn Hubbard & Chris Mayer, *First, Let's Stabilize Home Prices*, WALL ST. J., Oct. 2, 2008, at A19, *available at* http://online.wsj.com/article/SB122291076983796813.html; *Democracy Now!: "Bridge Loan to Nowhere"* (television broadcast Sept. 30, 2008), *available at* http://www. democracynow.org/2008/9/30/bridge_loan_to_nowhere_house_rejects; *Democracy Now!: Nobel Laureate Joseph Stiglitz: Bail Out Wall Street Now, Change Terms Later* (television broadcast Oct. 2, 2008), *available at* http://www.democracynow.org/2008/10/2/nobel_laureate_joseph_stiglitz_bailout_wall; Posting of Robert Hockett to Dorf on Law, http://michaeldorf.org/2008/09/treasurys-planned-bailout-is-fhas.html (Sept. 25, 2008, 14:33 EST).

27. *See, e.g.*, Robert Hockett, *Bailouts, Buy-Ins, and Ballyhoo*, CHALLENGE, Mar.–Apr. 2009, at 36; *see also* Blinder, *supra* note 23, at 1; SHILLER, THE SUBPRIME SOLUTION, *supra* note 9; John D.

Federal Reserve (Fed) Chair Bernanke, and Treasury Secretary Geithner pay at least lip service to the need of a bottom to falling mortgage markets—and to spend some of the original and since-recovered TARP moneys to do so.[28]

It is very good news that now, more are looking to stemming foreclosures as means of addressing our wider financial crisis.[29] However badly needed the transfusion supplied by the first stages of TARP might have been to keep the "patients" (our banks and other financial institutions) alive on the table, the fact is that these patients—and the Treasury—can be expected to continue to "bleed" until we at last stanch the flow, and the threat, of foreclosures still facing us. The only real question is how best to do that. The question of how to end our financial crisis, in short, boils down in significant part to the question of how to end our mortgage crisis—and to prevent a recurrence.

This Article aims to address those two questions head on, just as the late Hoover and Roosevelt Administrations did—as a *package*. It supplies an integrated set of short-term and longer-term answers, rooted in careful structural and historical diagnosis of our present ills.

The Article proceeds as follows. Part II first elaborates the aforementioned diagnosis. In particular, it shows that we are indeed coming off of a causally interconnected pair of tech stock and real estate bubbles. The real estate bubble in particular was one which, notwithstanding the assurances of former Fed Chairman Greenspan to the contrary, could be seen in the making even as it was inflating—hence, could have been stopped.[30] Like other bubbles, moreover, this one's growth was compatible with market efficiency and individual rationality. Indeed, in the presence of historically low and, at times, even negative real

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Geanakoplos & Susan P. Koniak, Op-Ed., *Mortgage Justice Is Blind*, N.Y. TIMES, Oct. 30, 2008, at A39, *available at* http://www.nytimes.com/2008/10/30/opinion/30geanakoplos.html; John D. Geanakoplos & Susan P. Koniak, Why the Blind Trustee Plan is Cheaper and Better than Alternatives (unpublished manuscript, on file with the author), *available at* http://www.law.yale.edu/documents/pdf/cbl/Koniak_Blind_Trustee.pdf (last visited May 18, 2010); George M. Cohen, Susan P. Koniak & John D. Geankoplos, Mortgage and Securities Stabilization, Recovery and Modification Program Act of 2009, http://www.law.yale.edu/documents/pdf/cbl/Koniak_Mortgage_Securities.pdf (last visited May 18, 2010). For a welcome indication that the Obama administration might now be poised to take the mortgage problem at the root of our broader financial difficulties more seriously, see, e.g., Renae Merle, Geithner Tells Panel That More Has to Be Done to Help Homeowners Avoid Foreclosure, WASH. POST, Apr. 30, 2010, *available at* http://www.washingtonpost.com/wp-dyn/content/article/2010/04/29/AR2010042904769.html.

28. *See* Merle, *supra* note 27.

29. *See id.*

30. *See, e.g.*, Tim Iacono, *Shame on You CNN/Money!*, May 23, 2005, http://themessthatgreenspanmade.blogspot.com/2005/05/shame-on-you-cnnmoney_23.html.

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interest rates maintained by the Fed, the bubble was practically *guaranteed* by those forms of market efficiency and individual rationality. Widespread confusion on these points—on bubbles' compatibility with market efficiency and individual rationality—Part II argues, accounts for our failures both to have prevented the recent tech stock and real estate bubbles, and for our failure effectively to manage their inevitable collapses.[31]

Part III begins the transition to the question of how we should manage the mentioned collapse in the short term. It briefly reprises the story of the paired stock and real estate bubbles of the late 1920s, then that of how the Hoover and Roosevelt Administrations dealt with the fallout once that pair of bubbles had burst. In particular, it highlights the role of the Federal Home Loan Bank Board (FHLBB) and Federal Housing Administration (FHA) (established 1932 and 1934), as well as their recently renationalized government-sponsored enterprise (GSE) sibling, Fannie Mae (established 1938), in reversing the plunge and stabilizing housing markets thereafter. That was an absolute prerequisite to arresting the Great Depression itself—it set a firm floor.

Part III also briefly reprises, in broad outline, the complementary system of *broader* financial regulation put into place during those years—the Banking Acts of 1932 and 1933, the Securities and Securities Exchange Acts of 1933 and 1934, and the Investment Company and Investment Advisors Acts of 1940. It emphasizes the sense in which this regime constituted one seamless web that critically *complemented* the new system of mortgage finance put into place in those years. Part III also emphasizes how *departures* from that delicately balanced regime since the 1990s have been nothing less than returns to that late 1920s world, whose crashing and burning necessitated the system's establishment by Hoover and Roosevelt in the first place.

Part IV turns from the lessons of the recent and not-so-recent past to the needs of the present. It lays out both short-term and long-term remedies for our present afflictions. It first prescribes how to employ the FHA and its newly renationalized siblings Fannie and Freddie to stabilize and restore value to the housing and, thereby, the securities markets, just as they did from the 1930s to the late 1990s.[32] It then prescribes an

31. I elaborate this point in Part II.A. The short-playing version is that, in view of the theoretical attractions and empirical corroborations of bounded rationality and markets' informational efficiency, anything thought incompatible with these phenomena is thought impossible. It is the premise shared by these thoughts—the incompatibility—that has been erroneous.

32. Technically, Freddie was founded in 1970 to compete with Fannie. But I shall occasionally

integrated sequence of incremental updatings that must be made to our system of financial regulation conceived as a whole, to address new risks occasioned by new forms of finance developed in the past decade. Fragmented, piecemeal financial regulation is not viable in a world of fast-paced financial innovation and integrated financial services.[33] The regulatory web must be seamless. Above all, it must afford means of modulating the ever potentially violent swings of the debt-credit cycle.[34]

Each of the updatings urged in this Article constitutes either a restoration, or a straightforward and minimal extension to currently unregulated sub-industries, of some familiar and uncontroversial mode of regulation that served very well from the 1930s until recently. In that sense, this Article urges less radical change than a return to who, not long ago, we were. On that note, Part V then concludes and looks forward.

II. THIS OLD HOUSE'S CRACKED FOUNDATIONS: WHERE WE ARE AND HOW WE GOT HERE

There no longer seems to be serious doubt that asset price bubbles can occur, or that the United States is now in the midst of a very large stock, and then real estate, bubble's collapse.[35] Nor does anyone seem now to doubt that the United States' and world financial systems' present woes are somehow rooted in that two-staged collapse.[36] Where most disagreement persists is in respect of two ancillary questions.

The first of those questions is whether anything can be done about asset price bubbles. Some still maintain that euphoric asset price rises—like

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lump the two institutions together in speaking of the pre-1970 regime for simplicity's sake. For more on this history, see *infra* Part III.

33. This is one continuing thread of HOCKETT, FINANCE, FINANCIAL INSTITUTIONS, AND FINANCIAL REGULATION, *supra* note 4.

34. For more on this cycle—a staple of the venerable monetary theories of Wicksell, Fisher, Keynes, Schumpeter, and Minsky, as well as of the more recent theories of Bernanke and Gertler on the one hand, and Stiglitz and Greenwald on the other—see *infra* Part II.

35. There is a history of belief that market efficiency precludes asset bubbles, hence that one must believe in one or the other, not both. See, e.g., the views of Eugene Fama, one of the principal developers of the ECMH, on the impossibility of bubbles. Interview by Douglas Clement with Eugene Fama (Nov. 2, 2007), *available at* http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=1134; Interview by John Cassidy with Eugene Fama (Jan. 13, 2010), *available at* http://www.newyorker.com/online/blogs/johncassidy/2010/01/interview-with-eugene-fama.html. Not so, as I will argue below. The informational efficiency widely thought to be characteristic of liquid capital markets—be it the so-called "strong," "semi-strong," or "weak" form of which one speaks—is quite compatible with the presence of asset bubbles, just as it is with consumer price inflation. The reason is that bubbles grow around a Knightian form of uncertainty. There simply is not information in this case of the sort that can find expression in asset prices.

36. But see the peculiar views of Eugene Fama, *supra* note 35.

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those in the values of tech stocks, then U.S. residential real estate—from the mid-1990s to the mid-2000s cannot be foreseen or avoided.[37]

The second question is whether addressing the ongoing mortgage crisis is the best means—or even an effective means—of defusing the ongoing, now much more generalized, financial crisis and downturn we are experiencing. Some argue that the problem has spread so far outward that mortgage foreclosures no longer matter.[38]

This Part argues that these two questions should be buried, along with those earlier questions concerning the possibility of asset bubbles in general and the actuality of a now-deflating real estate bubble, in particular. It first briefly schematizes the structure of that process through which asset price bubbles typically develop, inflate, and then burst. This structure, it argues, is that of a classic collective action problem. The process it structures is therefore compatible with individual rationality and aggregative market-informational efficiency.[39] The process is also structured in such a way that, no matter how many *derivative* financial contracts might be drawn into the vortex during an asset price's collapse, the underlying asset itself remains always the best lever through which to arrest the collapse.[40]

After structurally characterizing the nature of asset price bubbles and bursts, Part II quickly sketches the conforming structure of our recent tech stock and housing price bubbles. It shows them to be "textbook cases" of that schema laid out in its first section. Finally, and relatedly, this Part shows both how readily verifiable the presence of our recent bubble was, and how critical it is to address its aftermath now if we would forestall a very long, 1930s-style downturn. That will set the stage for the short-term and long-term "home repairs," elaborated later in the Article.

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37. *See, e.g.*, *Hearing on Regulation of the Financial Sector Before the Committee of Senate Congressional Oversight Panel*, Jan. 14, 2009 (statement of Marc Summerlin, Managing Member and Co-Founder, Lindsey Group), *available at* http://www.knowledgeplex.org/news/2901951.html; *see also* Joe Average, *Collateral Damage*, Oct. 2007, http://www.gold-eagle.com/editorials_05/swagell 100707.html.

38. *See, e.g.*, Jon Hilsenrath, Serena Ng & Damian Paletta, *Worst Crisis Since '30s, With No End Yet in Sight*, WALL ST. J., Sept. 18, 2008, at A1, *available at* http://online.wsj.com/article/SB122169 431617549947.html.

39. This is not to say there was no irrationality or inefficiency in our recent bubble and burst. It is only to say that one need not deny rationality or efficiency to assert the occurrence of bubbles and bursts. That is important because many who have failed to see bubbles' development appear to have willfully blinded themselves to such developments, out of a mistaken belief that rationality and efficiency, which these folk are at pains to affirm, somehow exclude bubbles and bursts.

40. *See infra* Part IV.A.

A. Bubbles Happen: Of Beautiful Babies, Ponzi Processes, and Minsky Moments

Even if few now deny that speculative asset bubbles can occur, it is nevertheless crucial to understand *how* they occur. That not only renders us more confident that they can occur, but also well situates us to spot future such bubbles ahead of their forming. More importantly, it enables us to see how to prevent them and, just as importantly, how to minimize the devastation wrought by their deflations when they nevertheless come and go.

1. Beautiful Babies: Underlying Assets, Overlying Valuations

To understand how speculative asset bubbles can and do happen, the first thing to note is a defining feature of speculative assets themselves, as contrasted to goods and services meant for consumption. In ordinary markets for consumer goods and services, pricing typically conforms to the familiar "laws" of supply and demand.[41] Consumers buy more, sellers receive that "demand signal," and prices begin to go up. Prices go up, consumers and producers receive that "price signal," and thus begin to consume less, produce more, or both. Consumers consume less or producers produce more, and prices turn back down. And so on, *ad tedium*.

The *trend* is the thing in this picture—the axis along which the oscillations occur. The system, in general, tends toward an equilibrium price at which supply and demand coincide and the markets thus clear.[42] That is the case even if the market-clearing price is, in some cases, an oft-moving target—owing, for example, to regular changes in tastes or production cost functions.[43] The point is the equilibrating *tendency*.

Speculative assets, as distinguished from consumed goods and services, do not generally conform to the primitive equilibrium model, familiar to price theory, just rehearsed. Even if under some circumstances—or for certain intervals over an individual's demand function—one's demand for an asset inversely correlates to its price, under other circumstances or over

41. It is, of course, telling that goods that thus conform are called "normal goods." There are, of course, abnormal goods, but these will not detain us here. *See generally* MILTON FRIEDMAN, PRICE THEORY: A PROVISIONAL TEXT (1962); GEORGE JOSEPH STIGLER, THE THEORY OF PRICE (3d ed. 1966). Or see any introductory or intermediate text on what now is more often called "microeconomics."

42. *See, e.g.*, FRIEDMAN, *supra* note 41; STIGLER, *supra* note 41.

43. FRIEDMAN, *supra* note 41; STIGLER, *supra* note 41.

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other intervals, that demand can be an *increasing* function of price. The circumstances and intervals in question are not hard to see; if the asset looks to be all the time rising in value, and the prospective buyer is doing the looking, the buyer can at some point begin to demand more of the asset precisely *because* she anticipates further such rises in market value. In such cases she acts as a would-be *rentier*. She is after rents or quasi-rents, rather than inexpensive consumption.

During times of protracted inflation, such as those experienced by the United States during the late 1960s and 1970s, these "inflationary expectations" (as they then came canonically to be called) can, of course, induce greater purchase rates even of consumer goods and services, rather than solely of durable assets.[44] Indeed, it is individually *rational* for consumers to stock up on such goods, and to bring forward their plans to consume such services, in these circumstances. That is precisely why periods of consumer price inflation are so vexing. They are "prisoner's dilemma"-type situations; individual rationality and collective optimality diverge in them. One point I shall emphasize below is that speculative asset bubbles need be no different; they, too, are collective dysfunctions built up on nonpathological individual functions—demand functions. They are cases of rational-expectations-fueled price inflation.

Now, in the interest of strengthening the comparison just offered, we should note that there is a sense in which behavior undertaken in explicit response to inflationary expectations is "speculative," even when the items procured are goods and services purchased for *consumption*. One is in such cases, after all, making money-spending decisions "on spec"—on speculation that the items in question will continue to rise in price. But this manner of positive price-elasticity of demand tends nevertheless to be naturally limited by either the limited shelf-lives, space required for stockpiling, or other costs occasioned by storing the items in question when those items are not durable assets, but consumer goods. Moreover and relatedly, apart from periods of consumer "hyperinflation," most purchases of goods and services in these inflationary-expectations situations are made with a view still to consuming in the future that which is purchased, rather than turning a profit through sale.

The hallmark of a "pure" speculative asset price bubble, then, is just this: Here the price inflation in question *has* indeed morphed into

44. *See, e.g.*, GEORGE W. EVANS & SEPPO HONKAPOHJA, LEARNING AND EXPECTATIONS IN MACROECONOMICS (2001). The same effect is discernible, of course, in markets for consumer goods during times of consumer inflation. Those who "stock up" on canned soup while prices are rising are seeking to be soup-*rentiers*.

"hyperinflation," and the asset in question is easily stored for much later use or, more likely, for resale.[45] The purchaser thus purchases not with a view simply to saving herself a few future costs occasioned by items she plans in the short or the medium term to consume, but with a view expressly to realizing money profits or capital gains. The speculative and consumption motives for purchase no longer meld in these cases. The motive is "pure speculation," undertaken with a view to realizing pecuniary gains.

Now, in some of these cases, the gains in question might still be hoped to inhere in the assets themselves, which might be durable, readily retained, and such as to render their owners more pleased or proud when they grow in value. In other cases, the purchaser might enjoy something like that which economists call "wealth" effects wrought by appreciation of speculative assets—effects which can spill into the broader economy through many channels, e.g., greater "consumer confidence" and consequent willingness to spend on the part of the newly wealthy, or a greater amount of secured debt that the new wealth can attract.[46]

But more often than not, the gains that are sought during speculative asset price rises are the margins between purchase and sale prices that people aim to recoup by reselling precisely that which they purchase. In the realm of real estate, this category of market participant would include, for example, those who intend to "flip" homes, rather than reside in or take "reverse" mortgages on them for purposes of consumption.[47] It is people with this sort of aim—the "pure speculators"—who add the most fuel to our speculative asset price bubbles as the portion of trading behavior they account for grows.[48] For their aim is to profit precisely by, in effect, *betting* on the trading behavior of *other* market participants, thus amplifying effects upon prices wrought by those people.

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45. There can, of course, also be borderline cases. The tulip bulbs figuring into the Dutch "Tulipmania," for example, were easily stored while their prices continued to rise. Purchasers, moreover, could "consume"—retain, plant, and grow—some of their acquisitions, while selling the remainder or holding on to them with a view to selling later. On this particular mania, see CHARLES MACKAY, EXTRAORDINARY POPULAR DELUSIONS AND THE MADNESS OF CROWDS (1841), a classic on the subject. For a more recent telling, see ANNE GOLDGAR, TULIPMANIA: MONEY, HONOR, AND KNOWLEDGE IN THE DUTCH GOLDEN AGE (2007).

46. *See, e.g.*, ERIC BELSKY & JOEL PRAKKEN, HOUSING WEALTH EFFECTS: HOUSING'S IMPACT ON WEALTH ACCUMULATION, WEALTH DISTRIBUTION AND CONSUMER SPENDING (2004), *available at* http://www.jchs.harvard.edu/publications/finance/w04-13.pdf.

47. I shall say more about "flipping" below. Sizeable numbers of people—including savvy undergraduates at elite universities—began purchasing homes with a view to quick resale in the early 2000s.

48. *See, e.g.*, KINDLEBERGER & ALIBAR, *supra* note 1, at 37.

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John Maynard Keynes, a man who made multiple fortunes on, and never ceased to be, fascinated by securities markets, appears to have been one of the first economists proper to have singled out that feature of speculative asset markets to which I am drawing attention.[49] He likened such markets to the "Beautiful Baby" contests run in his day by the British press.[50] In such contests, a newspaper would publish the photographs of a number of candidate children. Readers were asked to vote upon those babies they thought most "beautiful." Those who had voted on photos that received the most votes would then win prizes.[51] It did not take long, Keynes observed, for players to cease voting for babies whom they themselves actually found beautiful.[52] They commenced voting instead for the babies whom they reckoned *others* would find beautiful.

If the aim is to win prizes, of course, this is the rational thing for the voter to do. That fact bears noting because it affords means of readily seeing how asset price bubbles may develop even in informationally efficient markets whose actors are individually rational.[53]

In effect, with the "Beautiful Baby" analogy, Keynes was underscoring an analogue to what is now often labeled the elusive distinction between "real," long-term, "fundamental" values of market-traded assets on the one hand—the sort of value extolled not so long ago by Benjamin Graham, and extolled to this day by Graham's best-known disciple, Warren Buffett[54]—and more ephemeral, even whimsical, "market" values on the other. Some people appear to believe that these two takes on value are

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49. *See* JOHN MAYNARD KEYNES, THE GENERAL THEORY OF EMPLOYMENT INTEREST AND MONEY (1936). I say "economist proper" because others prior to Keynes, who wrote before there was any distinct discipline known as "economics," also have noted these features of speculative asset bubbles. *See, e.g.*, JOSEPH DE LA VEGA, CONFUSIÓN DE CONFUSIONES (1688) (on the speculative excesses of seventeenth-century Amsterdam exchanges).

Until relatively recent years, and even to a certain degree now, there has been a regrettable divide between so-called "economics" on the one hand, and so-called "finance" on the other. A vestige of that divide is the continuing tendency of financial economists to be found mainly in business schools, with economists in colleges of arts and science. The former were long disparaged as "vocational" types by the latter. That began to change with the burgeoning of sophisticated financial decision making and price models in the 1970s. The new regime received an imprimatur of sorts when financial economists began winning Nobel prizes in the 1990s. Keynes—and, to a certain extent, Hicks—were ahead of their time as economists in their taking seriously the institutional and structural features of financial markets as determinants of economic performance. *See* J.R. HICKS, VALUE AND CAPITAL: AN INQUIRY INTO SOME FUNDAMENTAL PRINCIPLES OF ECONOMIC THEORY (1939); KEYNES, *supra* note 49.

50. *See* KEYNES, *supra* note 49, at 156.

51. *Id.*

52. *Id.*

53. *See supra* note 45 and accompanying text.

54. *See* BENJAMIN GRAHAM, SECURITY ANALYSIS (1962); BENJAMIN GRAHAM, THE INTELLIGENT INVESTOR: A BOOK OF PRACTICAL COUNSEL (1959); *see also* ALICE SCHROEDER, THE SNOWBALL: WARREN BUFFETT AND THE BUSINESS OF LIFE (2008).

radically incompatible, and to eschew the idea of "fundamental" value in consequence.[55] That, in turn, leads them to think that a speculative asset price bubble—which is always the product of "market," not "fundamental" value—is either impossible or undetectable.[56] But those who view things this way simply suffer, I think, a confusion concerning the relation between individual rationality on the one hand, and the *institutions* through which rational actions aggregate into collective outcomes on the other.[57] Let me explain.

It can of course be difficult, at any particular moment, to draw sharp and clear lines between "market" and "fundamental" value. That is so just as "manias" for things like tulips can straddle the divide between consumer and asset price inflation,[58] and as thinkers as clever as the classical political economists could find themselves sometimes puzzling over how to distinguish between what used to be called "use" and "exchange" value.[59] This same difficulty of clear line-drawing is also the reason why there can so often be controversy over whether financial institutions' asset portfolios should be required to be regularly "marked-to-market" on the one hand, or "book-valued," "discounted cashflow-valued," or otherwise less "mood-swingingly" valued on the other.[60]

Nevertheless, I shall argue, the distinction is tractable in principle, as well as in regulatory practice. And it is important, for purposes of

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55. *See, e.g.*, sources cites *supra* note 35. *See generally* Robert D. Coleman, *Evolution of Stock Pricing,* 2006, http://www.numeraire.com/download/EvolutionStockPricing.pdf.

56. *See, e.g.*, Greenspan, *supra* note 18; *see also supra* notes 35, 37. Greenspan, for his part, attributes the view also to Robert Rubin, President Clinton's second Treasury Secretary. *See* ALAN GREENSPAN, THE AGE OF TURBULENCE: ADVENTURES IN A NEW WORLD 218 (2007).

57. More careful attention to such institutions is the hallmark of so-called "new institutional" theories of monetary and financial economics, such as those cited *supra* note 20 and accompanying text.

58. *See supra* note 20 and accompanying text.

59. *See, e.g.*, ADAM SMITH, THE WEALTH OF NATIONS 61 (Edwin Cannan ed., 1994) (1776); DAVID RICARDO, PRINCIPLES OF POLITICAL ECONOMY AND TAXATION 33 (Cosimo Classics 2006) (1817).

60. *See, e.g.*, Steve Forbes, *Obama Repeats Bush's Worst Market Mistakes*, WALL ST. J., Mar. 6, 2009, at A13, *available at* http://online.wsj.com/article/SB123630304198047321.html; Floyd Norris, *Bankers Say Rules Are the Problem*, N.Y. TIMES, Mar. 13, 2009, at B1, *available at* http://www.nytimes.com/2009/03/13/business/economy/13norris.html; Press Release, U.S. Sec. & Exch. Comm'n, SEC Office of the Chief Accountant and FASB Staff Clarifications on Fair Value Accounting, No. 2008-234 (Sept. 30, 2008), *available at* http://sec.gov/news/press/2008/2008-234.htm; Brooke Colin Barr, *Fair Value: The Pragmatic Solution*, CNNMONEY.COM, Nov. 21, 2008, *available at* http://money.cnn.com/2008/11/21/news/fair.value.compromise.fortune/index.htm?postversion=2008112109http://money.cnn.com/2008/11/21/news/fair.value.com; Sopelsa, *Former FDIC Chair Blames SEC for Credit Crunch*, CNBC.COM, Oct. 9, 2008, *available at* http://www.cnbc.com/id/27100454. I shall recommend that a "basket" of valuation methods be employed simultaneously, at least for regulatory purposes. *See* discussion *infra* Part IV.B.

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understanding the dynamics, inner workings, and regulatability of speculative asset bubbles, to be mindful both of the distinction and of the linkage connecting its terms. For it is precisely by tracking short- to medium-term divergences between apparent fundamental value as measured by reference to solid information on the one hand, and more volatile market value as determined in part by mere rumor and "herd behavior" in the face of uncertainty on the other, that regulators can spot bubbles forming and shrink them before they grow contagiously dangerous.

How, then, should we think of, then track, this distinction? For the present, it will be useful to think of the relation between the two aspects of value under the single aspect of this simile: "Fundamental" value is like heavy liquid at the bottom of a flask. "Market" value is then like a lighter liquid that lies over it. Movements of the lighter fluid cannot help but be affected by movements of the heavier, nor can they help but be partly anchored by the inertial forces exerted by the latter. But movements of the lighter fluid also are prone to be brought on independently of, as well as more readily than, movements of the former, and can persist for a time before being slowed by the slower-moving liquid beneath. More forces, in short—even rumors and whims—can move the lighter stuff for brief periods, and can move it more frequently and further.

The light versus heavy liquid simile proves helpful, on reflection, because an asset's so-called "fundamental" value is just the "tree" of possible long-term cash flows it is likely to throw off, as discounted by (a) the probabilities assigned to each limb of the tree, (b) money inflation, and (c) associated opportunity costs, including consumption deferral and cognate determinants of the so-called "time-value of money."[61] Considered assessments of fundamental value thus parsed can, of course, change over time because the component discount factors can change, particularly as knowledge accumulates through time. But change in this case tends to be incremental and gradual, as the just-employed terms "considered" and "accumulate" tend to suggest, even if sometimes it also

61. There are, of course, often multiple varyingly likely inflation scenarios—"limbs"—as well, and there are opportunity costs additional to that of foregone consumption. Valuation can grow very complicated. *See generally* TOM COPELAND ET AL., VALUATION: MEASURING AND MANAGING THE VALUE OF COMPANIES (4th ed. 2005); STEPHEN A. ROSS, NEOCLASSICAL FINANCE (2005). We can prescind from all that for present purposes. The point is that "fundamental" valuation can be done, that it is not mere whistling in the dark, and that market valuations can diverge significantly from such "fundamentals" for extended temporal intervals even when they remain anchored in them over the long run.

can be sudden and radical.[62] Market valuation, by contrast, is generally susceptible to much greater volatility, even if nonetheless ultimately anchored in and constrained by "fundamental" valuation.[63] For there are many more determinants of market participants' purchasing and selling decisions than news bearing upon "fundamental" value alone.[64] In particular, there is what those participants see *other* participants doing—behavior that might, but certainly need not always, be prompted by "fundamental" considerations.

Now, as noted above, one need not deny individual rationality to hold consumer inflation or asset price bubbles possible. Just so, one need not deny markets' informational efficiency—not even "strong-form" efficiency, let alone the "weak" or "semi-strong" forms that are empirically better supported—to distinguish between more volatile "market" and less volatile "fundamental" asset value.[65] One need only recognize that asset prices during some periods change more rapidly and radically than do valuations conducted pursuant to traditional accounting methods, without the latter methods being thereby discredited.[66]

One can see *how* this might be upon pausing to ask whether some people might sometimes act as what Fischer Black canonically dubbed "noise traders."[67] Those are people who trade, not on the basis of one or another bit of information they have received that would seem to bear directly upon likely firm payouts in future, but instead on the basis either of what they see other traders doing, or on the basis of what they anticipate *future* traders will do. "Beautiful Baby" betting of the Keynesian sort mentioned above is noise trading in the requisite sense. And it, like noise trading more generally, is among those phenomena that underwrite so-called "herd behavior" on asset markets.

"Beautiful Baby" betting can also aggregate behavior that is individually rational into behavior that proves, in the end, to be

62. Examples would include a sudden discovery that asbestos causes fatal illness, for example; or that some new power source is viable. In such cases, the "fundamental" values of certain firms would change very quickly.

63. *See, e.g.*, sources cited *supra* note 60.

64. Rumors to the effect that an unusually effective CEO has taken ill, for example, or reports that Warren Buffett is dumping his shares of some firm, would be cases in point. If such reports turn out to be false, or to have been misinterpreted, changes in share price might be canceled out as quickly as they occurred.

65. *See, e.g.*, Eugene F. Fama, *Efficient Capital Markets: II*, 46 J. FIN. 1575 (1991); Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970).

66. To recur to the examples *supra* note 64: the sudden share price changes mentioned there would not impugn the propriety of share valuation methods that attended to "fundamentals" rather than immediate market-valuation.

67. Fischer Black, *Noise*, 41 J. FIN. 529, 529–30 (1986).

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collectively pathological. It affords the stuff, that is to say, of a species of coordination problem whose worst sorts of consequences we are experiencing now. It is time now we turned to the "game" structure of this form of collective action problem.

2. *Ponzi Processes: There Need Be No Ponzi*

Trading of the "Beautiful Baby" variety just sketched, particularly when easily levered by inexpensive borrowing, generally constitutes or compounds the effects of the underlying mechanism of the prototypical speculative asset bubble—a mechanism that stems from the just-discussed nature of speculative assets and purchases themselves. The reason is that such trading can quickly come to bear the familiar structure of "chain letter," "pyramid," or "Ponzi"-style schemes—schemes that capitalize on some peoples' propensities to make purchasing decisions less on the basis of traded assets themselves than on the basis of what they see or anticipate other people doing.[68] Ponzi or pyramid dynamics seem to be operative in all of the most devastating speculative asset price bubbles and bursts on record.[69]

It is crucial at the outset to be clear on the fact that *there need be no Ponzi or scheme* in these cases. Though the "fire," to grow large, needs the fuel of cheap credit or leverage, hence the complicity of influential actors, the initial combustion is, in a certain sense, typically "spontaneous." It need not be deliberately set, nor need the spark that ignites it be in any sense ill-prompted or ill-motivated. The ongoing Ponzi process, moreover, once underway, need involve no irrationality on the part of individual participants in the markets; indeed, quite the contrary. The problem is the fuel. The relevant form of irrationality or negligence, if any there be, is that of the overseer charged with controlling the fuel, when s/he is deluded or willfully blind to the fact that the fire is started and soon might grow out of control.

Where institutional structures operate in a manner that aggregates instances of individual rationality into collective irrationality—or what is the same thing, where our problem is a straightforward collective action problem—the only irrational agents "we" need collectively worry about

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68. *See, e.g.*, SHILLER, IRRATIONAL EXUBERANCE, *supra* note 9, at 64–67 (discussing "naturally occurring Ponzi processes").

69. A still-unsurpassed narratival catalogue of such cases through financial history is KINDLEBERGER & ALIBER, *supra* note 1. Now in its fifth edition with a co-author, the work finds occasional citation below.

http://openscholarship.wustl.edu/law_lawreview/vol87/iss6/1

are those charged with acting on behalf of the collectivity itself. Collective irrationality demands a rationally acting collective actor—a good regulator.

Do these claims not fly in the face of recent orthodoxy? How can one say such things? Here is how: with a nice, clean-cut game from the '50s. Imagine, then, a game of automotive "chicken" like that played in *Rebel Without a Cause*,[70] but with a few variations to pick up some salient features of present-day asset markets. James Dean and the punk who has provoked him are still poised to drag race in the direction of a cliff's edge.[71] He who bails from his Chevy first, moreover, will still lose the game.[72] But in contrast to the race as it occurred in the film, these three amendments are made to the rules of the game: First, the drivers, who can now number more than just two, are forward-wise blindfolded before they can see how far the cars are from the cliff. They can see only each other, peripherally; they do not know how far they are from the cliff's edge.[73]

Second, the drivers are paid prize money by the foot, so to speak, so long as they do not drive over the cliff. The more ground you cover, in other words, short of driving over, the more money you clear.[74] You are also, moreover, permitted to make side bets with others as to your and your opponents' future performances, assuming that you can find counterparties. These bets might be for portions of your prize money, but also might be for assets you hold prior to playing the game; some of them might even hedge against loss prospects you face, much as insurance policies do.[75] If you drive over the cliff, then, you might lose some or all of your winnings and even more, or you might lose very little, if anything. And none of this is certain, for reasons I provide next.

Finally, third, no driver will be killed or maimed if he goes off the cliff. There's a net—perhaps a number of differently placed nets—down below. The driver might also be monetarily "bailed out" up to some amount in the end, in the sense that he might be permitted to keep some, perhaps even a lot, of his total money winnings, game winnings, and side-bet winnings—should he go over the cliff. (We might think of differently placed nets as

70. REBEL WITHOUT A CAUSE (Warner Bros. Pictures 1955).

71. *Id.*

72. *Id.*

73. They do not know when the bubble will burst, in other words—only that, at some point, it will. They know that anyone who keeps driving without ever stopping will go over the cliff. But all they can see for the moment is each other.

74. The longer you ride the bubble up, the more money you will make, provided you get out before the thing bursts.

75. The intended analogy here is to derivative contracts.

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different loss amounts.) But he does not know how much, if indeed any, he might get to keep.[76] Nor does he know how far he will fall before reaching the net. There might be some butterflies on the way down.[77]

Now, this is the thing to ask about this strange game: Is there any canon of rationality pursuant to which those who go over the cliff can definitively be judged to have been less rational than those who do not? Are losers, or any participants, clearly less rational than others? I think the answer is no. For there seem to be no grounds for decision making here other than those afforded by risk-taste. And risk-taste is no different from wine-taste or beer-taste where standard-form rationality is concerned.[78]

Moreover, consider now those who do not quite reach the cliff's side, but nevertheless come closer to that edge than do others: if the aim is to win more, will not *they* seem in hindsight to have been in a certain sense "*more* rational," sensible, or savvy than others, notwithstanding their having drawn closer to the uncertain "calamity" that is the drive-over?[79] We certainly seem often to make judgments of that sort, with the benefit of hindsight at any rate.

Further questions now press themselves on us: Won't anyone who refuses to play the game at all, if she or he has the opportunity, seem a bit quirky, eccentric, or backward—like one who bans laptops in classrooms—*not* to take part in it, at least for a few feet of driving?[80] And won't that especially seem so when "everyone else" seems to be playing or queuing up to play? Won't that be so particularly if, plausibly enough, we add a fourth rule to the game, to the effect that, at least short of driving over the cliff, each driver's prize money per driven foot will be an increasing function of the number of wannabe players queued up in the bullpen waiting to drive next?[81] Indeed, add a fifth rule, to the effect that

76. For he lacks knowledge not only as to what the game administrators will be willing to do, bailout-wise, but also as to how much they might be able to confiscate from other players and nonplayers to make some cliff-diving players whole or more whole.

77. It is a commonplace among central bankers that bailouts must be attended by uncertainty, lest actors succumb to moral hazard and, in the certainty that they will be rescued, act in effect to bring on the catastrophe from whence they need to be bailed out. *See, e.g.*, Thomas F. Cosimano, *The Banking Industry under Uncertain Monetary Policy*, 12 J. BANKING & FIN. 117, 123–24 (1998); Thomas F. Cosimano & John B. Van Huyck, *Central Bank Secrecy, Interest Rates, and Monetary Control*, 31 ECON. INQUIRY 370 (1993).

78. This is, of course, the standard "liberal," "instrumental," or "formal" conception of rationality. *See* MAX WEBER, ECONOMY AND SOCIETY 26 (1978) (1926).

79. "In a certain sense" because only in hindsight. For, in hindsight, there is sufficient information to assume, erroneously, that there was more than risk-taste at play in the game.

80. Same caveat as per the previous footnote applies.

81. Here is where the Ponzi element kicks in. The more coming in at the back end, the more money won by the front-enders—and those who enter the queue do so in express anticipation that

the people who win least on the way—those who drive slowly, in other words—are driven off the board and lose everything, or are in their timidity violating fiduciary duties that they owe to clients who bet on them, and it will seem positively "crazy" *not* to take part and run hard.[82]

The game I have described here in essence is just that of any asset market during times of so-called "speculative mania."[83] Once an asset price bubble is underway in today's informational environment, there seems little, if any, way of knowing just when it will burst or begin to deflate. (I will hedge that remark in a moment.) Prospective and actual participants accordingly face what F. Knight would have called radical "uncertainty," as distinguished from mere "risk."[84] That is to say, they not only do not know what particular outcomes will actually "come out," but also lack any information concerning *probability distributions* among apparently possible outcomes.[85] They are in a complete informational vacuum. In consequence, even informationally efficient markets—that is, those that impound price-relevant information very quickly through the mechanism of trading behavior by market participants—will afford no helpful clues.

Under these epistemic circumstances, it is not clearly irrational to play the game, at least for an indefinite while—particularly when there seems a good chance that casualties will be made partly or fully whole by a lender, or unconditional provider, "of last resort."[86] Indeed it seems almost irrational or eccentric *not* to play if one can, particularly while so many

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many more will be coming in behind them. Many thanks to Scott Sakiyama for encouraging me to draw out this feature of the Ponzi structure.

82. John Geanakoplos, per his role with the Ellington Group Hedge Fund, speaks compellingly of how quickly the fund lost its clients when it chose to refrain from participating in the real estate bubble of the early 2000s. Email from John Geanakoplos, Professor of Econ., Yale Univ., to Robert Hockett, Professor of Law, Cornell Univ., February 16, 2009 (on file with author).

83. There are other nice names in the literature, some of venerable vintage. Adam Smith and contemporaries referred to "over-trading." *See, e.g.*, KINDLEBERGER & ALIBER, *supra* note 1, at 28–33. What invariably followed, these folks called "revulsion" and "discredit." *Id.* It was as if they were describing the aftermath of a bender. Germans spoke of a *Torschlusspanik*—a "door shut panic." *Id.* at 28.

84. FRANK H. KNIGHT, RISK, UNCERTAINTY AND PROFIT (1921). The same form of uncertainty figures prominently not only in KEYNES, *supra* note 49, but also in his much earlier *Treatise on Probability*, largely written during the teens of the twentieth century, though not published until 1923. *See, e.g.*, ROBERT SKIDELSKY, JOHN MAYNARD KEYNES 1883–1946: ECONOMIST, PHILOSOPHER, STATESMAN (2003).

85. *See* sources cited *supra* note 84. This form of uncertainty lies at the heart of Keynes's theory of liquidity preference, and thus the rate of interest—a fact of which "neoclassical synthesizers" of Keynes from Hicks onward, in contrast to the sage James Tobin, lost sight.

86. Hence, of course, the familiar moral hazard concern invariably raised in connection with bailouts and the lender of last resort function. For more on the "lender of last resort" function, see, e.g., KINDLEBERGER & ALIBER, *supra* note 1, at 225–74.

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others are playing and winning and driving out of business those few who will not go along for the ride. It even seems rational to draw quite as close to the cliff as one can, particularly when one might plausibly assume that there will be some sign that she is nearing the cliff—a sudden loss of altitude, say, at the front end of that Chevy whose rear passenger window is flush with her driver's seat window. A highly respected Fed Chairman, after all—a Chairman, moreover, widely celebrated as a stalwart of market efficiency—has in effect told her as much.[87]

Note, moreover, that if you have got into the game fairly early, so that there are many queued up behind you and your prospective winnings accordingly have come to look very impressive, you will be especially reasonably tempted to stay on for a while. And you will be all the more seemingly reasonably tempted if the game becomes something of a cult hit. For your temptation will be vindicated by the proverbial "wisdom of crowds"—in this case, the crowds both of wannabe players queued up behind you, and of chattering talk-show guests, magazine articles, and mass-market paperback books. And if, like most people, you are relatively confident in your own abilities relative to those of others, you will simply be all the more tempted to play.[88]

Now, as noted a moment ago, what I have laid out here in stylized fashion is just the "game" structure of most so-called "speculative manias." All I have left out is what gets the game going, a few flourishes inapplicable to James Dean, and the matter of what those who act on behalf of the collectivity—the regulators—ought to do about the collective pathology into which these decentralized individually rational behaviors can aggregate. Let's fill out the picture a bit.

Typically what happens in real-life asset price bubbles is this: First comes the familiar "exogenous shock."[89] Some new discovery, invention, technology, or other change points toward new profit-making

87. Chairman Greenspan notoriously said in 2004 that home buyers would be irrationally foregoing sizeable capital gains were they to forego ballooning adjustable rate mortgages. *See Greenspan Says Personal Debt Is Mitigated by Housing Value*, N.Y. TIMES, Feb. 24, 2004, at C11, *available at* http://www.nytimes.com/2004/02/24/business/24fed.html?ex=1231131600&en=8882db4e0fc674da&ei=5070. For more on this, see *infra* Part II.A.3.

88. This well-known tendency is documented in a large body of psychological studies. It is not clearly irrational. *See, e.g.*, Baruch Fischhoff et al., *Knowing with Certainty: The Appropriateness of Extreme Confidence*, 3 J. EXPERIMENTAL PSYCHOL.: HUM. PERCEPTION & PERFORMANCE 552 (1977). For a popularly accessible survey, see HERSH SHEFRIN, BEYOND GREED AND FEAR: UNDERSTANDING BEHAVIORAL FINANCE AND THE PSYCHOLOGY OF INVESTING (2000).

89. *See, e.g.*, HYMAN P. MINSKY, *The Financial Instability Hypothesis*, *in* CAN "IT" HAPPEN AGAIN? ESSAYS IN INSTABILITY AND FINANCE (1982); *see also* KINDLEBERGER & ALIBER, *supra* note 1, at 25–30.

opportunities in the future. It might be the steam engine, the railroads, the automobile, the telegraph, the mainframe, or desktop or laptop computer. It might even be some new financial technology, we will see. Or a demographic change tending to spark more demand for some good or service.

Second, credit and equity investment begin reasonably flowing toward those who produce, sell, or otherwise appear poised to profit by the new opportunities in question.[90] The "fundamentals" of such investments, after all, look very promising. At least that is so for a while. And so they attract capital.

Third, demand for credit by those wishing to invest in the new industries in question begins to grow, and lenders grow more and more willing to oblige in exchange for a piece of the action.[91] They do so first on the security of various unrelated forms of collateral, then on the underlying assets themselves, then in time upon less, little, or no security at all. In short, "leverage" rates grow first as optimism, and then as Ponzi-style self-fulfilling optimism, begin spreading or "cascading."[92]

Once such increasingly generalized optimism and then self-fulfilling optimism kicks in, the collateralized assets that prompt spiked investment in the first place begin growing in value in virtue of that optimism itself, meaning that they can underwrite more borrowing.[93] Signs of a "positive feedback loop" begin to emerge: Demand drives levered purchases, which drive up speculative asset prices, which drive further demand—just as the characterization of "pure" speculation in the previous section would lead us to expect.[94]

Finally, the process edges toward pathological territory when borrowing flips over entirely from borrowing meant to capitalize on the "fundamental value" thrown off by the new asset or industry itself, to borrowing meant to capitalize upon *other* people's desires thus to capitalize—"Beautiful Baby" borrowing.[95] At that point, there are not simply *signs* of a positive feedback loop; the continuing price rise now *is* just that loop. A Ponzi process has fully kicked in; we are flying on afterburners.

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90. *See* sources cited *supra* note 89.

91. *Id.*

92. This is the picture portrayed by some "new institutionalist" theorists of finance. *See, e.g.*, STIGLITZ & GREENWALD, *supra* note 20; *see also* sources cited *supra* notes 20, 89.

93. *See* sources cited *supra* note 89.

94. *Id.*

95. *Id.*

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Now, when does the Ponzi portion of the process emerge? The Ponzi process kicks in once a "critical mass" of levered purchasers of the asset in question coalesces.[96] The mass is "critical" in the sense that levered purchasers no longer borrow cheaply simply in order to purchase the asset in question on favorable terms with a view to consumption or interest or dividend streams: they borrow now also—and increasingly—with a view specifically to purchase for resale, in the manner described in connection with "speculative assets" in the previous section. Now, that is to say, levered purchasers are effectively arbitraging; they are legging the spread between borrowing rates and capital appreciation rates—in effect driving the "equity premium" that has so "puzzled" some financial theorists.[97] Once that occurs, the bubble has formed and begins to inflate very quickly.[98] Credit-enabled "pure speculation" of the sort described in the previous section is now underway.

Now, crucially, as the process veers into this self-reinforcing "positive feedback" phase, no authority—in particular, no central bank—charged with controlling the money supply and/or lending or leverage rates acts on behalf of the collectivity to tighten up credit or levering. Nobody acts, that is to say, to spare us the collective pathology toward which our decentralized rational actions tend to aggregate. More and more people—even undergraduates or "Mom and Pop" types—begin to make use of cheap credit to purchase and "flip" assets, even houses, of all things.

Popular culture begins to reflect these developments too. "Market-watching" networks like CNBC, and programs like "Market Place" and "The Motley Fool," begin to proliferate on radio and television. "How to" books spread over the shelves in the pop-finance sections of bookstores. The bubble, under a less-disparaging name, becomes an object of popular attention, even rabid or morbid fascination. Media pundits increasingly talk about it—even on nonfinance programs. "Experts" on generalist talk shows extol and marvel over it. People find themselves increasingly told that they would be foolish not to take part in the party—they will be "leaving money on the table."

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96. *Id.*

97. The "equity premium puzzle" that has so vexed some financial theorists is actually not all that puzzling once we notice the prevalence of asset price bubbles. The rate of asset price inflation simply outruns that of borrowing costs for as long as the bubble inflates. For more on these matters, see, e.g., Shlomo Benartzi & Richard H. Thaler, *Myopic Loss Aversion and the Equity Premium Puzzle*, 110 Q.J. ECON. 73 (1995); Narayana R. Kocherlakota, *The Equity Premium: It's Still a Puzzle*, 34 J. ECON. LITERATURE 42 (1996); Rajnish Mehra & Edward C. Prescott, *The Equity Premium: A Puzzle*, 15 J. MONETARY ECON. 145 (1985).

98. *See* sources cited *supra* note 89.

As the asset bubble continues to grow, some begin finally—typically after a few years—to wonder how long it can last. Opinion eventually begins to divide. Some commence talking in "new era" terms, pointing to some underlying attribute of the asset or market in question that putatively distinguishes it from those associated with previous, purportedly less-sustainable bubbles. In the case of the tech stock bubble of the late 1990s, for example, the novel development was that of new information, communications, and computing technologies, which some said rendered accelerating growth rates in business productivity inevitable for many years to come.[99] Even Fed Chairman Greenspan, of all people, joined this particular "new paradigm" bandwagon—surprisingly soon after his widely–quoted, express concern over "irrational exuberance."[100]

In other cases, like those more recently of petroleum or real estate, the special feature called to attention is the finitude of supply of the asset in question, conjoined with the indefinite extensibility of the population that will demand it—Ricardian "marginal land rents"[101] and Malthusian "geometric population growth" theory[102] combined, it would seem. People say real estate "can only go up," or that petroleum prices are bound to keep rising. They say it is inevitable, and note that the prices in question "have never gone down" or have never gone down for more than a few quarters. Chairman Greenspan seems to have joined the bandwagon, too, as did the bond-rating agencies.[103] So did the ubiquitous, hyped book titles and television programs: *The Automatic Millionaire Homeowner*, Flip That House!, and so on—real titles all.

It does not seem to be widely appreciated that earlier bubbles, going way back, have in all cases featured *like* forms of "new era" talk to those that we have recently endured.[104] Look back at past manias, and the words used ring eerily familiar. Probably the least obscure such case from the not-so-distant past is that of Irving Fisher of Yale, by far the most widely known and respected American economist of his day, one indeed still widely esteemed for the originality of his contributions to monetary theory and the theory of index numbers, among other things.[105] Fisher was, alas,

99. *See, e.g.*, *infra* note 100.
100. *See, e.g.*, Adam Zagorin, *Greenspan and His Friends*, TIME, Nov. 10, 1997, at 46, 48.
101. *See* RICARDO, *supra* note 59, at 44–61.
102. *See* T.R. MALTHUS, AN ESSAY ON POPULATION (E.P. Dutton 1914) (1798).
103. *See, e.g.*, *supra* note 88; *see also infra* Part II.B.
104. See KINDLEBERGER & ALIBER, *supra* note 1, for many droll examples.
105. *See, e.g.*, IRVING FISHER, THE MAKING OF INDEX NUMBERS: A STUDY OF THEIR VARIETIES, TESTS, AND RELIABILITY (1922); IRVING FISHER, THE THEORY OF INTEREST: AS DETERMINED BY IMPATIENCE TO SPEND INCOME AND OPPORTUNITY TO INVEST IT (1930).

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what turns out to have been less original when he was widely quoted as saying, in October 1929 no less, that "[s]tock prices have reached what looks like a permanently high plateau."[106]

Esteemed professors of economics at Harvard and Princeton fared little better than Fisher that year. Professor Lawrence, at Princeton, averred in September that stocks were not overvalued. He then provocatively added, as if in anticipation of a book title that would ring popular seventy-five years thence, "[w]here is that group of men with the all-embracing wisdom which will entitle them to veto the judgment of th[e] intelligent multitude?"[107] The Harvard Econometric Society did not disagree and went so far as to say, shortly after the October crash, that "a severe depression like that of 1920–21 is outside the range of probability. We are not facing a protracted liquidation."[108] As Galbraith archly notes, they continued to say so right up to the point that the market was liquidated.[109]

Few, then, seem to notice during periods of speculative mania that those plausible long-run trend-lines of the sort upon which "new era" stories implicitly trade are perfectly compatible with short-term and even medium-term fall backs en route—just as we noted in the previous section that the existence of plausible "fundamental" values is perfectly consistent with somewhat more volatile, and not necessarily irrational or informationally inefficient, market valuations. Most think instead like the folk who have noticed that the summer of 2008 was cooler than summer of 2005, then pronounce global warming a hoax. And they call the few who express caution—those who see pyramiding or "irrational exuberance"—"Cassandras" or "Chicken Littles."

Leverage-wise, the bold, in the meanwhile, grow ever more extended. The borrowing that fuels bubbles has been helpfully taxonomized into three phases.[110] During the first phase, borrowers borrow against more- or less-assured future cash flows. In the second phase, assured future cash flows do not suffice to cover debt repayment obligations; borrowers must refinance either by rescheduling prior obligations or undertaking new ones. Finally, in the third phase, debt obligations can be covered only if the borrower succeeds in selling the asset she purchased with the borrowings at a significantly appreciated price.

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106. The line is often quoted. In this case, I quote from GALBRAITH, *supra* note 6, at 70.

107. *Id.* at 70–71. Perhaps an early appeal to "the wisdom of crowds."

108. *Id.*

109. *Id.*

110. *See* sources cited *supra* note 89; *see also* IRVING FISHER, THE DEBT DEFLATION THEORY OF DEPRESSIONS (1933).

Third-phase debt is accordingly sustainable only for as long as the market for the asset in question continues to rise, and is forthcoming only for as long as lenders believe it will continue to do so. Debt in this case, therefore, rests on a spontaneously emergent Ponzi process of the kind described above. Once the pool of prospective new entrants to this market approaches exhaustion, therefore, such that prices can no longer rise, third-phase debtors quickly prove to be overexposed, their short positions precarious. Asset markets are set for a crash, credit markets for a crunch.

3. Minsky Moments: What Goes Up Must Come Down the Same Pathway

The three-phased leverage cycle just rehearsed is often associated with the writings of Hyman Minsky—often disparaged in his day as precisely the sort of Cassandra I mentioned that bubble boosters are prone to mock.[111] In effect, the "manic" hump of the credit cycle that he schematized is just the flip side of those depressed "animal spirits" that Keynes highlighted as being at work in the slump of the 1930s.[112] Minsky's signal contribution was to link those depressed spirits diagnosed by Keynes symmetrically up with the manic ones that culminate in the crashes that occasion them.[113]

A student of Schumpeter's—hence derivatively of Wicksell and indeed even Fisher—as well as an enthusiastic interpreter of Keynes, Minsky was particularly attentive to the role of credit cycles and debt structures both in the run up to, and in the aftermath of, all asset price crashes.[114] Like Fisher, he emphasized the homology between debt-driven asset inflations on the one hand, and what amount to debt-canceling "corrective" deflations on the other. Only the "directions" change, he maintained; structure abides.[115] Like Schumpeter, moreover, Minsky took this cycling to be, in a certain sense, unavoidable in the absence of attentive regulation—in effect, "hard-wired" into any capitalist economy featuring money, credit, and financial markets.[116] He accordingly emphasized, like

111. *See, e.g.*, HYMAN P. MINSKY, JOHN MAYNARD KEYNES (1975); HYMAN P. MINSKY, STABILIZING AN UNSTABLE ECONOMY (1986). The model that he developed is now popularly known as the "financial instability hypothesis." It is thought to be a competitor to the so-called "efficient capital markets hypothesis." That is a mistake.

112. *See* KEYNES, *supra* note 49, at 161–63.

113. *See* MINSKY, *supra* note 89.

114. An early version of this picture is presented in Fisher's "Debt Deflation Thesis." *See* IRVING FISHER, BOOMS AND DEPRESSIONS: SOME FIRST PRINCIPLES (1932).

115. *See* sources cited *supra* note 89.

116. *See* JOSEPH A. SCHUMPETER, BUSINESS CYCLES: A THEORETICAL, HISTORICAL, AND

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Keynes, the crucial credit-modulatory role that central banks had to play in advanced financial economies in regulating the rate of credit—"Regulation as Modulation," I will call it below in Part IV.[117]

In effect, then, Minsky viewed the role of the central bank much as did William McChesney Martin, Jr., Federal Reserve Chairman from the Truman to the early-Nixon eras.[118] Martin is known as the Federal Chairman who first articulated the Treasury Department's role as that of "leaning against the wind." "The function of the Federal Reserve," he once memorably observed, "is to take away the punch bowl just as the party is getting good."[119] Why? Because, as just suggested, credit-expansion-fueled speculative asset bubbles of the sort described above invariably cease, then reverse into devastating credit, and then productive contractions. Hereof the storied "Minsky Moment" of which we read much in the press these days.[120]

A Minsky Moment is simply an inflection point between exuberantly protracted asset price rises on the one hand, and depressively protracted asset price falls on the other.[121] It is reached when the credit-fueled Ponzi Process that is the asset price rise has been spent.[122]

When and how does that happen? In essence, like this: As market efficiency advocates themselves emphasize, arbitrage opportunities ultimately are exploited.[123] Spreads accordingly close. The reason is obvious; as more and more parties borrow in order to purchase appreciating assets, they draw borrowing rates higher.[124] Rentable money, though supply can grow steadily, is not infinitely extensible. Nor is it itself a speculative asset. It is, rather, more like those "normal goods" and services described in the previous section; as demand continues to grow and supply limits come to be approached, prices rise. The spread between interest and capital gains narrows.

STATISTICAL ANALYSIS OF THE CAPITALIST PROCESS (1939); JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY (1942).

117. *See* MINSKY, *supra* note 89.

118. *See, e.g.*, *Business: The Martin Era*, TIME, Feb. 2, 1970, *available at* http://www.time.com/time/magazine/article/0,9171,878186,00.html; Melody Petersen, *Willian McChesney Martin, 91, Dies; Defined Fed's Role*, N.Y. TIMES, July 29, 1998, *available at* http://www.nytimes.com/1998/07/29/business/william-mcchesney-martin-91-dies-defined-fed-s-role.html?pagewanted=1.

119. MARTIN MAYER, THE FED: THE INSIDE STORY OF HOW THE WORLD'S MOST POWERFUL FINANCIAL INSTITUTION DRIVES THE MARKET 165 (2001).

120. Justin Lahart, *In Time of Tumult, Obscure Economist Gains Currency*, WALL ST. J., Aug. 17, 2007, at A1, *available at* http://online.wsj.com/public/article/SB118736585456901047.html.

121. See sources cited *supra* note 89.

122. *Id.*

123. *Id.*

124. *Id.*

At some point, those who have been in on the spread-closing game for a while begin to take profits and sell out.[125] As credit limits are closed in on, more and more erstwhile market participants do the same. At the same time, upper limits on new prospective market participants begin to be reached.[126] At some point, the value of exits comes to equal, then flickeringly to exceed, the value of entries.[127] The inflection point has been reached, and so-called "financial distress" ensues.[128] The "distress" period can last for a while. People begin to contemplate at least the possibility that they might not be able to realize sufficient capital gains through asset sales to cover the debt obligations they have incurred in taking positions in the market in question.

Often during these periods of flicker, one begins to hear reassuring words from political leaders, central bankers, and other financial authorities.[129] The central bank might lower interbank lending rates and ambiguously promise lines of credit to unnamed large institutions should they get into trouble. Executives and legislatures speak of tax cuts, government expenditures, and other stimulants. We know the drill. Sounds like 2007.

At about this point in the process, the disturbing suggestion that the speculative buildup that has culminated in the plateau might have been the product of a Ponzi process begins to grow more and more widespread. Those who once were called "Cassandras" come to look more like they might have been "prophets."[130] Some say, in triumph, "I told you so." Others say, "what next?"

The same perception that the party may be nearing its end, meanwhile, often finds itself reinforced by the many scandals that typically emerge during these critical inflection periods.[131] For as the boom phase nears its end prior to plateauing, it is common for some who have grown overextended to begin to cut corners, then more than corners. At first these folk talk themselves into believing that they will "pay it all back." But, in fact, many just dig themselves deeper and deeper, to the point that they

125. *Id.*
126. *Id.*
127. *Id.*
128. A Minsky coinage. *See* MINSKY, *supra* note 111, at 118.
129. *Id.*; *see also* KINDLEBERGER & ALIBER, *supra* note 1, at 25–30.
130. This has been, for example, Professor Shiller's recent lot. *See, e.g.*, SHILLER, IRRATIONAL EXUBERANCE, *supra* note 9 (blurb on back cover).
131. *See* KINDLEBERGER & ALIBER, *supra* note 1, at 25–30; MINSKY, *supra* note 89; *see also* KINDLEBERGER & ALIBER, *supra* note 1, at 165–202. A contemporary example would be the Madoff scandal.

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cannot delude even themselves any longer. It is almost surprising how consistent this pattern has been over the centuries. Truly, it seems, *plus ça change*.

The stories of scandal associated with past booms' inflecting to busts are, in fact, fully as common as, and often even more notorious than, the "new era" stories typically associated with the same mentioned above.[132] Indeed, the name "Ponzi" itself comes to us thanks not only to a Boston stock swindle, but also to a Florida real estate scam brought to light shortly before the 1929 stock market crash.[133] Yes, in both cases *that* Ponzi—Charles Ponzi.[134]

Now as a matter of mechanism, what is crucial at these plateaus is that all players gradually grow mindful of one consequence of the Ponzi process's having drawn to its limiting point: Each knows, first, that *if* people *do* begin massively selling their holdings of the asset in question, she herself will do best to leave first. For as has commonly been said of these circumstances in prior iterations in multiple jurisdictions, *Sauve qui peut*, *den Letzen beißen die Hunde*, or "Devil take the hindmost." And yet each knows also, second, both that should a mass exit begin, one will be lucky indeed to land front of the queue; and so long as no one does begin selling, most will be better off.

And so now, of course, the "game" we are playing is not "Chicken" as before, but something more like traditional "Prisoner's Dilemma." As before, our problem is not one of rationality or efficiency, but of collective action. But now we are looking at downsides, not up; we are at the cliff's edge. And as it happens, just as in most empirical runs of the Prisoner game,[135] most players *do* ultimately "defect." It is only a matter of time. "Stampeding" and "panic selling" begin.

The picture once panic selling begins is familiar: It is just that of the "bank run" familiar to all Americans prior to the development of deposit insurance in the early 1930s. Probably the most memorable image is that in Frank Capra's film, *It's a Wonderful Life*.[136] It is also that, alas, of what we have been watching in real estate markets since late 2006, as well as in

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132. See KINDLEBERGER & ALIBER, *supra* note 1, at 165–202 for a catalogue of examples. *See also* GALBRAITH, *supra* note 1; ALLEN, *supra* note 1.

133. *See, e.g.*, GALBRAITH, *supra* note 1, at 4–5.

134. The tale is well told in FREDERICK LEWIS ALLEN, ONLY YESTERDAY: AN INFORMAL HISTORY OF THE NINETEEN-TWENTIES (1931), a forgotten work that bears rediscovery today.

135. *See, e.g.*, HANDBOOK OF EXPERIMENTAL ECONOMICS 665–70 (John H. Kagel & Alvin E. Roth eds., 1995).

136. IT'S A WONDERFUL LIFE (Liberty Films 1946), *available at* http://www.youtube.com/watch?v=MJJN9qwhkkE.

real estate-linked markets since 2007. Those are markets that used to be dominated, so far as credit is concerned, by well-regulated, deposit-insured thrifts and commercial banks. But they are markets that, since the mid-1990s, have featured a huge, scarcely regulated industry of so-called "mortgage banks." To this unglamorous story we now turn.

B. Bubbles Just Happened: Of Easy Credit, New Mortgage Products, House-Flipping, Foreclosure, and Global Contagion

The model of asset price bubbles just schematized can be seen at work in most past financial crises.[137] And odds are, it is only a matter of time before the U.S. experience of the past decade officially joins the parade of specimens in works of financial history. In this Subpart, I will explain why. I will first briefly recapitulate the past decade's most salient events, as selected by the model just sketched, and then proceed to solutions in Part III. As ever, the past decade's story appears to have begun with genuinely new, value-adding opportunities, which cheap credit and loose money then converted to untethered, Ponzi-style excess.

1. The "Greenspan Put": New Techs, New Stocks, New Eras, New Money

Above, we noted that asset price bubbles typically begin with exogenous developments that attract new investment.[138] In our recent financial history, the catalytic moments in question appear to have been first the development of home computing in the 1980s, then the privatization of two military communications infrastructures—the World Wide Web and Internet—in the mid-1990s. The latter medium "took off" in 1995 with the switch to private control, thanks in part to the spread of inexpensive computing technology in the decade before.[139]

The upshot was that when Netscape, which developed the first popularly accessible web browser, went public in mid-1995, its stock price more than doubled the first day.[140] The year 1995 accordingly makes for a plausible point at which to date the onset both of the 1990s "dot com"

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137. *See, e.g.*, KINDLEBERGER & ALIBER, *supra* note 1 (the best survey available).

138. *See supra* Part II.

139. *See, e.g.*, Rajiv C. Shah & Jay P. Kesan, *The Privatization of the Internet's Backbone Network*, http://www.governingwithcode.org/journal_articles/pdf/Backbone.pdf (last visted May 18, 2010).

140. *See* MORRIS, *supra* note 15, at 32; WILLIAM A. FLECKENSTEIN WITH FREDRICK SHEEHAN, GREENSPAN'S BUBBLES: THE AGE OF IGNORANCE AT THE FEDERAL RESERVE 58 (2008).

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bubble, and of the broader stock market boom that accompanied it. These bubbles, in turn, we shall see to have fed directly into our recent real estate boom—in effect, simply reversing the order in which stock and real estate bubbles inflated and burst in the late 1920s.

Commencing with Netscape's IPO, investment in tech stocks rose steadily, then rapidly, throughout the second half of the 1990s, as did investment in stocks more generally.[141] Initially, and in keeping with our model, these rises would have seemed warranted even by "fundamental" value. As more and more firms learned how to employ new computing and communications technologies, they became more efficient. Productivity grew at historically high annual rates over the second half of the 1990s, at over 4%.[142] It was only natural in such circumstances that firms would attract increased investment capital, and that the firms that seemed most responsible for the "miracle"—tech firms—would attract capital disproportionately.

At the same time, there were other reasons to expect stock prices to rise rapidly. Some of these were arguably still "fundamental" in character, others less so. For one thing, American firms over the course of the late 1980s and early 1990s increasingly had adopted Japanese management and production techniques, which independently improved productivity growth.[143] That was arguably nearly as "fundamental" a change as the move to new computing and communications technologies. Somewhat less fundamental—or, at any rate, less permanent—however, was a critical *demographic* development: Baby boomers began entering their forties and fifties, typically the most productive working years in one's life, during this period.

The age shift affected more than productivity, however; it also affected investment preferences and patterns.[144] As they aged, baby boomers thought increasingly about retirement savings and sought sensible investment vehicles for those savings. It is no accident that the mutual fund boom, along with changes to the tax code meant to encourage retirement investment, commenced during this same period.[145] Against this backdrop, it was natural not only that more people would be looking for securities in which to invest, but also that some people would begin

141. *See* FLECKENSTEIN WITH SHEEHAN, *supra* note 140.

142. MORRIS, *supra* note 15, at 32.

143. *See, e.g.*, JEFFRY LIKER, REMADE IN AMERICA: TRANSPLANTING AND TRANSFORMING JAPANESE MANAGEMENT SYSTEMS (1999).

144. *See infra* note 145.

145. See MATTHEW P. FINK, THE RISE OF MUTUAL FUNDS: AN INSIDER'S VIEW (2008), on this boom.

betting on the prospect of asset price rises fueled by these demographic developments themselves. That is to say, it was natural that "Beautiful Baby" trading of the kind described in our model—trading on expectations of other people's trading—would ensue.

Not surprisingly, then, securities prices did rapidly accelerate upwards over the course of the second half of the 1990s.[146] The Dow Jones, S&P 500, and NASDAQ Composite Indices all rose steadily through 1995, more rapidly through most of 1996 and 1997, and then precipitously in the last years of the 1990s. Here are the trend lines:

146. *See infra* note 148.

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FIGURE 1: DOW JONES, S & P 500, NASDAQ COMPOSITE TREND LINES, 1901–2009

Dow Jones Industrial Average: Annual Returns							
Year	Percent	Year	Percent	Year	Percent	Year	Percent
1901	-8.7	1936	24.8	1971	6.1	2006	16.3
1902	-0.4	1937	-32.8	1972	14.6	2007	6.4
1903	-23.6	1938	28.0	1973	-16.6	2008	-33.8
1904	41.7	1939	-3.0	1974	-27.6	2009	18.8
1905	38.2	1940	-12.7	1975	38.3		
1906	-1.9	1941	-15.3	1976	17.9		
1907	-37.7	1942	7.6	1977	-17.3		
1908	46.6	1943	13.8	1978	-3.1		
1909	15.0	1944	12.1	1979	4.2		
1910	-17.9	1945	26.7	1980	14.9		
1911	0.4	1946	-8.1	1981	-9.2		
1912	7.6	1947	2.2	1982	19.6		
1913	-10.3	1948	-2.1	1983	20.3		
1914	-30.7	1949	13.1	1984	-3.7		
1915	81.7	1950	17.4	1985	27.7		
1916	-4.2	1951	14.4	1986	22.6		
1917	-21.7	1952	8.4	1987	2.3		
1918	10.5	1953	-3.8	1988	11.8		
1919	30.5	1954	44.0	1989	27.0		
1920	-32.9	1955	20.8	1990	-4.3		
1921	12.7	1956	2.3	1991	20.3		
1922	21.7	1957	-12.8	1992	4.2		
1923	-3.3	1958	34.0	1993	13.7		
1924	26.2	1959	16.4	1994	2.1		
1925	30.0	1960	-9.3	1995	33.5		
1926	0.3	1961	18.7	1996	26.0		
1927	28.8	1962	-10.8	1997	22.6		
1928	48.2	1963	17.0	1998	16.1		
1929	-17.2	1964	14.6	1999	25.2		
1930	-33.8	1965	10.9	2000	-6.2		
1931	-52.7	1966	-18.9	2001	-7.1		
1932	-23.1	1967	15.2	2002	-16.8		
1933	66.8	1968	4.3	2003	25.3		
1934	4.1	1969	-15.2	2004	3.1		
1935	38.6	1970	4.8	2005	-0.6		
The annual gain or loss in the Dow Jones Industrial Average from 1901 to present. Dividends are not included.							

S&P 500 Index: Annual Returns 1951–2009							
Year	Percent	Year	Percent	Year	Percent	Year	Percent
1951	16.3	1970	0.1	1989	27.3	2008	-38.5
1952	11.8	1971	10.8	1990	-6.6	2009	23.5
1953	-6.6	1972	15.6	1991	26.3		
1954	45.0	1973	-17.4	1992	4.5		
1955	26.4	1974	-29.7	1993	7.1		
1956	2.6	1975	31.5	1994	-1.5		
1957	-14.3	1976	19.1	1995	34.1		
1958	38.1	1977	-11.5	1996	20.3		
1959	8.5	1978	1.1	1997	31.0		
1960	-3.0	1979	12.3	1998	26.7		
1961	23.1	1980	25.8	1999	19.5		
1962	-11.8	1981	-9.7	2000	-10.1		
1963	18.9	1982	14.8	2001	-13.0		
1964	13.0	1983	17.3	2002	-23.4		
1965	9.1	1984	1.4	2003	26.4		
1966	-13.1	1985	26.3	2004	9.0		
1967	20.1	1986	14.6	2005	3.0		
1968	7.7	1987	2.0	2006	13.6		
1969	-11.4	1988	12.4	2007	3.5		

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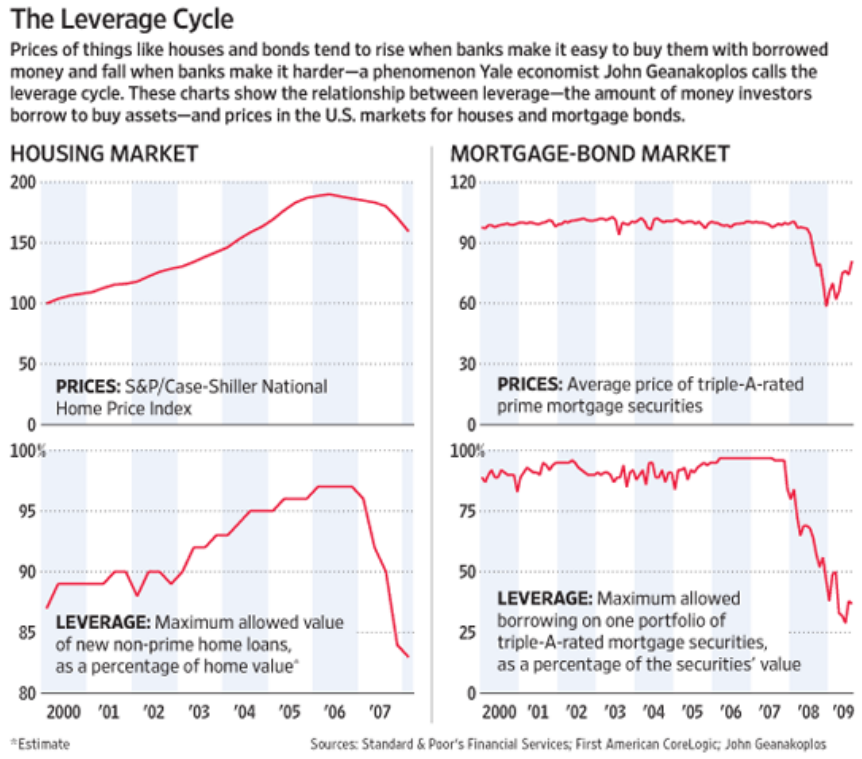
These lines ought to give pause when considered against the backdrop of the model of asset price bubbles and bursts sketched in Part II.A. By the lights of that model, it is natural to anticipate growth in borrowing rates, as stock price rises draw the attention of "Beautiful Baby," then Ponzi-style investors. And so, indeed, things appear to have transpired, as measured by leverage ratios among individuals and financial institutions:

FIGURE 2: LEVERAGE RATE TREND LINES, 1995–2000



Now, in light of these trend lines, one might have expected the Fed—at any rate, William McChesney Martin's "lean against the wind" Fed—to step in with a view to *modulating* market behavior. At least that would be so were the Fed to view itself as a collective actor, charged with addressing the collective action problem that we saw asset price bubbles effectively to be in Part II.A. It could have played that role by imposing higher capital requirements upon, or by raising the federal fund rate charged to, depository institutions. It could also have done so by

tightening the money supply. One might also have expected that the Securities and Exchange Commission (SEC) before 1999, and perhaps the Fed after 1999, would tighten up leverage limits on investment banks. In fact, however, this was a period that saw both continued financial deregulation and a pronounced tendency by the Fed to keep interest rates low and the money supply growing: the story of the much-storied "Greenspan Put."[147]

In August 1995, the month of the Netscape IPO mentioned a moment ago, the Fed Open Market Committee (FOMC) dropped the benchmark federal funds rate from 6.00% to 5.75%.[148] The rate continued to drop thereafter, notwithstanding continued price rises on the securities markets, for the next year and a half.[149] The March 1997 FOMC meeting brought a modest rise in the rate to 5.5%, but this was quickly followed by three successive cuts over the following fifteen months.[150]

By the end of 1997, meanwhile, the S&P 500 was up 31% for the year, and over 100% relative to where it had been when the rate-cutting began in mid-1995.[151] By mid-1998, the same index had gained another 21%, by which point the Fed had eased up the rate again to 5.5%.[152] With the collapse of the Russian ruble and the near-failing of the Long Term Capital Management Hedge Fund in the early autumn of that year, however, the Fed acted preemptively to maintain market confidence by cutting the rate once again to 5.25%.[153] Though the markets had quickly rebounded by October, the FOMC surprised everyone with an extraordinary follow-up cut to 5%.[154]

Thus was born the popular notion of the "Greenspan Put."[155] This was the name given to the growing determination by market investors, over the course of the late 1990s, that the Fed would do nearly anything to prevent a serious market decline.[156] This meant in effect that those investors could take on as much risk as they pleased in betting on continued market price rises. This determination proved for a long while to be correct, with predictable consequences: Although by mid-October the markets were up

147. *See, e.g.*, *Greenspan Put*, INVESTOPEDIA, http://www.investopedia.com/terms/g/greenspanput.asp (last visited May 18, 2010).
148. *See, e.g.*, FLECKENSTEIN WITH SHEEHAN, *supra* note 140, at 33.
149. *Id.*
150. *Id.* at 45.
151. *Id.* at 46.
152. *Id.* at 50.
153. *Id.* at 51.
154. *Id.* at 55.
155. *See supra* note 147.
156. *Id.*

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by over 3% for the year, and two months later were up 5% more, the FOMC nonetheless cut rates again, to 4.75%, in November 1998.[157]

Now began the switch, in effect, to "afterburners," as described per the model of Part II.A. Tech stocks, in particular, began to rise precipitously, largely on borrowed money, at the end of the 1990s.[158] A few well-known examples: Theglobe.com's IPO, in mid-November, saw the price of its stock rise by over 600% in one day.[159] The day after Thanksgiving that year, all fifteen of the NASDAQ's top-gaining stocks rose more than 45%.[160]

The new year saw the trend accelerating. The average share price gains for tech firms going public in the first quarter of 1999 were as follows: In January, 271%; in February, 145%; in March, 146%.[161] By mid-year, the NASDAQ had more than doubled relative to the previous mid-October measure, when the FOMC had begun its run of rate-cutting.[162] Finally, the Fed began raising rates incrementally upward again, to 5.25% in August, then 5.5% in November 1999.[163]

By this point, however, incremental Fed funds rate rises were apparently being ignored.[164] This is not very surprising. For one thing, investors had by now come to anticipate that the Fed would simply lower rates again at the first sign of market dipping.[165] That was the "put." For another thing, by this point, stock prices were rising so rapidly that a small hike in interest rates would have appeared negligible; tech IPO stocks were routinely rising by hundreds of percentage points on their very first days.[166] Against that sort of rise, what's another quarter percent interest rate rise? After all, breaking the back of the 1970s consumer price inflation had required Paul Volcker's Fed to raise rates to 18%.[167]

At the same time, moreover, in anticipation of "Y2K" worries, the Fed had been pumping newly printed *money* into the economy from September through November of 1999.[168] The money supply grew by $147 billion

157. FLECKENSTEIN WITH SHEEHAN, *supra* note 140, at 59.
158. *Id.*
159. *Id.* at 54.
160. *Id.* at 60.
161. *Id.* at 63.
162. *Id.* at 68–70.
163. *Id.*
164. *Id.*
165. *Id.*
166. *See, e.g.*, *id.* at 64–65.
167. *Id.*
168. *Id.*

during the period—a 14% annualized growth rate.[169] The last two months of the year saw that rate grow yet higher, to a 44% annualized rate.[170] This, for its part, fed into a longer-running Fed trend of this period. From early 1996 to late 1999, the money supply grew by $1.6 trillion, about 20% of GDP.[171] This growth would have fueled the stock price bubble as readily as low borrowing rates. And it, too, began at about the same time as the Internet privatization mentioned above.

Old benchmarks of "fundamental" value in the case of stocks, meanwhile, did not appear to warrant the Fed's willingness to ignore stock price inflation while celebrating low consumer price inflation; price to earning ratios grew to unheard-of heights during this period.[172] Sober *éminences grises* like Paul Volcker increasingly worried aloud that tech stock prices, growing as rapidly as they were, were associated with firms that had yet to show profits.[173] Similar concerns were raised in this period by respected financial economists like John Geanakoplos and Robert Shiller.[174] It took a while, but in time, they began to be heard.

It gradually came to be clear by the early months of 2000 that the past several years had been witnessing a classic credit- and loose-money-fueled stock price bubble. The NASDAQ had risen over 900% relative to where it had been five years earlier.[175] Nevertheless, by early February, the FOMC still had not raised rates beyond 5.75%—where they had been at the time of the Netscape IPO referenced above.[176] That same week, the NASDAQ rose 9%—its largest weekly gain in twenty-five years.[177] It continued to rise until March 10th, the day of its peak. That day, at 5048, it had risen 24% of its level on the first day of the year. But over the following two months, it lost 47% of its value.[178] The "Minsky Moment" had been reached in the tech stock markets.

Stocks more generally, not just tech stocks, began suffering, too. In the first days of 2001, the S&P 500 dropped 10%.[179] The FOMC responded by

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169. *Id.* at 74.
170. *Id.* at 78.
171. *Id.* at 76.
172. *Id.*
173. *See, e.g.*, *Disagreeing with Jeremy Siegel*, Dec. 7, 2006, http://runningofthebulls.typepad.com/toros_running_of_the_bull/2006/12/disagreeing_wit.html.
174. *See, e.g.*, SHILLER, IRRATIONAL EXUBERANCE, *supra* note 9; Mark Whitehouse, *Crisis Compels Economists to Reach for New Paradigm*, WALL ST. J., at A18, *available at* http://online.wsj.com/article/SB125720159912223873.html.
175. FLECKENSTEIN WITH SHEEHAN, *supra* note 140, at 84.
176. *Id.* at 85.
177. *Id.*
178. *Id.* at 100.
179. *Id.* at 111.

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cutting the lending rate again, to 6%, after a sequence of incremental hikes that had been imposed in the final months of the bubble that peaked in 2000.[180] The stock markets wavered thereafter for the first half of the year.[181] It seemed that their bubble potential had been spent. That raised a question: What else remained to maintain growth in the broader economy? The answer was real estate.

2. *Flip That House: When Houses No Longer Are Homes*

As the equity bubble inflated over the course of the late 1990s, spillover from the "wealth effects" experienced by equity holders gradually grew discernible in the real estate markets. During the first half of the decade, growth in mortgage debt outstanding grew at an average annual rate of 3.7%.[182] That rate grew to 6.2%, however, in 1996 and 1997, then to 9.5% by 1998.[183] By late 2000, total mortgage debt in the United States was 50% higher than it had been five years before.[184]

Wall Street took notice of these developments just as it did that of growing interest in tech and other stocks. As long-term interest rates descended and the money supply grew during the latter half of the 1990s, all while stock prices shot upward and home prices edged in the same direction, financial firms began developing and marketing new debt products.[185] In a sense, this was again quite predictable because the prices of homes—since the 1930s, by far the most highly levered purchases most Americans make—are highly responsive to borrowing costs.[186]

An early new debt product developed in these years was the "refi," a means of converting home equity growth into cash.[187] With lower interest rates, homeowners could borrow higher loan amounts on the same monthly payment arrangements, pay off their previous home loans, and pocket the difference. Refinancing transactions, valued at $14 billion in 1995, leapt to nearly a quarter-trillion over the ensuing decade.[188] As demand for refis grew, so did demand for more rapid means of processing

180. *Id.* at 114.
181. *Id.* at 120.
182. *Id.* at 129.
183. *Id.*
184. *Id.*
185. *Id.*
186. See *supra* note 7 on this point.
187. *See* MORRIS, *supra* note 15, at 68.
188. *Id.*

loan applications.[189] Credit scoring came increasingly to be automated, and decreasingly to be subject to careful verification.[190]

The tasks of credit scoring, and then credit origination, came increasingly to be *farmed out* as well. A new industry of federally unregulated "mortgage banks," mortgage brokers, and other mortgage originators began growing rapidly in the second half of the 1990s.[191] We know some of the names now: Countrywide, Indy Mac, etc. But in the early days, these firms grew in the shadows—in the vacuum, really—left by the hosts of failed thrift institutions that went under during the S&L crisis of the late 1980s and early 1990s, itself the product of deregulation. It is only now that we are coming to appreciate the full significance of this shift; the shift from mortgage-finance originally handled primarily by well-regulated, community-oriented depository institutions that retained the mortgages they originated, to a new industry of unregulated, "countrywide" institutions out to sell what they originated to secondary holders.

With increasing numbers of unregulated mortgage originators came an increasing number of yet newer financial products, developed with the aim of bringing yet more people into the levered home-buying markets.[192] Adjustable rate mortgages (ARMs), which offered low front-end "teaser" rates that later "ballooned," were developed to attract less-wealthy buyers into the home markets.[193] As home prices accelerated over the second half of the 1990s and then especially in the early 2000s, these debt structures came to look less imprudent than they might have looked in the past.[194] It became increasingly plausible to believe that one might "refi" one's mortgage before higher payment rates kicked in. Indeed, as noted earlier, Fed Chairman Greenspan himself was saying as much by the early 2000s.[195]

As home prices continued to rise through the late 1990s and early 2000s, mortgage originators naturally looked for new prospects to whom to lend. If that were not motive enough, the investment banks and other financial intermediaries, who were discovering the virtues of MBSs—essentially, rights to portions of payment streams generated by mortgages—gradually added to pressures to find new borrowers. The so-

189. *Id.*
190. *See id.*
191. *Id.*
192. *Id.*
193. *Id.*
194. *Id.*
195. *See supra* note 34.

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called "securitization" of mortgages did not, contrary to popular belief, begin during this period; that began in the late 1930s, as part of the tale told in the next Part.[196] But in the late 1990s and early 2000s, MBSs became a favored investment vehicle.[197] For one thing, the United States had not seen large numbers of mortgage defaults since the 1930s—largely thanks to the programs discussed below in Part III.[198] For another thing, once home prices began to rise quickly, profits on lending grew, too; the safe form of investment that was the MBS became likewise a lucrative one.

Now, in the case of the U.S. housing markets, the classic positive feedback loop described in the model presented in Part II.A appears to have kicked in by the early 2000s. Increasingly, people began borrowing to buy homes less with a view to inhabiting them than with a view to "flipping" them—to selling them at a profit as home prices rose. By 2005, fully 40% of all U.S. home purchases had come to be investment purchases—bought with the intention of resale.[199] That fact showed up in a particularly telling pair of numbers: Whereas in 1990, there was a total of $3.8 trillion in outstanding mortgage debt in the United States, in the two years from 2003 to 2005, mortgage debt *grew* by nearly that amount.[200]

The "subprime" loans of which we have heard so much in recent years appear to have gained popularity as a response to the housing markets entering this "positive feedback loop" phase.[201] By about 2003, the market for credit to low-risk borrowers had begun to show signs of saturation. Subprime lending—essentially, loans to people with poor credit histories, unreliable incomes, or both—grew markedly from 2001 to 2005. Annual volume was $145 billion in 2001.[202] It was over $625 billion in 2005, accounting for over 20% of home lending in the years 2004–2006.[203] That compared to less than 3% in 1997.[204] Over a third of the subprime loans extended in 2004–2006, moreover, were for 100% or more of home value—in effect, an infinite leverage rate.[205] The worst of these loans came to be known as "Ninjas," short for "no income, no job, no assets."[206]

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196. *See infra* Part III.
197. *See* MORRIS, *supra* note 15, at 70.
198. *Id.*; *see also infra* Part III.
199. *See* FLECKENSTEIN WITH SHEEHAN, *supra* note 140, at 158.
200. *Id.*
201. MORRIS, *supra* note 15, at 70.
202. *See id.*; SHILLER, IRRATIONAL EXUBERANCE, *supra* note 9, at 57.
203. MORRIS, *supra* note 15, at 70.
204. *Id.*
205. *Id.* at 71.
206. *Id.*

Ordinarily, of course, lending on such terms would not have been thought prudent—nor would such borrowing. But again, when prices are growing at double-digit rates, borrowers and lenders, not unreasonably, assume that refinancing on the basis of growing collateral values will be available. So do others. Add in the fact that the two largest mortgage securitizers—Fannie Mae and Freddie Mac, more on which in Part III—had historic missions to boost home-ownership among lower-income Americans, and it becomes much less surprising that so much risky lending and borrowing occurred in the early 2000s.

Against this backdrop, Fed monetary and interest rate policy during the period looks all the more ominous. As noted in the previous section, the burst of the tech stock bubble in 2000 led to a difficult period for securities markets. By mid-2001, the NASDAQ was down 34% for the year, the S&P down 18%.[207] The FOMC continually cut interest rates in response, to the point that the Fed funds rate was down to 3.5% by September of 2001.[208] It seems largely by now to have been forgotten that, immediately following the terrorist attacks of that month, talk was not of the possibility of a loss of confidence in the securities markets. The concern was, rather, the possibility of an *extension* of a "corporate profits recession" already long since underway.[209]

The concern proved to be well founded. The NASDAQ declined another 32% over 2002, while the S&P fell another 24%.[210] The Fed responded to these developments both by lowering the Fed funds rate dramatically, and by commencing to tout growing real estate prices as a means of encouraging increased consumer spending.[211] By the end of 2001, for example, the funds rate was down to 1.75%.[212] By late 2002, it was at 1.25%.[213] Though economic growth had picked up by 2003 with the surge in Iraq war expenditures, the FOMC dropped the funds rate yet further, to 1%, in the second quarter of that year.[214] There the rate remained for a full year, until mid-2004.[215] All of this was occurring as home prices, which again are particularly sensitive to interest rates,

207. *See* FLECKENSTEIN WITH SHEEHAN, *supra* note 140, at 120.
208. *Id.*
209. *Id.* at 123.
210. *Id.* at 125.
211. *Id.*
212. *Id.* at 120.
213. *See* MORRIS, *supra* note 15, at 115.
214. *Id.*
215. *Id.*

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charged upward. Here are the numbers in the principal metropolitan areas of the United States:

FIGURE 3: FOR DATA ON THE PAST 20 YEARS IN 25 MAJOR METRO AREAS, SEE: HTTP://WWW.FHFA.GOV/WEBFILES/15426/4Q09HPICBSAPO.TXT

The credit-enabled housing bubble began to draw attention—most of it favorable—from the popular media and the Fed alike by 2002. Mainstream magazine articles advised Americans how to "[b]orrow against [their] house[s] to buy stocks."[216] Fed Chairman Greenspan testified before Congress on how growing real estate prices were compensating for the ongoing stock price decline.[217] Increasingly, it seems, policymakers and citizens at large were relying on home price rises as a generator of consumer spending and economic growth.

The problem, however, was that the growth was being fueled not by any underlying growth in "fundamental" value, but by the positive feedback loop of our model. It was Ponzi growth, as is readily verified by comparing home prices with two plausible proxies for fundamental value—rental prices and home building prices. Figures 4 and 5 supply the comparisons.

FIGURE 4: HOME PRICE TRENDS COMPARED TO RENTAL PRICE TRENDS, 2000–2005

RATIOS OF HOME PRICES TO RENTAL PRICES IN *SELECTED METRO AREAS*	HOME PRICE/ RENTAL PRICE 1Q *2000*	HOME PRICE/ RENTAL PRICE 1Q *2005*	AVG. ANNUAL GROWTH, 2000-5 Home Prices	AVG. ANNUAL GROWTH, 2000-5 Rental Prices
San Francisco	12.5	34.1	13.9%	-1.5%
San Jose, Calif.	14.1	34.0	7.9	-3.5
West Palm Beach-Boca Raton, Fla.	11.6	29.4	23.0	2.1
San Diego	13.5	28.9	20.5	4.2
Sacramento	11.5	26.5	22.4	3.9

216. *See* FLECKENSTEIN WITH SHEEHAN, *supra* note 140, at 139.
217. *Id.*

RATIOS OF HOME PRICES TO RENTAL PRICES IN *SELECTED METRO AREAS*	HOME PRICE/ RENTAL PRICE 1Q *2000*	HOME PRICE/ RENTAL PRICE 1Q *2005*	AVG. ANNUAL GROWTH, 2000-5 Home Prices	AVG. ANNUAL GROWTH, 2000-5 Rental Prices
Orange County, Calif.	11.8	25.7	18.8	3.4
New York City metro area	10.6	25.4	14.1	0.4
Los Angeles-Long Beach	12.3	24.9	19.6	3.1
Fort Lauderdale, Fla.	11.6	24.5	19.6	2.4
Miami, Fla.	11.5	24.5	19.3	2.6
Orlando, Fla.	11.9	24.3	13.4	1.6
Boston	11.5	23.9	16.9	3.5
Las Vegas	11.8	23.4	17.7	3.7
Riverside-San Bernardino, Calif.	11.9	23.1	21.2	7.7
Nassau-Suffolk, N.Y.	10.8	21.9	19.0	4.8
Oakland, Calif.	11.4	21.7	12.3	-1.5
Phoenix-Mesa	12.2	19.7	9.1	-0.6
Washington, D.C.	11.2	19.6	17.1	3.7
Middlesex-Somerset-Hunterdon, N.J.	11.6	19.1	15.2	2.3
Seattle-Bellevue-Everett	12.8	19.0	8.2	-0.4
Tampa-St. Petersburg-Clearwater	11.4	19.0	12.8	0.8
Minneapolis-St. Paul, Minn.	12.0	18.7	10.0	Unch.
Newark, N.J.	10.9	18.4	13.3	1.4
Atlanta	12.7	17.8	5.4	-1.3
Baltimore	11.5	17.7	14.1	3.7
Chicago	11.4	17.4	9.0	-0.9
Hartford, Conn.	11.2	17.2	11.0	2.2
United States	*11.6*	*17.1*	*7.7*	*2.1*
Denver	11.6	16.5	6.9	-0.5

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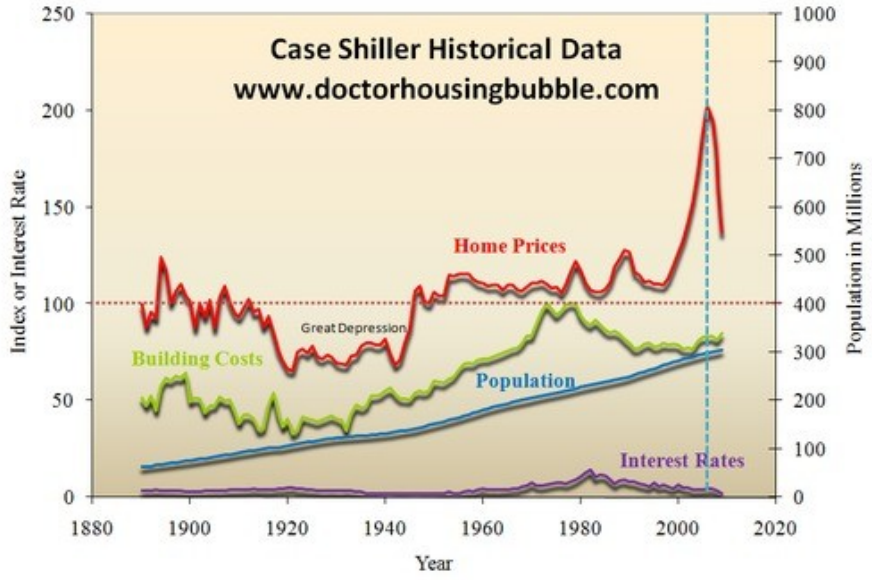
RATIOS OF HOME PRICES TO RENTAL PRICES IN *SELECTED METRO AREAS*	HOME PRICE/ RENTAL PRICE 1Q *2000*	HOME PRICE/ RENTAL PRICE 1Q *2005*	AVG. ANNUAL GROWTH, 2000-5 Home Prices	AVG. ANNUAL GROWTH, 2000-5 Rental Prices
Milwaukee-Waukesha	10.8	16.3	8.3	-0.5
Charlotte-Gastonia-Rock Hill	11.0	16.3	4.2	-1.1
Houston	11.6	16.2	6.0	1.4
Jacksonville	11.8	16.1	12.0	6.1
San Antonio	11.5	16.1	7.2	1.1
Portland-Vancouver	11.8	15.9	6.6	Unch.
Raleigh-Durham-Chapel Hill	12.3	15.2	1.8	-1.8
Dallas	11.9	15.0	4.8	Unch.
Memphis	11.8	14.8	3.4	0.1
Austin-San Marcos	11.9	14.5	-0.7	-0.7
Kansas City	11.4	14.5	4.5	-0.8
Cincinnati	10.9	14.4	3.4	-0.5
El Paso	10.6	14.3	6.5	0.6
St. Louis	11.8	14.0	3.4	-0.5
Philadelphia	11.2	14.0	7.3	0.9
Greensboro-Winston-Salem-High Point	10.8	13.7	2.3	-1.3
Tulsa, Okla.	10.9	13.6	4.4	-0.8
Oklahoma City	10.8	13.5	5.2	Unch.
Pittsburgh	10.5	13.5	5.0	-0.8
New Orleans	11.0	13.3	6.3	1.5
Columbus, Ohio	11.4	13.2	2.7	-0.3
Birmingham, Ala.	11.2	13.1	4.2	1.5
Salt Lake City-Ogden	10.9	12.9	3.3	-0.3
Indianapolis	11.6	12.8	2.3	Unch.
Greenville-Spartanburg-	11.4	12.8	2.5	-0.3

RATIOS OF HOME PRICES TO RENTAL PRICES IN *SELECTED METRO AREAS*	HOME PRICE/ RENTAL PRICE 1Q *2000*	HOME PRICE/ RENTAL PRICE 1Q *2005*	AVG. ANNUAL GROWTH, 2000-5 Home Prices	AVG. ANNUAL GROWTH, 2000-5 Rental Prices
Anderson				
Albuquerque	11.4	11.8	3.4	1.0

Source: Economy.com. From NYT May 2005: http://www.nytimes.com/2005/05/27/business/28home.moredata.html

FIGURE 5: HOME PRICE TRENDS COMPARED TO BUILDING COST TRENDS, 1890–2005



In Part IV, I shall argue that information of this sort should be used by our chief financial regulator, the Fed, in order to catch bubbles as they begin to inflate. But we're not there yet.

As levered home purchasing drove housing prices higher and higher, those who were doing the driving by borrowing grew increasingly exposed—again, as in our model. Were home prices to cease growing, refinancing would cease to be available, "balloon" rates would accordingly

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kick in, and people would find themselves "under water." Were that to happen, of course, lenders would be exposed, too. So would those who owed obligations to the lenders. And this, too, it turns out, was an important financial development over the course of the late 1990s and early 2000s.

Financial institutions that invested in MBSs increasingly entered into derivative risk-trading arrangements with a view to insuring themselves against losses in portfolio value, in the event of mortgage default.[218] The huge growth in markets for credit-default swaps of which so much was heard in 2008, along with those for a host of other derivative risk-sharing instruments, were products of this era.[219]

Ordinarily, of course, the spread of risk-bearing is a good thing. It lessens the exposures of individual actors and makes credit more widely available and, of course, less expensive.[220] But when the risks being spread all amount to the risk that a bubble will burst, the spreading in question is that of a swathe of destruction; it is a growth in the number of victims once the bubble inevitably bursts. But, of course, the same bubble that facilitates that spread of exposure is what masks appreciation of how risky the risks in fact are. For bubble psychology, per the model sketched above, quickly feeds into "new era" talk, as well as beliefs that the asset price in question "can only go up."

In the case of real estate, of course, such beliefs seem all the more reasonable in view of the finite nature of the asset. Land is in limited supply, while populations keep growing. And home prices have indeed tended to trend upward, albeit at more reasonable rates than those of the early 2000s, over time. Perhaps this is why reputable bond rating agencies gave Triple-A ratings to MBSs, even those backed by large numbers of subprime mortgages. Their valuation models, after all, assumed unceasing 6–8% growth rates in underlying home prices.[221]

With ratings like those given MBSs by the rating agencies, it is scarcely surprising that AIG and other insurers were willing to take on the portfolio risks of so many financial institutions that purchased real and synthetic mortgage-backed securities in the early 2000s. At all events, the spread of risk-bearing over the course of the housing price bubble assured that, once it burst, many would be swept into the ensuring contraction.

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218. MORRIS, *supra* note 15, at 73–79.

219. *See, e.g.*, MORRIS, *supra* note 15, at 73–79.

220. A commonplace in explaining the advantages of securitization. See *infra* Part III on the role of Fannie Mae.

221. *See* MORRIS, *supra* note 15, at 78.

And, of course, burst it would do. For even undeniable long-term upward trends, especially if punctuated by periods of bubble behavior, can feature counterpart periods of decline.

3. Foreclosure and Global Contagion: That Huge Sucking Sound

Housing prices seem to have reached their own "Minsky Moment" late in the first half of 2006.[222] By this point, as many as could be drawn in to the levered home-purchase markets had apparently been drawn in. Prices could not continue to rise in the manner that they had done over the previous five to ten years, and they leveled off.[223] Then they began to decline.[224] Naturally, in such circumstances, those who had borrowed pursuant to terms only sustainable so long as prices continued to rise found themselves pinched. As balloon mortgage rates began to balloon, low-end borrowers began to default on their mortgages.[225] That, of course, quickly began lowering the values of mortgage-backed securities.[226] And that, in turn, quickly led to calls upon credit default swappers and other de facto insurers to make counterparties whole.

Over $350 billion worth of subprime and other low-grade home loans that were closed in 2005 and 2006 "reset" in 2007 and 2008, and their monthly payments began to balloon.[227] Foreclosure rates rapidly mounted in consequence.[228] Talk of a "subprime crisis" accordingly began to be heard in the spring, then increasingly through summer and autumn, of 2007.[229] Lenders, then holders of repayment rights, began to feel the pinch. All of the highest-profile financial institution defaults and bailouts—commencing with Countrywide itself in 2007, on down through Bear Stearns, Fannie and Freddie, Lehman Brothers, AIG, Washington Mutual, and others—stem directly from the collapse of home prices and consequent mortgage defaults.

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222. *Id.*
223. *Id.*
224. *Id.*
225. *Id.*
226. *Id.*
227. *Id.*
228. *Id.*
229. *See, e.g.*, *Will the Subprime Crisis Ripple through Economy?*, MSNBC.COM, Mar. 13, 2007, http://www.msnbc.msn.com/id/17584725; Ben. S. Bernanke, Chairman, Fed. Reserve, Remarks at the Federal Reserve Bank of Chicago's 43rd Annual Conference on Bank Structure and Competition: The Subprime Mortgage Market (May 17, 2007), *available at* http://www.federalreserve.gov/newsevents/speech/bernanke20070517a.htm.

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Add to all of this the facts that (1) other nations, too—such as the United Kingdom, Australia, and Spain—went through real estate bubbles of their own during these years;[230] and (2) MBSs and derivative arrangements tied to mortgage values are held by and implicate the financial positions of institutions all across the globe,[231] and it is readily appreciated why the current crisis has from the start been global in nature. And that is before factoring in the role that contracting credit and plummeting consumer confidence plays in lowering global demand for goods and services. Scarce wonder that the IMF reported in early 2009 that the entire world economy was set for its first contraction since the 1940s, which is quite ominous in light of what happened, globally speaking, last time around.[232]

The following two figures summarize what has happened and where we are now. The first reprises the web of financial relations described over the previous pages. The second summarizes likely debt defaults and write-downs, by category, apt to occur in the coming few years.

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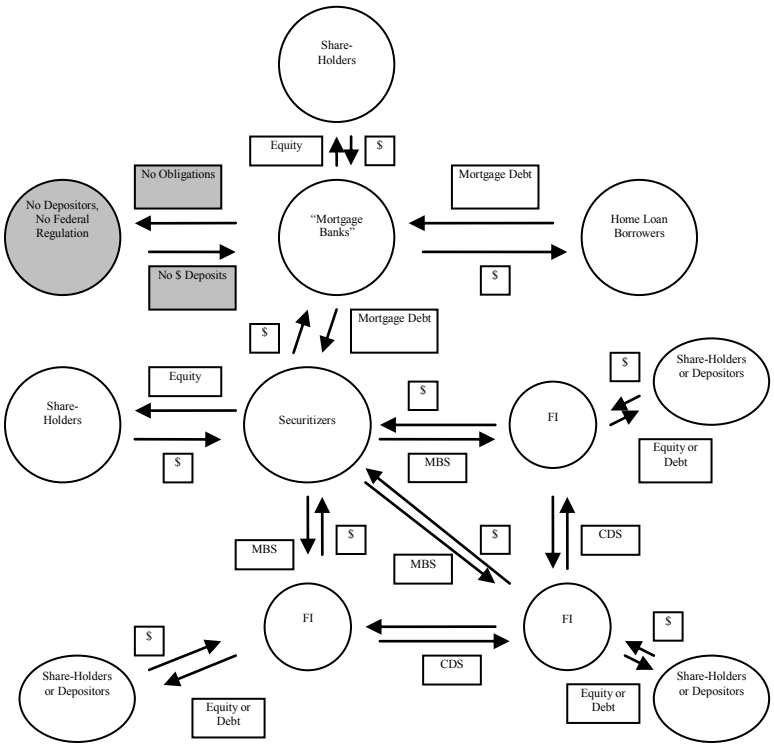
230. *See* MORRIS, *supra* note 15, at 78.

231. *Id.*

232. *See* Int'l Monetary Fund, *World Growth Grinds to Virtual Halt, IMF Urges Decisive Global Policy Response*, Jan. 28, 2009, *available at* http://www.imf.org/external/pubs/ft/survey/so/2009/res012809a.htm.

FIGURE 6: FINANCIAL STRUCTURE OF THE PRESENT CRISIS



"FI" means Financial Institution—i.e., a Commercial Bank, Investment Bank, Investment Company, Pension Fund, Insurance Company, or like institution. "MBS" means mortgage-backed security. "CDS" means credit default swap or other derivative arrangement. The shaded circle and boxes indicate that mortgage "banks" are not banks in the ordinary sense—they take no deposits and are not regulated as depository institutions. The best known of them these days is probably Countrywide Financial, taken over by Bank of America in June 2008 after financially faltering. The best known "securitizers" are Fannie Mae and Freddie Mac. Another notorious securitizer, this one lacking any "implicit federal guarantee," was the so-called "IndyMac," recently put in receivership.

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FIGURE 7: TABLE OF ESTIMATED DEFAULTS AND WRITE-DOWNS, CATEGORIZED BY FINANCIAL INSTRUMENT-TYPE[233]

INSTRUMENT	*CURRENT OUTSTANDING*	*DEFAULT PERCENTAGE*	*WRITE-DOWN PERCENTAGE*	*RECOVERY RATE*	*NET LOSS*	*TOTAL*
SUBPRIME & OTHER HIGH- RISK MORTGAGE DEFAULTS	$1,500	30%	NA	50%	$225	
SUBPRIME-BASED CDO WRITE-DOWNS	$1,200	NA	40%	NA	$480	
PRIME MORTGAGE & PRIME MBS WRITE-DOWNS	$5,000	5%	NA	50%	$125	
COLLATERALIZED MBS DEFAULTS	$950	10%	NA	50%	$48	
COLLATERALIZED MBS WRITE-DOWNS	$855	NA	15%	NA	$128	
NON-MBS REAL ESTATE WRITE-DOWNS	$2,400	10%	NA	50%	$120	$1,126

C. What Next?

What, then, are we to do? Well, as mentioned at the outset of this Article, we have been here before—not just contraction-wise, but *combined stock-and-real-estate*-contraction-wise. What is more, we have reached our present state precisely by having thrown off and bypassed the methods that we put in place to address the problem last time around—in the 1930s. The next Part accordingly shows how to address our present difficulties, precisely by recovering and restoring those systems of mortgage-finance and financial regulation that worked so well from the 1930s until the 1990s.

233. Source: Morris, *supra* note 15, at 136–37. Note: This Table excludes anticipated defaults and write-downs on other forms of debt, including non-mortgage-related corporate bonds and collateralized loan obligations, as well as credit card and automobile-loan debt. When added to the above, Morris anticipates over $ 2 trillion in defaults and write-downs economy-wide.

III. THE FOUNDATIONS AS FIRST LAID: WHERE WE WERE AND HOW WE GOT THERE

Public memory of the era immediately preceding the New Deal features two gaps that we would do well now to fill. The first is that, as mentioned above, the 1929 stock market crash was in fact but a stage in a longer-term decline.[234] It was immediately *preceded* over that course by a crash in the *real estate* market. The second is that the system of home mortgage finance that has made America "a nation of home-owners," as well as that introduced the financial innovation known as "securitization" itself, was actually designed and then instituted over the course of the 1930s and '40s, precisely *in response* to the just-mentioned crisis.[235]

Prior to the 1930s, fewer than 40% of American families owned their own homes, while since that time, upwards of 70% have come to enjoy that status.[236] Where homes are concerned, in other words, the "ownership society" is a New Deal invention. That society, however, along with the mentioned statistic, is now under threat—as are, in consequence, our and the world's financial systems—just as they were in the early 1930s.[237]

Early in the twentieth century, as now, most who purchased residential real estate did so at least partly on credit.[238] What was different was that fewer, for that reason, purchased housing at all. Housing credit markets were more fragmented, mortgages in consequence much less liquid investments than they have since become.[239] Home loans in consequence were extended for much briefer terms—generally two to three years—at the end of which they would "balloon" to come due in full.[240]

Loan-to-value ratios before the 1930s, in turn, were very low by modern standards. As little as fifty percent was considered high and was

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234. *See supra* note 1.

235. *See, e.g.*, J. Paul Mitchell, *Historical Overview of Federal Policy: Encouraging Homeownership*, *in* FEDERAL HOUSING POLICY AND PROGRAMS: PAST AND PRESENT 39, 41 (J. Paul Mitchell ed., 1985); *see also* D. BARLOW BURKE, JR., LAW OF FEDERAL MORTGAGE DOCUMENTS 2–25 (1989); KENNETH T. JACKSON, CRABGRASS FRONTIER: THE SUBURBANIZATION OF THE UNITED STATES 203–18 (1985). *See generally* Hockett, *A Jeffersonian Republic by Hamiltonian Means*, *supra* note 4.

236. *See* Hockett, *A Jeffersonian Republic by Hamiltonian Means*, *supra* note 4, at 86–120; see *also* Mitchell, *supra* note 235, Burke, *supra* note 235, and Jackson, *supra* note 235.

237. *See* Hockett, *A Jeffersonian Republic by Hamiltonian Means*, *supra* note 4, at 86–120; see *also* Mitchell, *supra* note 235, Burke, *supra* note 235, and Jackson, *supra* note 235.

238. *See* Hockett, *A Jeffersonian Republic by Hamiltonian Means*, *supra* note 4, at 86–120; see *also* Mitchell, *supra* note 235, Burke, *supra* note 235, and Jackson, *supra* note 235.

239. *See* Hockett, *A Jeffersonian Republic by Hamiltonian Means*, *supra* note 4, at 86–120; see *also* Mitchell, *supra* note 235, Burke, *supra* note 235, and Jackson, *supra* note 235.

240. *See* Hockett, *A Jeffersonian Republic by Hamiltonian Means*, *supra* note 4, at 86–120.

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rare.[241] Financing on such terms not surprisingly fell short of most would-be buyers' capacities. And so second mortgages, junior liens, and rollover refinancings were the norm.[242] This was not terribly problematic for those who dared buy, so long as real estate values continued to rise, as they did—very rapidly—through most of the 1920s.[243] Refinancing, then, as more recently, was not difficult when the value of one's collateral—the home itself—continued to rise in the real estate boom of the 1920s.[244]

When real estate prices leveled off and then began falling in 1928, however, short-term mortgages no longer could be refinanced in full.[245] Again, things were much as they are today. Resultant forced sales and foreclosures, which reached the rate of over 1000 per day once some 50% of all home mortgages in the country had gone into default, brought prices steadily lower.[246] The real estate market fell into the familiar "downward spiral." The parallel with today could not be more striking.

Indeed, the parallels proliferate. For then also, as today, the crisis that afflicted the real estate market spread much more widely, ultimately reaching the stock market itself. The reasons were obvious: For one thing, upwards of 30% of the American labor force was employed either in the home-building industry itself, or in industries that were bound to lose business as home-builders went out of business.[247] For another thing, of course, disemployed labor, like fearful and foreclosed mortgagees themselves, spent less money, feeding yet further contraction.[248] The vortex of contraction, recession, and then depression was on.

The programs instituted to address this widening real estate-rooted crisis, begun in the last year of the Hoover administration, broadened through the Roosevelt years and continuing in but minimally altered form today, cannot fail to impress in their innovativeness and comprehensiveness. The process began with the Federal Home Loan Bank Act (FHLBA) of 1932,[249] which authorized establishment of a system of Regional Federal Home Loan Banks roughly parallel to that of the Federal Reserve's system of Regional Federal Reserve Banks. The Regional

241. *Id.*
242. *Id.*
243. *Id.*
244. *Id.*
245. *Id.*
246. Hockett, *A Jeffersonian Republic by Hamiltonian Means*, *supra* note 4; Milton P. Semer et al., *Evolution of Federal Legislative Policy in Housing: Housing Credits*, *in* Mitchell, *supra* note 235.
247. *Hockett, supra* note 246; *Semer, supra* note 246.
248. *Hockett, supra* note 246; *Semer, supra* note 246.
249. 12 U.S.C. § 601 *et seq*. (2006)

Banks provided standards and supervision to member institutions—the private mutual savings banks (MSBs) then responsible for most mortgage lending—and, in return, supplied added lines of credit on the security of mortgage loans that they held (in effect "monetizing" those mortgages).[250]

The new Congress that took office in 1933 built upon Hoover's well-designed initiative. It did so first with a Home Owners' Loan Act (HOLA) in 1933,[251] which temporarily established a Home Owners Loan Corporation (HOLC) for refinancing foreclosed loans on favorable terms to enable erstwhile homeowners to recover their homes. It also laid the groundwork for a steady spread of more MSBs, by directly affording national charters even where state authorities might have barred entry.[252]

One year later, the National Housing Act (NHA) of 1934[253] afforded a system of deposit insurance for the MSBs analogous to that newly instituted for depositors in commercial banks, further boosting the availability of lendable deposits. More critically, the NHA instituted a system of insurance for the *MSBs themselves*, against defaulting *mortgagors*. Section 203 of the Act established a nationwide "mutual mortgage insurance system," through which a newly created, and in this case now permanent, Federal Housing Administration (FHA) could insure first mortgage loans made for the construction, purchase, or refinancing of one-to-four bedroom family homes. In effect, FHA took over and discharged indefinitely the functions of the HOLC, which from its inception had been conceived as ad hoc and temporary.[254]

FHA still operates today, guaranteeing and, in many cases, originating or refinancing mortgages that conform to the standards that it imposes (so-called "conforming" mortgages).[255] It also affords financial counseling to borrowers. And it does all of this at no cost to the public fisc—the only federal agency to do so.

The FHA and its insurance scheme fundamentally altered the regime of home financing in the United States. It effectively replaced traditional collateralization requirements with national default-risk pooling, rendering home loans more affordable. The uniform requirements upon which FHA conditioned its insurance, for its part, fostered the development of a standardized home mortgage *instrument* marketable throughout the

250. *See supra* note 246.
251. 12 U.S.C. § 1464 *et seq*. (2006)
252. *Id.* § 601 *et seq*.
253. 48 Stat. 1246 (1934).
254. 12 U.S.C. § 601 *et seq.*
255. Hockett, *A Jeffersonian Republic by Hamiltonian Means*, *supra* note 4.

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country: the familiar thirty-year, fixed-rate mortgage so common to low end mortgage finance until recently. This, in turn, opened the door to securitization and hence yet more complete risk pooling. The housing *quality* requirements upon which FHA *conditioned* its insurance also ensured the financial rationality of federally facilitated home-finance investments. And FHA's requirements of (a) actuarial soundness, and (b) risk classifying and separate pooling ensured that the system retained the traditional efficiencies of a private insurance market.[256] That is why it still operates in the black.

Congress effectively completed its ad hoc discovery of our now familiar method of financially engineered home-ownership-spreading in 1938, by chartering the first modern "government-sponsored enterprise" (GSE). The Federal National Mortgage Association (FNMA, or Fannie Mae) was charged with making a national market in FHA-insured mortgage instruments themselves, i.e., with "securitizing" those mortgages.[257] In effect, Fannie Mae along with later progeny (in particular Ginnie Mae and Freddie Mac, to say nothing of the *higher education* loan securitizers like Sallie Mae, expressly patterned after the Fannie Mae model[258]), closed the proverbial circle, separately completing the markets for housing credit and credit-risk bearing, thereby optimizing the availability of such credit to home buyers in the manner described earlier.

Fannie Mae proved sufficiently successful, even on market terms, to privatize in 1968.[259] (Sallie Mae did so in late 2004.)[260] Freddie, for its part, was instituted in 1970 specifically in order to compete with the newly privatized and gargantuan Fannie.[261] Both Fannie and Freddie subsequently came to offer a multitude of home finance services and operated effectively, as well as profitably, in spreading home-ownership until recently.[262]

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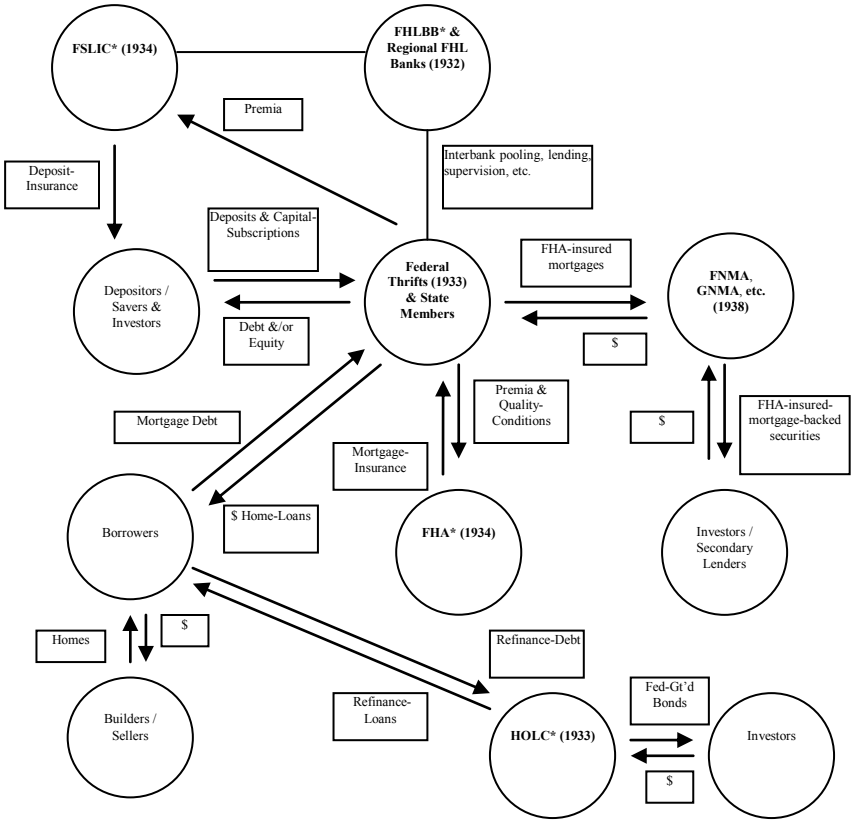
256. *Id.*
257. *Id.*
258. *Id.*
259. *Id.*
260. *Id.*
261. *Id.*
262. *See* Fannie Mae, http://www.fanniemae.com (last visited May 18, 2010).

Here is the full picture:

FIGURE 8: HOME-FINANCING STRUCTURE AFTER FEDERAL HOME-FINANCE LEGISLATION OF THE 1930S & 1940S



Note that HOLC, whose Board comprised FHLBB Board Members, was—by terms of its implementing legislation—a temporary measure, phased out in 1936. FHLBB, FHA, and FSLIC have since been merged into or brought under the aegis of the Federal Housing Finance Board, Department of Housing and Urban Development (HUD), and Federal Deposit Insurance Corporation (FDIC), respectively; but the home-finance structure mapped here itself remains intact.

Complementing this whole picture, of course, was an extensive overhaul to our system of financial regulation put into place during the

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1930s. The Glass-Steagall Act of 1932 prohibited commercial banks from affiliating with securities firms or insurance companies.[263] The same Act introduced interest rate regulation imposed upon depository institutions, with a view to preventing "destructive competition" among them—which had been blamed for encouraging overly speculative forms of investment on the part of those institutions.[264] The Federal Deposit Insurance Act of 1933 brought both a national system of deposit insurance and a new lever with which a federal regulator—the Federal Deposit Insurance Corporation—could impose capital requirements and other "safety and soundness" regulations upon depository institutions.[265]

Meanwhile, the Securities Act of 1933, followed by the Securities Exchange Act of 1934 and the Investment Advisors and Investment Company Acts of 1940, of course brought us our familiar forms of securities regulation, as well as the Securities and Exchange Commission.[266] All of these enactments worked to prevent practices of bank-levered speculation and other abuses on the securities markets, even as the home-finance measures worked to stabilize real estate markets.

What, then, went wrong? In essence, the story is just that told in the previous Part, albeit with two added wrinkles that helped set the stage. First, interest rate regulation and limits on investments by thrift institutions were relaxed in the middle 1980s, setting the stage for "destructive competition" in the thrift industry later that decade.[267] The resultant savings and loan crisis ravaged the industry of home-lending institutions that grew during the 1930s, thanks to the Hoover and Roosevelt initiatives related above.[268] That gap quickly began to be filled by non-deposit-taking, hence unregulated, "mortgage banks," as described above. We have seen the role that these played in the recent real estate bubble, particularly commencing in the mid-1990s, when they began to extend growing numbers of "subprime," non-FHA-conforming loans.

Second, Fannie and Freddie were caught up in bubble psychology just like so many others, including the Fed Chairman, as noted before. It was quite *profitable* to buy ever more risky, non-FHA-conforming mortgages

263. Glass-Steagall Act of 1932, Pub. L. No. 72-44, 47 Stat. 56 (codified in scattered sections of 12 U.S.C.).

264. *Id.*

265. Federal Deposit Insurance Act of 1933, 12 U.S.C. § 1811 (2006).

266. Securities Act of 1933, 15 U.S.C. § 77a (2006); Securities Exchange Act of 1934, 15 U.S.C. § 78a (2006); Investment Advisers Act of 1940, 15 U.S.C. § 80b (2006).

267. *See, e.g.*, Rob Jameson, ERisk, *Case Study: US Savings & Loan Crisis*, Aug. 2002, http://www.erisk.com/learning/casestudies/ussavingsloancrisis.asp [hereinafter *ERisk Case Study*].

268. *Id.*

so long as property values kept growing at the rates that they grew in the late 1990s and early 2000s. And global investors in Fannie and Freddie, including many a large sovereign wealth fund or treasury, insisted that these profits be sought.[269]

At the same time, in view of their original missions as engines of our American home-ownership society, members of Congress and other officials during the Clinton and Bush years alike—themselves evidently caught up in the belief that real estate "could only go up"—in some cases actively pressured the old GSEs to take on more risky mortgages.[270] *Why not* pursue the original salutary mission all the more aggressively, after all, if even the Fed Chairman was convinced that real estate would just keep rising in value? Finally, in view of Fannie's governmental lineage, Fannie's and Freddie's "implicit" federal guarantees, and both institutions' associated "too big to fail" status, Fannie and Freddie were all the more able to attract plenty of purchasers of their securities.

Ultimately, of course, all of this landed Fannie and Freddie in very hot water. The real estate slump that commenced in the summer of 2006 hit them especially hard, for they held the great bulk of low-end mortgages.[271] We know where it led: Fannie and Freddie were ultimately renationalized in September of 2008.[272] Many took this for an ominous sign, on all fours with the totterings of Bear Stearns, Countrywide, Lehman Brothers, Merrill Lynch, AIG, and Washington Mutual, among others.[273] What we ought *really* to see in the renationalization of Fannie and Freddie, however, is *opportunity*. And restoration of home values, home-owning, and finance. That takes us on to the solution of our present crisis. For in effect, what we have now—with the unregulated "mortgage bank" industry wiped out and Fannie and Freddie restored—is our original 1930s package again, under one roof.

Here is the key, I believe, to solving our current problems. The restored FHA, Fannie, and Freddie team can quickly address the short-term side of our trouble by doing their original jobs and thus stabilizing the real estate markets. A restored system of financial regulation, in turn—extending the

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269. *See, e.g.*, *Newshour: Investigating Fannie Mae and the Housing Bubble* (PBS television broadcast Apr. 9, 2010), *available at* http://www.pbs.org/newshour/bb/business/jan-june10/fannie_04-09.html.

270. *Id.*

271. *Id.*

272. *Id.*

273. *See, e.g.*, Press Release, U.S. Dep't of the Treasury, Statement by Secretary Henry M. Paulson, Jr. on Treasury and Federal Housing Finance Agency Action to Protect Financial Markets and Taxpayers (Sept. 7, 2008), *available at* http://www.treas.gov/press/releases/hp1129.htm.

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system we put into place in the 1930s to new fields of finance currently not regulated at all—will for its part address the longer-term problem. To these two sets of coordinated solutions, we now turn.

IV. HOME RESTORATION: TRIAGE AND LONGER-TERM MAINTENANCE

Let us begin by recalling that there are two salient components of the present crisis. Then we shall see two solutions before us: one short-term, the other longer-term.

A. Still-Life of and for the Present Moment

The first, "core" component of the present crisis as related in Part II.B is the doubtful value of an uncertain number of subprime mortgages and associated MBSs. These are held in varying quantities by a large number of financial institutions (FIs) worldwide, many of which appear not as yet fully to have reported the sizes of their holdings. These securities, moreover, as noted above, underlie financial derivative commitments on the part of yet more FIs worldwide, with notional values that appear likewise as yet to be underreported. The MBSs, for their part, are now widely perceived to be "toxic" because many—though certainly not all and, indeed, not even a majority—of the mortgages backing them are troubled.[274]

Now, as we have seen, many of the mentioned mortgages are troubled because they were imprudently or, in some cases, "predatorily" extended by participants in the shadow industry of scarcely regulated "mortgage banks" that developed and then grew in the vacuum left by those S&Ls lost in the 1990s.[275] These institutions proliferated rapidly with, while

274. To be more fine-grained, MBSs associated with a particular pool of mortgages are typically divided into three or more tranches. The largest tranche generally comprises the least risky, hence lowest return, stream of payments, often accounting for 70% of a pool's nominal value. *See, e.g.*, MORRIS, *supra* note 15. The next tranche typically comprises a slightly more risky, hence slightly higher return, stream of payments, and accounts for 20% of the pool's nominal value. *Id.* The final tranche, typically accounting for 10% of the pool's nominal value, comprises the most risky, but also, of course, highest yield, stream of payments. This tranche is colorfully said to include the pool's "toxic waste." *Id.* The "toxic" MBSs are of course principally associated with this tranche of most pools. But as I shall note further below, as confidence is lost, one tranche's "toxicity" comes to taint, in perception, other tranches as well.

275. The network of S&Ls, fostered by President Hoover in the early 1930s to revitalize real estate markets and further developed by President Roosevelt thereafter to the same end, was done-in by the LBO-fueling junk bond craze of the later 1980s, made possible by the Reagan Administration's and Congress's elimination of previously tight regulation of S&L investment practices. *ERisk Case Study*, *supra* note 267.

indeed helping to fuel, our recent Fed-enabled real estate bubble.[276] Naive, non-credit-checked, and in some cases clearly uncreditworthy borrowers not only received loans from these institutions, but often were lured with offers of newfangled ARMs, featuring low front-end "teaser" payments that later "ballooned."[277]

Now, ordinarily, neither borrowers nor lenders would likely have expected anything good to come of loans on such terms as those I have described. But fees, risk-transferability, and especially speculative asset bubbles, as discussed above in Part II, have a funny way of changing people's calculations. Borrowers not unreasonably assume that they can regularly refinance inexpensively, on the strength of the underlying collateral's apparently inexorable appreciation. Primary and secondary lenders naturally assume likewise. And again, such assumptions seem far from far-fetched while the bubble is growing.

Now for a time in these cases, everyone does indeed win. The process takes on the self-fulfillingly prophetic, spontaneous "chain letter" or Ponzi-like character of our model sketched in Part II.A. More are drawn into the market as prices keep rising. Some hope to clear speculative profits by "flipping" the assets they borrow to buy. Others, more innocently perhaps, reasonably judge that they can prudently purchase to hold, but on more highly levered terms than they might otherwise have accepted. And still others are mixed cases of holder-cum-speculator.[278] In all cases, in any event, as the new entrants keep entering, the prices do keep rising, in effect validating the judgments of those who act upon the expectation of continued ascent.

But, of course, bubbles never grow indefinitely; the inflection point always *is* reached. The Ponzi growth rate slows at some point in the indefinite medium term—whatever the more definite, long-term trend

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276. There seems to be growing consensus that the Fed kept lending rates too low over most of the 1990s and early–mid-2000s. A charitable interpretation is that it understandably overshot in addressing the slowdowns first threatened by the S&L, Asian financial, and Russian debt default crises of the 1990s, then indeed occasioned by the deflation of the tech bubble in 2000 and the 9/11 attacks of 2001. There are, of course, also less charitable interpretations. *See, e.g.*, FLECKENSTEIN WITH SHEEHAN, *supra* note 140; Paul Krugman, *Greenspan's Bubbles*, *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=926409.

277. *See, e.g.*, SHILLER, THE SUBPRIME SOLUTION, *supra* note 9, at 6–8.

278. Those who borrow with a view to buying homes that they will actually occupy buy more expensive homes, for example—their down payments, in turn, constituting smaller portions of the total to be paid. Others borrow with a view to purchasing homes that they intend all along to "flip" at a profit. Still others are actuated by motives that combine the first two, perhaps planning to continue residing in the home if appreciation rates slow, and to "flip" the home or "trade up" should appreciation continue apace.

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lines might be, as credit limits are eventually closed in upon.[279] When that happens, the spontaneous Ponzi process abruptly halts and then quickly reverses. The reason is that there are no more new entrants to finance continued growth in the value of previous entrants' holdings, while it has been precisely on the strength of such anticipated growth that entrants have increased their debt burdens. The buildup of worry—"how long can this continue?"—accordingly discharges at last. The "Minsky Moment" is reached.[280] Now, many erstwhile winners, having been nervously mindful all along that a peak followed by mass exit must at some point be reached once the credit runs out, seek to salvage gains or cut losses by being first to jump ship. It is a bank-run-reminiscent scenario. But in modern, electronically traded markets, the time span between first and last is paper-thin. Prices plunge quickly, and with them the reliability of those repayment obligations associated with the credit extensions that enabled the rise.

This, of course, is the fate that befell our own housing bubble. Prices leveled off, then began falling in mid-2006.[281] The ensuing slump quickly began to throw ill-structured, bubble-time mortgages into default, as market valuations of underlying assets began falling below nominal debt obligations.[282] Default rates, not surprisingly, have since grown steadily.[283] And as they have grown, the market values of mortgages, mortgage-backed securities, and associated derivative obligations have dropped yet further.[284] In effect, the same feedback loop structure that characterized the buildup now characterizes the comedown—for "run-ups," we have seen, just are "runs" in reverse.

The second, penumbral component of our mortgage-rooted financial crisis accordingly is, no pun intended, derivative in character. It is mass-psychological, simply the flipside of the just-described Ponzi process. Something much like the proverbial "market for lemons" known to macroeconomists since at least the time of Akerlof's and Stiglitz's

279. This seems the right place to trot out the inevitable quotation of Keynes, to the effect that "in the long run, we're all dead." We might also liken things here to a sort of reversal of Al Gore's frequent observation that this year's being cooler than last year constitutes no refutation of long-term global warming. The trend-line's sloping upward over the long haul does not prevent its being jagged over long enough periods to be either misleading (in the case of climate change skeptics) or devastating (in the case of investment naifs).

280. The reference is, of course, to HYMAN P. MINSKY, STABILIZING AN UNSTABLE ECONOMY (1986), a work that seems unsurprisingly to be enjoying a bit of a rediscovery.

281. *See* MORRIS, *supra* note 15.

282. *Id.*

283. *Id.*

284. *Id.*

canonical contributions of the early 1970s and 1980s (for which, of course, both won Nobels[285]), and to financiers since Gresham first postulated the "Law" bearing his name, follows many a burst bubble.[286] The prevailing mood changes, tendencies toward risk aversion are heightened, and uncertainties are resolved by assuming the worst rather than the best.

In the present iteration of this depressingly familiar story, no institutions or persons know precisely what portions of their own MBS-holdings (or derivative positions tied positively to MBS values) will prove "underperforming" in consequence of the mortgage industry's post-crash troubles. That is partly because no one knows precisely which mortgages will foreclose, thus which securities will prove underperforming or how much. And it is partly because no one knows how low particular property values, or property values more generally, will fall. And finally, it is partly because property values, hence mortgage and thus MBS and derivative values, are themselves partly determined by whatever action we collectively take or do not take to prevent defaults. There is a significant element of self-fulfilling prophecy in whatever we do here, just as there was self-fulfilling prophecy in the growth of the Ponzi-like bubble itself. And so until action on the part of the collectivity is taken by some agent authorized to act in the name of all, each private party assumes the worst and seeks exit.

This self-fulfilling prophecy piece of the story, for its part, steadily radiates outward. The market grows ever more jittery over the just-enumerated uncertainties. The longer these jitters endure, the more prone investors become to undervalue affected financial institutions' MBS-including or MBS-derived portfolios, and hence, ultimately, those institutions' own issuances. The more they in consequence shed their stakes in these institutions, in turn, the more quickly the remaining such stakes lose *their* short-run values. In effect, there's a "run on the banks," in this case by shareholders rather than depositors—as used to happened before there was federal deposit insurance. The negative feedback loop found in the market for MBSs accordingly spreads beyond those securities, both to derivative contracts and to the obligations of firms that are heavily invested in these securities. The familiar financial "contagion" ensues.

The process is aided and abetted by mark-to-market accounting rules that require institutions to value their assets as the market values them—

285. *Id.*

286. George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488 (1970); Stiglitz & Weiss, *supra* note 20.

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even when, thanks to the panic psychology at work here, the market arguably is grossly undervaluing them. And with affected institutions in turn interlinked by collateralized debt obligations, credit-default swaps, and other derivative risk-sharing arrangements, even those *not* holding MBSs end up affected. The "downward spiral" winds steadily downward. But what goes down can be turned back up and brought to a much more sustainable stratum.

Enter here FHA and its GSE siblings: We can reverse the widening downward spiral that is this crisis's penumbral component, as Treasury's original late September 2008 plan itself contemplated, by directly addressing the cause at its core—the bad mortgages and the securities they back.[287] And this is precisely what FHA and its newly renationalized GSEs originally were and are *for*, as just seen in Part III.

With FHA still in operation as the sole federal agency that operates at no cost to the public fisc, and with its prodigal siblings now back in the family, we are actually now very well situated to address the mortgage crisis at the core of our imminent global financial crisis. Indeed, we can easily set the team to work in a manner a lot like the manner in which it operated in solving that real estate crisis that prompted its founding in the first place. Here is how to do it.

B. Home Repair: Triage for the Near Term

Solving our present crisis requires both triage for the immediate crisis and longer-term preventive maintenance to prevent a recurrence. Here, I treat the former by laying out two complementary tasks to be discharged by FHA and its newly renationalized GSE siblings. Then in Part IV.C, I address the longer term.

1. Fannie and Freddie: First Clean Up the Secondary Market

The first thing we must do is, through the now once again refederalized GSEs, employ recovered TARP moneys to purchase and repurchase perceivedly "troubled" MBSs from key financial institutions now holding them, as originally envisaged by Treasury. Fannie and Freddie can then add them to the large numbers of such securities that they already once

287. Press Release, House Comm. on Fin. Servs., Emergency Economic Stablization Act of 2008 (Sept. 28, 2008), *available at* http://www.house.gov/apps/list/press/financialsvcs_dem/press092808.shtml; *see also Troubled Asset Relief Program (TARP)*, INVESTOPEDIA, http://www.investopedia.com/terms/t/troubled-asset-relief-program-tarp.asp (last visited May 18, 2010).

again hold. We should pay more than currently undervalued market value, but lower than discounted cash flow value. That way, value will be recouped as MBSs rise back to less panic-depressed values. And that way, we will lso ensure that financial institutions that overinvested in MBSs incur some cost, thereby mitigating the moral hazard concerns occasioned by any bailout. In effect, we will be taking a "deductible," or conferring the attributes of "coinsurance" on the bailout.

How much more than currently undervalued market—but lower than discounted cash flow—value, should we pay out? Many methods have been proposed, the best known among them probably the "reverse auction" first proposed by Treasury in September of 2008.[288] Reverse auctioning certainly seems the most efficient means of dividing the surplus that we will be recouping. But we shall do best to prescind here from fine-tuned accounting and valuation matters, however, as there is surely a range of reasonable possibilities within which to choose. What matters for the present is that MBSs are substantially undervalued at present by a spooked market, for the same psychological reasons that account for their having been overvalued by our erstwhile euphoric market. And this fact itself, if there is more or less symmetry between first the euphoric and then the dejected "animal spirits" that have been at work in the MBS market this decade, suggests somewhere near the mean between peak and trough rates as a good working benchmark against which to check observed auction rates, perhaps marginally adjusted in recognition of any asymmetry thought to be worked by endowment or related effects.

Will the MBSs rise back to higher values as suggested? Yes, for reasons rooted in the "market for lemons" and "self-fulfilling prophecy" phenomena noted above and just mentioned again. The problem in this case is that, while we know that only a small minority of mortgages will actually default and that only a minority of MBSs will actually prove to be "toxic," we do not know *which* ones. During those periods of irrational despair that follow periods of irrational exuberance, individuals irrationally fear that they are holding the underperforming investments disproportionately. Let's call it a "reverse Wobegon" problem: Each individual worries, "I might have only the bad ones."[289] Fearing this individually, they then, in effect, *make* it so collectively, by stampeding to sell what they irrationally undervalue. In short, we have a classic collective action problem, one that in this case artificially deflates value.

288. Press Release, *supra* note 287.

289. The allusion, of course, is to Garrison Keillor's proverbial town of Lake Wobegon, where "all of the children are above average."

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Concentrate ownership of the full affected portfolio, then, and we address this collective action problem head on and entirely solve it. Each security then can effectively be valued at the mean, without anyone having to know which particular securities in fact possess more or less than mean value. The problem of individuals all fearing that they hold securities of *less* than mean value—the "reverse Wobegon problem"—is immediately solved. We restore full portfolio value, in short, precisely by concentrating ownership of the full portfolio, booking the difference between that and the current irrationally depressed market value of dispersed securities. Concentrating ownership also, it happens, will facilitate smooth operation of the second part of the FHA/GSE plan that I am proposing, the part that restores value to underlying mortgages themselves. On, then, to that.

2. FHA: Restore Order to the Primary Market

The second and complementary part of the short-term side of the plan is this: Through FHA, we should simultaneously arrange refinancing and financial counseling for those mortgagees who, owing to poorly structured or misleadingly packaged mortgages, are now going under. We should make a priority of first-time, single-home buyers who have purchased the homes to occupy them, and who might realistically pay for them if only their payment structures are smoothed. We should show less solicitude for "second" or "*n*th" homes that clearly are speculative properties purchased for "flipping," unless there is a good chance of saving foreclosure costs by refinancing. And we can show intermediate solicitude for those who, though not strictly speculators, have nonetheless grossly overreached—helping to refinance some, while gradualizing workouts and foreclosures on others. FHA is quite experienced with all of these options and more.

Note that all of this can be done at a reasonable, unforced pace once FHA's sibling GSEs have purchased or repurchased the great bulk of MBSs per the first part of the plan. For the newly renationalized GSEs do not face the same short-term financial imperatives as private lenders. Nor do they face the bargaining problems that confront dispersed classes of creditors in more garden-variety insolvency situations. For, yes, debt workouts, too, are familiarly a collective action problem, as any bankruptcy expert will readily attest.[290] This, then, is yet another benefit of concentrating ownership of these now-troubled assets in the hands of our GSEs. And it will enhance the value of the assets themselves, precisely by

290. *See, e.g.*, THOMAS H. JACKSON, THE LOGIC AND LIMITS OF BANKRUPTCY LAW (1986).

preventing massive foreclosures and their associated costs, and thus preserving the value of those mortgages that underlie the presently "toxic" MBSs.

It bears noting here, while we're at it, that FHA can affect mortgage refinancings much more efficiently than judges or any new cadre of bankruptcy trustees of the sort that some are proposing would do. For one thing, this is because, again, refinancing is already an FHA specialty. But for another thing, it is because the GSEs' repurchasing of MBSs will eliminate the usual holdout problems that afflict ordinary debt workouts in the vicinity of court-administered bankruptcy. I think that this renders the paired FHA/GSE plan superior, moreover, to Professor Shiller's proposal for a new HOLC.[291] For the latter would not only just recreate an agency that FHA was itself instituted to replace and make permanent, but also would not yield the concentrated MBS-ownership advantages that this plan involves.

Offer to buy troubled MBSs, then, and many, if not most, who now hold them will sell. Then, we can refinance mortgages with speed, but with *deliberate* speed—without pressure. As for any who do not sell their MBSs per the plan, note first that they would have to constitute one-third of the mortgage credit outstanding on any one home if they wished to block refinancing. That seems unlikely. Note finally that if, improbably, they were to constitute such a bloc and then seek to obstruct refinancing arrangements by FHA, there would surely be sufficient ground for the government to exercise its eminent domain power and pay the amount paid to the last—or, indeed, even the first—voluntary sellers of MBSs to the holdouts. A securities covenant is no more a suicide pact than is the Constitution, and there is no reason whatever to honor exploitative holdout power in times of exigency like the present. If anything, there is reason to shame holdouts publicly, along with the worst of that comparative minority of borrowers and lenders who were grossly negligent in the midst of the bubble.

So how much, then, will all of this cost? That is, of course, hard to say, in view of the feedback-effect-rooted indeterminacies that we have noted to be at work in the present crisis. The best we can reasonably expect at

291. Professor Shiller's proposal is made in SHILLER, THE SUBPRIME SOLUTION, *supra* note 9. A similar plan, proposed by Congressman Frank and Senator Dodd, was put forth in 2007, but withdrawn in the face of opposition by industry groups, Republicans in Congress, and the Bush Administration. The Dodd/Frank plan would have employed FHA, but—proposed as it was before Fannie and Freddie had been renationalized—did not involve GSE's sweeping of troubled MBSs from the market. Now that we have the full team together again, prospects look better.

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the present, I think, is to take cognizance of the range of reasonably anticipated possibilities. At one end of this range is the possibility that FHA and its renationalized GSE siblings will actually come out in the black. Certainly that is what happened from the late 1930s onward, when the original package was first put into place.[292] And, indeed, it is why Fannie was ultimately privatized, and it is why FHA has operated at a profit since its inception. It also bears noting that Messrs Bernanke, Bush, and Paulson themselves argued that TARP, in light of the market's then-undervaluing of MBSs—even *without* the salvaging of mortgage, hence MBS values—could ultimately bring a net gain to the fisc; the government would be "buying low" assets that it could later "sell high."[293]

How about the less rosy end of the range of possibilities? That one is just a bit harder to estimate. This owes, in part, to the aforementioned feedback-effect-rooted indeterminacies. It owes also to the countervailing effects of the aforementioned MBS-appreciation apt to be wrought by concentrated ownership on the one hand, and the MBS-depreciation apt to be wrought by continued home-value decline and foreclosures on the other hand. Worst case scenario, one supposes, would be that the full amount spent purchasing troubled MBSs would be lost. One hastens to add, however, that this worst-case scenario seems far from plausible, for all of the reasons adduced above.

C. Home Maintenance: Care for the Long Term

Particularly in view of the nature of the present crisis, as well as of its predecessor crisis of the 1930s, the short-term solution proposed in Part II.B should bring an expeditious halt to our immediate difficulties. This raises an anterior question, however: How do we prevent a recurrence?

The answer, I believe, lies in two clues. The first clue is the model of asset price bubbles and bursts laid out in Part II, of which our present crisis is a textbook case. The second clue lies in that broader system of financial regulation, described in Part III, which the Hoover and Roosevelt era Congresses enacted as a complement to the home-finance programs put into place in the same era. For, as seen above, partial dismantling of that system played a critical role in enabling our recent stock and then real estate bubbles.

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292. *See supra* Part III.

293. George W. Bush, President, Speech to the Nation on the Economic Crisis (Sept. 24, 2008), *available at* http://www.nytimes.com/2008/09/24/business/economy/24text-bush.html?pagewanted=1.

http://openscholarship.wustl.edu/law_lawreview/vol87/iss6/1

In this Subpart, then, I turn to a brief sketch of "reforms"—or rather, restorations—to our system of financial regulation that will complement the restorations just sketched to our system of mortgage finance. Completing the package in this way will restore us to longer term financial health of the kind that we enjoyed nearly uninterrupted from the later 1930s to the mid-1990s.

1. Regulation as Modulation: The Fed and Bubble Preemption

Easily the most important lesson to be drawn from the model of asset price bubbles and bursts schematized in Part II.A, I think, is the critical role that the Fed must play in preventing bubbles from emerging and inflating in the first instance. There are two principal reasons for saying this.

The first reason is that, as observed in Part II.B, all other forms of regulation, as well as self-help, tend to break down when a bubble is inflating. The reason for that is now obvious: While asset prices are rising, the risk measures, according to which risk regulators operate and private parties decide on courses of action, decline. When assets are more highly valued, it is easier for financial institutions to comply with their debt obligations. It is likewise easier for borrowers to collateralize. And it is easy for everyone to feel safer than they actually are.

The second reason to emphasize the Fed's role is that, as observed in Part II.A, asset price bubbles are collective action problems. There need be no individual irrationality or rascality for a bubble to begin and inflate. Nor need there be any inefficiency on the part of the market when it comes to impounding price-relevant information into the prices of assets. The problems upon which bubbles depend, rather, are first the absence of relevant information—which can itself be the product of a collective action problem, as I will explain presently—and second the absence of a collective actor to act on behalf of the dispersed actors. The needed information, for its part, is in the nature of a public good, which will tend accordingly to be underprovided by private actors; its absence, in other words, is itself partly the product of a collective action problem. The needed action, for its part, is not only information assembling, but also coordinative in character; it is a matter of solving an information problem and a prisoner's dilemma.

Both of these roles are Fed roles, the Fed being the nearest we have to a "systemic risk regulator." It is for the Fed to assemble the information required to determine whether asset prices are inflating, "Beautiful Baby"-style, beyond levels explicable by underlying, "fundamental" value. It is

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likewise for the Fed, as the "designated driver," to tighten up on available credit and loose money when individuals begin acting in manners that, although individually rational, are collectively irrational in the "positive-feedback," "Ponzi-process" manner.

Can the Fed do that? If the model layed out in Part II is correct, then yes, it certainly can. The Fed, from the late 1980s until recently, failed to act, one suspects, owing to a misconception on the part of its principal officers. That misconception sometimes was stated in the form of a claim to the effect that bubbles are not detectable until after they burst.[294] Other times, it has been stated in the form of a claim to the effect that, since bubble behavior is irrational and inefficient, while long-term irrationality and inefficiency cannot be plausibly attributed to asset markets, bubbles cannot actually occur.[295]

But neither of these claims is correct. The model in Part II.A shows where the second claim comes a cropper. And the tables presented in Part II.B show where the first claim goes wrong. While, of course, it is not easy to separate out "fundamental" value and "merely speculative" value with scalpel-like precision or an entirely bright line, it is often quite easy to find reasonable proxies for fundamental value and then to compare prevailing market prices to them. When home prices depart as significantly from counterpart rental prices and from building costs, as Figures 4 and 5 above show that they did in the late 1990s and early 2000s, there simply cannot be serious doubt that a bubble is afoot. Like remarks hold for the P/E ratio and stock price comparisons called to attention by Shiller and others in regard to our stock markets during the mid- to late 1990s.[296]

Moreover, there are other ways, at least in potential, to draw a bead on the point at which markets have shifted into bubble territory. As John Geanakoplos has argued persuasively for over a decade now, as well as partly corroborated, speculative asset price bubbles correlate closely to growth in economy-wide leverage. That is to say, collaterization requirements drop and, what amounts to the same thing, loan-to-value ratios rise sharply during speculative asset price bubbles.[297] Geanakoplos's work can be viewed as an updating of Irving Fisher's "debt deflation"

294. *See, e.g.*, GREENSPAN, THE AGE OF TURBULENCE, *supra* note 56, at 137.

295. *See supra* notes 35, 65 and accompanying text; *see also supra* note 56 (discussing the undetectability of bubbles).

296. *See* SHILLER, IRRATIONAL EXUBERANCE, *supra* note 9.

297. *See, e.g.*, John Geanakoplos, *Promises, Promises*, *in* THE ECONOMY AS AN EVOLVING COMPLEX SYSTEM 285, 285–320 (Brian Arthur et al. eds., 1997); John Geanakoplos, The Leverage Cycle (2009) (unpublished manuscript, on file with author) [hereinafter Geanakoplos, The Leverage Cycle].

account of depressions.[298] Against the backdrop of the model laid out in Part II, it is easy to see why this would be the case; growth in loan-to-value ratios would be an obvious reflection of lenders' betting, in effect, on continued capital gains on the part of their borrowers. Ironically—and to this Article's way of thinking, tragically—however, no public authority tracks economy-wide leverage ratios, while no private institution has enforceable access to the necessary data.[299] That is why, by the way, Geanakoplos has been able only "partly," as I just put it, to corroborate his claims; he has had access only to leverage data concerning securities in respect of which his own hedge fund has taken positions.[300]

In sum, then, just as Part IV.B has just proposed that Fannie and Freddie act for the collectivity now in solving that collective action problem that is the market's mass-undervaluation of MBSs, so should the Fed act for the collectivity in the longer term to solve those paired collective action problems that are the market's occasional mass-overvaluation of assets, partly in consequence of missing bubble-relevant information. Collective action problems demand collective actors. And when it comes to finance, the Fed—or perhaps, in the near future, the Fed as supplemented by a new "Systemic Risk Council"—is our principal such actor.[301]

How, precisely, might the Fed's taking this role seriously again lead to what I have called "modulation?" There are several ways. First, assembling and publicizing information of the kinds that I have just cited would enable private actors themselves to act in ways that would tend to modulate asset price swings. For those swings, as I have modeled them, occur against a backdrop of "radical," "Knightian" uncertainty that information of the sort that I have just noted will tend to displace. With the availability of such information, risk-averse investors would be less inclined to go long on assets in respect of which bubbles would otherwise form, and lenders would be less inclined to extend credit to them—at least to do so without requiring more in the way of collateral, interest, or both.

By the same token, more actors would be incentivized to go short—to bet against—continued asset price rises. For they would now possess sufficient information to appreciate more fully the sense in which—and

298. For Fisher's "debt inflation" account of depressions, see *supra* note 114.

299. *See* Geanakoplos, The Leverage Cycle, *supra* note 297.

300. *See id.*; *see also* Whitehouse, *supra* note 174.

301. The "Systemic Risk Council" idea figures in the Dodd proposal before the U.S. Senate at the time of this writing. *See* Robert Hockett, *Senator Dodd's Proposed Finance-Regulatory 'Overhaul'*, Mar. 25, 2010, http://www.dorfonlaw.org/2010/03/senator-dodds-proposed-finance.html.

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the timing with which—a bubble is underway and apt, before long, to reach its erstwhile radically uncertain endpoint.

Second, and relatedly, any inadequacy in private rates of betting against bubbles could readily be supplemented by regulatory action. For one thing, of course, the Fed now would have means of better timing their boosting of the market rate of interest, the credit-dampening margin requirements imposed upon financial institutions, or both. For another thing—and here we would be speaking not simply of the Fed, but the IRS working in cooperation with the Fed—we could readily impose a form of "Tobin taxation" on the capital gains realized by those who "flip" assets like houses during times of speculative excess, as now would be newly determinable by the Fed. In effect, such a measure would address from the capital gains side precisely what increased interest rates or margin requirements would address from the leverage side—viz., the spread that dramatically grows between borrowing costs and capital gains during any credit-fueled asset price bubble.[302]

It bears noting, before I turn to my other recommendations, that bubble preemption can even be viewed as a straightforward extension of the Fed's statutory inflation-prevention ("stable prices") mandate.[303] For, in light of the discussion of asset price bubbles above in Part II, what is such a bubble if not an instance of "hyperinflation"? All that differs between consumer price hyperinflations and asset price bubbles is the underlying item—consumer goods in the one case, financial assets in the other. This feeds directly into several more incremental, but complementary, regulatory measures that we now would do well to undertake with a view to our longer-term financial well-being.

2. *Portfolio Regulation by Reference to Underlying Assets*

Asset markets' overvaluation of assets during times of speculative excess, and their undervaluation of such assets during times of symmetrical "depressive" excess, are problem enough in themselves. But their harmful effects are transmitted more widely when assets are valued by regulators—not just the Fed, but other financial regulators as well—and private institutions by reference to market value. So-called "market value"

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302. Tobin taxes, which are transaction taxes placed upon churning—or in recent housing market language, "flipping"—assets of the sort characteristic of "speculation," as distinguished from "value investing," of course originate with James Tobin. *See* James Tobin, *A Proposal for International Monetary Reform*, 4 E. ECON. J. 153 (1978). A helpful collection of essays on Tobin taxation is THE TOBIN TAX: COPING WITH FINANCIAL VOLATILITY (Mahbub ul Haq et al. eds., 1996).

303. 12 U.S.C. § 225(a) (2006).

and "mark-to-market" accounting—employed by our financial regulators, our rating agencies, and many other institutions alike, as seen in Part II.B and IV.A—played a critical role in enabling our stock and real estate bubbles to inflate. They have more recently played an equally critical role in validating market actors' panic-rooted undervaluation of assets, again as noted in Part IV.A.

Just as the Fed must attend to both "fundamental" and market values associated with speculative assets, then, so must other regulators, raters, and other financial institutions. The arguments made in the 1990s and later for moves to "market value accounting" and like methodologies on the part of the FDIC and other regulators and raters are fair enough.[304] Indeed, it is obvious why market measures should be among those employed in valuing assets—particularly insofar as markets do indeed tend to be efficient impounders of price-relevant information. But it has never been obvious why such measures should altogether supplant, rather than simply complement, measures-by-proxy of more lasting, "fundamental" value. The model schematized in Part II.A shows, I believe, precisely why both should be employed. And then, when significant divergences appear between the two kinds of measures and then grow over time, regulators, raters, and others should be required to treat this as indicative of bubble behavior and to tighten up leverage requirements, lending rates, and money accordingly.

3. Derivative and Hedge Fund Disclosure

Another important component of the present crisis—at least its peripheral components—as described above is the fact that the multitude of derivative financial arrangements pursuant to which asset price risk was transmitted worldwide have been occluded. This is surely one of the most remarkable and surprising features of our current finance-regulatory environment. As any student of securities regulation knows, the leading strategy adopted by Congress in the 1930s for purposes of securities regulation was that of disclosure.[305] Then, private actors and regulators alike are more readily able to determine where and when further inquiry must be made.

Our securities-regulatory disclosure regime, however, has never been extended to derivative transactions. And, in consequence, these transactions are still counted as "off-balance-sheet activities." Up through

304. See *supra* note 60 on controversies over market-value accounting.
305. *See supra* note 266.

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the mid-1990s, there might arguably have been reason for this. Derivative transactions were, well, derivative—they were, at most, the tail on the dog of securities. Moreover, in view of their salutary risk-hedging and consequent market-completing properties, there might have been reason to give them a temporary pass for a time, to enable their use to proliferate and grow.

But that growth has long since occurred, and the once-tail now very much wags the dog. Leaving them off of the balance sheet guarantees that our financial system will be kept off-balance. The time for giving derivatives a full pass has long since passed. None of this is to say that derivative arrangements ought to be impeded, much less prohibited. It is only to say that they ought to be regulated as other securities long have been regulated—through required disclosure and explicit manipulative-activity prevention. This should be—and happily, in at least some form, now seems apt to be—at the top of the new Congress's "to do" list.[306] I will now mention two more measures, in passing, before I conclude.

4. A Glass-Steagall for Auditors, Rating Agencies, and Regulators

As is well known, a conspicuous bit of regulatory reform that came with Gramm-Leach-Bliley in 1999 was the express repeal of Glass-Steagall.[307] Banks now are able to affiliate with securities firms, as well as insurance companies, with abandon. A single financial holding company may hold multiple such firms. And the practice of "stapled finance"—whereby affiliates advertise their services to one another's clients in brochures that travel together as package deals—ensures that customers know of all siblings.[308] It is, of course, possible that all of this will have to be, or at any rate will be, revisited in the aftermath of our present crisis. I shall abstain from opining on this for present purposes, however, as there are other separation walls that it is much easier to say confidently that we ought to impose.

In essence, there are two conspicuous conflicts of interest that proliferate right now and are clearly germane to the integrity of our financial system. One is the case of auditors and rating agencies. These reputational intermediaries are retained and paid by the very financial firms that they audit and rate. And significant evidence already is

306. *See* Hockett, *supra* note 301.

307. See Gramm-Leach-Bliley Modernization Act of 1999, Pub. L. No. 106-102, 113 Stat. 1338 (1999) (codified as amended in scattered sections of 12 U.S.C.).

308. See MORRIS, *supra* note 15, on "staple finance".

emerging that some of these intermediaries have been lax in rating many of our recently worst-hit financial institutions.[309] A related conflict is that raised by the practice of many financial regulators—not to say Members of Congress—who pursue careers with financial institutions after brief careers regulating them.

Now, these are "large issues" that deserve separate Articles in their own right. That seems particularly so in light of the expense that would likely be occasioned by assigning the tasks of auditing and rating to government agencies. Nevertheless, it would seem that something in the way of imposition of walls of separation here could be managed at little public cost. It would not be at all difficult, for example, simply to prohibit former regulators from taking positions with financial firms for some lengthy period—say five years or more—following their stints in office. By the same token, it would not be that difficult to impose upon financial firms, as a sort of licensing cost, fees of the sort that they pay auditors and raters, with a view then to publicly paying those intermediaries. A slightly less fundamental measure that might offer some of the same benefits would be to impose a wall of anonymity between rating agenices and those whom they rate, even when the latter pay for the ratings. Measures of this sort would nicely complement those more critical measures proposed just above.[310]

5. *Originator Liability*

As a final complementary regulatory measure recommended by the tale told in Parts II.B and IV.A, it is tempting to suggest that we return full circle to where we were circa 1995, by extending some features of that regulatory regime to which we subject depository institutions, to the industry of so-called "mortgage banks." As noted above, this industry grew in the vacuum left by failed thrift institutions in the early 1990s. It was left unregulated and played a critical role in originating the bulk of the mortgages that have gone bad since 2006. Yet, in view of the model sketched in Part II—and of the historical correlation between protracted economic slumps on the one hand, and combined stock and real estate bubbles on the other—it is very puzzling, indeed, that we permitted this.

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309. *See, e.g.*, Press Release, U.S. Sec. Exch. Comm'n, SEC Proposes Comprehensive Reforms to Bring Increased Transparency to Credit Rating Process (June 11, 2008), *available at* http://www.sec.gov/news/press/2008/2008-110.htm.

310. At the time of this editing, the *New York Times* had come out strongly in favor of some such measure. *See* Editorial, *What About the Raters?*, N.Y. TIMES, May 2, 2010, at WK9.

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We do not, after all, permit manicurists and pizza delivery companies to underwrite or sell securities. Why, then, did we permit them to originate mortgages—a form of asset at least as critical to wealth and the health of the macroeconomy?

The final reform that I take our present troubles to show critical, then, is just this: Recognize once and for all that real estate finance is as critical as is corporate finance, and regulate markets in these assets accordingly. That might be the most crucial lesson learned by the Hoover and Roosevelt Administrations in the 1930s. It is also a lesson that we have had ample time to relearn in connection with Japan's, then Sweden's, and then East Asia's experiences over the course of the 1990s. Get as serious about regulating entry into these markets as we are about entry into banking and securities markets, then, and perhaps we won't have to learn the lesson again.

V. CONCLUSION: THE HOUSE AS RESTORED

To our detriment, we have forgotten the link between combined stock and real estate bubbles and bursts on the one hand, and protracted economic contraction on the other. To our detriment, we have also forgotten that stock and real estate bubbles can be detected while forming and pricked before growing. Finally, to our detriment, we have forgotten how the new systems of real estate finance and financial regulation put into place in the 1930s operated precisely to stabilize real estate and broader financial markets, and to prevent subsequent bubbles and bursts for over sixty years.

This Article has accordingly been, in a manner, a sort of remembrance. But its backward look has been conducted with a forward-looking purpose. The model that I have offered of asset price bubbles and bursts shows the shared structure of past and present, and the reason, in consequence, that updating old measures—measures that we have already begun to bring back with the renationalization of Fannie and Freddie last August—can bring new prosperity.

At literally no ultimate cost to the public fisc, FHA and its GSE siblings—Fannie and Freddie—cured our last real estate crisis. In so doing, they transformed us from a nation in which fewer than 40% owned their homes, to a nation in which 70% do. And all the while, new systems of bank and securities regulation—relying largely on easily administered disclosure, firewall, and entry-regulatory strategies—ensured that the broader financial system operated safely as well.

Since FHA remains both self-funding and best at what it does, and since the GSEs now have been refederalized in keeping with their original, pre-privatization mandates, their complementary original missions can now be restored. Their mandates are clear, are constitutional, and still can be more or less costlessly accomplished. They exist to spread and maintain nonspeculative home-ownership on Main Street. Set them to work on that now, and we will save Wall Street—and the global financial system—as well.

Meanwhile, restore and extend our broader system of financial regulation so as to track and prevent bubbles—both at their origins and at all points of support—and we will *keep* them safe.

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