

Readings for Sociology 125 on Finance

1. Robert J. Shiller, *Finance and the Good Society* (Princeton University Press, 2012)

- Chapter 3. Bankers. pp. 37-44
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- Chapter 23. Debt and Leverage. pp. 151-158
- Chapter 26. Speculative Bubbles and their Costs to Society. pp. 178-186

2. Simon Johnson and James Kwak, *13 Bankers: the Wall Street Takeover and the Next Financial Meltdown* (Vintage Books, 2011)

- Chapter 5. The Best Deal Ever, pp. 120-152. [*Note*: do not worry about the details about various complex financial devices on pp. 123-126]

Robert J.
Shiller

Finance
and the
Good
Society

omission would make their report of past returns misleading. These regulations are, however, necessarily imperfect. What “material fact” before 2011 could a fund have been accused of omitting that would have predicted the overthrow of Mubarak? The regulations were unsuccessful in preventing the deceptions that contributed substantially to the severity of the financial crisis that began in 2007.¹⁹

Integrity in Investment Management

The efficient markets theory works as well as it appears to because the theory is most routinely tested with assets that are heavily traded—assets that professional managers have done their best to price accurately, and hence have effectively endorsed as honest investments at the current price. In this way, the investment profession—including its self-regulatory organizations, which work with government regulators—is collectively responsible for the integrity that exists in our financial markets. We trust the market prices of investment-grade assets not just because they have had a market test but because we trust the integrity of the many analysts who evaluate them.

As Henry Kaufman, a managing director of Salomon Brothers, concluded in his 2001 book *On Money and Markets*: “Trust is the cornerstone of most relationships in life. Financial institutions and markets must rest on a foundation of trust as well.”²⁰

It is also a conclusion reached by Anna Bernasek in her 2010 book *The Economics of Integrity*. She refers to the “constant temptation to cut corners to save money or exploit the trust of others.” But businesspeople with moral standards resist that temptation: “Integrity works to create wealth by making the economy more efficient.”²¹

Ultimately, the idea that investment managers as a group are “frauds” because they cannot as a group outperform the market is mistaken. They are providing a multitude of services, including honestly watching over portfolios with sympathy for the needs of their clients—and the better among them apparently *are* outperforming the market. The intellectual community that they provide also constitutes an externality that benefits society, in directing resources and incorporating information into market prices. In the future, better regulation and better financial advice for general investors can help improve the overall state of the investment management industry.

Chapter 3

Bankers

Banks—and bankers—have survived centuries of financial evolution, and thus have found an important ecological niche in the economy. The form taken by banks evolves steadily; their function remains much the same. Their activities are fundamental to the economic environment; notably they provide transaction services and contribute to the money supply, which in turn facilitates commerce. They are so involved in our daily lives that they are known by everyone, and banking is a concept integral to modern world culture.

And yet there is immense hostility today toward bankers. The word *bankster* (rhymes with *gangster*) has come back into vogue to describe them. The word was first coined amidst the anger of the Great Depression of the 1930s, and it has returned with the public anger directed toward the financial community today. Much of this venom is directed at bankers because they were bailed out by the government, their compensation continuing at high levels while the economy remained in the doldrums.

Governments have put in place elaborate sets of laws and regulations to make it possible for such institutions to minimize the faults that have generated such ill will. In particular governments want to prevent instabilities in the banking system from creating economic recessions and depressions, as they have many times in history. And yet banks themselves are constantly and fundamentally changing, becoming much more sophisticated and universal in their activities—a trend that makes the problem of their regulation tougher and tougher, to the consternation and despair of bank regulators.

It is a curious fact that while there is much criticism of bankers, people do not carry over to them the criticism they aim at investment managers for their claims that they can beat the market. Of course, bankers are in much the same business as investment managers: when bankers make loans they are in effect making risky investments, just as investment managers do. But somehow it is thought that bankers must know what they are doing. This distinction must in part have to do with the fact that bankers typically stay out of the most volatile, headline-grabbing markets. But perhaps too it is because bankers, in contrast to hedge fund managers and the like, are following a long and time-honored tradition, extending back hundreds of years, which has evolved to solve certain problems—including liquidity, moral hazard and selection bias, and transaction service problems—to the satisfaction of most people most of the time.

The anger toward bankers takes a very different form. It seems to be anger at their power and presumption, at their single-minded pursuit of money. And the anger flares up whenever there is a banking crisis and the governments of the world come to the rescue of these wealthy interests.

But the public also has a sense of the centrality, sobriety, and safety of banks, and they must know that those who manage banks are highly influential in determining the economic outcomes in our society. The people who run banks indeed find themselves in a guidance or management role for the whole community.

Banking has historically been a pillar-of-the-community line of business, one that provides a degree of extra-monetary reward for those who go into it, at least in normal times when things are going well. But these days—at least as of the time of this writing—that feeling of reward is not so apparent.

The Origins of Banks

The current metaphor for a bank is a safe or vault for storing gold or money. The metaphor has become so ingrained in our thinking that the bank is thought of, viscerally, as providing a safe and practical investment option. In reality, the modern word *bank* was derived not from the word *safe* but, by the fifteenth century, from the Old Italian *banca*, related to the English word *bench*, referring to the tables on which bankers counted money in front of their customers. Still, metaphor counts for more than etymology in popular culture, and part of the ecological niche that banks occupy is still as a perfectly safe place to put one's money.

There will always be anxieties about money and a demand for the safest place to put it. Protecting wealth from theft or loss is a fundamental problem that has animated people from the very beginnings of the exchange economy. Even in today's anti-finance climate, people remain grateful for the services banks provide, and they still trust them.

For thousands of years, the best way to safeguard precious metals, jewels, or money was actually not to put them in a bank but just to bury them in an unmarked spot in a yard. Unfortunately burying valuables in a yard has drawbacks, too, as illustrated in Moliere's play *The Miser*, in which the rich man Harpagon has buried his fortune in his garden. His continual worries about whether it is still there eventually cause him unwittingly to reveal its location, and it is stolen. Moreover, burying gold is no longer as safe as it once was, as modern metal detectors can find it. We can't go back to ancient ways. We all need a modern provider of safety in saving.

The metaphor of the bank that developed after the Renaissance was the ancient citadel, or fortress, in the center of a city, like the Acropolis in ancient Greece. The wealthiest and most influential people could put their money there for safekeeping. That is part of the reason why bank buildings for centuries were built to resemble the Acropolis and other such classical buildings of a type found in citadels.

Bankers as Providers of Safe Return with Liquidity

A problem with burying gold or storing it in the citadel is that it earns no interest. People thus learned to trade off some safety for return, and even in ancient times they would leave some of their gold with money lenders. In ancient Rome, these establishments were called *tabernae argentariae* (literally, shops of money). They would pay interest on deposits left with them and make a profit by charging a higher interest rate on loans they made. About seven first-century examples of these *tabernae argentariae*, little more than small storefronts along a street, were found (with some of the coins still there) near the Pantheon in the ruins of ancient Pompeii. These were simple shops that housed a money lender with a few assistants; they were not large organizations like banks today. Pedestals for the oblong tables on which the money lenders counted the money are still visible. With so many to choose from, a depositor of the time could easily diversify the risk and deposit with several of them.

So banks are managers of investments on behalf of clients, just like other kinds of investment managers, but with greater claims to safety. The defining characteristic of banks has generally been that their investments take the form of deposits which pay a fixed interest rate, rather than an uncertain return, and that the deposits are usually liquid; that is, the money can be withdrawn with no more than short notice. Bank deposits are thus as freely available as money buried in the garden, but they improve on that approach in terms of safety and expected return.

The safety and return that banks offer bear further examination. How is it that they can offer a respectable return with great liquidity and little risk? Is it just because they are backed by the government, which won't let them fail

out of concern for the economy? Banks flourished long before governments were generally involved in insuring their deposits or bailing them out when they were in trouble.

Banks solve a fundamental problem potentially encountered by anyone who seeks a return on an investment. If you as an individual loan money to another individual, who in turn uses the money to start or expand a business, or to buy a house, you can't demand it back with interest at a moment's notice. You have to wait until the business matures and starts yielding profits, or until the house can be sold at a profit. You probably can't easily sell your loan to another investor either. So in terms of ready cash flow you are in a bind—you are illiquid.

Banks also can't get their money back quickly from most of their investments. But banks achieve liquidity for their depositors by another means: pooling the investments of many depositors. They do not invest all the money that is deposited with them in illiquid investments. They keep in liquid form an amount of capital sufficient to cover the normal volume of withdrawals. So everyone can make deposits that are backed by illiquid investments yet have their individual deposits remain highly liquid. It seems almost a miracle.

This system usually works as intended, though it is vulnerable to sudden panic or bank runs: if people begin to distrust the bank, too many of them may ask to withdraw their money at one time and they will exhaust the bank's supply of liquid funds.¹ Even then, and even if there is no deposit insurance, if the government allows the bank to suspend liquidity temporarily, then depositors will still in all likelihood eventually get paid most of what they were owed, as the bank converts some of its illiquid holdings into cash.

Bank regulators in modern times attempt to further reduce the problem of bank runs by demanding that banks maintain an adequate amount of reserves (cash in the vault or deposits at other banks, to make good immediately on any sudden withdrawals by depositors) and of capital (the total cushion of assets, after subtracting liabilities, available to make good on promises to depositors), so that they will not put the government in the position of having to bail out the banks. In the United States, explicit reserve requirements date back to the early days of the Federal Reserve, in 1917.² Capital requirements for banks began to be enforced by the United States in 1982.³ International capital agreements began with the Basel Accord in 1988, and they were reformed by the Basel Committee in response to the financial crisis that began in 2007, to avoid more government bailouts in future crises. Bank regulation becomes more and more complex as the years go by, as does the banking business itself.

In addition to providing liquidity, banks address another problem that individuals seeking a return on their investments face if they try to invest directly—a moral hazard problem. If individuals invest directly in companies,

by lending money to them or buying their securities, they may in effect be robbed by the people with whom they invest. There are numerous ways for the managers of a business to funnel money out of the company and into the hands of friends, thereby in effect stealing money from their investors. They may pay inflated invoices from supplier companies run by cronies, enriching them and expecting a kickback later. They may deliberately destroy the business (in which they may never have really believed in the first place), liquidating its assets in the interest of redirecting the money to associates. Or the business could simply launch especially risky activities, with but a small probability of gain and a much larger probability of loss. The company may not care about the losses since they will be visited on the "sucker" investors.⁴

On the other hand, many banks have been in business for a long time—sometimes centuries—and thus have a reputation to uphold. (Reputation is still important even with deposit insurance, for many of the deposits in a successful bank will be above the statutorily insured limit.) The public perception is that banks are adept at sniffing out and avoiding such bad investments. And even if they do make the occasional bad call, they have numerous other investments in their portfolios, a strategy that generally helps them maintain their integrity and reputations—except for the occasional severe financial crisis, during which, admittedly, some may fail or be bailed out.

Banks solve yet another problem that less-skilled investors face: a selection bias problem. Those who are paying less attention to researching their investments will tend to be the more easily victimized; they will wind up with the "lemons" among investments because more skilled investors will snap up the better ones.

Most individuals have no way of evaluating the trustworthiness of businesses in which they might invest. They can try to read published reports on the businesses in newspapers or magazines, or reports issued by rating agencies. But these reports tend to be reliable only for the biggest of companies: there is little incentive for reporters or investment analysts to get into the nitty-gritty of really evaluating every business that is looking for money to expand. Such reports are not profitable for their providers because they are not really of interest to a broad audience, only to those actively looking for investing tips. Moreover, any time one of those reports is issued, there is a free-rider problem: people will spread investing tips gleaned from the report to others (the free riders) who did not even pay for the report.

Companies, at least large companies, do issue debt directly to the public, and some people try to avoid the need for bankers as intermediaries and invest directly in such company debt. They may find such investments safe enough because they know that many other investors, supposedly in the know, are investing in the same companies. But here again *they* are free-riding on the vigilance of other investors in the debt, and so there is the risk that the other

investors may be free-riding too. It can turn out that *none* of the investors is really paying attention to the machinations of a company in which they are all investing, and this fact will become apparent only later—and alarmingly quickly—during a crisis.

A bank, on the other hand, stays connected, and it usually has branches in the communities in which it does business. The officers in those branches deal on a personal basis with the businesses to which they lend money, and they collect detailed information about what is really going on with these businesses, right down to evaluating those who run the companies—their trustworthiness, their real motivations and likely future behavior. There is no free-rider problem associated with the collection of this information since the bank does not publish it. Bankers traditionally make short-term renewable loans and demand regular reporting from the companies to which they lend, and the managers of these companies know they had better maintain a good relationship with their bankers or risk having their loans called.

These bank procedures have endured for centuries because, in normal times at least, they work. And they work especially well, relative to direct borrowing from the public, in less-developed countries, where there are fewer analysts, rating agencies, and newspapers and magazines to provide evaluation of investments. Hence banking plays an even bigger role in the economies of less-developed countries.⁵

In contrast, the role of traditional banks in the economies of more advanced countries has been in decline for decades: the fraction of these countries' debt that is accounted for by traditional bank loans has been falling.⁶ This is so because the quality of publicly available information about securities is improving, and so the moral hazard and selection bias problems are reduced.

Banks will increasingly be transformed into more complex institutions, but their traditional banking business will not go away entirely. Such banking meets too many of society's needs, and banks' public persona—current events notwithstanding—is too strong.

The Evolution and Future of Banking

Indeed the severe financial crisis that began in 2007 was not due to any failures in the traditional banking business model, but instead to certain new kinds of business models, in which loans made to homeowners were not retained on the books of banks and other mortgage originators but bundled together into securities and sold off to other investors, including other banks—reintroducing the very problem of moral hazard that banks were supposed to solve.

Regulators, notably in the United States, have been increasingly permissive of alternative forms of banking. Over the past generation they have allowed an unregulated “shadow banking” system to develop, which is not subject to

the same regulatory oversight as the commercial banking system. Shadow banks are merely financial institutions that manage to escape banking regulation by designing themselves so that they do not fit the definition of commercial banks. They do not literally accept deposits, but instead get the money they lend in slightly different ways.

Examples of shadow banks include the now-failed Bear Stearns and Lehman Brothers, which were called investment banks but were not regulated as commercial banks, since they did not accept deposits. They became shadow banks when they began to *act* like commercial banks. Another example is the structured investment vehicle (SIV), which was created by commercial banks before the financial crisis of 2007; they hoped to escape regulation by putting some of their business into the SIVs, which were considered separate (and unregulated) entities.

Shadow banks may obtain commercial securitized loans or mortgages and enter into repurchase agreements with institutional investors, using the securities as collateral. That business creates liquid investments for institutional investors, which resemble deposits, and so the shadow bankers are in effect creating money as well. Thus their activities may involve a risk of collapse of the entire economic system, just as with commercial banks.⁷

A bank's business—which may have had significant “charter value” because of barriers to entry into banking that serve to inhibit new competitors—is adversely affected by these new competitors. Thus traditional banks may feel an imperative to branch out, and they may start behaving like the shadow banks if they can, entering unconventional new lines of activity like originating subprime mortgage securities and thus creating risks to the economic system that may not be noticed by regulators of traditional banks.⁸ That is what led to the current financial crisis.

New regulations, notably the Dodd-Frank Act in the United States, are designed to put many of these shadow banking activities under stronger regulation, to help prevent a repeat of the crisis. But that process has been slow and cumbersome. And it will be difficult to develop regulation to keep pace with, and prevent problems with, new kinds of shadow banks as they are invented. Critics of the financial system are right to be wary of this situation.

The Democratization of Banking

The business model that bankers have evolved over the centuries is a great idea, and people who know this well have sought to encourage a broader and broader application of this model. That is, they have been trying to democratize banking, moving it beyond its original role in serving primarily the wealthy and the financially sophisticated. This initiative stands as an excellent example of finance performing its role in the stewardship of society's assets.

There have been a number of historical movements to democratize banking. In the early nineteenth century there was the savings bank movement in Great Britain, followed by a similar one in the United States. These banks were initially set up as mutuals by philanthropists to give those with low incomes the means and incentive to save; hence they were nonprofit. That same century saw the beginnings of the building society movement in the United Kingdom, followed by the savings and loan association movement in the United States, both of which were aimed at providing people the wherewithal to buy a home.

Postal savings banks arose in that century and in the early twentieth century to provide savings vehicles to every town that had a post office. The twentieth century saw the microfinance movement, exemplified by Muhammad Yunus's Grameen Bank, which specializes in making very small loans to people who traditionally have been ignored by banks.⁹ Evidence from randomly assigned individual liability loans shows that lending programs like those of Grameen Bank "increase ability to cope with risk, strengthen community ties, and increase access to informal credit."¹⁰ Today microfinance loans are further promoted by a web site, *kiva.org*, that allows individual lenders all over the world to lend small sums via microfinance institutions to individual entrepreneurs in poorer regions and, through the power of the Internet, to deal one-on-one with the very people who benefit from their loans.

The democratization of banking is a slow process, occurring over centuries, benefiting from technological progress of various sorts, and still far from complete, even in advanced countries. A Federal Reserve study based on 2007 data showed that 25.1% of U.S. families in the bottom fifth of income have no transactions accounts at all.¹¹ Because of the absence of elementary banking services, these families find it difficult to save, thus undermining their ability to acquire important skills, send their children to college, and plan for their future.¹²

A number of government policies to encourage the democratization of banking have been proposed, including explicit incentives to banks to provide services to low-income people and the automatic opening of bank accounts for tax refunds and welfare payments.¹³ We should also consider another drive to encourage more people to avail themselves of financial services: a repeat of the nineteenth-century savings bank movement for the twenty-first century.

For the better part of two centuries there has been an effort to deliver the full range of banking services to the broadest cross section of society, but the job is not yet complete. The democratization of finance is a route to the good society, and the democratization of banking is a trend—admittedly slow and long-term—that should play an important role in that process. Further democratization of banking is also the best means of dealing with the hostility currently felt toward bankers.

Chapter 4

Investment Bankers

Investment bankers are the people who help organizations sell new securities. In particular, they arrange for companies to issue shares to investors. If it is the first time the company has sold shares to the public, investment bankers help with what is called the initial public offering (IPO). If the company wants to raise yet more money by selling even more shares to the public, investment bankers help organize what is called a seasoned offering. Either way, the investment banker is facilitating the acquisition of capital by the company, dividing up the company into shares that appeal to investors, and helping manage risk.

Investment bankers, in their pure form, differ from conventional bankers in that they do not accept deposits and do not make loans. They specialize in *underwriting* securities, such as new shares, which means they perform due diligence on the issuing company, design the terms of the issue, place the shares with long-term investors, put their own reputation behind the new issue, and perform a variety of other tasks necessary to meet administrative and regulatory requirements.

Because the general public does not usually deal directly with investment bankers, the bankers are largely invisible to them and therefore do not usually elicit as much public hostility as other financial professionals—until there is a crisis that spotlights their activities. In the current financial crisis, major investment banking firms—such as Bear Stearns, Goldman Sachs, and Lehman Brothers—became objects of loathing for some. But in fact investment bankers

are really responsible for the origins of our securities markets, including stock markets. Without them, we would not have these markets.

The stock market is a wonderful invention. It is important that companies be able to sell shares to the public, for that process engages a large number of people in their economic undertakings. It allows people to indulge their naturally adventurous spirit but also allows them to choose how much exposure they can tolerate. It decentralizes the allocation of capital, potentially to involve any member of society. And, in the case of corporate acquisitions, it allows individuals or entities to take control of an enterprise and run it as they see fit.

The idea of issuing shares in an enterprise is probably so old that it cannot be dated. It is known that shares (Latin *partes*) in corporations (Latin *publicani*) were traded near the Temple of Castor in the ancient Roman Forum. Records of the share prices do not survive, but evidence that these prices were talked about does.¹

We know even less about what sort of investment bankers may have existed back then. Perhaps an important reason why there were so few shares in companies in ancient times is that the profession of investment banker had not yet developed very far. Modern methods of investment banking were as yet unheard of.

Shareholding gained momentum in Renaissance Italy, but even then it was not well developed. A notable advance occurred in 1602 with the founding of the Dutch East India Company in Amsterdam, for this corporation soon had a market designed to facilitate daily trading of its shares. The company opened its books to record new shareholders only once a year, but the law allowed for trading of these shares every day. Effectively people could buy shares and hold ownership in what is now called "street name," meaning that the shares are really in the physical possession of and recorded in the name of the broker, on behalf of the beneficial owner. The ownership was guaranteed by a broker, even though the company at first knew nothing about it. The daily trading of shares in a corporation had a profound psychological impact. The price fluctuations from day to day were widely noted, and this in turn generated increased interest in the investment. The freedom to get in or out of the investment day by day built a sense of excitement. This advance both democratized and humanized finance: it brought many more people into the market even as it respected their demand for liquidity and need for pride of ownership while they held shares.

The Amsterdam stock market became regulated when short selling (the sale of borrowed shares, not even owned by the seller) in 1609 led to market turmoil and the temporary abolition of that practice. The invention of the newspaper came soon after, and it was not long before the prices of the East India Company's shares were reported regularly, spurring immense public interest in the investment.

The issuance of shares in joint stock companies (companies owned jointly by a number of people through shares) was limited at first. To mount an IPO, each corporation needed its own special charter, which was hard to get. The Bank of England was chartered as a joint-stock company in 1694, but at the same time it was given a monopoly on joint stock banking. No other bank could have more than six partners, making it virtually impossible to compete with the Bank of England.

A quarter century later, in 1720, Parliament further restricted joint stock companies by mandating—in what later became known as the Bubble Act—that no joint stock company could ever be started without a royal charter. Perhaps this was an effort to support the rise in the price of shares in the South Sea Company, which was at the time soaring in an obvious bubble.

But as time went on pressures to democratize finance prevailed, enabling more corporations to be formed. Parliament restricted the Bank of England's monopoly to an area within sixty-five miles of London in 1826, and in 1844 the monopoly was eliminated altogether. This led to an expansion of banking activities, and within two decades England had seen bank offices proliferate to even small towns.²

The Democratization of Investment Banking

Investment banking received further impetus on the other side of the Atlantic in 1811 with the passage of a corporate law in New York State that made it clear that anyone who satisfied minimal requirements could set up a corporation, without special action by the government, and that clearly established limited liability for corporations. The law further democratized finance. By clarifying that shareholders would never be held liable for the debts of the corporation, the law made it possible for the first time for an investor to hold a diversified portfolio, consisting of stocks in many companies. Prior to the advent of limited liability, one could not have done such a thing, for fear of a lawsuit from any of the companies held. This development created a ready pool of investors with whom investment bankers could place newly issued shares. After seeing how steady a supply of capital for new businesses this innovation produced, countries all over the world copied it.

The framers of the New York law probably did not see themselves as the inventors of a brand new kind of market. Instead they apparently thought of themselves as merely responding in an imaginative manner to an economic crisis. The U.S. Congress had imposed an embargo on trade with Britain starting in 1807, citing grievances related to British behavior toward the United States as Britain fought a war with France. By 1811 the extended trade embargo was causing massive economic pain at home, for America had been an exporter of cotton and other fibers to British textile mills. There was a need to finance U.S. textile mills, but few wanted to start a local mill, thinking it would be

hard to compete with Britain when the embargo was eventually lifted. The provisions of the bill were thought of merely as expedients to deal with this crisis. The bill followed a 1784 measure granting automatic incorporation to religious congregations, and similar measures for colleges and academies in 1781, municipalities in 1788, libraries in 1792, medical societies in 1806, and turnpikes in 1807.³ Yet only by 1811 did general business have the status within New York society to win the same right. Equally important, the bill clarified that stockholders in these new corporations had limited liability: they could not lose more than the money they had put in in purchasing their shares.

The full name of the act was "A Bill to Encourage the Manufacture of Woolen Cloth, also Cotton, Hemp and Flax, and for other Purposes." As it turned out, it was the "other purposes" that would have lasting importance. Once again, dealing with a short-term crisis led to a financial innovation that would change the world, for the 1811 New York law became the model for new corporate law all over the world.⁴

Underlying the concept of free incorporation and the unrestrained trading of shares is a hoped-for result: an imaginative application of capital to new ideas and new business directions. Even if most of these ideas fail, some will succeed.

It has been argued by many that share trading is little more than gambling. Contributing to this idea is the "fact" that most entities traded on stock exchanges are big companies that do not regularly issue new shares. Stewart Myers offered a theory of corporate finance according to which there is a pecking order of new capital sources, and new issues of shares are last in the order. Seasoned issues of shares are, Myers asserted, relatively unimportant sources of capital for corporations.⁵

But it turns out that Myers's evidence was not as impressive as one might think. Eugene Fama and Kenneth French argued that, at the time Myers wrote, issues of seasoned shares *were* rare. But that merely reflected the situation in the economy at that time. At other times, including more recently, share issuance is a more important source for new capital.⁶ Since Myers wrote, share issuance has also tended to come about as part of incentive packages given to employees of firms. Even though those shares are issued in special circumstances, they are still shares issued. The firm continues to depend on market valuations to maintain its ability to raise capital.

How Investment Banking Keeps Incentives Up to Date

As anyone who has ever lived in a family knows, there are profound difficulties in motivating everyone to do their work. Usually one person in the household shoulders most of the work and is responsible for keeping things running. The same would tend to be true in any business organization. Fortunately, ever since fractional interests in corporations were developed, there

has been a better way: allocate shares in the corporation, or bonuses or options paid in shares, to key people to reward them directly for bearing responsibility.

Facebook was founded by Eduardo Saverin and Mark Zuckerberg. According to recent news accounts Saverin currently owns only about 5% of the company, down from about 34%, while Zuckerberg's share has fallen from 66% to 24%. Why did their ownership stakes both decrease? They did so because Saverin and Zuckerberg needed to bring in other investors to grow the company. Why did Saverin's share fall more? Certainly no one took Saverin's stock away from him. He lost much of his percentage share of the company by dilution: new shares were issued to incentivize newly hired employees, and still more shares were awarded to Zuckerberg. Why? This is a sensitive subject, and one of the determinants of his share was a legal settlement. In part it—quite logically—has to do with the board of directors' opinion that Saverin needed less incentivization than Zuckerberg in order to move the company forward.

The process of issuing new shares in a company that unevenly dilute the ownership stakes of existing shareholders can become one of the fiercest battlegrounds in modern finance, as fortunes are wiped out, rivalries are created, and political machinations are indulged. There is no way to make this process appear fair to all involved. Lawyers may smooth some of the rough edges and ruffled feathers, but it is still a killing field where the absurd and the tragic often go hand in hand.

But the overall process of share issuance and incentivization is far kinder and gentler than armed conflict, and it provides a civilized outlet for human aggression that can ultimately lead to more productive corporations and thus beneficial outcomes for society as a whole. Investment bankers in a sense serve as diplomats negotiating an understanding between contentious powers—an understanding that ultimately allows them to cooperate and get on with their business. In the corporate world, investment bankers are, in the final analysis, keepers of the peace and promoters of progress.

allowing people of all ages to share the major risks to our society, without piling those risks onto any one generation.¹⁷ But reliance on conventional entitlements works against such risk sharing.

The “living wage” that many reformers have been advocating, often for government employees, is again described in absolute terms—as if it were a right to dignity and respect that somehow has become incarnated in a fixed amount, the living wage, without regard to the situation of those who will pay for it.

We need to reframe the wording of “universal human rights” so that they represent the rights of *all* people to a fair compromise—to financial arrangements that share burdens and benefits effectively.

In the future of financial capitalism, we ought to see better development of our covenants regarding these “rights,” as financial contracts that are more democratic and nuanced, with the rights of mankind redefined in more basic terms.

This means that our business world should be less constrained by pre-written, standardized financial contracts and be more imaginative in its definition of such agreements. As we have seen at various places in this book, the process of improving our financial arrangements will involve new concepts, new language, and new information technology—inviting conflicts but at the same time laying a path to their resolution.

Chapter 23

Debt and Leverage

The impulses described in the preceding two chapters can interact to create a dangerous situation regarding debt and leverage. The impulse toward risk taking can cause people to disregard danger signals and run with crowds and bet on bubbles, taking on too much debt to do so. The impulse toward conventionality and familiarity can mean that they take no steps to protect themselves from the risks they assume. When the calamity comes, they are in serious trouble. It is no surprise that people have done such things repeatedly throughout history, given the primacy of these basic impulses.

When one has borrowed a considerable sum, using conventional debt, any slight decline in one’s economic fortunes can lead to disaster, for the decline is leveraged against the existing debt, which does not decline. Moreover, when there is less inflation in consumer prices than expected, as tends to happen in an economic crisis, the real value of the fixed debt actually goes up, making the situation even worse.

Such mistakes have happened readily throughout history because the institution of debt, in some form, is such a simple and natural one. Every modern society has mechanisms for borrowing and lending. These institutions reflect the fundamental purpose that these markets serve. People have special needs when they are young and have not yet accumulated assets: children must be educated and young adults may wish to buy a house. So they borrow, they become indebted one way or another. And in so doing, with conventional debt, they become leveraged—that is, they begin to suffer the problems of life as a debtor.

Their best earning years tend to come rather late in life. This presents a fundamental economic problem that has been solved since time immemorial through family relations, not by means of formal borrowing and lending. Because of instincts to care for their young, parents naturally provide for their children and even help them to purchase homes, thus keeping some indebtedness within the family.

In a modern economy, we recognize that this primordial system of transferring resources from old to young is imperfect. Some parents—and some children—are irresponsible. Even if they are responsible, their means vary. Children typically do not want to borrow from their parents these days because of the conflicts that may result from such an arrangement. But the children will likely need to borrow from someone. So they become indebted, and their indebtedness and the associated leverage become a public policy problem.

Businesses likewise have needs when they are young or have expansion plans, and just as with individuals their best earning years tend to be later, when they are mature. Businesses cannot get started without funds. This problem has also been solved since ancient times by the family, which may lend the resources to start a family business—but the family is even less well suited to providing funds to launch such a substantial enterprise. In modern times, businesses have acquired the ability to raise funds by selling shares in themselves. But even this method of raising funds has its limits. Simple borrowing by businesses, and the financial institutions to support that process, have appeared in parallel with the issuance of shares. But indebtedness creates a danger for the firm, leaving open the risk that a going concern could be forced into liquidation by its creditors.

Governments also have need to borrow, notably when they too are young and at other times as well, when they foresee greater needs ahead. For example, a new city may need to build roads and a sewage system in expectation of a later population influx, since putting the whole system in place at once is the most efficient approach. It would be sensible for the city government to finance these infrastructure needs by borrowing: the current population of the city cannot afford them, and they ought to be paid for by the subsequent residents, who will actually use them and be resident in the city when the debt comes due. Governments may also need to borrow during an economic crisis, again in expectation of better times ahead. Yet the indebted government may run into problems, for example if the anticipated future population does not arrive or if the economic crisis lasts longer than expected.

Human Errors Regarding Debt

People and businesses have trouble living up to the standards of rationality presupposed by the economic theorists who model and quantify these fundamental economic issues.

First of all, as discussed in the previous chapter, people—individuals and to a significant extent those in corporations and governments as well—seem to blandly accept the kinds of credit vehicles that are put before them by salespeople, and that have been sanctified by conventional wisdom or popular opinion. As discussed in Chapter 10 on lawyers and financial advisers, most individuals do not usually have experts available to help them with such decisions. Financial engineers—who might help reduce the problems associated with leverage—are by and large not listened to in public policy discussions. So people often find themselves faced with serious leverage problems.

To behave rationally, in accordance with theory, those involved in financial decision making must keep in mind the long-term wealth management problem: initially borrowing, then eventually tapering off their borrowing and saving enough wealth, given interest rates, to provide a good long-term outcome.

Yet individuals, as well as businesses and governments, often have difficulty in fully understanding—at least before a crisis develops—that when they borrow heavily they become leveraged, so that any otherwise small problem becomes magnified by the debt. If debt becomes too large relative to resources, there is a “debt overhang,” which inhibits any form of positive action. People, and firms and governments as well, feel pinned down by their debt. Few of the individuals presented with this problem have the quantitative skills to understand and resolve the underlying issues without the help of financial advisers.

Lenders may step into this situation, hoping to make a profit, and sometimes with little regard for the real interests of the borrowers. The extent to which they can advertise and the kind of lending schemes that regulators allow differ significantly from one country to another. Hence there are massive differences across countries in average levels of indebtedness, and in propensity to save and build wealth.

Leverage in the U.S. Financial Crisis of 2007

During the boom in the United States just prior to the severe financial crisis, between 2001 and 2007, household debt, including mortgage debt and credit card debt, doubled from \$7 trillion to \$14 trillion. Household debt as a fraction of income rose to a level not seen since the onset of the Great Depression. After the decline in home prices began, strapped households began to curtail their consumption, setting a course toward a severe recession.

The United States has in recent decades had a low savings rate, and in the years just before the crisis the personal savings rate was just about zero. At the same time the personal savings rate in China was approaching 25%. This enormous difference cannot be justified in terms of different economic fun-

damentals; it is concrete evidence of a failure of our financial institutions to reliably address fundamental economic problems. It is a sure sign that our financial institutions remain imperfect.

In the years leading up to the crisis, U.S. mortgage loan-to-value ratios soared. The boom in home prices that preceded the financial crisis was intimately tied up with increasing leverage. Mortgage lenders, caught up in the same psychology as the home buyers, were willing to accept lower and lower down payments as the boom progressed. The lower down payments made it possible for people to afford increasingly expensive housing.¹ When the boom came to an abrupt end, mortgage lenders became worried and started demanding higher and higher down payments, making it impossible for home buyers to buy homes, even at reduced prices, and thus contributing to a downward cycle. The contraction led to a large number of foreclosures on houses, and the states with the strictest laws enabling foreclosures tended to have the steepest economic declines.²

In the United States in 2008, on the eve of the crisis, there were five credit cards per person, while in China there were thirty-three persons per credit card. Credit cards in the United States were, until the financial crisis, widely advertised, even sent out unsolicited to households, accompanied by glossy, flattering advertisements informing the recipient that the card was an honor and a recognition of achievement, thus overcoming natural skepticism about borrowing. Relatively few people in China received such a credit card or advertisement.

Overreliance on credit cards has been a serious problem. Those U.S. counties which had shown the greatest increase in credit card debt before the crisis likewise showed the sharpest contraction afterward.³

There has in recent years been recognition of the problem of aggressive credit card promotions leading to overburdening debt. In the United States, this recognition is behind the development of the Consumer Financial Protection Bureau, created by the 2010 Dodd-Frank Act, which has jurisdiction over lending services, including credit cards. If these beginnings set a path for further discussion about changing our patterns of leverage, we can start reformulating our debt institutions to work more effectively in the public interest.

Leverage and the European Debt Crisis

The European debt crisis that came to widespread attention in 2010 has occurred substantially because of similar problems, related ultimately to the impulses toward risk taking and conventionality. The political process does not naturally bring to the public's attention financial advisers and economic theorists who might present sound advice about the quantity and form of debts. During a time of complacency, as before the crisis, there is a natural

tendency to underestimate the risks of indebtedness. At such times politicians do not generally want to focus on the issue, for fear of being accused of harming public confidence in business. They do not find it advantageous even to raise the issue of overindebtedness, so few citizens give it any thought.

In Europe the problem of excessive government debt in some countries was compounded by European bank regulators, who imposed zero capital requirements on banks' holdings of euro-denominated government debt. This regulatory decision meant that government defaults could also bring down banks. Why did the regulators decide that government debt was riskless? Probably they did not really believe that, but they did not want to disturb confidence by signaling their concerns through capital requirements. It was a case of burning the bridges behind us to force ourselves to keep marching ahead: a sense that they did not want to destroy confidence by calling attention to risks. Moreover, almost no one was paying attention to the problem, and, given the social basis for human attention, it was natural that most people would simply not think about debt overhang.

These are powerful psychological motivations *not* to fix the fundamental problem, and as of this writing European banks still have zero capital requirements against euro-denominated government debt, although a new temporary capital buffer has been imposed, and a European Banking Authority was created in 2010 to impose new procedures to evaluate banks.

The European Systemic Risk Board was also created in 2010, to provide oversight intended to minimize the risk of another such crisis. Creating such a board does not in itself alter the political impulses that brought on the crisis, but it begins a cycle of research and dialogue that may ameliorate the problem.

The outcome of the crisis is still not apparent as of this writing, but it is clear that it has had the potential for major repercussions. The crisis may result in the fragmentation or loss of the euro, the very name of which had come to symbolize European unity. The loss of that symbol may indeed be disastrous in the long run, given the human tendency to take words for things.

The Leverage Cycle

There is a leverage cycle that extends over the whole world. The cycle is not of fixed length, and there may be a long interval between crises. But everywhere one looks, overindebtedness seems naturally to develop during boom times, and it leads to collapse after the booms are over.

The same pattern is seen when one compares countries. In a study of sixteen countries, those that saw larger increases in leverage from 1997 to 2007 tended also to show larger increases in home prices. Moreover, the countries with larger increases in leverage during the interval 1997–2007 tended to show larger drops in consumption expenditure in the depths of the crisis, the years

2008–9.⁴ Clearly a leverage cycle was at work on a global scale in producing this financial crisis.

In such cycles the overindebtedness can be individual, corporate, or governmental—or a combination of all three. The idea that such a cycle is fundamental to economic fluctuations has received only limited attention from economic theorists, perhaps because economists tend to focus on the relatively small fluctuations—the recessions that occur frequently and that provide a great deal of data—rather than the infrequent major depressions or near-depressions.

The economist Irving Fisher wrote in 1933 that a cycle involving leverage was the major factor leading to the Great Depression of the 1930s.⁵ When prices fell after 1929, the real values of all debts were magnified. This change benefited creditors at the expense of debtors, but the net effect was negative. The augmented debt overhang led to cutbacks in expenditure that persisted as long as did the overhang problem.

Recently economic theorist John Geanakoplos has expanded on Fisher's theory; he argues that although there has not been significant deflation during the severe financial crisis that began in 2007, the crisis is indeed well thought of as a debt overhang problem.⁶ When people's debts exceed their assets, many problems are created for the economy: Geanakoplos lists nine troubling "externalities" caused by the debt overhang. These include troubles in the construction industry, setbacks for small business, rising inequality, loss of productivity, and damage to collateral.⁷ Thus there is a clear role for government regulation of leverage.

A boom period tends to be a period of overoptimism and complacency. There is a sense that "the government" will fix any problems that might occur, and a feeling of safety in numbers as millions of people increase their indebtedness. After the boom, during a time of severe debt overhang, there is still a tendency to regard the government as the ultimate savior, and to circle in a holding pattern, hoping for help. The holding pattern itself generates economic distress.

The debt overhang problem is remarkably refractory. People, corporations, and governments who have accepted higher leverage in boom times may be unable to rid themselves of its adverse effects for years to come.

Evidence for the persistence of a debt overhang problem can be seen in the events that typically follow a change of government in a country. When there is such a change, one might think that the new government would readily disavow the debts to foreigners incurred by its predecessors. In fact there are only limited circumstances under which international law allows such repudiation of debt.

Not only are new governments often unwilling to cancel financial debts incurred by previous governments, they may sometimes even restore indebtedness that was repudiated by an earlier government. Hitler repudiated

Germany's World War I reparation debt when he took power in 1933, but part of that debt was recognized again after World War II by the German government, wishing to reestablish trust after the atrocities of the war. A final payment of \$94 million was made in October 2010—over ninety years after the debt was first incurred.

The nations of the world are more aware of such problems in the current financial crisis, but they still have not found a reliable way to fix them. As we have noted, new government regulators have been created, including the Financial Stability Oversight Council in the United States and the European Systemic Risk Board. The Financial Stability Board in Basel and the Basel Committee on Banking Supervision are involved in studying leverage problems on a global scale. But regulatory organizations have in the past not done enough to prevent the problem of the leverage cycle from recurring. The truly effective actions lie not with regulators alone, but also in the development of better financial procedures and instruments—instruments that do not rely on our current rigid mindsets and traditions but change the fundamental ways in which we do things.

Lasting solutions to the problems of the leverage cycle and the debt overhang have to balance the benefits of freely available credit against the cyclical and systemic problems that debt can create. Designing these solutions will be a challenge to the development of new financial institutions and techniques—a task for many minds and for the most creative financial innovators.

Odious and Salubrious Debt

The idea that there is something evil about money lenders extends back to ancient times. The Catholic Church took a clear stand against the charging of interest with the First Council of Nicaea in 325, and that prohibition lasted until the time of John Calvin and Henry the Eighth in the sixteenth century. The Koran contains passages that appear to condemn the charging of interest, and Sharia, the religious law of Islam, effectively blocked Muslim banking until the 1960s. Halakhah, the Jewish law, has forbidden money lending by Jews to other Jews, and orthodox Jews today continue to condemn the practice.

There is a legal concept according to which not all debt is evil, only so-called odious debt: debt that does not originate in free and informed contracting between the parties, or debt that is not managed in a humane way. For example, in the United States in the years leading up to the crisis that began in 2007, excessive mortgage debt was cynically issued to low-income, ill-informed families, who were not told of its consequences. This debt may be considered odious, and it may therefore give the debtors some later moral claim to help with their predicament. If a country with a dictatorial government borrows money without any implied consent by its public, and does not use the money to benefit the public, then a subsequent government can dis-

avow that debt as fraudulent and not binding on the new government. Unfortunately there is as of now no international body that defines in an orderly manner which debt is to be considered odious.

More attention must be paid to the problem of odious debt, and that attention must be paid early, before massive problems appear. Economists Seema Jayachandran and Michael Kremer have argued that an international authority like the United Nations should declare the future debt of certain governments—governments that it might wish to punish for unacceptable behavior—as odious. These measures would make it harder for them to borrow, even from lenders who themselves had no scruples, since the lenders would have no moral authority to demand repayment from a successor government. Such sanctions will be less easily evaded, Jayachandran and Kremer argue, than the conventional trade sanctions typically used today to influence rogue governments.⁸

The opposite of odious debt—let us call it salubrious debt—is debt that is designed by the lender to have a salutary effect in terms of social welfare. Such debt has conditions, either as part of its covenants or in associated agreements and understandings, that are designed to provide healthy incentives to borrowers or other relevant parties.

An example of such salubrious debt is the loans (along with grants) that the United States made to various European countries after World War II through the Marshall Plan (officially the Economic Recovery Program). As argued by economic historians Helge Berger and Albrecht Ritschl, these loans stipulated conditions to correct a dangerous tendency in Europe at that time.⁹ They came as European countries were demanding heavy reparation payments from Germany—demands that were being met by the dismantling and exporting of much of the German capital stock, demands based on deep-seated anger and antagonistic feelings that were hard to set aside. The Marshall Plan envisioned an open European marketplace, including a Germany restored to its traditional industrial prowess. Of course, U.S. motives were not entirely selfless, for America had an interest in a stable and prosperous Europe. But the ultimate outcome—a reunited Europe with a once-again-prosperous Germany—certainly benefited all.

In ensuring that more debt is salubrious rather than odious, and that debt is used to solve basic human problems, financial regulators face a long road ahead. Achieving this state of affairs will mean encouraging financial innovation that allows debts to be defined more flexibly, as in the continuous-workout mortgage or the GDP-indexed national debt described earlier, or other indexation schemes that really work in the interest of the borrower. Achieving better management of debt and leverage—more enlightened debt—will require a change not only in the lending institutions themselves, but also in the way they hedge, securitize, and bundle debt.

Chapter 24

Some Unfortunate Incentives to Sleaziness Inherent in Finance

There is a widespread sense that there is something sleazy about the business of finance, or the people who populate it. This impression is probably behind the commonly voiced opinion that it is a shame so many young people today are going into finance-related occupations, when they could be doing something more high-minded in other fields.

Many people in business do seem to feel rewarded, for the short run at least, in putting salesmanship ahead of purpose, in cutting corners on the law or the intent of the law; they seem to be focused on the money above all else and to have little moral purpose in their business affairs. Yet if one lives in the real world one has to work with, or even for, such people. They are a reality. There may be a slippery slope, as one is obligated to carry out their orders, wrong though they may seem.

The reality is that battling against the slippery slope is an ongoing challenge, a part of living in all walks of life. Certain finance-related fields are among those that often put people in positions offering more than the usual temptation to be manipulative or less than honest. Some of them are aware at some level that they are doing this, and cognitive dissonance (as we shall see below) may push them to develop a mechanism to defend their self-esteem and justify such behavior. Their perceived self-righteousness may in particular rankle those who have dropped out of a similar life situation.

Finance may seem to have more than its fair share of sleazy practitioners because it is a profession that offers, at least to the lucky few, astronomically

Chapter 26

Speculative Bubbles and Their Costs to Society

Economic history is peppered with stories of speculative bubbles, their bursting, and the resultant economic dislocation. There are more such stories than any of us can remember. Even before we had stock markets, there were economically important fluctuations in speculative asset prices. There are vague stories of housing booms in ancient Rome, in the time of Julius Caesar and in the time of Hadrian. Large swings in land prices wrought great distress even before we had stock markets of any size. After the invention of the newspaper in the early 1600s, stories of bubbles began to take on their modern form, and the intensity and frequency of reports of bubbles jumped significantly. The intermittent occurrence of these bubble stories seems an integral part of living in a system of financial capitalism.

Just What Is a Speculative Bubble?

When I wrote the second edition of my book *Irrational Exuberance* in 2005, I was struck by the fact that there didn't seem to be a good definition of a "speculative bubble." Dictionaries gave only vague general definitions for the word *bubble* in this context, as something insubstantial or filled with air. Finance textbooks in the efficient markets era generally did not even mention the term. It has, at least until recently, seemed a term used by writers for the popular news media rather than scholars. So I wrote my own definition, which seemed to capture what people typically mean when they refer to bubbles:

I define a speculative bubble as a situation in which news of price increases spurs investor enthusiasm, which spreads by psychological contagion from person to person, in the process amplifying stories that might justify the price increases and bringing in a larger and larger class of investors, who, despite doubts about the real value of an investment, are drawn to it partly through envy of others' successes and partly through a gambler's excitement.¹

Looking back on this definition years later, I am struck by the fact that it contains many psychological, or emotional, terms: *enthusiasm, psychological contagion, doubts, envy, gambler's excitement*. Most economists would not put such words in the definition of any economic term, for they suggest the primacy of raw emotions in an economic decision. But it seemed to me then that the presence in large numbers of people of these emotions is what identifies a bubble.

Perhaps it would be better to define a list of symptoms of a bubble. Bubbles are a phenomenon that may be compared to a social mental illness, and not all bubbles are identical. We need something like the diagnostic criteria that the American Psychiatric Association has provided in its *Diagnostic and Statistical Manual of Mental Disorders*, now in its fourth edition (*DSM-IV*). Psychiatrists seeking to diagnose a patient's mental condition usually cannot rely on concrete factors like the bacterial cultures or x-ray images that other physicians use in diagnosis. *DSM-IV* provides a numbered list of the possible symptoms for all known mental disorders, and a required number of these symptoms from the list for a diagnosis to be valid, thereby allowing a diagnosis that should be replicable across different psychiatrists, and also allowing for useful statistical measures of the illness.

Social Epidemics

Yet a speculative bubble is different from a mental illness in that it is a social phenomenon, the result of an interaction among large numbers of mostly normal people. A positive bubble occurs when people observe price increases in some speculative market and the observation generates a feedback loop. Price increases attract attention, both in the news media and in popular talk, to theories—often so-called new era theories, inspirational stories of why the future is going to be dramatically better than the past—that justify the price increases, and more people decide to buy, thereby bidding up the price even further. At each stage of the loop prices have to be bid up enough that some existing holders of the asset will start to think that the price is too high and thus sell, preserving for the moment the equality of supply and demand. At each stage of the loop the contagion of the new era theories brings new demand and is in turn enhanced by the public attention generated by the price increases. As the loops repeat, the stories become ever more prominent and the price deviation ever larger.

In a negative bubble, it is the same, except that falling prices generate negative stories—catastrophe stories—that encourage selling. The feedback loop means that falling prices encourage the catastrophe stories, the greater public attention to them in turn leads to further price declines, and on and on. At each iteration of the loop prices have to fall far enough that some investors will buy the assets others are selling, despite the increased prominence of the negative stories.

Bubbles generate profit opportunities for those who see and understand what is happening, and the activity of such people tends to be stabilizing. Still, such activity tends to be limited, as it is never known just when the bubble, whether positive or negative, will end. Frequent short-run market reversals seem to mark ends to the bubble—spurious though these are—which only confuse people. Betting against a bubble is a risky business. And it all remains a matter of opinion; there is no way to prove that there is indeed a bubble, for bubbles cannot be well quantified. Changes in ratios, such as price-earnings ratios, are never proof of a bubble. There are not enough major bubbles in one market or country relative to a person's active professional lifespan to allow one to establish a secure reputation as an exploiter of bubbles. Nor are there enough to allow institutions or government organizations to gain the reputation that would allow them to convince investors or taxpayers to provide massive capital to lean against nascent bubbles and so prevent them from developing.

Sociologists have told us in the past about social epidemics, though most of these are not related to finance and hence technically are not speculative bubbles. Yet we have to rely on the understanding that modern sociology gives us of these epidemics if we are to comprehend speculative bubbles.

We have to rely on modern neuroscience as well in understanding bubbles. The coordination of all the different agents that make up the brain is imperfect, for the evolutionary processes that shaped the human brain have not made it into a perfect machine. In our evolution the mammalian brain was built "on top of" the reptilian brain, and there is a degree of duplication and contradiction within our brains. Like a house to which new wings have been added over the years, the structure is not a truly unified whole, and there are cold spots and drafty areas. There still are "brain bugs"—similar to bugs in computer programs—as neuroscientist Dean Buonomano has characterized them in a book with that title: "Simply put, our brain is inherently well suited for some tasks, but ill suited for others. Unfortunately, the brain's weaknesses include recognizing which tasks are which, so for the most part we remain blissfully ignorant of the extent to which our lives are governed by the *brain bugs*."²

Speculative bubbles are the effect on the entire financial system of a number of these brain bugs. I listed a number of them in *Irrational Exuberance*. The bugs include

- *Anchoring*, a tendency to be influenced by extraneous cues when in ambiguous circumstances,
- A tendency to be overly influenced by *storytelling*, particularly human-interest stories,
- *Overconfidence*, particularly in ego-involving judgments,
- *Nonconsequentialist reasoning*, a difficulty in thinking through the array of hypothetical events that could potentially occur in the future, and
- *Social influence*, a tendency to adopt the attitudes of others around us without realizing we are doing so.

All of these factors create a vulnerability to thought viruses, or memes—ideas that spread across the population the same way disease viruses do.

There is also cognitive dissonance, which we discussed earlier. During a bubble, it operates on both an individual and a cultural level. At the cultural level, it contributes to the proliferation of a conventional wisdom that justifies the bubble-enhancing activities in which we are already involved. There are people who actively feed this conventional wisdom, as anything that disrupts the conventional wisdom will evoke cognitive dissonance in those who have internalized it—and who, moreover, may have made business arrangements or placed bets that are predicated on this wisdom.

Nonfinancial Investment Bubbles

It is important to recognize, when we think about how to regulate or prevent them, that speculative bubbles are just one particularly frequent and salient example of social epidemics. The above description of a social epidemic that creates speculative bubbles presumes the existence of financial markets that reveal the prices of speculative assets and news media that disseminate information about those prices, so that the price movements can accelerate the contagion of bubble thinking. But the process of a social epidemic involving the economy can proceed even in the total absence of financial markets—though the process would then necessarily be different.

To find clear examples, we have to look at economies that have no financial markets at all. Consider the centrally planned economies during the age of communism in the twentieth century. These examples are not normally referred to as "bubbles," since the central command of the economy did not involve a large segment of the population. The bubble thinking underlying these economies was less visible and less remarked on—but no less intense and disastrous.

In the Soviet Union, the collectivization plan of 1929 has aspects of a speculative bubble. The plan called for a massive reorganization of agriculture from small individual farms to giant collectives, which would be given modern farm equipment to increase productivity. The Soviet government promoted

the plan to the general public to encourage its enthusiastic implementation. The initial forecasts for its success were as outlandish and wildly inflated as those in any financial bubble. The public participated in the enthusiasm, and it even became the fashion to name babies "Traktor," "Elektrifikatsiya," and the like.

There was no way to buy shares in the collectivization schemes, though one could indirectly invest in a collective farm by throwing oneself into its workforce with hopes of promotion and rewards. More significantly, there was no price for such an investment recorded in any market, and no tempering forces for the bubble through comparing prices with alternative investments or making short sales. There was no broad publication of balance sheets and profit statements, and there were no independent analysts who could openly criticize the new enterprises. The bubble was ultimately proven to be a disaster. Eleven million people died in the famine of 1932–33, which was directly related to the disruption in agriculture that collectivization had produced.

The Great Leap Forward in communist China from 1958 to 1961 was another such investment bubble that took place in the absence of financial markets. The plan involved both agricultural collectivization and the aggressive promotion of industry, notably of the iron and steel industry. Once again there were no market prices, no published profit and loss statements, no independent analysts. Steel production was to be carried out in backyard furnaces that would be considered laughable by knowledgeable steel industry analysts, but those who understood that had no influence in China at the time. Of course there was no way to short the Great Leap Forward. As a result of this bubble, agricultural labor and resources were rapidly diverted to industry. The result was massive famine, with tens of millions of deaths.³

The Great Leap Forward also has aspects of a Ponzi scheme. There are reports that Mao Zedong, on visiting a modern steel plant in Manchuria in 1959, became doubtful that the backyard furnaces were a good idea. According to his personal physician and later biographer Li Zhisui, "he gave no order to halt the backyard steel furnaces. The horrible waste of manpower and materials, the useless output from the homemade furnaces, was not his main concern. Mao still did not want to do anything to dampen the enthusiasm of the masses."⁴ The Great Leap Forward, as well as the Cultural Revolution that followed it, was essentially a calculated scheme to create a social contagion of ideas.

Accounting fraud played a major role in the disaster created by the Great Leap Forward, for the event created an incentive for collectives to overstate their harvest, and there were no regulators to ensure that the reports were honest. When the central government demanded its share of the reported produce, there was little left to feed the producers.

Some may object that these events were not really speculative bubbles because the activities were imposed on the population by totalitarian govern-

ments, and the deaths reflect government error more than investment error. But they nevertheless have aspects of bubbles. The simple fact that in each case the government was able to have its plans carried out for so long and on such a massive scale must mean that there was enthusiastic public support for the underlying ideas.

Fortunately no speculative bubble in any advanced financial country has ever had the disastrous consequences of Soviet collectivization or the Chinese Great Leap Forward. The presence of free markets, analysts, and balance sheets and income statements at least limits the magnitude of such disasters.

Wars and Bubbles

World War I was in a sense a bubble. As with many conflicts, the precipitating event, the assassination of Archduke Franz Ferdinand, became less significant as events progressed through a sequence of reactions and counterreactions—a feedback loop that no participant could seem to stop.

Emil Lederer, a sociologist, remarked in 1915 that he was struck by the transformation of society wrought by the war. The practice of universal conscription, he wrote, made the prospect of war an immensely personal matter, touching almost every family, which then invaded everyone's thinking and led to a change in interpersonal relationships. As he put it, *Gesellschaft* (society) was replaced by *Gemeinschaft* (community), which made it impossible to be detached from the feedback.⁵

World War I was so obviously a destructive feedback loop that it led to international mechanisms to curtail such feedback in the future. These included the League of Nations, which, after it failed to stop World War II, was replaced by the United Nations. An essential function of the United Nations is the mediation of disputes and the placement of peacekeeping forces to interrupt such feedback loops as close to their origins as possible. We could have analogous advances in curtailing speculative bubbles—though they will never be curtailed completely.

The Good Society

As with the founding of the United Nations in the twentieth century, the twenty-first century is seeing progress toward the achievement of the "good society." One example has been the development of the association of nations known as the Group of Twenty (G20), formed in 1999, as an effective economic policy institution. This development builds on centuries of progress in developing agencies of international cooperation among the great powers, starting with the Congress of Vienna in 1814–15. The League of Nations and the United Nations were important milestones, as were the Group of Seven and its successor the Group of Eight. The Economic and Social Council of the United

Nations, and the Second Committee of its General Assembly, did have some impact on economic policy formulation. But before the G20 no body of international agreement was effective in coordinating economic policy.

In the group's first summit statement, dated November 15, 2008, the leaders of the G20 nations committed themselves to ensuring "that all systemically-important institutions are appropriately regulated."⁶ In their September 15, 2009, statement they announced their commitment to "policies designed to avoid both the re-creation of asset bubbles and the re-emergence of unsustainable global financial flows."⁷

Steps are being taken in the nations of the developed world to comply with these policies. In the United States, for example, the Dodd-Frank Act has set up, along with the Financial Stability Oversight Council, an Office of Financial Research, which is charged with collecting data that will allow informed decisions about systemic risks. In the European Union, the European Systemic Risk Board has an Advisory Technical Committee charged with helping it figure out how to deal with bubble-like problems.

But preventing speculative bubbles and overleverage in an economy is inherently difficult for any government agency. One wonders how well these agencies will succeed. Past examples are not uniformly encouraging. In 1987, right after the biggest one-day stock market crash in U.S. history, President Ronald Reagan created such an agency, the President's Working Group on Financial Markets, which consisted of the secretary of the Treasury, the chairman of the Federal Reserve Board, the chairman of the SEC, and the chairman of the Commodity Futures Trading Commission. It was similar to today's Financial Stability Oversight Council but had fewer members. That body apparently took no measures as a group to forestall the present financial crisis. On October 8, 2008, near the peak of the crisis, it issued only a weak statement that consisted of descriptions of the various actions that each of the four agencies constituting the working group had already undertaken, without offering any evidence that the existence of the group itself had been of any benefit.⁸

Descriptions of the activities of these agencies tend to be technical in nature, couched in terms of data on capital ratios, crossborder capital flows, and the like. They do not usually include the word *bubble*. The problem seems to be that accountants can often conceal the real meaning of the numbers. Recognizing a bubble is essential to preventing a financial crisis, but recognizing bubbles is as much a question of judging, from their actions, people's intentions and motives as it is of looking at the numbers themselves.

That is why formulating plans for new agencies to prevent bubbles is so difficult. And that is why the dislocations that we have seen during the present financial crisis will tend to recur.

Regulators play an important role, but they are human. Designing financial institutions around the imperfections of regulators—as much as that can be

done—is just as important as designing financial institutions around the imperfections of market participants.

The Significance of Bubbles

Assuming all this is true, what good are prices in financial markets? What else can they do *besides* create bubbles and crashes? There is widespread talk among apologists for speculative markets that the markets provide price discovery, implying that they create important information. But what is the nature of the information the markets are revealing? What are the markets "discovering" in their prices?

The answer has to be that even though the fluctuating level of aggregate stock market prices over the past century has generally discovered little more than changing market psychology, stock prices still mean something. Notably, at the very least, *individual* stocks' prices clearly carry useful information.

The economist Paul A. Samuelson opined that stock prices are "micro efficient" and "macro inefficient." He meant that there is more truth to the efficient markets hypothesis for individual stocks (micro in the sense that we are talking about tiny parts of the aggregate market) than for the stock market as a whole (the macro side of the market). We call this Samuelson's Dictum.

In a paper I wrote with my former student Jeeman Jung, we found evidence that gives some support for Samuelson's Dictum.⁹ We noted that excess volatility is most apparent for the aggregate stock market. For the aggregate market, there has never been much fluctuation in earnings or dividends; they have always followed a trend—with only short-run interruptions that tend to reverse themselves in a matter of a few years—and so should not have a significant impact on stock prices. There has thus never been much genuine information predicting substantial future movements in economywide earnings or dividends away from the trend. So, for the stock market for an entire country, the bubbles have dominated.¹⁰

But when one looks at individual stocks, and not just at the aggregate stock market, one finds that the percentage movements in dividends are much larger. Even if these stocks are just as vulnerable to booms and crashes, the large movements in the fundamentals, to some extent forecastable, provide a justification for fluctuations in the price-earnings ratio.

For example, Jung and I looked at those stocks that have never yet paid a dividend, typically young stocks, issued by relatively new companies that hope to reward their investors later with dividends. Efficient markets theory predicts that, while they are not paying dividends, these stocks will show higher price increases over time than other stocks, to compensate investors for the lack of dividend income. For stocks that pay no dividend, we find that in fact there *is* a higher capital gain on average. The market must know some-

thing; it somehow puts a value on these stocks, knowing that they will appreciate at a higher rate, and they in fact *do* tend to appreciate at a higher rate. So that valuation is meaningful.

In a research study titled "What Drives Firm-Level Stock Returns?" financial analyst Tuomo Vuolteenaho looked at the valuations of a large sample of U.S. stocks using over 36,000 firm-year observations over the years 1954–96. His conclusions imply that about two-thirds of the variability of individual company stock prices stems from responses to genuine information about the expected future cash flows of the firms, and only about a third of the variability can be attributed to changes in investor attitudes toward risk and time. He did not enumerate what might change these attitudes, but influences probably would include speculative bubbles, or possibly other factors that change investor willingness to pay, such as fashions or fads in investing, changing liquidity, publicity for individual stocks, market manipulation, or changing availability of shortable shares. But since these account for only about a third of the variability of individual stock prices, Vuolteenaho confirms that individual stock price movements mostly do make basic sense in terms of information about the future.¹¹

Fischer Black, the co-author of the Black-Scholes option pricing theory, wrote in his presidential address to the American Finance Association that the efficient markets theory of the stock market "seems reasonable" if we adopt the right definition of "efficient." He defined "efficient" to mean that individual company stock prices are between half true value and twice true value almost all of the time. And he defined "almost all" to mean "at least 90%."¹² That judgment seems roughly to correspond to Vuolteenaho's assessment.

As I interpret the evidence, financial markets are not perfect, and a substantial fraction of the variation in individual stock prices is not explainable in terms of anything that makes good economic sense—at least not sense that we can discern today. Bubbles are frequent and, when they occur, salient. But enough of the variability of individual stock prices, or other individual asset prices, *does* make sense that the market remains an extremely important source of information for directing resources.

Chapter 27

Inequality and Injustice

We have ample reason to believe that financial markets are quite useful. And yet our wonderful financial infrastructure has not yet brought us the harmonious society that we might envision. There remains the ugliness of extreme economic inequality, of some who endure hardship while others are pampered. While some inequality is actually in many ways a good thing, for the motivation and stimulation it provides, arbitrary and extreme inequality poses problems.

The public aversion to inequality is deep seated and ancient. It has been shown that even our distant relatives, nonhuman primates, share with us an aversion to inequity.¹ It is an imperative that people feel society is basically fair to them.

We see this aversion most clearly today in the worldwide protests associated with Occupy Wall Street and its variants. The unfairness of the allocation of resources under financial capitalism is a major theme. Rising inequality is certainly a valid concern, and one that must be addressed. But financial capitalism does not *necessarily* produce unjust wealth distribution. Public policy can allow us to enjoy the benefits of modern finance without producing such inequality. We must examine the relationship between finance and our problems with inequality before we jump to unwarranted conclusions.

Finance and Injustice

We seem able to live with, even admire, wealthy people. There is no sense of injustice if we believe that the wealthy in some sense earned or deserve their

NATIONAL BESTSELLER

13 BANKERS

The Wall Street Takeover
and the Next Financial
Meltdown

"An enticing vision of a Wall Street confined . . . a safer, saner
system that has learned from its mistakes."

—*The Wall Street Journal*

SIMON JOHNSON
and **JAMES KWAK**

WITH A NEW EPILOGUE

THE BEST DEAL EVER

These amendments are intended to reduce regulatory costs for broker-dealers by allowing very highly capitalized firms that have developed robust internal risk management practices to use those risk management practices, such as mathematical risk measurement models, for regulatory purposes.

—Securities and Exchange Commission,
“Final Rule: Alternative Net Capital Requirements
for Broker-Dealers That Are Part of Consolidated
Supervised Entities,” Effective August 20, 2004¹

By the mid-1990s, Wall Street was a dominant force in Washington. It had survived the implosion of the savings and loan industry in the late 1980s, the election of a Democratic president in 1992, a congressional investigation of predatory subprime lending in 1993, and a wave of scandals caused by toxic derivatives deals in 1994 without facing any significant new constraints on its ability to make money.

The U.S. financial elite did not owe its rise to bribes and kickbacks or blood ties to important politicians—the usual sources of power in emerging markets plagued by “crony capitalism.” But just as in many emerging markets, it constituted an oligarchy—a group that gained political power because of its economic power. With Washington firmly in its camp, the new financial oligarchy did what oligarchies do—it cashed in its political power for higher and higher profits. Instead of cashing in via preferred access to government funding or contracts, however, the major banks engineered a regulatory climate

that allowed them to embark on an orgy of product innovation and risk-taking that would create the largest bubble in modern economic history and generate record-shattering profits for Wall Street.

When the entire system came crashing down in 2007 and 2008, governments around the world were forced to come to its rescue, because their economic fortunes were held hostage by the financial system. The title of Louis Brandeis’s 1914 book, *Other People’s Money*, referred to ordinary people’s bank deposits, which could be used by investment bankers—“Our Financial Oligarchy”—to control industries and generate profits. In 2008, however, the banks found another way to tap other people’s money: the taxpayer-funded bailout.

THE GOLDEN GOOSE

The boom in real estate and finance in the 2000s resulted from the explosive combination of a handful of financial “innovations” that were invented or greatly expanded in the 1990s: structured finance, credit default swaps, and subprime lending. Most financial regulators looked on the creation of this new money machine with benevolent indifference. Structured financial products were sold largely to “sophisticated” investors such as hedge funds and university endowments and therefore subject to limited oversight by the Securities and Exchange Commission; credit default swaps were insulated by regulatory inattention and then by the Commodity Futures Modernization Act; subprime lending was winked at by the Federal Reserve. That was how the financial sector wanted it, and Washington was happy to oblige.

Traditionally, investors invested in financial assets that had some direct tie to the real economy: stocks, corporate or government bonds, currencies, gold, and so on. By contrast, banks engineered structured products to have any set of properties (maturity, yield, risk, and so forth) that they want.² Structured products include pure derivatives, discussed in chapter 3, which are side bets on other financial assets. For example, an investor can pay \$100 to a bank and get back, one year later, an amount that is calculated based on the performance of several

currencies and interest rates. They can also be built by buying actual financial assets (mortgages, student loans, credit card receivables, and so on), combining them, and taking them apart in various ways to create new "asset-backed" securities. Or they can combine real assets with derivatives in increasingly complicated mixes.

Structured finance, in principle, serves two main purposes. First, it creates new assets that people can invest in. Instead of being limited to publicly traded stocks and bonds, investors can choose from a much broader menu of assets, each with unique characteristics to attract a particular investor; for example, securities can be manufactured to help investors match the timing of their assets and their liabilities.* Second, by creating assets that are more attractive to investors, structured finance should make it easier for businesses to raise money. While investors might demand a high rate of interest to invest in an airline route from Los Angeles to Shanghai, they might accept a lower rate if that route were packaged with an option to buy oil at a cheap price in the future. (If oil prices rise, hurting demand for long-distance flights, the option will increase in value.) Lower rates make it easier for businesses to raise money.

In theory, then, structured finance could increase the pie for everyone. More important, in practice it was sure to increase revenues for the banks arranging these complex transactions. The ordinary trajectory for most products and services in the business world is for profit margins to decline as competition increases. For example, the amount that a bank could make from a plain-vanilla loan to a highly rated company was minimal, because many other banks would be willing to make that loan. Like all businesses, banks needed to invent new products that were not yet commoditized and that could command high margins. Structured products were the perfect answer. They were complex products that bank customers could not arrange on their own. Moreover, because selling these products required the ability to hedge risks in multiple markets, it was difficult for new banks to break into the business, which became dominated by a small number of play-

*For example, pension funds with long-term liabilities should prefer to invest in long-term assets, so they are getting their money back at the same time that they need to make payouts.

ers who could charge hefty fees for their services. In his memoir, former trader Frank Partnoy described how Morgan Stanley earned \$75 million on a single trade.³

In addition to pure derivatives such as interest rate swaps, currency swaps, and credit default swaps, asset-backed structured products were a mainstay of Wall Street derivatives desks in the early 1990s. The Repackaged Asset Vehicles that played a starring role for Morgan Stanley were structured products, in which a special-purpose vehicle (SPV, a new company that exists only on paper) bought a set of existing securities (say, bonds issued by the state electric utility of the Philippines) and paid for them by selling investors a new set of custom-designed securities.⁴

Asset-backed structured products became Wall Street's new cash cows, in the form of mortgage-backed securities (MBS) and their cousins, collateralized debt obligations (CDOs). The original mortgage-backed securities created by Ginnie Mae in the late 1960s were "pass-through" securities: mortgages were combined in a pool, and each security had an equal claim on the mortgage payments from that pool, spreading the risk evenly. Private MBS, however, are typically divided into different tranches, or classes, that have different levels of risk and pay different interest rates. Because the "senior" tranches have the first claim on all the mortgage payments, they have the least risk, and the credit rating agencies routinely stamped them with their AAA rating—the same rating given to U.S. government bonds. The "junior" tranches are riskier, but therefore pay higher interest rates to investors.*

A CDO is similar, except that instead of being built out of whole mortgages it is built out of mortgage-backed securities or securities backed by other assets (such as credit card loans, auto loans, or student loans).[†] By building CDOs out of junior, high-yielding MBS tranches,

*In a stylized example, an MBS offering might be composed of 85 percent senior MBS and 15 percent junior MBS. If 5 percent of the underlying mortgages default, the junior investors will lose one-third of their money, but the senior investors will lose nothing. The senior investors only lose if over 15 percent of the underlying mortgages default. By contrast, in a pass-through MBS, there are no tranches; if 5 percent of the mortgages default, all investors lose 5 percent of their money.

†There is not universal agreement on terminology. A mortgage-backed security with tranches is sometimes called a CDO. A CDO backed by mortgage-backed securities is sometimes classified as a mortgage-backed security (because ultimately it, too, is backed by mortgages).

banks were able to engineer new securities that offered high returns with relatively little risk—at least according to their models. It was possible to combine low-rated MBS tranches, mix them together, and create a new CDO, 60 percent or even 80 percent of which was rated AAA; even though the MBS (the inputs) had low ratings, it was unlikely that many of them would default at the same time—at least according to the models. Financial engineers even created CDO-squareds—CDOs whose raw material was other CDOs—and higher-order variants, in order to squeeze out higher yield at lower supposed risk.⁵

In the late 1990s, Wall Street became addicted to mortgage-backed securities and CDOs. As housing prices took off, it became easy to build models showing that MBS and CDOs had virtually no risk, because borrowers could always refinance their mortgages as long as prices were rising; even if they defaulted, rising prices meant that the investors would own valuable collateral. But because borrowers—especially subprime borrowers—were individually risky and paid interest rates to match, it was possible to manufacture AAA-rated securities that paid higher interest rates than other low-risk assets, such as U.S. Treasury bonds. Comforted by their AAA ratings, investors bought those CDOs without worrying about what was inside them. Most important, U.S. homeowners and homebuyers represented an enormous pool of potential borrowers that could be tapped over and over again as home prices rose and as they bought bigger houses or refinanced to turn their home equity into cash for home improvements or flat-screen televisions. Those mortgages and home equity loans were the raw material that Wall Street transformed into gleaming new CDOs for investors, taking a flat fee with each turn of the assembly line.

In comparison with MBS and CDOs, credit default swaps (insurance against default), introduced in chapter 3, are a relatively simple product, but they played a special role in the finance boom. Because the boom was based on creating, packaging, and selling debt, it depended on the assumption that borrowers would pay off their debts—or that someone else would pay in their place. Credit default swaps made it

possible to insure *any* pool of mortgage loans or mortgage-backed securities, seemingly eliminating the risk of default.

In 1997, J.P. Morgan (part of today's JPMorgan Chase) pioneered the use of credit default swaps to shift the default risk of loans off of its balance sheet. In the "BISTRO" transaction, J.P. Morgan's derivatives team created a new special-purpose vehicle to insure loans the bank had made. J.P. Morgan paid insurance premiums to the SPV, and the premiums backed new bonds issued by the SPV to investors.⁶ This complex piece of engineering had two benefits for the bank. First, because the risk of default on the underlying loans had been transferred from the bank to the SPV, the bank did not have to maintain capital reserves for those loans, so it could make more loans and hence more lending profits.

The other implication was more far-reaching. In effect, J.P. Morgan had created a new CDO out of thin air, without any of the raw material—loans or asset-backed securities—usually required. BISTRO was the first of what came to be known as "synthetic CDOs." If the borrowers paid off their loans, the SPV would receive a steady stream of insurance premiums from J.P. Morgan to pay off its investors; but if the borrowers defaulted, the SPV would have to make a large cash insurance payout to J.P. Morgan, and its investors would lose their money. From an economic standpoint, it was as if the SPV actually held the underlying loans. This meant that a bank could create a CDO based on the housing market without having to buy a pool of mortgages or mortgage-backed securities; instead, it only needed to find someone who would buy insurance (using credit default swaps) on securities that already existed in the market. No one, in other words, had to go to the trouble of lending new money.

In the 2000s, as demand from investors and Wall Street banks for subprime loans outstripped supply, credit default swaps were used to fill the gap. As hedge fund manager Steve Eisman said, "They weren't satisfied getting lots of unqualified borrowers to borrow money to buy a house they couldn't afford. They were creating them out of whole cloth."⁷ This practice ultimately magnified the impact of mortgage defaults; as borrowers stopped paying, their defaults hurt not only the CDOs that held bits and pieces of their mortgages, but also the synthetic CDOs that mirrored them.

Credit default swaps also made possible another Wall Street business model. With a stable economy and rising housing prices, the default risk of the senior tranches of mortgage-backed securities and CDOs (the ones that got paid off first) seemed vanishingly small. Selling credit default swaps on these securities looked an awful lot like free money, and hedge funds stepped forward to take it. Notably, American International Group (AIG), the world's largest insurance company, had a Financial Products group that was willing to insure AAA-rated structured securities for almost nothing. In the late 1990s, AIG agreed to insure the "super-senior" portion of J.P. Morgan's CDOs—the part that was even safer than the AAA-rated bonds issued by the SPV⁸—for only two basis points (hundredths of a percentage point) per year. In other words, in return for insuring \$100 million of loans against default, AIG would get \$20,000 per year.⁹ According to AIG's models, it was free money. From J.P. Morgan's perspective, because AIG was considered one of the world's safest companies—it had a AAA rating of its own at the time—it was fully insured, for a cheap price. Everyone was happy. Of course, risk never disappears, and in this case it would reappear with a vengeance in September 2008.

The third ingredient of this money machine was a wave of innovation in mortgages, often described as (but not confined to) subprime lending. Traditionally, since the 1930s, home mortgages had been relatively conventional products and mortgage lending a relatively staid business. Most mortgages were long-term, fixed-rate, "prime" mortgages, where the borrower met the lender's standards for creditworthiness, capacity (income) to repay debt, and collateral (real property sufficient to protect the lender in case of default).¹⁰ Subprime loans, where the borrower did not meet one of these criteria,* were relatively rare. In 1993, there were only 24,000 subprime mortgages used to

*Contrary to popular belief, not all subprime loans are loans to poor people. The classification of a loan depends on the relationship between the borrower, the property, and the size of the loan. Chris Mayer and Karen Pence have found that "subprime mortgages are not only concentrated in the inner cities, where lower-income households are more prevalent, but also on the outskirts of metropolitan areas where new construction was more prominent."¹¹

purchase homes and 80,000 subprime refinance mortgages. By contrast, there were 2.2 million prime home purchase mortgages and 5.2 million prime refinance mortgages; in aggregate, there were seventy prime mortgages for every subprime mortgage.¹²

The 1990s and 2000s, however, saw an explosion in all types of mortgage lending, although most attention has focused on subprime lending (and "Alt-A," a new designation for higher-end subprime loans), in which lenders lowered their standards for creditworthiness, capacity, or collateral, or all three at the same time. Before the market for private mortgage-backed securities took off in the 1990s, subprime lending was constrained by the fact that subprime lenders wanted to be paid back. Subprime loans had to conform to underwriting standards, like all loans, and were used primarily to refinance prime mortgages for borrowers who had poor credit histories but otherwise had the capacity to repay the debt. In addition, subprime loans were generally made by nonbank mortgage lenders who could not raise funds by taking deposits from customers. With the advent of securitization, however, investors and the investment banks that served them became particularly hungry for subprime loans because of the higher interest rates they paid, which were crucial to manufacturing high-yielding CDOs.

Now that loans could be resold to Wall Street, mortgage lending became a fee-driven business, where volume was the key to profits. Lenders responded by inventing new mortgage products that made it easier for borrowers to afford their monthly payments, at least for the first few years. These products went beyond the standard adjustable rate mortgage to extreme forms such as "pay option" mortgages where borrowers could choose to pay *less* than the monthly interest on the loan, causing the principal balance to go up instead of down. Lenders relaxed traditional underwriting practices, such as verifying the income and assets of the borrower; in stated-income mortgages, the lender explicitly *did not* confirm that the borrower had the income he or she claimed, and told the borrower as much. They accepted smaller down payments, resulting in higher loan-to-value (LTV) ratios, or used second mortgages to eliminate the down payment entirely; this meant that the collateral would not be sufficient to protect the lender from default unless housing prices rose.¹³

Many of these innovations applied equally to prime and subprime loans, and business in both categories boomed. In 2005, 1.0 million subprime loans were used to buy houses and 1.2 million were used for refinancing—in aggregate, a twenty-fold increase over 1993.¹⁴ The result—whether due to mortgage brokers who pushed borrowers into inappropriate loans, or due to house “flippers” who took on as much leverage as possible to buy as many houses as possible while the market was hot—was mortgages that many borrowers would have little chance of actually paying off out of their income.

But that no longer mattered—at least not to the lenders or the investment banks—because the lending business model detached itself from the requirement that borrowers pay back their loans. Lenders made fees for originating loans; the higher the interest rate, the higher the fees. Then, when interest rates reset and borrowers became unable to make their monthly payments, lenders could earn more fees by refinancing them into new, even-higher-rate mortgages. As long as housing prices continued to rise, a single borrower could be good for multiple loans, each time increasing his debt. (This business model had been pioneered by credit card issuers, who discovered that they could make money off of borrowers even if they never fully paid off their card balances.)¹⁵ If he finally became unable to refinance, any loss would typically be taken by a CDO investor, not by the mortgage lender, and would be confined to the junior CDO tranches. As late as 2007, according to the International Monetary Fund, “Stress tests conducted by investment banks show that, even under scenarios of nationwide house price declines that are historically unprecedented, most investors with exposure to subprime mortgages through securitized structures will not face losses.” (The stress test cited by the IMF was conducted by Lehman Brothers.)¹⁶

As the business boomed, the large banks dived in, snapping up subprime lenders. Among the top twenty-five subprime lenders, First Franklin was bought by National City and later by Merrill Lynch; Long Beach Mortgage was bought by Washington Mutual; Household Finance was bought by HSBC; BNC Mortgage was bought by Lehman Brothers; Advanta was bought by JPMorgan Chase; Associates First Capital was bought by Citigroup; Encore Credit was bought by Bear Stearns; and American General Finance was bought by AIG.¹⁷ Not only did buyers want the lucrative fees available from originating

cycle of escalating debt

subprime loans, but many of them wanted a captive source of loans for their mortgage securitization machines. Large banks also expanded their subprime operations by working with independent mortgage lenders and brokers. According to the head of Quick Loan Funding, a subprime lender, Citigroup provided the money for loans to borrowers with credit scores below 450 (at the time, the national median was about 720).¹⁸ JPMorgan Chase aggressively marketed its “no doc” and “stated-income” programs to mortgage brokers and used slogans such as “It’s like money falling from the sky!”¹⁹ If subprime lending was pioneered far from Wall Street, by the 2000s Wall Street couldn’t get enough of it.

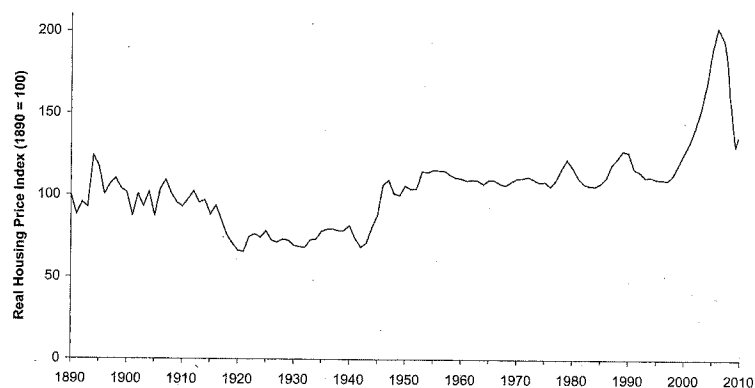
Housing was not the only bubble made possible by cheap money, aggressive risk-taking, and structured finance. The 2000s saw a parallel bubble in the commercial real estate market, where banks were willing to finance purchases at ever-increasing valuations, in part because they were able to use commercial mortgage-backed securities to unload the large, risky loans they were making. There was also an enormous boom in takeovers of companies by private equity firms, again made possible by cheap loans advanced by banks and then syndicated to groups of investors or used as raw material for new structured products. These bubbles overlapped in takeovers of real estate investment trusts (REITs), companies that invest in real estate. In February 2007, the Blackstone Group bought Equity Office Properties Trust for \$39 billion in the largest leveraged buyout ever; Blackstone immediately flipped most of Equity Office’s buildings to other buyers (who borrowed as much as 90 percent of the purchase price), many of whom took significant losses as the real estate market crashed.²⁰ In October 2007, Tishman Speyer spent \$22 billion to buy Archstone-Smith Trust, much of it financed by a group of banks led by Lehman Brothers; losses on that deal would be one factor that helped lead to the downfall of Lehman less than a year later.²¹

FORCE-MOLTING

But the emblematic bubble of the decade, and the one whose implosion led directly to the financial crisis, was the housing bubble, in which prices soared to almost twice their long-term average (see Fig-

ure 5-1).²² The increased availability of mortgage loans, with lower initial monthly payments, increased homebuyers' ability to pay, pushing prices upward. Continually rising housing prices seemed to eliminate the risk of default, since borrowers could always refinance when their mortgages became unaffordable, making mortgage-backed securities and CDOs more attractive to investors and to the investment banks that manufactured them. Higher prices also induced existing homeowners to take out home equity loans, providing more raw material for asset-backed securities and CDOs. Lower risk lowered the price of credit default swaps on mortgage-backed debt, making CDOs and synthetic CDOs easier to create. Increased Wall Street demand for mortgages (to feed the securitization pipeline) funneled cheap money to mortgage lenders, who sent their sales forces out onto the streets in search of more borrowers; by the early 2000s, many prime borrowers had already refinanced to take advantage of low rates, and so subprime lending became a larger and larger share of the market. And the cycle continued.

Figure 5-1: Real U.S. Housing Prices, 1890–2009



Source: Robert Shiller, Historical Housing Market Series. Used by permission of Mr. Shiller. Data were originally used in Robert Shiller, *Irrational Exuberance* (Princeton: Princeton University Press, 2000).

Ordinarily, the instinct for financial self-preservation should prevent lenders from making too many risky loans. The magic of securitization relieved lenders of this risk, however, leaving them free to originate as many new mortgages as they could. Because mortgages

were divided up among a large array of investors, neither the mortgage lender nor the investment bank managing the securitization retained the risk of default. That risk was transferred to investors, many of whom lacked the information and the analytical skills necessary to understand what they were buying. And the investors assumed that they didn't need to worry about what they were buying, because it was blessed by the credit rating agencies' AAA rating.

Ironically, even though securitization theoretically allowed banks to pass on all the default risk to their clients, some kept some of the risk anyway. Either they really believed that the senior tranches of their CDOs were risk-free, or there was more demand for the riskier junior tranches and they couldn't find enough buyers for the senior tranches. Here again, they depended on financial innovation in the form of structured investment vehicles (SIVs)—special-purpose entities that raise money by issuing commercial paper and invest it in longer-term, higher-yielding assets. Citigroup, for example, used SIVs to buy over \$80 billion in assets by July 2007.²³ These vehicles allowed banks to invest in their own structured securities without having to hold capital against them; since SIVs were technically not part of the bank in question—even though they were wholly owned by that bank, which might even have promised to bail them out if necessary²⁴—their assets were not counted when determining capital requirements. The result was that SIVs enabled banks to take on more risks with the same amount of capital.

SIVs were a Wall Street variation on one form of crony capitalism. In an emerging market, when a major family-owned conglomerate sets up a new company, it can legally walk away should things go bad. Because the new company has the family name behind it, however, the family will come under pressure to prop it up in a crisis.²⁵ And just as in emerging markets, when things did go bad in 2007 and 2008, many banks, including Citigroup, bailed out their SIVs, incurring billions of dollars of losses in the process. But as long as housing prices were soaring, SIVs were another way to make more profits using less capital. In addition, by soaking up the senior tranches of CDOs, they helped keep the securitization machine going at full volume.

Rising housing prices created their own momentum, as bubbles do. As people saw their friends and neighbors cashing in on the housing

boom, they rushed to get in on the action. The environment became so filled with stories about people making money in housing that even skeptics decided that everyone else couldn't be wrong, creating what Robert Shiller has called a "rational bubble."²⁶ Even investors who knew the boom could not last were betting that they could buy high and sell higher before the music stopped.

On a factory farm, when hens start laying fewer eggs, they are "force-molted"—"starved of food and water and light for several days in order to stimulate a final bout of egg laying before their life's work is done."²⁷ After 2004, when many qualified borrowers had already refinanced and houses were so expensive they could only be bought with exotic mortgages, the real estate and finance industries launched an all-out effort to get people into new houses and squeeze out a few last years of golden eggs. In the peak years, the bubble was sustained by brand-new mortgage products that only existed because they provided raw material for CDOs. At the height of the boom, over half of the mortgages made by Lennar, a national housing developer, were interest-only mortgages or optional-payment mortgages whose principal went *up* each month; in 2006, almost one in three had a piggy-back second mortgage.²⁸ Between 1998 and 2005, the number of subprime loans tripled, and the number that were securitized (as measured by First American LoanPerformance) increased by 600 percent.²⁹ In 2005, a consortium of Wall Street banks created standard contracts for credit derivatives based on subprime mortgages, making it even easier to create synthetic subprime CDOs.³⁰ These developments all confirmed the predictions of economist Hyman Minsky, who had warned that "speculative finance" would eventually turn into "Ponzi finance."³¹

The end result was a gigantic housing bubble propped up by a mountain of debt—debt that could not be repaid if housing prices started to fall, since many borrowers could not make their payments out of their ordinary income. Before the crisis hit, however, the mortgage lenders and Wall Street banks fed off a giant moneymaking machine in which mortgages were originated by mortgage brokers and passed along an assembly line through lenders, investment banks, and CDOs to investors, with each intermediate entity taking out fees along the way and no one thinking he bore any of the risk.³²

GREENSPAN TRIUMPHANT

An emerging market oligarchy uses its political power and connections to make money through such means as buying national assets at below-market prices, getting cheap loans from state-controlled banks, or selling products to the government at inflated prices. In the United States, the banking oligarchy (and its allies in the real estate industry) used its political power to protect its golden goose from interference and to clear away any remaining obstacles to its growth. The banks' objectives included both the elimination or nonenforcement of existing regulations and the prevention of new regulations that might stifle profitable innovations. Their sweeping success enabled them to take on more and more risk, increasing their profits but also increasing the potential cost of an eventual crash.

At the top of the major commercial banks' wish list was the repeal of the Glass-Steagall Act, which was finally achieved in 1999. By that point, the separation of commercial and investment banking had been severely weakened by a series of Federal Reserve actions that allowed commercial banks, through their subsidiaries, to underwrite many types of securities; in addition, the new business of derivatives fell outside Glass-Steagall altogether, and commercial banks such as Bankers Trust and J.P. Morgan were among the pioneers in that market.

In 1996, the Fed struck a major blow for deregulation, allowing bank subsidiaries to earn up to 25 percent of their revenues from securities operations, up from 10 percent.³³ That same year, the Fed overhauled its regulations to make it easier for banks to gain approval to expand into new activities. Congress also changed the rules for banks seeking to expand into new businesses, relieving banks of the need to obtain approval from the Federal Reserve and putting the onus on the Fed to actively disapprove of any new activities.³⁴ As long as Glass-Steagall remained on the books, however, the 25 percent revenue limit posed a barrier, and there was still the risk that Congress or the courts might overrule a friendly decision by the Fed.

When Travelers and Citicorp merged in 1998—bringing together a major commercial bank and a major insurance company that owned a major investment bank—Glass-Steagall required the new Citigroup to break itself up within two years. Citigroup's only recourse was to get the law repealed. Congress obliged in 1999 with the Gramm-Leach-Bliley Act, which created a new category of financial holding companies that are authorized to engage in any activities that are financial in nature, incidental to a financial activity, or complementary to a financial activity—including banking, insurance, and securities.³⁵ With this legislation, Donald Regan's dream of a true financial supermarket that could offer all financial services was not only legal, it seemed to be embodied in the new Citigroup.

The passage of Gramm-Leach-Bliley freed not only Citigroup but also Bank of America, J.P. Morgan, Chase, First Union, Wells Fargo, and the other commercial megabanks created by the ongoing merger wave to plunge headlong into the business of buying, securitizing, selling, and trading mortgages and mortgage-backed securities. Because there was no way to seal off the banks' securities operations from their ordinary banking operations, this meant that the government guarantee of the banking system, in place since the 1930s, was effectively extended to investment banking. Deposits that were insured by the Federal Deposit Insurance Corporation could be invested in risky assets, with the assurance that losses would be made up by the FDIC. The larger the bank, the stronger its government guarantee. In 1984, when Continental Illinois was bailed out, the comptroller of the currency said that the top eleven banks were too big to fail; by 2001, there were twenty banks that were as big relative to the economy as the eleventh-largest bank had been in 1984.³⁶ As in any capitalist system, bank employees and shareholders would enjoy the profits from their increasingly risky activities; but now the federal government was on the hook for potential losses.

A major test of Wall Street's power was regulation of derivatives. Because they did not directly involve either deposits or traditional securities, and because they defied conventional treatment on an accounting balance sheet, customized derivatives posed a new chal-

lenge to the existing regulatory framework. The first threat to this new profit center arose in 1994 because of the major derivatives losses suffered by Orange County, Procter & Gamble, and Gibson Greetings, among others.

In response, Congress took up the issue of derivatives regulation. The House Banking and Financial Services Committee conducted a major investigation, and several bills to regulate derivatives were proposed. The industry countered with a major lobbying effort coordinated by the International Swaps and Derivatives Association (ISDA), which was received sympathetically by Alan Greenspan and by the Wall Street-friendly Clinton administration. Treasury Undersecretary Frank Newman urged Congress not to regulate derivatives;³⁷ Treasury Secretary Lloyd Bentsen also backed the industry, saying, "Derivatives are perfectly legitimate tools to manage risk. Derivatives are not a dirty word. We need to be careful about interfering in markets in too heavy-handed a way."³⁸

The Group of Thirty, an international advocacy group largely composed of private sector bank executives, central bankers, and sympathetic academics, chimed in with a study concluding that no new regulation was required and that the industry could be trusted to regulate itself.³⁹ The study was overseen by Dennis Weatherstone, then chair of J.P. Morgan. *The New York Times* reported at the time, "Many of those people conducting the study work at businesses that have a stake in assuring the market's continued prosperity. They were trying to head off calls for greater regulation and supervision by addressing these concerns."⁴⁰ And they were entirely successful. By the end of 1994, the lobbying effort had killed off all congressional efforts at regulation. Some customers who had been burned by derivatives were able to win settlements from their derivatives brokers, but these isolated cases did little to stem the growth of the industry.⁴¹

This was only one of several high-profile battles over regulation in the last two decades (but perhaps the only one that Wall Street had any chance of losing). Another struggle was precipitated by Brooksley Born's campaign as chair of the Commodity Futures Trading Commission (CFTC) to *think about* regulating over-the-counter derivatives. Born was concerned that the buildup of large derivatives positions invisible to regulatory oversight could create risks for the financial

system as a whole.⁴² She was opposed not only by Greenspan, Rubin, and Summers, but also by Securities and Exchange Commission chair Arthur Levitt and House Banking Committee chair Jim Leach. On May 7, 1998, the same day that Born's "concept release" was published, Rubin, Greenspan, and Levitt went public with their "grave concerns . . . about reports that the CFTC's action may increase the legal uncertainty concerning certain types of OTC derivatives."⁴³ In June, they proposed draft legislation imposing a moratorium on regulatory action by Born's agency.

In July 1998, before the House Banking Committee, representatives from Treasury, the SEC, and the major banking regulators lined up with Greenspan and executives from several major banks to oppose Born and testify that derivatives markets were functioning effectively without additional regulation. Greenspan said, "professional counterparties to privately negotiated contracts also have demonstrated their ability to protect themselves from losses, from fraud, and counterparty insolvencies"; he concluded, "aside from safety and soundness regulation of derivative dealers under the banking or securities laws, regulation of derivatives transactions that are privately negotiated by professionals is unnecessary. Regulation that serves no useful purpose hinders the efficiency of markets to enlarge standards of living."⁴⁴ In October, the moratorium was approved. The next year, Born decided not to seek reappointment.

From the perspective of the derivatives industry, however, winning the battle was not enough. Not satisfied that derivatives were unregulated, the industry used its influence to ensure that derivatives would never be regulated. In November 1999, the President's Working Group on Financial Markets produced a report, "Over-the-Counter Derivatives Markets and the Commodity Exchange Act," signed by Summers (then treasury secretary), Greenspan, Levitt, and new CFTC chair William Rainer. That report concluded that, in order "to promote innovation, competition, efficiency, and transparency in OTC derivatives markets, to reduce systemic risk, and to allow the United States to maintain leadership in these rapidly developing markets," those derivatives should be exempted from federal regulation.⁴⁵

The financial sector's supporters in Congress complied by passing the Commodity Futures Modernization Act (CFMA), introduced in

May 2000 but held up in the Senate due to Senator Phil Gramm's desire for even stricter deregulatory language.⁴⁶ Ultimately, Gramm succeeded in foreclosing any possibility of regulation by the CFTC or the SEC; in the middle of December, the bill was inserted into the Consolidated Appropriations Act for Fiscal Year 2001, passed by a lame-duck Congress, and signed by a lame-duck president. The financial sector had succeeded in sealing off one of its profit-making engines from the possibility of government interference.

Another key goal of the Wall Street banks was to maximize their leverage, and structured finance was a key to their strategy. Leverage is an easy way to increase profits. If you invest \$10 of your money at a 10 percent return, you will gain \$1 in profits; but if you invest \$10 of your money and \$90 of borrowed money at a 10 percent return, your profits will be \$10. Conversely, however, leverage increases the chances that you will be wiped out; a 10 percent loss on \$10 of your own money is only \$1, but a 10 percent loss on \$10 of your money and \$90 of borrowed money leaves you with nothing.

This is why regulators place limits on the amount of leverage a bank can take on, in the form of minimum capital requirements. Capital is the amount of money put up by the bank's owners (shareholders), and acts as a safety cushion in times of stress; the more capital, the more money the bank can lose before it becomes unable to return money to its depositors and repay its debts. Capital requirements are set as a percentage of the bank's assets. For every \$100 in assets, a bank might have to hold \$10 in capital, which means it can borrow only up to \$90; this is the same as saying its leverage cannot be more than nine to one. Therefore, to maximize profits per dollar invested (capital), banks want to maximize their leverage; put another way, for the same assets, they want to hold as little capital as possible.

One motivation for securitization was to exploit a loophole in existing regulatory capital requirements. The amount of capital a bank had to hold depended on the type of assets it held; in theory, the riskier the asset, the more capital was required. The loophole was that these requirements were set somewhat arbitrarily—4 percent for home mortgages, 8 percent for unsecured commercial loans, and so on. As a

Reverse Leverage for Loans. LEVERAGE DEFINITION

result, a bank could take \$100 of assets that required, say, \$8 in capital; put them into a securitization pool; and, through the magic of structured finance, convert them into \$100 of new securities that were treated differently by capital regulations and therefore required only \$5 in capital. The true risk of the assets hadn't changed, since the probability of default hadn't changed. But because financial engineers could create securities with just the right characteristics needed to get just the right credit ratings, they could control the amount of capital that was required. So a bank could use securitization to *keep* the economic risk of its loans while reducing its capital requirements (so it could go and make more loans).

In addition to securitization, credit default swaps could be used to reduce capital requirements and increase leverage. The same J.P. Morgan team that pioneered the synthetic CDO also first lobbied federal regulators for permission to use credit default swaps to reduce their capital requirements. In 1996, the Federal Reserve Board of Governors obliged.⁴⁷ With both securitization and credit default swaps in their arsenal, Wall Street's financial engineers could concoct increasingly elaborate mechanisms for repackaging risk in ways that reduced its regulatory footprint.

Federal regulators were well aware of these practices. In 2000, for example, Federal Reserve economist David Jones published a paper with detailed examples of how banks could engage in regulatory capital arbitrage (RCA). "[R]egulatory capital standards seem destined to become increasingly distorted by financial innovation and improved methods of RCA," he wrote, "at least for those large, sophisticated banks having the resources to exploit such opportunities." Jones argued that this could actually be a good thing: "Against the backdrop of regulatory capital requirements that are often quite arbitrary, in some circumstances RCA actually may improve a bank's financial condition and the overall efficiency of the financial system. Indeed, RCA is widely perceived as a 'safety valve' for mitigating the adverse effects of regulatory capital requirements."⁴⁸

Instead of attempting to crack down on banks' attempts to get around minimal capital requirements, federal regulators went in the other direction and loosened those requirements. In 2001, the federal bank regulators issued a new rule standardizing the capital require-

ments for securitizations.⁴⁹ If the bank creating the securitization retained some of the risk of the assets involved (which it often did in order to attract investors), the new rule calculated the bank's capital requirements based on ratings set by credit rating agencies (or, in some cases, the banks' own internal models). The goal of this rule was to align capital requirements with the degree of economic risk taken on by the bank, which was supposedly measured by the rating agencies. Instead, however, it meant that banks could get away with anything, so long as they could convince a rating agency to approve it.⁵⁰

Not surprisingly, "shopping for ratings" became a standard part of securitizations. Banks would tweak their models until they got the ratings that they needed in order to sell some of the tranches to investors and keep some tranches for themselves. Rating agencies—who were being paid by the banks to rate these securities—complied, granting AAA ratings to thousands of securities at a time when only a handful of companies enjoyed AAA ratings for their bonds.⁵¹ According to Jim Finkel of Dynamic Credit, which created structured products, "Wall Street said, 'Hey, if you don't [give me the rating I want], the guy across the street will. And we'll get them all the business.' And they just played the rating agencies off one another." One investment banker who worked on these securitizations said, "It makes me feel really bad actually, it's very hard for me to acknowledge. . . . I knew I was doing things to get around the rules. I wasn't proud of it but I did it anyway."⁵² The rating agencies were hardly passive victims. A McClatchy investigation found that even as the housing market was starting to crumble, Moody's was forcing out executives who questioned the agency's high ratings of structured products and filling its compliance department with people who had specialized in giving those ratings.⁵³

By making capital requirements dependent on credit ratings, the regulators put this critical aspect of oversight in the hands of a small number of rating agencies that themselves depended on the banks for their revenues. With limited competition and little ability for investors

*In 2005, only eight U.S. companies had AAA bond ratings: AIG, Automatic Data Processing, Berkshire Hathaway, ExxonMobil, General Electric, Johnson & Johnson, Pfizer, and United Parcel Service.

to understand the rating process, the agencies had little incentive to give accurate ratings; by contrast, they had a lot of incentive to keep their key clients—the investment banks—happy. In 2004 and 2005, some rating agencies modified their rating models in ways that made it easier to give higher ratings to CDOs, helping extend the structured finance boom. But when the bubble finally burst, they ended up downgrading over 75 percent of asset-backed CDOs that had gotten AAA ratings in 2006 and 2007.⁵⁴

Regulators went even further and outsourced control over minimum capital requirements to the banks they were regulating. On April 28, 2004, the Securities and Exchange Commission agreed to a request by the five large investment banks—Goldman Sachs, Morgan Stanley, Merrill Lynch, Lehman Brothers, and Bear Stearns—to use their own internal models, based on historical data, to calculate the “net capital” in their broker-dealer operations. The rule was explicitly intended to reduce the regulatory burden on the major investment banks by increasing their net capital, thereby enabling them to expand their business:

These amendments are intended to reduce regulatory costs for broker-dealers by allowing very highly capitalized firms that have developed robust internal risk management practices to use those risk management practices, such as mathematical risk measurement models, for regulatory purposes. A broker-dealer's deductions for market and credit risk probably will be lower under the alternative method of computing net capital than under the standard net capital rule.⁵⁵

Between 2003 and 2007, all five major investment banks increased their overall leverage, taking on larger and riskier positions that increased their expected profits while increasing their overall risk.⁵⁶ Bear Stearns's leverage reached a ratio of thirty-three to one, meaning that if its assets fell by 3 percent the bank would be insolvent; it was the first to fall in 2008 when *rumors* that it might be insolvent caused its short-term funding to dry up in a matter of days.

In exchange for being allowed to increase their leverage, the investment banks gave the SEC new powers to monitor their operations through the Consolidated Supervised Entity program. However, the SEC declined to take effective action under this program. A 2008 investigation by the SEC inspector general found that

[the SEC's Division of Trading and Markets] became aware of numerous potential red flags prior to Bear Stearns' collapse, regarding its concentration of mortgage securities, high leverage, shortcomings of risk management in mortgage-backed securities and lack of compliance with the spirit of certain Basel II standards, but did not take actions to limit these risk factors.⁵⁷

By this point, many regulators had bought into the idea that the financial markets could police themselves, so there was no need to intervene.

Securitization, credit default swaps, and more flexible capital requirements all made it possible for banks to increase their leverage, increasing both profits and risks. Historically, regulators have set limits on leverage, because it increases the likelihood of failures that may require government intervention. In the past twenty years, Wall Street banks invented new ways of getting around those limits. More important, the regulators no longer felt the need to protect the financial system by defending those limits, instead acquiescing in the general belief that markets were best left to police themselves.

Another potential threat to Wall Street's golden goose was regulation of mortgage lending, and subprime lending in particular. The mortgage lenders were not unaware of this danger. Between 2000 and 2007, the lenders that lobbied most intensively against potential legislation restricting predatory lending were precisely those lenders who originated the riskiest mortgages (measured by loan-to-income ratios), grew the fastest, and grew the proportion of mortgages that they securitized the fastest.⁵⁸ (They were also hit the hardest by the eventual financial crisis.) But the industry was fortunate to be protected by powerful figures in Washington.

In 1994, back when subprime lending was off Wall Street's radar, Congress had passed the Home Ownership and Equity Protection Act, which amended the Truth in Lending Act to read, “A creditor shall not engage in a pattern or practice of extending credit to consumers under [high-cost refinance mortgages] based on the consumers' collateral without regard to the consumers' repayment ability, including the consumers' current and expected income, current obligations and employment.”⁵⁹ In other words, it banned predatory lending—loans where the lender doesn't care if the borrower can't

make his or her payments, because then the lender can pick up the house cheaply. However, under the arcane structure of financial regulation, consumer protection statutes including the Truth in Lending Act were enforced by the Federal Reserve—headed throughout this entire period by Alan Greenspan, who not only opposed government regulation in general, but thought that even fraud would be deterred by the operation of a free market.

The Federal Reserve sidestepped its consumer protection responsibilities by claiming it lacked jurisdiction. Many subprime loans—52 percent of those originated in 2005, for example⁶⁰—were made not by banks, but by nonbank consumer finance companies or mortgage lenders. By the late 1990s, however, many of these specialized lenders had been bought up by banks (through their holding companies) or had been started by banks as independent subsidiaries. Consumer groups amassed mounting evidence of abusive lending practices, particularly in low-income and minority communities, and pressed the Fed to investigate. In 1998, however, the Federal Reserve Board of Governors unanimously decided “to not conduct consumer compliance examinations of, nor to investigate consumer complaints regarding, nonbank subsidiaries of bank holding companies,”⁶¹ claiming it could not regulate nonbank entities⁶² (even though the Truth in Lending Act makes no distinction between banks and nonbanks).⁶³

In 2000, a joint report issued by Treasury (then under Larry Summers) and the Department of Housing and Urban Development recommended restrictions on harmful sales practices and on abusive terms and conditions in the mortgage market.⁶⁴ The report also urged the Fed to investigate abusive lending practices, claiming it had authority to do so.⁶⁵ That same year, Edward Gramlich, a member of the Board of Governors, argued that the Fed should crack down on predatory lending by consumer finance lenders that were subsidiaries of bank holding companies. His proposal, like all the others, was shot down by Greenspan, who believed that subprime lending was an example of healthy financial innovation.⁶⁶ (Conforming to the usual practice of not airing disagreements among governors, Gramlich did not go public with his concerns while at the Fed. Shortly before he died in 2007, however, he wrote, “In the subprime market, where we badly need supervision, a majority of loans are made with very little

supervision. It is like a city with a murder law, but no cops on the beat.”)⁶⁷ As late as 2005, Greenspan was still celebrating the growth in subprime lending:

Where once more-marginal applicants would simply have been denied credit, lenders are now able to quite efficiently judge the risk posed by individual applicants and to price that risk appropriately. These improvements have led to rapid growth in subprime mortgage lending; indeed, today subprime mortgages account for roughly 10 percent of the number of all mortgages outstanding, up from just 1 or 2 percent in the early 1990s.⁶⁸

While the Federal Reserve was neglecting to protect consumers, other regulatory agencies were neglecting to ensure the soundness of the banks they supervised. At the peak of the subprime lending boom, the Office of Thrift Supervision (OTS) was allowing thrifts to *reduce* their capital levels, which fell to their lowest level in decades by 2006. Only in 2005 did the Office of the Comptroller of the Currency (OCC) initiate a proposal saying that lenders should have to make sure that borrowers could afford their monthly payments; even then, it was not actually issued until September 2006, by which point housing prices were already falling.⁶⁹ Material loss reviews conducted after many smaller banks had failed in 2009 showed that banking regulators were often aware of the risks that the banks were running, but failed to take any significant corrective action.⁷⁰

While federal regulators were content to turn a blind eye to subprime lending—when they were not cheering it on—there remained the risk that state regulators might attempt to put an end to the party. In 1999, the North Carolina Predatory Lending Law subjected high-cost (subprime) loans to a number of constraints, such as limits on loan flipping (refinancing a borrower into a new loan after only a few years) and prepayment penalties; in 2002, the Georgia Fair Lending Act introduced similar restrictions.⁷¹ Standard & Poor’s responded by announcing that it would not allow any loans governed by the Georgia Fair Lending Act into securitizations that it rated; if similar laws had been enacted throughout the country, this would have brought the subprime mortgage securitization assembly line to a screeching halt.⁷²

However, the primary federal bank regulators came to the indus-

try's aid, ruling that state regulations are "preempted" by federal regulations.* In August 2003, the OCC ruled that state regulation of lending practices did not apply to national banks, preempting the Georgia Fair Lending Act and holding that federal regulators alone had the power to regulate lending activities by federally chartered institutions.⁷³ This decision followed letters by the chief counsel of the OTS concluding that federal law preempted both the Georgia Fair Lending Act and the New Jersey Home Ownership Security Act of 2002.⁷⁴ (Later in 2003, the OCC also preempted the New Jersey law; in January 2004, it exempted national banks from state mortgage regulations in general.)⁷⁵ The federal courts have usually sided with federal regulatory agencies on the issue of preemption, giving the OCC and the OTS the ultimate say on whether states may regulate banking operations.⁷⁶ During the subprime boom, the effect was to disarm state governments and give the mortgage lenders (and the investment banks securitizing their loans) free rein throughout the fifty states.

In addition to protecting the flow of subprime loans into the securitization market, the federal government also increased demand for subprime loans through its regulation of Fannie Mae and Freddie Mac. The financial crisis was not primarily due to Fannie and Freddie.⁷⁷ However, their purchases of securities that were backed by subprime loans did, at the margin, provide additional sales for the Wall Street banks manufacturing those securities.

Before 2008, Fannie Mae and Freddie Mac were government-sponsored enterprises (GSEs)—private corporations with a government mandate to provide liquidity to the housing market. They did this by buying mortgages and mortgage-backed securities on the secondary market and by creating and guaranteeing mortgage-backed securities of their own. To protect themselves, they only bought loans or guaranteed mortgage-backed securities made out of loans that conformed to their relatively strict (by industry standards) underwriting standards and size limits—so-called conforming loans. (The upper limit on con-

*Preemption is a legal doctrine holding that certain areas regulated by the federal government may not be regulated by the states—even if they wish to enact more stringent requirements than those prescribed by federal regulators.

forming loans for single-family houses grew from about \$253,000 in 2000 to \$417,000 in 2006, but still left many houses beyond its reach.)⁷⁸ Because Fannie and Freddie could borrow money cheaply, there was a ready supply of cash that could flow into mortgage lending.

The common indictment of Fannie and Freddie charges that Democrats in Congress, trying to expand homeownership among the poor and minorities, pushed the GSEs to buy more and more subprime loans, pumping up subprime lending and housing prices in the process. (The implication, of course, is that the financial crisis was caused by government intervention in the markets.) There is a grain of truth to this story. The targets set by HUD in both the Clinton and George W. Bush administrations (under a law passed in 1992) mandated that 42 percent, 50 percent, and finally 56 percent of the loans bought by Fannie and Freddie had to go to people with low or moderate incomes. In 2002, as part of the Bush administration's Blueprint for the American Dream, they committed to finance \$1.1 trillion in loans to minority borrowers.⁷⁹

The riskiest mortgages, however—the ones that pushed the housing bubble to dizzying heights—were simply off-limits to Fannie and Freddie. The GSEs could not buy many subprime mortgages (or securitize them) because they did not meet the conforming mortgage standards. As profit-maximizing private corporations, Fannie and Freddie tried to relax their underwriting standards in order to get into the party, reducing documentation requirements and lowering credit standards. But ultimately, regulatory constraints prevented them from plunging too far into subprime lending. As housing expert Doris Dungey wrote, "[T]he immovable objects of the conforming loan limits and the charter limitation of taking only loans with a maximum [loan-to-value ratio] of 80% . . . plus all their other regulatory strictures, managed fairly well against the irresistible force of 'innovation.'"⁸⁰

As a result, in 2004–2006, as subprime lending reached its peak in both volume and innovation, Fannie and Freddie were pushed out of large parts of the market, because the loans being made violated their underwriting standards and because the Wall Street banks were so eager to get their hands on those loans. After 2003, the GSEs' share of secondary market subprime loans was cut in half, while the volume of private mortgage-backed securities (those not issued by the GSEs)

soared.⁸¹ Fannie and Freddie could not have pushed mortgage lenders into the most extreme forms of subprime lending, because those were precisely the loans they could not buy. They created demand for conforming mortgages, which were precisely what the aggressive subprime lenders were *not* selling.

Instead, however, Fannie and Freddie were able to buy the senior (AAA-rated) tranches of private mortgage-backed securities backed by subprime debt. These securities could count as money loaned to people with below-average income, and they were supposed to be safe.⁸² These purchases of MBS were a mechanism by which government pressure to increase lending to low-income Americans translated into greater demand for mortgage-backed securities and therefore greater profits for Wall Street. At the end of the day, government pressure on Fannie and Freddie contributed to the housing bubble by increasing the amount of money flowing into the securitization pipeline. The two GSEs were not the primary factor stoking the subprime fire, and were consistently behind the curve as both subprime lending and securitization heated up, out-hustled by the mortgage lenders and the Wall Street banks who built, expanded, and profited from the mortgage securitization money machine. But they were yet another way that Washington provided fuel for that machine.

Finally, the Federal Reserve hooked its massive air pump to the housing bubble by keeping interest rates historically low from 2001 well into 2005. The federal funds rate (the rate at which banks borrow money from each other overnight) stood at 6.5 percent for most of 2000, before a recession and the terrorist attacks of September 11, 2001, prompted the Fed to cut it to 1.75 percent by the end of 2001.* It fell as low as 1.0 percent in 2003 and only began climbing again in June 2004, by which point real housing prices were 58 percent above their levels of January 2000. The federal funds rate didn't reach 3.0 percent—the *lowest* level of the entire 1990s—until May 2005, when real housing prices were 77 percent above their levels at the beginning of the decade.⁸³

*The Federal Reserve controls the federal funds rate by buying and selling Treasury securities, which decreases or increases the amount of money available to banks, thereby affecting the rate at which banks lend to each other. The federal funds rate has an important though indirect influence on all interest rates in the economy.

Cheap money was important because low mortgage rates were a central ingredient in the housing and securitization boom. Low rates made it easier for people to afford larger mortgages, pushing up housing prices. Low rates also induced existing homeowners to refinance their mortgages, providing more raw material for the securitization pipeline. At any point in the decade, a sharp increase in interest rates could have punctured the housing bubble by making houses less affordable and forcing prices down. But the Federal Reserve, true to the conclusion of Greenspan's 1996 "irrational exuberance" speech—that the Fed should not attempt to identify bubbles but should simply clean up afterward—declined to act.

The irony is that the Fed's flood of cheap money did not even have the healthy effect that it should have had. Ordinarily, businesses should take advantage of low interest rates to make capital investments, which contribute to overall economic growth. In the 2000s, however, as Tim Duy notes, business investment in equipment and software grew more *slowly* than in the 1990s, despite the lower interest rates. The problem was that the cheap money was misallocated to the housing sector, resulting in anemic growth.⁸⁴ That misallocation was due to the new mortgage products that made it so easy to borrow large amounts of money, the voracious appetite of Wall Street banks and investors for securities backed by those mortgages, and a decade of government policies that encouraged the flow of money into housing. And the more money that flowed into new subdivisions in the desert, the less flowed into new factories where Americans could go to work. Ultimately, the price of the housing bubble and the financial crisis is not just trillions of dollars of losses on mortgages and mortgage-backed securities, but a decade of poor economic growth and declining real household incomes.*

Even before the financial crisis of 2007–2009, politicians and officials in Washington had opportunities to witness the potential consequences of financial innovation run riot. But they drew the wrong lessons each time, allowing the banks to take more risks and make more

*Average real annual growth has been lower in the 2000s (through 2008) than in any decade since the 1930s; real median household income (in 2008 dollars) has fallen from \$52,587 in 1999 to \$50,303 in 2008.⁸⁵

money. The derivatives scandals of 1994 had cost clients hundreds of millions or billions of dollars, but posed no real danger to the financial system as a whole. The same could not be said of the near collapse of Long-Term Capital Management in 1998, which led to its bailout by a group of New York banks (facilitated by the Federal Reserve Bank of New York).⁸⁶

The LTCM bailout was the right move for the Fed to make in the short term. It protected the financial system without putting public money directly at risk. However, the successful rescue sent the message that the Fed would not let private market actors suffer the consequences of their own bad decisions; while the LTCM partners lost most of their money, the banks that had blindly lent money to the fund lost none of theirs. It is impossible to say just what effect the rescue had on the behavior of Wall Street over the next decade. But it is clear that LTCM, with its \$130 billion in debts and seven thousand open derivatives positions with a face value of \$1.4 trillion,⁸⁷ was considered “too big to fail”—words that would become infamous almost exactly ten years later.

In addition, the ability of the Fed to avert disaster—and even to keep the stock market rising by cutting interest rates in September, October, and November 1998—undermined any incentive to do anything about the root causes of the LTCM near disaster. If this was the worst damage that unregulated financial institutions trading unregulated products could do, then perhaps regulation was unnecessary. Congress apparently agreed; it was in October 1998, only a month after LTCM had been saved, that it imposed the moratorium preventing the CFTC from regulating custom derivatives.

The collapses of Enron, WorldCom, and other high-flying companies in 2001–2002 also should have made clear that free markets did not deter fraud on their own. WorldCom committed straightforward accounting fraud that was missed by its auditors, the banks underwriting its new debt, and the credit rating agencies rating that debt.⁸⁸ Enron used special-purpose entities, derivatives, disguised loans, and aggressive accounting to shift revenues forward and backward in time, create phantom profits, and hide debts; while its intentions seemed to be fraudulent, the financial techniques it used were so novel that it was

not clear which were illegal and which were merely innovative.⁸⁹ Some of its financial engineering techniques would reemerge in the financial crisis of 2007–2009, as would the banks it used—a class-action lawsuit named JPMorgan Chase, Citigroup, Credit Suisse First Boston, CIBC, Bank of America, Merrill Lynch, Barclays, Deutsche Bank, and Lehman Brothers as its enablers.⁹⁰

Enron and WorldCom showed both the consequences of hyperactive financial innovation and the failure of “self-regulation” by the free market. Enron’s creditors, who should have been lending money carefully, instead were helping it create fake transactions.⁹¹ The credit rating agencies failed to disentangle Enron’s web of special-purpose entities and maintained its investment-grade rating until well after the company’s problems were front-page news. Old-fashioned regulation was also missing in action. In the wake of the Enron collapse, the Senate Governmental Affairs Committee concluded, “The Securities and Exchange Commission largely left the search for fraud to private auditors and boards of directors.”⁹²

Confronted with this wake-up call, Congress and the Bush administration limited themselves to bolting the particular barn door exploited by the Enron-WorldCom generation. The Sarbanes-Oxley Act of 2002 established new standards for corporate financial statements (and, by 2007, was under widespread attack from the business community for being too stringent). It did not occur to anyone in power that some of the ingredients that made Enron possible—financial innovations dreamed up by Wall Street banks hungry for large transaction fees, off-balance-sheet accounting, weak credit rating agencies, credulous investors, a largely fawning media, and ineffectual federal regulators—might already be recombining in a different form.

The SEC—the nation’s chief regulator of the securities markets and investment banks—stepped up enforcement briefly after Enron, but enforcement actions declined again during the chairmanship of Christopher Cox from 2005 to 2009. Under Cox, the five-member commission that governed the agency often delayed action on opening investigations, delayed approval of settlements, or reduced penalties recommended by enforcement officials, resulting in an 84 percent

decline in penalties.⁹³ Instead of focusing on enforcement, powerful commissioners such as Paul Atkins argued that the SEC should pare back regulations that were seen as imposing excessive costs on the free market.⁹⁴

The SEC also failed to exercise its powers to oversee the securities industry. In the wake of the collapse of Bear Stearns, the SEC inspector general found that the agency not only took no meaningful action under the Consolidated Supervised Entity program, but also did a poor job implementing its Broker-Dealer Risk Assessment program (created in 1992 in response to the failure of Drexel Burnham Lambert). Under that program, the SEC received quarterly and annual reports from 146 broker-dealers—but generally only reviewed six of them.⁹⁵ Most famously, the SEC managed to overlook Bernie Madoff's \$65 billion Ponzi scheme, despite tips and investigations going back to 1992.⁹⁶

This failure to regulate the securities markets effectively was a consequence of the deregulatory ideology introduced by Ronald Reagan as well as the political influence of Wall Street. James Coffman, a former assistant director of the SEC's enforcement division, wrote,

Elected deregulators appointed their own kind to head regulatory agencies and they, in turn, removed career regulators from management positions and replaced them with appointees who had worked in or represented the regulated industries. These new managers and, in many cases, the people they recruited and promoted, advanced or adhered to a regulatory scheme that, at least with respect to the most important issues, advanced the interests of the regulated.⁹⁷

After all, the industry's mantra was that financial markets could self-regulate, so there was no need for the government. Once the government accepted this logic, it unilaterally disarmed in a sweeping abdication of its responsibility to the people it served.

THE GOLDMAN SACHS SAFETY NET

As much as the Wall Street banks wanted Washington's hands off their moneymaking businesses, they still had no stomach for doing business

without the protection of the U.S. government. This attitude is consistent with the history of the business-government relationship in the United States. While occasional libertarian academics and politicians have favored deregulation in its pure form, real companies see regulatory or deregulatory policies simply as a way to improve their market position or profit-making potential. And one benefit Wall Street banks wanted was the security of knowing that the government's effectively unlimited balance sheet and borrowing power would be there for them should they need it.

Did bank executives consciously take excessive risks because they expected taxpayers to cushion their potential losses? This is not something that a Wall Street CEO is likely to admit, and it is possible that on an individual level they simply underestimated the risks involved and expected their winning streaks to continue indefinitely. But the government safety net was on at least some bankers' minds. Andrew Haldane, executive director for financial stability at the Bank of England, has told the story of a meeting (prior to the recent crisis) where government officials asked private-sector bankers why they did not conduct rigorous "stress tests" of their own portfolios; the answer, according to one participant, was that in the event of a severe shock, "the authorities would have to step in anyway to save a bank and others suffering a similar plight."⁹⁸ In any case, the behavior of major financial institutions made sense largely because of implicit government guarantees. Increasing leverage, increasing the proportion of assets held for trading purposes, buying riskier assets, and selling out-of-the-money options (such as credit default swaps) are all strategies that increase returns in good times but increase losses in bad times; therefore, they make the most sense for banks that can shift those higher losses onto someone else. (Ordinarily, banks' creditors would prevent them from pursuing these risky strategies, because their money would be on the line; if creditors expect to be bailed out by the government, however, there is no need for them to monitor the banks closely.) And they are all strategies that were pursued during the recent boom by major global financial institutions, including those in the United States.⁹⁹

We do know that executives of at least one major bank thought about the government safety net. Since 1932, Section 13 of the Fed-

eral Reserve Act had given the Fed the power, in “unusual and exigent circumstances,” to make loans to anyone—but only if the collateral provided in exchange arose “out of actual commercial transactions.”¹⁰⁰ This requirement specifically excluded investment securities, which meant that in a crisis, investment banks might not have any valid collateral with which to borrow from the Fed.

This danger worried the remarkably prescient executives at Goldman Sachs. At their suggestion, the “actual commercial transactions” requirement was dropped in a “miscellaneous provision” of the Federal Deposit Insurance Corporation Improvement Act of 1991, ensuring that the Fed could lend against *any* collateral in a time of crisis.¹⁰¹ This change gave the Fed the power to widen its protective umbrella to encompass investment banks, at the same time that those banks were increasing the riskiness of their operations by expanding their derivatives and proprietary trading businesses and taking on additional leverage. This seemingly minor change would be of crucial importance seventeen years later; when the housing bubble of the 2000s ended—and with it the seemingly unlimited supply of money flowing from novel and largely unregulated financial products—not only investment banks but a major insurance company would have to be rescued with government money.

6

TOO BIG TO FAIL

To paraphrase a great wartime leader, never in the field of financial endeavour has so much money been owed by so few to so many. And, one might add, so far with little real reform.

—Mervyn King, governor of the Bank of England, October 20, 2009¹

On October 13, 2008, their stock prices in tatters and the short-term viability of their firms in doubt, the heads of nine major banks—Bank of America, Bank of New York Mellon, Citigroup, Goldman Sachs, JPMorgan Chase, Merrill Lynch, Morgan Stanley, State Street, and Wells Fargo—arrived at the Treasury Department for a meeting with Treasury Secretary Henry Paulson.* Each was given a term sheet agreeing to sell shares to the government, and Paulson told them to sign it.²

This might seem like a government takeover of the financial sector—a seizure of ownership interests in nine major banks. And given the stakes—a near-total freeze of credit markets, a plunge in the stock market, the potential collapse of those and yet more banks—that would not have seemed too far-fetched. But the remarkable thing about this meeting was not that the government was stepping in to protect the U.S. financial system and, by extension, the global economy. What was remarkable was something that Vikram Pandit, CEO of Citigroup, noticed instantly: “This is very cheap capital!”³ It was such a good deal

*All nine banks were also represented at the March 27, 2009, meeting discussed in the Introduction, except for Merrill Lynch, which was acquired by Bank of America in the interim.