ERRATUM IN EDITOR'S INTRODUCTION, p. 145

*The first sentence on the page should read:*

Ten years after the 1991 implementation of Basel I in the United States, the Federal Reserve, the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency, and the Office of Thrift Supervision adopted the "Recourse Rule," which added, to Basel I's assignment of a 20-percent risk weight to GSE-issued securities, the same risk weight for privately issued asset-backed securities, including mortgage-backed securities, that had received an AA or AAA rating from an NRSRO.

*Jeffrey Friedman*

# A CRISIS OF POLITICS, NOT ECONOMICS: COMPLEXITY, IGNORANCE, AND POLICY FAILURE

ABSTRACT: *The financial crisis was caused by the complex, constantly growing web of regulations designed to constrain and redirect modern capitalism. This complexity made investors, bankers, and perhaps regulators themselves ignorant of regulations previously promulgated across decades and in different "fields" of regulation. These regulations interacted with each other to foster the issuance and securitization of subprime mortgages; their rating as AA or AAA; and their concentration on the balance sheets (and off the balance sheets) of many commercial and investment banks. As a practical matter, it was impossible to predict the disastrous outcome of these interacting regulations. This fact calls into question the feasibility of the century-old attempt to create a hybrid capitalism in which regulations are supposed to remedy economic problems as they arise.*

I am privileged to introduce not only the first collection of scholarly essays devoted entirely to the question of what caused the financial crisis, but a collection that brings us much closer to a comprehensive answer.

As a proxy for the level of scholarly advance achieved in these pages, note that the claims of our distinguished contributors can, in the main, be fit into a larger mosaic with hardly any friction between the pieces. It

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*Critical Review* 21(2–3): 127–183
ISSN 0891-3811 print, 1933-8007 online
DOI: 10.1080/08913810903030980

is true that some of our authors blame the crisis on government action, while others blame it on government inaction. But the two types of claim are not mutually exclusive. Both actions and inactions can be the result of government *policy*, and for the most part, this is how our authors treat both the actions and the inactions for which they blame the crisis.

That is not to say that there are no disagreements among our contributors: Peter J. Wallison, for example, differs with Steven Gjerstad and Vernon L. Smith, and with Joseph E. Stiglitz, about the causal role of credit-default swaps. But every one of our contributors would certainly concur that the crisis had so many causes that, in principle, government action and, in other instances, government forbearance from action may both have played a role.

Lest anybody conclude that this is a thin basis for consensus, one may also say that, for the reasons just mentioned, our contributors agree that this was a crisis of politics, not economics. Nobody in these pages argues that it was just a normal business-cycle recession or even a normal popped asset bubble: As Gjerstad and Smith point out, asset bubbles inflate and burst frequently, but worldwide near-depressions are rare. Obviously the crisis took place within "the economy," but our authors agree that special, non-economic causal factors were at work—political factors—regardless of whether one names policies that backfired (as do Viral V. Acharya and Matthew Richardson; Gjerstad and Smith; Juliusz Jablecki and Mateusz Machaj; John B. Taylor; Wallison; and Lawrence J. White), or policies that could have been imposed but were not (as do Daron Acemoglu; Amar Bhidé; Gjerstad and Smith; and Stiglitz).

Which brings us to the elephant in the anteroom. Granting that the financial crisis was not a typical economic fluctuation, and granting that both regulatory action and regulatory inaction may have played a role, the intellectually (and politically) important question is whether it was nonetheless a crisis that can be laid at the feet of "capitalism." This question *does* divide our authors. Yet their contributions, which deal with some of the most important individual causes of the crisis, are not designed, for the most part, to answer that larger question.

To do so, this introduction will consider the big picture to which the individual papers contribute, even at the risk of violating Acemoglu's injunction to recognize that all capitalism is, of necessity, constrained by law. This is undeniably good counsel, but the larger

issue raised by the crisis is whether, without close *regulatory* supervision, capitalism is prone to implode. Clearly this was a crisis of regulated capitalism, but the pressing question is whether it was the capitalism or the regulations that were primarily responsible. The unique assemblage of cutting-edge research on the causes of the crisis published here does, as a whole, enable an intelligent nonspecialist reader to answer that question.

## I. CAUSES OF THE SUBPRIME BUBBLE

The deflation of the subprime bubble in 2006-7 was the proximate cause of the collapse of the financial sector in 2008. So one might think that by uncovering the origins of subprime lending, we would have identified the causes of the financial crisis. That is essentially where sporadic public debate about the causes of the crisis began—and ended—in the month following the bankruptcy of Lehman Brothers, and the 502-point fall in the Dow Jones Industrial Average, on September 15, 2008. But the subprime bubble is just one piece of the puzzle, so the intellectual consensus that had formed, at the latest, by October 2008—that runaway financial capitalism was at fault—may need to be revisited. To do so, we have to know why subprime loans had such a profound impact on the world financial system.

Bankers make bad loans, and businesses make other mistakes, all the time. But as with asset bubbles, business and banking mistakes do not ordinarily cause widespread disaster, even if the mistakes themselves are widespread. This is one sign that unusual factors may have been at work.

After drawing on the symposium papers to sketch a diagnosis of the causes of the subprime bubble in Part I, Part II will address why the bursting of that bubble brought down the financial system; Part III will discuss the question of whether capitalism or regulation deserves the blame—i.e., the question of what we have learned about the crisis thus far. Part IV addresses an even bigger question: what we can learn *from* the crisis.

### *The Community Reinvestment Act, Fannie, and Freddie*

Peter J. Wallison's "Cause and Effect" names the Community Reinvestment Act (CRA) as one of the first causes of the crisis, because new

regulations governing its enforcement, issued in 1995, led directly to subprime lending. First enacted in 1977 in an effort to rectify perceived racism ("redlining") in mortgage lending, the CRA was then revised to require that all mortgage-lending banks (for purposes of this introduction, "commercial" banks, but including savings and loans) prove that they were making active efforts to lend to the underprivileged in their communities. Wallison allows that most subprime lending did not occur under CRA auspices. But he argues that the new CRA regulations were only one aspect of a government-wide effort to expand homeownership rates among minorities and the poor.

The two huge "government-sponsored enterprises" (GSEs), the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac), were substantial contributors to this overall effort, under directives from the Department of Housing and Urban Development (HUD). Fannie Mae had been created by Congress in 1938 to repurchase mortgages from banks, so that banks would be more willing to issue them. Fannie was pseudo-privatized in 1968 to move it off the federal government's budget; in 1970, it was joined off-budget by another congressional creation with a similar homeownership agenda, Freddie Mac. Although after 1968, shares in these GSEs were owned by private investors, their congressional charters suggested that if they got into trouble, Congress would bail them out (as it did, in September 2008). This implicit federal guarantee enabled them to borrow money more cheaply than private competitors.

Subsidizing homeownership *for the poor* had long been a mission of the Federal Housing Authority (F.H.A.). The F.H.A. insured around one million no-down-payment mortgages in each of fiscal years 1998, 1999, 2000, and 2001 (England 2002, 73). But in 1994, according to Wallison, HUD ordered Fannie and Freddie to supplement, and eventually to far surpass, the F.H.A.'s efforts, by directing 30 percent of their mortgage financing to low-income borrowers. In response, Fannie Mae introduced a 3-percent-down mortgage in 1997. Traditionally, non-F.H.A. mortgages had required 20 percent down, giving them an initial loan-to-value ratio (LTV, in the trade) of 80. But such large down-payments were the biggest barrier to homeownership among the poor.

*Strictly* speaking, the "subprime" label applies solely to the credit score of the borrower, not the terms of the mortgage. But high-LTV loans were, at least when insured by the GSEs, designed to help impoverished

borrowers with spotty employment histories and thus low credit scores. So there was a great deal of overlap between high-LTV mortgages and subprime mortgagors: For instance, the average LTV of a subprime loan issued in 2006 was 95 (i.e., a 5-percent down-payment). However, by that point, high-LTV loans had also been extended to borrowers with better-than-subprime credit scores, such as "Alt-A" mortgagors, who barely missed the criteria for a "prime" loan. In 2006, the average Alt-A LTV was 89 (Zandi 2009, 33). Such "nonprime" mortgages played a significant role in what is more loosely called the "subprime" bubble.

In 2000, HUD increased the GSEs' low-income target to 50 percent (Schwartz 2009, 20); in the same year, Fannie launched "a ten-year, $2 trillion 'American Dream Commitment' to increase homeownership rates among those who previously had been unable to own homes" (Bergsman 2004, 55). Freddie Mac followed, in 2002, with "Catch the Dream," a program that combined "aggressive consumer outreach, education, and new technologies with innovative mortgage products to meet the growing diversity of homebuying needs" (ibid., 56). In 2005, HUD increased the target again, to 52 percent (Schwartz 2009, 20). In the end, according to Wallison, about 40 percent of all subprime and nonprime loans were guaranteed by the GSEs.[1] However, private-sector lenders, such as Citibank, Countrywide, Bank of America, and Washington Mutual originated the rest, and they started doing so long after the 1995 CRA changes. Moreover, not just the GSEs but commercial and especially investment banks, such as Lehman Brothers and Bear Stearns, turned these mortgages into "mortgage-backed securities" by taking vast pools of them and selling shares of the mortgage and interest payment streams to investors around the world.

The first private securitization of subprime loans did take place as a result of the CRA: In 1997, Bear Stearns securitized and sold $385 million of CRA loans that had been pooled together by First Union Capital Markets. However, the initial wave of privately securitized subprime loans petered out by the end of the twentieth century; subprime securitization began to take off again only in 2001, 2002, and especially 2003 (Jaffee et al. 2009, Fig. 2), and the peak years were 2004-7 (Zandi 2009, 43)—a decade and more after the CRA's enforcement was strengthened. Dwight Jaffee and his colleagues (2009, 49), in contrasting the private origination and securitization of mortgages with their insurance and securitization by the "agencies"—Fannie Mae; Freddie Mac; and Ginnie Mae

(which, unlike Fannie and Freddie, was an *official* arm of the U.S. government)—note that

> after 2002, the mortgage market, and, in particular, the securitization market changed dramatically[,] with non-agency MBSs representing 15 percent in 2003, 23 percent in 2004, 31 percent in 2005, and 32 percent in 2006 of the total securities outstanding. . . . A considerable portion of this issuance was subprime and Alt-A loans.

During the period leading up to the crash of 2008, the CRA still existed, to be sure, and it still exerted a powerful effect on mortgage issuance. One need only read back issues of *Mortgage Banking* magazine to get a sense of how preoccupied bankers were with "compliance." But something else seems to have happened, starting about six years after the CRA changes of 1995, to spur the second, much larger wave of private-sector participation in the subprime boom.

## *The Other Quasi-Governmental "Agencies": Moody's, S&P, and Fitch*

To find out what had changed, it is helpful to consider in some detail the Bear Stearns securitization of First Union's Community Reinvestment Act mortgages in 1997.

Normally a bond, including a mortgage-backed security (MBS), needs to be rated, so that investors will know how secure from default the income from it is likely to be. However, the 1997 First Union MBS was unrated. Bear Stearns was able to proceed with the securitization only because the mortgages in the MBS pool were guaranteed by Freddie Mac, producing "an implied 'AAA' rating" (as a news release from First Union put it).[2] Without this implicit rating, investors would have been unwilling to take the greater risk of default that was inherent in subprime mortgages.

Reflecting on the First Union subprime mortgage securitization in 1998, Dale Westhoff, senior managing director of Bear Stearns, explained why he had not been able to get explicit AAA ratings and had had to rely on GSE-conferred implicit triple-A ratings:

> Because CRA loans by design tend to be made to people with limited financial means, most of the borrowers have less than 20 percent equity in their homes. There is a disproportionately high number of loans with 95-plus percent LTVs. In fact, the average CRA portfolio is made up of at

least 30 percent high-LTV loans. This is a critical area of understanding that we continue to address with the rating agencies.

The flood of *private* subprime and nonprime securitization that began to take place five years after Westhoff wrote these words could not have occurred without a change of heart among the rating agencies, which, in contrast to 1997, later became willing to confer triple-A ratings on bonds consisting of segments of subprime mortgage-backed securities.

Although the rating agencies, like the government-sponsored enterprises, are privately owned, they are usually called *agencies* rather than *companies* for good reason—although the reason is not widely known. Lawrence J. White's paper shows that a welter of regulations going back to 1936 had, by the end of the twentieth century, conferred immense privileges on these firms, effectively making them unofficial arms of the U.S. government. A growing number of institutional investors, such as pension funds, insurance companies, and banks, were prohibited from buying bonds that had not been rated "investment grade" (BBB- or higher) by these firms, and many were legally restricted to buying only the highest-rated (AAA) securities. So income from producing the ratings was guaranteed to the rating firms. Moreover, in 1975, the Securities and Exchange Commission (S.E.C.) effectively conferred on the three rating firms that were then in existence—Moody's, Standard and Poor's, and Fitch—oligopoly status. In this ruling and subsequent actions, the S.E.C. ensured that only these three firms were Nationally Recognized Statistical Rating Organizations (NRSROs)—and that only an NRSRO's ratings (oftentimes, *two* NRSROs' ratings) would fulfill the numerous regulatory mandates for investment-grade and AAA ratings that had proliferated since 1936. The net result was that while the three rating "agencies" remained in private hands and could use whatever rating techniques they wished, their financial success did not depend on the ability of these techniques to produce something that somebody would have wanted to buy (in the absence of the earlier S.E.C. regulations)—such as *accurate* ratings. Instead, their profitability depended on government protection. If the rating agencies used inaccurate rating procedures, they would not suffer for it financially—let alone go out of business.

Moody's and S&P, the oldest of the three agencies, had a proud history that is too often repeated as if it has any bearing on the quasi-governmental entities they have become. As a typical media report frames the story, it all started with

> Henry Varnum Poor's publication in 1860 of *History of Railroads and Canals in the United States* and John Moody's *Manual of Industrial and Miscellaneous Securities* in 1900. Since the Great Depression, U.S. agencies have relied on the companies to help evaluate the credit quality of investments owned by regulated institutions, gradually bestowing on them quasi-regulatory status. (Smith 2008a)

This story, like most media coverage of the rating agencies, goes awry as soon as it gets to the Great Depression. Since then, as White's paper shows, the income of these legendary firms has depended increasingly on regulatory mandate, not the savvy risk assessment exemplified in the original Poor's and Moody's ratings books. Nor were (official) U.S. government agencies merely relying on the rating firms for "advice," as the reporter claims; both the federal government and the states were *forbidding* institutional investors from buying securities that these firms rated as below investment grade or AAA. Most importantly, however, the reporter omits mention of the 1975 S.E.C. ruling that effectively forbade anyone else from competing with Moody's, S&P, and Fitch for the institutional investors' mandatory business. The effect of this ruling, combined with the others since 1936, was to license the three agencies to be sloppy, corrupt (as the currently popular theory has it), or simply inaccurate: No competitor could take advantage of their mistakes.

In hindsight, the three agencies' cardinal error seems to have been their use of mathematical approaches to risk assessment, such as the now-infamous Gaussian copula (Coval, Jurek, and Stafford 2008; Jones 2009), to predict the default rates of mortgage-backed securities. Such probabilistic bell curves have famously been criticized for their naïve reliance on historical patterns by Nassim Taleb (2005 and 2007). In open competition with the Big Three, another rating firm might have exposed the foolishness of such models, or at least raised doubts. If one cannot imagine a rating firm run by the outspoken Taleb, there were plenty of disgruntled employees at the Big Three agencies who, as recently as 2000, might have been able to start a competitor firm if legal barriers to entry had not been in place. Frank Raiter, an S&P managing director, "and his counterpart at Moody's, Mark Adelson, say they waged a losing fight for credit reviews that focused on a borrower's ability to pay and the value of the underlying collateral" of the mortgage-backed securities—i.e., the value of the mortgages themselves. "Adelson, 48, who quit Moody's in January 2001 after being reassigned out of the residential

mortgage-backed securities business," told a reporter that in his view, "there is no substitute for fundamental credit analysis" (Smith 2008a).

One can only speculate about what other methods might have been used by competitors to the rating agencies had it not been for the legal barriers to entry. All one can do by way of example is point to the vibrant market in equities-investment ratings, which includes not only firms such as Morningstar and publications such as *Investor's Business Daily* and *Forbes,* which publish competitive ratings of stocks and mutual funds; but which encompasses many different approaches, ranging from "technical" analysis (which is somewhat akin to historical-probability assessment) to "value" investing (which is somewhat akin to fundamental credit analysis).

Of course, competing bond raters need not necessarily have obtained NRSRO status: Like many equities "raters," they could have offered their ratings to the investing public for a price. But the price was limited by the investing public's apparent ignorance of the fact that legal protections, not the accuracy of their predictions, were the basis of the Big Three's continued existence and profitability. Thus, there was no demand for an alternative. The fact that the bond-rating agencies were shielded from competition is, even now, not widely known among scholars, let alone financial reporters—and such obscure matters are unlikely to be well known to bond investors if they are not reported.[3]

It is little wonder, then, that with the 2000 stock-market crash having called equities investing into question, and given the relatively high returns offered by mortgage-backed bonds in comparison to the minuscule interest rates engineered by the Federal Reserve (and emphasized by Stiglitz and Taylor), many investors would have found such bonds irresistible—when they were rated AAA (by an NRSRO). An I.M.F. report (2008, 80) concludes that "investors were in many cases too complacent about the risks that they were taking by . . . relying too heavily on rating agencies for assessing the risks to which they were exposed."

That generalization applies even to some of the most sophisticated investors.[4] Bear Stearns had two hedge funds whose subprime holdings led to the demise of the parent company. Shares in these funds were sold to very rich, experienced investors, using a sales pitch that was compared to "a broken phonograph record . . . that basically says, 'The fund is 90 percent invested in AA and AAA structured finance assets . . .'" (Cohan 2009a, 311). Nobody who knew about the legally protected status of the rating agencies would have been impressed by the ratings, nor would they have been shocked if the ratings turned out to be unreliable. But

when Moody's suddenly downgraded some of its triple-A MBS ratings in the second half of 2007, executives at such gigantic investment firms as Vanguard, Pimco, and BlackRock flooded their counterparts at Moody's with outraged e-mails:

> "If you can't figure out the loss ahead of the fact, what's the use of your ratings?" asked an executive with Fortis Investments, a money management firm, in a July 2007 e-mail message to Moody's. "You have legitimized these things, leading people into dangerous risk." (Morgenson 2008, 32)

If such investors had known that Moody's could prosper no matter how inaccurate its ratings, they surely would not have been so stunned when its ratings turned out to be inaccurate.

## *How the Rating Agencies Spun Straw into Gold*

None of this is to say that the rating agencies deliberately cooked the books. There was a compelling logic to the way subprime mortgages came to be rated as being essentially risk-free.

Each MBS consisted of thousands of mortgages, all in a common pool. In a "structured" MBS, different segments, or "tranches," of the income generated by the pool were assigned payment priority over each other. The top, "senior" tranche, which had priority over all the others, was rated AAA. The next tranche to receive payment was rated AA, the next A, and so on. The different ratings were not justified by different-quality assets; the senior tranche was indiscriminately drawing income from the same pool of mortgages as the lower tranches. But if any of the mortgages in the entire pool defaulted or was late in making a payment, the losses would be felt first at the bottom of the structure, insulating the top tranches from risk. The risk of delinquency or default on the *mortgages* might be the same for the entire pool, but the risk of a resulting interruption in *income* was lower for the triple-A tranche than the double-A tranche, lower for the double-A tranche than the A tranche, and so on down the line. There were also other protections, such as "overcollateralization," for the senior tranche.[5] And the mortgage pools tended to be geographically diversified, which offered insurance against the only type of housing-market bubbles that had been experienced since the Great Depression: local ones.

In exchange for the higher risk they bore, investors in the subordinate tranches received higher rates of return, just as investors in corporate junk

bonds generally receive higher rates of return than do investors in AAA-rated corporate bonds. But despite their lower payoff, the triple-A rated tranches were in much the greatest demand.

Subprime loans commanded interest rates that were roughly 2 percent higher than prime mortgage rates, due to their greater risk of default. For instance, in 2006 the average prime mortgage rate was 6.41 percent, but the average starting ("teaser") rate for privately securitized subprime adjustable-rate mortgages (ARMs) was 8.23 percent.[6] The 2-percent risk premium was passed on, in the form of higher income, to investors in the subordinate tranches, while investors in the senior tranches got enough income to make the investments competitive with other triple-A bonds. The demand was for safety more than yield, and the logic of tranching enabled the securitizers and the rating agencies to produce it—or so it seemed.

Many investors held shares not in simple structured mortgage-backed securities but in collateralized debt obligations, or CDOs, where the tranching principle was extended to produce higher proportions of triple-A ratings. In a CDO, tranches of several asset-backed securities (ABSs), such as MBSs, were themselves combined into a pool and tranched, resulting in a "senior AAA" tranche, a "junior AAA" tranche, and then AA, A, BBB, and unrated ("equity") tranches. A high-grade CDO could produce a triple-A tranche constituting 93 percent of the bond (I.M.F. 2008, 60). There were even "CDO-squared" bonds, which pooled tranches from several CDOs (each consisting of several MBSs, each consisting of thousands of subprime mortgages).

The tranching process has been portrayed as too complicated to understand, but it is really quite simple, and the reasoning is sound: Within any given pool of mortgages, even if 99 percent default, 1 percent of the investments in the pool would be justified (ex post facto) in being rated AAA. The fly in the ointment was not the complexity of tranching, but the width of the tranches—which depended on predictions of future delinquency and default rates. The large triple-A tranches were based on the rating agencies' low estimates of the probability of delinquencies and defaults in the underlying pools of subprime and nonprime mortgages. Everything depended on these estimates, which, in turn, depended on the agencies' mortgage-behavior models, which predicted default probabilities based on historical data. But Moody's, for instance, had not bothered to update its "basic statistical assumptions about the U.S. mortgage market since 2002" (Jones 2008).[7] This meant

that the dynamics of the new subprime and nonprime lending had not been factored in.

## *The Fed and the Housing Bubble*

These dynamics were a function of the larger housing bubble. The papers by Gjerstad and Smith, Jablecki and Machaj, Stiglitz, and Taylor all argue that the cause of the larger housing bubble was a flood of credit that pushed the interest rates paid on home mortgages (and on everything else) to record-low levels.[8] The Federal Reserve began to lower interest rates early in 2001, for fear that the tech bubble's bursting might lead to deflation; and after September 11, 2001, it kept interest rates low for another five years.

Stiglitz's paper suggests that the Fed might not have needed to pump up aggregate demand with such low interest rates had not the Iraq war, which began in 2003, driven up the price of oil. By that year, the federal funds rate had fallen from 6.5 percent to 1 percent, where it stayed until gradual increases began in mid-2004. Prime mortgage rates followed, dropping from about 8 percent in 2000 to 5.25 percent in 2003, and then hovering between 5.25 and 6 percent until 2007 (Zandi 2009, 65). These were the lowest home-mortgage rates since the end of World War II.

Mortgage payments are almost always a family's largest financial obligation, and they are sensitive to small changes in the interest rate:

> The average home buyer in 2000 took out a $150,000 mortgage. At the 18 percent mortgage rates of two decades earlier, such a loan would have required a $2,400 monthly payment, half the average household's after-tax income. At 8 percent, the payment would be $1,250; at 6 percent, the cost drops to a very manageable $1,050 per month. (Zandi 2009, 66)

Obviously, then, low interest rates are good for the housing business—but they have a downside, from a mortgage-banker's perspective. If a mortgage loan is made at 5.25 percent, based on a federal funds rate of 1 percent, but the latter rate rises, the bank is in danger of having to borrow money, and pay money to depositors, at higher rates than it is taking in from mortgagors. This is a quick route to insolvency.

Wallison points out that the laws of the individual states give mortgage borrowers the right to refinance their loans if interest rates *fall*[9]—but mortgage lenders have no such legal right if interest rates go up, unless they

put such a provision into the terms of the mortgage contract. This is known as an adjustable-rate mortgage (ARM). Clearly the extremely low interest rates of the early 2000s would not last forever, so in 2004 banks began issuing a huge wave of ARMs with low two- or three-year teaser rates. These low initial rates compensated the borrower for assuming the risk of future interest-rate hikes, although surveys showed that many ARM borrowers were ignorant of this risk (Zandi 2009, 54). After the teaser periods, the mortgages would reset, and keep on resetting, to align with prevailing interest rates. By 2006, more than 90 percent of all subprime mortgages and 80 percent of all Alt-A mortgages were ARMs (ibid., Table 2.1). Once interest rates plateaued in 2006, ARM issuance fell. But in 2006 and 2007, ARMs issued in previous years began to reset at the higher rates, and subprime mortgage default levels began to spike. "From January 2007, the Moody's U.S. residential mortgage bond team began tracking a disturbing rise in the number of subprime mortgages going delinquent. . . . This was not in their models—nor anyone else's" (Jones 2008).

Something else that would be missing from a model that had not been updated since 2002 was the effect of a housing boom on the loan-to-value ratio of a mortgage. As the price of a house rises, its LTV ratio declines. A conventional 20-percent-down mortgage with an initial LTV of 80 would reach 73, without any principal payments by the homeowner, if the price of the house simply rose by 10 percent. By the same token, a 25-percent price increase would push the initial 100 LTV of a zero-percent-down mortgage down to a respectable 80. Therefore, low- or no-money-down loans—to both prime and subprime borrowers—became increasingly common as the housing boom continued. So, too, as Wallison points out, did second mortgages, in the form of home-equity loans, home-equity lines of credit, and "cash-out refinancings,"[10] all of which effectively raise the LTV by increasing the size of the mortgage. This effect is counteracted, however, as the price of a house rises.

There are at least two reasons why low LTVs might correspond with lower default rates. The first reason is heuristic: A borrower who can put 20 percent down is likelier to be in better financial straits than one who cannot, and is likelier to be committed to staying in the house and thus to making the required payments. Second, however, even if the financial condition of the borrower is poor, when the LTV declines due to a housing boom, it means that the resale value of the house is probably going up. A financially stretched subprime borrower thus has an incentive to keep making difficult-to-afford payments until he sells the

house. The same reasoning applies even more to Alt-A borrowers, who have a better history of making payments on time, so as housing prices went up, so did Alt-A lending.

When house prices began to go down, however, these dynamics started to work in reverse. As an LTV *rises* due to the *declining* price of a house, the incentive to keep paying the mortgage declines, too. Even before a mortgage goes "underwater" (meaning that it has an LTV over 100), a borrower may decide that payments on a house with a plummeting resale value are not worth making, and may simply "walk away" from the mortgage if he cannot sell the house. Wallison points out that this is possible in many states, such as California, because of laws that give banks "no recourse" in case of default. And it is likeliest to happen with subprime borrowers, who can least afford to make payments in the first place.

Thus, the I.M.F. (2008, 5) reported in April 2008 that "delinquency rates on subprime mortgage loans originated in 2005-6 have continued to rise, exceeding the highest rates recorded on any prior vintage." The "vintage" is the year in which a mortgage was originated. The I.M.F. data show graphically that delinquencies on subprime mortgages that were originated in 2000—before the housing boom—peaked four years later, with an average of 25 percent of the loan balance unpaid (ibid., 6). By contrast, 2006-vintage subprimes had reached 25-percent delinquency values a mere one year after they were issued, and as of March 2008, the slope of their ascent was nearly straight up (toward 100 percent default) and showed no sign of tapering off.

A model last updated in 2002 would not have predicted such changes—which is why they caused such consternation in the Moody's team that detected them in January 2007. The problem was not just with Moody's, however: According to the I.M.F. (2008, 62), all three rating agencies underestimated "the joint effect of house price declines and high loan-to-value ratios."[11]

* * *

Thus, if we are trying to explain the subprime boom—and bust—we need to keep in mind at least the following five regulatory factors:

1. HUD directives to Fannie and Freddie, beginning in 1994, which produced a gigantic spate of government-insured subprime and nonprime lending and securitization.

2. The innumerable regulations that had, since 1936, "canonized by decree" the judgments of the rating firms.
3. The 1975 S.E.C. decision to confer legally protected status on the three extant rating agencies.
4. The loose-money policies of the central banks (not just in the United States, as Taylor shows), which, in sparking the overall housing boom, also created a large but fragile subprime bubble.
5. "No-recourse" laws, entitling mortgagors to suffer little consequence if they defaulted.

The first four factors may explain why so many subprime, Alt-A, high-LTV, adjustable-rate, and even low-documentation, no-documentation, and "Ninja" (no income, no job, no assets) mortgages were issued during the 2000s: namely, so that they could be sold to Fannie, Freddie, and the private securitizers—the last of which were able to tranche pools of these mortgages in a way that produced AAA ratings for wide segments of the pools. This reasoning might suffice to explain the demand for, and thus the supply of, subprime and nonprime mortgages. It would also explain why investors were eager to buy these securities, and why the underlying assets—the subprime and nonprime mortgages—were so vulnerable to delinquency and default (factor 5) once the overall housing boom ended.

However, all of this would merely mean that the five listed policies, rather than "capitalism," set the stage for a decline in the portfolios of investors in subprime securities. But declines in stock and bond markets reduce investors' portfolio values very frequently—without causing the world's financial system to seize up. So we cannot necessarily attribute the *financial* crisis to the listed regulations, even if they were necessary to produce the *subprime* crisis; and even if, in turn, the subprime crisis was necessary to trigger the financial crisis. Something is missing from this story—something that would explain why what turned out to be bad investments did not just cause a decline in investors' wealth, but a global financial collapse.

## II. FROM SUBPRIME BUBBLE TO FINANCIAL PANIC

Why did a few bad subprime investments—hundreds of billions of dollars' worth, to be sure, but a mere drop in the ocean of global capitalism—cause a worldwide financial crisis?

Taylor's paper gained its fame by targeting central-bank policy as the culprit in the housing bubbles of various economies, including that of the United States. But the paper has many subtler merits, and one is to suggest that the U.S. central bank got it wrong a second time by assuming, in September 2008, that the underlying cause of the financial collapse was a lack of liquidity (cash)—with which it promptly flooded the economy. Taylor argues that this didn't help—at least not at first—because the reason banks were not lending to each other was not that they didn't have the cash on hand; it was because they feared for each other's ability to repay, because they were uncertain about which banks were holding subprime securities, and about how "toxic" these would turn out to be once the housing bubble had fully deflated. According to Taylor, then, the fear of mutual insolvency did lead to a liquidity crisis; but more liquidity was not the answer to the underlying problem. According to Jablecki and Machaj, the temporal sequence was reversed: The initial problem was liquidity. But the underlying problem was still insolvency.

The liquidity crisis, whatever its cause, explains the collapse of Bear Stearns, Lehman Brothers, and other investment banks. They were the main private securitizers of subprime mortgages, and investment banks are extremely dependent on short-term loans. As Gjerstad and Smith suggest, several investment banks had high quantities of subprime mortgages in their securitization pipelines (also see S.E.C. 2009, 137; Gorton 2008, 70). Once doubts were raised about the accuracy of the ratings on these securities, and thus about their value, short-term lending to these investment banks dried up—literally overnight.

But the rates that banks charged each other, much discussed in these pages under the acronym LIBOR (London Interbank Offered Rate), began to rise in September 2007—six months before the demise of Bear Stearns, and a year before the bankruptcy of Lehman Brothers. Moreover, when Lehman failed, interbank lending froze everywhere, including among *commercial* banks (which, unlike investment banks, get their income largely from depositors, not investors). Commercial banks not only originated subprime mortgages; some commercial banks also securitized them, and thus also had them in the pipeline (Gorton 2008, 70). But the papers by Jablecki and Machaj and by Acharya and Richardson suggest that the larger problem was that the commercial banks had *invested* in the subprime securities that they, along with the investment banks (and the GSEs), securitized. In

2005, banks of all kinds owned 45 percent of all subprime mortgage-backed securities, worth $155 billion; in 2006, they owned 51 percent, worth $264 billion; and in 2007, 39 percent, worth $127 billion (I.M.F. 2008, 78).

Regardless of whether these securities originated with the GSEs, with the investment banks, or with the securitizing arms of commercial banks themselves, the point, according to the Acharya-Richardson and Jablecki-Machaj papers, is that so many of them ended up in the hands of the commercial banks—whether on or off their balance sheets. This concentration of risk in the banks was, these authors hold, responsible for the financial crisis. And both papers conclude that the reason for this concentration of risk in the banks was the "Basel accord," named after the location of the Bank for International Settlements (B.I.S.)—the standard-setter for the world's banking regulators.

## *The Concentration of Risk in the Commercial Banks*

The Basel accord, reached in 1988, was subsequently adopted by the governments of all the advanced economies, including the United States, and governed the minimum capital ratios of commercial banks until the Basel II accord was phased in, beginning in 2006.

According to the Basel I rules, an adequately capitalized commercial bank must maintain 8 percent capital against its assets. This capital is intended as security for assets, such as loans, that might default.

Capital minima like these are as old as deposit insurance (F.D.I.C. 1984, ch. 6). What was new with the Basel accords was that they linked the required capital to differences in risk among different types of asset. Thus, a government bond was judged to have zero risk of default, meaning that a bank needed to hold no capital against it under the Basel I rules. At the other end of the spectrum, commercial loans were given a 100-percent risk weight, requiring 8 percent capital: For every $100 in commercial loans, a bank had to have $8 in capital (see Jablecki and Machaj). Mortgages fell exactly in the middle, with a risk weight of 50 percent. Thus, a bank had to maintain $4 of capital against every $100 in mortgages that it originated: $100 x .08 x .50 = $4.00.

However, the Basel rules assigned a risk weight of a mere 20 percent to securities issued by government-sponsored entities, which

were interpreted in the United States to include Fannie Mae and Freddie Mac. Thus, a bank would have to maintain only $1.60 of capital against $100 of such securities: $100 x .08 x .20 = $1.60. A bank that originated a $100 mortgage, sold it to Fannie or Freddie for securitization, and then bought it back as part of a mortgage-backed security would reduce the amount of capital it needed from $4 to $1.60. Since $1.60 is 40 percent of $4, such transactions would increase the bank's leverage—its borrowing and lending power, and thus its potential profitability—by 60 percent. Nor would it matter what type of mortgage the bank originated: It would get the same minimum-capital reduction by transforming a mortgage into part of a mortgage-backed security regardless of whether the mortgagor had put down 20 percent or nothing at all, and regardless of how well documented or how low the mortgagor's income might be. Any mortgage that a GSE would securitize was, under the Basel rules, profitable for American banks to originate—and profitable for them to buy back as part of a security.

Thus, the low risk weight that the American regulators attached to GSE securities provides an explanation for why commercial banks found it profitable to *originate* nonprime and subprime mortgages that is compatible with the factors listed at the end of Part I. The homeownership-expansion mandates imposed on the GSEs by HUD starting in 1994 made them eager to buy nonprime and subprime mortgages, and thus made it profitable for mortgage originators to sell their loans to the GSEs for securitization. But perhaps more importantly, the regulations also made it profitable for commercial banks to *buy back* the mortgage-backed securities created by the GSEs. Unlike other investors, who merely received income from mortgage-backed bonds, banks also received a 60-percent increase in their potential earnings on the mortgage portion of their assets. Acharya and Richardson's Table 1 shows that banks held $852 billion of "agency"-issued mortgage-backed securities (from Fannie Mae, Freddie Mac, and Ginnie Mae), or 24 percent of all such securities that were not held by the two GSEs themselves.

However, that still leaves us with the question of why *private* securitizers, such as Bear Stearns, became so heavily involved in subprime securitization after 2002, and why so many of *their* mortgage-backed securities—not just those issued by the GSEs—found their way into the portfolios of commercial banks. Here, too, according to the Acharya-

Richardson and Jablecki-Machaj papers, the answer may lie in the Basel rules. When the United States phased in Basel I in 1991-92, the Federal Reserve, the Federal Deposit Insurance Corporation (F.D.I.C.), the Office of the Comptroller of the Currency (O.C.C.), and the Office of Thrift Supervision (O.T.S.) added, to their assignment of a 20-percent risk weight to GSE securities, the same risk weight for asset-backed securities, including mortgage-backed securities, that had received an AA or AAA rating from an NRSRO. Starting at the end of 2006, Basel II adopted a similar approach for the entire developed world.

Under Basel I, banks anywhere in the world could also escape capital minima entirely by creating "structured investment vehicles" (SIVs) and other off-balance-sheet entities (OBSEs) to buy securities, as long as these were sustained by credit lines from the banks that lasted for less than one year. SIV purchases were paid for with money borrowed from money-market funds, and 95 percent of a money-market fund's investments have to be in double-A or triple-A securities—another of the many regulations that have accreted to make the credit-rating firms into "agencies." In Europe, where the regulators did not grant "capital relief" for double- or triple-A mortgage-backed securities until 2007, forty-one SIVs were established, compared to only sixteen in the United States (six of which were creatures of one bank, Citigroup). All SIVs, however, tended to be funded in American money markets, requiring that they buy mostly AA- or AAA-rated securities.

Thus, under Basel I and Basel II, banks around the world were encouraged to hold GSE-issued and double- or triple-A asset-backed securities, and Acharya and Richardson's Table 1 shows that this is exactly what they did. Of the $1.323 trillion in mortgage-backed securities held by banks and thrifts in 2008, 93 percent were either rated triple-A or were issued by a GSE. Thirty percent of the world's AAA-rated asset-backed securities were on banks' balance sheets, and another 20 percent were in their SIVs and other off-balance-sheet entities (Acharya and Schnabl 2009, Table 2). Thus, half of them, in all, stayed with the banks rather than being sold to other investors.

To be sure, the advantages conferred by the Basel rules for owning GSE, double-A, or triple-A asset-backed securities did not require that the assets consist of pools of *subprime mortgages*. But the housing market had not experienced serious trouble since the Depression; and if a bank could obtain 60-percent "capital relief" by buying securities rated as

nearly risk free, or 100-percent capital relief by placing them in an OBSE, why pass up the opportunity?

## *Was It the Bankers' Greed, Then, After All?*

It might seem that we have now laid the financial crisis at the feet of government, not "capitalism": Without the Basel rules, commercial banks would not have loaded up on subprime securities. And had they not done so, the dawning realization that these securities might be "toxic," despite their ratings, would not have caused lending among the banks to freeze. No Basel rules, no overinvestment in toxic securities *by the banks*; no overinvestment in toxic securities by the banks, no financial crisis.

But if we look at the same process from a different angle, the bankers concentrated risk in their own portfolios *so that they could make more money*. So it might seem that, after all, the most popular explanation of the crisis is true, although for a reason most people have never heard of: "Greedy bankers" were indeed at fault, because they took advantage of the Basel rules to "leverage up." They bought (risky) subprime securities to reduce the amount of capital they were required to hold against the risk (ironically) of lending—so that they could make more (risky) loans, hence more profits. Nobody *forced* them to do that. It was the bankers' avarice, then, that caused the crisis. And is not avarice, a k a "self-interest," the engine that is supposed to make capitalism produce wonders?

The short answer is no. Avarice did not cause the crisis. And avarice is not what makes capitalism work. The latter point, and thus a resolution of the relationship between "capitalism" and the crisis, requires its own exposition (Part III). For now, let us consider whether the story of the Basel rules is a tale of "greed."

The Basel rules were indeed designed to be buffers against excessive risk-taking by commercial banks. The 8-percent Basel capital minimum, multiplied by the 50-percent risk weight assigned to mortgage loans, amounts to a leverage ceiling of 96 percent on those loans. By exchanging mortgages for mortgage-backed securities, a bank could increase its leverage even higher. This may seem like excessive risk-taking. But truly "excessive" risk-taking causes a bank to lose money. A greedy banker may want to make more money, but he also doesn't want to lose it. The miser who hoards his pennies is as greedy as someone who borrows as

much as possible in order to gamble with it: With leverage comes not only the promise of large gains, but the risk of great losses. Avarice, therefore, can lead to leveraging down as much as it leads to leveraging up: If greed is a banker's motive, *raising* his capital ratio (to reduce his leverage) makes as much sense as lowering it.

Thus, when we see bankers leveraging up, avarice is not the issue. *Confidence* is.

A bank that leverages up is relatively confident in the accuracy of its judgments about how to make money—and relatively confident in its judgments about how to avoid losing it. If its judgments are right, its confidence will be rewarded with profits. If they are wrong, then—in hindsight—its confidence will have been imprudent. So the question, in hindsight, is not why so many banks acted so greedily, but why they acted so imprudently.

Still, even if the problem with financial capitalism is better described as imprudence than greed, it would be quite a problem. So the question is whether taking advantage of the Basel rules by leveraging up indicates that bankers were imprudent. That, in turn, depends on how one defines imprudence.

If imprudence merely means miscalculating risk—i.e., making a mistake—then the answer is yes, almost by tautology. With the clarity of hindsight (and assuming, as we have been doing, that the ratings of the double- and triple-A tranches were inaccurate), then the bankers' actions were manifestly imprudent.

On the other hand, if imprudence means a reckless disregard for risk, the bankers' actions indicate quite the opposite.

If the only thing bankers had cared about was making money, heedless of the risks involved, then they could have exclusively bought double-A subprime securities, which conferred exactly the same capital advantage as triple-A securities—*but which produced a higher yield*. But Acharya and Richardson's Table 1 shows that in fact, only 19 percent of the rated securities held by banks were rated AA or lower. Eighty-one percent of the time, bankers chose lower-yielding triple-A securities. The bankers' preference for AAA over AA securities demonstrates that they were not blind to risk.[12]

It also demonstrates that they, like everybody else, believed in the accuracy of the triple-A ratings, since they were trading the greater returns on double-A tranches for the supposed safety of triple-As. As Mark Zandi (2009, 116) writes of subprime securities,

> Banks themselves were the first in line, picking up most of the senior-rated segments. Returns on these were low, but greater than the banks were paying to their own depositors.

This behavior is nothing if not prudent.

Moreover, most banks went the extra mile and bought additional insurance on these securities, both from "monoline" insurers, which provided 100-percent loss protection (Gorton 2008, 38n42) on some portion (generally 20 percent) of the securities; and in the form of credit-default swaps—as Wallison explains in "Credit-Default Swaps Are Not to Blame."[13] The evidence, then, suggests that bankers were not imprudent in the sense of ignoring risks that they knew about. Rather, they were ignorant of the fact that triple-A rated securities might be much riskier than advertised.

Take the head of the two Bear Stearns subprime hedge funds, Ralph Cioffi. It was his pitch to investors that consisted of endlessly repeating the fact that the funds' assets had triple- or double-A ratings. Not only did his clients believe that these assets were safe; so did he. Thus, he was willing to risk a jail term by lying to his clients from December 2006 to February 2007, when news of subprime defaults was spreading and the credit-default swap insurance price of subprime CDOs was rising (Cohan 2009a, 311-12). To reassure his clients, Cioffi reported that he was selling subprime CDOs during this period when he was actually buying them. He must have been sure that there would be no investigation, hence no jail sentence, if doubling down on subprimes turned out well for his investors—so clearly he must have believed that in buying them, he was not courting disaster.

Cioffi's partner, Matthew Tannin, seems to have held the same set of beliefs. Tannin followed Alan Greenspan (Zandi 2009, 72-73) and Ben Bernanke (Posner 2009, 90) in thinking that there was no nationwide housing bubble, as opposed to local bubbles in a few cities (Cohan 2009a, 305). E-mails to Cioffi unearthed by the F.B.I. show that Tannin thought buying subprimes was a good idea as late as February 28, 2007 (ibid., 322).

Both Tannin and Cioffi had millions of dollars invested in the subprime hedge funds they ran, and Cioffi moved $2 million of his $6 million investment out of these funds only on March 23, 2007 (Cohan 2009a, 325). As of March 28, however, Tannin was still in: "'I simply do not believe anyone who shits all over the ratings agencies,' he wrote. 'I've seen it all before. Smart people being too smug'" (ibid., 326). It was not

until April 22, 2007—two months before the funds collapsed—that Tannin began to have doubts. A new internal analysis of subprime CDOs suggested to him that "the subprime market looks pretty damn ugly. If we believe the [new CDO report] is ANYWHERE CLOSE to accurate, I think we should close the funds now" (quoted, Cohan 2009a, 328). This was toward the end of a tortured letter that Tannin routed to Cioffi through their wives' personal e-mail accounts (ibid., 327). The message began by reflecting on how much Tannin loved his work with Cioffi, and how "he had no doubt 'I've done the best possible job that I could have done. Mistakes, yep, I've made them,'" he admitted, but "'all one can do is their best—and I have done this.'"

These are not the words, nor were Tannin and Cioffi's actions the behavior, of people who had deliberately taken what they knew to be excessive risks. If Tannin and Cioffi were guilty of anything, it was the mistake of believing the triple-A ratings.

## *The Executive-Compensation Theory*

Eminent economists have been joined by the president of the United States, however, in claiming that the problem was precisely that bankers *knowingly* took excessive risks. The reason they have offered is that the compensation structure of the banks gave bankers an incentive to disregard risk. Executives and, in many cases, lower-level employees were rewarded with bonuses for profits; but if profits turned to losses and the executives were fired, they often had "golden parachutes" to protect them from financial damage. Meanwhile, lower-level employees suffered no diminution in base pay even if they failed to get a bonus because of losses (Posner 2009, 93–100).

This theory has the advantage of relying on the basic tool of contemporary economics: *incentives*. But it has the drawback of economists' insensitivity to other factors—such as *ignorance*—which is so trenchantly pointed out in Colander et al.'s critique of contemporary economics.

There is no question that incentives have real effects—when economic agents are *knowledgeable* about how to make more money, for example, or how to avoid losing it. But while compensation may skew economic actors' incentives, the question is whether particular economic actors—real bankers at actual banks—*were* knowledgeable about the risk of losing money on triple-A rated securities, and thus were imprudent in

buying them. That is an empirical question that can be answered only with evidence; it cannot be decided *a priori*. And thus far, it seems that the theory has no evidence behind it, and a great deal against it.

We do not have any reason to think, for example, that banks whose employees got bigger bonuses for taking more risks actually invested more in subprime securities—or more in double-A than in triple-A subprime securities. Nor has anyone named an actual executive (apart from Countrywide's Angelo Mozillo) who is supposed to have known that his bank was taking on undue risk. On the other hand, we *do* know that the bankers in question often took tremendous amounts of compensation in the form of their banks' stock, which became virtually worthless as a result of their subprime investments. This was true of Bear Stearns, whose executives collectively lost billions of dollars; of Lehman Brothers, where the CEO, Richard Fuld, single-handedly lost $1 billion; and of Citigroup, where Sanford Weill lost half that amount (Cohen 2009).

The available evidence, then, suggests that the alleged miscreants were not setting aside knowledge of risk in pursuit of higher paychecks. "We were just told by our risk people that these instruments are triple-A, like Treasury bonds," said Peter Kurer, the former chairman of the huge Swiss bank UBS (quoted, Tett 2009a, 139). The UBS report to its shareholders and the Swiss government on its performance in the crisis bears Kurer out.[14] The risk-management process may (in retrospect) have been flawed, but the results it produced were reassuring, and there is no reason to think that Kurer was less than reassured. Nor is there evidence that the risk managers who generated these reports deliberately underplayed the risks.

Even more telling is what we know about Cioffi and Tannin of Bear Stearns, who were just about the two best-placed bank executives in the world to know that there was excessive risk in triple-A tranches of subprime securities—if any bank executives knew that. Bear Stearns led all the investment banks in securitizing subprime loans, and Tannin had spent seven years intimately involved in the securitization process itself before he joined Cioffi in buying mortgage-backed securities for the Bear Stearns hedge funds (Cohan 2009a, 283). By contrast, the *commercial*-bank employees who bought these securities typically would not have been in a position to know anything about them except that they were rated AAA. If Cioffi and Tannin were ignorant of the "true" risks, as the evidence suggests, then we have every reason to think that commercial bankers were just as ignorant of them.

This applies doubly to the executives at the top of the corporate hierarchies. When the market for the securities that Cioffi and Tannin were selling (and buying) dried up and Bear Stearns had to close the two hedge funds, Paul Friedman, the CEO of the firm's fixed-income division, reports how bewildered everyone was: "At that point we still believed that an AAA rating meant an AAA rating, and we all believed that these things were reasonably well structured" (quoted, Cohan 2009a, 365)[15]—just as did the infuriated executives at BlackRock, Fortis, Vanguard, and Pimco.

The papers by Bhidé and Colander et al. suggest that economists are poorly equipped to recognize ignorance when it is staring them in the face—because most economic models assume that economic actors ("rational representative agents") are, in effect, omniscient.[16] Notably, this is the default theory in popular politics and in much of political science, too: In the populist theory, major problems aren't caused by human error; instead, some evil person or cabal must be at fault—"special interests," lobbyists, or, indeed, greedy bankers. *Mistakes* simply don't fit into standard economic and political models, because standard economic and political models take ignorance out of the human equation.

Instead of mistakes—caused by ignorance—the standard models focus on *motives*, i.e., "incentives." The effect is to model economic and political agents as if they automatically get what they want (unless they are blocked by agents with contrary desires, as in game theory), which sidesteps the question that actual human beings constantly confront: *How* do I get what I want? Desires are not self-actualizing, and to assume that they are might be called magical thinking to emphasize how unscientific it is. But let us instead call the assumption that an agent accomplishes whatever he or she intends (unless blocked by another agent) "the intentions heuristic." This nomenclature should remind us of how fundamentally destructive of good *social* science the heuristic can be, since good social science should, above all, identify *unintended* consequences.

If, as I have been assuming (along with all of our authors), Cioffi and Tannin were taking bigger risks than they thought—a question that will be settled only if triple-A tranches end up paying out significantly less than promised to their investors (which may not be the case)[17]—then, *ex post facto*, we can pass the judgment that their confidence in the value of mortgage-backed securities was "overconfidence." However, this is not evidence that they were imprudent in a meaningful (non-tautological) sense. They were not being particularly greedy or hubristic. They, like the other investors, and the rating agencies, were simply

mistaken—or so it seems, with the luxury of hindsight. And the reason, apparently, is that they were ignorant of the true risk of the securities they bought.

## III. A CRISIS OF CAPITALISM, OR OF REGULATION?

To the list of those who were, in retrospect, ignorant, we now have to add the regulators.

The S.E.C. had the same faith in Moody's, S&P, and Fitch that Cioffi, Tannin, and everyone else did.

The Fed, the F.D.I.C., the O.C.C., and the O.T.S. had the same faith, too, or they would not have given double- and triple-A rated securities the same risk weights that the Basel I rules assigned to securities issued by government-sponsored entities. In turn, the regulators of all the governments that adopted Basel II, just before the crisis began to unfold, "ignored" the risk of relying on the NRSROs' ratings.

The Fed also misjudged the appropriate monetary policy; failed to notice the housing bubble; mismeasured inflation, according to Gjerstad and Smith; and, in Taylor's account, mistook a crisis of doubt—doubt, ultimately, about the accuracy of all those triple-A ratings—for a liquidity crisis. We may yet pay for the last mistake with high inflation or, to choke that off, with interest rates high enough to cause a second recession.

Thus, we know enough from the papers in this volume to be able to say not only that the regulators *allowed* the crisis; but, furthermore, that the regulators *encouraged* the crisis by offering large advantages to banks that held triple-A-rated assets—because the regulators were as ignorant of the risks as the bankers were. This is not surprising, as regulators are human beings, and therefore should not be expected to be omniscient any more than are the people whom they regulate.

We seem to be left, then, with enough blame to go around: Everyone was ignorant—investors, bankers, and regulators alike. But the story does not end so inconclusively.

Along with the convention of assuming that Cioffi and Tannin were mistaken, I have followed the convention of assuming that all banks and investors made the same mistake. But in truth, they did not. They competed against each other, using different theories of where to find profit—and risk. At UBS, chairman Peter Kurer admits, "people did not ask too many questions" about the triple-A ratings, so

the bank invested heavily in AAA-rated subprime securities and suffered huge losses. But Gjerstad and Smith point out that in contrast, Goldman Sachs came to see the danger and used credit-default swaps to escape serious damage. So did J. P. Morgan Chase, which single-handedly accounted for about 44 percent of the world's derivatives exposure (Slater 2009).[18] Moreover, even when it was making very low profits relative to other commercial banks, J. P. Morgan raised the pay of its risk-monitoring personnel (Tett 2009a, 115–17), and after considering the possibility of engaging in subprime securitization to boost the bank's profits, its CEO, Jamie Dimon, decided that the risk was too great (ibid., 124–28). Earlier on, the J. P. Morgan employees who developed CDO tranching had had the opportunity to apply this technology to mortgage-backed securities. But they realized that even though "the last time house prices had fallen significantly" across the United States as a whole "was way back in the 1930s," a similar event might make all the losses within a mortgage-backed CDO "correlate" with each other, which "might be catastrophically dangerous." Therefore,

> to cope with the uncertainties the team stipulated that a bigger-than-normal funding cushion be raised, which made the deal less lucrative for J. P. Morgan. The bank also hedged its risk. That was the only prudent thing to do. . . . Mortgage risk was just too uncharted.
>
> The team at J. P. Morgan did only one more [such] deal with mortgage debt, a few months later, worth $10 billion. Then, as other banks ramped up their mortgage-backed business, J. P. Morgan largely dropped out. (Tett 2009b)

Finally, J. P. Morgan "did not unduly leverage [its] capital, nor did [it] rely on low-quality forms of capital." Instead of targeting a high leverage ratio, as in the examples Jablecki and Machaj use to illustrate the behavior of SIVs—of which it had none—J. P. Morgan aimed for an 8-8.5 percent "tier-1" capital ratio—twice the level required by the Basel rules (Dimon 2009, 16)—despite the higher costs of tier-1 capital.[19]

By taking all of these prudent actions, J. P. Morgan emerged from the crisis as the strongest of the nationwide American commercial banks. But it was not the only one to resist the temptation to leverage up. So did CapitalOne, which eschewed the mortgage business altogether and emerged with tier-1 capital of 9.1 percent; and Wells Fargo, which was

literally forced by the government to take TARP money (Levy 2009).[20] There were also smaller examples, ranging from regional giants BB&T, PNC, and U.S. Bancorp (Cox and Cass 2009) to tiny Beal Bank of Plano, Texas, which quietly accumulated capital during the mid-2000s but avoided participating in what its president and chief stockholder, D. Andrew Beal, thought was credit-fueled craziness. When the crisis began, Beal was in position to take advantage of the mistakes of other banks, buying about $5 billion of distressed assets by April 2009 and angling to become a major bank by buying another $23 billion in short order (Condon and Vardi 2009). Likewise, among investment banks, Lazard, Brown Brothers Harriman, Evercore Partners, and Greenhill were some of the notable firms that did not participate in the securitization of mortgages at all (Cohan 2009b).

## *When Capitalists Disagree*

The regulations discussed in Parts I and II largely (although not entirely) took the form of (1) disabling important informational resources, such as might have been produced by a competitive market in rating methods; and (2) imposing incentives for banks to invest in highly rated securities—such as the capital charges (and other costs)[21] that were imposed on banks that did not do so. But since the regulations did not command anyone to take advantage of these incentives, nor to blindly follow the rating agencies' opinions, it was still possible for bankers to disagree with the rating agencies and resist the Basel incentives if they could absorb the short-term competitive costs of doing so. In other words, there was enough leeway in the regulations that a determined banker with a different opinion and a pile of cash might be able to stand against the herd; this is what J. P. Morgan and the other "dissident" banks did. We are fortunate, then, that the regulations discussed in these pages were not so tight that they forbade all diversity in market behavior. But that is undeniably the tendency of economic regulation, and its fatal weakness.

By its very nature as a law, a regulation is imposed on every market participant. This means that even if the regulation takes the form of an inducement rather than a prohibition, it has a homogenizing *systemic* effect. The whole point of regulation is to get market participants, on the whole, to behave differently than they otherwise would. But this means that every

regulation imposes one opinion—the regulator's—on all market participants, even if only by advantaging those who go along with it.

It must surely be true that, as among the bankers, there was disagreement among the regulators about the wisdom of placing so much power in the hands of the rating agencies, or about the capital risk weights assigned to their ratings. But heterogeneous opinions among regulators do not matter. Only one regulation becomes the law in any jurisdiction (regarding any given activity), regardless of whatever dissent occurs among regulators before the decree is issued. This renders heterogeneous opinions among regulators fundamentally different from heterogeneous opinions among capitalists, for when capitalists disagree, they can (in effect) *test* their discordant theories against each other through market competition.

Capitalists' heterogeneity is not just talk—in fact, it need not take the form of talk at all. Instead, it takes the concrete form of different enterprises structured by different theories—theories of how best to compensate executives and other employees, theories of how to make a profit, and theories of how to avoid risk. For example, J. P. Morgan had, for fifty years, cultivated an ethos that worked against any temptation to disregard known risks: "While at other banks, the emphasis had turned to finding star players, offering them huge bonuses, and encouraging them to compete for preeminence, at the Morgan Bank the emphasis was on teamwork, employee loyalty, and long-term commitment to the bank" (Tett 2009a, 15).[22] Each capitalist enterprise tacitly combines any number of such practices, with the enterprise as a whole embodying, in effect, a meta-theory about what the firm should do and how to do it. If the enterprise loses out in competition to another enterprise, then one or all of the theories contained in the meta-theory have been falsified in that particular time and place.

The greatest advantage of this covert competition among capitalists' theories is that nobody—not even among the capitalists themselves—needs to know which theory or theories have been disproven by the bankruptcy of a given firm, any more than they need to articulate those theories (let alone persuade anyone else of their erroneousness). Nor is anyone required to analyze the particular successes of individual firms. The process of competition, like the process of biological evolution, need not have some master note-taker standing above the process and learning its lessons if the process is to do its work. This is crucial because such a synoptic perceptor, being human (hence fallible), could not be relied on

to learn the *right* lessons. But the process of competition "learns" these lessons as mechanically as evolution does—not by recording them or thinking about them, let alone engaging in debate about them, but instead by eliminating the erroneous theories embodied in loss-making firms (Alchian 1950).[23] By contrast, the regulator *is* required to be a synoptic perceptor, codifying what he thinks leads to market failure. If he errs in this analysis, the mistake is imposed on everyone else.

Of course, fallibility does not entail error. A regulator may get it right. Conversely, market competition does not entail good outcomes. Consumers may not know what they want, at least not at first, and ultimately, consumer purchases are the evolutionary filter that screens out mistaken "theories."[24] Also, all the entrepreneurs with access to capital—or all the bankers and investors who supply it—might tend homogeneously to make the same error. But where there are many power centers, as in a capitalist economy, there is more chance of heterogeneity than when there is a single regulator of all the participants. At worst, in the limit case of complete market homogeneity, unregulated capitalism would be no worse than regulated capitalism, since a theory that is homogeneously accepted by all market participants in a given time and place is likely to be accepted by the regulators of that time and place, too. But at best, different enterprises will embody different theories, with the bad ones tending to be weeded out (but never disappearing, since conditions and theories change).

All of this is assuming that the only source of error—whether on the part of capitalists or on the part of their regulators—is cognitive. There is no plausible reason to think that regulators will be smarter or better informed than those they regulate. This fact tends to be invisible to citizens, legislators, regulators, and economists, however, when, in their preoccupation with *incentives*, they overlook the possibility of innocent cognitive mistake. If the polity blames capitalists' greed for whatever errors they make, then it is perfectly sensible for the polity to demand "adult supervision" of the greedy capitalists by regulators who—however greedy *they* might be—are not rewarded for it, unless they are corrupt. Since it is relatively easy to police corruption among a handful of regulators who are, in addition, enjoined by cultural norms to be honest, then it is logical to entrust them with the job of restraining the actions of avaricious capitalists. But if we take seriously the possibility that market participants are making cognitive rather than incentives-based errors, the case for regulation loses considerable force. Moreover, market competition

limits even incentives-based error by ensuring (albeit imperfectly) that firms that, for example, use compensation systems that encourage too much risk-taking will tend to go out of business. So the only case for preferring regulation is when market participants' self-interest is served at the expense of others.

The public, of course, tends to think that this is the normal situation, because most members of the public have not considered the fact that capitalist self-interest is normally served by selling consumers things that the consumers think make them better off. Even those who, like economists, do recognize this fundamental insight of Adam Smith, however, concede that there may be cases in which the self-interest of a firm and its customers may be served, but may have deleterious systemic effects. Hence the need, it is thought, for "systemic" regulators. So we turn our attention to how such regulators seem to have made their decisions.

## *The Regulators' Ideology*

Some of our contributors, and many participants in the public debate triggered by the crisis, are inclined to blame the free-market ideology of systemic regulators (such as quasi-libertarian Alan Greenspan) for having held them back from using regulatory powers that they had or that they easily could have gotten. Granting the point, however, does not strengthen the case for systemic regulation. Ideology is one of many heuristics through which ignorant human beings try to make sense of the world, and it seems to be much more prevalent among relatively well-informed elites, who are trying to make sense of more information (Converse [1964] 2006). If people, not gods, are going to be making public policy, then we have to accept that they will be guided by their ideologies and other heuristics. To blame a regulator's ideology for a regulatory mistake is merely to emphasize that regulators, like entrepreneurs, depend on theories to guide their actions. Ideologies provide them.

In this particular case, however, the true ideology at work seems to have been economism, not libertarianism. The regulators' errors were based on what academic economists thought were the best economic theories. Thus, when regulators chose not to exercise their power—for example, when they chose not to allow for the regulation of credit-default swaps—it is because economic theory tended to endorse the

benefits of these instruments. Then-Deputy Treasury Secretary Lawrence Summers, a John Bates Clark Medalist, tenured Harvard economist, future Harvard president, and Democrat, killed the Commodity Futures Trading Commission's proposal to study the regulation of credit-default swaps—presumably because, like economists generally, he thought that swaps were an invaluable way to *reduce* systemic risk (for reasons explained by Wallison's second paper in this volume). For the same reason, as Bhidé, Acharya and Richardson, and Jablecki and Machaj note, economists firmly believed in the benefits of securitization. From a "scientific" perspective, one could not have asked more of economic regulators than that they encourage securitization by giving lower risk weights to securitized assets than they gave, say, to individual mortgages.

Likewise, as Acemoglu points out, contemporary economics places great reliance on companies' good reputations as important barriers to unnecessary risk taking. What could be better, then, than to rely on the rating agencies' desire to maintain their good reputations? Thus, in a report issued in 2005 by the Bank for International Settlements, a team of economists analyzed whether, in light of the rise of structured finance, Basel II should do even more to incorporate the NRSROs' ratings into the risk-weight formula than the American authorities had already done. Their answer was yes, and their recommendation was enacted in Basel II. In concluding that this was the wise course, the B.I.S. researchers acknowledged the possibility of error by the rating agencies, but they could think of no systematic reason for errors to occur other than the fact that, as had been true since the 1970s, the securitizers (like other bond issuers) paid the rating agencies to rate the securities. In short, like contemporary economists generally, the B.I.S. team effectively reduced knowledge problems to incentives problems, and they became preoccupied with whether the "issuer-pays" system of compensating the rating agencies made for a conflict of interest. They overlooked the possibility that even without a conflict of interest, the rating agencies might be mistake-prone simply because they were shielded from competition. Indeed, like virtually everyone else, the authors of the report appear to have been *ignorant* of the fact that the agencies were shielded from competition.[25] Thus, they reached the naïve conclusion that "the agencies appear to be sensitive to the value of their reputational capital for future business and to market sanctions that would be associated with poor management of conflicts of interest" (B.I.S. 2005, 25-26). Given

what White's paper teaches us about the laws that *guaranteed* the agencies' "future business," the agencies would have had no reason to worry about their "reputational capital." But that is not where the real naïveté lies. For it is conceivable that employees of the rating agencies were themselves ignorant of the legal status of their "firms," and thus that they did their level best to maintain their firms' reputations—just as if their firms' existence depended on it. Assuming that they *did* try to preserve the agencies' reputational capital, however, the question they would have faced is: How?

If we set aside that cognitive question, then rating firms that were highly incentivized to maintain their reputations (perhaps even by the existence of the other two competitors within the oligopoly)[26] would already have been using the "best practices" available, and no B.I.S. research would have been needed to confirm it. The research makes sense only if the main counterfactual in the researchers' minds was that the issuer-pays model might have led the rating agencies *knowingly* to use bad models. But the "market sanctions" in which the B.I.S. team professed confidence do not penalize only *deliberate* errors of the sort that might be brought about by conflicts of interest. Markets sanction *any* errors, regardless of the motive behind them—and regardless of whether they are not motivated at all, but are simply accidental—as long as there are competitive enterprises that can capitalize on these errors. Mark Adelson and Frank Raiter, the dissident employees at Moody's and S&P, *disagreed* with their superiors'—and the B.I.S. researchers'—notions of best practice. They thought that the methods used by the rating agencies would lead to errors. But the regulations detailed by White precluded competition, by them or anyone else—which rendered "market sanctions" a moot point.

The regulators' decision to encourage banks to invest in asset-backed securities that were highly rated by the NRSROs, like Summers's forbearance from regulation, reflected the best social science of the day. But even social science can be ideological: like libertarianism or Marxism, for example, economism can make otherwise-unintelligible complexities appear to be orderly and legible by means of oversimplification. Like the claims of political ideologies, social-scientific theories are difficult to subject to controlled experimentation. As Colander et al. emphasize, contemporary economics is rarely subjected to such tests. Without them, however, social science may be *worse* than ideology, because it appears to be precisely the opposite of ideology.

Given the regulators' economism, it will not do to blame the crisis on capitalism. If there was homogeneous thinking among capitalists about the accuracy of the rating agencies and the safety of securitization and credit-default swaps, the same thinking was shared by the regulators. This is why the latter not only failed to stop—or even anticipate—the crisis; but why their own actions inadvertently encouraged it.

With that in mind, the participation of the bankers in the crisis shifts from being decisive to being irrelevant. We are not concerned, after all, with the question of whether it is logically possible that imaginary bankers might have created a crisis like the one we just experienced *if* they had decided to do, *en masse*, what it happens that a series of regulations gave them ample reason to do. Judgments about "capitalism" and "regulation" are being made all over the world by citizens, scholars, legislators, and regulators based on what they take to be the lessons taught by the actual crisis of 2008. But there is no reason to think that subprime securities would have been issued in such volume, nor that they would have been concentrated in the hands of the banks, in the absence of the Basel rules and the legal canonization of the rating agencies' judgments. Indeed, what may have saved the world from complete economic chaos in 2008 was the fact that the regulations were loose enough that many investors and many bankers had resisted buying the "safe" securities that most banks seem to have bought. Heterogeneous behavior like that, however, is allowed for, encouraged, and rewarded by capitalism; and is either discouraged or prohibited by regulation, depending on how tight the regulations are.

There is no better emblem of the comparative epistemological burden this puts on regulators than the continued market disagreement, as I write, over the value of those supposedly toxic assets. Until well after the housing market bottoms out, nobody will know the final default rate of subprime mortgages; nor the final prices of mortgage-backed securities containing them; nor which banks made the wisest decisions; nor how unwise the other banks were. As of May 2009, the triple-A tranches of most mortgage-backed securities are apparently still paying off their investors, and in consequence, some banks are claiming that they will not sell them even at the subsidized prices that will be offered under the latest Treasury bailout plan. Some experts (e.g., Stanton and Wallace 2008) have been saying all along that widespread estimates of the value of these assets are far too low, and that they are not "toxic" at all.[27]

Disagreement of this type is, of course, what occurs almost every time an asset is bought:[28] The buyer thinks the asset will be worth more than the seller does. If the difference of opinion is too great, there is no sale. It would be hubristic to predict in advance which side in such a dispute is correct. But that is exactly what the lead regulator—Treasury secretary Timothy Geithner—has had no choice but to do. At an early April 2009 "breakfast with a dozen or so corporate and banking executives in New York," he said that "many banks believe the investments and loans on their books are worth far more *than they really are*"—according to Geithner's theory. In short, he disagrees with them. But this disagreement, according to Geithner, is "unacceptable. The banks, he said, will have to sell these assets at prices investors are willing to pay, and so must be prepared to take further write-downs" (Dash 2009, emph. added).

Geithner may be right or he may be wrong. He, too, is human, as he demonstrated in his years at the New York Fed, when he did nothing to prevent the crisis. But as much as he may recognize his fallibility, his role as regulator compels him to act as if he were omniscient.

## IV. SYSTEMIC RISK IN SOCIAL DEMOCRACY

What caused the systemic failure in 2008 was not the demise of one company. As Taylor shows, even Lehman Brothers' collapse did not have a significant effect. Nor was it the prospect of the demise of one company, such as Citigroup, which had made a huge investment in subprime securities. It was, instead, the recognition—or belief—that *most or all* financial institutions may have made the same mistake, such that none could be trusted to pay back loans; or that, at best, even if most or all banks' solvency was not at stake, one could not know which of them *were* potentially insolvent, because one did not know who held the toxic assets—partly because their toxicity itself was a matter of uncertainty. The problem, then, was not that a single bank or set of banks had engaged in behavior that could bring down the whole financial system. It was the possibility that the system itself—i.e., all, or most, of the banks within it—had engaged in the same mistaken behavior homogeneously.

As we have seen, this is a situation that logically *could* confront unregulated markets: Many companies (not just financial but industrial) could make the same bet, and the bet could be wrong; or sudden, homogeneous uncertainty about whether that bet is wrong could cause credit to freeze.

This is similar to the classic Keynesian explanation of a macroeconomic crisis, and it is also what routinely happens when there are asset-market bubbles: The participants are making the same bet, and eventually they (homogeneously) realize that the bet is wrong. Yet, again, no asset bubble's popping, including the Crash of '29, has ever sufficed to cause a systemic failure in the financial system or in the real economy, because despite homogeneity among the bubble bettors, there has been sufficient heterogeneity in the financial system as a whole. (The Great Depression was not caused by the stock-market crash, as Gjerstad and Smith remind us.)

Systemic "contagions" with purely psychological causes are conceivable. But the financial crisis does not seem to have been one of them (Posner 2009, 82–92). Instead, it seems to have been an instance of the much more likely source of systemic failure: systemically imposed rules. If the contributors to this volume are to be believed, what happened in 2008 was the culmination of a series of regulatory actions that, taken together, had the unintended effect of concentrating (what came to be seen as) especially risky investments in the financial sector. While bubble psychology may have been at work in the housing market, no contagion of "irrational exuberance"[29] infected everyone in "the" banks—not even the banks that put triple-A subprime securities in their portfolios. What actually seems to have happened was less sexy and more disturbing: The legal protection of the three rating firms by S.E.C. regulations issued over the course of seven decades interacted with the Basel rules in unexpected ways—*as if* some "exuberance virus" had been injected into the air ducts of some of the world's largest banks.

These regulations were a few of the literally millions of rules that have been imposed by social democracy.

The rationale of social democracy is to solve what the *demos* perceives to be important social and economic problems. These solutions necessarily occur on a case-by-case basis—as the mass media bring the problems to public attention—rather than through the implementation of a central plan. After a public outcry has been raised, the legislature redistributes wealth to solve the problem (the "redistributive state"); or it creates the authority for specialist bureaucrats to solve the problem (the "regulatory state").[30] This case-by-case, problem-solving approach is universal in the West and, arguably, is the key difference between social democracy and communism.[31]

In the United States, the case-by-case approach was first articulated by the Progressives (Friedman 2007), although it had been practiced at the

state level and occasionally the federal level since the founding of the republic. Then, as now, it was considered the height of pragmatism. Yet if social democracy is to be truly pragmatic—if it is to solve problems without creating new, worse problems—then the designer of a new problem-solving law or regulation needs (1) to predict the unintended consequences of the new rule, considered in isolation; and (2) to predict its unintended interactions with other rules. The second requirement would fulfill the regulator's one conceivable *systematic* advantage: His motivation to preserve or improve the system as a whole.

Ideally, of course, the second requirement would mean predicting the new rule's unintended interactions with rules that have yet to be promulgated—rules that will be crafted as solutions to problems that have yet to arise. That being impossible, the most we can realistically hope for in the way of *systemic* regulation is that when a new rule is being designed, possible interactions with *previously* enacted rules are fully considered. As time passes, however, that gets increasingly difficult, as the number of rules that have been enacted goes up. Currently, after more than a hundred years of social democracy, it is literally impossible for a real-world regulator to gain a synoptic perspective on possible interactions with previously enacted regulations, let alone for anyone do so fully (i.e., accurately). No human being can master the contents of the *Federal Register*, which grows by tens of thousands of pages a year—let alone also master the state, local, and international equivalents of the *Federal Register*. And no human being has anything close to a detailed, accurate grasp of the workings of the modern societies that all these regulations are designed to improve.

Consider, in this light, the regulatory contributions to the crisis listed at the end of Part I:

1. HUD directives, beginning in 1994, which spurred subprime and nonprime lending and securitization by the GSEs.
2. Regulations that had, starting in 1936, mandated minimum ratings for a growing number of investments.
3. The 1975 S.E.C. decision to confer NRSRO status on the three extant rating firms.
4. The loose-money policies of the central banks, begun in 2001.
5. "No-recourse" laws passed by different states over the years.

We should of course add, from Part II:

6. The Basel accords, as promulgated in 1988 and enacted in the United States, with modifications, in 1991-92.

In 1936, when the regulations encompassed by item 2 began to be issued, nobody could have predicted that these regulations might, thirty-nine years later, contribute to the perceived need for item 3. But by 1975, so much legal weight had been placed on bond ratings that it seemed imperative to delineate who was qualified to issue them. In turn, nobody in 1975 could have predicted the effects of conferring NRSRO status on a small, fixed universe of companies if, sixteen years later, item 6 made those firms' ratings the basis of bank-capital regulations. Now at this last link in the chain, it is at least logically possible for the regulators to have looked backward, selected item 3 out of the vast sea of social-democratic regulations that had been enacted during the twentieth century, and recognize the foolishness of directing so much of the capital of a nominally capitalist economy into securities that had merely won the approval of a legally protected oligopoly. But as a practical matter, we can hardly fault them for failing to notice the potential problem. Nobody else—not investors, not reporters, not scholars, not bankers—noticed the problem either.

## *The Shadow History of Systemic Failure*

The social-democratic principle of case-by-case problem solving, which Karl Popper called the system of "piecemeal social engineering" (cf. Friedman 2005), is not really a system, and no "engineering" mentality actually stands behind it (ibid., xxxix-lvii). In fact, it rarely even rises to the conceptual level, let alone to the level of grandiose aspirations. It is more like a tacit assumption that is inculcated in the citizens of modern countries through primary and secondary education, the mass media, and the unarticulated boundaries of political discussion. It is one of two foundational legitimating principles of modern government (the other principle being democracy itself); but it is also the raw political basis for the success of any politician or party in a jurisdiction where vote buying has become a scandalous exception, and problem-solving promises have become the accepted political practice.

The modern politician or party promises solutions to whatever problems seem pressing at a given time. Even when redistribution is involved,

there is usually no practicable way even to attempt to keep this promise other than by authorizing bureaucrats to issue putatively problem-solving regulations to fill in the details (the job being far too big for a legislature to handle). The regulators are compelled to rely on their understanding—their theory—of the cause of the problem they are trying to solve. Thus, every regulation has its own shadow intellectual history, in which legal responses to perceived social problems have their parallel in arguments won or lost in "what is loosely called 'the history of ideas'" (Converse [1964] 2006, 66). Perhaps that is putting it *too* loosely, however, since the ideas with which we are concerned are not just the "broad or abstract contextual information about . . . society that educated people come to take for granted" (ibid., 65); they are the particular contextual views about society—the theories—that are accepted by the small subset of the educated population that, in a particular time and place, is charged with designing a regulatory response to a perceived social problem.

If these theories are mistaken or simply incomplete, the regulations to which they lead may produce unintended consequences that, later on, in principle, may be recognized as mistakes and rectified. But this does not seem to be the usual course of events, since regulations are rarely repealed. Whatever cultural or cognitive factors make the theory behind a mistaken regulation seem sensible in the first place make it more likely that the original regulation's unintended effects will *not* be recognized in the future—given a general continuity in human psychology and in the history of ideas. Other things being equal, then, subsequent social-democratic regulators will tend to assume that the problem with which they are grappling is a new "excess of capitalism," rather than being an unintended consequence of an old mistake in the regulation of capitalism. Thus, instead of repealing the old regulation—of whose effects the regulators are, *ex hypothesi*, ignorant—they add a new one, creating fresh possibilities for the process to repeat itself.

Consider item 6. It is the latest version of capital minima that were adopted to protect against the effects of mandatory deposit insurance, which was instituted in 1933 in the United States. The original theory was that, absent the threat of a run on the bank, which was effectively removed by deposit insurance, nothing but capital minima could keep bankers from making wild, speculative investments. This is still the leading view. On March 26, 2009, Secretary Geithner said that "stronger standards on bank leverage are needed 'to protect against the moral

hazards presented by [deposit] insurance'" (Graham 2009). The original, economistic current in the history of ideas is still running strong. In turn, deposit-insurance legislation was thought, in 1933, to be necessary to guard against banking panics such as had just been seen across the United States. That theory may have been wrong. "Historically it does not appear that panics are an inherent feature of banking generally" (Gorton 2008, 2). "The United States experienced panics in a period when they were a historical curiosity in other countries" (Bordo 1985, 73). And this unfortunate case of American exceptionalism may, in turn, have been due to a series of earlier American regulations, dating back to the Civil War, which impeded bank-note issuance and prohibited branch banking and nationwide "clearing houses" (Selgin 1988, 12-14; Dowd 1992; Schuler 1992; Gorton 2009n27).[32] While at the onset of the Great Depression, the United States underwent the greatest "contagious" banking panic in history, Canada experienced no panics or bank failures at all. Like the United States, Canada did *not* have deposit insurance; but Canada also lacked the American laws that inhibited flexible banking (Friedman and Schwartz 1963, 353ff.; Carlson and Mitchener 2006). Thus, the institution of deposit insurance, hence capital minima, hence the Basel rules, might all have been a mistake founded on the New Deal legislators' and regulators' ignorance of the fact that panics like the one that had just gripped America (not for the first time) were the unintended effects of previous regulations. But having reached the conclusion that deposit insurance was needed to forestall bank panics that they thought were endemic to capitalism, the rule-makers had little choice but to institute capital requirements to guard against the risky behavior in which they thought that bankers, now insulated from the threat of runs on their banks, would be even more likely to engage.

Three-quarters of a century later, with different versions of "bankers gone wild" constituting the mainstream narrative of the financial crisis, we will surely see new regulations that raise these minima higher and tighten their grip.[33] Similarly, consider again item 3. In September 2006—too late, unfortunately, to avert the financial crisis—Congress forced the S.E.C. to establish a formal and feasible application process for becoming an NRSRO. Since then the number of NRSROs has expanded from three to ten. But in response to her economistic theory about why the rating agencies might have contributed to the crisis—because of the issuer-pays system, rather than because of the protection

of the rating firms by the S.E.C.—the new head of the S.E.C. has "outlined an ambitious agenda . . . that included tighter regulation of . . . credit rating agencies" (Labaton 2009).

Perhaps, however, the problem here is that each regulation is *too* piecemeal. Even though each regulation covers the whole system because each regulation is a law, perhaps the case-by-case proliferation of regulations inhibits regulators from taking a properly systemic view, which would better allow them to address our second requirement. This is a lesson one might draw from the second half of Bhidé's paper, which shows that deposit insurance and capital minima were just two parts of a more comprehensive set of financial-industry reforms enacted in 1933 and 1934, among which were ceilings on the interest rates that banks could pay depositors. Once a new development—money-market funds that paid higher interest rates—disturbed the overall structure of the New Deal financial reforms in the 1970s, the whole system began to fall apart.

The difficulty of squaring comprehensive regulatory systems with new developments is, however, just one of the problems with equating systemic stability and systematic regulation. A second is the tension between the democratic and the regulatory aspects of social democracy—if any change, even one arising from popular discontent, is liable to undermine the whole system. If money-market funds had not arisen, it is hard to imagine that people would have tolerated the low interest rates paid by their banks as inflation increased during the 1970s. Of course, one might justly blame that situation on the Fed (Samuelson 2008)—but this is only to say that the success of banking regulations is heavily dependent on monetary policy. Perhaps a *truly* comprehensive set of regulations would cover the central bank, too. But the more types of policy have to be coordinated in a single comprehensive framework, the greater the cognitive burden placed on the super-regulator charged with designing the whole system—which brings us back to the overriding problem: the regulators' all-too-human ignorance.

Thus, the first half of Bhidé's paper exposes an example of how even sweeping regulatory programs may be plagued by their designers' ignorance of unanticipated effects. A comprehensive package of equities-market reforms was also enacted during the New Deal, and the effect, Bhidé suggests, was not only to make mass investment possible—as intended—but to make responsible corporate governance, and thus *systemically beneficial* investing, much more difficult.

## *Social Democracy in Its Senescence*

In the tradition of closing with a call for future research, there is a glaring need for historical scholarship on the "dialectics" of regulatory failure.[34] Among the types of dialectic that such research might uncover, the simplest would be where an initial regulation "fails" in the sense of producing an unintended consequence, leading—out of sheer ignorance of the fact that today's problem is the result of yesterday's regulatory failure—to the addition of a new regulation, which may, in turn, create new (real or perceived) problems that require still newer regulations (cf. Ikeda 1997).

Perhaps the most important lesson to be learned from the crisis, though, is a different one: Namely, that regulations designed to address *different* social problems may *interact* in unexpectedly disastrous ways, as did, arguably, items 3 and 6.[35] Another example might be the interaction of item 6 with rule 115 of the Financial Standards Accounting Board (F.A.S.B.), which in 1994 imposed mark-to-market or "fair value" accounting on all American corporations—including banks. This rule requires corporations to write off paper losses as if they were permanent, even when the losses are caused by what turn out to be temporary declines in the market price of an asset. In conjunction with bank-capital minima, mark-to-market write-downs reduce banks' regulatory capital. So when the Basel rules interact with F.A.S.B. rule 115, a $10 million paper loss on an MBS in an adequately capitalized commercial bank's portfolio translates into a $125 million reduction in the bank's capacity to make new loans ($10 million is 8 percent of $125 million). These paper losses may have caused a $1 trillion contraction in U.S. lending capacity during the last quarter of 2007 and the first quarter of 2008, when the market valuation of mortgage-backed securities began to plummet.[36] Conceivably, this is one reason that a financial crisis turned into a crisis in the real economy. (The total assets of U.S. banks are only $10 trillion.)

The task of researching such interactions, however, illustrates the practical difficulties of minimizing the disasters to which they might lead. Just as a major problem that regulators face is their ignorance of the effects of their actions, especially in conjunction with past regulatory actions, the main problem scholars of regulation may face is that there are so many regulations, and so many historical circumstances explaining them—and so many theories about their effects—that

inevitably, the scholars will, here as everywhere, be compelled to overspecialize. The predictable cost is that most scholars will overlook interactions between the rules in which they specialize and the rules studied by specialists in a different subfield—even if they are deliberately attempting (like the super-systemic regulator) to keep the big picture in mind. Like social democracy itself, they will stumble around in the thicket of regulations, lost.

The problem of the regulator and the scholar—and of the citizen of a social democracy—is essentially the same: There is too much information. This is why modern societies seem "complex." And it creates the special kind of ignorance with which modern political actors are plagued: Not the costliness of information but its overabundance. This is a curse because, as a practical matter, it becomes impossible to learn, from the blooming, buzzing profusion of data about previous political actions and their effects, precisely the things we would need to know if we are to arrive at the correct theory, such that we avoid mistakes that contribute to systemic catastrophes. While from an optimistic perspective, therefore, the financial crisis might be seen as a "perfect storm" of unanticipated regulatory interactions, and thus as unlikely to be repeated, a more realistic view would treat the crisis, and the current intellectual response to it, as warning signs of more, and possibly worse, to come.

*—June 1, 2009*

NOTES

1. See also "Buying Subprime Securities" (chart), *The Washington Post,* http://www.washingtonpost.com/wpyn/content/graphic/2008/06/10/GR2008061000059.html
2. "First Union Capital Markets Corp., Bear, Stearns, & Co. Price Securities Offering Backed by Affordable Mortgages." News release, 20 October 1997.
3. No news about this crucial aspect of the rating agencies can be found even in the best journalistic reports, e.g., Dizard 2009, Jones 2008 and 2009, and Plender 2009 in the *Financial Times*; Norris 2008 in the *New York Times* business section (or Morgenson 2008 on the front page of the *New York Times*); Smith 2008 in *Bloomberg.com*. The sole exception I can find is Lowenstein 2008, which buries the information about the 1975 S.E.C. decision, without comment, deep inside an excellent article in the *New York Times Magazine.*

   Poor reporting (like biased reporting) is an effect of an inescapable problem: There is too much information to be absorbed and understood by limited, fallible

human beings, including journalists. In Part IV, I blame this problem for the failure of regulation. One might think, however, that since the problem is part of the human condition and seems to have affected investors and bankers, it is unfair to single out journalists or regulators as its victims. Bankers, investors, and all other participants in a market economy are just as human, and therefore just as ignorant, as reporters. However, consumers don't need to know very much "information" beyond the price of what they buy (and whether they like or dislike the product). Whatever the reasons for the rising price of tin, one needs simply to conserve on its use (Hayek 1945). In this sense prices do *not* "convey" knowledge; rather, they obviate knowledge. It is different for investors and entrepreneurs than consumers: The former need to make predictions about where future prices are headed, and these will have to be based on the same type of non-price information required by voters, legislators, social scientists, and bureaucrats trying to predict the effects of public policies. Such information needs to be "mediated" to the economic or political actor, usually by journalists, whose humanity guarantees that they will selectively report and imperfectly interpret the overabundance of data through the distorting lenses of their tacitly held theories.

In markets, though, poorly selected and interpreted data may affect majority decisions without affecting all decisions. Bankers such as D. Andrew Beal (Condon and Vardi 2009) can sit out a mortgage boom by rejecting the mediated conventional wisdom. By contrast, in politics, the conventional wisdom becomes a law or a regulation that tends to further homogenize the actions under its purview.

4. But not all. A B.I.S. study (2005, 39) of the rating of structured securities included interviews with institutional investors, from which the researchers concluded that "few respondents said that they rely solely on external ratings, but instead use them as independent second (or third) opinions." There is no mention, however, of reluctance to rely solely on rating agencies because of investors' awareness that the agencies had been protected from competition. Instead, large institutional investors often had their own models or risk-assessment techniques; sometimes they used the rating agencies' own models but plugged in more conservative assumptions, "for example on default correlations," and sometimes they would perform their own due diligence on the underlying collateral. Consequently, many stayed away from CDOs and CDOs-squared. However, "smaller AAA investors, which do not have the capacity to develop their own models," said they relied on the ratings. In contrast to Acharya and Richardson, the B.I.S. report maintains that the spreads between triple-A corporate bonds and triple-A tranches of MBSs were negligible, which often meant that larger institutions' own modeling and due diligence were restricted to their investments in the higher-yielding junior tranches (ibid., 45), where the institutions' only concern was the rate of return (since these tranches offered no reduction in regulatory-capital minima). This suggests that even large banks, with their overwhelming investment in triple-A tranches, may have been more reliant on the rating agencies' risk assessments (at least for these tranches) than they would have been for ordinary investments (with no regulatory implications).

5. Overcollateralization meant putting extra mortgages in the pool, to provide a cushion in case of default. See Gorton 2008.

6. Presumably the 1.82 percent premium for an ARM loan is lower than the premium for a non-ARM subprime loan, because with an ARM, the rate adjustments that begin after two or three years allow the lender to compensate by offering an initial "teaser" rate that is lower than normal.
7. Richard Gugliada, who was in charge of S&P's CDO ratings until 2005, told a reporter that "the mortgage market had never, ever, had any problems, and nobody thought it ever would" (quoted in Jones 2008). First Pacific Advisors was one skeptic, and sold its investment of $1.85 billion in mortgage-backed bonds in September 2005 (ibid.). Later, discussing a conference call with Fitch in March 2007, First Pacific's CEO, Robert L. Rodriguez (2007), described the Fitch representative as "highly confident regarding their models and their ratings," even while admitting that the model "would start to break down" if "home price appreciation was flat for an extended period of time" or declined. Not to leave out Moody's, it often "piggybacked" off of S&P's ratings, and vice versa (Smith 2008a).
8. Gjerstad and Smith, however, suggest that the bubble actually began in the late 1990s, after capital gains on the rising value of a house were exempted from taxation. This would explain why the flood of credit released by central banks in 2001 went into the housing market: A boom there was already under way.
9. This asymmetry was the main rationale for the first wave of subprime securitizations, in the late 1990s. Bear Stearns's Dale Westhoff (1998) wrote then that if interest rates are high, and are therefore likely to decline, the better-quality loans in a portfolio

> will self-select out through refinancing. Borrowers with better credit scores (660 and greater) realize that the cost/benefit of refinancing works to their advantage as rates decline. At the other end of the spectrum, borrowers with lower credit scores either cannot get refinanced or would have to do so at a cost that would be unfavorable.

However, Westhoff continued, "while declining interest rates negatively impact the quality of conforming loan portfolios, CRA portfolios are not nearly as adversely impacted" (ibid.). Based on a study of CRA mortgages that Bear Stearns had conducted, Westhoff concluded that for a variety of reasons (such as the closing costs at refinancing), even subprime borrowers with relatively good credit scores could not afford to take advantage of their legal right to refinance when interest rates declined. This is why, when interest rates were falling—as they were in the 1990s—subprime mortgage securities were relatively good investments.
10. A home-equity loan is cash lent to the mortgagor at interest. The loan amount and interest are added to the mortgage. A home-equity line of credit (HELOC) is like a credit card where the purchases and interest are added to the mortgage. Cash-out refinancings took place "when a homeowner took out a larger mortgage, paid off the previous one, and pocketed the difference. With mortgage rates low and falling, homeowners could increase the size of a loan without increasing the monthly payment" (Zandi 2009, 59).
11. The I.M.F. (2008, 62) also notes that "the risk assumptions for low- and no-documentation housing loans were too low," and that "the likelihood of early

delinquencies going into foreclosure seems to have been underestimated." The primary reason for requesting a low- or no-doc loan seems to have changed from having been self-employment or cash-economy employment, prior to the housing boom, to house flipping during the boom—something else that would be missed by outdated models. A house flipper would be more likely to allow foreclosure if prices went down, since he or she had never intended to live in the house to begin with.

12. There are at least two other important factors that tell against the view that bankers were heedless of risk.

First, "tier-1" regulatory capital, as Jablecki and Machaj explain, is primarily equity capital: funds acquired by selling shares of stock in the bank. Such funds, being unencumbered, are free to be used in an emergency; in contrast, funds obtained by issuing debt—bonds—are encumbered by the need to pay the bondholders interest and, eventually, the principal. However,

> for corporations (including banks) not eligible for Subchapter S earnings pass-through treatment, the after tax cost of equity capital, say 12 to 15 percent, is substantially greater than the after-tax cost of debt, which is generally in the 3 to 5 percent range. This cost differential gives corporations a powerful financial incentive to fund as much of their balance sheet as possible with debt rather than equity capital. This is especially true for banks and other financial intermediaries, which often enjoy a relatively lower cost of debt due to their substantial funding reliance on insured deposits. (Ely 2009, 99)

In the United States, then, the tax treatment of equity capital makes it particularly expensive to expand equity rather than debt. The other option for banks that are trying to guard against risk (while avoiding extra taxation) would be to increase their loan-loss reserves, which are part of tier-2 capital. But the Basel accords cap loan-loss reserves at 1.25 percent of risk-weighted assets. At least tier-1 capital ratios are floors; but in tier 2, banks encounter a *ceiling* on guarding against risk. Moreover, the amount of tier-2 capital as a whole is capped in relation to tier 1, such that the only way to set aside greater absolute amounts against loan losses is to raise more equity capital.

Another impediment to tier-2 capital reserves is that

> current accounting standards for loan loss provisioning are based on the incurred loss model under which a bank can make a provision to the reserve only if it can document that a loss has been incurred, which means that a loss is probable and can be reasonably estimated. The easiest way to document those conditions is to refer to historical loss rates and the bank's own prior loss experience with the type of asset in question. ("Comptroller Dugan Views Accounting for Loan Loss Reserves as Procyclical." *Wolters Kluwer Law & Business CCH Financial Crisis News Center*, 5 March 2009)

Thus, loan-loss reserves may be kept only for *predictable* losses—which are not true risks. The result is that in establishing loan-loss reserves, bankers are not allowed to set aside money for unknown unknowns—unpredictable "black swan events," as they have now come to be called. The mistake here is the same one that Nassim Taleb (2005 and 2007) has so forcefully criticized when it takes the form of using mathematical methods of risk assessment, commonly known as "value-at-risk" (VaR) models. (See n15 below.)

Finally, the S.E.C. demands the strictest "documentation" even when a bank attempts to provision against "known knowns." Simple prudence about the unpredictability of the future, i.e., a banker's awareness of his own "model's" fallibility, cannot be justified with historical documentation of the type that the regulators require. Nor can tacit knowledge, inchoate theories, hunches, or gut feelings. Bankers are thus effectively prohibited from acting on their own judgment when setting loan-loss reserves.

In 1999, the S.E.C. infamously penalized SunTrust Bank for keeping "excessive" loan-loss reserves, on the grounds that this "could be used to make earnings look less volatile" (Hopkins 2009). It is well known in banking circles that since then, banks have avoided building up reserves when times are good because of the S.E.C.'s power to harass and penalize them if they do (Isaac 2009, 11). Bankers are reluctant to say so publicly, for fear of S.E.C. retaliation. But banking analysts point out that

> in a long period of benign economic conditions, it becomes difficult to use acceptable documentation based on history and recent experience to justify significant [loan-loss] provisioning. Thus, when bankers were unable to produce acceptable documentation . . . auditors began to lean on them to reduce provisions or even take the more extreme step of reducing reserves. The result . . . was that the industry went into the current downturn without adequate reserves to absorb the wave of loan losses now being recognized. ("Comptroller Dugan Views Accounting for Loan Loss Reserves as Procyclical." *Wolters Kluwer Law & Business CCH Financial Crisis News Center*, 5 March 2009.)

Thus, in 2008,

> amidst a bursting housing bubble that precipitated a severe recession, major U.S. banks . . . found themselves playing a game of catch-up. After being prohibited from procyclical reserve building beyond *observable* deterioration in their loan portfolios by accounting rules and S.E.C. regulations, banks [were] trying to catch up and get ahead of the steep asset quality deterioration. Weakening earnings are making this reserve build much more challenging. (Schwartz and Lister 2009, emph. added)

On March 9, 2009, the disastrous unintended consequences of this policy led the Comptroller of the Currency, John Dugan, to take a rare public swipe at a sister regulatory agency (the S.E.C.) for helping to exacerbate the financial crisis:

> "We would be considerably better off today if there had not been so many impediments to building larger reserves," he told a conference hosted by the Institute of International Bankers. "Had banks built stronger reserves during the boom years, they would not need to reserve as much now; and they would be in a stronger position to support economic growth." (Hopkins 2009)

In short, the Basel rules—and their interaction with additional regulatory actions taken by the S.E.C.—could hardly have been better constructed to *discourage* prudence.

13. Unfortunately, some of this insurance was bought from A.I.G.—which, having a triple-A rating of its own, was released by many of its counterparties from posting the collateral that was customary with most credit-default swaps. As James Keller (2009) put it:

> In the world of derivatives trading, Lehman, not A.I.G., was the norm. What this means is that in general, banks have adequate collateral against counterparty claims. Those who traded derivatives with Lehman seem to have had sufficient collateral to cover the unwinding of their trades following Lehman's bankruptcy filing. . . .
>
> [But] A.I.G. would often not have to post collateral . . . provided it maintained its AAA rating. In retrospect, the decision to buy protection from A.I.G. without adequate collateral mechanics was just another foolish credit decision by the banks.

Of course, all mistakes are foolish in retrospect; and this mistake was the same one that was made by most everyone else, from regulators to investors.

14. According to the report,

> UBS's Market Risk framework relies on VaR and Stress Loss to set and monitor market risks at a portfolio level. . . . VaR methodologies relied on the AAA rating of the Super Senior positions. . . . With the benefit of hindsight, granularity of data regarding particular investments beyond looking at ratings etc. might have been appropriate. (UBS 2008, 19, 20, 21)

It is true that the end of the report mentions that UBS employees had incentives to do what they did—which was to buy "mezzanine" CDOs that, despite their overall triple-A rating (through tranching), had been built from *subordinate* (non-AAA or -AA) tranches of MBSs (ibid., 42), which therefore brought in higher income streams. However, there is no evidence that they "knew better" than to do this, and suppressed the information so as to increase their compensation. Rather, the responsibility for evaluating risk was assigned to a different group of employees, and they "relied on the AAA rating of certain Subprime positions, although the CDOs were built from lower rated tranches of RMBS. This appears to have been common across the industry" (ibid., 39).

15. Similarly, UBS reports that its "value-at-risk" or VaR measurements were "calculated using a historical time series for other triple-A rated positions" (B.I.S. 2009, sec. 4.1). In its report, UBS concludes that its investment bank's "business planning relied on VaR, which appears as the key risk parameter in the planning process. When the market dislocation unfolded, it became apparent that this risk measure methodology had not appropriately captured the risk inherent in the businesses having Subprime exposures" (UBS 2008, 34).

    In the United States, following the Basel accords, VaR accounting, i.e., the use of mathematical methods based on historical data to estimate risk probabilities, was imposed on the trading activities of all investment and commercial banks by the "market risk amendment" of 1996. But VaR was widely popular prior to this regulation. This is another error that was shared by regulators and market participants—but not by *all* market participants—prior to the imposition of the regulation.

16. Of course, economists do not make this claim explicitly; but their models rest on it implicitly. Thus, when they do try to explain ignorance, economists fall back, naturally, on incentives. For instance, in a different context Richard A. Posner, the leader of the law and economics movement and a prominent advocate of the executive-compensation theory of the crisis (Posner 2009, 93-99), writes: "To the extent that the ignorance of home buyers played a role in the housing bubble, as undoubtedly it did, this just means that information is costly" (ibid. 101). But "costly information" explains only ignorance of things that people know that they don't know, and that they *know would not be valuable to learn*, and thus choose not to expend time or money to learn. The costliness of information therefore cannot explain ignorance of "unknown unknowns."

    However, to an omniscient agent, there *are* no unknown unknowns. The "economics of information," then, preserves the omniscient agent in that it assumes agents who know not only of the existence, the location, and the cost, but also of the value of all information relevant to their decisions. Only in this way can they make a rational decision to remain "ignorant" of the irrelevant information. This conception of ignorance surely does violence to the nature of ignorance as well as to our true position as human beings, which is that we could learn an infinite number of things—and that before we learn them, we do not know their value. To know their value in advance, we would already have to have learned them.

    An agent who makes a *costly* mistake must have been ignorant of beneficial information (that is, information that, once learned, would have revealed that the benefit of knowing it outweighed the cost of learning it). The ignorance that leads to such mistakes is impervious to incentives. The Bear Stearns, Lehman Brothers, and Citigroup executives who lost billions of dollars (and, in the case of Cioffi and Tannin, may go to jail) had the highest conceivable incentives to be right, short of a death sentence for being wrong. But being wrong—mistaken—is not a matter of lacking the incentives to be right. It is a matter of lacking the knowledge to be right. Incentives affect the will to do what one knows how to do, not the mind that does not know how to do it—and does not know that it does not know.

17. As of August 2008, according to Gary Gorton (2008, 37), the defaults in CDOs had not "been due to the failure of the CDO to make payments to noteholders. Rather, the overcollateralization-linked EOD [event-of-default] triggers [had]

been hit because their calculation is affected by certain rating-related par 'haircuts.'" CDOs have triggers that divert payments from subordinate to senior tranches if the rating of the overcollateralization of these tranches is downgraded by an NRSRO. Thus, at least when Gorton wrote, the losses were caused by the rating agencies changing their minds about the safety of these previously triple-A rated securities—not by actual mortgage delinquencies and defaults.

The more recent reluctance of banks to sell their allegedly "toxic" assets is apparently due to the fact that even nine months after Gorton wrote, the assets keep performing: Most mortgages continue to be paid on time, and the tranching system does protect banks' triple-A securities against the brunt of delinquencies and defaults.

18. The success of Goldman Sachs and J. P. Morgan may lend support to Wallison's defense of credit-default swaps.
19. See n12 above.
20. Jeffrey Rogers Hummel has suggested to me that the government was trying to create the appearance of homogeneity among the banks by forcing Wells Fargo to go along with its bailout, and by refusing at first to allow banks to return their TARP subsidies. This would prevent a costly panic among counterparties to the large American commercial banks that really did, apparently, "blow up," such as Citigroup and Bank of America. An inadvertent side effect of treating all the banks as if they were equally in trouble, however, was to create the impression that this was indeed a systemic crisis of capitalism—a homogeneous error on the part of all bankers that could be explained only by some psychological trait (or cognitive error) in which they all shared, such as greediness, hubris, or the non-explanatory "irrationality."
21. "Capital charges" are the potential profits a bank foregoes by holding rather than lending capital. For capital taxes and reserve ceilings, see n12 above.
22. Yet J. P. Morgan did pay performance bonuses. An executive-compensation regulation imposed on all firms to rectify this "problem" would probably have the effect of destroying the balance between personal incentives and teamwork that may have contributed to J. P. Morgan's success for so long.
23. The evolutionary filter that "runs" this process is the ultimate need to sell consumers products they like at prices they will pay. Consumer like/dislike decisions constitute the final selection mechanism that leads to bankruptcy for firms that embody inaccurate theories about how to make money—and about how not lose it. See Friedman 2006, 477-81.
24. However, as Schumpeter (1950, 263) put it in discussing the transience of many consumer errors:

> The picture of the prettiest girl that ever lived will in the long run prove powerless to maintain the sales of a bad cigarette. There is no equally effective safeguard in the case of political decisions. Many decisions of fateful importance are of a nature that makes it impossible for the public to experiment with them at its leisure and at moderate cost. Even if that is possible, however, judgment is as a rule not so easy to arrive at as it is in the case of the cigarette, because effects are less easy to interpret.

For more on experimentation in the private versus the public sphere, see Friedman 2005.

25. From the report of the B.I.S. (2005, 27, emph. added): "Although high entry costs—*possibly aided by regulation*—have limited the number of agencies active in structured finance markets, competition among the agencies and from sophisticated arrangers appears to have promoted continual improvements in structured finance rating methodologies." However, the report notes that "CDO rating methodologies used by the three major rating agencies Fitch, Moody's and Standard and Poor's are broadly similar" (ibid., 19), and it does *not* note that the NRSRO designation was a nearly insurmountable barrier to entry, not just a high one, for any "agency" that might have sought the business of the many institutional investors required by the S.E.C. to invest only in highly rated securities, or from banks seeking capital relief.
26. The three agencies might at least have competed with each other, although in reality, they seem to have found it more profitable to allow clients to "ratings shop" so as to find the most lenient rater of a particular security; if there was any competition, it was to lower standards. The lowering of standards may have been encouraged by the fact that various regulations required that most bonds have *two* investment-grade or AAA ratings (Jones 2008), which would have left a dissident agency bereft of any business if it did not play along with the other two (which could then have monopolized the two-ratings business between them). Given these two-ratings regulations, three happened to be the ideal number to keep the agencies' methods fairly homogeneous and any doubts about each other's methods quiet. And it may explain why their standards began an apparent decline after Fitch, long a minor agency (albeit one of the three NRSROs), became a serious player in the 1990s (ibid.). But all of this is to assume that the only problems created by barriers to entry are the incentives they foster among the extant firms. Even if there had been four or five firms, however, the real problem with barriers to entry is harder to grasp, but no less real for that: We can only guess at the methods and insights of the firms that never came into being because of the regulatory protection of a small number of them.
27. James Surowiecki (2009) has pointed out that one of these experts, through his gigantic exposure to bank stocks, is Warren Buffett.
28. I leave aside asset sales caused by the seller's liquidity needs, or other differences between buyer and seller over the utility of the asset to them personally—as with consumption goods—rather than asset sales caused by different views of the income potential or eventual resale value of the asset.
29. Posner 2009, 82–91, provides a devastating refutation of this myth.
30. But see DeCanio 2000 and 2006, emphasizing the autonomy that regulators and other state officials enjoy, given the public's ignorance of their actions.
31. However, in practice, the supposedly pragmatic social-democratic approach shares in the master error of the communist approach. The people who are supposed to set the systemic parameters of a Marxist society, for instance, are not literally imagined (by Marx) to be omniscient. But for practical purposes, Marx treated these political actors (proletarians) as if, under the right historical circumstances, they would be omniscient—by assuming that the problems they would

need to solve would lend themselves to clear perception and thus to a conceptually easy solution: socialist revolution. In short, unless false consciousness impedes their vision, the world is, to the proletarian, *simple:* easy to understand and (at the appropriate time) easy to fix. This is exactly the Progressive/social-democratic view of the citizen vis-à-vis "social problems" (Friedman 2007). The only difference is the *scale* at which a problem and its solution are supposed to become self-evident to the political agent charged with fixing it. But, if anything, the narrower scale of the social democrat's focus is *less* pragmatic than the sweeping vision of the communist, because the social democrat's case-by-case approach overlooks the inadvertent interactions of the separate interventions adopted over time in each case.

32. For a brief explanation of the clearinghouse mechanism, see Gorton 2008, 64.
33. Conceivably, the monotonous repetition of the bankers-gone-wild trope after each financial crisis is due to the fact that all mistaken loans look "wild and speculative" in retrospect; so whenever bankers err, the reaction is to assume that they *ignored* risk rather than being *ignorant* of it.
34. The phrase takes inspiration from Jerry Z. Muller's use of "dialectical failure" (Muller 2009) to describe the Schumpeterian progress of capitalism. However, Muller's point is that capitalist failures lead to future successes, while we have no reason to think that social-democratic failures have the same progressive aspect—lacking a selection mechanism such as consumer satisfaction or dissatisfaction to substitute for cognitive processes such as voters' or regulators' deliberation (Friedman 2005).
35. Another example might be the previously mentioned nineteenth-century laws regulating American banking—one of which, promulgated in 1864, has been plausibly blamed for the Panics of 1873, 1884, 1893, and 1907 (Selgin 1988, 14). The last of these panics provided the impetus for the creation of the Federal Reserve, without whose actions (item 4) it is difficult to see how a nationwide housing bubble might have gone on for so long or gotten so big. The housing bubble itself, however, according to the Acharya-Richardson/Jablecki-Machaj thesis, would not have sparked a financial crisis without item 6. We can view this as the interaction of items 4 and 6—or as the interaction of item 6 with the National Banking Act of 1864.
36. Mark-to-market or "fair-value" accounting is mandatory for all investment-bank holdings, and for all commercial-bank assets that are "available for sale." Assets that, in contrast, are being "held to maturity" by a commercial bank need not be marked to market—unless "the collection of all contractual cash flows are [sic] not deemed probable." In that case, the asset is deemed to be "other than temporarily impaired" (OTTI). Thus, "if the company determines that it does not expect to collect all of the contractual amounts due on an investment over the life of that security, the company must mark the investment security down from its carrying value to its current fair value, even if it intends to hold the investment security until recovery" (Bailey 2009, 2). Banks themselves are required to analyze whether or not an asset is OTTI; but if it is, then the current market price, or some proxy for it (when markets have dried up)—not the value derived from the analysis that led to the OTTI determination—must be recorded on the

bank's balance sheet. Indeed, "some auditors have insisted on OTTI write-downs simply because current market values were very depressed, even if the institution did *not* reasonably expect to lose any principal or interest" (ibid., emph. added).

"Fair-value" accounting also applies to assets placed by banks in off-balance-sheet entities (OBSEs), such as SIVs, because "a sufficiently large reduction in the fair value of an OBSE's assets—as occurred in many cases during the second half of 2007—might find a sponsoring bank now absorbing more than half of the loss, thus triggering a requirement to bring the OBSE onto the balance sheet" (I.M.F. 2009, 72).

The problem, in a nutshell, is with the underlying notion that market prices are anything but a fluctuating barometer of how many people are taking which side of the bull/bear argument about *the future value* of a particular asset (Frydman and Goldberg 2009)—a barometer that does not necessarily predict the "true" future value of the asset. The true future value is either the price when the asset actually gets sold, or the income it actually ends up producing if it is held to maturity. In contrast,

> fair value reflects a single, point-in-time exit value for the sum of all the risks the market assigns to the asset, including credit and liquidity risks. If the market overreacts in its assessment of any risk component, then fair value will reflect this. Hence, the heavy discounting during the [financial] crisis of any asset containing securitized instruments produced fair values much lower than their underlying expected future cash flows would imply, even allowing for possible impairment of subprime elements. (I.M.F. 2008, 65)

However short-sighted they may be, legally required fair-value markdowns "flow through to regulatory capital for both [assets-for-sale] securities and for held-to-maturity securities" (O.C.C. 2009, 10). A panicked market-price write-down of bank assets, therefore, may spark a gigantic contraction in bank lending. According to the I.M.F. (2008, Table 1.1), of the roughly $225 billion of mark-to-market write-downs on all asset-backed securities taken by the world's banks as of March 2008, 34-58 percent were taken by U.S. banks, yielding $77-131 billion in losses to their regulatory bank capital. At the average 13-percent capitalization level of all U.S. banks, that would mean a reduction in American banks' lending capacity of between $592 billion and $1 trillion as of March 2008—and Acharya and Richardson's Figure 4 shows that most of the decline in market prices for these securities took place later, during the remainder of 2008.

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