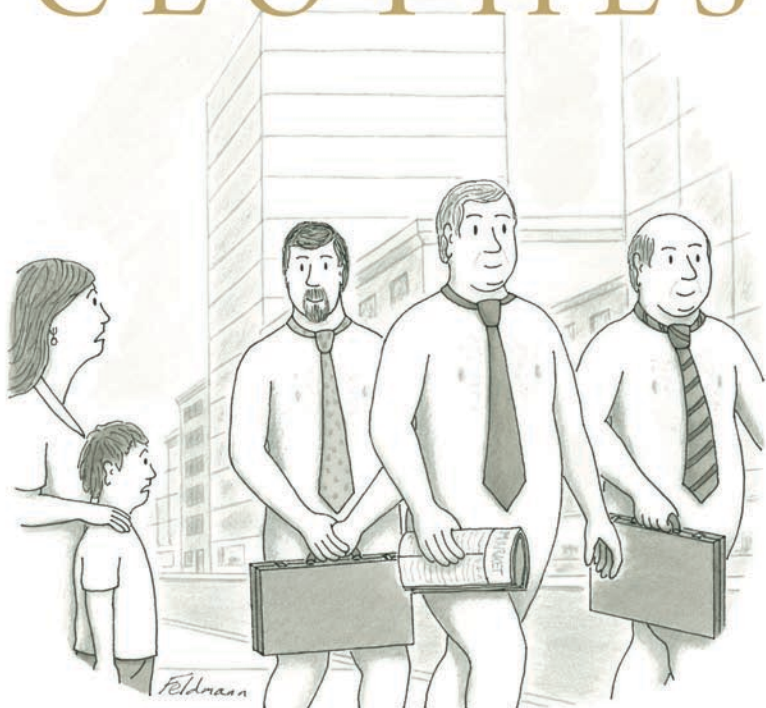


THE BANKERS' NEW CLOTHES



What's Wrong with Banking and What to Do about It

==== With a new preface by the authors ====

ANAT ADMATI &
MARTIN HELLWIG

“An important book for readers interested in what has been done, and what remains to be done, when it comes to safeguarding financial institutions.”

—Kirkus Reviews

“This book’s aim, decisively achieved, is to de-mystify the public conversation about banking so we can all understand how threadbare the industry is.”

—Diane Coyle, Enlightened Economist blog

“This title is a must read for management and human resource professionals within the banking industry as well as government policymakers. With its clear explanations, many examples, and analogies, the book is accessible to readers who do not have business backgrounds and who want to better understand banking.”

—Library Journal

“Powerful. . . . The authors persuasively argue that the solution is higher levels of equity capital throughout the banking industry to offset the impact of the implied government protections against failure.”

—Economist.com’s Free Exchange

“Ms. Anat ‘gets’ banking, and gets it better than most. The fact that she is ruffling feather relates more to the fact that she is questioning deeply held—yet hardly ever challenged—belief systems within the industry, than any lack of understanding.”

—Izabella Kaminska, FinancialTimes.com’s Alphaville blog

“Admati and Hellwig have done something extraordinary. They took [banking] frustration and all its complex details and gave it a simple narrative, one that both explains what banks have been getting away with and what we might ask that Congress do about it.”

—Brendan Greeley, Bloomberg Businessweek

“Admati and Hellwig offer a simple prescription for this complex world.”

—Thomas G. Donlan, Barron’s

“Anat Admati and Martin Hellwig are academics with a gift for taking the mind-numbing minutiae of banking and presenting it in a way that the average reader can understand. One by one, the self-serving protests of the banking industry against tougher regulations are lined up and struck down in *The Bankers’ New Clothes*. . . . The authors map out the regulatory flaws that make it easy for debt-junkie bankers to get rich when times are good, and leave them hanging around protesting when times are worse thanks to their own recklessness.”

—Susan Antilla, Bloomberg News

“Admati and Hellwig explain, in layman’s terms, some of the silly arguments bankers make for keeping to the status quo and preventing any new regulation of the banks from ever being enacted. And they do a great job. . . . Admati and Hellwig have made a gift to you. You don’t have to go wrestle with banks’ financial statements or their annual reports or their 10Q’s. You don’t need to pull out your old accounting textbooks or call your college economics teacher to have her explain to you again why debt leverage increases risk. Ad-

mati and Hellwig have done all the hard work for you. But, you have to read their book.”

—John R. Talbott, Huffington Post

“Ms. Admati and Mr. Hellwig, top-notch academic financial economists, do understand the complexities of banking, and they helpfully slice through the bankers’ self-serving nonsense. Demolishing these fallacies is the central point of *The Bankers’ New Clothes*.”

—John Cochrane, Wall Street Journal

“*The Bankers’ New Clothes* is wowing critics of fragile banks with a simple and attractive message: Force banks to have much thicker cushions of capital and you can make them safer without paying any cost in terms of higher interest rates, less lending, or lower economic growth.”

—Peter Coy, Bloomberg Businessweek

“I regard *The Bankers’ New Clothes* as the most important contribution to the analysis of banking regulation in the past twenty five years. . . . This book should be required reading for bank regulators, bankers, and legislators; it should also do a lot to demystify banking for the concerned public. It is beautifully written and forcefully argued. . . . [T]his is a terrific book. It took courage, a deep understanding of banking and finance, and first-rate expository skills to write.”

—Morris Goldstein, Senior Fellow, Peterson Institute for International Economics, from event introduction speech on February 11, 2013

“Financial regulation has become a hot topic in the wake of the recent crisis; many complex proposals have ensued, and a dizzying array of new acronyms and agencies has emerged. But in their new book, Admati and Hellwig make a forceful case for a classic and simple solution to excessive, unregulated lending: higher capital ratios for banks.”

—Finance & Development

“[A]n important new book called *The Bankers’ New Clothes* . . . offers what the Dodd-Frank legislation mostly lacked: a simple and elegant solution to the problem of financial stability. They argue that banks should fund themselves with more equity and less debt—or, to put it bluntly, that banks should risk more of their own money, and less of everyone else’s.”

—Christopher Matthews, Time.com

“Admati and Hellwig don’t just criticize bankers. The real strength of their book is that they walk their readers through the balance sheet and to a regulatory answer to the banking problem, an answer that’s elegant in its simplicity and far-reaching in its potential to prevent and manage financial crises.”

—Randolph Walerius, Roll Call

“One can only hope that non-financial readers who want to improve the focus of their frustration will find their way to this book. Perhaps, then, policy-makers will start to feel pressure for smarter change.”

—Peter Morris, Financial World

THE
**BANKERS'
NEW
CLOTHES**



What's Wrong with Banking
and What to Do about It

ANAT ADMATI and **MARTIN HELLWIG**

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PREFACE TO THE PAPERBACK EDITION

The fifth anniversary of the Lehman Brothers bankruptcy led many to ask whether the financial system is safe today. The answer to this question is no. The key factors that caused the subprime mortgage crisis to upset the global economy are still in place. Politicians and regulators have allowed effective reform to be stalled.

Bankers and their supporters often threaten that proposed regulation will “harm credit and economic growth.” Such threats scare policymakers. Yet the explanations given for the claims, if any, are nonsensical or misleading. Actually, the sharpest downturn in lending and growth since the Great Depression occurred in the fall of 2008. This downturn was not due to regulation, but to the reckless practices and excessive fragility of banks and the financial system. The suggestion that making banks safer would be harmful for us all is simply false.

Much is wrong with banking and much can be done to make it better. Bankers may benefit from the dangerous system we have, but most others are harmed. The system is fraught with inefficiencies that harm the economy every day. Even now, the continued weakness and flawed incentives of banks dampen new lending that would help economic recovery. Financial crises, and the damage they bring to the economy, are just the most visible harm created by this unhealthy system. Yet, confusion and politics have prevented beneficial reform.

Refuting the claims made by bankers and others is not difficult. However, many people either don't understand or believe that they don't understand

the issues. Many feel that they are not in a position to evaluate or challenge the banking “experts.” Others don’t want to engage or have reasons to avoid speaking up.

We wrote this book to inform and empower more people to participate in the debate. By explaining the issues in plain language, we wanted to create a larger constituency for effective financial reform. Enlarging this constituency is essential for bringing about change.

We have been gratified by the reception of our book. Many have told us that they found the book useful. More voices have joined ours in challenging flawed claims and urging effective reform. Some policymakers have become more aware of the issues, and some of the issues we raise are being discussed in regulatory or legislative bodies.

However, we remain alarmed by the state of the financial system. Banks continue to be unsafe and ill prepared for the risks they are taking. Many of them have not yet fully acknowledged, let alone overcome, their losses on previous investments. Institutions considered “too big to fail” are particularly reckless and dangerous.

We also remain dismayed by the fact that the policy debate continues to be muddled. The same claims we have debunked, and some new nonsensical statements, continue to be made and to impact policy. People make false assertions while ignoring, mischaracterizing, or trying to dismiss our arguments. In a document entitled “The Parade of Bankers’ New Clothes Continues” (posted on the book’s website bankersnewclothes.com) we outlined and briefly criticized some of the flawed arguments we came across in the first few months after the book’s publication.

Someone suggested to us that there are “blind spots” within the banking community. But the blindness often appears willful—“see no evil, hear no evil.” In her insightful book *Willful Blindness: Why We Ignore the Obvious at Our Peril*, Margaret Heffernan observed: “We turn a blind eye in order to feel safe, to avoid conflict, to reduce anxiety, and to protect prestige.” Willful blindness helps bankers and policymakers to overlook and ignore risks they take and to deflect criticism.

Our book has clearly touched a raw nerve. Someone familiar with banking told us that our explanations are so clear that “most bankers could com-

prehend” them, “but, unfortunately, would find [the conclusions] difficult to accept.” Someone working for a bank said: “If I give your book to my boss, I will get fired.” An executive in a major bank refused an invitation to a private dinner that one of us would be attending, saying “I can’t do that.”

The Bankers’ New Clothes focuses mainly on bankers and lobbyists making false or misleading claims and on the politicians and regulators who listen to them and collaborate with them. Yet, flawed claims and willful blindness can also be found among academics and in the media; they too participate in the continuing parade of bankers’ new clothes. For example, the 2013 edition of a best-selling textbook, written by a prominent academic and former central banker, repeats fallacious statements that have been publicly debunked in our book and in earlier writings; these statements contradict basic lessons taught in required business school courses in finance.

In our book we also took on some of the claims and narratives made in academic banking research and excluded others that seemed too esoteric. For example, some academic research claims that banks need to be fragile and borrow a lot because their depositors and other creditors monitor the banks’ managers and “discipline” them if they misbehave. Readers of preliminary drafts told us that this idea was too academic, too far from the real world to be worth discussing in the book. The material became an “omitted chapter” posted on the book website.

Rather than being fallacious, some academic research consists of *myths*, theoretical constructions that claim to explain what banks do as something essential or efficient while ignoring those parts of reality that suggest entirely different explanations. An analogue would be a theory that “explained” the fact that people smoke cigarettes by claiming that it was good for their health, while ignoring the fact that smoking cigarettes is addictive and can cause significant harm. Similarly, borrowing and taking risk can be addictive and harmful, but this fact is ignored in much of the academic research about banking. The research often consists of abstract theoretical analyses with no attempt to match the theory to reality.

Many of these analyses are based on the presumption that the amount of risk in banking must be efficient because it is a result of free market activity. This presumption is convenient for lobbyists who fight regulation and for

policymakers who don't want to intervene. Those who like the conclusions of theoretical or empirical studies don't care whether the conclusions are valid or whether the assumptions made in the studies have anything to do with reality.

Biases and willful blindness are also evident in the media. Reporters frequently quote bankers, policymakers, and experts without challenging the claims or asking for a balancing opinion. In attempting to explain policies or debates, media reports sometimes provide false and misleading information. For example, the debate about banks' indebtedness is often erroneously framed as if it concerned money that banks set aside as cash reserves; or the simple fact might be forgotten that deposits are part of the banks' debts.

In this paperback edition, we have clarified the writing in a few places, but we do not discuss developments after the book was completed in October 2012. Those developments, including the crisis in Cyprus, repeated scandals and investigations of large banks, the issuance of some debt by Apple, or some banks making high profits again, do not change our arguments and conclusions in any way. For example, most financial institutions, including Bear Stearns and Lehman Brothers, had record profits in 2006, only to fail or to receive massive supports in 2008 and since. If banks are profitable, such "success" often comes from their taking excessive risks that benefit few while harming others.

Our main message is that by taking simple steps to reduce excessive risks and excessive risk taking, our banking system can become safer, healthier, and better able to support the economy. For example, healthy banks can become more resilient by reinvesting their profits or by selling new shares to investors, as is routinely done by other companies.

Some banks may no longer be viable. A cleanup of such banks and of the financial system is important even if it means eliminating or shrinking some banks. Hiding from reality and providing public support to banks that cannot otherwise survive or which are too big and too complex to control, as governments all over the world are doing, is dangerous and expensive.

Once the fog of confusion is lifted, the path to effective reform can be seen clearly.

November, 2013

PREFACE

IN THE FALL OF 2008, it seemed obvious that radical reform would be needed. For more than a year, banks and financial markets had been in a state of crisis. Then, in September, the entire financial system was about to collapse. One institution after another was failing or about to fail. Governments and central banks stopped the panic by massive interventions, but even so, the economy went into a decline of a magnitude unseen since the Great Depression.

We hoped for a serious investigation and discussion of what had gone wrong and what would have to be done to avoid a recurrence of such a crisis. We hoped that the lessons of the crisis would be learned. But we were disappointed. There was no serious analysis of how the financial system might be made safer.

Many claimed that they “knew” what had caused the crisis and what needed—or did not need—to be done, and they did not look any further. Bankers and their supporters argued that not much was wrong with the banking system. Serious reform, they routinely said, would interfere with what banks do and harm the economy. If we wanted banks to lend and to support growth, they wanted us to believe, we had to accept this system pretty much the way it was.

This made no sense to us. Much of the discussion seemed to ignore what had happened. Many arguments seemed downright false. As academics who have spent our lives studying the financial system—Anat as a finance and

economics professor at Stanford and Martin as an economics professor and director of a research institute in Bonn—we were shocked to see press reports and policy recommendations with misleading uses of words, flawed understanding of basic principles, fallacious and misleading arguments, and inadequate uses of mathematical models. Banking experts, including many academics, seemed to believe that banks are so different from all other businesses that the basic principles of economics and finance do not apply to them.

We were not surprised that bankers lobbied in their own interest and said whatever might serve their needs; often their paychecks and bonuses were at stake, and the status quo worked for them. But we were dismayed—and increasingly alarmed—to see that flawed narratives and invalid arguments were not challenged but instead seemed to be winning the debate on both sides of the Atlantic. Reform efforts seemed to be stalling. Proposals were headed in the wrong direction. Simple opportunities to improve the system were being overlooked.

We wrote about the issues, arguing for reform and exposing the invalid arguments that were being given against reform. However, important parts of the policy discussion go on behind closed doors. Even when regulators ask for public comment on a proposed regulation, most contributions come from the industry and its supporters, and additional lobbying goes on behind the scenes.

In trying to have discussions with those involved in the debate, we discovered that many of them had no interest in engaging on the issues—not because of what they knew or did not know but because of what they *wanted* to know. Politicians, regulators, and others often prefer to avoid challenging the banking industry. People like convenient narratives, particularly if those narratives disguise their own responsibility for failed policies. Academics get caught up in theories based on the belief that what we see must be efficient. In such a situation, invalid arguments can win the policy debate.

We also discovered that many people, including many who are involved in the policy discussion, do not have a sufficiently full understanding of the underlying concepts to form their own opinions about the issues or to evaluate what others are saying. The jargon of bankers and banking experts is

deliberately impenetrable. This impenetrability helps them confuse policymakers and the public, and it muddles the debate.

We are concerned about this situation because the financial system is dangerous and distorted. We have written this book to explain the issues to the broader public. We want more people to be better informed so they can form their own opinions. We want to expand the set of participants and elevate the level of the debate.

When policymakers ignore risks, all of us may suffer in the end. A stark example was provided in Japan, where corrupted regulators and politicians colluded for years with the Tokyo Electric Power Company and ignored known safety concerns. When an earthquake and a tsunami occurred in 2011, this neglect led to a nuclear disaster that was entirely preventable.

Weak regulations and ineffective enforcement were similarly instrumental in the buildup of risks in the financial system that turned the U.S. housing decline into a financial tsunami. Yet, despite the wreckage, serious attempts to reform banking regulation have foundered, scuttled by lobbying and misdirection.

Banking is not difficult to understand. Most of the issues are quite straightforward. Simply learning the precise meanings of some of the terms that are used, such as the word *capital*, can help uncover some of the nonsense. You do not need any background in economics, finance, or quantitative fields to read and understand this book.

In this book we discuss many statements and views. At times we use generic terms, attributing statements to “bankers,” “regulators,” or “politicians.” Having talked and collaborated with many people connected to banking and public policy, we know that not every banker, regulator, or politician subscribes to the same views. Many in these groups and elsewhere advocate and work to bring about beneficial reform. In each of the groups, however, the views we discuss are so prevalent, and have had such an impact on policy discussions, that we feel justified in generalizing to make our points.

Do not believe those who tell you that things are better now than they had been prior to the financial crisis of 2007–2009 and that we have a safer system that is getting even better as reforms are put in place. Today’s banking

system, even with proposed reforms, is as dangerous and fragile as the system that brought us the recent crisis.

But this situation can change. With the right focus and a proper diagnosis of the problems, highly beneficial steps can be taken immediately.

Having a better financial system requires effective regulation and enforcement. Most essentially, it requires the political will to put the appropriate measures in place and implement them. Our hope in writing this book is that if more people understand the issues, politicians and regulators will be more accountable to the public. Flawed and dangerous narratives—“the bankers’ new clothes”—must not win.

October 2012

ACKNOWLEDGMENTS

IN WRITING THIS BOOK about borrowing and its dark side, we have ourselves borrowed a lot and experienced the bright side of borrowing. We have borrowed a lot of other people's time, attention, and thoughts, and we have experienced the pleasures of interacting with them. Some interactions occurred long ago, in discussing pure research, some more recently, in discussing policy and regulatory reform since 2007.

Writing a book on banks and banking regulation that would be accessible to a nonprofessional reader has been a great challenge. We are very grateful to many friends and colleagues who encouraged us to take on the challenge and kept us going with support and advice along the way.

We are particularly grateful to the following people, who read earlier drafts of at least portions of the book and made numerous useful comments: Philippe Aghion, Neil Barofsky, Jon Bendor, Sanjai Bhagat, Jules van Binsbergen, Christina Büchmann, Rebel Cole, Peter Conti-Brown, Pedro DaCosta, Jesse Eisinger, Christoph Engel, Morris Goldstein, Charles Goodhart, Andrew Green, Susan Hachgenei, Dorothee Hellwig, Hans-Jürgen Hellwig, Klaus-Peter Hellwig, Marc Jarsulic, Bob Jenkins, Simon Johnson, Birger Koblitz, Arthur Korteweg, Tamar Kreps, James Kwak, Alexander Morell, Stefan Nagel, John Parsons, Dieter Piel, Joe Rizzi, Steve Ross, Ingrid Schöll, Graham Steele, Monika Stimpson, Tim Sullivan, John Talbott, Matthias Thiemann, Rob Urstein, Jonathan Weil, and Art Wilmarth. The reviewers of the book for Princeton University Press (PUP) also made very helpful comments. Special

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In the book we are critical of politicians and regulators, but many do not fit our characterizations. Our thinking has been influenced, in particular, by serving on policy committees. We are grateful for the opportunity provided by these committees to apply academic thinking to practical questions and to discuss the issues with politicians and administrators, central bankers and regulators, corporate executives, and other academics.

An important predecessor of this book was “Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity Is *Not* Expensive,” a paper that we wrote jointly with Peter DeMarzo and Paul

Pfleiderer from Stanford in the summer of 2010. This paper was addressed to professionals involved in the policy debate about banking regulation. Our subsequent experience in this debate suggested that we should try to make the ideas in the paper available to a wider audience. This book is the result. While writing the book, we also did more research with Peter DeMarzo and Paul Pfleiderer, which led to a sequel article, “Debt Overhang and Capital Regulation,” on which the book also draws.

Writing a book when one author is located in California and the other in Germany requires not only time but also support for travel and communication. We are grateful to the Stanford Graduate School of Business and the Max Planck Institute for Research on Collective Goods in Bonn for providing this support. We are also grateful for support from the German Federal Ministry of Education and Research through the Max Planck Research Award 2012.

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THE
BANKERS' NEW CLOTHES

The Emperors of Banking Have No Clothes

I just think that this constant refrain “bankers, bankers, bankers” is just un-productive and unfair. People should just stop doing that.

*Jamie Dimon, chief executive officer of JPMorgan Chase, Davos, Switzerland,
January 27, 2011*

The world has paid with tens of millions of unemployed, who were in no way to blame and who paid for everything. It caused a lot of anger. . . . We saw that for the last 10 years, major institutions in which we thought we could trust had done things which had nothing to do with simple common sense.

*Nicolas Sarkozy, President of the French Republic, Davos, Switzerland,
January 27, 2011*

FOR THE FIRST YEAR after the financial crisis of 2007–2009, bankers were lying low, mindful of the anger that had been caused by the crisis and by the use of taxpayers’ money to bail out banks.¹ French President Nicolas Sarkozy’s response to JPMorgan chief executive officer (CEO) Jamie Dimon in Davos in 2011 resonated widely with the media and the public.²

At that time, most bank lobbying went on behind the scenes. Since then, however, the banking lobby has become outspoken again.³ As in the years before the crisis, bankers have been lobbying relentlessly and speaking up in public against tighter banking regulation.⁴ Leading bankers present themselves as experts who know and care about what is good for the economy. They are regularly consulted by leading government officials, regulators, and politicians.⁵ Every utterance of a major bank’s CEO is extensively reported in the press. But whereas there is major coverage of such statements, there is actually little scrutiny of the arguments behind them.

In Hans Christian Andersen’s famous tale “The Emperor’s New Clothes,” two self-declared tailors offer to provide the emperor with beautiful and very special clothes. They claim that the clothes will be invisible to people who are

stupid or unfit for their jobs. The emperor orders a full set of these special clothes. When he sends his ministers to monitor the “tailors,” the ministers do not see anything, but, for fear of being considered stupid or incompetent, none of them admits this. Instead, they extol the splendors of the invisible clothes and the nonexistent fabrics of which they are made.

The emperor himself finds his new attire invisible, yet, not wanting to appear stupid or unfit to be emperor, he praises the nonexistent clothes. When he tours his capital “wearing” them, the onlookers also admire his attire, even though they do not see anything. Only when a little child shouts “The emperor has no clothes!” does everyone realize and admit that the emperor is in fact naked.

A major reason for the success of bank lobbying is that banking has a certain mystique. There is a pervasive myth that banks and banking are special and different from all other companies and industries in the economy. Anyone who questions the mystique and the claims that are made is at risk of being declared incompetent to participate in the discussion.⁶

Many of the claims made by leading bankers and banking experts actually have as much substance as the emperor’s new clothes in Andersen’s story. But most people do not challenge these claims, and the claims have an impact on policy. The specialists’ façade of competence and confidence is too intimidating. Even people who know better fail to speak up. The emperor may be naked, but he continues his parade without being challenged about his attire.⁷

Our purpose in writing this book is to demystify banking and explain the issues to widen the circle of participants in the debate. We want to encourage more people to form and to trust their opinions, to ask questions, to express doubts, and to challenge the flawed arguments that pervade the policy debate. If we are to have a healthier financial system, more people must understand the issues and influence policy.

Many have a sense that something is wrong with banking and have questions. Why did banks get into so much trouble in the crisis? Why were banks and other financial institutions bailed out? Were the bailouts necessary? Will these institutions be bailed out again if they run into trouble? Will new regulations help or hurt? Are they too tough or not tough enough?

Leading bankers have simple answers to these questions. They may admit that mistakes were made,⁸ but they portray the crisis primarily as a fluke, an accident that is highly unlikely to recur in our lifetimes.⁹ It would be costly and wasteful, they claim, to tighten regulation to forestall an event that might happen once in a hundred years. Tighter regulation, we are warned, would interfere with what banks do to support the economy, and this would have serious “unintended consequences.”¹⁰

The English classical scholar Francis Cornford wrote in 1908, “There is only one argument for doing something; the rest are arguments for doing nothing. The argument for doing something is that it is the right thing to do. Then, of course, comes the difficulty of making sure that it is right.”¹¹ He goes on to explain how “bugbears,” sources of dread or false alarms, are used to raise doubts or scare. If Cornford was writing today, he would surely talk about the bugbear of “unintended consequences.”

Meanwhile, politicians seem to be taken in by the lobbying. For all the outrage they expressed about the crisis, they have done little to actually address the issues involved. For example, one might infer from President Sarkozy’s lashing out at bankers that France is a champion of bank regulation. But this inference would be wrong. In the bodies that try to coordinate regulatory efforts across countries, France has consistently opposed any tightening of regulation.¹² In the United States, regulations are often watered down in response to bank lobbying. For example, in passing the Dodd-Frank Act in 2010, Congress weakened the so-called Volcker Rule, which prohibits commercial banks from trading securities on their own account. Lobbying also affects the so-called rule-making process by which the regulatory bodies implement the law.¹³

Much of the research on banking, the financial crisis, and regulatory reform takes for granted that banks and the financial system must be as vulnerable to risks as they are, so that the failure of one bank can pull down the entire financial system. Some academic research suggests that this fragility might actually be a necessary by-product of the benefits banks provide to the economy.¹⁴ However, this work is based on assumptions under which fragility is indeed unavoidable, without assessing the relevance of the assumptions in the real world.¹⁵

Expanding the policy discussion beyond the circle of bankers and banking specialists is very important, because more action is urgently needed and yet has not been taken.¹⁶ The banking system is still much too fragile and dangerous. This system works for many bankers, but it exposes most of us to unnecessary and costly risks, and it distorts the economy in significant ways.

Can something be done at a reasonable cost to reduce the likelihood of banks' failing and causing a costly crisis? In one word: Yes. Will the reforms that have been decided upon achieve this aim? No. Can we have regulations that greatly increase the health and safety of the system while still allowing banks to do everything the economy needs them to do? Yes. Would we, as a society, have to sacrifice anything substantial to have a better banking system? No.

One clear direction for reform is to insist that banks and other financial institutions rely *much less* on borrowing to fund their investments. The reforms that have been agreed upon since 2008 are woefully insufficient in this respect, and they maintain previous approaches that have not worked well. The benefits of a more ambitious reform would be significant, whereas, contrary to the claims of leading bankers and others, the relevant costs to society would be quite small, if they existed at all.

We are not saying that stricter limits to bank borrowing are the only measures to be considered. However, these measures are important and beneficial no matter what else might be done. Reducing the excessive risks to the economy from the banking system, particularly the large distortions that result from having institutions that are "too big to fail," may well require additional measures. The key is to try to provide better incentives for market participants, and for those who design and implement regulations, so that bankers' actions will be less in conflict with the public interest.

A Sampling of the Bankers' New Clothes

A few examples will illustrate what we mean by *the bankers' new clothes*. Excessive borrowing by banks was identified as a major factor in the crisis of 2007–2008. Bankers themselves sometimes admit this.¹⁷ Nevertheless, the banking industry fights aggressively against tighter restrictions on bank bor-

rowing. The constant refrain is that too much tightening of such restrictions would harm economic growth.

For example, in 2009, when negotiations about a new international agreement on banking regulation were getting under way, Josef Ackermann, then the CEO of Deutsche Bank, asserted in an interview that tighter restrictions on bank borrowing “would restrict [banks’] ability to provide loans to the rest of the economy. This reduces growth and has negative effects for all.”¹⁸

This is a typical bugbear, suggesting that we must make a choice between economic growth and financial stability and that we cannot have both. After all, who would be in favor of a regulation that “reduces growth and has negative effects for all”?

Mr. Ackermann acknowledged that tighter restrictions on banks’ borrowing “might increase bank safety,” but he insisted that this would come at the expense of growth. He said nothing, however, about how continued financial instability and turmoil would affect growth.

The sharpest economic downturn since the Great Depression of the early 1930s occurred in the last quarter of 2008, and it was a direct result of the worldwide financial crisis that affected numerous banks and other financial institutions. The unprecedented decline in output in 2009 and the resulting loss of output have been valued in the trillions of dollars.¹⁹ The crisis has caused significant suffering for many.²⁰ In light of these effects, warnings that greater financial stability would come at the expense of growth sound hollow. Warnings that bank lending would suffer also sound hollow. In 2008 and 2009, banks that were vulnerable because they had too much debt cut back sharply on their lending. The severe credit crunch was caused by banks’ having too much debt hanging over them.

Why would restrictions on bank borrowing have any effect on bank lending at all?

One argument was given in 2010 by the British Bankers’ Association, which claimed that new regulations would require U.K. banks to “hold an extra £600 billion of capital that might otherwise have been deployed as loans to businesses or households.”²¹ To anyone who does not know what the regulation is about, this argument may look plausible. In fact, it is nonsensical and false.

The nonsense is due to the misuse of the word *capital*. In the language of banking regulation, this word refers to the money the bank has received from its shareholders or owners. This is to be distinguished from the money it has borrowed. Banks use both borrowed and unborrowed money to make their loans and other investments. Unborrowed money is the money that a bank has obtained from its owners if it is a private bank or from its shareholders if it is a corporation, along with any profits it has retained. Elsewhere in the economy, this type of funding is referred to as equity. In banking, it is called capital.

Capital regulation requires that a sufficient fraction of a bank's investments or assets be funded with unborrowed money.²² This is similar to the requirement that a home buyer make a minimum down payment when buying a house. Having a minimal ratio of unborrowed funds relative to total assets is a way to limit the share of assets that is funded by borrowing. Because unborrowed funds are obtained without any promise to make specific payments at particular times, having more equity enhances the bank's ability to absorb losses on its assets.

From the statement of the British Bankers' Association, however, we would not guess that capital requirements are about how much a bank borrows. The statement makes it appear as if capital were a cash reserve—a pile of cash that banks hold that cannot be used to make loans.

In fact, capital regulation does *not* tell banks what to do with their funds or what they should hold. It tells banks only what portion of the funds they use must be unborrowed. Saying that new regulations would *require* U.K. banks to “hold an extra £600 billion of capital” is nonsensical. The implication that loans to businesses or households are automatically reduced by that £600 billion is false. Capital is not a rainy-day fund.

The confusion about the term *bank capital* is pervasive. Numerous media reports say that banks must “set aside” capital to satisfy new regulations. References to capital reserves suggest that the regulation forces banks to hold cash that sits idly in the bank's tills without being put to work in the economy.²³ A bank lobbyist is quoted as saying, “A dollar in capital is one less dollar working in the economy.”²⁴

This confusion is insidious because it biases the debate, suggesting costs and trade-offs that do not actually exist. The trade-offs exist for reserve requirements, which call for banks to hold some fraction of their deposits in cash or in deposits with the central bank. However, capital requirements are distinct from reserve requirements and do not give rise to the same trade-offs. Confusing the two makes it easier to argue that capital requirements prevent banks from lending when this is not actually true.

At least for banks that are organized as corporations, bank capital requirements have no automatic effect on bank lending. If capital requirements are increased, there is nothing in the regulation that would prevent these corporations from issuing additional shares and raising new funds to make any loans and investments that they might find profitable.

Banks that do not have access to the stock markets, as well as those that do, can increase their equity by retaining and reinvesting their profits. What the banks would *choose* to do with the funds and why they would make these choices are different matters that are obviously important. But there is no sense in which capital regulation *forces* banks to shrink or prevents them from making loans. Viable banks can increase their reliance on unborrowed funds without any reduction in lending.

In arguing against increased capital requirements, advocates for banks often say that capital, that is, equity, is expensive and that, if they must have more equity, their costs will increase.²⁵ This mantra is so self-evident to banking specialists that they usually see no need to justify it. But why is it that banks hate equity so much and view it as expensive? In what exact sense is it expensive, and what does this mean for society and for policy?

We can test this argument by comparing banks to other corporations. Corporations in most industries are free to borrow as much as they want if they can find someone to make them loans. Yet there is no other sector in which corporations borrow anywhere near as much as banks do. For the vast majority of nonfinancial corporations in the United States, borrowing represents less than 50 percent of assets. Some highly successful companies do not borrow at all.²⁶ By contrast, for banks, debt often accounts for more than 90 percent of assets. For some large European banks, the fraction is even

higher, above 97 percent; it also was that high for some major U.S. investment banks before 2007, as well as for the mortgage giants, the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac), which were bailed out.²⁷ The new regulations that the banking industry complains about would still allow debt to fund 97 percent of bank assets.²⁸

If capital is expensive, as bankers suggest, and borrowing is cheap, why doesn't this also apply to other corporations? Why don't nonbanks borrow more and economize on the supposedly expensive equity? Are these other corporations doing something wrong? For example, why doesn't Apple, which has not borrowed at all, borrow some money by issuing some debt and use the proceeds to pay its shareholders? Wouldn't this be beneficial, replacing the company's expensive equity with cheap debt? Or is there something fundamentally different about the funding costs of banks?

The business of banking is different, but bank stocks are held by the same investors, or by investors who value stocks in the same way, as those who invest in other companies. They do not look different from other stocks; all stocks allow their owners to receive dividends and sell the shares for cash at the prevailing price in the stock market. Why would bank stocks be any different from those of other corporations?

One difference that is important for bank funding costs became evident in 2008: if an important bank gets into trouble and comes close to defaulting on its debt, there is a good chance that the government or the central bank will support it to prevent default. A few corporations outside the financial sector have also benefited from government bailouts, for example, the auto industry,²⁹ but those instances have been rare exceptions. In the financial sector, bailouts of large institutions, or of many institutions if they get into trouble at the same time, have become the rule.

If a company can count on being bailed out by the government when it cannot pay its debts and its creditors do not worry much about its defaulting, creditors will be happy to lend to the company. The company will therefore find that borrowing is cheap and, by comparison, other ways to fund investments, such as equity, are expensive. The interest that the company has to pay on its debt will not reflect its true default risk because that is partly borne by

the taxpayer. From the perspective of the banks, therefore, borrowing is cheap. But this is true only because the costs of bank borrowing are partly borne by taxpayers.

When bank lobbyists claim that having more equity would raise their costs, they never mention the costs to taxpayers of making their borrowing cheap. At times they even deny the presence of the subsidies to their debt.³⁰ Yet there is significant evidence that bank borrowing benefits from the prospect of taxpayer bailouts. For example, credit rating agencies sometimes assign higher ratings to bank debt than they would if the banks had no prospect of being bailed out.³¹ These higher ratings directly lower the interest rates at which banks can borrow.³² The value of this benefit is greater the more a bank borrows.

These are just a few examples of what we refer to as the bankers' new clothes, flawed and misleading claims that are made in discussions about banking regulation. Many of the claims resonate with basic feelings, yet they have no more substance than the emperor's fictitious clothes in Andersen's story.

This book will provide you with a framework for thinking about the issues so you can gain a better understanding of them and see flawed arguments for what they are. It does not require any expertise in or prior knowledge of economics, finance, or banking. You might think that this is not your field. However, if the discussion of banking and banking regulation is left only to those who are directly concerned, the financial system will continue to be at risk from unsafe banking, and all of us may suffer the consequences. Only pressure from the public can bring forth the necessary political will. Without public pressure and political will, we can expect little change.

Many of the bankers' new clothes that we expose in this book are related to how much banks borrow. In order to understand the issues, we first explore the impact of borrowing by individuals and companies on risk and on investments more generally. This will enable us to see where banks are similar to other companies and where they are different.

Borrowing is not the only topic of the book. Many more flawed claims are made in the debate on banking regulation. Most of these bankers' new clothes are also bugbears, warnings of unintended consequences meant to

scare policymakers out of doing something without focusing properly on the issues or proposing how the actual problems should be solved.

For example, leading bankers often call for so-called level playing fields in regulation.³³ They warn that their ability to hold their own in global competition might suffer if regulation were any stricter for them than for banks in other countries. This argument is also used by other industries, and it can succeed in weakening regulation, but it is invalid.³⁴ A country's public policy should not be concerned about the success of its banks or other firms as such, because success that is achieved by taxpayer subsidies or by exposing the public to excessive risks—for example, the risks of pollution or of a financial crisis—is not beneficial to the economy and to society.

On the issue of how much banks should borrow, as well as how much risk they should take, there is a fundamental conflict between what is good for bankers privately and what is good for the broader economy. By having policies that encourage bank borrowing and risk taking, we paradoxically make it attractive for banks to choose levels of debt and risk that are harmful without serving any useful purpose.

Whatever else we do, imposing significant restrictions on banks' borrowing is a simple and highly cost-effective way to reduce risks to the economy without imposing any significant cost on society. Curbing excessive and harmful risk taking by bankers may require additional laws and regulations.

Why Bank Safety Matters

Why should we care so much about the safety of banks and about how much banks borrow? The more anyone borrows, the greater the likelihood that the debts cannot be paid. When this happens, most borrowers go into bankruptcy, the lenders' claims are frozen until a court has determined what they can be paid, and then, usually, the lenders are paid much less than what they are owed.³⁵

When a borrower is a bank, the damage resulting from its defaulting on its debts can be great, affecting many beyond those directly involved with the bank. This is especially true when the bank is a systemically important financial institution like JPMorgan Chase or Deutsche Bank, with massive opera-

tions all over the globe.³⁶ Excessive borrowing by such banks exposes all of us to risks, costs, and inefficiencies that are entirely unnecessary.

In the run-up to the financial crisis, the debts of many large banks financed 97 percent or more of their assets. Lehman Brothers in the United States, Hypo Real Estate in Germany, Dexia in Belgium and France, and UBS in Switzerland had many hundreds of billions of dollars, euros, or Swiss francs in debt.³⁷ Lehman Brothers filed for bankruptcy in September 2008. The other three avoided bankruptcy only because they were bailed out by their governments.³⁸

The Lehman Brothers bankruptcy caused severe disruption and damage to the global financial system.³⁹ Stock prices imploded, investors withdrew from money market funds, money market funds refused to renew their loans to banks, and banks stopped lending to each other. Banks furiously tried to sell assets, which further depressed prices. Within two weeks, many banks faced the prospect of default.⁴⁰

To prevent a complete meltdown of the system, governments and central banks all over the world provided financial institutions with funding and with guarantees for the institutions' debts.⁴¹ These interventions stopped the decline, but the downturn in economic activity was still the sharpest since the Great Depression.⁴² Anton Valukas, the lawyer appointed by the bankruptcy court to investigate Lehman Brothers, put it succinctly: "Everybody got hurt. The entire economy has suffered from the fall of Lehman Brothers . . . the whole world."⁴³

In the fall of 2008, many financial institutions besides Lehman Brothers were also vulnerable. Ben Bernanke, chairman of the Federal Reserve, told the Financial Crisis Inquiry Commission (FCIC) that "out of maybe . . . 13 of the most important financial institutions in the United States, 12 were at risk of failure within a period of a week or two."⁴⁴ Some or all of the major banks in Belgium, France, Germany, Iceland, Ireland, the Netherlands, Switzerland, and the United Kingdom failed or were at significant risk of failing had their governments not bailed them out.⁴⁵

Accounts of the crisis often focus on the various breakdowns of bank funding between August 2007 and October 2008.⁴⁶ Much bank funding con-

sisted of very short-term debt. Banks were therefore vulnerable to the risk that this debt would not be renewed. The deeper reason for the breakdowns, however, was that banks were highly indebted. When banks suffered losses, investors, including other financial institutions, lost confidence and cut off funding, fearing that the banks might become unable to repay their debts.⁴⁷ The Lehman Brothers bankruptcy itself heightened investors' concerns by showing that even a large financial institution might not be bailed out, and therefore that default of such an institution was a real possibility.⁴⁸

The problem posed by some banks being regarded as too big to fail is greater today than it was in 2008. Since then, the largest U.S. banks have become much larger. On March 31, 2012, the debt of JPMorgan Chase was valued at \$2.13 trillion and that of Bank of America at \$1.95 trillion, more than three times the debt of Lehman Brothers. The debts of the five largest banks in the United States totaled around \$8 trillion. These figures would have been even larger under the accounting rules used in Europe.⁴⁹

In Europe, the largest banks are of similar size. Because European economies are smaller than that of the United States, the problem is even more serious there. Relative to the overall economy, banks are significantly larger in Europe than in the United States, especially in some of the smaller countries.⁵⁰ In Ireland and Iceland before the crisis, the banking systems had become so large that, when the banks failed, these countries' economies collapsed.⁵¹

The traumatic Lehman experience has scared most governments into believing that large global banks must not be allowed to fail. Should any of these large banks get into serious difficulties, however, we may discover that they are not only too big to fail but also too big to save. There will be no good options.

The consequences of letting a large bank fail are probably more severe today than in the case of Lehman Brothers in 2008, but saving them might cripple their countries. The experiences of Ireland and Spain provide a taste of what can happen if large banking systems have to be saved by their governments. In both countries, the governments were unable to deal with their banking problems on their own, so they had to ask for support from the International Monetary Fund and from the European Union.⁵²

This situation makes it all the more important to prevent scenarios in which governments must choose between letting a major institution fail or committing to an expensive bailout. One approach is to try to create mechanisms that would allow large banks to fail without disrupting the economy or requiring public support. Although useful efforts have been made in this direction, this remains a challenge for global banks. Even the best resolution mechanism is likely to be disruptive and costly.⁵³

Whatever else might be done, significantly reducing the reliance of large banks on borrowing is the most straightforward and cost-effective approach to crisis prevention. Current and proposed regulations go in the right direction, but they are far from sufficient and have serious flaws.⁵⁴ This situation reflects the success of bank lobbying and the prevalence of flawed arguments, the bankers' new clothes, in the debate. To make progress, the issues must be clarified.

The present situation is perverse. It is as if we were to subsidize the chemical industry to intentionally pollute rivers and lakes. Such subsidies would encourage additional pollution. If the industry were asked to limit the pollution, it would complain that its costs would increase. Would such complaints make us tolerate the pollution? Subsidizing banks to borrow excessively and take on so much risk that the entire banking system is threatened is just like subsidizing and encouraging companies to pollute when they have clean alternatives.

Most investments involve risks. If investments are funded by borrowing, the risks are borne not just by the borrowers but also by the lenders, and possibly by others. The borrowing itself magnifies risk, and it creates fundamental conflicts of interest that can also lead to inefficiencies. These conflicts of interest and inefficiencies explain much of what is wrong with banking and suggest what to do about it.

To understand the issues—and to see through the bankers' new clothes—it is important to understand the relation between borrowing and risk. This is the subject to which we turn now. In the next two chapters we discuss the relation between borrowing and risk without a focus on banking. Then we turn to banking, risk in banking, and the implications of excessive risk for

the financial system. This background will frame our discussion of banking regulation and the bankers' new clothes in later chapters. The discussion will also throw light on the politics of banking. Providing a better understanding of the issues and the political challenge has been our motivation in writing this book.

PART ONE

Borrowing, Banking, and Risk



How Borrowing Magnifies Risk

Loans and debts make worry and frets.

Proverb

BANKS MAKE LOANS to individuals, businesses, and governments. Banks borrow from individuals and from firms, including other banks. Understanding banks requires an understanding of borrowing. In this chapter and the next, we discuss how borrowing works and how borrowing affects risk. Our discussion applies to any private borrowing, not just to borrowing by banks.¹

Individuals borrow to buy such things as a car or a house so they can own and enjoy these things earlier than they could if they had to pay for them on their own.² Individuals and businesses also borrow to make investments. For example, individuals may use borrowed money to pay for their education, and businesses may invest in new factories or in new product developments. Borrowers hope to pay their debts from money they will earn later, for example, as their investments pay off.

Borrowing creates leverage: by borrowing, individuals and businesses can make investments that are larger than they can afford on their own right away. This leverage creates opportunities for the borrower, but it also magnifies the borrower's risks. The borrower makes promises to pay lenders specific amounts at given times in the future and gets to keep everything that is left after these promised debt payments. On the upside, if the investments turn out well, the leverage magnifies the borrower's profit. On the downside, however, if the investments do not return enough, the leverage magnifies the losses. The more one borrows, the greater this danger.

For individuals and small businesses, borrowing might be the only way to invest more than what they can afford on their own. For corporations, however, and particularly for large corporations, borrowing is not the only way to pay for investment and growth. Corporations can also raise funds from investors by issuing equity shares. When corporations make investment decisions, they must choose a mix of debt and equity to fund the investments.

A Mortgage Example

Kate wants to buy a house for \$300,000. She does not have enough money to pay cash for the house, but she can take a mortgage of up to \$270,000. She must contribute at least \$30,000, 10 percent of the price of the house, as a down payment.

A useful way to visualize Kate's purchase of the house is through a balance sheet diagram, shown in Figure 2.1. The box on the left-hand side represents Kate's investment, namely the house, which costs \$300,000. The positions on the right-hand side represent the different sources of money for the investment, the \$270,000 mortgage and the \$30,000 down payment. The difference between the value of the house and the value of what Kate owes is called her equity position in the house. Initially, Kate's equity position is just the value of her down payment.

The mortgage contract for Kate's house specifies the payments that she must make for interest and in repayment of the loan itself. To simplify the discussion, we assume for now that, in the period under discussion, Kate is living in the house and paying only interest, without any repayments on the \$270,000 she borrowed.

After a year, Kate wants to move elsewhere, so she sells the house. To settle the mortgage, she must repay the \$270,000. Whatever is left over after selling the house, if anything, Kate can keep.

If the value of the house has stayed the same, Kate can sell it for \$300,000. After settling the mortgage debt of \$270,000, she has \$30,000 left, which is just the amount of her down payment. She had to pay interest on the mortgage and also has foregone the money she could have earned if she had invested her own \$30,000 elsewhere, but if she liked living in the house, she may still

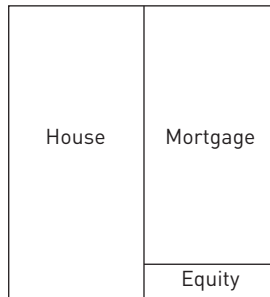


FIGURE 2.1
Balance sheet diagram
for buying a house.

be happy with the investment. The interest she paid can be thought of as replacing the rent she would have had to pay if she had not owned the house.

Kate will be happier, of course, if the house has gone up in value during the year. Suppose the house has increased in value by 5 percent, to \$315,000. After paying the mortgage debt of \$270,000, Kate will be left with \$45,000, which is \$15,000 more than her down payment of \$30,000. By borrowing, Kate was able to buy a house that she could not have afforded on her own, and in addition she has earned a great return on her investment. Borrowing is wonderful if the borrowed money is invested in something that increases in value.

What if Kate's house has gone down in value? Suppose the value has dropped by 5 percent, to \$285,000. After paying back \$270,000, Kate will have only \$15,000 left of her \$30,000 down payment. Relative to her down payment, she will have lost \$15,000, or 50 percent of the money she invested in the house.

We can already see in this simple example how borrowing creates a leverage effect that magnifies risks and returns. A small change of 5 percent in the value of Kate's house has dramatic effects on her wealth, generating gains or losses of 50 percent of her investment. Just as a lever multiplies the force one exerts to move a boulder, debt allows borrowers to multiply the assets they can finance with their own money but also magnifies the gains and losses they earn for each dollar of their own money.

On the upside, if the value of Kate's house has increased, Kate will keep every dollar of the \$15,000 increase in the value of the house. On the downside, however, a small percentage decrease can be devastating to Kate's investment, because the debt amount is fixed, so her down payment must absorb

the full dollar losses, at least until it is wiped out. In the case of a 5 percent decline, she will lose half of her down payment.

The different possibilities are described in Figure 2.2 using balance sheet diagrams. On the left is Kate’s position when she bought the house, introduced in Figure 2.1. Her down payment was her initial equity. The other two diagrams show her position a year later, the first assuming that the value of the house has increased and the other that it has declined. Kate’s debt is the same in both cases. The value of the equity changes by the full amount of the change in the value of the house. Because the value of the equity is smaller than the value of the house, the change in Kate’s equity is larger in percentage terms than the change in the value of the house.

Kate’s situation is even worse if the house has declined in value even more. Suppose, for example, that the value has dropped by 15 percent. Now Kate sells the house for \$255,000, which is less than the \$270,000 that she owes. Kate’s entire down payment of \$30,000 is lost, and she is “underwater,” owing more on the mortgage than the house is worth.

The outcome for Kate when the house is worth less than the amount she owes depends on whether the lender can demand that she pay the difference out of her other assets or even her future salary.³ In many European countries and in some of the states of the United States, mortgage lenders can ask for

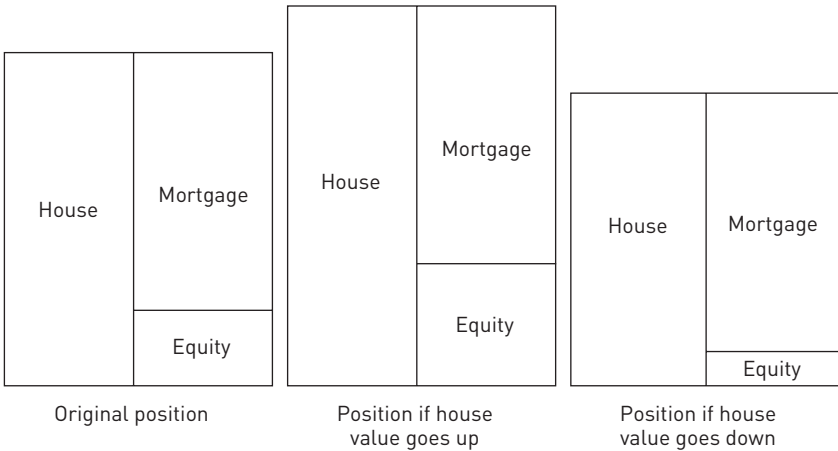


FIGURE 2.2 Balance sheet diagrams for buying a house and selling it a year later.

payments from at least some of the borrower's other assets, such as bank accounts, cars, paintings, or jewelry.⁴ Under such rules, Kate could be forced to pay the full \$270,000 rather than just the \$255,000 she obtains from selling the house. If she does not have enough other assets, she may have to declare personal bankruptcy.

In some states of the United States, mortgages have a so-called non-recourse clause that gives a homeowner the option to abandon a house without making any further payments.⁵ In such a case, the bank would receive the abandoned house instead of being paid in full.⁶

How would things be different if Kate's down payment had been \$60,000 instead of \$30,000? In this case, Kate would have needed to borrow only \$240,000 to buy the house. Obviously, Kate's interest payments on the loan during the year she lived in the house would have been lower, but she would have had \$60,000 instead of \$30,000 tied up in the house.

If Kate started off with greater initial equity, the leverage effect would be less intense than if her initial equity was lower. If the value of the house rises by 5 percent and the house is sold for \$315,000, and if Kate owes \$240,000, she will end up with \$75,000, a gain of 25 percent on her initial investment of \$60,000. If the value of the house goes down by 5 percent and the house sells for \$285,000, she will end up with \$45,000 after paying \$240,000. In this case, she loses 25 percent of her \$60,000 investment in the house.

In dollar amounts, the gain and the loss on the entire house are the same as before, but they are both smaller as a percentage of Kate's initial equity if she borrowed less. The more Kate borrows, the more dramatic is the effect of leverage, that is, the magnification of the percentage gains and losses on her investment. If Kate bought the house without borrowing anything, she owns it outright, so her percentage gains or losses are the same as the percentage increases or decreases in the value of the house. In that case, a decline of 5 percent in the value of the house would be a 5 percent loss to Kate of her investment; there would be no leverage and no magnification of the percentage gained or lost.

Table 2.1 summarizes the example, showing how the different scenarios play out for Kate. The top panel shows the case we started with, in which Kate made a \$30,000 down payment and borrowed \$270,000. The bottom panel

TABLE 2.1 Debt and Equity When Buying a \$300,000 House in Two Down Payment Scenarios (with a nonrecourse mortgage loan)

<i>Buying with a \$30,000 down payment (initial equity)</i>				
<i>Year-end house price (dollars)</i>	<i>Percentage change in house price</i>	<i>Mortgage debt (dollars)</i>	<i>Final equity (dollars)</i>	<i>Return on equity (percent)</i>
345,000	15	270,000	75,000	150
315,000	5	270,000	45,000	50
300,000	0	270,000	30,000	0
285,000	-5	270,000	15,000	-50
255,000	-15	270,000	0	-100
<i>Buying with a \$60,000 down payment (initial equity)</i>				
<i>Year-end house price (dollars)</i>	<i>Percentage change in house price</i>	<i>Mortgage debt (dollars)</i>	<i>Final equity (dollars)</i>	<i>Return on equity (percent)</i>
345,000	15	240,000	105,000	75
315,000	5	240,000	75,000	25
300,000	0	240,000	60,000	0
285,000	-5	240,000	45,000	-25
255,000	-15	240,000	15,000	-75

shows the case in which the down payment was \$60,000 and the mortgage was \$240,000.⁷

To show the leverage effect most dramatically, we include a scenario in which the value of the house increases by 15 percent, to \$345,000. In the case in which Kate took the larger mortgage and invested only \$30,000, she ends up with \$75,000 after paying the debt; her return per dollar invested in the house is 150 percent, which is wonderful indeed! With the smaller mortgage and the larger down payment of \$60,000, Kate's return per dollar invested is "only" 75 percent. Leverage is great on the upside.⁸ On the downside, represented in the bottom panel, if the house declines in value Kate does better if she borrowed less; in percentage terms, her losses are smaller.⁹

If everyone assumes that house prices can only increase, the scenarios in which there are losses are not considered relevant. But sometimes, as we have seen, house prices do decline even though lenders and homeowners may consider this impossible.

The example illustrates the important role of the down payment, Kate's initial equity position in the house. When Kate bought the house, her equity represented the part of the value of the house that was not paid for with borrowed money. At any later time, Kate's equity is the difference between the value of the house and the amount needed to repay her debt. Equity acts as a buffer that can absorb losses on the house. The greater Kate's equity, the more likely she is to remain above water and have some equity remaining even if the house loses value.

In summary, borrowing creates leverage and makes the equity investment of a borrower riskier. The higher the borrower's reliance on debt, the greater the likelihood that the equity will be wiped out. With a nonrecourse clause, the borrower's loss is limited to 100 percent of the initial equity position. Beyond that, any additional loss hits the creditor rather than the borrower.

In our simplified example, Kate's house is sold after one year, and during the year she lived in it, she made only interest payments, so the amount needed to settle the mortgage is the same as the mortgage. In a more realistic situation, Kate may own the house for a while. As time goes on, she makes payments on her mortgage, possibly refinancing it at some point. While she owns the house, she also maintains it, and maybe improves or remodels it.

Over time, the value of the house, Kate's mortgage debt, and her equity all change. In the balance sheet diagram, all these changes would be represented by changes in the sizes of the different boxes or categories on the balance sheet. At any one time, the larger Kate's equity relative to her debt, the less likely it is that a subsequent decline in the value of the house will wipe out the equity.

In our example so far, we have taken the cost of \$300,000 for the house and the down payment, \$30,000 or \$60,000, as fixed. If Kate wanted to buy a \$300,000 house and had only \$30,000 for a down payment or she did not want to invest more than this on a house, she would have to live with the risk that comes with borrowing 90 percent of the value of the house. Kate could

have reduced her risk by buying a cheaper house. If she had bought a \$150,000 house with a \$30,000 down payment, for example, her initial equity would have been 20 percent of the value of the house, the same percentage it was when she invested \$60,000 in a \$300,000 house.

The gains and losses in percentage terms would have been the same if Kate had bought a \$150,000 house and invested \$30,000 as they are in the bottom panel of Table 2.1, which describes her making a \$60,000 down payment for the \$300,000 house. In particular, whereas Kate's equity of \$30,000 is wiped out if she has bought a \$300,000 house whose value declined by 15 percent, a 15 percent decline will not wipe her out if she has bought a \$150,000 house with a \$30,000 down payment. In deciding which house to buy if she only had \$30,000 to invest, Kate has to weigh the benefits of living in a larger house against the much higher interest she would have to pay on the larger loan and the increased risk of losing more of her investment or all of it.

Business Borrowing

Much of the preceding discussion applies to business borrowing as well as personal borrowing. If Kate runs her own business as a so-called sole proprietor with no partners, borrowing enables her to acquire more machines or more space than she could with her own funds. She may also borrow to pay her employees ahead of any sales that she makes.

The balance sheet diagram can be used as easily for Kate's business as for her house. The box on the left-hand side of the diagram in Figure 2.3 represents the value of all the assets of the business, the upper box on the right-hand side the value of Kate's debts or liabilities, the lower box on the right-hand side the value of her equity in the business.

As in the example of Kate's borrowing to buy a house, the balance sheet for her business changes over time. The changes are not only due to changes in asset values but also might be due to changes in the asset holdings themselves. When goods are produced, Kate's inventories go up, and when she sells goods, her inventories go down and her cash reserves go up. When Kate pays her employees, her cash reserves go down. This situation is more complicated than the mere change in house values in the previous example, but the basic logic is the same.

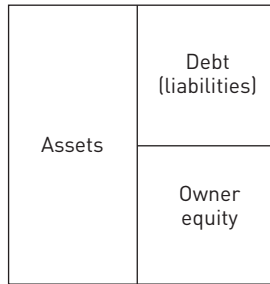


FIGURE 2.3
Balance sheet diagram
for a business.

As in the house example, the difference between Kate's assets and her debts is her equity position, sometimes called her net worth. In both cases, Kate does not know beforehand how her assets, in the house example the value of the house, will evolve. The value of the house and the evolution of the business are both uncertain. Changes in the value of the assets in both cases affect Kate's equity. If Kate makes a profit because her revenue from sales exceeds her costs, the value of her assets will increase, and so will the value of her equity. If she is unlucky and her revenues fail to cover her costs, her equity will go down. But Kate's debt is still the same unless she borrows more or repays some of it.

As in the example of the house, borrowing creates leverage and magnifies risks. Any increase or decrease in the value of the assets translates into an equal increase or decrease in the value of Kate's equity. On a percentage basis, the change in the value of her equity will be a multiple of the change per dollar in the value of her assets. This leverage effect will be more dramatic the more Kate has borrowed and the less equity she has.

As the sole proprietor of her business, Kate is not protected by a non-recourse clause. If her business experiences a loss, she cannot just abandon it without paying the debt. Unless she can pay all the debts of the business, Kate may be forced into personal bankruptcy. Kate can shield her personal wealth from her business risks if she runs her business as a company with limited liability.¹⁰ The charter of such a company determines the maximum amount for which she can be held responsible or liable. Beyond this, as in the case of a mortgage with a nonrecourse clause, Kate can walk away from the debt of the company.

There is a downside to limited liability. If Kate can walk away from some of her debts, she may find it more difficult to borrow.¹¹ Customers might also worry whether they have sufficient recourse to be paid if something goes wrong in their dealings with Kate. If Kate is liable and cannot walk away, she is exposed to more risk, but it also gives others the confidence that she has incentives to perform well.

Corporations

The corporation is the most important form of limited-liability company. A corporation is an institution with a set of rules that determine how it works, such as rights and responsibilities of the board of directors and the shareholders. In many contexts, the law treats this institution as if it were an individual with its own identity. As such, it can contract with others, borrow from investors, hire employees, and sell its products. Lawyers refer to this entity as a legal person. In practice, the decisions and actions of corporations result from the actions of the people in charge, such as their managers or members of the board of directors.

If Kate incorporates her business, she will initially hold the equity shares of the business and also manage it. However, there is no reason that she should stick to this arrangement. Kate may want to sell part of her equity to somebody else or to give shares to family members, friends, or key employees. Or she may want to keep the shares but appoint somebody else to run the business. Within the legal framework of a corporation, she can do both. There is no necessary link between the ownership of the equity and the management of the corporation.

Like individuals, corporations can borrow. In the same way, when corporations borrow they receive money in exchange for a legal promise to pay back specific amounts of money at specific times in the future. This promise is kept only if the corporation can pay; if it cannot do so or cannot negotiate other terms, the corporation may have to declare bankruptcy. Shareholders, the owners of the equity, cannot be forced to make additional payments. Their liability is limited to the amounts they invested. The corporation's debt must be paid entirely from the assets of the corporation to the extent that this is possible.

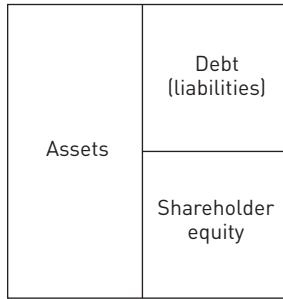


FIGURE 2.4
Balance sheet diagram
for a corporation.

The financial position of a corporation can again be represented in a balance sheet diagram. The balance sheet represented in Figure 2.4 is the same as that in Figure 2.3, with one exception: instead of owner equity, the difference between the assets and the liabilities is now called shareholder equity.¹²

The shareholder equity of a corporation represents the difference between the value of the corporation’s assets and the corporation’s commitments to its creditors. As before, the evolution of equity over time reflects gains and losses on the corporation’s investments, with a leverage effect from borrowing. The more equity a corporation has relative to its assets, the larger the losses it could sustain that would still not wipe out the equity. When corporations have little equity, they are like the homeowner whose mortgage is a high percentage of the value of the house. The smaller the amount of equity, the greater the chance that it will be wiped out due to decreases in the value of the assets.

Corporations Can Raise Funds without Borrowing

An individual’s investments may be limited by personal wealth and the amount that the individual can borrow. A corporation, however, can raise additional money for investments by selling shares. Corporations can expand quickly without borrowing.

Shareholders hold fractions of the corporation’s equity depending on the number of shares they bought. When the corporation earns a profit and distributes some or all of it as dividends, shareholders are entitled to receive their proper share of these dividends. Depending on the dividends they expect to be paid, investors are willing to pay money for the shares.

Corporations can therefore raise funds by issuing shares and selling them to investors. The individual shareholders can also sell shares to others.¹³ This is particularly easy if the shares are traded on an active stock exchange. The ownership structure of corporations is very flexible, and this flexibility has contributed to the success of the corporation as an institution.

When a corporation issues new shares, each of the previously existing shares represents a smaller fraction of the corporation's total equity. For example, if the corporation originally has four million shares and then issues one million new shares, after the issuance it will have five million shares outstanding. The four million old shares then account for 80 percent of the corporation's equity, the new shares for 20 percent.

The reduction in the original shareholders' fraction of the equity is sometimes referred to using the word *dilution*, suggesting that somehow the original shareholders are in a worse position. However, whereas their fraction of the corporation's total equity decreases, the resources of the corporation increase. The money that new shareholders pay for their shares becomes available to the corporation for further investments. The total assets of the corporation increase, and the left-hand side of the corporation's balance sheet grows by the amount of money that the corporation receives for the shares.

What is the impact of the issuance of new shares on original shareholders? The answer depends on whether they are better off with a larger fraction of a smaller corporation or with a smaller fraction of a larger corporation. If the corporation can put the new money to good use so that the corporation earns larger profits and is better able to grow, the original shareholders will be better off with the new share issue than without it.¹⁴ Having a smaller fraction of a larger and faster-growing corporation can be more valuable and more attractive than having a larger fraction of a smaller corporation.¹⁵

The value of the original shareholders' equity may decline, however, if the new funds are used for purposes that do not benefit them, for example, if the firm grows while acquiring other assets at a price that is excessive. Another possibility is that the new funds will benefit the firm's creditors, leaving relatively little of these funds, or the returns generated from investing them, for its shareholders.¹⁶

Because corporations can issue shares as well as borrow, the extent of their borrowing depends not only on how much they want to invest but also on the *mix of debt and equity* they want to use to fund the investment. In this respect, corporations are quite unlike individuals.

Internal Growth Is a Source of Equity

Private businesses as well as corporations can invest and grow without borrowing by retaining and reinvesting their profits. Money paid out to owners and shareholders is no longer available to the business or the corporation. Investments made with retained earnings do not require any additional borrowing and are therefore attributed to equity. No new equity is required.

Shareholders expect to get something in return for their investments in the corporation. If a corporation retains its earnings and makes bad investments or wastes the money, shareholders are dissatisfied, and this is reflected in low share prices. Managers and shareholders sometimes disagree about how profits should be used, with shareholders demanding that managers pay more of them out.¹⁷

In some situations, however, shareholders may prefer that profits be retained and reinvested. This is the case if the corporation has tremendous growth opportunities that shareholders would like the corporation to exploit. If the investments are successful, this success will be reflected in higher share prices and larger dividends later. Many corporations do not make any payouts to shareholders for extended periods of time, and their shareholders are happy. Apple, for example, did not pay any dividends between December 1995 and August 2012. Shareholders in corporations that are not paying a dividend but whose shares are traded on an exchange can create a so-called homemade dividend by selling some shares.¹⁸

Payouts to owners or shareholders can be accomplished in two different ways. When a corporation pays dividends, all shareholders are paid in proportion to their share ownership. Alternatively, the corporation can repurchase or buy back some of the shares. In such a case, some of the shareholders are bought out and paid in cash, while others see the fraction of their ownership increase because there are fewer shares; with fewer shares outstanding, the price per share will be higher than it would have been if the

firm had paid a dividend, so these shareholders will benefit as well. In both cases the payouts reduce the total equity of a corporation and its capacity to absorb losses.

Banks Borrow a Lot

Corporations vary greatly in how much they borrow. Some corporations, such as Apple or Bed Bath and Beyond, hardly borrow at all. Most other corporations have some debt, but often not very much. Corporations in Europe generally borrow more than U.S. corporations and rely more on banks to provide loans, but even in Europe there are virtually no healthy large corporations that have less than 30 percent equity. When banks make loans, they insist that borrowers have sufficient equity to absorb losses.¹⁹ Meanwhile, banks themselves tend to rely extensively on debt and typically have less than 10 percent in equity, often 5 percent or even less, relative to their total assets.

This has not always been the case. In the first half of the nineteenth century, banks operated as partnerships with unlimited liability. Bank owners had to pay their depositors or other creditors from the banks' assets or from their other assets. Until the middle of the nineteenth century, equity levels around 40–50 percent of banks' total investments were typical.²⁰ Bankers were careful not to take too much risk because they could not walk away from the debts when the investments did not work out.

In the United States and many European countries, companies with limited liability, particularly corporations, became prominent in the last third of the nineteenth century. In some countries this form of organization spread less quickly to banking than to other industries. For example, in Britain many banks were initially reluctant to take advantage of new laws enabling them to operate under limited liability. As a banking expert from that period explained, "A depositor would be much more likely to trust his money with a bank" if the shareholders had unlimited liability.²¹ Similarly, although limited liability was widely used in other industries, throughout the United States a combination of laws and private contracts kept most banks from adopting limited liability until the 1930s.²²

Banks with unlimited liability can destroy their shareholders when they run into trouble, and this was seen to discourage wealthy individuals from

becoming bank shareholders. Banks could not become too large when operated as partnerships. After the collapse in 1878 of the City of Glasgow Bank, in which depositors did not lose anything but 80 percent of the shareholders were personally bankrupted, the trend toward limiting bank owners' liability accelerated. Still, well into the twentieth century, banks' shareholders frequently had extended liability that required them to cover losses beyond the amount of their original investment.²³

Extended liability was ineffective in preventing bank runs and losses to depositors during the Great Depression because of many personal bankruptcies.²⁴ Following that experience, the United States established explicit deposit insurance by creating the Federal Deposit Insurance Corporation (FDIC). Banks that are FDIC members pay a premium, and their deposits are then guaranteed by the FDIC up to a maximum amount, currently \$250,000. Similar programs have been developed in many other countries.²⁵

The most remarkable trend in the way banks have funded themselves since the middle of the nineteenth century has been their consistently decreased reliance on equity relative to borrowing. Early in the twentieth century, it was still typical for banks to have equity equal to 25 percent of their total assets, but banks' equity levels declined to single digits, around 6–8 percent of their total assets in the United States, by the early 1990s.²⁶ Similar trends were observed in other countries.²⁷ Indebtedness further increased for many banks in the run-up to the financial crisis of 2007–2008.²⁸

When individuals or corporate managers decide to borrow, they mainly see the bright side of borrowing—the ability to make larger investments and to enjoy greater returns if the investments turn out well. However, the leverage from borrowing works on the downside, not just the upside. The larger the share of the assets funded by borrowing, the more likely it is that the borrower, the lenders, and possibly others will experience the dark side of borrowing. In the next chapter we take a closer look at that dark side, when the borrower runs into financial distress and might fail to make the promised payments. Although we focus on banks only in the chapter after that, the next chapter is a critical part of the book, because the dark side of borrowing explains much of what is wrong with banking.

The Dark Side of Borrowing

Good old John Sedley was a ruined man. His name had been proclaimed as a defaulter on the Stock Exchange. . . . The house and furniture of Russell Square were seized and sold up, and he and his family were thrust away, . . . to hide their heads where they might.

William Makepeace Thackeray (1811–1863), Vanity Fair

DEBT IS A PROMISE. After debt is put in place, borrowers and creditors must deal with it. Sometimes the burden imposed by the promise is too difficult or impossible for the borrower to bear. This is true for the debts of individuals and businesses, and sometimes also for government debt. The burden of the debt can cause problems for both borrowers and lenders, and sometimes also for third parties.

Consider Kate as an individual or as a business borrower. If Kate defaults on her debts, the legal consequences can be disruptive to her life and to her business. Kate might try to arrange for an additional credit line, which means she will take on additional debt to pay loans she has taken previously. For Kate to be able to borrow again, however, lenders must believe that her difficulties are only temporary and that at some point she will repay the new loan as well as the original loans.

As a borrower, if Kate runs into any trouble, she may want her creditors to believe that she has only a *temporary liquidity problem*; she does not have the cash to pay today but will be able to pay later. She may not want her *solvency*—that is, her ability to eventually pay her debts—to be in doubt. If the creditors believe her, they may be willing to let her “roll over” her debt. Borrowers with supposedly temporary problems, however, sometimes end up in default and bankruptcy.

Does it matter whether Kate has just a liquidity problem or a solvency problem? If Kate has little hope of recovering and paying her debts but her

creditors let her keep borrowing and doing what she wants with the money, Kate may become reckless. Gambling for resurrection, taking bets in the spirit of “heads, I win; tails, my creditors lose” may be tempting if there is no other way to avoid bankruptcy.

The impact of debt is felt before a borrower actually defaults. Borrowers may make different decisions because of their “overhanging” debt than they would have made had they not been indebted. Distressed borrowers may become excessively cautious or excessively reckless. Both of these behaviors can be quite costly to borrowers, creditors, and third parties.

Issues related to the dark side of debt are important in explaining why most corporations limit their borrowing. Banks, however, experience the burden of debt differently from other borrowers. They see mainly the bright side. This results in banks’ borrowing significantly more than other corporations. The dark side of borrowing is not so dark for them because some of the costs are borne by others. By borrowing heavily, however, banks cast a deep shadow on the economy.

Living with Debt

Let us revisit Kate and the mortgage of \$270,000. In the last chapter we assumed that she takes this mortgage to buy a \$300,000 house. Kate lives in the house for a year and pays only interest. Then she sells the house and settles the mortgage. In a more realistic arrangement, Kate’s monthly payments would involve not just the interest but also some repayment of the mortgage. Over time, Kate’s remaining debt and the interest on this debt would gradually shrink, and the repayment portion of her monthly payment would rise.

Once Kate takes the loan, she must make the payments specified in the mortgage contract. If Kate has a good job, perhaps the payments seem easily affordable. But what if she loses her job or someone in her family becomes sick and needs expensive treatment? Then the mortgage payment will be a serious burden, and Kate may not have enough money to pay her living expenses as well as the mortgage.

Kate’s bank might agree to postpone the payments for a while. Or Kate might be able to take out additional loans. But that would not really solve her problem, because she would then have to pay even more interest, on the new

loans as well as the old one. Using new loans to make payments on outstanding debts can be the beginning of a vicious spiral or a debt trap in which obligations become larger and larger. The same might happen if Kate had taken a second mortgage on her house in order to pay for a trip to the Mediterranean; by taking the second mortgage, she would have increased her debts and reduced her equity in the house.

Kate's risks are even greater if the interest on her mortgage can be adjusted to reflect changes in market rates of interest. Adjustable-rate mortgages (ARMs) were used often in the 1980s when banks were worried that the interest rates at which they were borrowing might themselves change. ARMs were also used frequently in the run-up to the recent crisis, when borrowers were offered so-called teaser rates, very low rates of interest for the first two years, with a rule that, after those two years, the rates would be adjusted upward. In Kate's case, if such adjustments are made and the interest on her mortgage goes up, her monthly payment will increase and the burden of debt will become heavier, possibly by a large amount.

In the late 1980s, the risk of changes in interest rates hit many people in the United Kingdom. Because there was no rental market, many had bought apartments while borrowing heavily. Most mortgages had adjustable interest rates. When interest rates increased sharply in 1989, many borrowers could no longer make the payments on their mortgages. This led to many defaults and foreclosures in 1990–1991.¹ The same happened with many adjustable-rate loans and mortgages in the United States when interest rates increased in the late 1980s and again in 2005–2007.²

Living with the risk of being unable to pay her debts is unpleasant for Kate. To avoid it, Kate may maintain some cash reserve. She might also have borrowed less in the first place. Of course, borrowing less might not have been an option if her job required her to live in a particular area. If the area was expensive and Kate could not find a comparable job in a cheaper area, she might have had to live with the debt and bear the risk that borrowing entails.

Similar issues arise for businesses and corporations. Because business income is often more uncertain than income from employment, the risks of borrowing might actually be larger for businesses than for individuals. We often see companies that have been successful for a while losing their cus-

tomers at a later point. As in the case of individuals, the risks of borrowing may temporarily be smoothed over by additional borrowing, but more borrowing can induce a vicious spiral.

For businesses, the costs of defensive strategies as safeguards against risks may be larger than for individuals. When people borrow for personal consumption, consuming less is often a realistic alternative. The investment needs of a business, however, are partly defined by the nature of the business and often cannot be reduced without harming the business. A car manufacturer must have an assembly line. A physician needs a certain set of machines to set up his or her practice and must maintain staff. Having half an assembly line or having a smaller set of machines or no receptionist would not work. Additional investments might also be necessary for a business to keep up with the competition. Being indebted may prevent a borrower from investing. The game of Monopoly can give us a taste of this dilemma. If players are in danger of running out of money, they may have to avoid buying expensive properties even if buying these properties might be very profitable.

As discussed in Chapter 2, corporations can raise funds by issuing equity and not just by borrowing. This gives corporations more flexibility than individuals or unincorporated businesses to avoid the burdens of debt. If a corporation does not issue sufficient equity or if its equity has been depleted by substantial losses, it may also find that outstanding debt is a burden that can endanger its future.

Default and Bankruptcy

No matter how hard they may try, borrowers may end up being unable to keep the debt obligations they have incurred. What happens then depends on the law and on what their creditors and the bankruptcy court decide to do.

When a borrower defaults on a payment, the lender usually waits and sees whether the payment is just late. The lender might impose a penalty for late payment. Going to court to try to collect debts or seizing a property that serves as collateral is time consuming and costly. The lender may eventually take legal actions to enforce the collection or trigger bankruptcy proceedings. If the borrower persists in default, the lender is likely to take legal action. When several lenders are involved, they may be less patient, because each of

them might fear that the others might step in and take possession of the borrower's property, which would harm the more patient lenders.

It makes a difference, of course, whether the debt is \$50,000 or \$50 million and how large it is relative to the total assets and debts of the borrower and the lender. A debt of \$50,000 is typically the borrower's problem, whereas a \$50 million debt is likely to become the lender's problem.³ If the borrower is in default on a \$50 million debt, the lender may tread carefully so as to avoid destroying the borrower's business, into which the \$50 million had been invested. If the lender treads too carefully, however, he or she may find it difficult to be paid back.

When lenders do go to court, the consequences depend on the law, which differs across countries and periods. In ancient Rome, the property of a defaulting borrower was taken, and the borrower and his family could be sold into slavery.⁴ Shakespeare's merchant of Venice had a claim to a pound of the borrower's flesh. In the Middle Ages, defaulting borrowers could be placed in debtors' prison until their families paid the debt.⁵ Putting defaulting debtors into prison was common in many countries until well into the nineteenth century. In the United States, the federal government and most states abolished this practice in the 1830s, but in some states, even today, borrowers can still be arrested when they default on their debts.⁶

Default and bankruptcy are disruptive. Under today's laws, they are less disruptive than in ancient Rome or in the Middle Ages, but most people still strongly prefer to avoid bankruptcy if possible.⁷ For a business, the disruptions caused by default can be fatal. If a creditor seizes a truck or a machine, the business's activities may come to a halt. When the business has several creditors, the danger is greater because the creditors may have competing claims. Each one may want to seize an asset before the other creditors. In this situation, declaring bankruptcy may be a way to prevent creditors from fighting each other under the law of the jungle and letting the business go down the drain.⁸

Disruptions from default and bankruptcy affect not just the borrowers and the lenders who are involved. They may also affect the borrowers' employees, their suppliers, and their customers.⁹ Local authorities may lose income from taxes, and local stores may suffer from a downturn in the demand for

the products they sell. Housing prices may decline if people move away. If employees are laid off and cannot make their mortgage payments, foreclosures that lead to houses' being abandoned or neglected may also reduce property values in the town.¹⁰

Before creditors take action, most countries allow borrowers to declare bankruptcy. In that case, a bankruptcy court or trustee becomes involved. Traditionally, the purpose of bankruptcy was to prevent individual creditors from taking actions that would end up harming not just the borrower but also the other creditors. In recent decades, many countries have tried to change their bankruptcy procedures so as to avoid inefficiencies and the negative effects of default and bankruptcy on people other than the borrowers and their lenders.¹¹

Whereas in the past the focus was on liquidating assets and paying creditors according to the priority of their claims, now the focus is mostly on maintaining the business as a going concern. Bankruptcy is used to renegotiate contracts with employees, suppliers, and the creditors themselves and perhaps also to shed unprofitable parts of the business and give the company a fresh start. The parties involved may be willing to accept reductions of their claims because the alternative of a forced liquidation would be even less attractive.

For some industries, such as airlines, the bankruptcy process works quite smoothly. An airline typically continues its operation or is acquired by another airline, and the process allows renegotiation of labor and other contracts in light of the new circumstances.¹²

For other industries, the process works less well. Negotiations may involve too many parties. Each party may engage in brinkmanship in order to receive a good part of the spoils. Given the problems that brought the firm into bankruptcy, there is a great deal of uncertainty about the firm's prospects or the value of its assets. The discussions and negotiations can drag on for a long time, particularly when they involve many different creditors and different priorities and interests. During this time the firm may be unable to compete properly in the market and attract or retain customers.¹³ For example, car buyers might avoid buying cars from a manufacturer in bankruptcy or about to go into bankruptcy, fearing that, if the firm is liquidated, buying spare parts or being able to

resell the cars might become difficult.¹⁴ This type of reaction in itself can be a reason that eventually the firm will not be able to continue in business and must be liquidated.

Although they are disruptive, bankruptcies and liquidations should be seen as normal occurrences in a market economy. All are free to run businesses the way they like under the law. Their business strategies may fail, but if they are successful, they can provide a basis for innovations, growth, and new employment. No one knows in advance which entrepreneurs, firms, and strategies will be successful and which ones will fail. This will be determined in the market. Along with the successful firms, therefore, there will always be unsuccessful firms as well. Bankruptcy and liquidation are ways to deal with these firms, repairing some and eliminating others, so as to prevent more resources from being wasted on them.

“Only a Liquidity Problem”

Borrowers who cannot pay their debts often want creditors and others to think that they have only a temporary problem and will be able to pay their debts later. This will help borrowers to avoid default and bankruptcy and might allow them to continue to borrow or find ways to fund additional investments.

A temporary inability to pay is sometimes called a liquidity problem. To understand what a liquidity problem is and how it relates to default and bankruptcy, suppose that Kate promised to pay Paul \$1,000 in cash at 11:00 P.M. on a particular day, but she forgot to take cash out of the bank. After hours the ATM will dispense only \$300. Because Kate does not have the cash to pay her debt, she might not actually pay as promised. Unless she finds a way to come up with the money on time or to convince Paul to wait or accept an alternative payment, Kate will default. However, if Kate actually has more than \$10,000 in her bank account and the \$1,000 promise is her only debt, she does have the ability to pay this debt later.

Kate’s problem in this example might be called a pure liquidity problem. This kind of problem can usually be remedied. If Kate can convince Paul that there is enough money in her bank account, he may accept a check from her instead of cash. Or Kate may find someone else who will lend her the cash.

As long as there is no doubt that Kate has the resources to pay, the pure liquidity problem can be solved.

Default and bankruptcy rarely occur due to pure liquidity problems. If it is reasonably easy to verify that a borrower has enough valuable assets to be able to make payments on a new loan, a temporary liquidity problem does not typically lead to default or bankruptcy. Because default and bankruptcy are unpleasant and costly both to the borrower and to creditors, they will try to find some other arrangement.

In practice, however, it is not always clear what a borrower's assets are worth. Suppose, for example, that Kate owns land on a remote island in the Mediterranean. If her creditors do not know the property, they may be unwilling to extend further loans to her. If Kate does not have cash, she may have to sell this land to generate cash and pay her outstanding debts. How well or how fast this can be done depends on how the market for land on the island works. For some such assets, it may take a while to find a buyer. If Kate needs to cash out quickly, she may therefore have to accept a very low price. By doing so, she solves her liquidity problem but takes a loss, which is also damaging.

Liquidity problems are endemic to banking. Much of the debt of banks is short-term debt, due within months or even days. Some borrowing even takes the form of overnight debt. Many of banks' assets, however, are loans and other investments that extend over longer periods. Most of these assets are not traded in markets where they can be converted into cash at short notice without significant losses.

It therefore matters greatly whether banks are able to renew their borrowing from their creditors or to find new investors from whom to borrow when previous debts become due. If banks cannot obtain new funding to replace earlier borrowing, they may have to sell assets at a loss. Selling assets at greatly reduced prices may cause banks to become unable to repay their debts at all, in the future as well as in the present.

To help banks overcome liquidity problems, central banks such as the Federal Reserve allow banks to borrow while posting assets with the central bank as collateral. This safety net has been introduced on the assumption

that, if the assets are sound and the banks actually have only a liquidity problem, the central bank has little to lose. Meanwhile, the banks and the financial system may be spared inefficient asset sales and a possible crisis.

Some believe that the financial crisis of 2007–2009 was primarily caused by the liquidity problems of financial institutions that did not have access to the safety net. The liquidity problems came about when lenders to banks and other financial institutions withdrew their funding and, at the same time, the markets for mortgage-backed securities broke down.¹⁵ The focus on liquidity problems, however, avoids the critical question of why lenders withdrew their funding to begin with.

The breakdown of funding for banks and other institutions during 2007–2009 did not come out of the blue. Rather, it reflected investors' legitimate concerns that these institutions were no longer sound and that they might actually be unable to pay their debts ever. The concern, in other words, was whether these banks might be *insolvent*.¹⁶

Insolvency

Suppose Kate owes \$1 million that must be paid by tomorrow morning, but all her assets, including her house, her bank account, and even the likely value of her future wages, are worth no more than \$400,000. In this case Kate's assets are insufficient to pay her debt in full. Default is inevitable.

Here is a new twist. What if Kate's debt of \$1 million is due only in a month and her assets are worth at most \$400,000 today? Because payment of the debt is not due yet, Kate is not yet in default. But there is clearly no realistic prospect that she will be able to pay this debt. She is underwater, broke, or *insolvent*.

The notion of insolvency refers to whether, in principle, a borrower is *able* to pay a debt. This notion is simple to state but quite difficult to make operational. What if by some miracle Kate suddenly finds out that an uncle she never knew has died and left her \$10 million? In that case, Kate might still be able to pay her debt.

In practice, it is not easy to determine whether a borrower is actually insolvent. To do so requires making a forecast of future returns on the bor-

rower's assets and profits from the borrower's business. These forecasts depend on the participants' information. The borrowers, or the firm's managers and owners, may have the best information, but they also have strong incentives to hide any adverse information.

Insolvency is suspected when the value of a borrower's assets is assessed to be not much higher, or even lower, than its liabilities. For a corporation, a possible insolvency test is whether it can raise new equity from private investors. An inability to raise equity at any price is a clear sign that the corporation is weak and might be insolvent.¹⁷

Hidden Insolvency and Distress

Even if borrowers are not actually insolvent, they can be in financial distress. In such situations there is a significant risk that the borrowers will become insolvent. Distressed borrowers exhibit behaviors that may be quite different from those they would engage in if they were not indebted or if their burden of debt was lighter. Specifically, they may be excessively cautious or excessively reckless.

A borrower may become cautious in order to try to avoid going into default. This caution can be inefficient if investments are important for the business or the corporation to remain competitive or as successful as it can be.

Even if the distressed borrower wants to take advantage of a good investment opportunity, the debt contract with the creditor from which the business or corporation has already borrowed might not allow the investment to be made. To protect themselves, creditors may have written conditions in their debt contracts that constrain future investments that would potentially put them at risk or require that their borrowers consult with them before making investments. If a borrower has learned of a promising investment that it would be desirable to make if the debt were not in place, the constraints of the debt contract might prevent the borrower from undertaking the investment. This reduces the borrower's flexibility to continue investing in the business as the need and opportunities arise. In such cases the borrowing that was undertaken earlier harms the borrower's ability to make productive investments.

Sometimes a highly indebted or insolvent borrower may choose to avoid investments because of the effect of the overhanging debt commitments. For an example, let us return to Kate, who borrowed \$270,000 to buy a \$300,000 house. Kate's mortgage has a nonrecourse clause, so when she leaves a year later, she need not pay the debt in full if the house is worth less than her debt of \$270,000.

Imagine that after Kate has taken the mortgage, there is a major flood and Kate's house declines in value by 20 percent, or \$60,000. It is now worth only \$240,000. Kate has no flood insurance to make up this loss. The flood wipes out Kate's equity, and she is underwater—figuratively and perhaps literally.

Now it happens that Kate has a friend who owns a construction company. Taking pity on Kate, the friend offers to restore her house to its original value of \$300,000, a fix worth \$60,000, at a bargain price of only \$50,000. Would Kate wish to invest \$50,000 of her own money to bring the value of the house back to \$300,000? From Kate's perspective, this is not an attractive investment. Because she owes \$270,000 on the mortgage, her equity in the \$300,000 house would again be \$30,000. But putting in \$50,000 to bring her equity from zero to \$30,000 implies a loss of \$20,000.

If Kate made this investment, she would be giving a gift to her creditor. Without the fix, the creditor will get the abandoned house worth \$240,000. If Kate restores the value of the house to \$300,000, the creditor will get the full \$270,000.¹⁸ Because so much of the benefit from the investment goes to the creditor, Kate does not wish to invest. By contrast, if she owned the house outright, she would welcome the opportunity to increase its value from \$240,000 back to \$300,000 by spending \$50,000.

In the scenario in which Kate is underwater, any investment she makes in the house will benefit her creditor. But even if she has some equity in the house, a high level of indebtedness discourages her from investing, because some of the benefit of the investment might go to her creditor, while she will have to fund the investment in full. For example, imagine that after buying the house for \$300,000, Kate decides to pay \$50,000 to add an extra bedroom and expand the kitchen. Now the house is worth \$350,000, and Kate has a total of \$80,000 invested, her \$30,000 down payment and the \$50,000 improvement.

The additional investment can benefit Kate's creditor as well as Kate. Suppose, for example, that there is a flood after the \$50,000 improvement and that this flood reduces the value of the house by 20 percent, from \$350,000 to \$280,000. The creditor, still owed \$270,000, is unaffected by the flood, and Kate absorbs the full \$70,000 decline in the value of the house. If Kate had not invested the \$50,000, she could leave the creditor with the house after the flood, that is, the creditor would not be paid in full. The \$50,000 for the extra bedroom and larger kitchen also helps protect the creditor.

At the other end of the spectrum, distressed borrowers may be tempted to take on risks that might be reckless and wasteful. The most extreme cases involve insolvent borrowers. Recall the example in which Kate owes \$1 million in a month but has only \$400,000 in assets today. Kate might consider going to Las Vegas with her \$400,000 to gamble on the small chance of making a huge profit. If she wins big, she might be able to pay the \$1 million debt and have some money left over. If she loses, she may have wasted the \$400,000 that otherwise might have become available to her creditors in bankruptcy. Effectively, Kate is gambling with the creditors' money.

Borrowers usually do not want to admit to being insolvent if they might prevent insolvency by delaying default and bankruptcy.¹⁹ However, during the delay, the conflict of interest between insolvent or highly distressed borrowers and their creditors can impose high costs on creditors and others. Borrowers act in their own interest, which may harm creditors. Creditors have limited ability to control or prevent harmful actions by borrowers. It is therefore important to recognize insolvencies early and to deal with insolvent firms in an orderly fashion.

Borrowing Can Be Addictive

We saw that, once debt is in place, borrowers and creditors can become conflicted regarding risks. Borrowers benefit from the full upside of risks being taken, while the downside is shared by creditors if there is a possibility of default. A risky investment can therefore be more appealing to a borrower than it would be if the borrower had to face the full downside risk.

Borrowers affect their creditors' position not only through their investments but by changes they make in the indebtedness itself, whether increases or decreases. Because borrowing increases risk, borrowers' attitudes toward

additional borrowing are similar to their attitudes toward risks in investments. Once they are in debt, borrowers may want to increase their debt even more and to resist decreasing their indebtedness.

For example, suppose that after Kate has taken the \$270,000 mortgage for the \$300,000 house she inherits some money and spends \$50,000 to reduce her mortgage from \$270,000 to \$220,000. If a flood were to strike after that, reducing the value of the house to \$240,000, Kate would suffer the full loss of \$60,000. If she had not spent the \$50,000 for debt repayment, her loss would be limited to her initial equity of \$30,000.

From the lender's perspective, Kate's reducing her mortgage from \$270,000 to \$220,000 is wonderful, because the remaining debt becomes safer. From Kate's perspective, however, the debt repayment has the disadvantage that her part of any subsequent loss may be larger. Unless the creditor is willing to adjust the interest on the remaining debt to reflect its greater safety, Kate is likely to be unwilling to make this early repayment.²⁰

Kate does not like reducing her indebtedness. Might she like to increase it? This is quite possible. One way Kate can increase her indebtedness is to take a second mortgage on the house, thus increasing her indebtedness. For example, suppose Kate's house increases in value to \$315,000 soon after she moves in. She might take a \$15,000 second mortgage, essentially a further \$15,000 loan that is attached to the house. The effect would be that Kate again has \$30,000 of equity in a house worth \$315,000, and she owes \$285,000.

In effect, Kate has used new borrowing against the value of her house to obtain more cash for other things. With the two mortgages, Kate has a higher likelihood of becoming underwater, because this will happen whenever the value of the house is below \$285,000. Without the second mortgage, Kate's debt is only \$270,000 and she is less likely to be wiped out.²¹

From Kate's perspective, however, the \$15,000 she takes out in the second mortgage is shielded from any possible future losses. Should the house decline in value to \$270,000, for example, Kate will lose the entire equity of \$45,000 that she has in the \$315,000 house. By taking the second mortgage, Kate limits her loss in this scenario to the remaining \$30,000 in equity she has in the house after the second mortgage.²²

The effect described in this example shows that borrowing is addictive in the sense that, once debt is in place, borrowers can become biased in favor of more borrowing and they generally resist reducing their indebtedness.

In Chapter 2 we noted that banks rely on borrowing much more than do other firms. Is there anything about banking that makes it necessary for banks to borrow so much? And how are banks and others affected by the dark side of borrowing? Answering these questions requires an understanding of what banks do.

Is It Really “A Wonderful Life”?

Nothing is more responsible for the good old days than a bad memory.

Franklin Pierce Adams (1881–1960), American columnist

SOME WHO ARE UPSET about the financial turmoil since 2007 are nostalgic for the good old days, when banking was simple and bankers were serving their local communities. A model for this nostalgia is the banker George Bailey in the 1946 movie *It's a Wonderful Life*.¹ In the small town of Bedford Falls, New York, his Bailey Building and Loan Association enables working people to buy their own homes so that they no longer have to deal with Mr. Potter, the local real estate tycoon, who is thinking only about profits and is demanding extortionate rents from his tenants.

In the movie George Bailey's bank is a savings institution, taking deposits and lending to home owners and doing nothing else.² In particular, George Bailey's bank does not trade stocks or other securities, nor does it provide brokerage services for its customers. In the United States, between 1933 and 1999, under the so-called Glass-Steagall Act, an institution that obtained funding through deposits was actually forbidden from engaging in such activities. Anything to do with stocks or other securities was left for so-called investment banks and brokerage houses.

Since the repeal of the Glass-Steagall Act in 1999, U.S. banks have again been allowed to combine deposit taking and investment banking activities.³ Some nostalgia for the good old days is based on a sense that before the repeal of Glass-Steagall banking was better and safer. Even in the movie, however, the good old days are not all that good, and the bank is not safe. At one point in the story, a rumor that the Bailey Building and Loan Association

might go bankrupt triggers a run of people wanting their money back. The prospect of bankruptcy is again raised when \$8,000 is stolen.

In the movie, the run is stopped by George Bailey, who pays people from the money he had saved for his honeymoon, and the gap from the theft is filled with help from family and friends. The movie thus has a happy ending, but one may wonder whether the Bailey Building and Loan Association should really be seen as an ideal. What would have happened if the needed money had not been provided at the last moment?

In reality, indeed, the fate of traditional banking institutions was often not so happy. The Hollywood happy ending of the movie stood in contrast to the experience of commercial banks, as well as savings and loan associations, in the Great Depression. More recently, in the 1980s and early 1990s, many savings institutions in the United States failed. As we are writing this book, local and regional savings banks in Spain are in a crisis. The problems of U.S. and Spanish savings institutions in these crises were caused by risks the institutions incurred from real estate lending.

George Bailey's mode of banking actually had, and continues to have, substantial problems. To be sure, there were relatively few bank failures and no banking crises between 1940 and 1970, but this had more to do with the strong performance of the economy and the remarkable stability of exchange rates and interest rates than with the high quality of banking in these decades. When economic performance sputtered and exchange rates and interest rates became volatile in the 1970s, traditional banking in the style of George Bailey went into a prolonged crisis.

George Bailey's Balance Sheet

As mentioned, George Bailey's bank in the movie takes deposits and makes loans. Under the Glass-Steagall Act, commercial banks and savings banks focused on taking deposits and making loans. The differences between these institutions do not matter for this discussion, so we treat them as one type of institution and focus on deposit taking and lending, their main activities.

Figure 4.1 describes the broad categories on the balance sheet of a typical commercial bank or savings bank in the United States under the Glass-Steagall Act. These categories, as well as several others, would also appear on

Assets	Liabilities
Reserves Short-term loans Long-term loans Other investments	Deposits Short-term debt Long-term debt
	Shareholder equity

FIGURE 4.1
A traditional commercial bank's balance sheet.

the balance sheet of a so-called universal bank, which engages in all financial activities, including securities trading.

On the liabilities side of the balance sheet, we first find deposits. These are mostly the demand deposits and savings deposits that we all use for our daily transactions and savings. Businesses also have such deposits for their transactions. To the banks, deposits represent a form of debt that they owe depositors. Deposits are the most important form of funding for many banks.⁴

In the case of so-called demand deposits, the bank must pay depositors whenever they demand the money. Savings deposits tend to be somewhat less accessible, but most of them are also available on short notice.⁵

In addition to deposits, some banks also obtain funding by borrowing from other financial institutions. In particular, they might borrow in the so-called money market, the market for very short-term debt; lenders in this market are typically other banks that might have a surplus of funds or other financial institutions, such as money market mutual funds, that specialize in short-term lending. Some banks also borrow by issuing long-term bonds that might be bought by insurance companies or pension funds interested in long-term investments with fairly predictable income streams.

On the asset side of the balance sheet in Figure 4.1, we first find cash reserves. These reserves ensure that the bank has cash available when depositors want to make withdrawals. Because only some of the depositors need their money at any given time, banks do not usually keep large reserves. For traditional commercial banks or savings banks such as George Bailey's and for many banks today, the most important category on the asset side of

the balance sheet is loans. These banks use most of the funds they receive from depositors, from other lenders, and from equity investors to make mortgage loans, consumer and business loans, loans to other banks, and loans to governments.

How Banks Benefit the Economy

Among the important services banks provide are those associated with deposits and the payment system. For depositors, it is important that banks make funds that were deposited readily available where and when the depositors want them. The checking accounts in which demand deposits are kept allow people to receive and make payments through checks, bank transfers, or the use of debit cards and credit cards. Because banks provide these services, depositors are willing to accept less interest than they might earn elsewhere.⁶ The convenience of the payment system is captured in Paul Volcker's 2009 quip that the ATM had been the only useful banking innovation in the previous twenty years.⁷

Demand deposits and the payment system that is based on them make up an important part of the infrastructure of the economy, akin to a system of roads. If the payments system is efficient, transactions are cheap and easy to make and economic exchange works smoothly. If the payments system is bad, transactions are cumbersome and exchange is costly. By enabling transactions without the need for people to meet to exchange cash, banks contribute to the smooth working of the economy.

Another core activity of traditional banks that brings visible benefits to the economy is lending.⁸ In the movie *It's a Wonderful Life*, George Bailey is a hero because he uses the funds of the Bailey Building and Loan Association to allow the people of Bedford Falls to have better and cheaper housing. The loans banks make can also fund productive investments by businesses and individuals and help people buy what they want "on credit."

A bank's task in lending, however, is not just to provide funding to anyone for any purpose. Rather the bank must discriminate between loans that should be made and loans that should not. Successful lending requires information and skill, and it involves specific risks. A lender cannot know for sure whether borrowers will repay their loans. Borrowers may fall on hard times

and be unable to repay; they may be reckless and wasteful, or even abscond with the money; or they may simply refuse to pay their debts and find ways to thwart the lenders' attempts to collect payments.

Making successful loans and avoiding those that are best avoided requires reliable assessments of each borrower's creditworthiness before granting a loan, setting appropriate terms for the loan depending on the borrower's conditions and the purpose of the loan, and effectively monitoring the loan after it is granted. Reliable creditworthiness assessments require information about the likelihood that the borrower might default. Acquiring all this information and digesting it properly requires time, effort, and skill.

Many banks have developed special capacities for making loans. Their loan officers are specially trained to assess loan applications and to monitor debtors' performance. Some of the information they use is so-called hard information, such as business plans, statements of profits and losses, or consumer credit scores and bank statements. Other information might be soft, such as assessments of management ability. Even such things as local gossip might be relevant in assessing the creditworthiness of a borrower.⁹

It would appear that banks are in a great position if they can charge a high interest rate on the loans they make, such as 6 percent, and pay depositors a low rate, such as 1 percent. Why don't depositors eliminate the middleman and lend directly to those who are borrowing from the bank?¹⁰ The problem for depositors who want to cut the bank out is that they must find out about the creditworthiness of the borrowers themselves. This is difficult and time consuming, and most people do not have the necessary skills. Especially if the amount each depositor has to invest is small, it makes more sense for them to keep their money in the bank and let the bank do the creditworthiness assessments and the lending.¹¹

The bank acts as an intermediary, channeling money from thousands of depositors and other investors to its loan clients. This is likely to improve the efficiency of lending. One thorough investigation of a loan client is likely to be more effective, and cheaper, than multiple investigations by many small lenders. There are also advantages in relying on the expertise that the bank's loan officers gain as they handle many loan applicants and borrowers.¹²

When they improve the efficiency of lending, banks benefit the economy. Without their channeling money from depositors to loan clients, more money might be wasted on bad loans. Loan rates might then have to be higher, or loans might not be granted at all because the risks from lending might seem too large.¹³

Borrowing from banks is particularly important for small businesses that do not have proven track records or reputations. Because they are not well known, such businesses cannot easily gain access to other sources of funds. Without access to borrowing from banks or other financial intermediaries, they might be restricted to using the owner's funds and possibly funds from friends and family.¹⁴

When banks get into trouble and cannot continue their lending, the effects on small businesses tend to be particularly large. Reductions in bank lending to businesses play a major role in the transmission of banking problems to the rest of the economy. This role was particularly damaging in the Great Depression of the early 1930s.¹⁵

What Can Go Wrong: Panics and Bank Runs

The use of deposits to fund loans has been a standard practice in banking for centuries.¹⁶ Standard references and textbooks on banking refer to what is called "maturity transformation" as a core function that banks perform for the economy.¹⁷ This means that banks hold assets, such as loans, that extend over several years and cannot be easily sold during this time, and they borrow by taking deposits that can be withdrawn at short notice, whenever the depositors want to make payments or to get cash. In other words, there is a fundamental mismatch between the two sides of banks' balance sheets. Maturity transformation is said to be beneficial because it gives depositors flexibility to decide when they want their money; this flexibility is useful to them even if they do not make use of payment services, for example, if they have their money in a savings account.¹⁸

Although the use of deposits and short-term debt to fund loans has gone on for centuries and is enshrined in banking textbooks, this practice is in fact inherently quite risky. If short-term funding is not renewed or deposits are

withdrawn, and if the long-term loans cannot easily be converted into cash, a bank may run into potentially serious liquidity problems.

With demand deposits and with many savings deposits, a bank can be required to pay the depositor *at any time*. This is not a problem if withdrawals and deposits roughly balance each other and the bank has enough cash on hand to make up any difference between money going out and coming in. Ordinary payment processes show a mixture of randomness and predictability that allows the bank to pay its depositors without difficulties by maintaining some cash reserves.

Problems arise, however, if many depositors demand their money at the same time. This could happen if depositors become worried about the bank's solvency and try to get their money out before it is too late. As we know from the fate of the Bailey Building and Loan Association in the movie, this can give rise to a *bank run*.

Bank runs are sometimes discussed as examples of self-fulfilling expectations; that is, events that become reality just because people expect them and act on the basis of these expectations. If investors fear that other investors are about to run and withdraw their money from the bank, it may make sense for them to run themselves and try to withdraw their money. They know that an important part of the bank's funds is tied up in illiquid investments and that the promises the bank has made to depositors cannot be fulfilled if too many people want their money at the same time. The fear of a run can therefore become self-fulfilling. If the bank sells assets at distressed-sale prices in order to satisfy many depositors who are trying to get their money at the same time, the run itself hurts the bank's solvency.¹⁹

The notion that runs might happen because people expect them to happen is intriguing, but there is little evidence that bank runs actually occur without any reason other than that some individuals believe that other people's running on the bank will cause the bank to collapse. Most runs are triggered by negative information about a bank's solvency.

In the Great Depression, when many banks were in trouble at the same time, depositors seemed to distinguish fairly well between banks that were really in trouble and banks that could come through on their own.²⁰ At that time, bank solvency problems were so widespread and the panic so great that

one state in the United States after another felt compelled to declare a so-called bank holiday to prevent people from withdrawing their money; finally, on March 6, 1933, the federal government imposed such a "holiday" nationwide.²¹ The national bank holiday stopped the panic, but the complete breakdown of all payments caused havoc for the economy.

Following the Great Depression, in 1935 the United States created a federally guaranteed deposit insurance system to protect depositors from the consequences of bank failures and to prevent bank runs.²² When an insured bank fails, the FDIC takes over and winds the bank down without damage to the depositors.²³ By now this process works so well that depositors do not go a day without access to their funds. Because they have nothing to fear and it is a hassle to move accounts from one bank to another, depositors tend to stay with the same bank for long periods of time. Deposit insurance is less well established in other countries, but depositors can still count on some form of protection in most places.²⁴

The Breakdown of "3-6-3" Traditional Banking

In the United States, the reforms of the 1930s were followed by four decades of exceptional stability in the banking industry. Bank runs were a thing of the past. Commercial banks and savings banks flourished because funding was stable and risks in lending relatively small. The atmosphere of that period is well expressed in the saying that savings institutions were following a "3-6-3 business model": take in deposits at 3 percent interest, make loans at 6 percent interest, and make it to the golf course by 3:00 p.m. Commercial banks offered rates on deposits that were even lower, but these banks also offered costly payment services.

This 3-6-3 world of banking came to an end in the 1970s. In the wake of the Vietnam War and the oil price shocks of 1974 and 1979, annual inflation rates rose above 10 percent. In parallel with inflation, interest rates in the money market also rose to double-digit levels.²⁵ Meanwhile, regulations from the 1930s restricted the interest commercial and savings banks could pay on deposits.²⁶

Under these conditions, depositors left commercial banks and savings institutions in favor of newly introduced money market mutual funds. These

funds paid much higher rates of interest while allowing investors to withdraw their funds quickly, even on demand. The money market funds could afford to pay more interest because they were lending to the government, to nonfinancial corporations, and even to banks in the money market at the high rates prevailing there. Traditional deposit-taking institutions suffered significant withdrawals, not because people had doubts about the quality of the loans they had made but because people could earn better returns elsewhere, from unregulated institutions.²⁷

The tide of withdrawals was stopped when deregulation allowed commercial banks and savings banks to pay whatever interest rates they needed to keep their depositors and possibly attract new ones.²⁸ After this deregulation, the liquidity problems of these institutions disappeared.

Many savings banks, however, had hidden solvency problems. They had made many mortgage loans with fixed rates of interest and very long maturities.²⁹ As of 1980, a thirty-year mortgage that was made in 1965 with a fixed interest rate of 6 percent per year would still have fifteen years to go. Interest rates in the money markets, however, were well above 10 percent in the early 1980s. Many savings banks lost substantially because they had to pay their depositors the high interest rates that prevailed in the money market while receiving the low rates of the 1960s from their mortgage borrowers.³⁰

Gambling for Resurrection

Because of the gap between the interest payments they had to make to depositors and the interest income they received from their mortgage borrowers, about two-thirds of U.S. savings banks were actually insolvent in the early 1980s, with a total shortfall estimated at \$100 billion.³¹ Most of these insolvencies were hidden because the banks' accounts did not give an adequate picture of the situation. The actual losses were recorded in earnings statements, but the fact that these losses reflected a substantial worsening of prospects for the future was not recorded or recognized.³²

When deregulation removed many restrictions on their investments, many savings banks used this new freedom to invest in very risky assets, such as highly speculative commercial real estate investments and high-yield securities, also known as "junk bonds." Junk bonds are corporate bonds with

a high risk of default that pay relatively high interest to compensate for the risk. The "zombie banks," those banks that would have been considered insolvent if their accounts had fully reflected their economic situation, were the most reckless in pursuing such strategies.³³ They were gambling for resurrection, on the principle that "heads, I become solvent again; tails, the deposit insurer has a problem."

When interest rates rose and the economy turned down again in the late 1980s, many of the speculative investments made by the savings banks in previous years turned sour and the so-called savings and loan crisis finally broke into the open. By the end of the 1990s, when the mess had at last been resolved, 1,043 out of 3,234 savings banks had been closed and the total cost had been about \$153 billion, \$124 billion to the general taxpayer and \$29 billion in industry support for the deposit insurance institutions.³⁴ It would have been much cheaper to resolve the crisis in the early 1980s, but at that time, industry lobbyists had convinced Congress that U.S. savings banks had "only a liquidity problem," which would be solved by deregulation.³⁵

What Else Can Go Wrong: Risks from Lending

The 1980s experience of savings institutions in the United States is an example of the general problem that lending can be very risky. Reading the media coverage of banking and finance, it is easy to conclude that risk in banking comes primarily from speculation gone wrong. When rogue traders impose multi-billion-dollar losses on their employers, this is big news.³⁶ By contrast, when banks suffer huge losses from systematic mistakes in lending decisions or from the maturity mismatch between their assets and their liabilities, the problem may not really make the news even if the bank's difficulties create huge problems for others.

In 1995, for example, Barings Bank in the United Kingdom was brought down by Nick Leeson, a trader in Singapore who had made a gigantic bet that Japanese stock prices would go up, a bet that created huge losses after the Kobe earthquake. Mr. Leeson became an instant media personality—and remained one until he was sent to jail. Yet the losses on his trades, roughly £1 billion, were only one-tenth of the losses from bad loans that brought down the French bank *Crédit Lyonnais* shortly afterward. In the case of *Crédit*

Lyonnais the stakes were much larger, but the risks were the boring risks associated with traditional business and real estate lending, not the thrilling risks associated with an exotic gamble in a faraway country. Nor was there a single face or a single gamble that could be pinpointed in the media.³⁷

Although risks and losses from excessive market speculations are bigger media events, traditional lending can be just as risky and can lead to very large losses. Even if banks try to choose worthy borrowers and set loan rates so that, on average, the losses from bad loans are covered by the profits from good loans, risks in lending often do not average out to prevent losses. Some loans may just be too large. Or a recession may affect many businesses at the same time and reduce their ability to pay. A pervasive drop in house prices that induces many mortgage borrowers to default at the same time is also possible.

These problems are particularly serious if in the period before a downturn or a “bust” borrowers were not carefully screened for creditworthiness. Careless lending often occurs in a “boom,” when borrowers and bankers are overly optimistic and bankers may be overburdened by numerous loan applications. Careless lending also occurs if bankers do not have the right incentives to engage in due diligence when making loans. In real estate lending, a boom may actually feed on itself, because rising house prices make bankers feel safer in lending and induce them to lend more, allowing home buyers to bid up prices even more until the “bubble” bursts.

These mechanisms were responsible for some of the major banking crises in recent decades. In the late 1980s, there was a worldwide boom in real estate and business lending. When financial conditions tightened subsequently, many economies experienced recessions and real estate prices declined. This caused many countries, including the United States, Finland, Japan, Norway, Sweden, and Switzerland, to have severe banking crises, all due to losses on real estate and business loans from the preceding boom.³⁸ Boom-and-bust developments in real estate lending again were central to the U.S. subprime mortgage crisis in 2007, the Irish crisis of 2010, and the Spanish crisis of 2012.

In the 1980s in Latin America and again since 2010 in Europe, banks have found that even governments can have problems paying their debts if they cannot print the money they owe. In Latin America in the 1980s, support for

debtor countries from the IMF got most of the banks off the hook. In Europe, support from the IMF and from other Eurozone countries since 2010 has also limited the damage. The Belgian-French bank Dexia and Germany's Hypo Real Estate, however, would have been insolvent without direct government support.³⁹

Financial Innovation to the Rescue?

As we have seen, the traditional model of deposit banking has important weaknesses. Activities might be disrupted by runs, the renewal of funding might be impossible or too costly, or returns from investments might not be sufficient to pay depositors. Deposit insurance has all but eliminated the problem of runs by depositors, but it has not addressed the other problems. From the 1930s to the early 1970s, these problems did not play much of a role, but since then the economy has become less stable and interest rates have become much more volatile. Banks' risks from changes in refinancing costs and from changes in returns on loans and other investments have increased.⁴⁰

In the early 1980s and again in the late 1980s, traditional depository institutions turned out to be very vulnerable to these risks. In this risky new world, the 3-6-3 model of specialized savings banks that take deposits and make mortgage loans was no longer viable.⁴¹

In this much riskier world, the needs of savings banks like the Bailey Building and Loan Association drove financial innovations in the 1980s and 1990s. Many tools were developed to transfer risks from savings banks to other investors. In this context a major role was played by what is called securitization, a procedure that allows commercial banks and savings banks to sell their loans and mortgages to other investors. The word *securitization* refers to the fact that a group of loans that are not directly tradable in a market can be bundled together and turned into bonds, that is, securities that are tradable.

When large and well-known corporations borrow, they can issue tradable bonds. By contrast, the mortgage loan made to Kate in our mortgage example was not easily tradable. Investors did not know Kate or the property that she had purchased with the loan. However, if Kate's mortgage had been put into a package with a few thousand other mortgages, investors would not

have particularly cared about Kate as an individual. They would have cared only about the average of the borrowers in the package.

For mortgage securitization, an investment bank acquires a large number of mortgages, puts them into a package, and sells claims on this package, so-called mortgage-backed securities.⁴² An example would be a debt security that pays investors out of all the mortgages in the package. Another would be a more “junior” debt security that also pays investors from the mortgages in the package, but only as long as the first, more senior security pays its investors in full.

Mortgage securitization became popular in the early 1980s because savings banks were eager to sell mortgages in order to avoid the risks associated with them. Since then, this innovation has completely changed the way home mortgages are funded. A large part of outstanding mortgages in the United States is no longer held by the likes of the Bailey Building and Loan Association but serves as collateral for mortgage-backed securities held by investors worldwide.

Securitization has solved the problem that savings banks using deposits to fund mortgage loans cannot really bear the risks incurred. At the same time, however, securitization has created a new problem. When the banks that originate the mortgage loans know that they will sell the loans for securitization, their incentives to carefully assess the borrowers’ creditworthiness may be quite weak. The investment bank that performs the securitization might impose some quality control, but the investment bank’s incentives to do so are also weak if it bears little liability and if it wants to earn large fees from securitizing large numbers of mortgages. Given these incentives, it should not have been surprising that the quality of mortgage loans turned out to be lower than under the old system.⁴³

As securitization has become more widespread since the mid-1990s, the quality of mortgage loans has indeed declined. Instances of fraud have become much more numerous, and so have late payments and outright defaults.⁴⁴ These developments have been closely linked to securitization; quality problems have been much less prevalent in mortgages that were not due to be securitized.⁴⁵ The decline in the quality of mortgage loans contributed greatly to the breakdown of U.S. markets for mortgage-backed securi-

ties, mortgages, and real estate in 2007 that marked the beginnings of the global financial crisis.⁴⁶

So far, there does not seem to be a way to protect the U.S. banks that issue mortgage loans from the risks associated with the long-term nature of real estate investments without also destroying their incentives to devote enough resources to the creditworthiness of their borrowers.⁴⁷ As long as there is relatively little investment in real estate, this problem may not matter much, but it is bound to become significant again when the financial system and the economy recover and real estate investment picks up again.⁴⁸

In 2007–2008, the downturn in housing and mortgage markets of the United States that had begun in 2006 turned into a massive global financial crisis that affected the broader economy worldwide. Why was the financial system so vulnerable, and why was the damage so great? The next chapter answers these questions.

Banking Dominos

It was incredible. In exchange for a few million bucks, this insurance company was taking the very real risk that \$20 billion would simply go *poof*.

Michael Lewis, The Big Short, regarding American International Group (AIG)

THE GLOBAL FINANCIAL CRISIS that broke into the open in the summer of 2007 is often ascribed to excessive mortgage lending and excessive securitization of low-quality, subprime mortgages in the United States.¹ At the peak of the crisis, in October 2008, the IMF estimated that the total losses of financial institutions from subprime-mortgage-related securities amounted to \$500 billion.²

When seen by itself, \$500 billion seems huge, but in the context of a global financial system in which the banking sector's assets are on the order of \$80 trillion or more, it is actually not all that large. In fact, the \$500 billion loss from subprime-mortgage-related securities is dwarfed by the more than \$5 trillion of losses in the value of shares on U.S. stock markets in the early 2000s, when the so-called technology bubble of the late 1990s burst.³

How could this loss in the value of mortgage-related securities have such a large effect on the global financial system and on the broader economy? Why was the subprime crisis so much more damaging than the bursting of the technology bubble a few years earlier? And why has this crisis been so much more damaging to the world economy than the many banking crises of the early 1990s, including the Japanese crisis, which also involved very large losses in real estate lending?⁴

The one-word answer to these questions is "Contagion." In 2007, U.S. subprime-mortgage-related securities were mainly held by banks and their affiliates. These banks were very highly indebted, particularly with short-term

debt that had to be renewed in short order. The banks' losses endangered their solvency and disrupted their funding. Their attempts to deal with the situation further depressed financial markets, which then affected other financial institutions.⁵

When dominos are standing near one another, one piece falling can make all the others fall, too. Similarly, the initial losses on subprime-mortgage-related securities triggered a chain reaction that eventually threatened to bring down the entire financial system. This is why the final damage was much greater than the initial loss might have led one to expect.

By contrast, when the technology bubble burst and stock markets declined in the early 2000s, the losses were mainly borne by final investors.⁶ Because of those losses, many people will end up with substantially smaller pensions, but at the time there were few defaults and bankruptcies that dragged down other institutions, and there were no furious asset sales that further stressed the system. Even the 2002 bankruptcies of Enron and WorldCom, the largest bankruptcies before the financial crisis, did not create the kind of havoc that was seen in 2007–2009, especially after the Lehman Brothers bankruptcy.

As for the Japanese crisis, because Japanese banks had borrowed mainly in Japan, financial institutions outside of Japan were not much affected. Subprime-mortgage-related securities, by contrast, were held by financial institutions worldwide, and many of these institutions had borrowed extensively for these investments. The interconnectedness of the institutions involved, their high degree of indebtedness, and the contagion mechanisms that spread losses between institutions explain why the mortgage and real estate crisis in the United States had such an enormous global impact.

Contagion

The simplest form of contagion occurs through the effects of a borrower's default on his creditors. The creditors may lose some or all of their investments. Even if the losses end up being small, when the borrower goes into bankruptcy the creditors suffer from having their claims frozen until the bankruptcy procedure has been completed. During this time, it is often not clear how much, if anything, they will be paid back.

If the defaulting borrower is a large bank, the consequences can be dramatic. Before the introduction of deposit insurance, these consequences affected depositors as well as other creditors. During the U.S. “bank holiday” of March 6–13, 1933, depositors could not get at their funds, and payments came to a complete standstill. When the bank holiday ended, more than 5,000 banks out of 17,800 did not reopen, and millions of depositors were left stranded.⁷ Thousands of businesses were at a loss about how to pay their workers and their suppliers, let alone how to fund their investments.⁸

Deposit insurance prevents such damage to depositors and to the payment system, but it does not protect the other creditors of banks. They suffer losses when a bank defaults and also possibly earlier, when the bank is in distress and insolvency seems likely. If the creditors are also financial institutions, the original bank’s distress or losses may cause these other institutions to also become distressed or insolvent, which can also cause their funding to break down.

In September 2008, the bankruptcy of Lehman Brothers had a deadly impact on the Reserve Primary Fund, a money market mutual fund, which had lent almost \$800 million to Lehman Brothers. As a mutual fund, it was funded by shares and thus was not threatened by insolvency. But when the losses on loans made to Lehman Brothers caused Reserve Primary to “break the buck”—that is, when the value of a share in the fund fell below one dollar—investors rapidly withdrew their money. Within days, Reserve Primary lost some \$60 billion of its \$62 billion in funds, and it was closed shortly afterward.⁹

At the time, investors in other money market funds, even those not directly affected by the Lehman bankruptcy, treated the fates of Lehman Brothers and Reserve Primary as a signal that other investment banks and money market funds might also be at risk. To protect themselves, many investors abruptly withdrew their money. The run on money market funds was stopped only when a few days later the U.S. Treasury offered them a scheme for government-guaranteed deposit insurance.¹⁰

The run forced money market funds to reduce their investments. Many of these investments were short-term loans that the money market funds had made to banks, sometimes just for a day or a few days. The value of these

short-term loans had become highly suspect after the Lehman bankruptcy.¹¹ Reductions in money market fund lending affected not only U.S. investment banks, which were at the center of the storm, but also European banks, some of which were heavily dependent on borrowing in the money market. As short-term funding from money market funds evaporated, the banks and other institutions that had relied on this funding ran into serious liquidity problems.¹² Because private markets for short-term lending to banks—including interbank lending in which banks lend to one another—had come to a complete standstill, these banks found it difficult to find new lenders.¹³

Further defaults of major institutions in Europe and the United States were averted only because central banks stepped in as lenders of last resort and provided banks with cash.¹⁴ In addition, governments provided guarantees and new equity in order to reassure investors.¹⁵ In Iceland, defaults and bankruptcies of banks could not be avoided even with government support because much of the banks' debt was denominated in dollars or euros, which the central bank of Iceland could not print.

When financial institutions fear for their funding, they feel pressured to sell assets in order to generate cash.¹⁶ If there are no ready buyers, attempts to sell make the prices of the assets go down. Investors in other institutions that hold similar assets may then believe that these institutions' assets are also worth less, and their solvency may be in doubt. This doubt, in turn, threatens these institutions' funding and can force them to also shed assets and thereby put further pressure on asset markets and prices.

Such asset sales contributed significantly to the pressures on asset markets in September 2008 and similarly in the fall of 2011. In both cases, banks that lost short-term funding tried to shed assets. The resulting price declines made investors' confidence in banks decline even more. The downward spirals of the system were stopped only when governments provided guarantees and central banks made it clear that they would provide all the liquidity that banks needed.

Even before the Lehman bankruptcy, from August 2007 to September 2008, a slow version of this form of contagion could be observed in the markets for mortgage-related securities. Highly leveraged banks tried to reduce their borrowing by selling these securities.¹⁷ Securities prices declined, imposing

further losses on banks, which depleted their equity, creating pressure for them to sell even more assets.¹⁸

In 2007–2009, this contagion through panic sales and asset price declines was particularly strong because many banks had very little equity, on the order of 2 percent of their total assets. If equity accounts for only 2 percent of a bank's total assets, a drop of 1 percent in the value of these assets wipes out half of its equity. The situation is akin to Kate's having only 2 percent, or \$6,000, equity in her \$300,000 house. If the house declines in value by only 1 percent, or \$3,000, Kate loses half of her equity.

Similarly, suppose that the bank's assets were initially worth \$100 and its equity was worth \$2. With a loss of \$1, the assets are worth \$99 and the equity is worth \$1. Now suppose that no new equity is raised and the bank wants to move the ratio of its equity to its assets back to 2 percent of its total assets. It needs to reduce its assets to \$50, almost half of their \$99 current value, and pay back \$49 worth of debt in order for the \$1 it has in equity to represent 2 percent of its assets. This shows how intense so-called deleveraging through asset sales becomes when there is so little equity to begin with.

If instead the bank's initial equity was 20 percent rather than 2 percent of its total assets, a 1 percent drop in the value of its assets would wipe out only 5 percent of its equity. Starting with \$100 in assets and \$20 in equity, a drop of 1 percent in the assets will lower the equity to \$19 out of \$99 worth of assets. In this case, selling 5 percent of assets would be more than enough to move the ratio of equity to assets back to 20 percent. Specifically, if \$4.95 worth of assets is sold, leaving \$94.05, the \$19 in equity will represent more than 20 percent of the bank's total assets. This shows that a bank's losses will generally induce larger asset sales and potentially larger price pressures and declines in asset prices if only a small portion of its assets is funded by equity. If banks initially have more equity, the deleveraging effect is much less intense and is less likely to be destabilizing.¹⁹

Contagion through asset price declines can also be very strong if there are few buyers willing to invest in the risky assets. In this case, the price decline can be steep even if the institution that has to sell assets is insignificant and the sales themselves are small.²⁰ Particularly steep price declines

are to be expected if many institutions holding similar positions are in similar straits and if, in addition, potential buyers expect the sales to continue for some time.²¹ In this scenario, buyers might hold off and wait for further price declines.

What Was Different about the 2007–2009 Crisis?

In Chapter 4 we noted that between 1940 and 1970 banking was safe and boring. Across the world, there were relatively few defaults of major banks and even fewer crises of entire banking systems.²² In the 1970s, risk in banking became a major concern again in the United States as well as in other countries.²³ The systematic historical overview of Reinhart and Rogoff (2009) lists nine banking crises in the 1970s and more than fifty banking crises each in the 1980s and 1990s.²⁴

Before 2007, banking crises tended to be limited in scope, and most of them did not cross national boundaries. Contagion did not play much of a role. For example, the U.S. savings and loan (S&L) crisis was not felt in Europe. The 1992 crises in Finland and Sweden had few effects outside those countries. The Japanese crisis, which was the greatest crisis of the 1990s and may have matched the subprime crisis of the United States for the sheer magnitude of initial losses, had no serious impact on the United States and Europe. Some crises, such as the Asian banking crises of 1996–1998, did cross national boundaries because the local banks had borrowed from banks in other countries. For the most part, the cross-border effects of these crises were limited to their direct impact on foreign lenders.²⁵

By contrast, the downturn of U.S. real estate and mortgage markets that began in 2006 triggered a truly global financial crisis. Developments in real estate markets as such were not all that different from previous boom-and-bust episodes in such markets, but this time contagion in the financial system played a much greater role.

Three effects seem to have been responsible for the vast reach of the 2007–2009 financial crisis. First, the mortgage-related securities that lost much of their value were held by financial institutions all over the world. These financial institutions were linked to each other by the market prices of the

mortgage-related assets. When one institution's asset sales depressed prices, other institutions were also affected because their holdings of these assets became less valuable.²⁶

Second, because the institutions that held the mortgage-related securities had very little equity to begin with, solvency concerns arose quickly, and domino effects of defaults arising from the borrowing and lending of institutions from and to one another extended over several stages. Whereas in 1997, for example, the European banks that had lent to financial institutions in Asian countries had enough equity to absorb the losses from the Asian banking crises without too many difficulties, in 2007–2009 losses from subprime-mortgage-related securities quickly threatened the solvency of institutions that held the securities.²⁷

Third, much of the borrowing by banks was in the form of short-term debt from other financial institutions, particularly from money market funds. This source of bank funding is especially susceptible to contagion and runs because neither the money market funds nor their investors are officially covered by deposit insurance. The crises of the investment banks Bear Stearns and Lehman Brothers in 2008 were precipitated by the refusal of short-term lenders such as money market funds to roll over and renew their loans when they were worried about the banks' solvency. After the Lehman bankruptcy, investors moved out of money market funds, and the funds, in turn, were forced to withdraw from funding banks.²⁸

Increased Interconnectedness

Contagion has become more serious since the 1990s because financial institutions have become more interconnected and more fragile than they were in the past. This greater interconnectedness is to some extent a consequence of globalization, with ever more cross-border financial activities, such as German banks' borrowing from U.S. money market funds to buy mortgage-related securities in the United States.²⁹

The interconnectedness and fragility of financial institutions have also increased because new types of financial institutions have come into the system. An important example is the role of money market mutual funds, which have grown in size and have increasingly taken a place between investors and

banks. As we explained in Chapter 4, money market funds were developed in the 1970s in the United States as a way of circumventing regulations restricting interest rates on deposits at commercial banks and savings banks. Though some of the regulations were lifted, money market funds have remained active and have become an important part of the financial system, catering in particular to the needs of corporations and institutional investors that hold liquid assets in excess of FDIC limits for deposit insurance.

Money market funds offer almost the same services as deposit institutions, but legally their investors hold shares rather than fixed claims. The trillions of dollars that they raise are invested in short-term debt of nonfinancial companies and banks.³⁰ When money market funds invest in the debt of nonfinancial companies, they are competing with banks that might also lend to these companies. When money market funds make short-term loans to banks, they create an additional layer of financial intermediation between investors who want services like those associated with deposits and banks seeking short-term funding.

Borrowing from money market funds increases the risk of liquidity problems and runs. Without deposit insurance, the situation is similar to that of George Bailey in the movie *It's a Wonderful Life*, which we discussed in Chapter 4. Managers of money market funds that have loaned to banks may become concerned about the solvency of those banks and attempt to withdraw their money. They can do this by not renewing the short-term loans they gave to the bank. At the same time, the money market funds' own investors may become concerned about the money market funds themselves and rush to take their money out. Therefore, runs can occur in two ways—the money market funds can run to withdraw their funds from the banks, and the money market funds' investors can run to withdraw their money from the funds.

A double run of this sort actually happened in the fall of 2008. Money market fund investors suddenly wanted to move their money into safer assets, such as government bonds or even just cash. This forced the money market funds to withdraw their funding from banks. Having the additional layer of intermediation through money market funds was a source of vulnerability for banks.³¹

Another source of increased interconnectedness has been introduced by new techniques for managing risk. An example is the use of mortgage-backed securities to spread the risks from mortgage lending. As we noted in Chapter 4, these securities were invented in order to enable banks to eliminate their exposure to risks from mortgage lending, which had caused the S&L crisis in the 1980s.

With securitization, more transactions and more institutions are involved. In George Bailey's world, money passes from depositors to a bank that makes a mortgage loan to a home buyer like Kate. Before securitization, this was the final transaction. The bank would hold the mortgage and receive Kate's mortgage payments. With securitization, the bank sells Kate's mortgage, along with many other mortgages, to an institution such as an investment bank that bundles them together. The institution then creates securities, promising to pay investors based on what Kate and the other homeowners in the pool of mortgages pay. These debt promises are sold to different investors, although sometimes the investment bank itself might buy some.³²

The desire to shift risk away from the original mortgage lender thus lengthens the chain of transactions and increases the scope for defaults to trigger domino effects. If the banks or other institutions that buy the mortgage securities borrow from money market funds, the chain of transactions is even longer.³³

The use of so-called credit default swaps is another example of how attempts to manage risk can create additional complexity and fragility. A credit default swap (CDS) is a kind of insurance contract. The buyer of a CDS pays a periodic premium to the seller. In return, the seller promises to reimburse the buyer if the loan or portfolio of loans on which the CDS is written does not perform as it had promised. By buying a CDS, the bank shifts the default risk on the loans that are protected to the seller of the CDS, just as a buyer of home insurance shifts the risk of fire to the insurance company.

Prior to 2007, many financial institutions that purchased mortgage-related securities also bought CDSs as insurance against the risk that the mortgage borrowers might default and the mortgage-related securities would not pay the full amount that was promised. This practice added the insurer to the set of entities associated with mortgage-related securities.

Later, CDSs were also written on “synthetic” securities that were not themselves loans or packages of loans but were created to track and mimic the payments of actual loans.³⁴ This move added further complexity and interconnection.

The CDSs were sold by insurance companies, most prominently by American International Group (AIG), to which the epigraph of this chapter refers. AIG sold CDSs providing insurance for about \$500 billion to financial institutions. When default rates rose in 2008, the solvency of AIG was put in doubt, and in the turmoil of that September AIG could not renew its funding. Because practically all the major financial institutions in the world were among AIG’s clients, an AIG bankruptcy would have carried an enormous risk of further contagion. Millions of ordinary insurance clients would also have been affected.

To avoid this damage, the U.S. government and the Federal Reserve chose to bail AIG out. In doing so, they made sure that the financial institutions that had bought CDSs from AIG were paid what they were owed by AIG in full.³⁵

Derivatives

CDSs are an example of contracts known as derivatives. Derivatives allow the trading and rearranging of risks among different people. The word *derivative* indicates that the participants’ payments under the contract depend on, or are “derived” from, something else, such as whether a borrower defaults or the price of some asset that is uncertain at the time that the contract is written.

Derivatives allow nonfinancial and financial companies to manage their risks better. For example, a bank might enter a so-called forward contract with a U.S. manufacturer to exchange dollars for euros at a pre-set rate on a future date when the manufacturer expects to receive a payment in euros from a European customer. For the manufacturer, this contract eliminates the risk that, by the time it receives payment, the euro might be worth much less relative to the dollar.

This contract makes sense if the bank cares less about the exchange rate risk than does the manufacturer. If the manufacturer’s costs are paid in dollars, it may not even cover its costs if the euro loses a lot of value (relative to

the dollar) by the time the manufacturer receives its payments in euros. The solvency of the firm might then be threatened. It might therefore be important for the manufacturer to transfer the risk to someone else so it is not exposed to this risk. By contrast, the bank might not be much concerned about the risk. Constantly active in currency exchanges, the bank might expect to match the forward purchase of euros from the U.S. manufacturer with a forward sale of euros to a European manufacturer that expects payment in dollars. Even if the bank cannot fully match the contract, it might consider the risk insignificant relative to its total investments. If the bank is a large corporation with many shareholders, the risk to any one shareholder is very small.

Forward contracts have been around for a long time, not only for currencies but also for metals, potatoes, pork bellies, and other commodities. Other derivatives have been traded in exchanges since the early 1970s. Starting in the 1980s, and especially in the 1990s, derivatives have expanded dramatically and have come to play a major role in the financial system. New techniques have been developed that allow banks to manage the risks that they take when they write such contracts.³⁶ Innovations relying on these techniques have been useful because, as mentioned earlier, risks from exchange rate and interest rate movements became much larger in the 1970s and 1980s than they had been earlier.³⁷

Have New Risk Management Techniques Made the System Safer?

Derivatives and new techniques for risk management have benefited society by providing better means of sharing risks. Better risk sharing can reduce dangerous exposures to risks and can transfer risks to those who are best able to bear them. This effect can make individual defaults and bankruptcies less likely and improve financial and economic stability.

However, the new markets and new techniques have also expanded the scope for gambling, and they can be used in ways that increase rather than reduce risks in the system.³⁸ Over the past twenty or thirty years, many scandals in which banks and their clients lost enormous amounts of money have involved derivatives. In Chapter 4 we mentioned the case of Singapore banker Nick Leeson, who brought down the United Kingdom's Barings Bank

in 1995 when he bet that Japanese stock prices would go up and instead they went down.

By using derivatives rather than buying stocks, Mr. Leeson was able to build up extremely large positions in a very short time, with little control from the bank's senior management. Since then, at least twenty incidents involving losses of more than \$1 billion each have arisen from the speculations of individual traders, carried out using derivatives.³⁹ In the case of Orange County, California, in 1994, this involved a significant loss of public money.⁴⁰

Speculation and gambling have always played a role in financial markets. In the case of derivatives, however, the gambles that individual traders take have become much larger and much more difficult to control. Moreover, the domino effects of even small institutions' failing can be disastrous. Warren Buffett was right when he referred to derivatives as "weapons of mass destruction."⁴¹

Derivatives allow the magnification of risks in ways quite similar to the effects of leverage discussed in Chapter 2. However, the risks cannot be seen by looking at a bank's balance sheet. If a bank concludes a forward contract for an exchange of currencies, the initial balance sheet entry is zero.⁴² Yet if the contract is for €1 billion, a 10 percent drop in the value of the euro implies a loss of €100 million.

Risks from derivatives are even larger if payments change more than proportionately with changes in the underlying variables on which the contract depends. Such bets involve complicated formulas that can be used to make large gambles and to hide them from others. Techniques for reducing risks from derivatives often involve complex trading strategies. Traders like to keep these strategies secret because they do not want others to imitate them. Often they go out of their way to obscure what they doing. This secrecy protects them not only from imitation by others but also from control by senior management. If senior management itself is involved in the gambling, the secrecy hides the risks from supervisors, customers, and investors.⁴³

The secrecy and the complexity of the contracts and strategies used in derivatives trading allow individual traders and individual banks to build up very large risks, sometimes very quickly, without any effective oversight or control. Because derivatives can magnify risks, extensive derivatives trading

can threaten not just an individual institution but, through contagion, the entire financial system. For example, large gambles involving complicated formulas and trading strategies were one reason that a small change in interest rates set by the Federal Reserve gave a large shock to the financial system in 1994; the size of the shock came as a surprise because most people were unaware how sensitive the positions of many derivatives investors were to the Federal Reserve's policy.⁴⁴

Another early example of this risk magnification was seen in the so-called LTCM crisis of 1998, named after the hedge fund Long Term Capital Management (LTCM). With \$4.7 billion in equity and \$125 billion in debt at the end of 1997, LTCM was a relatively small institution. However, when LTCM incurred large losses in 1998, the Federal Reserve was afraid that an LTCM bankruptcy might trigger a chain reaction, pushing other institutions into insolvency as well.

LTCM had huge derivatives positions, and the fear that LTCM's partners in these contracts might suffer greatly from an LTCM bankruptcy was exacerbated by significant legal uncertainty about the treatment of these contracts.⁴⁵ Moreover, because investors were afraid of a major financial crisis, attempts to sell LTCM's assets might have caused the prices of these assets to fall dramatically, with potentially disastrous effects on the many other institutions that had been following strategies similar to those of LTCM.

To forestall such contagion effects, the Federal Reserve Bank of New York pressured major banks, creditors of LTCM, into bailing out LTCM by putting in equity, which would enable a slow unwinding without a bankruptcy procedure.⁴⁶ LTCM was treated as a systemically important financial institution even though before the crisis it had not looked like one.

In the spring of 2008, similar concerns made the Federal Reserve want to avoid a Bear Stearns bankruptcy, so it arranged the takeover of Bear Stearns by JPMorgan Chase instead. In the process, the Federal Reserve took over a portfolio of close to \$30 billion of dubious assets with a \$1 billion contribution from JPMorgan Chase and close to \$29 billion of its own money.⁴⁷ The Federal Reserve acted in this way because it feared that a Bear Stearns bankruptcy would impose great damage on the partners of Bear Stearns in derivatives contracts.⁴⁸

People in the financial industry often claim that they are experts at detecting and managing risks and therefore that their actual risks are much smaller than others might consider them, certainly much smaller than the risks of nonfinancial companies. Quantitative models and so-called stress tests are said to provide precise and reliable assessments of risks and a basis for reducing risks by sophisticated techniques using derivatives.⁴⁹

These claims should not be taken at face value. Although bankers might be experts at analyzing and managing risks, they often come across risks that they have not anticipated.⁵⁰ As former U.S. Defense Secretary Donald Rumsfeld famously said: “There are known unknowns; that is to say there are things that we now know we don’t know. But there are also unknown unknowns; there are things we do not know we don’t know.”

For example, people at LTCM, some of the most sophisticated minds in finance, had carefully calculated the risks of different movements that various interest rates might take, but they had not thought of the possibility that market investors might become more apprehensive about risks altogether so that the values of all debt securities except for the safest U.S. government bonds would go down. Similarly, before August 2007 bankers who purchased U.S. mortgage-related securities had managed their risks on the assumption that these securities could always be traded in the market. In August 2007, however, the markets for these securities suddenly froze up.⁵¹

The high quality of risk management itself can be a problem if people in the industry become excessively confident about their models and about their ability to manage risks. This is analogous to the observation that the sense of safety provided by seat belts seems to cause many people to drive less carefully.⁵² Similarly, the sense of control that is provided by the use of quantitative risk models and derivatives markets for risk management seems to make people less careful about limiting their exposures and vulnerabilities. This may explain why speculative gambles using derivatives have become so large and why some of the most spectacular losses have been experienced by people and institutions that have been particularly highly regarded for the quality of their risk management.⁵³

The chosen risk management strategies themselves may also provide a false sense of security. Buying credit insurance from AIG, investors in mortgage-

related securities felt that they were safe. They failed to see that, if those credit risks were realized, the contract with AIG itself might be problematic at the very time that it would be most needed. To fully understand the situation, these investors would have had to know the full extent of the contracts AIG had signed with others and the extent of its exposure.

Usually, however, investors do not know the positions of other market participants. As mentioned earlier, market participants often go out of their way to keep their positions and strategies secret. Because most trades are made over the counter, out of the sight of other market participants, it is all but impossible for anyone to have a precise picture of other participants' overall exposures and default risks. In particular, it is all but impossible to know whether the transfer of risks that has been promised will actually work or whether and under what conditions the entity on the other side of the contract might default.⁵⁴

Should We Let Banks Fail?

In 1998 the Federal Reserve Bank of New York was much criticized for pressuring private banks into providing a temporary bailout of LTCM. Similar criticism was raised in the spring of 2008 when the Federal Reserve arranged for JPMorgan Chase to acquire Bear Stearns, providing support through guarantees for some of the assets of Bear Stearns. Such interventions by the central bank or any other government body are in conflict with the principle that firms should be allowed, or even required, to fail if they cannot meet their obligations.

In the fall of 2008, this principle was honored in the case of Lehman Brothers, but the outcome confirmed the worst fears that had been expressed in the LTCM and Bear Stearns episodes. Since then, no other important financial institution has been allowed to fail, even though some are very weak and possibly insolvent.⁵⁵ Instead, many have been bailed out, from AIG a few days later to the European banks, Bankia and Cr dit Immobilier de France in the summer of 2012. The principle that banks, like all other firms, should be forced to bear the consequences of bad decisions seems to have given way to a general fear of contagion from the failure of large banks.

The decision to let Lehman Brothers go into bankruptcy has been the subject of much debate.⁵⁶ At the time, the authorities seemed to believe that a Lehman bankruptcy would not cause too much damage to the system because the weakness of the bank had been well known for months and market participants had had plenty of time to prepare. Bankruptcy would also send the message that even a systemically important financial institution was subject to normal market discipline. However, the events that followed the Lehman bankruptcy were much worse than what virtually anyone had expected.

The question in the heading of this section has no easy answer. In a sense, it is not even well posed. As a matter of principle, without considering any particular bank or any concrete situation, the answer must be “Of course we should let them fail!” If market participants are unable to meet their obligations, they should go into bankruptcy or a similar process and be re-organized or wound down. Under this principle, all individuals and all firms will know that they have to fend for themselves without any prospect of a bailout if they get into difficulties.

However, the question of whether banks should be allowed to fail rarely arises as a matter of principle. Rather a particular bank is in trouble and the authorities must decide whether to let it go into bankruptcy or a similar process or to allow it to continue operating, possibly after an injection of public money. In this situation, authorities will be much concerned with the costs that the bank’s failure might impose on the rest of the financial system and the economy. If the bank is small and unimportant, this concern will not be serious, but if the bank is large and systemically important, the fear of disastrous contagion effects might cause the authorities to keep the bank going after all. Even in the case of small banks, if many are affected at the same time, the authorities may be reluctant to let them fail. Once banks are in difficulties and there is a threat of substantial damage to the overall economy, it may actually be better to forget about fundamental principles and to do what can be done to avert immediate damage.

The argument just given highlights the general problem of the credibility of threats. In principle, it may be desirable to threaten banks with failure if

they get into difficulties. If this threat is credible, it may induce banks to be more prudent. However, the threat may not be credible. If an important bank gets into difficulties, the government may prefer to prevent it from failing rather than bear the consequences of the failure. Similar credibility problems arise in many contexts, for example, that of nuclear deterrence or committing not to pay a ransom for hostages.

To improve on this situation, it is not enough to affirm the principle that banks should be allowed to fail. The enforcement of this principle will be credible only if the costs of bank failures to the rest of the financial system and the overall economy are reduced.

In the United States, the Dodd-Frank Act attempts to lower the costs of dealing with banks in difficulties by giving authority to the FDIC to take over and resolve any systemically important financial institution.⁵⁷ The FDIC is empowered to maintain the institution's activities while attempting to resolve its difficulties, sell some of its assets, and replace its top managers. As a government institution, the FDIC can cover any shortfall temporarily by borrowing from the federal government, and it can impose charges on remaining banks to prevent taxpayers' funds from being used.⁵⁸ Because the FDIC has experience in successfully resolving depository institutions, one might expect that it could manage to deal with a crisis situation without creating another Lehman-type shock and at a tolerable cost to the public.

However, the challenge of effective resolution of large, complex financial institutions such as JPMorgan Chase, Bank of America, or Citigroup is daunting. Such institutions have thousands of subsidiaries or other related entities, many of them in different countries. Under international banking law, there would be separate resolution procedures for different subsidiaries in all the different countries. Resolution would require coordination among the different resolution and possibly bankruptcy authorities and procedures, which may well be incompatible with the prevailing laws.⁵⁹

Beyond dealing with the legal mechanisms in different countries, the challenge would be to maintain systemically important activities during the resolution process. For example, Lehman Brothers had used its London subsidiary for many investment banking and brokerage activities. When the bank declared bankruptcy, there were separate bankruptcy procedures in the United

States and the United Kingdom. In the United Kingdom, the authorities were shocked to discover that there was hardly any cash at all in the London subsidiary. Although the different units of Lehman Brothers in different countries were legally independent, their cash management had been integrated so that, at the close of the business day in London, all cash would be sent to New York.⁶⁰ Without cash in place, most activities of Lehman Brothers London were immediately stopped. To maintain activities in London, it would have been necessary for the authorities in the United States and the United Kingdom to cooperate so as to keep the integrated cash management going. It is hard to imagine this kind of integration with different authorities dealing with different units in different countries.⁶¹ Even in a single country, taking control of a complex institution with numerous subsidiaries without interrupting important activities is quite a challenge.⁶²

Initiatives in the United States, the United Kingdom, Germany, and elsewhere have made some progress in creating better resolution mechanisms for large, complex financial institutions, but as yet there is no internationally agreed mechanism that would preserve a failing bank and its subsidiaries as an operating unit to minimize the fallout for the financial system and the economy. Moreover, given the inherent conflict over how losses should be shared and the intricacies of negotiations about international legal reform, reaching such an agreement is unlikely to be achieved anytime soon.⁶³

Because of the complications associated with the resolution of the largest and most complex institutions, there are serious doubts that authorities would actually trigger these mechanisms even if a major institution were insolvent.⁶⁴ Requirements in the Dodd-Frank Act and elsewhere that financial institutions submit living wills to facilitate resolution do not provide enough assurance that resolving such institutions can be sufficiently effective to avoid harming the system and the economy.⁶⁵ Even if resolution is trusted enough to be triggered, the process is likely to be lengthy and disruptive.⁶⁶ This problem is not limited to the largest and most complex financial institutions, but can also arise when a large number of small banks are distressed or insolvent.

Jamie Dimon, the CEO of JPMorgan Chase, has repeatedly suggested that his bank and others like it should be allowed to fail if they become insolvent

and that the industry should cover the cost of resolving “dumb banks.”⁶⁷ This bravado must be taken with some skepticism. JPMorgan is greatly exposed to the ups and downs of markets because so many of its assets are not loans but trading assets.⁶⁸ The bank also has enormous derivatives positions and short-term debt, all of which make it highly connected to others around the globe. In the bank’s own analysis, a \$50 billion trading loss could spark a run on the bank’s funding and panic sales that would lead to further losses and possibly a financial crisis.⁶⁹ Moreover, Mr. Dimon’s suggestion that large banks be allowed to fail ignores the potentially great damage that such a failure could impose on society. The collateral damage, including the domino effects and the potential disruption of the broader economy, would likely be significant even if the direct cost of bankruptcy or resolution were borne by investors or by the banking industry.

The state of affairs just described is bad indeed. Banks can impose great harm on society. If a large bank fails, the contagion effects can be disastrous. The costs of not letting it fail can also be very large. If banks are kept going even though they are distressed or insolvent, the rest of the economy may still suffer because distressed banks tend to make poor lending decisions, which may restrict innovations and growth.⁷⁰ If banks expect to be bailed out, the situation is that much worse because bankers may be induced to take more risk, which will increase the likelihood that their distress and insolvency will damage the rest of the economy.

Creating viable ways for banks to fail without harming the economy is analogous to preparing emergency procedures for earthquakes or other natural disasters; reducing the harm is important. However, financial crises are very different from earthquakes. The analogy is convenient for many, but it is misleading.⁷¹ Whereas there is little we can do to prevent earthquakes, there is much we can do to reduce the likelihood of financial crises. The coming chapters will show that the fragility of the financial system is neither essential nor useful and that it can be greatly reduced. Even better, creating a safer and healthier system does not require us to sacrifice any of the benefits the banking system can provide.

PART TWO

The Case for More Bank Equity



What Can Be Done?

An ounce of prevention is worth a pound of cure.

Benjamin Franklin

DO WE HAVE TO RESIGN OURSELVES to having a fragile and dangerous banking system, one that harms the economy and requires government support when the risks turn out badly? As we have seen, there is not much prospect of dealing with failures of large and interconnected banks, particularly those that are active internationally, without imposing large costs on the economy. The economy is also harmed when many banks are distressed at the same time and do not make sufficient loans because of their overhanging debts. It is therefore important to focus on preventing banks and other financial institutions from running into distress or insolvency. For this purpose, we need better regulation and supervision.

In any industry, regulation is important when the individual actions of people and companies can cause significant harm to others.¹ If the banks' own incentives with respect to the risks they take and the extent of their reliance on borrowing were aligned with those of society, banking regulation would be less important. As it turns out, however, the incentives of banks with respect to the risks they take and to their borrowing are perversely conflicted with those of society.²

In the last few years, many proposals have been made to address the risks that the banking system imposes on society. Very few, however, have been implemented. Most proposals have been rejected, diluted, or delayed, some of them endlessly it appears, because the banks have convinced policy-

makers, regulators, and sometimes the courts that the regulations might be too expensive.³

What does *expensive* mean in this context? Who would be incurring the costs of the regulations? From the bankers' perspective, any regulation that constrains their activities or might reduce their profits is expensive. What is expensive for the banks, however, need not be expensive for the economy. The costs to the banks are important, but other costs must be considered as well, particularly the costs to everyone else resulting from financial crises or bank bailouts.⁴

If a producer of chemical dyes is stopped from polluting a river, the costs of producing his dyes might increase. He might then have to charge higher prices, and the prices of dyed products might also rise. Even so, the overall economy might well benefit. If the dye producer's pollution imposes cleanup costs of \$20 million each year on downstream cities but the cost to the dye producer of using alternative ways to dispose of his waste is only \$2 million per year, there will be an \$18 million yearly gain overall if the dye producer is prohibited from polluting the river. The dye producer will no doubt complain that environmental regulation is expensive because it costs him \$2 million a year, but this accounting neglects the \$20 million benefit the regulation can bring to others.

When bankers complain that banking regulation is expensive, they typically do not take into account the costs of their harming the rest of the financial system and the overall economy with the risks that they take. Public policy, however, must consider all the costs and not simply those to the bankers. The point of public intervention is precisely to induce banks, or dye producers, to take account of costs they impose on others.

For society, such intervention can be very beneficial. Appropriate banking regulation is available that would reduce the potential for harm to the financial system without imposing any costs on banks other than the loss of subsidies from taxpayers. The simple remedy is to ensure that banks have considerably more equity to absorb their own losses. The fact that this is beneficial and not costly for society is all too often obscured by flawed and misleading claims, what we refer to as the bankers' new clothes. Excessive

borrowing increases the fragility of the financial system without providing any benefits to society.

A Fragile "Fortress"

Bankers even dispute that their institutions are fragile. They talk of how much better their situation is now relative to how it was prior to the crisis.⁵ Jamie Dimon, the CEO of JPMorgan Chase, often says that his bank has a "fortress balance sheet."⁶ With \$184 billion of equity on the bank's balance sheet, Mr. Dimon suggests that JPMorgan Chase is well equipped to withstand any adverse developments. Even the almost \$6 billion of losses from speculation in derivatives that was revealed in June 2012 made only a small dent in this fortress.

The term "fortress balance sheet" that Mr. Dimon loves to use conveys a sense of safety and security, the opposite of vulnerability and fragility. But if one examines the actual risks lurking around the size and type of the bank's investments and debts, the strength of the fortress can be called into question. A closer look suggests that JPMorgan Chase is highly vulnerable and is imposing significant risk on the global financial system.

Some of the risks that make JPMorgan Chase dangerous cannot actually be seen by looking at its balance sheet because the positions that give rise to them are not included there. These are risks from business units that JPMorgan Chase might own in part or that it sponsors, and to which it has provided guarantees to serve as a backstop if they should have funding problems. These units might be full-blown subsidiaries, or they might be mere "letterhead firms," vehicles without any drivers, that are established for legal or tax reasons only. The bank's commitments to these units amount to almost a trillion dollars, but these potential liabilities of the bank are left off the bank's balance sheet. Yet they are quite relevant to the financial health of JPMorgan Chase.⁷

Entities left off a firm's balance sheet were responsible for the bankruptcy of Enron in 2001.⁸ In 2007, guarantees for entities that banks had used to keep their holdings of mortgage-related securities off their balance sheets were called, putting these banks under a lot of pressure and greatly weakening

them so that some required bailouts right then.⁹ In 2008, similar pressures arose because sponsoring banks had to provide support for money market funds that they had kept off their balance sheets.¹⁰ Mr. Dimon’s “fortress balance sheet” ignores these off-balance-sheet commitments and the risks they might impose on JPMorgan.

As for the bank’s actual balance sheet, Figure 6.1 provides a rough representation of the different parts of the balance sheet of JPMorgan Chase as of December 31, 2011.¹¹ The diagram on the left corresponds to the bank’s public

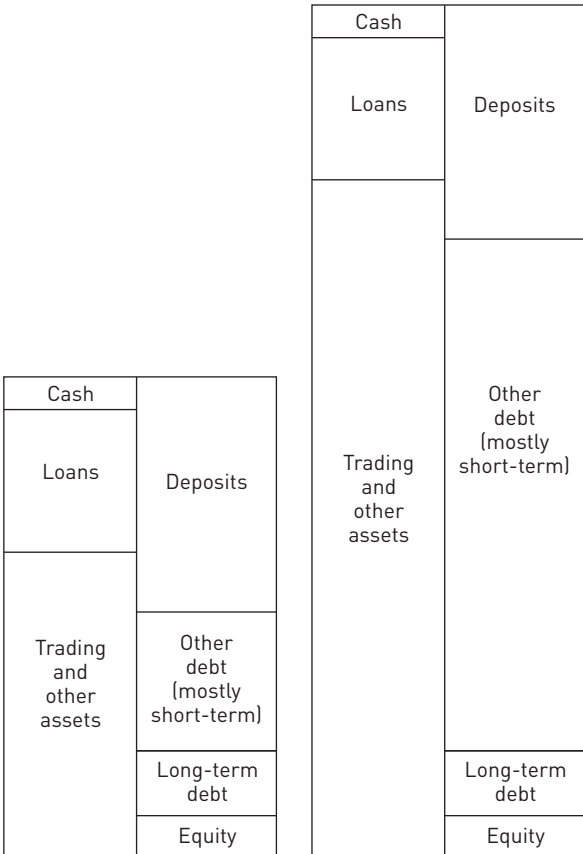


FIGURE 6.1 JPMorgan Chase balance sheet, December 31, 2011, by U.S. accounting rules (left) and international rules (right).

disclosures under U.S. accounting rules, the so-called generally accepted accounting principles (GAAP).¹² The diagram on the right adjusts these disclosures to the International Financial Reporting Standards (IFRS), which are used in the European Union.¹³ The adjustment concerns mainly the treatment of derivatives; it makes a big difference for the balance sheets of those banks that are heavily involved with derivatives, primarily JPMorgan Chase, Bank of America, and Citigroup.

In both representations of the JPMorgan Chase balance sheet, the liabilities side shows deposits of about \$1.13 trillion, long-term debt valued at about \$257 billion, and equity reported at about \$184 billion. The rest of the bank's debt, which consists of nondeposit short-term obligations and commitments related to derivatives contracts, are included as very different amounts in the two versions of the bank's balance sheet, developed using different reporting standards. Under GAAP, the other debts besides deposits and long-term debts are valued at about \$698 billion; under IFRS they are valued at \$2.49 trillion, a much larger figure.

A similar discrepancy appears on the assets side of the balance sheet. In both representations of the JPMorgan Chase balance sheet shown in Figure 6.1, we find cash reserves of about \$145 billion and loans valued at about \$696 billion. However, the trading and other assets are reported as \$1.43 trillion under U.S. accounting rules and \$3.22 trillion under international accounting rules.¹⁴ The total assets are therefore \$2.27 trillion under GAAP and \$4.06 trillion under IFRS.¹⁵

These differences have dramatic effects on how one sees the loss absorption capacity of the bank's equity. According to the "fortress balance sheet" that JPMorgan Chase shows in its official reports, its equity amounts to about 8 percent of its total assets. However, if JPMorgan Chase used the same accounting rules as its European counterparts, this number would shrink to a mere 4.5 percent.

The difference between the amounts reported under U.S. and European accounting rules has to do with the treatment of derivatives that the bank may have with the same trading partners or counterparties. Under GAAP, derivative positions valued at around \$1.8 trillion are not counted on the JPMorgan Chase fortress balance sheet because the bank can use netting agreements to

eliminate them from both its assets and its liabilities, as if they did not matter to the bank's financial position.¹⁶ IFRS rules do not allow most of this netting.

The practice of netting that is allowed under U.S. accounting rules for derivatives masks important risks. For example, in the final phase of the Bear Stearns crisis, the attempts of derivatives counterparties to close their positions or pass them to others played an important role and contributed to the run on the bank. Similar dynamics were observed in the case of Lehman Brothers. These experiences suggest that, if JPMorgan were to become distressed, the bank's enormous derivatives positions could be a major source of instability, for the bank and for the financial system.¹⁷

Whereas banks emphasize their role in making loans, the balance sheet of JPMorgan Chase shows that lending is only a small fraction of the bank's activities. Loans represent only about \$700 billion of the bank's assets, less than a third of its assets under U.S. accounting rules and less than a fifth under international accounting rules. Large global banks have been increasingly focused on trading assets since the 1990s.¹⁸ Making business loans, in particular, has been less attractive to them than trading financial claims, particularly claims that promise high returns and whose risks can be hidden.¹⁹

JPMorgan's fortress looks even more fragile if we consider the market value of the bank's equity. On December 30, 2011, the date of the bank's financial disclosures, the stock price of JPMorgan Chase was \$33.25 per share, which gave its equity a total value in the stock market of about \$126 billion. This figure is significantly lower than the \$184 billion in shareholder equity that JPMorgan Chase reported on its balance sheet, the so-called *book value* of its equity. If we use the market value figure of \$126 billion instead of the book value of \$184 billion for the bank's equity, JPMorgan's ability to absorb future losses would seem even weaker and its equity ratios even less than the 8 percent under GAAP and 4.5 percent under IFRS calculated on the basis of book values.²⁰

What do we make of the discrepancy between the book value and the market value of JPMorgan's equity? The book value is based on the balance sheet, which is prepared and made public by the bank; it is equal to the difference between the value of the bank's assets and the value of its debts as assessed by the bank under the prevailing accounting rules. In determining the book value of the bank's assets, the bank must place a value on its loans. If

some borrowers are behind on their payments, the bank must decide how long to wait to classify the loans as “impaired” and to recognize that it will almost surely incur a loss on the loans. A loss can be substantial if a house goes into foreclosure or if the loan is the borrower’s second mortgage and will not be paid at all unless the borrower pays the first mortgage in full. The bank’s management may have incentives, of course, to delay such recognition so as to present the bank’s assets to investors and regulators as being more valuable than they actually are, which also overstates the value of its equity.

Market investors, however, form their own views about what a bank’s assets are worth, and these views are reflected in the bank’s stock valuation. The fact that the market value is lower than the book value suggests that investors believe the book value is overly optimistic.²¹ This discrepancy between book values and market values is of immediate practical importance if the bank wants to raise new equity by selling shares in the market. The price at which this can be done depends on the value that stock market investors place on new shares, not on what the bank puts in its books as a book “value.”

For some banks, the discrepancy between the stock market valuation of their equity and the book value of this equity reported on their balance sheets has been even greater than it is in JPMorgan’s case. For example, the stock market values of Citigroup and Bank of America in recent years have often been less than half of their book values.²²

Bear Stearns was considered a strong bank in 2006, eighteen months before it succumbed.²³ JPMorgan Chase is several times larger and more complex than Bear Stearns or Lehman Brothers were prior to their downfalls. Its equity may be able to absorb occasional losses during normal times. However, in a downturn, when many financial institutions tend to suffer losses at the same time, the contagion mechanisms described in Chapter 5 can easily lead even a relatively strong bank like JPMorgan Chase to become distressed or even insolvent.

Controlling Risks from the Banks’ Investments

How can risk in banking and the fragility of the system be controlled and reduced? Approaches can be thought of in reference to the banks’ balance

sheets. One approach is to try to change the assets or investments of a bank, the left-hand side of the balance sheet. A simple measure is to limit the amount that the bank can lend to any one borrower, thus reducing the impact of a default by any borrower. This might seem uncontroversial, but recent proposals for stronger position limits in the United States have met with resistance from banks.²⁴

Limiting banks' exposures to individual counterparties is useful. It reduces the risk—which is particularly prevalent among a small number of very large megabanks—that the failure of one institution will bring down one or more other institutions, a threat that played a role in the Federal Reserve bailout of AIG. But merely limiting large exposures is not enough to limit the risks banks are taking. For example, it does not prevent a bank from making many small loans with a significant chance that many borrowers might default at the same time.

In the past, some regulations actually forced banks to lend in a poorly diversified manner. For example, before the S&L crisis most savings institutions were restricted to mortgage lending in their states. Similarly, in many European countries banks were restricted to lending in their own countries, sometimes by explicit regulations, sometimes by restrictions on moving funds abroad.

Restrictions of banks' activities to their home territories have a long tradition. Ostensibly designed to force banks to invest safely, these rules have often been used to ensure that local borrowers, including the government, would get ample funding at good terms.²⁵

The crises of the 1980s and 1990s, however, showed that investing at home is not the same as investing safely. For example, in Texas the S&L crisis of the late 1980s came sooner, beginning already in 1986, and was stronger than in most other states because Texan real estate and mortgage markets were uniquely affected by the oil price slump of 1985. In Sweden the banking crisis of 1992 was stronger than other countries' banking crises in the early 1990s because, in trying to protect the exchange rate, the Swedish central bank pushed interest rates for overnight borrowing to a record 500 percent per year, after which there was a dramatic downturn in real estate markets.²⁶

In the United States, such rules were also meant to prevent banks from becoming too large.²⁷ By now, these rules have mostly been lifted. Over the past two decades, concentration in banking has grown dramatically, much of it through mergers and acquisitions.²⁸ The trend toward ever larger banks was further reinforced in the financial crisis when some institutions were “saved” from bankruptcy by having them acquired by other, usually larger, institutions.

The largest institutions by now are not just too big to fail in the sense that failure could cause disaster but, as the experience of Iceland and Ireland shows, they may also be too big to save in the sense that rescuing them would overburden taxpayers. Large banks and financial institutions are by far the largest corporations in the world by asset size, and they are also arguably among the most complex.²⁹ As discussed in Chapter 5, the enormous complexity is one of the reasons that the bankruptcy or resolution process is so costly and disruptive. Simpler institutions would make the use of resolution mechanisms more credible.³⁰

One approach to reform is therefore to find a way to break up the banks into smaller, more manageable, and less complex entities. Although large banks boast that big is beautiful and scoff at size restrictions, there is little to suggest that banks that grow beyond about \$100 billion in assets create gains in efficiency; in fact, at the largest sizes, institutions might become more inefficient and subject to serious governance and control problems.³¹ The incentives for banks to become large through mergers can be partly attributed to cost advantages from implicit subsidies they obtain by becoming too big to fail. But these cost advantages come at the expense of taxpayers.

Combining many types of businesses under one roof does not necessarily increase efficiency. This has been demonstrated by the history of the conglomerates that were formed in the United States during the 1960s. Many of these large conglomerates failed to perform well and were later broken into smaller, more focused corporations.³² Reducing the size and scope of large banks could make them more efficient as well, but the subsidies associated with size—as well as managerial entrenchment, which is also observed in other industries—have so far prevented this from happening.³³

Several reform proposals aim to protect depositors and deposit insurance from the risks of investment banking. In the United States the so-called Volcker Rule seeks to ban proprietary trading by deposit-taking institutions. In the same spirit, the Independent Commission on Banking (ICB) in the United Kingdom has proposed to “ring fence” retail banking, deposit taking, and lending in special institutions that would not be allowed to engage in investment banking. In the European Union, a group of experts set up by the European Commission under the chairmanship of Finnish central bank governor Erkki Liikanen has put forward a similar proposal.³⁴

These proposals presume that concerns about depositors and the payment system are, or should be, the major reason for government interventions in banking, for guarantees and bailouts as well as banking regulation. For example, the ICB’s ring-fencing proposal for the United Kingdom is based on the assumption that retail banks will benefit from government guarantees and that investment banks will not be able to count on such support. Given the prospect of government support for retail banks, the ICB wants to insulate these banks from the risks of activities such as speculating on the banks’ own accounts, participation in derivatives markets, or, more generally, investment banking.³⁵

This approach has two weaknesses, however. First, protection of depositors and the payment system is not the only concern that might induce governments to bail out banks. Second, commercial banking activities can also be a source of risks that cause banks to fail unless they are bailed out.

On the first point, we note that both Bear Stearns and Lehman Brothers were non-deposit-taking investment banks, AIG was an insurance company, and LTCM, seen as systemically important in 1998, was a hedge fund. None had depositors, and none was involved with the payment system, yet Bear Stearns, AIG, and LTCM were deemed sufficiently important to be kept out of bankruptcy for fear that otherwise they might seriously damage the rest of the financial system. Lehman Brothers did go into bankruptcy, but, with hindsight, this is seen as having been very costly.³⁶ The experience with these institutions suggests that concerns about government guarantees and bailouts should not be limited to deposit-taking institutions or even to banks.

Systemically important financial institutions need not be taking deposits; they need not even be called banks.³⁷

Second, as noted in Chapter 4, traditional commercial banking activities have caused many banking crises in the past. The collapse of commercial banks in the United States in the Great Depression was in large part due to the fact that many loan customers could not pay their debts, especially businesses that were unable to sell their products in the slump.³⁸ Business and real estate lending played a key role in the banking crises of the late 1980s and early 1990s.³⁹ The troubles in recent years of Irish and Spanish banks, and indeed those of many U.S. and European banks, can be traced to loans to real estate developers and buyers that turned out badly. In some cases, in fact, the problem has been one of too many to fail rather than too big to fail, because many banks were exposed to the same risks and thus were in danger of failing at the same time.

The German experience of 2009 provides an interesting perspective on this discussion. Retail banking in Germany, deposits and small-business lending, is dominated by banks that are active only locally, in particular savings banks in public ownership. These local banks were hardly affected by the crisis and the economic recession. Therefore, there was not much of a credit crunch for small and medium-sized businesses.

However, the *Landesbanken*—public banks that are active globally but do not have any retail business, deposits, or loans—were much affected by the crisis; in fact, most of the costs of the crisis to German taxpayers were caused by these banks, which had gone into various adventures because they did not have a profitable retail business. Some of this cost, in fact, was borne by the local savings banks, which are co-owners of the *Landesbanken* and put their surplus funds in deposits with the *Landesbanken*. In this experience of a banking system with some separation of retail (deposit) banking and investment banking, retail banking was somewhat protected from the risks of investment banking, but these risks did hit the system—and the taxpayers—nonetheless.⁴⁰

The key objective of banking regulation should be to reduce the fragility of individual banks and of the system so that it can support the economy reliably. Achieving this would likely require a combination of measures.

The structural reform proposals discussed here focus on the banks' assets, the left-hand side of their balance sheets. The fragility of the financial system, however, is critically related to the ways in which financial institutions fund themselves, the right-hand side of their balance sheets. No matter what other steps are taken to reduce the risk to the economy from the financial system, correcting the distortions in the funding mix of banks must be a key part of any reform.

Controlling Liquidity Risks

Banks can run into liquidity problems because the deposits and other short-term debt that they use for funding can suddenly be withdrawn, while many of the investments that they make cannot always be converted into cash easily. A traditional way to deal with this problem is to require banks to invest sufficient amounts in assets that are deemed to be liquid. The simplest such requirement is that banks hold a certain fraction of their deposits in cash or in accounts with the central bank that can be drawn on for cash at any time. This regulation is called a reserve requirement.

Reserve requirements are often viewed as costly because the funds kept in reserves earn little or no interest.⁴¹ Increasing reserve requirements may ultimately lead banks to charge higher fees for their services. In setting reserve requirements, such additional costs to clients must be considered along with any benefits from banks' having cash readily available.

Over the past few years, international bodies have proposed to reduce the incidence of liquidity problems in banking by regulating the liquidity of the banks' assets. For example, Basel III proposes to introduce a so-called liquidity coverage ratio regulation in order to ensure that at all times banks have enough assets that can be converted into cash quickly and without incurring a loss to meet all their payment obligations over the next thirty days.⁴² This regulation has less effect on the banks' ability to earn interest than do reserve requirements. By focusing on the banks' ability to fulfill their upcoming obligations, it also gets at the core of the liquidity problem, which simple reserve requirements do not.⁴³

The liquidity coverage ratio regulation raises new questions, however. For instance, what kinds of assets should be considered sufficiently liquid?⁴⁴

Practically all assets other than cash and claims on the central bank may suddenly turn from very liquid to very illiquid. Banks would like liquidity regulation to treat many assets as liquid so they can satisfy the requirements easily without reducing the interest they can earn. But if the regulation is very loose, there is a danger that supposedly liquid assets will not actually provide banks with needed cash in a crunch.⁴⁵

In the distant past, liquidity problems were often associated with runs by depositors. For example, as discussed in Chapter 5, in the United States the Great Depression of the early 1930s was accompanied by disastrous bank runs and banking crises. Since the creation of the FDIC, however, there have been hardly any runs by depositors.⁴⁶ Money market funds did not have this protection and suffered runs by investors in September 2008; these runs stopped when the government provided money market funds with a form of deposit insurance. At the same time, the remaining major investment banks, Goldman Sachs and Morgan Stanley, turned themselves into standard bank holding companies so as to obtain access to the Federal Reserve as a lender of last resort.⁴⁷ In many other countries as well, in September and October 2008, government guarantees and government funds were used to quell the financial turmoil that had followed the Lehman bankruptcy.⁴⁸

Does it follow that we should rely more generally on government guarantees to forestall liquidity problems? According to one view, government safety nets should be expanded to cover the entire system of short-term debts of financial institutions, nonbanks as well as banks.⁴⁹ Addressing liquidity problems by means of government guarantees without considering solvency is misguided, however, because solvency problems are much more dangerous than liquidity problems. Indeed, liquidity problems are quite often *caused* by solvency problems, because concerns about solvency induce creditors to pull out. If creditors are confident that a bank is solvent and able to pay them back, they are not likely to withdraw their funding from the bank.

Guarantees can actually be quite harmful if banks are insolvent or nearly insolvent and highly distressed. The guarantees enable distressed banks to roll over their debt, and even to borrow more, without doing anything to reestablish solvency and, because of distorted incentives, not necessarily

making the most productive investments. This can be costly to the economy as well as taxpayers.

In Chapter 4 we discussed the experience of the 1980s, when insolvent U.S. savings institutions were treated as if they had only liquidity problems. The institutions were freed from regulations and became reckless, with large costs eventually paid by taxpayers.⁵⁰ Another example is provided by the Landesbanken in Germany, public banks that had traditionally been guaranteed by the state. Following a 2001 ruling by the European Commission that these guarantees had to end after 2005, they borrowed more than one hundred billion euros while the guarantees were still in effect and invested much of the money in toxic securities in the United States. Losses from these investments are likely to amount to more than €50 billion.⁵¹

Controlling Banks' Ability to Absorb Losses

The approaches to reducing risks from banking just discussed were focused on either trying to control the volume or the type of activities in which banks engaged or trying to control the mismatch between the short-term nature of the banks' debts, on the right-hand side of their balance sheets, and the long-term nature and poor salability of their assets, on the left-hand side. A third approach to the challenge of reducing the fragility of banks and the banking system is called capital regulation; it focuses on the banks' ability to absorb losses without becoming insolvent.

Capital regulation focuses on how banks fund their assets rather than on the assets themselves. It deals with the mix of debt and equity on the right-hand side of their balance sheets.⁵² As we saw in Chapters 2 and 3, a borrower like Kate, who buys a house or has a business with a given set of assets, is better able to absorb losses when she has more equity. The more equity she has, the less likely she is to become insolvent. Capital regulation is intended to make sure banks do not have too little equity.

Requiring banks to have more equity and less debt addresses banks' solvency most directly. Recall the example discussed in Chapter 2, in which Kate buys a \$300,000 house using borrowed money and some of her own money. If Kate's down payment or initial equity is \$30,000, a subsequent drop of 10 percent or more in the value of the house will wipe out her entire equity

and leave her underwater. By contrast, if Kate invests \$60,000 as a down payment, she will lose her entire equity only if the price declines in value by 20 percent or more; otherwise she will continue to have equity in the house. Similarly, when equity represents less than 5 percent of the total value of the assets, as is often the case for banks, a small drop in the value of the assets endangers the bank's solvency.

Capital regulation also reduces fragility in indirect ways. If solvency risk is reduced, the likelihood of liquidity problems and runs is also reduced because depositors and other creditors are less nervous about their money. Moreover, beyond the bank's own ability to absorb losses without becoming distressed, the fraction of assets that a bank may have to sell after losses in order to recover its equity ratio is smaller if it has more equity. Therefore, the contagion caused through asset sales and interconnectedness is weaker when banks have more equity. Increasing banks' ability to absorb losses through equity thus attacks fragility most effectively and in multiple ways.

Capital regulation does not impose restrictions on banks' activities and investments. In fact, the more equity a bank has, the more the choice of assets to hold, and the management of risks associated with these assets, can be left to the bank.

Capital regulation also improves the incentives of bankers with respect to risk taking. If a bank has more equity and less debt, more of the downside of its activities will be borne by the bank and its shareholders rather than by creditors or taxpayers. This increased equity gives bankers better incentives to manage the risks in their investments, and it gives shareholders better incentives to make sure managers do not take too much risk. The decisions made by banks with more equity will therefore take better account of risks. Such banks are less likely to encounter the conflicts of interest from the dark side of borrowing that we discussed in Chapter 3. This is beneficial to everyone who would suffer the consequences if the risks turned out badly, including taxpayers and the broader economy.

The Debate over Capital Regulation

Capital requirements have been the main instruments of banking regulation since the early 1990s.⁵³ Many of the regulations that were put in place after

the Great Depression had been dismantled in the 1970s and 1980s. In a world with large swings in interest rates and exchange rates, as well as more intense competition from nonbank intermediaries and from banks in other countries, many of the older regulations had become counterproductive.

In the late 1980s, regulators from major countries got together to coordinate banking regulation internationally. The idea was to set minimum standards so that, if a country adhered to these standards, the other countries would allow that country's banks to operate in their territories. In 1988 these negotiations led to the so-called Basel Accord ("Basel I"), named after the city of Basel in Switzerland where the regulators met. Under Basel I, banks were required to have "regulatory capital" equal to at least 8 percent of their business lending. Subsequently, "Basel II," concluded in 2004, allowed the requirement to be much more finely calibrated to the risks of the different loans and investments. Banks operating under Basel II, which included banks in Europe and U.S. investment banks, found many creative ways to have very high leverage and to evade the requirements by shifting risks to others or hiding them behind flawed risk models or misleading credit ratings.⁵⁴

When the financial crisis began in 2007, the equity of some of the major financial institutions worldwide was 2 or 3 percent of their total assets. The fact that these margins of safety were so thin played a major role in the crisis.⁵⁵ For example, without help from the Singapore Sovereign Wealth Fund and from the Swiss government, the Swiss bank UBS would have become insolvent, destroyed by losses from mortgage-backed securities and related derivatives that had been treated as riskless.⁵⁶

In the aftermath of the crisis, regulators set out to strengthen capital regulation. Although the resulting accord, "Basel III," eliminates some abuses, it fails to address the basic problem that banks can easily game the regulation. Banks' equity can still be as low as 3 percent of their total assets. It is not clear that anything would have been substantially different in the 2007–2009 crisis had Basel III already been in place.

The weakness of Basel III was the result of an intense lobbying campaign mounted by bankers against any major change in regulation. This campaign has continued since. By now even the full implementation of Basel III is in doubt.⁵⁷

Nonsense in the Debate

According to bankers, higher equity requirements for banks will restrict bank lending and reduce economic growth. They argue that, to have safer banks, we must sacrifice growth. In Chapter 1 we quoted Josef Ackermann, then CEO of Deutsche Bank, claiming that higher equity requirements “would restrict [banks’] ability to provide loans to the rest of the economy,” and that “this reduces growth and has negative effects for all.”⁵⁸ The Institute of International Finance, a key bank lobbying organization, forecast that the planned Basel III reform would substantially raise interest rates on bank loans in the United States and Europe and lower real growth rates for a number of years.⁵⁹ Other bankers and their lobbying organizations echo the same warnings that higher capital requirements would “greatly diminish growth.”⁶⁰

These claims and many others made in the debate about capital regulation are invalid—as insubstantial as the emperor’s new clothes in Andersen’s tale. As discussed in Chapter 1, capital requirements do not prevent banks from lending. Claims suggesting that they do are nonsensical and fallacious—articles of the bankers’ new clothes. In later chapters we show that higher capital requirements do not impose meaningful costs on society. If bankers see them as expensive, the reason is the same as that given by the dye producer, who objects to a prohibition on his dumping waste in a river as being expensive because it would cost him \$2 million, whereas it would provide a benefit of \$20 million for others, for a net benefit of \$18 million.

In the debate on bank capital regulation, there are many flawed and muddled arguments. As discussed in Chapter 1, the pervasive confusion of capital with reserves is particularly insidious. Consider the statements “Capital is the stable money banks sit on” and “Think of it as an expanded rainy day fund.”⁶¹ These statements would make sense if they referred to banks’ cash reserves, but they are false if applied to bank equity. Capital and reserves are on different sides of the banks’ balance sheets. Capital requirements refer to the banks’ funding, whereas reserve requirements restrict how banks use their funds.

To understand the confusion, consider again the mortgage example from Chapter 2. If Kate makes a \$30,000 down payment on her house, she is using

this equity, together with the mortgage loan, to pay for the house. That money is not “set aside” like a cash reserve. The value of the equity will fluctuate as the value of the house changes after the loan is put in place, but at all times the equity is invested in the house. The same is true for corporations. The equity of any corporation—think of Apple or Wal-Mart—just like Kate’s investment in her house, is not sitting idle. The same is also true with regard to the equity of banks, or what the banks call their capital.⁶² If a bank holds cash as a reserve, this is part of the bank’s assets. The bank’s depositors and other creditors, as well as the bank’s shareholders that own its equity, have claims that will be paid out of the bank’s assets.

The confusion between equity and reserves is reflected in the language of public debate. In many news reports as well as official writings, banks are said to “hold” or to “set aside” capital as if it were an asset. The word *capital* itself contributes to the confusion because in other contexts it does refer to assets. For example, when economists say that a firm’s production is capital intensive, they mean that the firm has lots of machines that help it save on labor. In the world of banking and banking regulation, however, *capital* refers to equity.⁶³ This equity is held by the investors who fund the bank, its shareholders. To say that the bank “holds capital” is an inappropriate and confusing use of language. The bank is not holding its equity, the part of its balance sheet that represents unborrowed funds; the bank holds loans and other assets *funded* by equity and debt. Similarly, Apple and Wal-Mart are not said to “hold” their equity.

This is not a silly quibble about words. The language confusion creates mental confusion about what capital does and does not do. This confusion helps bankers, because it creates the false impression that capital is costly and that banks should strive to have as little of it as regulators will allow.

For society, there are in fact significant benefits and essentially no cost from much higher equity requirements. By contrast, reserve requirements have costs, and their benefits in reducing the risks in banking are limited. Unless reserve requirements are so high that banks face virtually no risks, they do not actually address the solvency problem that results from banks’ using borrowed money to make risky investments.

Making false statements that create confusion between capital and reserves is not the only nonsense in the debate. In 2010, when one of us was involved in writing a report to the German government that advocated capital requirements of at least 10 percent of total assets, an industry association objected, saying that the proposal would reduce business lending by 40 percent.⁶⁴ Subsequent discussion showed that they had taken the banks' equity as fixed and concluded that, if capital requirements were to double, lending must be cut in half.

For example, if banks have equity worth €500 billion and this must be 5 percent of their total assets, banks can have assets worth €10 trillion, because they can borrow €9.5 trillion to “leverage” this equity. If the same €500 billion must be 10 percent of the banks' total assets, according to the reasoning of the industry association, banks would be able to have only €5 trillion in assets because they could borrow only €4.5 trillion using this equity, and presumably their lending would be cut in half.

This argument is misleading, though—another article of the bankers' new clothes. As discussed in Chapter 2, banks can grow and invest without borrowing. Banks whose shares are traded on a stock exchange can raise money by issuing additional shares and selling them to investors. If the additional funds are used to make new loans, the higher equity levels will actually allow the banks to lend more rather than less.

Banks that do not have access to a stock exchange can increase their equity by reinvesting their earnings. These banks have at most a problem of transition. After a while, they will have enough equity to support lending at the same levels as before, and they can continue growing by reinvesting their earnings or selling new shares.

When bankers lobby against higher equity requirements, they also claim that such requirements would increase banks' costs and harm the economy. However, as we show in the next three chapters, these claims are also invalid. Some of their arguments are simply wrong, while others fail to address the relevant issues by confusing the costs and benefits of public policies to banks and bankers and the costs and benefits of the policies to society.

Is Equity Expensive?

The banker sitting next to me was lamenting the profitable lending opportunities being passed up by capital constrained banks, when I broke in to ask: “Then, why don’t they raise more capital?” . . . “They can’t,” he said. “It’s too expensive. Their stock is selling for only 50 percent of book value.” “Book values have nothing to do with the cost of equity capital,” I replied. “That’s just the market’s way of saying: We gave those guys a dollar and they managed to turn it into 50 cents.”

Merton Miller, 1990 Nobel Laureate

THE CONVERSATION REPORTED by Merton Miller and quoted above focuses on a key question for banking regulation.¹ To bankers it seems obvious that equity is expensive.² But what does this statement refer to, and what are the costs of having banks fund their assets and investments with more equity? The banker in the conversation is suggesting that because capital regulation forces banks to have some equity funding of loans, and because “equity is expensive,” the banks must pass up lending opportunities that would be attractive if they could just fund them with debt. Why should funding with equity be expensive?

The view that it is more expensive to use equity funding than to fund by borrowing is sometimes justified by the observation that for each dollar they invest in a bank’s shares, shareholders “require” a higher return than debt holders require. For debt the required return might be 4 percent per year, and for equity it might be 15 percent per year. This is taken by some to mean that it would cost a bank \$40 million of interest expenses per year (4 percent of the total amount) to raise \$1 billion by issuing debt and \$150 million per year (15 percent of the total amount) to raise \$1 billion by issuing equity. According to this view, if regulation forces banks to fund their investments with more equity, their costs will increase and they will have to charge their clients more, for example, by charging higher interest on loans.³

At first sight the argument may seem convincing, but actually it is quite flawed, yet another article of the bankers' new clothes. If equity were so expensive, why would nonfinancial companies rely so much on it? Why wouldn't they borrow as much as they possibly could? The statement that "the required return on equity is higher than the cost of debt" applies to all corporations, not just to banks, and there is no regulation constraining how most companies fund their investments. Yet there are virtually no corporations that rely so much on borrowing and use so little equity funding as banks. Are nonbanks doing something wrong by not economizing on equity? Is there something special about banks that makes equity expensive for them while for other corporations equity is somehow cheaper?

Take a corporation like Apple, which is funded almost entirely with equity and was worth around \$630 billion in the stock market on October 11, 2012. Suppose that Apple issued \$10 billion in debt and used the funds to repurchase some of its stock. If equity costs 15 percent per year and debt costs 4 percent, it appears that Apple could save \$1.1 billion per year by doing that. There is no regulation that controls how much Apple borrows. So why doesn't this company borrow more?

The claim that "equity is expensive because shareholders require higher returns than debt holders" involves two basic flaws. First, the required rates of return for debt and equity for a particular corporation are not fixed but rather depend on the risk associated with the investments the corporation makes. Second, the costs of debt and the costs of equity cannot properly be considered separately and in isolation, without referring to the *mix* of debt and equity that is used.

Shareholders require higher returns because equity bears more risk than debt. The risk of \$100 invested in a firm's stock, however, depends critically on how much borrowing the firm is doing. Our discussion in Chapter 2 implies that if a corporation uses more equity and borrows less, the return on equity will become less risky (per dollar invested) because it will be affected less intensely by the uncertainty associated with the investments. When shareholders bear less risk per dollar invested, the rate of return they require is lower. Therefore, taking the costs of equity as fixed and independent of the mix of equity and debt involves a fundamental fallacy.

The reported conversation between Merton Miller and the banker does not actually mention rates of return. The banker argues that equity is expensive because the banks' value in the stock market is only 50 percent of its book value (the value reported on the banks' balance sheets). Miller's response indicates that he considers the banker's reference to book values quite flawed. Using book values as a guide for making investment decisions is indeed another article of the bankers' new clothes. Book values usually reflect historical valuations that are no longer relevant. Investment decisions must be made in light of current valuations.

The fallacies discussed in this chapter are less obvious than the fallacy of confusing equity with reserves, but they are no less important.

The Costs of Borrowing

For debt, the notion of cost seems straightforward. If a corporation issues a bond with an interest rate of 4 percent per year, each year it will have to pay the bond holders 4 percent of the amount owed, for example, \$40 million on a bond issue of \$1 billion.

The interest rate on a loan or a bond depends on many factors. For example, a borrower who lives in a remote village with a single bank might have to accept whatever interest rate the bank charges because there are no alternative ways to obtain funds.⁴ By contrast, if there are many competing banks, the best rate that the borrower can get will reflect mainly the costs of making this loan.⁵ These include not only the costs of assessing the borrower's creditworthiness and monitoring the loan but also the costs to the lender of obtaining the funds or of not using them for alternative investments.

For example, in making a mortgage loan a relevant comparison would be to making a loan to the government. If government bonds pay, say, 3 percent per year, the interest on the mortgage must be high enough that the bank will not prefer to invest the same funds in the government bond instead. Compared to a U.S. government bond, the mortgage is likely to be less safe for the lender.

Lending dollars to the U.S. government is essentially riskless because the U.S. government can always pay such debts. If necessary, the Federal Reserve can print dollars to pay the debt.⁶ By contrast, when lending money to a

mortgage borrower there is a risk of default and a risk that if the borrower defaults on the loan, the house might be worth a lot less than the debt. In making the loan, the lender must consider how likely it is that the promised amount will not be repaid in full and how much the lender would get in that case. If a substantial decline in the value of the house seems likely, the lender may refuse to make a large loan at all and ask the borrower to put in much more of her own money as down payment. Alternatively, the lender may charge higher interest to reflect the risk of less than full payment.

Interest rates charged on loans reflect the likelihood that the borrower might default and the amount the lender would likely recover in that case. This principle can be seen in the market for the bonds of European countries. As we are writing this text, for example, Spain must pay over 5 percent on a ten-year bond, while Germany borrows at less than 2 percent over this period.⁷ It might be tempting for anyone to try to borrow at the German rate and use the money to lend to Spain, benefiting from the “spread” of more than 3 percent. European banks could do something similar with the loans at 1 percent interest that they can obtain from the European Central Bank.⁸

Borrowing at a low rate to invest in something that promises a higher rate of return is called a “carry trade.” If there was no risk involved in the investment, borrowing at 2 percent and receiving 5 percent *for sure* would actually be called an “arbitrage opportunity.” An arbitrage opportunity is a kind of money machine. Such money machines usually do not exist in competitive markets.⁹

In general, if one can borrow at a particular rate and use the borrowed money to make risky investments, there *must* be a chance that the return on the investment will be less than the borrowing rate, that is, that the borrower will incur losses. Being able to make more money *for sure*, without putting in any equity to absorb potential losses, is typically too good to be true.

In fact, if Spain has to promise more than 5 percent interest on a ten-year loan while Germany can promise less than 2 percent, the reason is that investors believe Spain might not be able to pay its debt as promised. This means that someone borrowing at 2 percent and investing in Spanish bonds promising 5 percent may have to take a loss. For government bonds, this may seem unusual, but in fact investors who had bought Greek government bonds in

previous years suffered significant losses when Greece defaulted on some of its debt in March 2012.¹⁰

Higher interest rates compensate lenders when they face a risk of default in making loans. The amount of the compensation depends on how likely they consider a default and how large a loss they expect in default. For loans to borrowers that might default, interest rates will also include some extra charges because lenders dislike risk. Unless lenders earn a “risk premium,” they prefer investing in safe bonds over making risky loans. The idea of a risk premium is that, on average, and also taking account of the possibility of default, the lender must expect to earn more than the 3 percent the government pays on its loans.

There are many different rates for borrowing in the economy. Mortgage rates are usually lower than rates charged on business or consumer loans, in part because a house serves as collateral that the lender can possess if the loan is not paid. Interest rates on business loans are usually lower than those on consumer or credit card debt. Interest rates charged on credit card debt are particularly high because people who delay payment and use this debt most are those who are short of cash and have a relatively high likelihood of default.¹¹

The same considerations apply when corporations borrow. The lenders may be different, but their concerns are similar, namely, whether they will be paid in full and what will happen if they are not. Whereas an individual would borrow from a bank or a mortgage company to buy a house, a corporation like IBM would typically issue bonds that may be purchased by banks, insurance companies, mutual funds, and private investors.

The principle that the interest rate charged on debt depends on the default risk of the debt applies to all borrowing. If debt is perceived as riskless, the rate charged will not be much higher than the rate for riskless government debt. In making a risky loan, however, investors require that the interest rate be higher. An exception to this principle is made only if the debt is insured by a reliable third party such as the government. Bank depositors whose deposits are insured by the FDIC do not care much whether the bank is safe or risky.

We can already see that something is missing in the argument that “4 percent is less than 15 percent and therefore funding by debt is cheaper than

funding by equity.” If this argument were correct, any corporation would want to forget about equity altogether and fund itself exclusively with debt. But as a corporation takes on more and more debt, it owes more and more to its creditors. If there is any risk associated with the corporation’s investments, the likelihood of default will go up, and therefore the interest on the debt must go up. In other words, as the corporation borrows more, the cost of borrowing will eventually rise above 4 percent.

Back to Kate’s mortgage. If Kate borrows \$270,000 and her house drops in value below what she owes a year later, she may walk away from the mortgage debt if she has a nonrecourse mortgage that allows it. By contrast, if she borrows only \$240,000, she will be less likely to default because her debt is lower. From the lender’s perspective, therefore, lending to Kate carries much less risk if she has \$60,000 of her own money in the house than if she has only \$30,000. The higher equity provides the lender with better protection because debt must be paid first, and with less debt and more equity, the debt is more likely to be paid. As a result, if there is a possibility that the house will go down in value—from \$300,000 to \$250,000, for example—Kate will face a higher interest rate if her initial equity is \$30,000 than if it is \$60,000.¹²

For corporations, too, the risk of default depends on the mix of debt and equity used for funding, and this affects the cost of borrowing. Quite generally, if a borrower is more highly indebted, there is a greater likelihood of default and typically more will be lost when default occurs. For both of these reasons, a higher interest rate is charged when more is borrowed.

The Cost of Equity

The shareholders of a corporation are like the owners of a business. If the corporation earns a profit, the profit belongs to the corporation and its shareholders. Profits can be paid out as dividends, or the corporation can buy back some of its shares. Another possibility is that the firm will retain the profits and use them for new investments that, it hopes, will provide shareholders with even greater profits in the future. If the corporation’s shares are traded on a stock exchange, the shareholders can sell the shares whenever they prefer to invest the money elsewhere—or need the money to take a trip around

the world. If the corporation has made profitable new investments, shareholders can create a “homemade dividend” for themselves any time.

When shareholders buy shares of stock, or equity, in a corporation, they are buying the uncertain future dividends they might receive and the ability to sell the shares for a price that will be determined in the market at the time the shares are sold. In this context, what does the “cost” of equity funding refer to? How is the corporation “paying” for equity?

The cost of equity essentially corresponds to the returns that the corporation must provide to shareholders to justify the money it has received from them. Unlike debt holders, the shareholders do not have any contractual commitment from the corporation to pay them. However, they have bought their shares in the expectation of future returns. If these expectations are not met, many shareholders may sell the shares, which may cause the share price to decline. This price decline would likely have negative consequences for the corporation and its management. If managerial compensation is based on the stock price, management might be directly hurt. The board of directors may also be concerned with keeping the value of the shares sufficiently high, which may help the corporation raise more equity funding in the future.¹³

Of course the company’s earnings and stock price fluctuate from year to year, and shareholders know this when they buy shares. In some years the corporation flourishes; in others, profits wither away and prospects may be poor. The company may thrive because of a new patent, or it may lose money because sales drop off in a recession.

Although shareholders understand that business might sometimes be poor, they want to have some assurance that better earnings in good times will make up for poor business in bad times; otherwise they will not be willing to pay as much for the shares of the company. The notion of a required return on equity refers to an average or expected return that shareholders would need to anticipate on average in order to be willing to invest in the company’s shares at the price that is quoted in the market.¹⁴ Although there is no contractual requirement that the corporation generate a particular return for its shareholders, shareholders will compare the average return that they expect to receive with what they consider an appropriate return given the risks of

the investment. If investors expect to receive too low a return, the share price will have to decline.

Required returns on stocks are generally higher than on bonds. The difference compensates investors for accepting the higher risks associated with stock investment. The historical record shows that there is a relation between average returns and risks, so the riskier the investment, the higher the average return. For example, the average return earned on U.S. Treasury bills from 1926 to 2010 was 3.6 percent. The average annual return on a broad portfolio of corporate bonds over the same time period was 6.14 percent. For investment in an index of medium-sized stocks, the average return was a much greater 13.7 percent.¹⁵

How the Debt-Equity Mix Affects the Required Return on Equity

We are now ready to explain why the statement that equity is expensive because it has a higher required return than debt is false. As just discussed, the cost of borrowing depends on how much debt is taken: the more indebted the borrower, the more likely the risk of default. How does the amount of borrowing affect the cost of equity?

We saw in Chapter 2 that borrowing has a leverage effect that magnifies the risk that the borrower bears on his investment. We consider this effect again, this time by comparing Kate and Paul when both put up \$30,000 in equity, but Paul borrows less than Kate. Whereas, Kate borrows \$270,000 to buy a \$300,000 house; Paul borrows only \$120,000 to buy a \$150,000 house. Kate has 10 percent equity in her house; Paul has 20 percent. Paul's indebtedness is the same as Kate would have if she had \$60,000 invested in the house, a case we discussed in Chapter 2. The difference between Kate and Paul is that they use different amounts of debt to leverage their investment of \$30,000 in the equity of their respective houses.

Imagine that both Kate's and Paul's houses increase in value by 5 percent; the value of Kate's house goes up by \$15,000, the value of Paul's house by \$7,500. This means that Kate will make a 50 percent return on her investment of \$30,000, while Paul will make "only" a 25 percent return on his. As discussed in Chapter 2, leverage is wonderful when investments go up in value because it magnifies the gains.

But the downside is magnified as well. Suppose that Kate's and Paul's houses decrease in value by 5 percent. For Kate this will mean a loss of \$15,000, or 50 percent of her \$30,000 investment. For Paul the loss of \$7,500 will not be as painful, because it will amount to only 25 percent of his initial investment. A 12 percent decline in housing prices would wipe Kate out and leave her underwater, but Paul would still have equity in his house.

Leverage works the same way for shareholders of corporations, including banks and their shareholders. The more the equity is leveraged through borrowing, the more shareholders can profit from windfall gains on the firm's investments and the more vulnerable they will be to losses on these investments.

For a concrete example that involves a bank and its shareholders, consider the payment of \$8.5 billion in settlement of litigation related to mortgage derivatives that Bank of America announced on June 29, 2011.¹⁶ As long as the bank continues to pay its debt, the shareholders will be the sole bearers of this loss.

When Bank of America announced the \$8.5 billion settlement, the total value of its equity in the stock market was approximately \$110 billion. This means that the \$8.5 billion that Bank of America had to pay represented about 7.5 percent of the market value of its equity at the time. If a shareholder had \$100,000 invested in Bank of America at that time, the part of the loss that was borne by his shares was approximately \$7,500.

What if, instead of having \$110 billion in equity, Bank of America had had only half that amount, \$55 billion? In that case the \$8.5 billion loss would have been spread over half as much equity, amounting to 15 percent rather than 7.5 percent of the total equity. A shareholder who had invested \$100,000 in the stock would have lost \$15,000, not \$7,500. Just as in the example of the mortgage, the leverage of the corporation magnifies losses as well as gains to shareholders.

We can now see the fundamental flaw in the simple math that takes the required return on equity (ROE) as fixed at some rate, such as 15 percent, regardless of the firm's leverage. When there is more debt in the funding mix and therefore more leverage, the risk to shareholders per dollar invested is greater. Because they bear more risk, they require higher returns as compen-

sation. In other words, the required ROE will be lower when there is more equity and less debt in the mix and, conversely, higher if the funding involves less equity and more debt.

In assessing how changes in the funding mix affect the overall, or total, costs of a corporation for funding its investments, one must take into account the fact that the required ROE, as well as the interest rate on all forms of risky debt, depend on the entire funding mix. As leverage is reduced and there is more equity, the “expensive” equity becomes cheaper, just as more of it is being used. What is the overall effect on funding costs? If we compare two corporations that have the same assets, but one has 50 percent debt and 50 percent equity while the other has 30 percent debt and 70 percent equity in their funding mix, which of them has higher funding costs?¹⁷

For a long time, the answer to this question was not well understood. A key insight came in 1958, when Franco Modigliani and Merton Miller argued that a change in the funding mix—one that affects *only* the division of risks among those who do the funding but does not otherwise affect the total returns from the investment that must be shared among those who provide the funding—cannot have any effect on funding costs.¹⁸

The idea is simple. If the investments of the corporation are fixed and the returns from investments are used to pay all the investors who fund the corporation, a basic conservation principle is at work. If there is any risk involved in the investments, *someone* must bear this risk. For example, the \$8.5 billion in legal damages that Bank of America had to pay had to be borne by *someone*. In a manner similar to that seen in the physical principle that energy is conserved in a closed system, as long as the risks of the investments are collectively borne by the investors who provide the funding, changing how the risks are divided among them will not by itself change the overall funding costs.

Think about the total returns of the corporation as a pie and the funding mix as a way of cutting the pie into different pieces. Baseball legend Yogi Berra is said to have once asked a waiter to cut his pizza into four slices, saying, “I am not hungry enough for eight today.”¹⁹ This is funny because we know that changing the way in which a pizza is cut does not affect its food

content. Similarly, the way in which the funding mix divides the risks and returns among debt and equity investors does not by itself affect the value of the firm or its funding costs.

The food content of the pizza would have changed if somehow the way the pie was cut affected its content. If, for example, some of the pizza stuck to the knife and was lost every time the pie was cut, an eight-slice pie might in fact have had less food content than a four-slice pie. (If instead the knife had had a special device for adding cheese in the process of cutting, the pie would have had more substance when it was cut into eight pieces, so Yogi Berra would indeed have needed to be hungrier to eat an eight-slice pie than to eat a four-slice pie.)

Similarly, if the mix of debt and equity funding affects the value and the funding costs of a corporation, the reasons must be related to how the size of the total “pie” available to investors is affected rather than to how the pie is divided among them. In this case, any impact on overall funding costs that the mix of debt and equity has is not due to the fact that a particular security that the corporation issues to investors in exchange for funds is riskier relative to other securities. Rather it is due to the fact that using a different mix might affect such things as the amount of taxes the corporation pays, the subsidies it receives, or the investment decisions it makes.

The Big Question: Are Banks Special?

Bankers and many banking experts often claim that banks are different from other corporations, and therefore the insights discussed earlier about how the costs of funding depend on the mix of debt and equity are irrelevant for banks. The persistent refrain is that M&M (as the result of Modigliani and Miller is often referred to) does not apply to banks. Is this true?

The question “Does M&M apply to banks?” was posed by Merton Miller in the title of the article from which the epigraph to this chapter is taken. In that article he gave the succinct answer “Yes and no,” the same answer that anyone would give when asked about the applicability of M&M to *any* industry. “Yes” because the basic considerations underlying the result apply in banking as well as in any other industry; “no” because the underlying assumption, that there are no frictions in the system, is not satisfied in reality,

in banking or in other industries. The critical question is not whether there are deviations but whether and how the deviations might be relevant for the individual company and for policy considerations.²⁰

In Chapter 4 we saw that some of the main functions of banks are tied to their borrowing. For example, deposits, which are the basis for the payments system, are debts to the bank whereby the bank effectively borrows from depositors. Because banks provide many services and conveniences in exchange for deposits, the interest rates banks pay on deposits are typically very low. But paying low rates to depositors does not necessarily make deposits cheap for the bank. Banks have to incur expenses in providing ATMs and payment services (though of course they may charge fees for some services). If deposits are insured with the FDIC, the bank must also pay an insurance fee, so how cheap or expensive it is for the bank to use deposits for funding also depends on the insurance fee. For all these reasons, bank funding by deposits is different from other types of funding that banks use and the logic of M&M does not apply to changes in deposit funding.²¹

However, banks typically have a lot of debt other than deposits. Some actually borrow much more in the form of non-deposit debt than through deposits. For these other forms of debt and for equity that is traded in stock markets, the relation of funding costs to the funding mix is determined by the same logic that we previously discussed and by the same logic that applies to the funding of all corporations. Those holding uninsured debt issued by a bank assess the risk that they might not be paid and set the terms of the debt accordingly. If there is a risk of default, they charge higher rates or require the bank to give them collateral that they will own if the bank fails to pay them back. The principles of what determines the cost of different funding mixes are the same for banks as for nonbanks, particularly when the bank must choose between adding equity and adding non-deposit debt to the mix.

In the case of equity, in particular, the investors who invest in bank stocks and become shareholders of the bank think about the risk of their investment in bank stocks in the same way they think of the risk of any other stocks or investments they might make. Bank equity investors are often the very same investors as those that invest in other stocks. They are mutual funds investing on behalf of individuals in broad diversified portfolios, or they are other

investors that think of the risks and returns of all the various investments they can make. Many of us have some bank stocks as part of our pension fund investments.

The notion that the required ROE is fixed and independent of the funding mix is as fallacious for banks as it is for nonfinancial corporations. It is an article of the bankers' new clothes that must be seen as the fiction that it is.²² There is in fact substantial empirical evidence that the average returns on the shares of banks that rely on more borrowing are higher than the average returns on shares of banks that rely on less borrowing and have more equity.²³

The debt-equity mix that corporations use does have an impact on their overall funding costs. For example, if more debt is used relative to equity, any corporation may be able to pay less in taxes to the government, which allows investors to share more returns in total than they would have shared if their corporation had not borrowed at all. The tax saving may give borrowing an advantage for corporations relative to funding their investments with equity.

For banks, there are also other considerations that make funding matter. But these considerations are not related to the fact that equity is riskier and thus has a higher required return than debt. For banks, the assumption that the risk of an investment is borne by the investors who provide funding for the corporations does not hold.

For example, some of the downside risk of the investment is borne by the FDIC, which provides deposit insurance. If the bank loses so much that it does not have enough assets to pay its depositors, the FDIC will pay what the banks' assets do not cover. In the recent crisis, the government offered guarantees for many nondeposit bank debts. This can make borrowing cheaper and more attractive for banks, but such cost savings are paid for by others and therefore should not affect policy.

The Irrelevance of Book Values

In the conversation reported by Merton Miller, the banker who claims that equity is expensive refers to the difference between the book value and the market value of equity, not to the required returns for different mixes of debt

and equity funding. Our discussion so far has not considered his objection. We have hardly referred to the share price at all. Where does the price come in?

Our discussion has focused on how the required ROE depends on the risk of the stock. The return that shareholders “require” matters because, as we discussed, if shareholders expect a lower return, they will reduce their demand for the stock, which will force the stock price to decline. The stock price must be low enough so that, with their expectations of the average return, shareholders will be willing to hold the stock.

The banker in the conversation complains that banks’ stock prices are only 50 percent of their book values. In his view, it seems, issuing shares is “expensive” because the shares will have to sell for 50 percent of their value as reported on the banks’ balance sheets. Bankers do not want to fund new loans by issuing new shares under these conditions, says the banker; they would, however, be happy to fund them by borrowing more.

Miller’s answer is very clear: book values, whether they are smaller or larger than market values, have nothing to do with the cost of equity. Or, as we would say, the banker’s claim is an article of the bankers’ new clothes. Making lending decisions according to whether the market price of a bank’s shares is lower or higher than the value of the stock in the bank’s books is bad business strategy.²⁴

We noted in Chapter 6 that, as of December 30, 2011, JPMorgan Chase reported that the book value of its equity was equal to \$184 billion. This translates to a per-share book value of \$48.55, significantly higher than the \$33.25 at which the bank’s shares were selling in the stock market at the same time. For weaker banks, the situation resembled the banker’s statement that “their stock is selling for only 50 percent of book value.”

If the book value of \$48.55 per share for JPMorgan Chase was the right value for a share of JPMorgan, issuing a new share at anywhere near the stock price at the time, \$33.25, might seem to be a bad deal for the bank. However, was the stock really worth \$48.55 per share? As we discussed, the market price of a share reflects shareholders’ assessments of the future returns that the shares will bring, which depend on the returns that the bank will earn from its assets, the interest the bank has to pay on its debt, and the bank’s

decisions whether to make dividend payments or to reinvest these returns. If JPMorgan Chase shareholders believed that the bank's prospects warranted a price of \$33.25 per share, perhaps that was the right value after all.

If a bank has made many loans that are "nonperforming" and seem unlikely to be paid in full but are not recognized as problematic and are instead reported at historical values, the book value of the stock may be too optimistic as an estimate of what the stock is worth. If the bank were to acknowledge the problems, it would take a loss and assign a lower value to these loans. As we saw in Chapter 2, such a loss would directly reduce the value of the bank's equity on its balance sheet. The book value per share would then also be lower.

Quite often, the market value of a bank's stock is lower than the book value because bank managers are reluctant to acknowledge losses. This may be due to wishful thinking, with the managers hoping that the borrowers' problems will not be so serious after all. Or managers may want to delay disclosing losses so they can first reap a bonus for the current year's reported profits. Higher balance sheet valuations also help satisfy capital requirements. Bankers have clear incentives to delay recognizing losses if they can do so, and the accounting rules are sufficiently flexible to leave much room for such delays.

The bankers' refusal to admit and recognize losses, however, does not make the losses disappear.²⁵ If a bank forgoes profitable opportunities just because it lost on its previous investments and is unwilling to be upfront about the losses, it may well be harming its shareholders. If the losses are in fact real, issuing new shares at the price that is paid in the market seems "expensive" to the banker who must acknowledge that he has managed to turn a dollar into fifty cents but not to the shareholders who will have to bear the losses anyway. The shareholders truly lose if the banker's fear of losing face by making that acknowledgement makes him forego some profitable opportunities.²⁶

When bankers make investment and funding decisions and when they lobby against higher capital requirements, on whose behalf are they acting? Not surprisingly, as we discuss in the next chapter, first and foremost bankers act on their own behalf.

Paid to Gamble

It is difficult to get a man to understand something, when his salary depends upon his not understanding it!

Upton Sinclair, I, Candidate for Governor: And How I Got Licked (1935)

WHEN ARGUING AGAINST higher capital requirements, bankers and others routinely claim that having more capital would “lower returns on equity” (ROE).¹ These lower returns, they claim, would harm their shareholders and could “make investment into the banking sector unattractive relative to other business sectors.”²

Arguments against higher capital requirements that are based on such reasoning are fundamentally flawed. Such arguments ignore the basic connection between borrowing and risk, discussed in Chapter 2, and the basic connection between risk and required returns, discussed in Chapter 7. The arguments also say little to the policy issue because they neglect the need to protect the economy from the risks implied by banks’ being funded with very little equity.

The focus on ROE is deeply imbedded in the culture of banking. For example, a leading textbook, written by a prominent academic and former central banker, states that bank capital “has both benefits and costs. Bank capital is costly because, the higher it is, the lower will be the return on equity for a given return on assets.”³

As a general statement about *actual* ROE, this is simply false: more equity does *not* always cause ROE to be lower. In Chapter 2 we saw that borrowing magnifies risk on the downside as well as the upside. Therefore, if a bank’s assets decline in value, its ROE will actually turn out to be higher, less negative, if there is more equity.

It is true that the *average* ROE may decline if the bank uses more equity. However, as we saw in Chapter 7, when more equity funding is used, the *required* ROE is lower because shareholders bear less risk for each dollar invested. Therefore, shareholders need not be harmed when more equity is used. The lower average return may compensate them sufficiently for the risk they are exposed to. In this case, the textbook's assertion that increasing bank capital is harmful to shareholders is also false.

ROE by itself is a flawed measure of performance. *Actual* ROE reflects economic developments such as the level of housing prices, as well as luck—for instance, how speculative trading in derivatives turned out. The *average* ROE may be high because a bank is taking inordinate risks, which can be rewarded with higher average returns in financial markets. Just taking risks by itself, however, does not help shareholders, because there are many ways for shareholders to take risks on their own and receive appropriate returns other than investing in banks.

Investors care whether the average return they receive on any of the assets they hold is appropriate *relative to the risk they bear*. As discussed in the last chapter, average returns on safe investments are lower than average returns on risky investments. Investors agree to buy safe assets such as bonds even though, on average, they receive lower returns. And the risk associated with any investment depends critically on whether and how much the investment is leveraged through borrowing.

Why are bankers so focused on ROE? The quote from Sinclair in the chapter epigraph provides an important clue. Bankers may target high ROE because it is treated as a performance measure that affects their compensation. If compensation depends on ROE, bankers have direct incentives to take risks. Bank managers also have incentives to increase bank borrowing in order to increase the average ROE as well as the bank's risk.

As long as the gambles are successful, shareholders gain on the upside. Losses, however, also harm creditors and taxpayers. Nevertheless, even shareholders can be harmed if managers go after high ROE with insufficient concern for risk.⁴ If bank managers find ways to hide risks for a while, investors and regulators may not even be aware of them. By the time the risks materialize, the managers may have already reaped the bonuses for today's profit.

Governance problems related to risk controls in banks are particularly challenging, because risks are difficult to judge and can be easy to hide. Risk management and risk controls do not seem to be high priorities for banks. The incentives of top managers may be distorted as well, or they might be unable to control those they manage. Even boards may have distorted incentives and have trouble controlling the overall risks taken by the banks.

On the Downside, ROE Is Higher with More Equity

To understand the mechanics of ROE, consider again the mortgage example of Chapter 2, in which Kate buys a \$300,000 house with either a \$270,000 mortgage or a \$240,000 mortgage. We saw in Chapter 2 that if Kate borrows less, the impact of any subsequent change in the value of the house on her equity position will be less pronounced.

In Chapter 2 we simplified the discussion by ignoring the interest payments Kate makes during the year, as well as the rent she saves by living in her own house. This allowed us to see most easily how borrowing creates leverage and magnifies risk.

The same effect can be seen when the interest is taken into account, as is appropriate in comparing different rates of return.⁵ Table 8.1 presents the same calculations as Table 2.1 under the alternative assumption that Kate pays 4 percent interest on her mortgage. Simplifying again to make the discussion easier, we assume that all the interest will be paid at the end of the year when she sells the house and settles the mortgage. (We also neglect Kate's savings on rent, which does not affect our conclusions.)

If Kate borrows \$270,000, the 4 percent in interest payment amounts to \$10,800 and she owes \$280,800 on her mortgage at the end of the year. If she borrows \$240,000 at 4 percent, her interest cost is \$9,600 and she owes \$249,600.⁶

Kate's ROE is calculated as what she makes per dollar of her initial investment. For example, if she invested \$30,000 and the house sells for \$345,000 (as in the top panel), she ends up with \$64,200 after paying the mortgage, which represents a return of \$34,200 on her investment of \$30,000, or 114 percent.

As the table shows, whether Kate's actual ROE is higher or lower with more borrowing depends on whether the house increases in value by more or less

TABLE 8.1 Borrowing at 4 Percent to Buy a \$300,000 House in Two Down Payment Scenarios (assuming a nonrecourse clause)

<i>Borrowing with a \$30,000 down payment (initial equity)</i>				
<i>Year-end house price (dollars)</i>	<i>Percent change in house price</i>	<i>Mortgage debt (dollars)</i>	<i>Final equity (dollars)</i>	<i>Return on equity (percent)</i>
345,000	15	280,800	64,200	114
315,000	5	280,800	34,200	14
300,000	0	280,800	19,200	-36
285,000	-5	280,800	4,200	-86
255,000	-15	280,800	0	-100
<i>Borrowing with a \$60,000 down payment (initial equity)</i>				
<i>Year-end house price (dollars)</i>	<i>Percent change in house price</i>	<i>Mortgage debt (dollars)</i>	<i>Final equity (dollars)</i>	<i>Return on equity (percent)</i>
345,000	15	249,600	95,400	59
315,000	5	249,600	65,400	9
300,000	0	249,600	50,400	-16
285,000	-5	249,600	35,400	-41
255,000	-15	249,600	5,400	-91

than the interest she must pay, or 4 percent.⁷ If the house increases in value by more than 4 percent, such as by 5 percent or 15 percent, Kate's ROE is higher if she borrows more (as in the top panel) than if she borrows less and has more equity (as in the bottom panel). Leverage magnifies her high returns in these good scenarios, and the more leverage, the greater the magnification.

If the house increases in value by less than 4 percent, however, Kate's ROE will be higher if she borrows less and has more equity. In particular, if the value of the house stays the same or even goes down, as in three cases shown in the table, Kate's ROE will be negative and her loss will be greater if she borrows more (as in the top panel) than if she borrows less and has more equity (as in the bottom panel). Her ROE will therefore be greater (less nega-

tive) with less borrowing in these bad scenarios. Leverage magnifies her losses and lowers her already negative ROE even further.

The same considerations apply when corporations borrow. When a corporation uses more equity, its actual ROE will be lower only in scenarios in which the assets earn more than the interest rate on the debt. Otherwise, the actual ROE will be higher when more equity is used. The statement that ROE always declines with more equity is therefore false, an article of the bankers' new clothes.

Can the unpleasant possibility that assets earn a lower return than the borrowing rate be neglected? An optimistic banker might think so; in many scenarios the spread between the rate of return earned on assets and the rate paid to borrow is seen as positive, and large returns can be earned without ever worrying about possible losses. If losses were impossible, there would be no need for any equity to absorb losses.

Being able to use borrowed money to invest in assets that always pay more than the costs of borrowing is too good to be true, at least for ordinary people and nonfinancial businesses and corporations. If normal borrowers invest borrowed funds in risky assets whose value is uncertain when the investment is made, there must be *some* likelihood that the return on the assets will turn out to be below the borrowing rate. If the assets always return more than the borrowing rate, the borrower cannot ever lose. He will therefore have the proverbial money machine, allowing him to make money for sure without risking any money of his own.⁸

It may seem that banks are not normal borrowers and sometimes have access to such a money machine. For example, for the few years since the financial crisis, U.S. banks have been able to borrow at close to zero interest from the Federal Reserve. If banks can borrow at such a rate for ten years and invest the money in U.S. government bonds that are perfectly safe and pay 2 percent interest for ten years, they can be said to have a money machine.⁹

However, there is a snag even here: if the low interest is available just for a short-term loan and not for a ten-year loan, banks face the risk that at some point during the ten years their borrowing cost might go up, perhaps even higher than the 2 percent they are making on the ten-year bonds they hold,

at which point the banks will lose money on their investment.¹⁰ Thus, even banks cannot ignore the risk that the rate of return on their assets may actually be lower than the interest rate at which they can borrow.

The More Equity, the Lower the Required ROE

On average, of course, banks hope to—and usually do—earn returns that are well in excess of their borrowing rates. In such a case, a change in a bank's funding mix so as to have more equity and less debt will lower the average ROE of the bank.¹¹

However, a decline in average ROE does *not* mean that shareholders would be harmed. Whereas shareholders receive, on average, less compensation for bearing risk, they also bear less risk. As discussed in Chapter 7, the risk per dollar invested in a bank's equity is lower if there is more equity. Therefore, the *required ROE*, which we introduced in Chapter 7 as a benchmark return that shareholders expect to receive on average, is also lower when banks have more equity. If the decrease in average ROE and the decrease in required ROE are the same, the compensation shareholders receive is still sufficient for the risk they bear. Shareholders are harmed only if the average ROE actually decreases by more than the required ROE.

Target ROE and Shareholder Value

Bankers often set high figures for target ROE that they promise their shareholders they will try to achieve. They also tell politicians, regulators, and the public that shareholders “require” them to strive to hit these targets. In the years before the financial crisis, Josef Ackermann, the CEO of Deutsche Bank from 2002 to 2012, repeatedly announced that an ROE of 25 percent before taxes was the benchmark for a competent investment bank and that Deutsche Bank was aiming to meet this benchmark, at least on average, over a number of years.¹² On a more modest scale, Bob Diamond, CEO of Barclays from 1996 to 2012, announced in April 2011 that he was targeting a 13 percent ROE by 2013.¹³

These statements presume that ROE is a meaningful measure of performance and that it makes sense to set benchmarks and targets for ROE. However, if no account is taken of how much debt has been taken to create

leverage and, more generally, of the risk of the equity per dollar invested, ROE is not a meaningful measure of performance, nor does it measure shareholder value. If no account is taken of the market environment, such as market rates of interest, comparison of ROE with a given benchmark is also not meaningful. Implying otherwise is another article of the bankers' new clothes.

Mr. Ackermann's 25 percent would have meant something different at a time when the interest rate on long-term bonds was 6 percent than it does at a time when this interest rate is at 2 or 3 percent. Similarly, the compensation that investors require to be willing to take on risks can change over time, and this will affect the required ROE for all corporations.

As discussed earlier, if a corporation uses more equity to fund its investments or if its assets are less risky, the risk per dollar invested in the equity will be lower, which means that the required ROE will be lower. Shareholders who find the average ROE too low for their taste and would like to dramatically increase the average return on their investments can do so on their own—for example, by borrowing to create leverage. When banks do the borrowing instead of their individual shareholders, they add risk to the financial system and may harm the economy.

Shareholders might actually be harmed by actions that managers take to try to achieve a target ROE. Managers have many ways to take risks with investors' money, for example, by trading in derivatives markets. This can expose shareholders to risks that they might prefer not to take and for which they may not be sufficiently compensated. Moreover, because derivatives trade over the counter and not on organized exchanges with fully transparent transactions and prices, shareholders might not even be aware of the risks that are taken.¹⁴

The target of 25 percent that Mr. Ackermann had set for Deutsche Bank was much higher than the average actual ROEs that the bank achieved during his tenure. The average of Deutsche Bank's pretax ROEs from 2003 to 2012 was just 11.7 percent. The ROE was above 20 percent in just three years, 2005–2007, when the bank was earning large profits from producing and selling mortgage-related securities. In all other years since 2003, Deutsche Bank's ROE has been below 16 percent; in 2008, the worst year of the crisis, it actually was negative 16.5 percent; in that year, the bank suffered a large loss.¹⁵

When a bank sets a target that is so much out of line with experience, it cannot reach that target merely by becoming better at what the bank has done before.¹⁶ Reaching the target may be possible only if the bank takes additional large risks.

On the face of it, the target ROE of 13 percent that Mr. Diamond set for Barclays in April 2011 may seem more realistic. However, even this target seems daunting when market interest rates are low and banks are facing many challenges.¹⁷

In announcing his ROE target of 13 percent, Mr. Diamond said that the bank was ready to increase its “risk appetite” in order to achieve the target. He did not discuss whether the increase in returns that he would achieve by taking the additional risks would be sufficient to compensate his shareholders for the added risks they would have to bear.

If bankers such as Barclays’ Bob Diamond or his successors are able to find investments with sufficiently better return prospects to compensate them for their risk, shareholders will want them to take advantage of the opportunities anyway, regardless of what target they have for ROE. If the return prospects are not good enough to compensate for the higher risks, the shareholders will be harmed if the bank tries to reach the ROE target by just increasing its risk appetite.

In other words, if the risky investments a bank like Barclays plans to make because of the bank’s increased risk appetite are already available, why hasn’t the bank made them already to benefit its shareholders? Why does a bank need to increase its risk appetite to make good investments? Conversely, if the bank takes risks just to achieve a target ROE, how is it creating value for its shareholders? Investors who are keen to take more risks can find plenty of opportunities on their own to make risky investments and raise their average returns in the financial markets. Like any company in the economy, a bank should do something for its shareholders that shareholders cannot do by themselves without allowing bankers to invest on their behalf.¹⁸

Performance Pay

The focus on ROE may actually have more to do with the way bankers are paid than with the wishes of shareholders. Bankers in positions of responsi-

bility are paid on the basis of the profits their banks make. Through stock-related compensation, they are also given incentives to care about how the stock price develops. The idea is that high earnings reflect good management performance, and a high stock price reflects a good assessment of this performance by investors.

However, the profits a bank makes depend on the extent of its borrowing and the risk it takes as well as on the performance of its management.¹⁹ High profits can also be achieved if the bank's managers invest in a weekend of gambling in Las Vegas and they happen to be lucky and come back with a large gain. Such a lucky outcome is of course quite unlikely, but if compensation is arranged so that the banker gets to keep 5 percent of profits and faces no penalty for losing, he may still find gambling in Las Vegas an attractive option. The downside risk is borne by others.

In reality, of course, bankers do not gamble in Las Vegas (although Deutsche Bank has recently invested \$5 billion in the Cosmopolitan casino there²⁰). Gambling in derivatives may have more favorable odds than gambling in casinos. The principle, however, is the same: if compensation allows bankers to benefit from large gains while not suffering much from losses, taking risks may be attractive.

When risks are taken, shareholders may benefit or lose depending on whether their share on the upside provides enough compensation for the downside risk that they have to bear. If the performance pay of bank managers and traders is sufficiently geared toward gains and less toward losses, their incentives to take risks may be such that shareholders will dislike their gambles if they know about them.²¹ In addition, of course, downside risks that cause distress or default harm creditors and possibly taxpayers.

Risks to taxpayers are particularly large if bank managers of different banks follow similar strategies, so that many banks may experience losses at the same time.²² Such herding behavior can be attractive because it provides a way to deflect blame when things go wrong. Excuses like "We all made this mistake" or "We cannot be immune to a crisis of the overall system" are meant to reduce personal responsibility. Herding can also be made attractive by the prospect that when many banks experience losses, the government might feel compelled to provide support.

The large ROEs that banks achieved before the financial crisis provided the basis for large bonuses and high compensation levels for bankers even as banks took on significant risk and increased their reliance on borrowing. When banks suffered large losses during the crisis and since, however, bankers' compensation did not decrease proportionally to reflect the decline in ROEs.²³

Showing Profits, Hiding Risks

So far our discussion has focused on returns over one specific period, such as a year. In reality, however, investments affect risks and returns over longer periods. After a year, it is often not yet clear what returns an investment will provide. Yet compensation is determined annually on the basis of the bankers' performance over the past year. For CEOs, banks' earnings and ROE over the past year provide the basis for determining an important part of the compensation. For bank employees, such as traders or salespeople, the contribution they made to earnings typically provides the basis for their bonuses.²⁴

To determine earnings over a particular period, some values must be assigned to the investments that were made over the period. These value assignments are often coarse or even speculative. For investments that can be traded in organized markets, such as stock exchanges, one can rely on market prices. For investments for which such markets do not exist, values are given on the basis of accounting conventions or mathematical models that assign so-called fair value to trading positions.

In the latter situation, bankers at all levels have strong incentives to follow strategies that will show high profits upfront although the risks may not appear until later. Profits are front-loaded to boost short-term performance, whereas risks and losses that may appear later are not properly taken into account. One method for doing this might be to hide risks in subsidiaries or other entities off the balance sheet using methods similar to those used by Enron before it went into bankruptcy.²⁵

Sometimes such an extra effort to hide risks is not even needed. Investors may believe, for example, that securities stamped totally safe and given AAA ratings by credit rating agencies carry essentially no risk. The notion that risk

must be the reason that the interest on a AAA-rated security is slightly higher than the interest on U.S. Treasury securities is ignored.

In the years before the recent crisis, bankers used large amounts of borrowed money to buy such securities. Because the returns on these securities were slightly higher than the costs of funding, the banks' books showed large profits. The return differentials were small, but, with tens of billions of dollars invested, even an extra return of 0.1 percent provided a nice profit—and a nice bonus to the investment bankers involved. The risk of the mortgages underlying the securities was not taken into account.²⁶

When many of the securities were discovered to be toxic in 2007, traders, investment bankers, and top executives had already cashed in their earlier bonuses. The losses were left to the banks' shareholders and creditors—and to taxpayers. If managers themselves still held shares, they participated in these losses, but, given the large amounts of compensation they had previously received, they still came out with huge gains.²⁷

Risk Control and the Bonus-and-ROE Culture

The problem of risk control goes beyond the individual traders and can concern entire affiliates or divisions of a bank. Swiss Bank UBS's "Report to UBS Shareholders on Write Downs" (2008) explains in great detail how the bank's subsidiary, UBS Investment Bank, had taken huge risks in securitizing and selling, or even holding, mortgage-related securities.²⁸ The report also explains that UBS senior management had never received a full account of the business model UBS Investment Bank was pursuing or a comprehensive systematic analysis of the risks involved. Until June 2007, UBS Investment Bank could obtain additional funding from the parent bank at an interest rate that did not properly reflect the risks.

From reading this report, one gets the impression that UBS Investment Bank went out of its way to make sure that UBS senior management would not look too closely at what the investment bank was actually doing. However, one also gets the impression that UBS senior management did not make a very serious effort to find out—until it was too late. Similar observations were made in the case of Enron prior to its bankruptcy and in other accounts of the decade before the recent financial crisis. Taking risks and cutting cor-

ners may be tolerated as long as a unit generates profits. This is a general problem of focusing on short-term corporate profits as a measure of successful management.²⁹

The ROE culture extends beyond the individual bank. Analysts and journalists commenting on the quarterly or annual reports of a bank will usually highlight the bank's earnings and mention the bank's ROE but say little about risks. Risks are difficult to observe, measure, and communicate in an accessible way. By contrast, earnings and ROE figures provide precise numbers to discuss, and they can be compared with numbers from other years or other banks.

The UBS report also suggests that competitive pressures push banks to engage in the same activities as others, and to take some of the same risks, in order to "keep up with the Goldmans."³⁰ Citigroup CEO Chuck Prince put it this way in July 2007: "As long as the music is playing, you've got to get up and dance."³¹ Outside assessments based on comparisons of earnings and ROE targets contributed to these pressures.

What about the banks' boards of directors? The boards typically focus fully on *their banks*. This means that their concern is primarily with shareholders, especially those who have substantial shareholdings in the banks. Like others inside and outside of the banks, boards of directors often focus on short-term profitability and return measures. Board members may find it difficult to ask whether the past quarter's record earnings might be due to the banks' having taken on a lot of risk and been lucky rather than to the CEOs' being capable. It takes courage to challenge what everyone else regards as a record of success. In addition, board members often lack expertise in banking, and they are likely to be unwilling or unable to challenge reports by management.³²

Directors and some large shareholders may be conflicted with other shareholders, with creditors, and with the public, particularly when it comes to the safety of the bank. One example concerns payouts such as dividends and share buybacks. As mentioned in Chapters 2 and 3, when cash is paid to shareholders or owners, it is no longer available to pay creditors. This corresponds to the case in Chapter 3 in which Kate takes out a second mortgage and uses the money for consumption. She lowers her equity and raises the

likelihood that she may end up underwater. If bank creditors allow these payouts because they are protected by guarantees, the payouts put taxpayers at risk. If bank boards of directors do not concern themselves with the impact of the banks' decisions on creditors, taxpayers, or the economy, they will proceed with such decisions even if they are harmful to others.³³

In order to address the risks that individuals within the banks take, some banks have recently put in place delays of bonus payments and "clawbacks" that allow the banks to demand that their managers pay back some of their bonuses in case of losses. In practice, however, clawbacks have only rarely been used so far, and it is unlikely that the threat of clawbacks will have a major effect on risk taking unless compensation structures change.³⁴ Because excessive risk taking can harm the economy, some politicians and regulators have proposed the regulation of compensation in banks.³⁵

Even if compensation systems are improved, however, the treatment of short-term profits as a key measure of performance will continue to induce decisionmakers in banks to gamble with investors' money. One reason for this is ambition. For example, in the early 1990s Mathis Cabiallavetta, a member of the executive board of Union Bank of Switzerland, was proud to have a derivatives trader in London earning substantial profits. On the strength of these profits, Mr. Cabiallavetta was promoted to CEO of the bank. Then, in 1997, the profits from derivatives turned into much larger losses and he arranged to have his bank taken over by Swiss Bank Corporation to form the new UBS.³⁶

Banks do not seem to put significant resources into risk management. Those involved in managing and controlling risk are not rewarded as highly as those who take risks. Risk managers are often not provided with enough timely information, and they have little authority to interfere.³⁷ Shareholders seem helpless to promote better risk management, even when they try.³⁸

The 2001 bankruptcy of Enron, among the largest and most complex bankruptcies in U.S. history, revealed significant governance problems, as well as problems related to accounting and auditing practices.³⁹ In response to these problems, the Sarbanes-Oxley Act, passed in 2002, sets new standards for the boards, management, and accountants of public companies in the United States. However, the issues that motivated this legal reform remain

problematic. Auditors might be in a position to alert boards and investors to questionable practices and hidden risks, but they might have their own conflicts of interest. As a result, investors and regulators may not receive sufficient information to judge the risks taken by large financial institutions.⁴⁰

Nobody can borrow unless someone agrees to lend to them at acceptable terms. Why can banks, despite being so highly indebted, find willing lenders and continue to borrow at terms that are sufficiently attractive for them? As we will see in the next chapter, guarantees and subsidies play a critical role in answering this question.

Sweet Subsidies

I don't know how you measure that subsidy. . . . That's why they say it's invaluable.

Mark Zandi, chief economist of Moody's Analytics, part of the credit rating agency Moody's, April 2009

YOGI BERRA'S SUGGESTION that the content of a pizza might depend on how it is cut is absurd. Yet when banks borrow excessively and economize on equity, the total "pie" available to their investors grows.¹ When banks borrow, they benefit from subsidies that they would not enjoy if they relied more on equity. The more banks borrow, the larger are the subsidies, as if the pizza chef added more cheese when the pizza was cut into more slices.

The main source of subsidies for banks is the support the government provides to protect banks, their depositors, and sometimes their other creditors and their shareholders. Banks and their creditors benefit from explicit and implicit government guarantees. Depositors are protected by deposit insurance, which is guaranteed by the taxpayers. Other creditors, and even the bank's shareholders, benefit if the government provides additional equity to prevent the bank from going bankrupt—for example, in a crisis.

Because depositors and other creditors count on this support, they are willing to lend to banks on more favorable terms than the terms they would require otherwise. In particular, the interest rates banks must pay on their debt are lower than they would have been without government support. This gives banks strong incentives to prefer borrowing over other types of funding they might obtain for their investments. In effect, taxpayers subsidize the use of borrowing by banks. Paradoxically, these subsidies encourage banks to be more fragile. They reinforce the distortions from the bias that heavy borrowers

have toward even more borrowing, the effect of debt overhang discussed in Chapter 3.

Excessive borrowing by banks can expose the public to great risks. A bank exposing the public to risks is similar to an oil tanker going close to the coast or a chemical company exposing the environment to the risk that toxic fluids might contaminate the soil and groundwater or an adjacent river.² Like oil tankers or chemical companies that take too much risk, banks that are too fragile endanger and potentially harm the public. Cleaning up coastlines and rivers and bailing out banks are all costly to taxpayers. The risks and costs to the public in all these cases are very real. For society, containing the risks of oil tankers, chemical factories, and banks is therefore important, even if there is a cost involved. In the case of banks, in fact, requiring more equity produces large benefits at virtually no cost to society.

Explicit and implicit government guarantees have perverse effects on the extent of borrowing and risk taking of banks. The preferential tax treatment of debt also encourages borrowing. With the additional borrowing, the incentive to take excessive risks, discussed in Chapter 8, becomes stronger.

Government guarantees and subsidies thus reinforce the effects of bankers' compensation and the focus on ROE, as well as the effects of debt overhang, all of which encourage borrowing and risk. The prospect of becoming systemically important or too big to fail provides banks with incentives to grow and become more complex. The implicit guarantees reduce the funding costs of the too-big-to-fail institutions and give these banks an advantage over other banks and over other companies in the economy. If banks respond to these incentives by growing and becoming more complex, this in turn increases the damage to society should these institutions become distressed or insolvent. It is as if the government subsidized ever larger tankers going ever closer to the coast.

Isn't It Wonderful to Have Such an Aunt?

To see how guarantees work, let us again consider the example of Kate who takes out a mortgage to buy a \$300,000 house that she sells a year later.³ In the case discussed in Chapter 8, we assumed that Kate borrows \$270,000 at 4 percent interest and puts down \$30,000 in down payment or initial equity.

If Kate settles her mortgage and pays all the interest after a year, she owes \$280,800, including \$10,800 in interest, to settle the mortgage a year later. If Kate has a nonrecourse mortgage, as we have been assuming, she does not pay her debt in full when the house subsequently declines in value to below the amount of the mortgage debt, \$280,800.⁴ We can assume that the 4 percent interest rate that Kate is charged includes some compensation for the risk to the bank of not being paid in full.

Now let us change the example slightly by assuming that Kate's Aunt Claire offers to guarantee Kate's mortgage. If the house subsequently sells for less than Kate owes on her mortgage, Aunt Claire will make up the difference. The local banker knows that Aunt Claire is wealthy. With the mortgage guaranteed by Aunt Claire, the bank faces virtually no risk and therefore allows Kate to borrow at the riskless interest rate of 3 percent.

In borrowing \$270,000 at 3 percent instead of at 4 percent, Kate pays only \$8,100 in interest instead of the \$10,800 she must pay without the guarantee. She saves 1 percent in interest on the loan of \$270,000, which amounts to \$2,700 for the year. This leaves Kate with more money after paying the mortgage debt. For example, if the house subsequently increases in value by 5 percent to \$315,000, we saw in Chapter 8 that Kate will be left with \$34,200, a 14 percent return on her equity investment, if she borrows at 4 percent. If she borrows at 3 percent and owes only \$278,100, she will instead have \$36,900 left, a 23 percent return on her equity investment, after selling the house for \$315,000 and paying her mortgage debt.

The saving of \$2,700 in interest will also soften the blow should Kate lose some of her investment, assuming that she is still "above water" and able to pay her mortgage. For example, if the house sells for \$300,000, Kate will be left with \$19,200 if she borrows at 4 percent, a loss of 36 percent of her investment, but she will have \$21,900 if she borrows at 3 percent, losing only 27 percent of her investment. Similarly, she will lose less if the house declines in value by 5 percent to \$285,000. In the worst-case scenario, if the house ends up below \$278,100 in value, Kate will lose everything whether she borrows at 3 percent or 4 percent; Aunt Claire's guarantee does not benefit Kate in this case.

The situation is summarized in Table 9.1. The top panel reviews the case discussed in Chapter 8, in which Kate pays 4 percent interest, while the bot-

TABLE 9.1 How Kate Benefits from Guarantees When Borrowing

<i>Kate's position with no guarantees (borrowing at 4 percent)</i>				
<i>Year-end house price (dollars)</i>	<i>Percent change in house price</i>	<i>Mortgage debt (dollars)</i>	<i>Final equity (dollars)</i>	<i>Return on equity (percent)</i>
345,000	15	280,800	64,200	114
315,000	5	280,800	34,200	14
300,000	0	280,800	19,200	-36
285,000	-5	280,800	4,200	-86
255,000	-15	280,800	0	-100
<i>Kate's position with guarantees (borrowing at 3 percent)</i>				
<i>Year-end house price (dollars)</i>	<i>Percent change in house price</i>	<i>Mortgage debt (dollars)</i>	<i>Final equity (dollars)</i>	<i>Return on equity (percent)</i>
345,000	15	278,100	66,900	123
315,000	5	278,100	36,900	23
300,000	0	278,100	21,900	-27
285,000	-5	278,100	6,900	-77
255,000	-15	278,100	0	-100

tom panel shows the case in which Kate borrows at 3 percent with the guarantee from her aunt. Kate benefits from the guarantee even when she is able to pay her debt, and this is reflected in her ROE.

We saw in Chapters 2 and 8 that borrowing magnifies risks for the borrower both on the upside and on the downside. With the guarantee from her aunt, the upside for Kate is even better and the downside is either better or no worse. Kate is obviously quite happy with the guarantee, and the bank is getting paid for sure. Aunt Claire, however, must put up money in the one case in the table in which Kate cannot pay. If the house sells for only \$255,000, Aunt Claire will have to add the missing amount of \$23,100 so the bank is paid \$278,100 in full.

If she can, would Kate like to reduce her down payment and borrow more? Suppose Aunt Claire is in fact willing to guarantee Kate's mortgage even if

Kate borrows \$290,000. The bank would allow Kate to take a larger mortgage because it knows that it will get paid in full no matter what happens to the value of the house. The interest rate it would charge Kate would again be 3 percent even for a larger mortgage.

How does the situation in which Kate invests only \$10,000 instead of \$30,000 in the house compare to that in which she invests \$30,000? If Kate borrows \$290,000 for a year at 3 percent, her interest payment is \$8,700, so she owes \$298,700. In this case, Kate will become underwater and will be unable to pay her mortgage debt from selling the house if the house subsequently sells for less than \$298,700. For example, if the house sells for \$285,000, Kate will default on her mortgage debt if she borrows \$290,000. In this scenario, Aunt Claire will have to pay \$13,700 to make sure the bank is paid the full \$298,700 that is owed. By contrast, if Kate borrows only \$270,000 and puts \$30,000 in as a down payment, she will absorb the entire loss without needing the guarantees.

Table 9.2 summarizes the positions of both Kate and her aunt if Kate invests \$30,000 in equity and borrows \$270,000, as shown in the top panel, which is the same as the bottom panel of Table 9.1, and if Kate invests \$10,000 and borrows \$290,000, both loans at 3 percent interest.

Obviously, if Kate borrows more, Aunt Claire will bear much more of the downside risk. For example, if the house subsequently declines to \$255,000 in value, Aunt Claire will have to put in \$23,100 if Kate borrows \$270,000 and owes \$278,100. In the bottom panel of Table 9.2, which represents the situation in which Kate borrows \$290,000 and owes \$298,700, Claire will have to cover a whopping \$43,700 to live by her guarantee. Although Kate will lose all her investment in both cases, the loss will be only \$10,000 if she borrows \$290,000, whereas it will be \$30,000 if she borrows \$270,000.

The guarantees are a gift from Aunt Claire to Kate. The more Kate borrows, the larger is the value of the gift. If Kate borrows more, as represented in the bottom panel of Table 9.2, Aunt Claire will sometimes have to pay more than she will if Kate borrows less. (In the cases in which Kate can pay the mortgage by selling the house, her aunt will pay nothing in both cases.)

If Aunt Claire asks Kate to put more of Kate's own money into her down payment, Kate might claim, "Equity is expensive!" Indeed, once she has the

TABLE 9.2 How Guarantees Make Borrowing More Attractive to Kate

<i>\$30,000 down payment (initial equity)</i>				
<i>Year-end house price (dollars)</i>	<i>Percent change in house price</i>	<i>Mortgage debt (dollars)</i>	<i>Kate's final equity (dollars)</i>	<i>Aunt Claire's position (dollars)</i>
345,000	15	278,100	66,900	0
315,000	5	278,100	36,900	0
300,000	0	278,100	21,900	0
285,000	-5	278,100	6,900	0
255,000	-15	278,100	0	-23,100
<i>\$10,000 down payment (initial equity)</i>				
<i>Year-end house price (dollars)</i>	<i>Percent change in house price</i>	<i>Mortgage debt (dollars)</i>	<i>Kate's final equity (dollars)</i>	<i>Aunt Claire's position (dollars)</i>
345,000	15	298,700	46,300	0
315,000	5	298,700	16,300	0
300,000	0	298,700	1,300	0
285,000	-5	298,700	0	-13,700
255,000	-15	298,700	0	-43,700

guarantees, it will become expensive for Kate to invest more money in the house, because by investing more she puts more of her money at risk of being lost, when instead she can leave more of the downside risk for Aunt Claire, letting her aunt absorb more losses. (We are ignoring, of course, family considerations or hard feelings that might result from Kate's taking advantage of her aunt's generosity.)

Whether Kate actually ends up doing better or worse investing \$30,000 in the house depends on what she does with the \$20,000 that she does not invest in the house if she puts only \$10,000 into the down payment and borrows \$290,000. Kate might take an expensive trip with the money, and very much enjoy the experience.⁵ If instead she invests the \$20,000 elsewhere, the question is whether the alternative investment will end up earning more or

less than what Kate can earn by investing the money in the house and saving on interest payments. If Kate can invest the money at 3 percent without risk, she will make the same in those scenarios in which she remains above water, but in the scenarios in which she is underwater and must make use of Aunt Claire's guarantees, she will do better if her money is invested elsewhere, because she will not have to bear the losses. Therefore, Kate wants to put as little equity as possible into the house; without equity in the house, she will enjoy the upside and will lose less on the downside.⁶

In summary, Kate benefits from her aunt's guarantees by being able to pay less on her loan when she borrows. This allows her to save on interest expenses. Kate can increase her gains further by borrowing more and putting less equity into the house. The more Kate borrows, the greater will be the value that Kate will derive from Aunt Claire's gift. Putting her own money into the house seems expensive to Kate because it exposes her to downside risk that she can otherwise leave for Aunt Claire.⁷

Debt guarantees of the type Aunt Claire gives to Kate make borrowing very attractive. The bright side of borrowing—the magnification of the upside—looks even brighter to the borrower, while the dark side, the magnification of losses, affects the person making the guarantees, in Kate's case Aunt Claire. With lower interest on borrowing, it is easier for investments to surpass the low borrowing rate, thereby providing larger magnified returns. The worst of the downside is shared by the guarantor.

Taking this logic a step further, suppose that Aunt Claire agrees to guarantee a mortgage of any size and the bank knows that Aunt Claire is trustworthy and able to pay. Then Kate would actually prefer, and be allowed, to have no equity at all in the house. She would have zero initial equity and borrow the entire \$300,000 at 3 percent interest, promising to pay \$309,000.⁸ If the house ends up increasing enough in value to pay the mortgage, Kate will be able to enjoy the full upside. Otherwise, she will lose nothing.⁹

The scenario in which Kate puts in zero initial equity is wonderful for her. With no investment in the house, she is not at all exposed to the risk that the subsequent value of the house might not be enough to pay the mortgage debt; she can never lose, but she will gain if the house appreciates by more

than is needed to pay the mortgage debt. The house will become a kind of money machine for Kate; allowing her to enjoy the full upside while facing no downside. The downside will be fully borne by Aunt Claire.

Banks Have Uncle Sam

The relation between Kate and Aunt Claire in the example is similar to the relation between banks that are too important to fail and taxpayers. Just as Aunt Claire steps in when Kate cannot pay her mortgage debt, governments often support banks when they cannot pay their debts. And banks, like Kate, want to economize on equity and use debt as much as possible. Borrowing is made attractive to them through subsidized guarantees. The banks' creditors are more confident that they will be paid in full than they would have been without the guarantees; because of this, creditors are willing to lend to the banks for lower interest, and creditors care relatively little about the banks' own equity or the risks banks take.

The safety net for banks takes different forms. Some guarantees are given explicitly, and some are implicit, implied by expectations that, in a crunch, the government will most likely step in and help. In the turmoil that occurred after the Lehman Brothers bankruptcy, many of the institutions that received government support had not previously been covered by any explicit guarantees.

Explicit guarantees are limited, and banks must make payments intended to cover their costs, which is similar to paying insurance premiums. For example, in the United States deposit insurance from the FDIC is available for deposits up to \$250,000.¹⁰ The FDIC charges banks a deposit insurance premium, and it is supposed to be self-financing. However, for close to a decade, until 2006, the FDIC did not charge any deposit insurance premium at all because its fund was well-capitalized given the lack of defaults in previous years.

As a result of its calibration of funding to average default rates, the FDIC is short of funds when default rates are unexpectedly high. If it runs out of funds, the FDIC can increase its insurance premium. Increasing the premium in a crisis, however, may itself exacerbate the crisis because the charges

represent a tax on surviving banks to make up for the losses of failing banks. If many banks are in trouble and the industry is not able to cover the losses, taxpayer support may be needed to make up the shortfall.¹¹

Under this arrangement, the contributions of any individual bank to the FDIC do not properly reflect the risk that the bank imposes on the deposit insurance system. Once a bank fails, of course, it no longer makes contributions, and any shortfall of funds or other expenses are covered by the FDIC, that is, by the other banks or taxpayers.

Implicit guarantees are potentially unlimited, and banks do not pay for them. In the fall of 2008, banks received large amounts of support from their governments in various forms. In the United States, the government put up \$900 billion, \$700 billion for TARP and \$200 billion for Fannie Mae and Freddie Mac, the giant mortgage corporations that had dominated housing finance for decades. In other countries, governments committed comparable amounts—for example, £550 billion in the United Kingdom, €480 billion in Germany, and €360 billion in France.¹² These operations ended up protecting most debt holders, even those with “hybrid” debt that was meant to share in absorbing losses and that banks had been allowed to use to satisfy some of their capital requirements.

Additional support was provided by central banks acquiring assets from many private banks, either directly or as collateral for loans. In the United States, the Federal Reserve increased the money supply by more than \$1.3 trillion, from just below \$900 billion to over \$2.2 trillion. In the process, it acquired assets of lower quality, taking on debts of private companies and individuals that included questionable mortgage-backed securities and related derivatives. Such interventions also affect taxpayers, because any losses on the acquired assets reduce the Fed’s profits and therefore the payments it makes to the Treasury. Altogether, the bailout operations of 2008 put about \$2.2 trillion of U.S. taxpayer money at risk, \$900 billion through the Treasury and \$1.3 trillion through the Federal Reserve.¹³

Another form of subsidy to banks comes through cheap borrowing from central banks. Since 2008, central banks in the United States, the United Kingdom, and Europe have allowed private banks to borrow at interest rates

of 1 percent or less. If this money is invested in safe securities that pay more than 1 percent in interest, the central banks are effectively providing a money machine to the private banks.¹⁴

In the United States, this kind of support was also provided in 1990, when, in response to information that large commercial banks were in trouble, the Federal Reserve lowered the short-term rate it charged banks that wanted to borrow money.¹⁵ U.S. commercial banks used this cheap borrowing to invest in long-term bonds, earning large profits from 1990 to 1994, rebuilding their equity.

In Europe, since December 2011 the European Central Bank (ECB) has provided more than €1 trillion in cheap loans to banks within the so-called long-term refinancing operations (LTRO), three-year loans at very low rates. Borrowing from the ECB at 1 percent in order to lend to Italy or Spain at 4 or 5 percent may look like an attractive way to rebuild the bank's balance sheet by means of a carry trade. (As discussed in Chapter 8, this practice may involve significant risk.)¹⁶

In all these examples of central banks' lending at below-market rates or of governments' providing guarantees of banks' debts, the institutions that have access to these loans and guarantees are provided subsidies that other companies in the economy cannot obtain. At the peak of the financial crisis in 2008, money market funds were provided guarantees, and Goldman Sachs and Morgan Stanley, the two remaining pure investment banks in the United States, changed their legal status so as to have access to various supports. They have made use of the supports and have maintained this status.¹⁷

Since the crisis, many have demanded that there should never be bailouts again. The Dodd-Frank Act in the United States forbids government bailouts and certain forms of support by the Federal Reserve, such as those used in the bailout of AIG.¹⁸ In signing the Act into law, President Obama said, "The American people will never again be asked to foot the bill for Wall Street's mistakes. There will be no more taxpayer-funded bailouts. Period."¹⁹ The Act tries to deliver on that promise by giving authority to the FDIC to take over and resolve any systemically important financial institution and by mandating that no taxpayer money be used. It requires that the costs of the FDIC's taking over and unwinding a financial institution be covered by the

institution's creditors or by contributions from other financial institutions. This requirement corresponds to the principle that the FDIC should be self-financing.

However, the FDIC is guaranteed by taxpayers. If the entire banking industry is in trouble and if imposing additional charges on remaining banks would deepen a crisis, taxpayers would have to step in and support the FDIC, as in the case of the S&L institutions in the late 1980s and early 1990s. As the entire industry was failing, taxpayers paid \$124 billion to support the deposit insurance system.²⁰ In the face of a looming crisis, most governments and central banks will likely again step in to help the banks and limit the damage. If the law forbids a bailout, lawmakers can quickly change the law again, particularly in a crisis situation. As a result, hardly anyone considers the no-bailout commitments credible. Support is most likely to be given to the largest and most "systemic" banks because winding them down would be highly disruptive and costly. As discussed in the last section of Chapter 5, there are as yet no workable procedures for winding down internationally active banks with branches and subsidiaries in different countries and no agreements on how to share losses among the different countries involved.

If governments are afraid to let systemically important banks fail, these banks enjoy essentially unlimited implicit guarantees that are similar to the blanket guarantees Kate receives from her aunt. It is very difficult for governments to convincingly commit to removing these guarantees. In a crisis it will be even more difficult to maintain this commitment and provide no support to institutions that are deemed critical to economic survival. Once a crisis is present, it may even be undesirable to do so, because letting banks fail in a crisis can be very damaging. Perversely, the prospect of government support in a crisis makes creditors willing to lend to banks at low rates of interest and provides banks with a reason to view equity as expensive.

Tax Subsidies to Borrowing

In addition to the incentives to economize on equity because of guarantees, borrowing by all corporations is encouraged by the tax systems of most countries. To see how this works, let us go back to Kate's purchase of her house without Aunt Claire's guarantees. Suppose Kate could pay for the house without

borrowing but she considered borrowing anyway. Would it make a difference? In the United States, the answer is generally “Yes,” because the interest paid on mortgages is tax deductible. In determining her taxable income, Kate could deduct the mortgage interest payments as an expense.²¹ Borrowing could therefore reduce Kate’s taxes, essentially making Uncle Sam contribute to the purchase of her house.²²

Corporations can similarly save on taxes by borrowing. In most countries, corporate taxes are paid on a corporation’s “income,” defined in such a way that interest paid on the corporation’s debt is considered a tax-deductible expense.²³ The more debt and the less equity a corporation uses in its funding, the less it pays in taxes. The part of the pie available to investors grows with more borrowing because a smaller part of the earnings goes to the government in taxes. This encourages corporations to borrow more than they might otherwise choose to do.²⁴

Some countries (for example, Australia, Germany between 1977 and 2000, and, since 2004, Belgium) have tried to neutralize the tax penalty for equity funding. Many commissions in the United States have also recommended changes to the tax code to eliminate or reduce the tax incentives for corporations to borrow.²⁵

Whereas tax legislation is usually driven by considerations and politics different from those that drive banking regulation, it is important to recognize that a corporate tax code that subsidizes debt and penalizes equity works directly against financial stability. By giving corporations tax incentives to use debt, the tax code encourages the excessive borrowing of financial institutions that harms the financial system by increasing its fragility.

Life without Guarantees

The tax subsidy of debt applies to all corporations. Yet most nonfinancial corporations refrain from borrowing extensively, and some corporations, like Apple, use virtually no debt.²⁶ How can we explain this? The primary reason has to do with the burden of debt discussed in Chapter 3, which can make high levels of indebtedness costly and undesirable to nonbank corporations.

Borrowing obviously increases the likelihood of distress and bankruptcy. Bankruptcy is costly in the sense that it depletes a corporation’s remaining

assets further than they have already been depleted prior to bankruptcy. For example, lawyers and bankruptcy courts charge fees that must be paid out of the corporation's remaining assets or by its creditors. These costs are entirely due to the use of debt, and the likelihood of incurring them would be lower if the corporation had more equity and less debt. If bankruptcy can be avoided, losses from investments will be a concern for shareholders, but there will be no expenses for bankruptcy lawyers and courts.

In terms of Yogi Berra's pizza, the bankruptcy costs reduce the amount of the total "pie" that is available to investors. Anticipating that a corporation's assets will be depleted in bankruptcy, creditors charge a higher rate of interest than they would absent the bankruptcy costs. This makes using debt more "expensive" for the corporation and acts to discourage too much borrowing.

As discussed in Chapter 3, the costs of bankruptcy go beyond those for lawyers and court fees. For example, the bankruptcy process may freeze a firm's activities. Even before bankruptcy, as distress sets in, the firm's flexibility and its ability to compete in its markets may be impaired. High levels of indebtedness also exacerbate conflicts of interest between owners or managers and creditors. Owners or managers might choose risky investments that can harm creditors, or they might pass up good investments, just as a homeowner who is underwater is less likely to invest in home improvements.

When creditors agree to lend to the corporation, they try to protect themselves in advance by charging higher interest rates or by attaching conditions, generally called "covenants," to the loans they make. Banks do the same when they lend to individuals and businesses. These conditions restrict the borrower's flexibility and can make borrowing less attractive.

For example, creditors may forbid a borrowing corporation from taking additional debts or from making dividend payments to shareholders in certain situations in which such actions would harm the creditors. Creditors may also require that major investment decisions be approved by them. This requirement can prevent the borrower from quickly taking advantage of investment opportunities as they arise.

Without guarantees, the costs and inefficiencies associated with distress and default are reflected in the interest rates and conditions attached to debt contracts, raising overall funding costs. This helps explain why, despite the

tax advantage of debt, most nonfinancial companies avoid becoming highly indebted even if they can borrow more.

With debt guarantees, however, the burdens of debt become lighter. Creditors believe that their debts will most likely be paid in full. Therefore they do not charge as much, and do not impose as many conditions, as they would if the bank made the same investments without guarantees.

For banks, therefore, the costs of added debt are much lower with guarantees, even if they are already highly indebted. They view equity as expensive; borrowing is always attractive. As discussed in the previous chapter, the focus on ROE in banking reinforces the effect by compensating bank managers in ways that encourage risk taking and borrowing.

Perverse Incentives

When large banks are treated as too big to fail, this status has strong and perverse effects on the banks' behavior. The prospect of benefiting from too-big-to-fail status can give banks strong incentives to grow, merge, borrow, and take risks in ways that take the most advantage of the potential or actual guarantees. Banks may also want to draw advantages from taking risks that are similar in that they are all likely to turn out well or to turn out poorly at the same time. If things go wrong, the entire industry may be affected, which will generate strong pressures for government support. These effects of government guarantees on banks' behavior are counterproductive in that they further increase the likelihood that the economy might suffer harm from the fallout of risks taken in the financial sector.

Some of the perverse incentives banks are given can be seen by going back to Kate and her Aunt Claire. If Aunt Claire guarantees Kate's mortgage to buy only the \$300,000 house, Claire will not lose more than \$309,000, Kate's debt if she puts in no equity; most likely, the house will not become worthless, so the cost to Aunt Claire will be lower. Uncle Sam's exposure to the risks of large, systemically important banks, or to those of the entire banking system, is not so limited, particularly when the banks and the banking sector can keep growing and taking risks.

The banks' situation is as if Aunt Claire gave Kate a guarantee for *any* debt, not just for a particular \$300,000 mortgage. With blanket guarantees, Kate

can buy a bigger house. She can also set up a corporation and make risky investments with borrowed money. If she maintains very little equity, she cannot lose much; yet, as she continues borrowing and investing, her profits can become very large.

How wonderful indeed this would be for Kate. As long as Aunt Claire's guarantees remain good, Kate can borrow cheaply and can try to maintain her equity at near zero. If her investments are profitable, Kate can pay herself a dividend and continue to borrow. And with little equity, risk does not scare Kate. She actually finds risk attractive, because it holds the prospect of large gains on the upside, with hardly any consequences on the downside. At most she might worry that, if her gambles do not succeed and Aunt Claire has to pay for them, her aunt might not be willing to provide more guarantees in the future.

In this fantasy, there are no limits to how much Kate can benefit by growing her business and taking more risk or to the amount Aunt Claire might have to put up. The more Kate borrows, the more she stands to gain on the upside while being protected on the downside. Similarly, there are no limits to the amounts that taxpayers may have to put up if they do not constrain what the banks can do, how large they can grow individually or as an industry, and how much they can borrow. In the most recent crisis, governments provided banks with blanket guarantees to avoid a potential meltdown of the financial system. In a similar crisis in the future, the cost of such guarantees could be higher.

If Kate racked up enough losses, Aunt Claire might have run out of funds. Similarly, banks can overburden taxpayers with their losses. This is essentially what happened in Iceland and Ireland in 2008. Banks in those countries grew and invested so much that their losses were larger than the countries could bear.²⁷ Spain may be facing a similar experience.

Being considered too big to fail is extremely valuable for a bank, because it lowers its borrowing costs. Just as Kate was able to borrow at a lower rate because of Aunt Claire's guarantees, banks that benefit from implicit guarantees are given higher credit ratings, and thus pay less interest when they borrow. This reduces the banks' overall funding costs and increases the amount of the total pie available to their investors.

There is significant evidence that subsidies associated with being too big to fail can make these banks seem more profitable, when in fact they are not generating more value but simply benefiting from more subsidized funding.²⁸ Banks do not seem to become more efficient when they grow beyond about \$100 billion in assets, yet growing can allow them to enjoy the subsidized funding that comes with the implicit guarantees.²⁹ With subsidized funding through guarantees, growth is easy, and building empires can be quite profitable.³⁰

Mergers in banking have also been shown to be partly motivated by a desire to attain too-big-to-fail status, which generally lowers costs and makes for easier borrowing terms. A bank is willing to pay more to acquire other banks if the merger will result in a bank that is considered too big to fail.³¹

A recent study estimated that at the peak of the financial crisis, the guarantees to the U.S. financial sector were worth close to \$160 billion.³² The value of the subsidies associated with guarantees was estimated to be about \$2.3 trillion worldwide in 2009.³³ The banks would have had to pay someone in the private market very large amounts to provide the guarantees the government provided. The magnitude of the implicit subsidies has generally grown since the crisis because the largest banks have grown in size.³⁴ Of course the value of the guarantees changes with economic conditions and is at its highest when the economy is weak and banks are more distressed.

Even when they do not cause banks to merge, guarantees can have strong and damaging effects on the behavior of banks. In the United States, mortgage giants Fannie Mae and Freddie Mac have always been considered to be protected by the government. They have not benefited from any explicit guarantees, but investors have thought they were too big to fail, and indeed they were bailed out in September 2008. Their too-big-to-fail status allowed the mortgage giants to grow at the tremendous rate of 16 percent per year from 1980 until the crisis, while their involvement in residential mortgages and mortgage guarantees rose from \$85 billion to \$5.2 trillion and their share of the mortgage market rose from 7.1 percent to 41.3 percent.³⁵

This growth was facilitated by their being able to borrow at very low rates even though their equity was between 2.5 and 5 percent of their total assets; if

their mortgage guarantees had been put on their balance sheets, their equity would have been even less, between 1 and 2 percent of their total assets. Borrowing cheaply with hardly any equity was possible only because of implicit guarantees. For the year 2000, the Congressional Budget Office estimated that the value of these guarantees amounted to \$13.6 billion. Of this amount, at least one-third was estimated to be a simple wealth transfer from taxpayers to the shareholders and managers of these companies, and no more than two-thirds were estimated to have improved the terms under which home buyers could borrow. By some accounts, the value of the implicit government guarantees accounted for almost the entire market value of these companies.³⁶

In an industry in which there is intense competition, particularly for growth, guarantees tend to encourage recklessness.³⁷ If the banks' creditors expect their investments to be safe because of the guarantees, they do not pay much attention to the risks the banks take. This enables the banks to grow fast by expanding their borrowing without seeing their borrowing rates increase. Fannie Mae and Freddie Mac are examples of this problem. Other examples, from the 1980s, were U.S. S&Ls, which attracted large amounts of funding by offering high rates of interest on federally insured deposits. In each case, the explicit or implicit government guarantees provided a basis for extraordinary growth, which ended up being very costly for taxpayers.³⁸

*Excessive Borrowing: Expensive for Aunt Claire,
Uncle Sam, and the Rest of Us*

The guarantees that allow banks to borrow cheaply and take excessive risk are a burden on taxpayers. As the subsidies become more valuable to banks, they also become more costly to society. In our example involving Kate and Aunt Claire, any equity that Kate puts into her house reduces the payments Aunt Claire may subsequently have to make to honor the guarantee she gave to cover Kate's debt. Equity is expensive *for Kate*, but any cost to her of more equity is fully balanced by lower expenses for Aunt Claire. For Kate and Aunt Claire together, Kate's using more equity and less debt is not expensive; the two of them together always pay the mortgage in full. Any benefit Kate sees

in different arrangements comes at the expense of Aunt Claire. Meanwhile, Kate benefits from the upside, but the best-case scenario for Claire is that she does not have to pay.

The combined cost to Kate and Claire will in fact be lower if Kate becomes motivated to make sounder decisions when she has more equity and thus more “skin in the game.” If Aunt Claire provides Kate with blanket guarantees and Kate cannot be made liable for her debt, there will be nothing to prevent Kate from using borrowed funds to gamble in Las Vegas. Such wasteful investments would be less likely if Kate had more of an equity stake that might be lost by gambling.

Similarly, when considering the costs and benefits of banks’ using different mixes of debt and equity, from the perspective of society, the costs to taxpayers of providing guarantees and subsidies must be considered. Also relevant is the damage to the economy when banks are in distress, even more so when they go into default and bankruptcy; this damage includes the cost of valuable loans’ not being made. A funding mix that relies on a lot of borrowing and little equity and that appears cheap to a bank can in fact be very expensive to society. Conversely, although banks consider equity funding more expensive than borrowing, additional equity funding of banks can actually be significantly *cheaper* for society once we factor in the costs and risks to society of banks’ becoming fragile through borrowing.

The magnitudes of the costs banks impose on society can be large. The recent financial crisis has led to significant loss of output, likely in the trillions of dollars. The losses of the U.S. government from its various rescue operations since 2008 have been between \$200 and \$500 billion.³⁹ Beyond the costs of the bailouts, the collateral damage to the economy has been enormous.⁴⁰ If this money had not been lost but rather invested at 4 percent per year, a typical rate for fairly safe long-term investments, it would provide \$8–20 billion of additional revenue per year. In a federal budget that includes \$129.8 billion for education and \$94.5 billion for transportation in 2012, \$8–20 billion a year could make a noticeable difference in education or transportation.

As noted in Chapter 2, in the nineteenth century and the early twentieth, equity levels in banks were often 25 percent or higher (even as high as 40 percent or 50 percent in the first half of the nineteenth century). The reduction

of bank equity to the present low levels over the past century paralleled the expansion of the government safety net of banks, with equity levels decreasing as the safety net expanded.⁴¹

If banks were to rely less on subsidized borrowing and use more equity, any increase in their cost of funding would be fully matched by taxpayers' savings on the cost of providing subsidies to the banks. Society would benefit by having healthier and safer banks that are less likely to become distressed and impose additional costs, and the distorted incentives to take advantage of the guarantees would be reduced. Would having more equity interfere with any of the services that banks provide? As the next chapter shows, the answer is a clear "No." In fact, safer banks that use more equity can serve the economy much better.

Must Banks Borrow So Much?

The Phoenicians invented money—but why so little of it?

Johann Nepomuk Nestroy (1801–1862), Austrian playwright

AS WE SAW IN CHAPTER 4, banks benefit the economy by taking deposits and making loans. Of these two activities, deposit taking is unique to banks. Loans can also be made by any other institution that has the capacity to assess the loan applicants' creditworthiness and to monitor their performance. The concentration of banks on lending is due to the ready availability of funds from deposits.¹

As we also saw in Chapter 4, banks provide depositors with important services, such as making payments and standing ready to provide cash at any moment. Because deposits are a form of debt, borrowing is an essential part of banking. Does this mean that banks would provide fewer benefits to the economy if they relied less on borrowing and used more equity? The answer is “No.”

Banks have always been fragile and prone to trouble. The very word *bankruptcy*, common to many languages, alludes to banks.² The history of banking has been full of crashes and crises. The period between 1940 and 1970, when there was hardly a banking crisis and few bank failures, was a remarkable exception.³ The incidence of crashes and crises since 1970 is not much different from past experience of financial instability, for example, in the nineteenth century.⁴

Banking experts often start from the observation that, with their reliance on deposits, banks have always been susceptible to runs, and they conclude that fragility in banking is inevitable. By this account, banking crises are similar to natural disasters such as earthquakes or hurricanes, which cannot be

prevented. When a natural disaster strikes, governments usually provide emergency support. If banking crises are like natural disasters and cannot be prevented, one might conclude that all governments can do is provide emergency support when a crisis hits.⁵

Is this analogy of banking crises with natural disasters appropriate? Are banking crises as unpreventable as earthquakes? No. If deposits and other forms of bank debt can provide benefits, does it follow that banks must rely on as much borrowing as they currently do or as much as proposed regulations would allow? Again, the answer is “No.”

When banking experts discuss the benefits that banks provide to the economy, they typically ignore the role of equity in bank funding. But, as we have argued, banks can increase their equity funding without reducing their debt. For example, banks can retain their earnings or issue new shares. Would doing so reduce the benefits they provide through their deposits and other debts?

This question is rarely asked, but the answer is striking. If banks added more equity while leaving their deposits and other borrowing unchanged, the benefits that depositors and other creditors would obtain would actually be *larger*. As we saw in Chapters 2 and 3, with more equity there is less risk that a bank might become insolvent when its investments do not work out as hoped. If the risk of distress and insolvency is lower, deposits and other loans to the bank are safer. The greater safety of the bank benefits depositors, other creditors, and the deposit insurance system. One clear benefit of more equity is that the bank is more trustworthy and a costly run on the bank is less likely.

The fact that banks have always been fragile does not prove that this is unavoidable, essential, or efficient. In fact, the fragility that we observe in banking is largely a result of conflicts of interest between bankers and their creditors (or taxpayers). Without regulation, these conflicts of interest are usually not resolved in an efficient manner. Moreover, the impact of banks’ decisions on the stability of the financial system and on the overall economy is not given enough attention.

Deposits, Payments, and the Fragility of Banks

On a five-pound note in England, one can find the inscription “I promise to pay the bearer on demand the sum of five pounds.” In an earlier era, this rep-

resented an obligation of the Bank of England to redeem the note for an equivalent amount in gold.⁶ When the Bank of England was founded in 1694, it was actually one of many institutions issuing such notes. At that time many banks, as well as other institutions, were taking deposits of gold, particularly gold coins, and issuing notes against these deposits, essentially promising to pay back the deposits to the holders of these notes.⁷ People used the banknotes for payments the way we now use cash. These early bankers realized that they did not have to hold all the deposits in reserves, so they engaged in lending, providing loan customers with gold or with additional newly created banknotes.⁸

Over time issuing banknotes has become a privilege of central banks, but deposits still provide an important part of the funding of private banks, and they are still closely tied to the payment system.⁹ People treat their deposits as akin to money, something that can be readily used for payments, by means of checks or bank transfers or through credit and debit cards.¹⁰ In the words of one author, from “a money view perspective,” banking is part of “the sophisticated mechanism that operates to channel cash flows wherever they are emerging to meet cash commitments wherever they are the most pressing.”¹¹

The role of banks in the payment system, in the past when they issued banknotes, as well as later with demand deposits in checking accounts, has made them vulnerable to the risk of runs. In the eighteenth century, there were even runs on the Bank of England when wars and government finances made the bank appear unsafe. In the United States, the experience of runs and panics under the National Banking System was one reason for the creation in 1913 of the Federal Reserve, which was given a monopoly on issuing notes.¹²

Vulnerability to runs may appear to be a necessary consequence of the promise banks make to depositors that they can get at their money whenever they wish. This promise makes deposits useful for payments, but, as explained in Chapter 4, it also exposes banks to the risk that all depositors might want their money at the same time. This risk has been a feature of banking for centuries and therefore is often taken for granted, something that cannot be avoided if we want to have an efficient payments system.¹³

However, the links between the payment system, deposits, money, and the fragility of banks are not as simple and mechanical as this reasoning suggests. First, important parts of today's payment system have no risk of default. Banknotes are issued by central banks and in most countries do not actually promise anything.¹⁴ The inscription on English banknotes is no more than a historical relic.¹⁵ A demand deposit that a private bank has with the central bank is a debt of the central bank, but this debt obliges the central bank only to deliver the equivalent amount in banknotes. Because the central bank itself can print the notes, this is a debt without default risk.¹⁶

Second, the fragility of private banks—that is, the likelihood that they will get into trouble—depends on the extent to which the arrangements for payments in the economy rely on banknotes and deposits with the central bank. The more people rely on cash and the more private banks rely on reserves of central bank money, the more the payment system is immune to the danger of a run. Because the interest paid on cash and deposits with the central bank is low if any is paid at all, investors and private banks are always tempted to reduce their reliance on cash and central bank deposits as means of payments.¹⁷ This is a matter of choice rather than necessity.

Taking deposits and promising to repay them whenever the depositors want does not automatically make private banks prone to trouble. If deposits were treated as safekeeping arrangements, as in the case of a storage facility, and if the banks did not invest the funds, the banks would not be vulnerable at all because, even if there was a run, the banks could return what they owe.¹⁸ The banks become vulnerable only if they use funds from depositors to make investments that cannot readily be converted into cash. The more they do so, the more vulnerable the banks become.

Some of the lending and other investments made by banks are both profitable for the banks and desirable for the economy. This observation by itself, however, provides little help in assessing how much banks should invest and how much they should hold in reserves. It also says nothing about how much equity banks should use in funding themselves. The downside risks from the loans and investments must be dealt with and borne by *someone*. How risks are dealt with depends on the banks' investment choices and on the amount of loss-absorbing equity they have.

When banks rely mostly on borrowed funds and then make risky investments, they become vulnerable to insolvency risk as well as the risk of liquidity problems and runs. As discussed in Chapters 4 and 5, the two types of risk are related but distinct. Most runs are actually caused by concerns about banks' possible insolvency.¹⁹ Deposit insurance or guarantees can greatly reduce or eliminate the risk of a run, but they do nothing to reduce the risk that banks might become insolvent. In fact, the costs of insolvency can be magnified if guarantees and so-called liquidity support enable banks to retain their funding and continue operating even though they are actually insolvent.

If banks take deposits that customers can use to make payments, this fact does not by itself determine how likely banks are to run into trouble. The risk of a run or an insolvency depends on how the banks use their funds, how risky their investments are, and how much equity there is to absorb potential losses. The more equity a bank has, the lower the risk of distress and insolvency and the less vulnerable the bank is to the risk of runs and, more generally, to the risk of having to default on its debt promises.

The banks' choices as to the amount of their reserves or their use of equity have little to do with the fact that deposits are available for payments or, more generally, with the benefits banks provide through deposits or other borrowing. If anything, the benefits from the easy availability of deposits will be *greater* if a bank has more reserves or more equity because its depositors and other creditors will be less concerned about the bank's ability to pay them.²⁰

For example, if a bank issues additional shares or if it retains its profits rather than paying them out to shareholders, it can increase its equity without reducing any of its deposits or other borrowing. With the additional funds the bank can make worthy loans that can provide additional benefits to the economy. If it finds no loans it considers worthy to make, the bank can invest the money it raises in other assets, such as stocks and bonds, receiving appropriate returns. The returns on the additional investments will allow the bank to pay its debts more reliably, and this will reduce the likelihood of insolvency.²¹

Additional equity, therefore, makes the bank safer and bolsters investors' confidence in the bank. If the deposits are not insured, depositors and other creditors are the beneficiaries. If instead there is deposit insurance or some

sort of guarantee for the deposits, the institutions providing the insurance and guarantees may benefit most. Uninsured creditors also benefit because everyone knows that the bank is safer if it has more equity. If everyone knows that the bank is safer—and everyone knows that everyone else knows the same—everyone will become less worried that anyone might start a costly run.

In earlier times, when banks issued notes, information that a bank had a lot of equity would make its notes more acceptable as means of payment. Checks on uninsured accounts with a bank would also be more acceptable if the bank was known to have more equity. Recall the assessment of a nineteenth-century banking expert, referred to in Chapter 2, that depositors have more trust when banks' owners have full liability, as they did at that time. With more liability of owners, banks will be better able to pay back their depositors and other creditors. Similarly, when a modern corporation has more equity, it is better able to pay back its depositors and other creditors. The very benefits that banks provide because deposits or other short-term debts are readily available and acceptable as means of payment are thus *enhanced* when banks have more equity.

The Insatiable "Need" for Liquidity

Money is wonderful: we can use it to pay for anything we want. For some payments, however, using cash is cumbersome. Moreover, cash does not pay any interest. A bank deposit may be even better than money: it can be used to pay for almost anything, sometimes more conveniently than using cash, and it may even pay interest. A share in a money market mutual fund may be better yet: it can also be used for payments, and it pays even more interest.

We want to have it all. We want our investments to be as easy to use as cash, safe and readily available when we want to pay for something. At the same time, we want the investments to provide us a better return than cash so we can have more money later. We may know deep down that it may not be possible to have it all, but we may gladly listen to a fund manager, a banker, or a spin doctor who offers an investment that is just as easy to use as cash but pays a much better return.

Banks cater to people's desire for assets that seem like cash but pay a higher return than cash.²² According to one banking expert, "Banks produce

debt” the way automobile manufacturers produce cars.²³ Not just any debt, of course, but deposits and other kinds of very short-term debt that are considered to be like money. The economy is seen as having an unbounded need for such “liquid assets.”²⁴ Banks, money market funds, and other institutions performing banking services are said to be there to satisfy this “need.” Innovations that allow banks and other institutions to produce more of this liquid debt should therefore, goes the narrative, be considered useful and beneficial.²⁵

However, the notion that the economy has an unbounded “need” for liquid assets is another example of the bankers’ new clothes. It is impossible to discuss coherently the *need* for anything without considering its cost. When a young adult tells a parent that she *needs* a fancy car, she actually means that she *wants* the car and expects the parent to pay for it—and perhaps also the insurance and maintenance. If she has to pay for everything herself, her so-called need might be quite different. Similarly, it makes no sense to talk about the need for liquidity without talking about its cost.

Money, in the form of cash or reserves with the central banks, is of course perfectly liquid. Cash can be used in practically any transaction. Even so, under realistic market conditions, the actual need for cash is bounded. Beyond a certain point, people prefer to put their funds into assets that provide them with a return, such as interest-bearing deposits, stocks, or bonds.

These interest-bearing assets are less liquid and/or less safe than cash, and they are less frequently used to make payments. Even the deposits and other money-like assets that banks and other financial institutions create are not quite the same as actual money. Whereas money—that is, cash—is nobody’s debt, the kind of money-like debts that are represented by deposits and other kinds of very short-term borrowing *do* represent promises made by the issuing institutions. Whereas there is no risk of default associated with cash, in the case of deposits and other forms of debt there is a risk that a bank may not be able to honor its promises, for example, if it makes poor investments with the money and incurs large losses.²⁶

The reality is that anything that is just as safe and as convenient as cash cannot pay a higher return than does cash—that is, zero.²⁷ If banks offer alternative investments with higher returns, these investments must have *some* disadvantage relative to cash. Perhaps the investments are risky. Or they may

become illiquid, that is, difficult to sell quickly and convert to cash without a discount. To obtain higher returns than with cash, investors must give up *something*.

However, it is always tempting to cut corners, to neglect risks, and to hope for higher returns without giving up any of the advantages of cash. The bankers who want our funds want us to believe that their debts are money-like even when they are not, and we want to believe them.²⁸ The suggestion that the economy has an unbounded need for liquid assets reflects these wishes but is not based on sound reasoning.

If differences in risks, liquidity, and the interest promised are taken into account, the need for the most perfect form of liquid asset, namely cash, is in fact fairly small. And the need for less perfect forms of liquidity depends on people's willingness to ignore the hidden risks of these assets.²⁹ Of course people may believe that the government will step in to make sure all claims are paid. If this happens, the attractiveness of the asset to the individual investor may turn out to be very costly for society, because financial institutions receive funding at subsidized interest rates that do not reflect the true costs and because the fragility of the financial system is increased.

In Chapter 4 we noted that banks traditionally used the funds they obtained from deposits to make loans and that they used to hold the loans until they were repaid, typically a number of years. The deposits were due on demand and were therefore perceived as very liquid by depositors, but the loans that backed these deposits were very illiquid; it was virtually impossible to sell them for a reasonable price.³⁰

Banking experts refer to this use of liquid debts such as demand deposits to fund illiquid loans and other investments using the term *liquidity transformation*.³¹ By contrast to the statement that banks just "produce money-like debt," the term liquidity transformation draws our attention to the relation between the illiquid assets in which banks invest and the liquid debt that they create.

The risks of the investments a bank makes can actually limit its ability to produce money-like debt. If there is a significant risk that the bank might default on its debts, the debts may be less liquid, because their liquidity depends on how much people can be sure about their value. This is similar to

the way that a gift card from a large department store is almost as useful as cash because one can use it to buy whatever is in the store, but this can only be done as long as the store is in business. Likewise, an airline ticket is useful for flying only if the airline does not go into bankruptcy (unless other arrangements are made, such as for another airline to honor the ticket).

Similarly, a demand deposit, which is very liquid in principle, may become perfectly illiquid if the bank at which it is held goes into bankruptcy and is not part of a deposit insurance system. Banknotes or bank bonds may suddenly stop being easily tradable if people are worried that the bank may be unsafe and that someone else with these notes or bonds might be taking advantage of them by selling the notes or bonds on the basis of bad news that they have just obtained.³² If people are afraid that sellers of such assets are trying to take advantage of them, they will buy only if prices are very low—lower even than the information available about the bank might suggest.

The short-term debt that a bank produces may therefore not be very money-like if the bank does not have much equity. Without sufficient equity providing a buffer against losses, there is a risk of distress, insolvency, and possibly default. With debt that can be withdrawn or must be renewed, there may also be a high risk of a run. All these risks imply that debt may suddenly become illiquid—even if, initially, it might not look that way.

Poor lending decisions can also destroy the money-like quality of a bank's deposits and other short-term debt. Such decisions increase the risk that the bank might become insolvent. As a result, its debts might be neither liquid nor safe.

An example of the destruction of the liquidity of money-like debt by risks from lending was provided by mortgage-related securities in 2007. As we explained in Chapter 5, many of these securities had been created in the preceding years. Securitization allowed mortgage banks to sell their loans. Investment banks and others would buy many mortgages, bundle them together, and then issue various tradable securities that would pay investors from the money paid by the mortgage debtors.

For a while before 2007, these securities—or at least those that had the first claim on the mortgage debtors' payments and that received the highest credit rating, AAA—were treated as both extremely safe and very liquid, easy

to convert to cash. However, in the vast expansion of mortgage lending and securitization during 2004–2006, the standards for assessing the credit-worthiness of mortgage borrowers and the quality of mortgages had declined dramatically.³³ When investors realized the extent of the credit risk in the summer of 2007, the markets for these mortgage-related securities suddenly froze. Instead of being very liquid, the securities became completely illiquid, and their prices plummeted.³⁴ At the same time, lenders became unwilling to accept these securities as collateral.

On several occasions since 2007, central banks have stepped in and supported private banks by accepting mortgage-related securities as collateral for bank borrowing or even purchasing mortgage-related securities outright. For someone who believes that liquidity is everything, this was just the right thing to do, and maybe it was a way of preventing a disastrous collapse of the banking system.³⁵

However, such interventions can be costly. If the securities purchased end up being bad risks, the central bank will have incurred a loss. To be sure, the cost of printing the money needed to buy securities or to lend against collateral is negligible. However, if this money had been used to acquire safe assets instead, the central bank would be earning higher returns. These returns would supplement the public budget and perhaps provide additional funding for highways or schools. If mortgage-related securities purchased by the central bank are affected by debtors' defaults, there will be that much less money for highways or schools.³⁶

There is also a danger that when the central bank prints money the purchasing power of money will go down, so that people in the economy will find that any money they have is worth less.³⁷ Indeed, in this case inflation will erode not only the value of the money that people hold but also the value of bank deposits and any other assets that are denominated in units of money. Printing money is costless for the central bank but can impose a large “inflation tax” on the public.

The power of central banks to print money has often been abused. Most importantly, governments have used the printing press to provide themselves with funding that they could not obtain from their taxpayers, sometimes with disastrous consequences.³⁸ To prevent such abuses, many countries have

established institutional safeguards and legal rules that limit the scope for printing money as a source of funding.³⁹

Some of the rules that limit central banks' activities concern their interventions in support of private banks. In particular, liquidity supports from central banks are not meant, and should not be used, to keep insolvent banks afloat. Without such a restriction, there would be a danger of excessive lending by private banks. Lending decisions of poor quality imply that resources are put into investments that will not pay off. If private banks use deposits to fund bad loans, the liquidity transformation and the lending must be considered excessive and inefficient. When things go wrong and the bad credit risks appear, there will be a temptation for central banks to print money to provide what will be referred to as "liquidity support"—but will in fact be disguised bailouts. As indicated earlier, such bailouts impose costs on the public even though the costs may be covered up because, in the short run at least, printing money seems costless. (Later, of course, those who engaged in printing the money may well be out of office or the link to them will not be made.)

Cutting Corners through Innovations

Another one of the fancy terms in banking textbooks that we mentioned briefly in Chapter 4 is *maturity transformation*. The term sounds impressive, just as the word *cauliflower* sounded to Mark Twain until he realized that "cauliflower is nothing but cabbage with a college education."⁴⁰ Maturity transformation simply means that banks use short-term debts like deposits to finance long-term investments like loans. According to banking textbooks, this is one of banks' core functions.

Maturity transformation is closely related to liquidity transformation, but it is not the same. For example, a bank might fund a set of mortgage loans that have ten years to go by issuing a ten-year bond, that is, debt that is paid over ten years. In this case, the length of time until the loans expire—their maturity—is the same as the length of time until the bond expires, so there is no maturity transformation. However, the bond may be traded in the bond market, in which case it can be easily converted into cash, unlike the individual mortgage loans, so there is some liquidity transformation.⁴¹

Funding ten-year mortgage loans by means of short-term debt, however, would be a form of maturity transformation. In Chapter 4 we discussed this type of transformation as characteristic of traditional commercial banks or savings banks such as the fictional Bailey Building and Loan Association. Such banks were funded by deposits that could be withdrawn at short notice, and the banks used the deposits to make long-lasting home mortgages.

When banks engage in liquidity transformation and in maturity transformation, they face not only a risk of liquidity problems and runs but also a risk of insolvency, which is much more serious. For example, if interest rates on the home mortgages are fixed, and at some point in the lifetime of those mortgages the interest rate on deposits becomes much higher, the bank can become insolvent. As we discussed, this happened to many U.S. savings institutions in the early 1980s.

Securitization of mortgages was a response to this experience. Selling home mortgages off to others looked like a good way to eliminate the risks that maturity transformation created. However, the risks were not eliminated; they were merely moved elsewhere.

To see how the risks persisted, consider a typical funding chain, as discussed in Chapter 5. The chain would begin with a private individual or a nonfinancial company investing in a money market mutual fund. The money market mutual fund, in turn, provided an overnight loan to a bank or to a so-called structured investment vehicle, a subsidiary created by a bank, usually to avoid regulation.

Next the bank or the bank's subsidiary used the money it got from the money market fund to buy mortgage-related securities that had been created by subsidiaries of investment banks out of large packages of mortgages that they had acquired from the original mortgage banks. The mortgage banks, in turn, had these mortgages to sell because they lent money to homeowners.

In this chain of transactions, the investment that we started with, that of the private individual or the nonfinancial company in the money market fund, was "transformed" into an investment in the properties that homeowners bought. The investment went from a money-like short-term debt commitment that the money market mutual fund made to the investor to

houses that would likely last a few decades. The mortgage-related securities ended up being held by banks, and again these investments were funded by short-term debt.⁴²

If one believes that the role of banking is to “produce liquid debt,” one will marvel at the wonders of financial engineering that have made it possible to transform trillions of dollars of the money-like debts of banks and financial institutions into housing and real estate investments.⁴³ If instead one is concerned about having a safe and healthy financial system, one may wonder about the risks that might arise from so much maturity transformation. As in the case of the Bailey Building and Loan Association in the movie *It’s a Wonderful Life*, one type of risk is a run that disrupts the funding of the banks holding the mortgage-related securities. A more serious risk is the possibility that the bank will become insolvent, which is precisely what happened to a number of banks in 2007 and 2008.

Unlike the insolvencies in the early 1980s, those in 2007 and 2008 were not directly caused by interest rates’ changing. Many mortgages had adjustable interest rates, which went up along with market rates in 2005–2007. However, these rate adjustments led to many defaults on mortgages because borrowers could not pay the higher interest.⁴⁴

The interest rate increases in the United States in 2005–2007 were much smaller than those in the late 1970s and late 1980s, but, coupled with the questionable creditworthiness of borrowers, the increases were enough to usher in the turnaround in U.S. real estate prices and trigger many delinquencies on mortgages. When the risks in mortgage-related securities became apparent in the summer of 2007, the prices of these securities declined significantly. Given that the institutions holding them had very little equity, many became distressed, some insolvent.⁴⁵

In Chapter 5 we discussed the contagion risks associated with long and complicated chains of transactions. These chains allowed participants to fool themselves about the risks to which they were exposed. There was a substantial amount of maturity transformation in the system, but none of the participants seemed to have seen the risks from where they stood. Quite possibly, given the incentives of many of the participants, they preferred to ignore the risks.

By splitting the overall operation into many different and connected steps, market participants were able to hide the risks and tell themselves, their supervisors, and their customers that everything was safe and liquid because each step by itself seemed safe. Creditors were enthusiastic about the ability to invest in money-like debt that paid slightly more interest than government debt, and lots of questionable mortgages were made to feed the rush to securitization and the “production” of liquid debt.

Why All This Complexity?

The complicated chain of transactions just discussed is an example of the increase in the interconnectedness of the financial system in recent decades. As we noted in Chapter 5, this interconnectedness was key to the contagion that caused the 2007–2009 financial crisis to be as damaging as it was.

The increase in interconnectedness was not due just to a desire for greater efficiency. At least some elements of the chain of transactions were due to participants’ trying to get around the prevailing regulations. For example, the continued prominence in the U.S. financial system of money market mutual funds, which played a major role in the post-Lehman panic, is due to their being able to offer the same services as banks without being subject to the same regulations. They can generate higher returns for investors because they are not part of the deposit insurance system and therefore do not have to pay insurance fees. In September 2008, however, the U.S. government chose to provide them with guarantees anyway rather than allowing the run of investors on money market mutual funds and the run of money market mutual funds on banks to continue to destabilize the financial system.⁴⁶

In Chapter 5 we mentioned that the bailout of AIG was motivated by the fear of contagion from an AIG default on its commitments to credit insurance. Banks had bought this insurance in order to reduce estimates of their risks and, by implication, their required equity. Without the AIG bailout, the credit insurance might have been worthless, and the banks would have been hit by the credit risks that they thought they had insured.

Putting mortgage-related securities into structured investment vehicles (SIVs), entities that could be kept off the banks’ balance sheets, was also motivated by the desire to get around regulation. Regulators treated the SIVs

as if they were separate from the sponsoring banks. Therefore, the banks were not required to have any equity funding of the investments. However, the SIVs could obtain outside funding only because the sponsoring banks provided guarantees for them.⁴⁷ Banks bore the risks of the SIVs without backing this commitment by equity and thus without the ability to absorb losses.⁴⁸

There was (and still is) an element of make-believe in all of this. As bankers and investors pursued higher returns, actual or imagined, they downplayed the risks. Banks claimed to hedge risks in ways that fooled supervisors and possibly the bankers themselves but ended up being ineffective. No one bothered to keep track of where in the system the risks were going. Some of the gains in returns seemed extremely small relative to the risks involved. For example, the extra interest earned on relatively “safe” mortgage-related securities might be as low as 0.1 percent, which was hardly enough compensation for the actual risks involved.⁴⁹

Why were people so willing to fool not only the regulators and their bosses but possibly also themselves? The answer is that they had incentives to do so.⁵⁰ As discussed in Chapter 8, bankers are paid bonuses on the basis of their assessed contributions to profits, with little accounting for risks. Investing \$1 billion in a security whose return promises to be 0.1 percent above the borrowing cost may seem very attractive and a reason for paying a high bonus because, if nothing goes wrong, the investment will show a profit of \$1 million per year. If, a year later, the security’s value declines by 10 percent, the bank loses \$100 million, but that need not affect the bonus that the banker had received for making the investment.

Bankers generally act in response to the incentives they are given, even if their actions do not generate sustainable benefits for anyone but themselves. Borrowing a bit more in order to make a risky investment that pays barely more than the borrowing rate may be attractive to a banker if he does not have to take the additional risk into account. Because of the risk, however, this borrowing and the investment made with the borrowed funds may well be undesirable for the bank’s shareholders, its other creditors, and society.

As discussed in Chapter 3, heavy borrowers are affected by debt overhang, which makes them resist reducing their indebtedness if doing so would make

their remaining debt safer at their expense. In fact, heavy borrowers have incentives to increase their borrowing even if it is inefficient.

In our mortgage example, we saw that Kate might be reluctant to invest \$50,000 in renovating her house even if the renovation increases the value of the house by more than it costs; the reason is that the investment will increase the value of her equity by less than \$50,000 if there is a possibility that she might end up underwater. In this case the investment will benefit Kate's creditors rather than Kate. Kate might also be tempted to take a second mortgage, increasing the likelihood that she will default. Similarly, managers and shareholders may have reasons to resist taking actions to make banks safer, and they may even try to take additional risk at the expense of their creditors—and of society.⁵¹

Why do creditors agree to lend to banks under such circumstances? One answer is that at least some of them are insured and have nothing to worry about. This is the case of depositors whose claims are covered by deposit insurance. Insured creditors have no reason to monitor what a bank does and how much risk it takes. Since the introduction of deposit insurance, deposits have actually been a rather stable source of funding for banks.

Another reason creditors lend under such circumstances is that they believe they can protect themselves by providing only short-term loans. Providing short-term loans enables creditors to react quickly to bad news about a bank by withdrawing their funding. By providing only short-term loans, creditors also protect themselves against the bank's issuing new debt that might have priority over their claims.⁵²

Bank borrowing involves a kind of rat race in which every creditor tries to make sure that he will be repaid before the others.⁵³ One way to do this is to lend for very brief periods only—for example, overnight. The maturity transformation that banks engage in, which involves using deposits and short-term debt to fund longer-term investments, is at least partly a result of this rat race. People lend to banks through deposits and other types of money-like debt not only because this is convenient but also because they want to make sure they have priority over all other creditors. Repeated overnight lending that must be renewed every day gives creditors a sense of being in control.

Creditors have an enhanced sense of control and protection if a bank puts up collateral—that is, if the bank assigns assets to a debt that creditors can

take over if the debt is not paid. In the past decade, borrowing with the use of collateral has increasingly taken the form of so-called repo agreements, where *repo* stands for *repurchase*.

Legally, a repo agreement is not a loan contract with a borrower and a lender but rather an agreement in which the borrower sells the collateral to the lender, that is, to the party that provides the money, and at the same time agrees to repurchase the collateral at a specified price in the future, often the next day. The legal treatment of this arrangement as a sale and repurchase rather than a loan effectively allows the creditor to sidestep bankruptcy proceedings that might freeze the borrower's assets. Should the borrower go into bankruptcy and fail to repurchase the asset as promised, the lender just keeps the collateral, which legally is his own.⁵⁴

Like the shortening of debt maturities, the use of repo agreements is a device by which new creditors can jump ahead of previous creditors and make sure they are paid even in the event of a bankruptcy.⁵⁵ The assets that are used as collateral become unavailable to pay a bank's other debts. Many derivatives contracts are similarly protected by collateral and therefore benefit from this type of exemption as well. Even if the bank is distressed or insolvent, it can continue to borrow in this fashion and keep posting collateral, reducing the assets available to the deposit insurer and other creditors if the bank fails.

Some have argued that short-term debt is useful and efficient for banks because it provides discipline to bank managers; managers are said to act in the interest of investors for fear of a run.⁵⁶ However, it is abundantly clear that in the run-up to the financial crisis of 2007–2009, short-term debt did not discipline bankers. As long as they had collateral for repo and other kinds of short-term borrowing, bankers could borrow and invest as they wished, and lenders did nothing to discipline them. The breakdowns of Bear Stearns and Lehman Brothers were precipitated when creditors had doubts about the quality of the collateral as well as the viability of these banks.⁵⁷ In the context of the policy debate, the notion that short-term debt disciplines managers is yet another article of the bankers' new clothes.

When short-term creditors at last withdrew funding and markets froze in the several crisis episodes in 2007 and 2008, much of the overexpansion of

the system had already occurred, and it was too late to change much. By then the strategies bankers had chosen had led to concerns with banks' solvency and with the quality of the supposedly safe and liquid mortgage-related securities that they created and held.

The effects of debt overhang and the rat race of borrowing are further strengthened by government guarantees and the subsidies given to bank borrowing that were discussed in Chapter 9. Guarantees and subsidies lower the costs and the burden of borrowing to banks and remove incentives for creditors to monitor the banks. As a result, banks experience the burden of borrowing differently from other firms. In particular, they do not experience the reluctance of creditors to lend to highly indebted borrowers and the costs and constraints that usually accompany such borrowing, which induce other corporations to avoid becoming so highly indebted. Bankers respond to the opportunity to borrow by borrowing as much as they possibly can. In so doing, they impose costs and risks on taxpayers and the public.

Excessive "Debt Production": Far from Efficient

Why do banks borrow as much as they do and rely so much on short-term borrowing? The reason is *not* that banks must economize on equity in order to be banks. Although some of the business of banking, such as deposits, involves short-term borrowing, there is nothing to prevent banks from increasing their reliance on equity. Doing so would not reduce the benefits they provide to the economy. To the contrary, as we noted, banks with more equity are even better placed to make loans and to create money-like assets, and they have better incentives to make loans to creditworthy businesses and individuals.

Equity is not scarce for viable businesses and corporations. This is as true for banks as for other businesses. Banks can raise their equity levels internally, as most corporations do before they seek any new funding from debt or equity, by retaining their profits. Banks also have access to the same investor community that provides equity funding for other companies. In the case of banks whose shares are traded on an exchange, these investors include mutual funds, pension funds, and individual investors.

Banking experts and others often imply that banks are special because they make long-term investments using short-term funding. This refers to

the textbook notion of maturity transformation discussed earlier, in which short-term deposits are used to fund long-term loans. However, making long-term investments is common elsewhere, and this does not by itself make banks special. For example, many pharmaceutical companies invest in projects for developing new medicines that take decades to become marketable. These investments are obviously very risky. For this very reason, companies that make long-term investments tend to fund those investments with a lot of equity. They want to avoid the dark side of borrowing.

By contrast, banks are less concerned with the dark side of all their borrowing. They do not want to use more equity and become safer. They prefer to live on the edge, with borrowing that magnifies the upside of their investments, leaving the downside risk to others, later. This behavior has little to do with the benefits banks can bring to the economy; rather it has to do with the way bankers are paid, with the guarantees and subsidies that their borrowing confers, and with their ability to borrow repeatedly using collateral. It satisfies the banks' addiction to borrowing but is far from efficient.

The past four chapters exposed all the arguments made against much higher equity requirements as false or flawed. Society would, in fact, benefit greatly, and the financial system would be able to serve the economy even better, if banks and other financial institutions were much less fragile than the current and proposed regulations allow. Is it possible to transition from the unhealthy and dangerous system we have to a safer and healthier one? Can we maintain a thriving and more stable banking system that supports the economy consistently? The answer to both questions is "Yes." The next chapter explains how.

PART THREE

Moving Forward



If Not Now, When?

Time . . . has a trick of getting rotten before it is ripe.

Francis M. Cornford (1874–1943), English classical scholar, Microcosmographia Academica, 1908

WE HAVE ARGUED that if banks have much more equity, the financial system will be safer, healthier, and less distorted. From society's perspective, the benefits are large and the costs are hard to find; there are virtually no trade-offs. Yet the claim is often made that this reform would be costly to realize in practice. Banks are said to be unable to raise equity by issuing new shares, implying that higher equity requirements would reduce bank lending. Reduced lending, it is claimed, would hurt the economy, which has yet to recover fully from the sharp downturn in 2008.¹

Because of such concerns, Basel III, the new international agreement on requirements for bank equity, has a long transition period, until 2019.² The slow transition was intended to avoid abrupt shocks from the new regulations. However, this meant that the insufficiency of bank equity was not dealt with right away. The resulting solvency concerns contributed greatly to financial turbulence in 2011.

It is actually best for the financial system and for the economy if problems in banking are addressed speedily and forcefully. If bank equity is low, it is important to rebuild that equity quickly. It is also important to recognize hidden insolvencies and to close zombie banks. If handled properly, the quick strengthening of banks is possible and beneficial, and the unintended consequences are much less costly than the unintended consequences of delay. This is true even if the economy is hurting.

The long transition period is not the only flaw of Basel III. Other flaws are the very low level of equity that is still permitted and the complexity of the regulation. Regulations that attempt to fine-tune equity requirements using quantitative risk models and stress tests can be easily manipulated. Flawed regulation has caused excessive fragility in the past; it has diverted banks away from making loans to small- and medium-sized enterprises and toward investing in tradable assets. Basel III maintains this flawed approach with hardly any change.

“Now Is Not the Time”

After the financial crisis of 2007–2009, the equity level of banks has not been much increased. Basel III, the international agreement designed to increase bank equity, has a transition period that will last until 2019. In 2011, the European government debt crisis raised serious concerns about the solvency of European banks. These concerns caused U.S. money market funds and other investors to stop lending to many European banks.³ The loans were partly replaced by loans from central banks, but this did not reduce the solvency problems.⁴ Because European banks were operating with little equity, they were correctly seen as being very vulnerable.

As we are writing this in October 2012, the European government debt crisis is still unresolved. The focus has moved from Greece and Greek government debt to Spain, Spanish banks, and the Spanish government.⁵ The numbers involved and the risks for French and German banks are probably larger, but there seem to be fewer concerns about their solvency than there were in 2011 about the effects of a Greek default.

A major difference between 2012 and 2011 is that in the meantime European banks have been forced to increase their equity. This resulted from a decision made at the October 2011 summit of the leaders of the European Union.⁶ The immediate aftermath of this decision seemed to confirm the view that equity requirements must be imposed judiciously, not when banks are in trouble and the economy is doing poorly.⁷ However, the higher equity levels that banks had as a result of the requirements have contributed to the greater robustness of European banks in 2012.⁸

From the banks' perspective, the time is never ripe to increase equity requirements or to impose any other regulation. As for the regulators, when the industry is doing poorly, they worry that an increase in equity requirements might cause a credit crunch and harm the economy. When the industry is doing well, no one sees a need to do anything.⁹ The discussion is governed by the "Principle of Unripe Time," as the English classicist Francis Cornford called it, the principle "that people should not do at the present moment what they think right at that moment, because the moment at which they think it right has not yet arrived."¹⁰

The Principle of Unripe Time is a bugbear. In banking, being scared by this bugbear can be very costly.¹¹ For example, in Japan in the 1990s, the authorities failed to force their banks to recognize losses from bad loans that they had made. There was a fear that doing so might show that the banks were insolvent and that this would disrupt the financial system. The banks continued to lend to bad borrowers while reducing their lending to new firms. As a result, economic growth was lacking. The denial of solvency problems and deferral of resolution in banking was a major reason the Japanese crisis lasted for more than a decade, with huge economic and social costs.¹²

In Chapter 3 we discussed the distorted and potentially dangerous behaviors of borrowers in distress and particularly those in hidden insolvency. The Japanese experience shows that these concerns are relevant to banks. Weak banks do not serve the economy. In lending they may continue to roll over loans to their existing distressed or insolvent clients and even provide them with additional funds in order to avoid having to acknowledge losses; this behavior hurts the economy by maintaining unsuccessful old firms and restricting funding for potential new firms. Distressed or insolvent banks also tend to take excessive risks to gamble for survival or for resurrection. Allowing weak or insolvent banks to continue operating—and especially supporting them with loans or loan guarantees—is costly and inefficient.¹³

When large banks and even an entire banking system are in trouble, politicians and supervisors fear that strict enforcement could cause a credit crunch and a recession.¹⁴ They believe that the time is not ripe to resolve the problems. Instead they allow insolvent or highly distressed banks to continue

operating, and, if necessary, they provide bailouts.¹⁵ Research on banking crises, however, has shown that failing to deal with banking problems early and forcefully often results in more serious crises and in more severe credit crunches and recessions later.¹⁶ Kicking the can down the road can be very expensive.

Sometimes the concern is not just about the distress or hidden insolvency of individual banks. Individual banks may run into problems because there are too many banks in the market. When there is too much capacity, competition can be very intense, and banks may find it difficult to earn the interest margins or the fees that they need in order to cover their costs. Although such a situation may please the banks' customers, at least for a while, it may endanger the financial system because banks may take undue risks in order to have a chance of surviving.¹⁷ If excess capacity in banking is the underlying source of the problems, government or central bank support for the banks can perpetuate the problems by preventing the needed adjustments.¹⁸

The crisis of 2007–2009 and subsequent developments in Europe have weakened many banks. Although some of the banks' losses have been recognized and some banks have disappeared, there are many indications and a strong suspicion that many losses may still be hidden and that there still may be too much capacity in banking. Investors are therefore not willing to pay much for banks' shares, and banks' stock prices are relatively low. As discussed in Chapters 6 and 7, the fact that the stock market values of bank equity are significantly below the banks' reported book values is evidence of investors' being skeptical that losses have been fully acknowledged.¹⁹

In the United States, banks are making fewer new mortgages and not recognizing losses on existing loans.²⁰ This is similar to what happened in Japan in the 1990s. Yet authorities in Europe and the United States have been reluctant to address the continued weakness of many banks. The lessons from the past have not been learned.

Strengthen Banks Immediately!

The easiest way to increase the health and stability of the financial system is to ban banks from making cash payouts to shareholders and to require banks to retain their earnings until they have significantly more equity. This mea-

sure would bring immediate benefits and have no harmful side effects on the economy; it would strengthen banks most quickly and directly and would entail no “unintended consequences.”

What will happen if banks do not pay their shareholders and retain their earnings for a while? If there are worthy loans to be made, the banks can make these loans using their retained earnings rather than by additional borrowing. Successful companies use retained earnings as a key source of funds for new investments. In fact, retained earnings are the most popular source of funding for corporations.²¹ If banks find no worthy loans to make, they can use retained earnings to pay some of their debts or to invest in marketable securities that will earn appropriate returns. In all these cases, the banks’ equity levels will increase without harming the banks’ ability to make loans.

How will shareholders feel if banks retain their earnings and refrain from making payouts to the shareholders? Shareholders of companies that have little or no debt are happy if the money is invested productively, because the added value of the investments will be reflected in the value of their shares. Whatever the company does with its earnings, even if it invests in Treasury bills and awaits an opportunity to invest quickly in the future without needing to raise funds, shareholders are entitled to all of the profits, now and in the future, and the value of their shares will adjust to reflect the investments.²² If the shares are traded on an exchange, shareholders who need cash can create homemade dividends by selling some of their shares.²³

What about banks, which use debt to fund more than 90 percent of their assets? As we discussed in Chapter 3, once debt is in place, borrowers’ attitudes toward risk in investment and additional borrowing are affected by the overhanging debt. Highly indebted borrowers tend to be biased toward taking more risk in investment and toward more borrowing. The presence of debt makes risk more palatable to a borrower because he benefits from the upside but shares the downside with his creditors, and possibly with others that provide insurance for creditors. This is a fundamental conflict of interest that is due to borrowing and is particularly strong when borrowing is heavy.

Because banks are heavily indebted, their actions affect not only their shareholders but also their depositors and other creditors, the deposit insurance fund, and the public. Payouts to shareholders are a way for banks to

maintain or increase their indebtedness—an analog to the case, discussed in Chapter 3, of a borrower's (Kate in our example) taking a second mortgage to finance consumption or other investments.

Prohibiting payouts does lower the value of a bank's shares if the bank's solvency is questionable, and the ban on payouts makes the bank safer. In this case, some of the costs of a payout to shareholders are borne by creditors and possibly by the deposit insurance fund or the public, because the bank is more likely to fail if it makes the payouts. Conversely, if the debt is made safer, the benefits of a ban on payouts will accrue to creditors and possibly to the deposit insurance fund or the public. Moreover, society as a whole will benefit from a ban because, if the bank is safer, it will be in a better position to make good loans and provide other services.

When bankers make payouts to their shareholders rather than retaining the funds for investments or to pay debt, they effectively resist reducing their indebtedness and instead choose to maintain or increase it. Paying shareholders may keep shareholders happy for a while, but it harms society. As discussed in Chapter 8, managers might also take too much risk for which their shareholders are not sufficiently compensated. From the policy perspective, there is no reason to allow banks to endanger the public by making payouts to shareholders. If a bank is sufficiently healthy that its debt is perfectly safe even after making payouts to its shareholders, similar to that of companies with little or no debt, and there is no conflict of interest with creditors. As long as the debt is paid for sure, shareholders bear the upside and the downside of all investments.

If a bank is healthy enough so that shareholders bear the downside as well as the upside of all investments, they may not actually lose much when payouts are delayed. For the most part, when payouts to shareholders are made, the value of the equity declines by exactly the amount of the payouts; shareholders' total wealth is therefore independent of whether payouts are made. Therefore, as long as shareholders bear all the risks—and aside from the tax subsidies associated with debt (which we discussed in Chapter 9)—shareholders' wealth is not affected if payouts are prohibited.²⁴

In 2007 and 2008, U.S. regulators allowed banks to make large dividend payments. They allowed this even after the subprime crisis broke into the

open in August 2007.²⁵ The payouts weakened banks significantly. The amounts that the largest banks had paid to their shareholders were equal to about half of the funds that the government provided them subsequently through TARP. Had the banks not made those payouts, there would have been less need for government support in the fall of 2008.²⁶

Since 2011 the Federal Reserve and authorities elsewhere have allowed most banks to make cash payments to shareholders even though banks are still weak and some of them have still not reached the level of equity required under Basel III. Profitable banks could reach Basel III equity levels much more quickly if they retained their earnings. It makes no sense to delay the implementation of Basel III on the grounds that banks need time to adjust and at the same time to allow payouts that make the adjustment slower. Allowing the payouts before the new equity levels have been reached benefits the banks and harms the public.²⁷

Healthy banks do not need to wait for equity to be built internally by retaining profits. Such banks can immediately become safer by raising new equity from investors, and regulators can require them to do so. New shares can be sold to existing shareholders (in a so-called rights offering) or offered to new shareholders.²⁸ Funds raised in this way can be used to make loans or other investments or to pay back debts.

Bank managers, and possibly shareholders, would resist a requirement that they issue new shares for the same reasons that they resist a ban on payouts—debt overhang and the potential loss of taxpayer subsidies. As noted earlier, however, none of these concerns relates to any cost to society.²⁹ It is legitimate to ask that more of the downside risk be borne by the banks' managers and shareholders than by creditors and taxpayers.

Requiring banks to reach a particular ratio of equity to assets may have harmful side effects if banks respond to this requirement by making fewer loans rather than increasing their equity levels through retained earnings or by issuing new shares.³⁰ A reduction in lending, however, can be prevented if, instead of a target ratio, the regulation specifies an amount of equity that must be reached.³¹

If a bank is unable to raise new equity because it has no profits to retain or cannot sell shares, there is reason to suspect that the bank is highly distressed

or even insolvent.³² In such a case, supervisors should step in, examine the loans and other assets one by one, and assess their values and the likelihood of future losses. Doing so is costly, but it is essential in order to avoid having dysfunctional zombie banks. Closing insolvent banks early is an important task for supervisors.³³

When an entire banking system is affected, intervention is all the more important; once the assets have been assessed and investors are confident that the bad assets have been cleaned out, the remaining “good banks” can be sold on the market again, as happened in Sweden in the 1990s. As part of the cleanup, it may also be important to reduce the size of the banking sector.³⁴ If losses have been caused by too many banks’ being engaged in reckless competition, then, as we discussed earlier, the underlying problems will not disappear unless the size of the banking sector is reduced.³⁵

Beyond Basel: Increase Equity Requirements Substantially!

In addition to the unnecessarily long transition period, Basel III has two other major flaws. First, its equity requirements are far too low. Second, for the most part the required equity is related not to a bank’s total assets but to what is called “risk-weighted assets,” which are just a fraction of total assets. Basel III requires that banks have equity equal to at least 7 percent of their risk-weighted assets by January 1, 2019.³⁶

It can make a great difference whether the 7 percent equity requirements relate to the total assets of a bank or to its risk-weighted assets. For example, the roughly €55 billion in equity that Deutsche Bank had on its reported balance sheet at the end of 2011 represented more than 14 percent of the bank’s risk-weighted assets of €381 billion but only 2.5 percent of the bank’s total assets of €2.2 trillion.³⁷ More generally, when a European bank proudly proclaims that it has 10 percent “core capital,” we can safely bet that its equity is less than 5 percent of its total assets—quite likely only 2 or 3 percent.³⁸

The idea behind risk weighting is that if the assets banks hold are less risky, less equity may be “needed” for a bank to be able to absorb potential losses. The simplest way to think about the notion of putting “risk weights” on different assets is to imagine that each of the assets of the bank has a separate equity requirement that depends on the risk of that asset. For example,

because cash is not risky, banks are not required to back their holdings of cash with equity. A bank that has \$1.8 trillion in loans and \$200 billion in cash is required to have the same amount of equity as a bank that has just \$1.8 trillion in loans.

The minimum required equity is also the same if a bank in the United States has \$1.8 trillion in loans and \$200 billion in U.S. government securities instead of cash. And in Europe, a bank that has €1.8 trillion in loans and €200 billion in Spanish or Greek government debt is not required to have more equity than a bank that has €1.8 trillion in loans and €200 billion in cash. The regulations presume that such government debt is as riskless as cash, but in Europe this presumption was proven wrong when Greece defaulted on its debt in March 2012.³⁹

Whatever the merits of stating equity requirements relative to risk-weighted assets may be in theory, in practice many banks have used this feature of the “Basel approach” to reduce their equity to a very small fraction of their total assets. When equity is 2.5 percent of a bank’s total assets, a 2.5 percent decline in the value of assets is enough to wipe out the equity and make the bank insolvent. Since 2007 several large banks have had this experience and become insolvent (Lehman Brothers, Washington Mutual) or would have become insolvent if they had not been bailed out with taxpayer money (UBS, Hypo Real Estate, Dexia). In some cases, the losses that wiped out the equity came from assets that had been considered as riskless as cash by regulators and therefore had not required any backing by equity at all.⁴⁰

The United States never fully implemented Basel II, which had introduced the complex risk-weights system, for commercial banks, largely because Sheila Bair, chair of the FDIC at the time, believed that the Basel II approach to risk weights was problematic. This lack of implementation helped FDIC-insured banks to be stronger than European banks or U.S. investment banks regulated by the Securities and Exchange Commission, which allowed the use of risk weights.⁴¹ In a major innovation, Basel III proposes to introduce regulation based on a so-called leverage ratio. This regulation will set a minimum level for equity relative to total assets. Basel III fixed this minimum level at 3 percent.⁴²

If this number looks outrageously low, it is because the number *is* outrageously low. When the agreement was announced in September 2010, Martin Wolf’s column in the *Financial Times* was appropriately titled “Basel:

The Mouse That Did Not Roar.”⁴³ He sarcastically noted that the claim that the requirement triples the previous requirements “sounds tough, but only if one fails to realize that tripling almost nothing does not give one very much.”

Banks’ having 3 percent equity is akin to Kate’s having \$9,000 in equity and a mortgage of \$291,000 funding a \$300,000 house. As we have seen, if Kate borrows so much, a very small subsequent drop in the value of the house can put her mortgage underwater, with more owed than the house is worth. For banks, this type of situation means distress or insolvency.

If bank equity is as low as the regulation allows, we must be prepared to see recurrent bank failures and banking crises, with large costs to taxpayers and significant and lasting damage to the economy. At these low levels of equity, banks—and bank regulators—are gambling on their combined ability to properly assess risk weights and on the banks’ ability to avoid losses that would bring distress or insolvency. The actual experience since 2007, however, shows that neither ability can be trusted. The required bank equity should be *much* higher than the 3 percent of total assets proposed in Basel III.

History provides some guidance. As discussed in Chapter 2, for much of the nineteenth century, when banks were partnerships whose owners were fully liable for their debts, it was common for banks to have equity on the order of 40 percent or even 50 percent of their total assets. Around 1900, 20–30 percent equity for banks was common in many countries. These equity levels were not mandated by any regulation. Rather, they emerged naturally in the markets in which the banks’ owners and managers, depositors, and other investors interacted.

The decline that occurred subsequently in the twentieth century was closely related to governments’ needs for finance in World War I and to the development and repeated extensions of the various safety nets by which governments support the banking industry, from explicit guarantees provided by deposit insurance to the bank bailouts and implicit guarantees for too-big-to-fail banks.⁴⁴ As discussed in Chapter 9, the ever-increasing safety nets that support banking have made it attractive and possible for banking institutions to “economize” on equity and increase their borrowing. Governance and control problems, discussed in Chapter 8, have also contributed to a decline in bank equity levels.

The notion that banks cannot be made much safer at their own expense is flawed. Banks and their creditors should be in a position in which public support and bailouts most likely will not be needed. Requiring that banks' equity be at least on the order of 20–30 percent of their total assets would make the financial system substantially safer and healthier. At such levels of equity, most banks would usually be able to cope on their own and require no more than occasional liquidity support.⁴⁵

Because the use of deposits and other forms of short-term debt can give rise to inefficient runs, deposit insurance in the style of that offered by the FDIC benefits society. Central banks' occasionally providing liquidity support to sound banks can also be beneficial. However, the banks' safety net distorts the incentives of bankers and their creditors, inducing them to take or to tolerate excessive risks from borrowing and risky investments.

Requiring significantly more equity is the most straightforward way of counteracting these distortions; it simply asks banks to reduce the risk of becoming distressed and thereby harming others. Banks whose shares are traded on stock exchanges can do so by raising equity at market prices, determined in the same markets where other companies in the economy raise their funding. Regarding banks' economizing on equity at the expense of others, the Nobel laureate Merton Miller, whose attempt to discuss capital requirements with bankers was featured in Chapter 7, said, "I can't help smiling at complaints from bankers about their capital requirements, knowing that they have always imposed even stronger requirements on people in debt to them."⁴⁶

Much higher equity requirements should be imposed on all institutions that offer banking services to the public, in particular services in connection with payments.⁴⁷ In addition, significant equity requirements should be imposed on other institutions that are systemically important in the sense that their distress, insolvency, or default could significantly destabilize and harm the system.⁴⁸

Determining who should be subject to capital regulation requires regulators and supervisors to keep track of where risks build up in the system. As discussed in Chapter 6, hedge funds can become systemically important, and the crisis has shown that insurance companies should be watched as well.⁴⁹ Equity requirements for different types of institutions might differ. In some

cases—for example, that of investment banks that can take uncontrollably large risks in securities trading and derivatives or that of institutions serving as central counterparties in derivatives trading—it might be appropriate to have particularly high equity requirements because the systemic risks that these institutions’ activities create can be very large and because derivatives markets can be used to take and hide substantial risk.⁵⁰

There is no legitimate reason for the proposed Basel III requirements to be so outrageously low. These requirements reflect the political impact that the banks have had on the policy debate and the flawed and misleading claims that are made in discussions about banking regulation—the bankers’ new clothes.

Without proper evaluation of the social cost and benefits, the approach taken by regulators has been based on the misplaced notion that there are significant trade-offs for society associated with much higher equity levels for banks. The approach has been to require that banks have the minimum amount of equity to “get by,” and no more. As we have shown in this book, however, the view that there are significant trade-offs is flawed. At current levels of bank borrowing, the purported trade-offs do not exist.

The research that has been offered in support of the proposed regulation understates the benefits and makes up fictional “costs” for substantially increasing equity requirements. For example, practically all of the studies that have been provided in support of Basel III assume that there is a cost to society when banks issue new equity, but these studies do not provide a satisfactory explanation of this assumption. In particular, the studies fail to take full account of the key distinction between the private costs of equity to banks and the costs to society.⁵¹

When analyzed more properly from society’s perspective, the long-term benefits of much higher equity requirements are large, and the costs are hard to find.⁵² There is therefore no reason whatsoever to economize on banks’ equity to the extent that proposed regulations do. If the adjustment to higher equity levels is handled properly, the transition need not take long and need not have harmful side effects on bank lending.

Among the advantages to the stability of the financial system of banks’ operating with much more equity is the fact that losses to banks’ assets de-

plete equity much less intensely and thus do not require as much of an adjustment as when banks have less equity. A loss of 1 percent in the value of a bank's assets wipes out fully one-third of the bank's equity if it has only 3 percent of its assets in equity but reduces its equity by only 4 percent if the bank's equity represents 25 percent of its assets. If the bank wants to sell assets to restore the relation between equity and total assets or for other reasons following a loss, it must sell 32 percent of its assets if the initial equity was 3 percent of its assets but only 3 percent of its assets if the initial equity was 25 percent. The contagion effects of deleveraging through distressed sales after losses are much smaller if the initial equity is much higher.

Another important benefit to the system of requiring much greater bank equity would be that financial institutions would have more confidence in each other. Financial institutions routinely borrow from and lend to each other in order to smooth fluctuations in their funding that might be due to customers' transfers, withdrawals, and deposits. If banks had greater confidence in each other, this smoothing would be less vulnerable to disruptions and would work more efficiently.

Many have argued that the Basel III requirements are too low.⁵³ Even among advocates of higher equity requirements, however, few advocate levels as high as we do.⁵⁴ Most seem to take the equity levels of recent decades as a reference point. For several reasons, however, this is problematic. First, the equity levels of recent decades were artificially low because banks and their creditors had become used to the government safety net. Second, the increases in the intensity of competition in financial markets that we have seen since the 1970s have decreased the banks' ability to withstand shocks. Third, the high degree of interconnectedness in the system that has come with financial innovation and with globalization has magnified the potential fallout from the failure of a systemically important financial institution for the global economy. Moreover, institutions tend to be exposed to the same shocks and therefore run into trouble at the same time. All these concerns lead to the conclusion that the levels of equity banks have had in recent decades do not provide appropriate guidance as to what bank equity should be.⁵⁵

Since 2010, when we became more outspoken about the need for an ambitious reform of capital regulation, we have engaged in many discussions on

the subject, yet we have never received a coherent answer to the question of why banks should *not* have equity levels between 20 and 30 percent of their total assets.⁵⁶ (A caveat on providing specific ratios is that their meaning will depend on accounting conventions.)

Some would say that banks cannot raise so much equity. Such concerns are misplaced. First, as we emphasized, any bank that is profitable should be able to increase its equity by retaining its earnings. For 2012, for example, JPMorgan Chase has been planning to pay around \$19 billion to its shareholders. If it retains this money instead, its equity will increase by this amount, roughly 10 percent of its book value, and a higher percentage of its market value.⁵⁷ If viable banks avoid making payouts to shareholders and raise new equity, the 20–30 percent range for equity relative to total assets should be achievable fairly quickly.

Second, when it comes to raising equity from investors, there is no distinction between bank stocks and other stocks. All stocks are held by the same investors, who value them using the same criteria. New shares can be sold to investors at prices that are appropriate given investors' assessments of risks and returns. Diversified investors such as pension funds and mutual funds buy a broad mix of stocks, and there is nothing special or different about banks' stocks relative to other stocks.

Third, if banks have no profits that they can retain or if they cannot raise new equity, they may already be insolvent or they may not have viable business models. Such banks should be forced to leave the market, like other companies that do not have viable business models. It may be, in fact, that the current size of the entire banking sector is too large, and some downsizing may be called for. If this is actually the case, using public support to maintain existing institutions is highly inefficient.

Nobody knows what the proper size of an industry is. Finding this out is one use of a market system in which profitable firms thrive and nonviable firms are forced out. In banking, this market mechanism has been distorted by guarantees and bailouts, by excessively cheap borrowing, and by the artificial prevention of bank failures. Higher equity requirements that impose greater liability on bank shareholders and that lower the value of the subsidies may lead the industry to shrink to a more appropriate size. Requiring

more equity would reduce the distortions and allow markets to operate more successfully, benefiting the broader economy.

Beyond Basel: Abandon the Illusion of Fine-Tuning

As we stated earlier, Basel III specifies equity requirements for banks relative to their risk-weighted assets rather than their total assets. The leverage ratio approach, which specifies equity requirements relative to total assets, is considered a backstop to limit the excessive reduction of equity requirements by risk weights. There has been resistance even to the very lax leverage ratio requirement, however. Some of this resistance comes from institutions in the industry that would be directly affected even at a 3 percent equity level; some comes from regulators and others who like the sophistication of risk weighting.⁵⁸

The risk-weighting approach gives the impression of being scientific; the risk of each of a bank's assets is measured "scientifically," and equity requirements are determined on the basis of these measurements. It may seem obvious that a rule based on science is better than a crude rule.⁵⁹

Such reasoning has dominated the work of regulators from many countries who have been meeting in the Basel Committee for Banking Supervision.⁶⁰ The first international agreement, concluded in 1988, had only crude categories for distinguishing between assets according to their risks. Since then, regulators have been searching for the holy grail of the "right" risk weights. Basel II, concluded in 2004, was considered to be doing it properly, but the financial crisis showed that Basel II was flawed.⁶¹ Basel III attempts to correct some of the flaws in Basel II, but it has not changed the overall approach.⁶²

The risk-weighting approach is extremely complex and has many unintended consequences that harm the financial system. It allows banks to reduce their equity requirements by concentrating on investments that the regulation treats as safe. Banks might also use derivatives to shift the risks of their investments to others, and this can increase interconnectedness. An example would be a bank's purchase of credit default swaps in order to insure against the credit risk of debt securities held by the bank. As we saw in Chapter 5, such credit insurance served to justify treating mortgage-related securities as perfectly safe; it was also a source of systemic risk and played an important role in the government's decision to bail out AIG.

Banks have developed various techniques for “risk-weight optimization” that allow them to choose investments that are in fact riskier than the supervisors believe and have return prospects reflecting these risks so that, on average, returns are higher than the returns on investments that are in fact safer.⁶³

In theory, risk weights are meant to adapt equity requirements to the risks of the banks’ investments; in practice, the weights are determined by a mixture of politics, tradition, genuine and make-believe science, and the banks’ self-interest. In this mixture, some important but real risks are completely overlooked.⁶⁴ For example, as mentioned earlier, a bank in the euro area need not use any equity when investing in euro-denominated Greek or German government debt if the investment is funded in euros. Within the euro area, such debts have been treated as riskless even after the Greek default of March 2012.⁶⁵

Since the mid-1990s, banks have been allowed to use their own models to assess the risks of their investments.⁶⁶ Regulators allowed this because they realized that banks generally have better and more up-to-date information about these risks, as well as better techniques for evaluating them. Despite the obvious problems that the crisis exposed in the risk-weight approach, the pervasive view among regulators and many others—including politicians, banking experts, and much of the financial press—is that it is good to use “scientific” techniques to fine-tune risk measurements.

However, in the process of determining how best to measure risk, the purpose of regulation was lost. Regulators overlooked the fact that the banks’ interests in measuring and managing risks are not the same as the public interest in having a safe financial system; the possibility that banks might use their control over risk models to manipulate risk measurement in their own interest was neglected. Regulators and others also neglected the implications of risk weighting for the banks’ investment strategies.⁶⁷ Even when there are no manipulative intentions, there are reasons to believe that the risk-weighting approach might be fundamentally flawed.⁶⁸

Basel II contributed greatly to the fragility of the global financial system in 2007–2009. Bank leverage was so high because, in the run-up to the crisis, many banks had used the right to compute equity requirements on the basis of their own risk models to economize on equity, treating risks as non-

existent if it served their interests.⁶⁹ Banks' investments had been concentrated in assets for which such manipulation of risk assessments was easy as opposed to assets for which such manipulation was difficult. This explains why so many funds went into mortgage-related securities as opposed to small-business lending.⁷⁰ The funds that went into mortgage-related securities ultimately served to finance the construction of many residential buildings that are now standing empty and rotting, an awful waste that was encouraged by the regulation.

In Chapter 5 we noted that the increased interconnectedness in the financial system was one reason that something as relatively small as the U.S. subprime crisis could upset the whole world. This interconnectedness was partly due to the Basel approach to computing equity requirements on the basis of risk weights. An example of this, which we have repeatedly mentioned, was the excessive use of credit default swaps to justify ignoring credit risk and having no concerns for the credit insurer's ability to pay.

Another example was the creation of multiple layers layers of securitization that was discussed in Chapter 5.⁷¹ At each stage in this process, some poorly rated securities would be put into a package, new securities would be issued with claims depending on the returns of the securities in the package, and some of the new securities would be given the best possible credit rating, AAA, so that banks would be able to hold the securities with hardly any backing by equity.

All this was done because banks wanted investments that would not require them to have much equity and that would allow them to raise ROE with little concern for possible losses. By creating an artificial demand for AAA-rated securities, the regulation made it attractive to create such securities. Effectively, therefore, the regulation contributed to the complete breakdown of market discipline in mortgage lending and securitization and, later, to the complete breakdown of many markets. The buyers had no realistic way to find out what the credit risks were, and the sellers had no incentive to do so. The outbreak of the crisis in the summer of 2007 occurred when the riskiness of these securities was suddenly recognized and the supposedly extremely safe AAA ratings, which equated the risk of these securities to that of U.S. government debt, were replaced by much lower ratings.

The attempt to fine-tune equity regulation is based on an illusion. Besides the problems of corruption by politics and manipulation by the banks, the risks themselves are changing all the time, and even the banks lack the information necessary to measure them properly.⁷² For example, the risks of counterparties' defaulting may change as the counterparties' positions change, as happened when AIG sold many more credit derivatives over time. The ability to convert assets into cash may suddenly change when investors realize that they know too little about these assets, as happened in the case of mortgage-related securities in 2007. Asset price risks may also change because other investors incur losses and have to engage in fire sales. Such developments could not be predicted in time on the basis of the information that the banks had. Given these limitations, it is dangerous to rely exclusively on the fine-tuning of risk measurements, no matter how "scientific" the quantitative risk models of banks are made out to be.⁷³

Empirical research on the financial crisis has actually shown that a high ratio of equity relative to risk-weighted assets did not mean that a bank was safe. By contrast, a high ratio of equity relative to total assets, without risk weights, meant that the bank was in a better position to deal with the crisis.⁷⁴

Despite the experiences of the financial crisis, trust in the fine-tuning of risk measurements on the basis of the banks' quantitative models has not disappeared. Except for the proposed introduction of the leverage ratio, Basel III provides little substantial change. Regulators and supervisors are also relying on models in the periodic stress tests they use to determine whether banks have "enough equity." Such tests have been carried out in the United States in 2009, 2011, and 2012 and in Europe in 2010 and 2011.⁷⁵

Like the stress tests used in engineering or medicine, stress tests in banking are intended to check whether banks have enough equity to withstand some shocks, such as an economic recession leading to defaults of borrowers or a stock market decline. This approach, however, is no more scientific or trustworthy than the one used to fine-tune equity requirements.

Predictions of what would happen under the specified stress scenarios are based on models developed by banks and regulators. Stress tests, like risk measurements, are therefore subject to the limitation that something like the dynamics of contagion discussed in Chapter 5 is not captured in the models,

and in fact there would not be enough data to do so. In addition, of course, the predictions are colored by the politics of how the stress tests are done and by the self-interest of banks, and possibly regulators, in constructing their models.

Given these limitations, it is hardly surprising that in 2010 as well as 2011, some European banks that had passed the stress tests with flying colors went into distress and had to be bailed out shortly afterward.⁷⁶

“Anything but Equity”

In another misguided effort at fine-tuning that allows banks to cut corners, at times capital regulation treats some debts as if they were equity. For example, a bank might issue debt that gives investors the right to receive a fixed interest payment every year except for years in which the bank does not earn a profit. From the shareholders’ perspective, such a claim is a kind of debt, because those who hold the security have priority over shareholders’ receipt of dividends. Some regulations, however, say that this type of security is like equity because the bank is not required to make payments if it incurs a loss.

Under Basel II, many such hybrid securities (as they are called) were counted toward equity requirements even though they were not in fact equity. The notion was that investors in these securities would participate in losses just as shareholders do. In the bailouts of 2007–2009, however, government support saved the holders of these hybrid securities, along with depositors and other creditors, from losses.⁷⁷ Governments seem to have been afraid that if these hybrid securities were actually made to share in banks’ losses, there might be another “Lehman event.”⁷⁸

The clear lesson is that only equity can be relied on to absorb losses in a crisis. The drafters of Basel III tried to apply that lesson, but, especially in Europe, bankers have been lobbying strongly to get other securities approved as equity-like.⁷⁹ Their approach can be called *anything but equity*. The search for anything but equity to absorb losses has recently focused on so-called contingent convertible bonds, often referred to as *co cos*, long-term bonds that can be converted to equity when some trigger event occurs.⁸⁰ The idea is that some creditors would be forced to become shareholders if the bank’s equity were depleted by losses.

There are numerous complications with this approach and serious reasons to doubt that it would be effective or reliable. Should a bank come near one of the triggers meant to begin the conversion of some debt into equity, there might be turmoil, because the conversion would benefit some investors and harm others, and many participants, including the bank's managers, might take actions to influence whether the trigger was hit. Such actions might cause panic in the markets for these securities or for the bank's shares and impose significant losses on some investors.⁸¹

Co cos may be better at protecting the safety of the bank than simple debt. However, they are clearly less reliable than equity. There is no valid reason for non-equity alternatives to be considered instead of equity when using equity would be simpler and more effective in achieving the goals of a stable and healthy financial system.⁸²

The effort to include anything but equity in capital requirements is entirely based on flawed claims.⁸³ It seems to reflect the flawed focus on ROE that we discussed in Chapter 8. As long as the equity-like security is not actually equity, it has the same effects as debt in calculating ROE. Bob Diamond, then CEO of Barclays, stated in April 2011, "Barclays is counting on being able to fund part of its capital requirements with new contingent convertible instruments, or co cos, which will not dilute ROE numbers."⁸⁴

The attraction to non-equity securities may also reflect a concern for maintaining the tax subsidies associated with borrowing if such securities can be classified as debt for tax purposes.⁸⁵ However, this observation only suggests that a tax code that gives banks a penalty for equity and encourages debt or anything but equity is perverse and should be changed. Compromising financial stability to give banks a tax break makes no sense.

How to Make Equity Regulation Work

It is important to determine what laws and regulations should mandate, but what happens if they are violated? In principle, if a bank has too little equity, the supervisor must intervene and force the bank to increase its equity while threatening to take disciplinary action against the bank, including revoking its license and closing it down.

The threat of closing a bank may not be credible if the bank is large and highly interconnected with other banks. The supervisor may also be afraid that, if a bank is shown to have lost a lot, people may raise questions about its past supervision. Rather than close the bank, the supervisor may therefore prefer to overlook the bank's losses, allowing it to maintain delinquent loans on its books without acknowledging losses. As we've already discussed, this can be very dangerous and costly.

We must get away from the simple dichotomy of having enough versus not enough equity and more carefully consider what supervisors should do when a bank's equity is reduced. On this point, Basel III goes in the right direction. The 7 percent requirement that we mentioned has two components, an equity requirement of 4.5 percent and a so-called capital conservation buffer of 2.5 percent of risk-weighted assets. The idea is that if equity lies between 4.5 percent and 7 percent, a bank will be forced to retain its profits and avoid paying dividends so as to rebuild its equity internally, but it will not need to raise new equity right away.

This idea can be applied to equity requirements at the much higher and safer levels that we propose. For example, a requirement of equity in the amount of 20–30 percent of banks' total assets, as we suggested earlier, could be managed in such a way that banks would be expected to have at least 30 percent equity in good times. If banks incurred losses that reduced their equity below 30 percent but not below 20 percent, they would be instructed not to make payouts to shareholders but to rebuild their equity, at least by retaining earnings. Some payments, such as those to managers, might be made with new shares.⁸⁶ If banks' equity went below 20 percent, however, it would be appropriate to require them to rebuild their equity immediately, if necessary by issuing new shares.⁸⁷

More generally, it makes sense to have a graduated system of equity requirements involving different responses of supervisors and banks depending on how little equity the banks actually have. In the United States, the Federal Deposit Insurance Corporation Improvement Act of 1991 provides for a graduated system of responses involving various "prompt corrective actions" depending on how serious a problem is. Extending this approach

would allow us to get away from a regime in which infringements of regulatory requirements immediately raise the question of whether a bank should be closed.

The practical implications of specifying any ratios of equity relative to assets depend critically on the rules that determine which assets and liabilities are listed on a bank's balance sheet and how their values are determined. The principle here should be that any investment or commitment that exposes the bank to risk must be included. Investors and regulators must be able to evaluate the risks. For example, banks should not be allowed to keep entities off their balance sheets to which they are promising liquidity support or other guarantees. And derivative positions that might cause fragility should be included rather than netted and ignored.⁸⁸

Equity ratios based on book values do not always indicate solvency concerns in a timely manner. Such ratios would not always have pointed to problems through the fall of 2008 because, as discussed in Chapter 6 and earlier in this chapter, they are not adjusted to losses in a timely manner and banks may be able to manipulate them.⁸⁹ Regulators should consider other information, such as stock prices and other market indicators, in trying to maintain the safety and soundness of the financial system. Any concerns about the buildup of risks should lead to prudent steps, such as a ban on payouts to shareholders, to prevent the depletion of equity. Maintaining sufficient equity using such tools can be a powerful way to make sure that we can rely on the financial system to support the economy.

Supervisors must keep in mind that their basic job is to protect the public. Concerns about the details of regulatory requirements, accounting rules, and other measurements must not divert attention away from this objective. If risk is said to disappear because it has been hedged, who has actually taken on this risk? Spreading risk or passing it on is beneficial only if the institutions that bear the risk are able to do so without problems. Otherwise the very shifting of risk that regulation encourages can harm the financial system and the economy.

Regulators should also be more concerned with risks of rare events. Dangers should not simply be neglected if they are expected to occur with a probability of less than 1 percent. If such events occur, the damage to the

financial system and the economy can be great, and this possibility should be taken into account even if the probability is thought to be small.

It is useful to compare equity and other regulations meant to keep the banking system safe to speed limits and other rules for trucks carrying explosives or other chemicals on a highway through a settled area. Speed may be easier to measure than the equity levels of banks, but the key objectives of protecting the public are quite similar.

Trucking companies may argue that they have excellent drivers, and therefore the speed limit need be no lower than seventy miles per hour. They may also argue that their drivers can take care of themselves, and therefore no public regulation of rest breaks is needed. Lower speed limits or mandated rest breaks for drivers, they might also say, would make the transportation of goods by trucks more expensive and reduce economic growth. The response might be a debate on whether the trucking companies' risk models are taking adequate account of sudden side winds or of ice on the road, but after the first disaster authorities would likely conclude that protecting people might be more important than fine-tuning the regulations.

The same considerations that apply to trucks, airplanes, or nuclear reactors should apply to banks. Public safety must be the focus. A remarkable difference, however, between much higher equity requirements and safety measures in many other contexts is that high equity requirements are such an incredible bargain to society: the significant benefits of much more equity are actually free!

If truck drivers had to drive more slowly or stop for thirty minutes every two hours and could not drive at night, they would drive fewer miles each day, and this might increase the cost of transportation. By contrast, increasing equity requirements from 3 percent to 25 percent of banks' total assets would involve only a reshuffling of financial claims in the economy to create a better and safer financial system. There would be no cost to society whatsoever.⁹⁰

Why has banking regulation failed so miserably, and why, despite the crisis, hasn't it been fixed? The answer has much to do with the politics of banking, where invalid claims are often successful with conflicted regulators and politicians. We take up the political issues in the final two chapters of the book.

The Politics of Banking

“The king is naked!”—but under such splendid robes.

Stanislaw Jerzy Lec (1909–1966), Polish aphorist, Unkempt Thoughts

WE OPENED CHAPTER 1 by quoting French President Nicolas Sarkozy angrily chastising U.S. bankers who had lost their “common sense.” From that quote one might assume that French banks are so tightly supervised that French bankers do not have a chance to lose their common sense.

In fact, French banks have been a major focus of concern in the European crisis. Throughout, they have had very little equity and a lot of short-term funding, in particular from U.S. money market funds. In 2011 the money market funds were worried about the sovereign debt crisis in Europe and withdrew their money. Without liquidity support from the European Central Bank (ECB), French and European banks would have been in serious trouble.¹

Funding from the ECB could provide liquidity support, but this was not enough for the Belgian-French bank Dexia.² This bank had already been bailed out with a taxpayer investment of €6.4 billion in 2008. By the end of 2010, Dexia’s equity amounted to €11 billion, less than 2 percent of its assets. Over the first nine months of 2011 this equity was further depleted, and nothing was left to absorb additional losses on Greek debt in October 2011. The bank had to be bailed out again; in the process, the Belgian and French parts were split up, and each was nationalized.³

Less than two months before Dexia was nationalized, the executive director of the International Monetary Fund, Christine Lagarde, had warned that European banks were very weak and needed more equity.⁴ Christian Noyer, the governor of the Bank of France, who is also responsible for financial supervision, commented: “Perhaps she was very badly informed by her staff.”

Similarly, the French finance minister saw no reason “to question or worry about the French banking system.” Earlier Mr. Noyer had warned against “excessive capital cushions” and insisted that the French banks’ holdings of Greek debt were not a reason for particular concern.⁵

In international negotiations about the reform of banking regulation over the past few years, France has consistently opposed any tightening of regulation. In Chapter 11 we referred to the characterization of Basel III as “The Mouse That Did Not Roar” in the title of Martin Wolf’s column in the *Financial Times*. The watering down of regulatory reform was largely due to the efforts of France, Germany, and Japan.⁶

Many politicians exhibit a remarkable discrepancy between speech and action. In public speech they are often critical of banks, but they do little to curb the risks that banks impose on taxpayers. Yet the French and German politicians who resist tighter regulation should know from their own experiences that bank bailouts are very expensive.⁷

Politicians, regulators, supervisors, and others often align themselves with bankers because they want to promote their countries’ banks’ interests in international competition. In international negotiations they fight for their countries’ banks even if the rules they fight for might endanger financial stability.⁸ Complaints that new regulation might disadvantage their countries’ banks in global competition have greater weight with them than concerns about the risks to which these banks are exposing the taxpayers.

Protectionist arguments appeal to nationalist instincts, but they are flawed. Promoting the global competitiveness of banks regardless of what it costs does not serve national interests. When banks succeed in global competition by imposing risks and costs on the rest of the economy and on taxpayers, this is actually harmful to society.

Another reason banks succeed in lobbying is that politicians and others see them as sources of funds rather than as sources of risks. Regulating banks can interfere with their provision of funds for favorite causes, including the government. The bankers’ new clothes can provide a cover for ignoring risks when doing so is convenient.

Bankers take advantage of this situation. Politicians in government might be thinking about “their” banks, but the bankers, in turn, are thinking about

“their” governments. Given their expertise and their control over money, bankers are in a strong position to influence public discussion as well as the decisions of politicians and regulators, affecting public policy in their interest. The phenomenon of “regulatory capture,” by which politicians and regulators are taken in by those they regulate, appears in most regulated industries, but it is particularly striking in banking and finance.⁹

Because different countries have different institutions and traditions, the politics of banking and banking regulation differs from country to country.¹⁰ However, beneath the differences there are some important common undercurrents.

“Global Competition Needs Level Playing Fields”

Representatives of banks and other industries often complain that government regulation unfairly harms their ability to compete with firms in other countries—and they make the argument expressed in the heading of this section. For example, Jamie Dimon, CEO of JPMorgan Chase, called Basel III “anti-American.”¹¹ According to him, Basel III is biased in favor of European institutions and might lead to Asian banks’ taking some of the U.S. market share. Similarly, French banks complained that the new rules do not take account of the special situation of their bank and insurance conglomerates, and German public banks thought the new rules were biased against them.¹²

Public officials often sing the same songs. When criticized for watering down Basel III in response to French and German lobbying, Michel Barnier, the European commissioner for Internal Markets and Services, who is in charge of financial regulation, complained that the United States was slow to adopt Basel III, had not even fully adopted the previous Basel II agreement, and had gone back on a G20 agreement to limit incentives for bankers’ risk taking.¹³ The U.S. Treasury responded by emphasizing that the regulation of derivatives trading is more advanced and more stringent in the United States than in Europe.¹⁴

In this blame game, everyone is calling for level playing fields, and everyone is blaming others for giving special privileges to their own banks. Bankers and their lobbyists say that for the sake of fairness, all banks must be subject to the same rules. In fact, they complain about unfairness in order to fight

rules that they dislike, trying to gain advantages for themselves. As a result of their success, international coordination of banking regulation has tended to reduce regulation to the lowest common denominator.¹⁵

In sports, competitors often complain about rules and about umpires' being biased in favor of others. The home media join in, knowing that their audience is rooting for the home team. The global economy, however, is not a sporting event. In the Olympic Games, the competitions in different events are separate, and a country may hope that its athletes will do well or even win medals in all competitions. In the global economy, however, different industries are interrelated, and it is not possible for a country to win the competition in all industries at the same time.

The economy is a system of production, exchange, and consumption. Businesses employ people and buy other inputs to produce goods and services that they can sell to other businesses and to individuals.¹⁶ They use the revenues from their sales to pay their employees and the suppliers of other inputs; any surplus is available to the owners of the business. Employees and owners of firms can use the income they earn for consumption, for purchases, or for productive investments in assets.

In this system, businesses and individuals specialize in certain activities and do not try to provide everything for themselves. They buy things they do not provide for themselves from someone else. The division of labor, whereby different people do different things and trade, is beneficial because, by specializing in activities they are good at, people and firms contribute to making the economy more productive.

Specializing and doing something well necessarily means not being as good at other things, and nobody is the worse for it. For example, doctors specialize in medical practice, and they are happy to get their strawberries from a farmer or from a supermarket that might have acquired them from farmers in California or Israel.

This logic also applies in international trade. Politicians sometimes talk about countries' being in competition with each other. This is a flawed argument, an article of the bankers' new clothes. If financial institutions in the United Kingdom or Switzerland have leading positions in global financial markets, their successes are directly related to the inability of their countries'

firms to compete in other activities. Just as doctors use the fees they earn for medical treatments to pay for strawberries, so do the United Kingdom and Switzerland use their revenues from selling financial services worldwide to buy computers in the United States or wine in France. In fact, these purchases are made not by the United Kingdom or Switzerland but by people and firms in these countries, who may be paid for working in the financial industry.

Banks in a country are not just competing with banks in other countries. They are also competing with other industries in their own country. Most importantly, they are competing for people, particularly those with scarce talents, whom firms in other industries would also like to hire. If the financial industry can offer high salaries and interesting careers, it is more likely to draw highly qualified people—at the expense of industries that cannot make competitive offers. If the other industries cannot afford to pay high enough salaries, they do less well in competing for people. Consequently, they may not do as well in selling their products or services, either locally or globally.

Switzerland and Iceland illustrate how the success of banks comes at the expense of other industries. A hundred years ago, tourism in Switzerland benefited from cheap labor in the remote mountain regions. Nowadays this cheap labor is no longer available because people can easily move to the cities and get high-paying jobs in the financial industry. The success of the financial industry (and some others) has come at the expense of the tourism industry. Similarly, the rise of the financial sector in Iceland during the decade before 2008 drew people into banking out of other activities such as agriculture, fishing, and tourism.¹⁷

For a country as a whole—or, more precisely, for the people in the country—the important question is not whether the country's banks or car producers are successful in the global economy. The important question is whether resources, most importantly people, find their most productive uses.

For example, modern banks employ mathematicians and physicists to run their mathematical risk models. The physicists who work for banks are not available for work in other industries—for example, for developing nanotechnology or electricity-powered cars that would reduce our dependence on oil. Do we know that these physicists are better employed in running risk models for banks than in developing nanotechnology? And might some of

those smart people in investment banking be more productive in developing new software?

Nobody can answer such questions directly. An indirect way to find out is to see which firms win in competing for people. If markets work well, the firms that make best use of them will best be able to attract talented people. Success in selling their products and success in attracting people go together; good revenues from sales enable firms to pay good wages. Unless the market system is distorted, a firm's success in its markets is a sign that the firm's use of the talent and other resources it acquires is good for the overall economy.¹⁸

Markets can be distorted, however. When firms do not bear the full costs of their activities and rely on others to pay some of the costs, too many resources may go into the activities whose costs the firms are not fully taking into account. In this case, the market outcome may not be efficient. An example is a company that pollutes a river and does not pay for the damage that the pollution imposes on people and firms downstream. The company may be a world leader in its markets, but if its products are cheap because the costs of its pollution are borne by others, such success is not beneficial to society.

This conclusion also holds if the activity imposes risks on others. Examples would be chemical products that are cheap because of insufficient safety measures to prevent explosions, transportation that is cheap because a truck company saves on maintenance, and, in the same way, financial activities that involve a risk of a financial crisis. There is not much difference between banks engaging in risks that may blow up the financial system and trucks with explosive loads that may blow up a residential area.

In Iceland everyone paid dearly for the global successes of Icelandic banks prior to 2008. The financial crisis led to a sharp recession, a rise in unemployment, and a fall in wages. Inflation and the devaluation of the krona relative to other currencies eroded the purchasing power of people's savings. The costs of bailing out depositors stifled the government.¹⁹ Ireland had a similar experience. As part of the Eurozone, however, Ireland could not devalue its currency, and the Irish government had to apply for assistance from European institutions.²⁰

When markets are distorted, a government can try to correct the distortions by taxing activities that are harmful to others or subsidizing beneficial

activities that the market does not reward sufficiently. Taxes and subsidies, however, can create their own distortions. Unless subsidies are needed to reward a firm for providing benefits to society for which they are not compensated by markets—for example, through research whose insights can also be used by others—subsidized firms are likely to have a disproportionate advantage in competing with firms from other countries or with firms from other industries that do not receive subsidies.

Subsidized firms are likely to attract too many resources and to be more successful than is good for society. This conclusion holds whether taxpayer money is spent to subsidize farming, steelmaking, or bank bailouts. It also holds if the subsidies support firms' successes in global markets.²¹

Implicit guarantees to large banks are especially problematic and perverse because they encourage excessive borrowing that increases the risk of costly financial instability. These are similar to corn subsidies in the United States that lower the cost of high-fructose corn syrup and thus indirectly increase the incidence of obesity-related diseases.²² With banks there is the added concern that the subsidies have no natural bound. Too-big-to-fail policies encourage banks to become very large and complex and to make very large bets.

Whenever individuals or firms do not bear the full costs of their actions, it is important to correct the resulting distortions. Even if regulations reduce the ability of the affected institutions to compete in global markets, society may be better off. If banks are less successful in global markets, the available talent and other resources will be attracted by other industries. This may be better than exposing the economy and taxpayers to excessive risks.²³

If the funding costs of banks increase because some of the subsidies to their borrowing are withdrawn and the banks increase the costs they charge on their loans, the effects are still likely to be beneficial. The subsidized rates may be inappropriately low. Large amounts of cheap lending to homeowners may seem good for a time, but they are inappropriate if the risks are too large. Societies worldwide would have been better off if banks had not lent so much to small firms in the late 1980s and to homeowners in the years before 2007.

The firms themselves, of course, suffer when they lose subsidies and can no longer impose some of their costs on others. In their lobbying, they do not men-

tion this. Instead they appeal to economic nationalism and warn of a loss of competitiveness in the global economy—as if they were their country's entries into the global Olympics. Their argument is another article of the bankers' new clothes.

In the 1970s and 1980s, similar complaints were brought against environmental regulation designed to curb emissions from steel, textile, or chemical plants.²⁴ Since then, perhaps partly as a result of environmental regulations, many traditional steel and textile producers have disappeared.²⁵ The regions where these industries had been located suffered from the change, but the overall economy has prospered. Would anyone—with the possible exception of the people in the industry who had benefited from subsidies—wish to return to an economy with polluted rivers, darkened skies, and taxpayers subsidizing coal mines and steel mills that cannot pay for themselves?

Politicians and regulators, however, often fall for the rhetoric about global competition and the need for level playing fields, and they fight to make sure that international standards do not hurt their nation's banks. Others, even some who should know better, join in, not mentioning the cost to the public of helping the banks become successful.²⁶

When the CEOs of major banks complain that a regulation would prevent them from winning in global competition, it takes courage and firmness on the part of a politician to assert that national interests are better served by subjecting bankers to certain constraints than by allowing banks to achieve success by taking risks that may harm the rest of the economy. The bankers' complaints are very audible, but the risks are invisible and seem abstract—until they actually materialize. When the risks materialize, the causes are so tangled together that it is difficult to assign responsibility. The bankers, politicians, and regulators involved are rarely held accountable or suffer significant consequences.²⁷

It is not a coincidence that the United Kingdom, Sweden, and Switzerland have been most forceful in promoting stricter banking regulation in the international negotiations since the crisis. The financial sectors in these countries are especially large, and they have been hard hit by financial crises.²⁸ In other countries, politicians and the public seem to be less aware of how costly the successes of their countries' banks can be.

“Banks Are Where the Money Is”

There is a deeper reason for the reluctance of politicians to impose strict regulations to reduce the risk of banks. Banks deal with money.²⁹ Money is an object of desire and a source of power. Almost anyone has views on how banks should use their money.

When politicians want banks to fund something they like, reducing risks in banking becomes less important to them. Those running the government may even believe that the primary job of banks is to fund the government. Regulations that reduce banks' desire to take risks will therefore seem counterproductive. A regulation that requires the banks to fund the government will seem much more convenient. So will a regulation that requires or encourages the banks to fund anything else that politicians consider desirable, such as homeownership.

The history of banking regulation is full of rules directing banks to fund activities to which the political system wants to give preference, most importantly the government itself. A typical example is a requirement that banks hold large reserves with the central bank. If the interest rate on these reserves is zero, the requirement forces banks to give a large interest-free loan to the central bank and, indirectly, to the government.

This kind of regulation played an important role in some European countries before 1990. Ostensibly, the regulations were intended to make banks safer by avoiding risky private loans. In fact, they made for easier funding of government deficits. Because lending to private borrowers was restricted, the interest that banks charged on loans to businesses and individuals was quite high. This reduced investment and growth.³⁰

Most of these regulations in Europe were dismantled when the European Union required its members to open their markets for banking services. As banks were subjected to competition with banks from other countries, such regulations became unsustainable and might have endangered financial stability if they had been maintained.

As mentioned in the previous chapter, banking regulation still favors banks' lending to the government. It allows banks to ignore the risk of government

default even when it exists. In the government debt crisis, pressures on banks to fund their own governments have again increased so that, for example, Greek banks were hardest hit by the Greek default in March 2012.³¹

If U.S. banks lend to the U.S. government, treating such lending as riskless might be justified on the grounds that the government can effectively print the money that it owes.³² In the Eurozone, the situation is different. When the government of Greece or Germany borrows and promises to make payments in euros, the situation is similar to that if the government of Mexico or New York City borrows and promises to pay in U.S. dollars. Just as the governments of Mexico and New York City cannot print dollars, so the governments of Germany and Greece cannot print euros.³³

In the euro area, the creation of money is the responsibility of the ECB, which is independent of the different member states and is in fact forbidden by law from lending to governments. When governments owe euros, there is no assurance that they can pay their debts.³⁴

Nevertheless, European banking regulation treats the euro-denominated debt of Eurozone governments as perfectly safe.³⁵ Banks can fund these loans entirely with borrowed money. The Belgian-French bank Dexia that was mentioned earlier had in fact used this rule to acquire a lot of government debt with very little equity.³⁶ When it became clear that Greece would default on its debt, Dexia was brought down and many other banks in Europe were sorely strained. Even so, no change in the regulation is in sight.

When regulations are designed to give preference to government debt, banks are more willing to lend to the government. This is convenient for governments, so they are reluctant to change the regulation. If at some point the taxpayers have to pay for a bailout, voters will not be able to identify who was responsible. Nor will they understand the connection if the bailout cripples the government's finances and everyone is affected by austerity policies. In many cases, the responsible politicians actually leave office before the risks from their policies materialize.

Banks and governments have always had a symbiotic relationship. Since the beginnings of modern banking in medieval Italy, lending to governments has been a key activity of banks. It is easy to make large loans to governments, and

they can be very profitable—until the governments default on them. Historically, governments failing to pay their debts have been the most important causes of banking crises.³⁷

Other regulations have also been motivated by the idea that banks are sources of money. For example, as discussed in Chapter 6, before the deregulation of the 1980s, savings institutions in many states of the United States were required to restrict their mortgage lending to properties located inside their states. The argument was that lending close to home is particularly safe, but in fact such rules prevented the savings banks from diversifying their investments and left them vulnerable to the specific risks of the states in which they were located. Politically, such rules were motivated by a desire to provide home buyers in the states with cheap credit rather than a desire to make the savings institutions safe.

For politicians such rules have the advantage that the costs of directing banks to specific investments do not appear in the government budget—until the banks get into trouble. At that point, again, voters are unlikely to make the connection between the banks' troubles and the regulations or the political interventions.³⁸

The view of banks as sources of funds for politically desired purposes pervades the treatment of banks, particularly state-owned banks, in Europe. In Germany, public banks have long played a major role. Until 2005 these banks were guaranteed by the government and could borrow very cheaply. Even so, the Landesbanken, public banks at the regional level, were not profitable.³⁹ Since their creation in the 1970s, hardly a decade has passed without a multi-billion scandal associated with one or several of these banks. Their lack of profitability has reflected both a lack of competence and an involvement in the flawed industrial policies of the regional governments.

In the financial crisis, the Landesbanken were among the hardest-hit institutions, requiring many billions of euros of taxpayer money. Despite this, the political authorities in charge have been unwilling to wind them down.⁴⁰ To a politician, the power to move a few million euros by a mere phone call, without having to go through parliamentary procedures, is worth every euro of taxpayer money. This is why excess capacities have been a permanent source of instability in the German financial system.⁴¹

France is another example of where banks are regarded as public institutions.⁴² After the election of 1981, French banks were nationalized and their CEOs were appointed by the government. Subsequently the banks were privatized again, but their CEOs still come from the same group of “*Enarques*,” former students of the elite *École Nationale d’Administration* (ENA).⁴³ The CEOs have made their careers in government, usually the Ministry of Finance, and at some point switched into banking.

A typical example can be seen in the career of Pierre Mariani, who spent about thirteen years in various ministries, culminating in the position of director of the cabinet of the budget minister, Nicolas Sarkozy, in 1993–1995. Mr. Mariani then moved into the financial sector, where he worked with BNP Paribas before being appointed CEO of Dexia after the first government bailout of the bank in 2009, under President Nicolas Sarkozy.⁴⁴

The resistance of France and Germany to tighter banking regulation is partly explained by the role of the *Landesbanken* in Germany and by the networking of the French *Enarques*. The *Landesbanken* cannot raise equity in the stock market, and their public owners prefer not to put in additional money if they can help it. Giving up control, however, is out of the question. Similarly, the *Enarques’* network of politicians, bankers, and bureaucrats in France does not want to subject the banks to the control of market investors.⁴⁵

Regulatory Capture

Although they can put in place any laws and regulations that they see fit, politicians are not in the driver’s seat in their relation with banks. Bankers know more about banking than politicians. Moreover, politicians want the bankers’ cooperation to make the investments the politicians favor—or campaign contributions.⁴⁶ When bankers warn that capital requirements will hurt bank lending and reduce economic growth, they are rarely challenged by politicians, not only because politicians do not see through the banks’ claims but also because they do not want to upset their symbiosis with bankers.⁴⁷ Bankers and politicians have a two-way dependence. In this situation, politicians can forget their responsibilities, and the political system fails to protect the economy from banking risk. Even after the financial crisis, as one politician admitted, the banks “own the place.”⁴⁸

The three decades leading to the financial crisis of 2007–2009 were marked by enormous growth in the financial sectors of the United States and Europe. Banks and financial firms convinced politicians and regulators that tight regulations are not needed because markets work well enough. Bankers gained prestige and wealth, and their political influence increased. An anti-regulation ideology helped as well.⁴⁹

Prior to the financial crisis, regulators failed to set proper rules and supervisors failed to enforce the rules in place so as to prevent the reckless behavior of bankers.⁵⁰ In the United States, for example, Alan Greenspan (chairman of the Federal Reserve), Arthur Levitt (chairman of the Securities and Exchange Commission [SEC]), and Robert Rubin (Treasury secretary) prevented an initiative in 1998–2000 that would have imposed more transparency on derivatives markets. Such transparency was sorely missing in the run-up to the financial crisis.⁵¹ A 2004 ruling of the SEC allowed U.S. investment banks to determine their regulatory capital on the basis of their own risk assessments, and this enabled Lehman Brothers and other investment banks to become highly indebted and vulnerable.⁵² The United Kingdom also instituted so-called light-touch regulation in order to expand its role as a major financial center.⁵³

An important factor underlying the financial crisis of 2007–2009 has been the failure of regulators and supervisors in the United States and in Europe to set and enforce proper rules to prevent the reckless behavior of bankers.⁵⁴ Supervisors in the United States and Europe allowed banks to circumvent capital requirements by creating various entities that did not appear on the banks' balance sheets. Investors were willing to lend to these entities because the sponsoring banks were providing guarantees. The supervisors did not object to banks' keeping these exposures off their balance sheets, nor did they try to limit the banks' obligations from the guarantees. The obligations ended up greatly weakening the sponsoring banks and bankrupting some of them when the crisis broke in the summer of 2007.⁵⁵

What causes regulatory capture? First, regulating and supervising an industry requires some expertise. This expertise is best found among people in the industry. Regulators and supervisors therefore tend to have significant numbers of recruits from the industry. If these people are competent, they may eventually be hired back by the industry. In such a revolving-door situa-

tion, a regulator may start out with some sympathy for the bank that he or she has just left.⁵⁶ Also, regulators may not want to be tough on banks from which they hope to receive job offers in the future.

In the United States, bankers serve on the boards of the regional Federal Reserve banks, which are in charge of supervising banks and even in setting the regulations. For example, Jamie Dimon, CEO of JPMorgan Chase, has been on the board of the Federal Reserve Bank of New York since 2007 and will serve through 2012, even as the New York Fed is directly involved in formulating and enforcing capital regulations and other policies impacting JPMorgan Chase and other banks.⁵⁷ This situation can create significant conflicts of interest.⁵⁸

Second, regulators exhibit what is known in sports as the home-team bias of referees, the subconscious sympathy of referees for the team that is cheered by the home crowd.⁵⁹ If the crowd of onlookers, such as segments of the press, politicians, and industry specialists, favor certain people and institutions, supervisors may become biased and favor them as well. The home-team bias is particularly strong if the affected firms claim that a regulation unfairly damages their ability to compete with away teams, firms in other countries.

In this context, it is important to realize that special interests tend to be much more vocal than the general public. As regulation matters greatly to them, so they invest heavily in lobbying. To any individual without a special interest, the regulation may seem too unimportant to warrant much of an investment of attention or energy. Even if, in the aggregate proper enforcement of the regulation would be called for, because so many people are affected, special interests that fight the regulation may have much more influence.⁶⁰

Third, firms in the industry influence politicians and administrators by lobbying and by providing money, particularly for election campaigns. Firms in regulated industries want to make sure that appointees to regulatory positions will not be too challenging. Top bankers and politicians interact in many informal ways as well. For example, Jamie Dimon cultivates his relations with high-level government officials and has stated that JPMorgan Chase gets “a good return on the company’s ‘seventh line of business’—government relations.”⁶¹ If a regulatory agency is zealous in trying to control the industry, the legislature can cut the agency’s budget to restrain the zeal.⁶²

In other industries, the effects of regulatory capture might be weakened by resistance from the firms' clients and competitors, the public, and politicians.⁶³ For example, safety standards that would allow a risk of plane crashes would not be tolerated for long.⁶⁴ The harm is evident, and it is easy to trace damage back to negligence and recklessness.

In banking, however, the damage from ineffective regulation and supervision is harder to detect. Moreover, for the reasons we discussed earlier, politicians may find it quite appropriate or convenient for regulators and supervisors to be lax toward banks. The public is dispersed and disorganized, and other individuals and firms have little to gain individually from pushing banking reform.⁶⁵ Everyone has dealings with banks, and many find it beneficial or necessary to maintain their good relationships with the banks. In this environment, confusing and flawed arguments—the bankers' new clothes—are more likely to affect policy.

This situation can change only with significant pressure from the public. Nonprofit citizens' and public-interest groups try to provide a counterweight to lobbying by industry groups, but their resources can hardly compete with those of the financial industry, and they often find it difficult to gain access to politicians and regulators.⁶⁶

An interesting comparison can be made with the Japanese authorities that were in charge of supervising the Tokyo Electric Power Company (TEPCO) before the earthquake and tsunami on March 11, 2011. According to the parliamentary committee investigating the nuclear disaster at the Fukushima Daiichi Nuclear Power Plant after those events, the disaster could have been avoided if the supervisor had been more diligent in imposing safety rules and the company had been more forthcoming in complying.

In what the report on the nuclear disaster calls a "culture of complacency," the behavior of TEPCO and its supervisors was shaped by collusive ties among the nuclear industry, regulators, and politicians. Regulators allowed TEPCO to operate reactors that were known to have significant problems, and TEPCO was able to hide some problems that were even more serious. Regulations were nonexistent or inconsistent or were not enforced. The individuals involved seemed more concerned with their own interests than with the safety of the plants. The so-called nuclear power village represented revolv-

ing doors and a web of connections among government officials, regulators, and TEPCO.⁶⁷ The reports about the regulatory and political environment that emerged in the context of TEPCO show a striking similarity to the situation of the financial industry. In both cases, regulatory and political capture went unchecked, and still does, because the risks were hidden—until disaster struck.

Much is wrong with banking, and much can be done about it. If politicians and regulators fail to protect the public, they must face pressure to change course. The next chapter pulls together the key themes from our discussion in this book and exposes more of the convenient and flawed narratives that help justify the lack of action. The challenge is to make those who handle other people's money—including bankers, politicians, and regulators—bear more of the consequences of their decisions.

Other People's Money

I am disappointed because many of these behaviours happened on my watch. It is my responsibility to make sure that it cannot happen again. . . . We did not have appropriate controls in place. Frankly, we misjudged the risk associated. . . . We know that a small minority have let us down. We also know that we need to rebuild bonds of trust with the society we serve.

Bob Diamond, Barclays CEO, July 2, 2012

THE ABOVE QUOTE is taken from a letter to the employees of Barclays, the giant U.K. bank.¹ The letter concerns Barclays' involvement in a scheme whereby traders of several large banks allegedly conspired to manipulate reporting for LIBOR, a key index for interest rates, whose value affects trillions of contracts around the globe.² A few days earlier, Barclays had agreed to pay more than \$450 million to U.S. and U.K. authorities to settle allegations that Barclays had manipulated LIBOR. The chairman of the board of Barclays had just resigned, and Mr. Diamond was forced out as CEO the next day.³

In his letter Mr. Diamond is remarkably vague about the "behaviours" he is referring to. He talks about insufficiently controlled "risk" but does not mention any violation of the law. Nor does he let on that manipulating reports for personal gain might raise concerns about criminal behavior such as fraud. Mr. Diamond attributes the manipulation to a small group of people whom the bank had not sufficiently controlled. Yet the manipulation had gone on for years, and even outsiders had had suspicions about it.⁴ Why did the bank fail to control the people in question? If senior management knew that they might misbehave, why did it put them in positions in which misbehavior might matter? If management did not know, why not?⁵

According to many accounts, greed has come to dominate the culture of major banking institutions over the past two or three decades.⁶ With ever larger speculative positions, the banks' traders have taken ever larger risks. If

their bets succeed, the traders can earn large bonuses, and many of them have become extraordinarily rich. This behavior sets an example for others to emulate; they strive either to become as rich or to prove that they are just as daring as their role models.⁷ Large rewards and a sense that “everyone is doing it” have eroded behavior codes focusing on clients’ trust.⁸

Convenient Narratives

Mr. Diamond asserts that the LIBOR scandal had nothing to do with the culture of the bank. Despite recognizing that “our culture, and that of the industry overall, needs to evolve,” he insists that “a small minority have let us down.”

A major theme of this book has been that people often use convenient narratives, stories they tell to explain what happened or what is going on, hoping that others will not ask too many vexing questions. In the case of bankers and banking experts, most of these narratives are examples of the flawed claims we refer to as the bankers’ new clothes. Mr. Diamond’s letter fits this pattern perfectly. By insisting that the LIBOR scandal was due to the misbehavior of a few individuals, Mr. Diamond tries to deflect any demands for wider investigation or reform.

Downplaying problems has also been a standard response to the financial crisis of 2007–2009.⁹ For example, many politicians and regulators downplay the costs of the crisis. The U.S. Treasury and the Federal Reserve proudly announce that they made a profit on the assets they acquired to relieve banks, but they leave out important parts of the intervention, such as the support using taxpayers’ money that was given to Fannie Mae and Freddie Mac.¹⁰ Most importantly, in limiting attention to the costs of the intervention, politicians and regulators, like bankers, frequently ignore the enormous costs of the crisis to the broader economy—the loss of output in the recession, job losses, and hardships associated with foreclosures.¹¹ By minimizing the costs of the crisis, this narrative aims at silencing calls for more reform.

A related narrative often advanced by bankers, regulators, and economists is that the financial crisis of 2007–2009 was primarily a “liquidity crisis.”¹² According to this interpretation, investors lost confidence, first in mortgage-related securities and then in banks. The runs that followed caused extensive damage, with strong contagion effects on other banks and markets.

If it had not been for these runs, so the narrative goes, losses would have been much smaller. The runs are compared to depositors' bank runs before the introduction of deposit insurance, except that the recent runs were driven by companies rather than individuals, and the focus was on short-term lending to banks and investments in money market funds.¹³

In the liquidity narrative, the financial system is sometimes compared to the plumbing of a house, invisible but essential.¹⁴ The metaphor is intriguing, but it is not clear what it is meant to tell us, and unclear metaphors are bad guides for policy. Seeing the words *plumbing* and *liquidity* next to each other, one might suspect that the message concerns the need to make sure that fresh water—or money—is available where and when we need it. (Or does the metaphor refer to the part of the plumbing that is used to flush waste down the drain?) The analog of a liquidity problem in the financial system would then presumably be a lack of water coming from the tap, and the central bank's pumping money into the system would be like getting an additional water supply to fill the pipes.

But why is no water coming from the tap? Is it because of leakage through rusty pipes or because of a drought that has forced the water company to limit the water supply? If the pipes are rusty and have holes, more water will hardly help; if there is a drought, even the government might not be able to provide more water.

Plumbing must also be seen in the context of the structure it serves. A highly indebted bank is like an unstable, shoddily constructed building. When such a building is exposed to a strong storm or an earthquake, the walls may not be able to withstand the pressure, and their shaking may damage the plumbing. This will cause a "liquidity problem" at the water tap, but we should be most worried about the instability of the walls. Just as the lack of water flow is really due to the building's being badly built, so the lack of liquidity is often due to a bank's being highly indebted.

In the liquidity narrative, the main problem for policy is to prevent runs and liquidity problems from occurring and provide liquidity when they occur. If this is actually the key issue, one might conclude that policy should focus on extending the government safety net, that is, on providing government guarantees to strengthen investors' confidence and liquidity support by the

central bank to help banks in need.¹⁵ This focus on the safety net is inappropriate, however, if liquidity problems and runs are just symptoms of deeper difficulties of banks.

The liquidity narrative benefits from people's fascination with runs and panics, which contributes to the success of movies such as *It's a Wonderful Life* and *Mary Poppins*. Scholars, analysts, journalists, and the public are intrigued by how a small spark of mistrust, even one that is based on a misunderstanding, can kindle a panic that destroys a bank. The fascination with runs and panics makes the liquidity narrative attractive, but that does not mean that this narrative is true.

Throughout this book we have emphasized the critical importance of solvency for banks and other financial institutions. If these institutions are highly indebted, it does not take much of a shock for solvency concerns to arise. Such concerns can lead creditors to withdraw their money as soon as they can, causing liquidity problems for the banks. As we discussed in Chapters 3–5, runs and other liquidity problems rarely appear out of the blue but usually start when a bank's solvency is in doubt. Even during crises, investors tend to distinguish between institutions according to their strength.¹⁶ A run can sometimes even be the mechanism for discovering a hidden insolvency and triggering corrective action.¹⁷

In explaining the crisis of 2007–2009, solvency concerns must be taken very seriously. Banks faced substantial losses from mortgage lending due to homeowners' defaulting on their debts. These losses would have caused serious problems even if there had been no liquidity problems. Many banks were so highly indebted that they did not have enough equity to absorb the losses. Even those that did not become insolvent found that their equity was much impaired, and this forced them to reduce their activities or sell assets.¹⁸ The subsequent credit crunch for the real economy was a result of banks' financial distress caused by excessive borrowing.

Describing the financial crisis as a liquidity crisis without much concern for the underlying solvency issues is convenient for many, but it is inappropriate for this crisis, just as it is for most—virtually all—recent financial crises.¹⁹ This narrative diverts attention away from much more important underlying questions, such as why low-quality mortgage lending had expanded so much,

why so many banks were so vulnerable to losses, and why regulators and supervisors had looked on passively as the risks were building up.²⁰

The liquidity narrative diverts attention away from the question of responsibility for the vulnerability of the banks and of the system. It therefore masks the numerous failures of governance and of regulation, in the financial sector and among supervisors, which contributed greatly to the buildup of risks in the run-up to the crisis. Bankers took many risks and hid them. Regulations were poorly designed and counterproductive. Supervisors allowed banks to get away with practices that bent or broke the rules and that proved to be very harmful in 2007 and 2008.²¹

The crisis was not caused by pure liquidity problems. It was driven by serious and legitimate solvency concerns about a number of banks and other institutions.²² The liquidity narrative distracts audiences from trying to understand why the solvency problems arose.

Many politicians, regulators, bankers, and others want us to believe that banks and the financial system are in much better shape now than they were before the crisis, that dangerous activities have been much reduced, and that many new rules have made the system safer.²³ But some improvements for which regulators take credit cannot really be attributed to them. For example, banks can appear profitable by taking advantage of cheap interest rates to borrow. At the same time they can delay the refinancing of mortgages so their borrowers cannot benefit from the low rates. These actions make banks look better, but they do not reflect any real improvement in the system.

The new reforms that are being put into place are far from satisfactory. Banks may be more robust today than they were in 2008, but this statement does not say much about where they really are and where they should be. As discussed in Chapter 11, bankers and bank regulators prefer to deny the banks' weaknesses rather than deal with them properly. This attitude has meant that concerns about hidden insolvencies have still not been addressed, and the financial system remains vulnerable to problems inherited from the past. As of this writing, in October 2012, this system does not appear to be better equipped than it was in 2000–2006 to limit the buildup of risks or than it was in 2007–2009 to bear losses.²⁴

Why Invalid Arguments Can Win

Like other articles of the bankers' new clothes, convenient narratives are often successful even when they are invalid. They are too rarely challenged, and they impact policy. As we saw in Chapter 12, politicians and regulators often have their own reasons for siding with banks in the debate about regulation or for protecting their own past conduct. Politicians are concerned about campaign contributions from banks and bankers. They may also be concerned about banks' lending to the government, to home buyers, or to businesses. Taking their cues, and sometimes explicit directions, from politicians—or maintaining options for future careers in banking—regulators and supervisors also shy away from conflicts.

Lobbying is often successful because it faces few challenges. The benefits for special interest groups of bending laws and regulations or getting them changed are large and focused. They find it worthwhile, therefore, to spend money and effort for this purpose. By contrast, the harmful effects on the public, which may be much greater in total, tend to be spread over so many people that each individual person hardly notices the damage.²⁵

In such a situation, it is quite possible for the lobby to succeed even though, on balance, the harm from its proposals may outweigh the good; the special interests that benefit are just so much louder than the general public, even though the harm to the latter may be very great. Individuals who know the issues may have little to gain from challenging the lobby and limited ability to actually have an impact.

As discussed in Chapter 12, nonprofit citizens' and public interest groups try to provide a counterweight to special-interest lobbying, but these groups can hardly compete with corporations and industry lobbyists for organization and resources. Citizens' groups or others often find it difficult to gain access to politicians and regulators if what they say is inconvenient for the politicians or regulators, and as a result, special interest groups are often more successful in affecting policy.²⁶

In the area of financial regulation, despite the public anger over the financial crisis and the bailouts, bankers and their lobbies continue to wield the

greatest influence. As discussed in several chapters of this book, bankers have succeeded in watering down regulatory reforms both in the process of legislation and at the implementation stage. Lobbying with politicians and regulators away from the public eye has been particularly effective. When conversations do occur in public, convenient narratives divert attention away from the critical questions.

Unfortunately, making valid arguments is not necessary to affect policy. In the United States a striking example was provided by the battle, around 1994, over the treatment of executive stock options in corporate earnings statements. The Financial Accounting Standards Board (FASB), the body of experts that is charged with developing accounting rules for corporations in the United States, had proposed that options be treated as expenses at the time the options were granted.

Special interest groups warned of the dire consequences that would follow if this proposal to change the accounting rules were implemented. They claimed that the change would make it more difficult for U.S. firms to raise funds, that it would stifle innovation and make U.S. firms less competitive globally. Under the influence of their lobbying, the U.S. Senate passed a resolution opposing the proposal, and the FASB desisted. Ten years later, after the Enron bankruptcy and other accounting scandals, the rule was at last implemented, and none of the earlier warnings was confirmed.²⁷

In this case it took accounting and governance scandals to enable the enactment of a simple change in accounting rules whose advocates had previously been silenced by invalid arguments. So far we have not learned a similar lesson from the financial crisis of 2007–2009; invalid claims have continued to dominate the debate.²⁸

*Financial Stability Has No Constituency
but Is Everyone's Business*

The bankers' new clothes have contributed to an anti-regulation atmosphere in which politicians, regulators, and supervisors shy away from interfering with banking industry practices and in which the banking industry feels entitled to evade the government and the supervisors.²⁹ This atmosphere

provided the context for much of the deregulation of the 1980s and 1990s, as well as for the reluctance of politicians or regulators to introduce new regulation or even to enforce the existing rules strictly.³⁰

In the LIBOR case discussed earlier, regulators had information that should have led them to suspect that the law had been violated, but they failed to take action in time.³¹ For the past decade or more, few individuals and corporations in the financial industry have been prosecuted for possible violation of the law.³² Individuals working in the financial sector face minimal punitive consequences of wrongdoing, even of fraud.³³ Most cases are settled out of court with penalties that are tiny relative to the bonuses and profits the offending individuals have earned by engaging in illegal or unethical practices.³⁴ The penalties are often paid by the banks, which effectively means by shareholders and, in the case of default, even creditors; the individuals responsible pay little or nothing, and banks become weaker.

Such out-of-court settlements may be convenient for the authorities because prosecution is costly and, given the complexity of the issues, the verdicts are often uncertain. Pressing charges might also reflect badly on supervisors who failed to intervene in time. Indeed banks often defend their actions by arguing that regulators were present, allowed them to take the actions, and did not interfere as the actions continued. As a result, there is too little accountability for wrongdoing.³⁵

This lack of accountability is harmful. Effective banking regulation and enforcement are needed to protect the public interest. Leaving people and firms free to act as they like, subject only to the so-called discipline of the market, is best in many areas of economic activity but not in banking. If banks are left free to act as they like, they will endanger and distort the economy, and the public interest will suffer. The public has already been greatly harmed, and the dangers have not abated.

In 1914 Louis Brandeis, who later went on to serve on the U.S. Supreme Court, emphasized the fact that bankers use "other people's money."³⁶ The risks that bankers take affect not just themselves but also those other people whose money they use, and many others besides. In making and controlling the laws and regulations, politicians, regulators, and supervisors make deci-

sions that affect many other people, including not only the banks' investors but also the public as a whole. The "other people," however, do not have a say in the bankers' decisions, and often also in decisions by policymakers.

Banks and other financial institutions must be regulated because their distress and insolvency can have a significant negative impact on the rest of the financial system and on the economy. When banks borrow too much and take too much risk, they harm the public. If the government tries to limit the damage by bailing banks out, taxpayers bear the direct costs.

The problem is not risk taking per se. Risk taking is part of most investments, and without it we would experience very little innovation and growth. Funding innovative entrepreneurs, for example, requires that venture capitalists or other investors make highly risky investments. The investors do their best to evaluate the odds, but they know that many start-up businesses will fail and that spectacular performers like Apple or Google are extremely rare.³⁷ Established companies must also take risks to innovate or even to remain in business: pharmaceutical companies take risks in developing new medicines, car manufacturers in further increasing fuel efficiency.

Risk is unproblematic for society when those who make the decisions also bear the consequences and when they do not harm others who have little control over the decisions. Bankers, however, do not bear the full consequences of their decisions, and they can harm others who have little control over them. Banks borrow from a large and dispersed set of depositors who simply want their deposits to be safe and their payments to be made smoothly but do not have sufficient information or ability to assess or influence the decisions and the risks that are taken. Moreover, banks' risk taking affects not only depositors and other creditors but also the broader public through the different forms of contagion discussed in Chapter 5.

Because the bankers' decisions significantly affect others, the principle that everything should be left to the unregulated free market is not appropriate in the context of banking. The bankers' decisions can endanger too many "other people." Effective regulation and enforcement are therefore essential.

The public has a much greater interest in the banks' safety than do the banks themselves. Individual banks may be very sophisticated in managing their risks, but their assessments do not consider the interests of other

people and institutions, such as the costs of contagion from their problems. Exacerbating this problem, the costs and benefits faced by individual people working for banks are different again from those faced by the banks' investors and the broader public. Bankers often benefit from banks' potential profits but face no personal costs from the banks' possible bankruptcy, let alone from harming the rest of the economy with the risks they have taken.

The key objective of banking regulation must be to guard the safety and soundness of the financial system in the public interest.³⁸ Other concerns should not interfere. Promoting the competitive success of banks in global markets is not in the public interest if this success is due to banks' taking excessive risks at the expense of the taxpayers. Many countries have paid dearly for the successes of their banks.

Encouraging the banks to fund the government is also not in the public interest if such funding endangers the banks. Such funding may be convenient for politicians who want to hide the costs of their policies, but if a government defaults on its debt and this is accompanied by a banking crisis, the consequences can be disastrous for many people.³⁹

The need for effective regulation is acute. The large scale of bankers' gambles and the high degree of interconnectedness in the financial system make that system very fragile. If some large and highly connected bank or other financial institution fails, it can destabilize the entire financial system and inflict enormous damage on all of us.

Politicians, regulators, supervisors, and even central bankers are also in control of other people's money. They are charged with protecting the public interest, but they sometimes become captured or respond to other incentives and forget their duty. By allowing flawed arguments to impact policy and by failing to design and enforce effective laws and regulation in the public interest, they also abuse their control of other people's money. Only public pressure can solve this governance problem.

Sensible, Cost-Effective Regulation

In the aftermath of the bailouts of 2008–2009, there has been much debate about what is wrong with the banking system. Often the discussion focuses

on the largest banks, called “too big to fail.”⁴⁰ Other financial institutions have the distinction of being too interconnected, too important, or perhaps too political to fail. They are referred to as “systemically important.”

One of the worst effects of having institutions that are “too important (too big, too systemic, or too political) to fail”—that is, institutions whose failure the government wants to avoid—is the creation of distorted and dangerous incentives for such institutions or for others that want to attain this status. In addressing this problem, one possibility is to focus on how such institutions might be made smaller, less interconnected, important, or political, so that there would be no problem in letting them fail.⁴¹

Our approach instead takes its cue from the quote from Benjamin Franklin with which we opened Chapter 6: “An ounce of prevention is worth a pound of cure.” Rather than focusing only on how to prepare for the possibility of failure or how to rearrange the activities of these institutions so failure becomes palatable, can we do something, at a reasonable cost, to prevent financial institutions from getting to the point of failing in the first place? This question can be asked about small and large institutions alike and for all types of institutions whose failure might be harmful to the system. However, it is obviously more urgent for the institutions whose failure would be most harmful to the economy.

Financial failure involves a failure to pay debts, that is, legal promises to pay. Banks and other institutions harm the economy most when they become distressed or insolvent—that is, when they get into a situation in which they cannot pay their debts or when investors fear that they might not be able to pay their debts. This is most likely if the banks take on too much debt to begin with and if the people in charge, in the banks or among the regulators, do not take proper precautions to prevent financial distress.

Importantly, the damage that failures or insolvencies of financial institutions create is not limited to the impact on depositors, those who provide deposit insurance, and existing and new loan customers. For example, Lehman Brothers did not engage in commercial banking activities, and yet the damage from its bankruptcy was enormous.⁴² This observation suggests that banking regulation should focus on protecting the financial system from risks

arising in investment banking at least as much as it aims to protect depositors and make sure banks provide consistent and appropriate loans.⁴³

The interconnectedness of financial markets and financial institutions that we discussed in Chapter 5 implies that contagion effects arise in activities other than commercial banking. In 1998, authorities thought of the hedge fund LTCM as systemically important and intervened to prevent it from failing in the normal way. Bear Stearns and Lehman Brothers were both pure investment banks; the takeover of Bear Stearns by JPMorgan Chase was subsidized by the Federal Reserve, and Lehman Brothers' bankruptcy caused havoc. Also, in September 2008 the U.S. government bailed out the insurance company AIG rather than allowing it to go into bankruptcy.⁴⁴

Even if the largest banks become smaller, the interconnectedness of the financial system and the danger of contagion will still be likely to create excessive fragility unless more is done to control this fragility.⁴⁵ Financial institutions might still get into trouble and, if and when they do, the implications of failure for the rest of the financial system might be so frightening that they still might not be allowed to fail.⁴⁶

This reasoning explains our focus on improving the safety and soundness of banks. If failures become less likely, the financial system will become more robust and stable, and it will be able to serve the economy more consistently. Regulation must focus first and foremost on making banks more resilient against shocks, particularly because there is a cost-effective way to do so. Whatever else is done, it is critical to find ways to reduce the likelihood that banks will become distressed or insolvent.

In this book we have argued that achieving this objective most directly, with little if any cost to society, would involve requiring banks to have *much* more equity and rely less on borrowing. If banks have considerably more equity funding, they will be less likely to become insolvent or fail, and governments will be less likely to get into a position in which they must choose between bank bailouts and contagious bank failures.

Regulation of equity funding is required because, if banks are left to choose their levels of equity on their own, they have incentives to choose too little. As we explained in Chapter 9, deposit insurance and other guarantees, as

well as the tax system, bias banks' preferences for borrowing. The fact that banks are already highly indebted also creates biases in favor of continuing to borrow and resisting more equity. As we have explained throughout the book, borrowing can be addictive, especially if the borrower benefits from guarantees. Quite simply, banks are as indebted and fragile as they are only because they *want* to be and not because of any benefit this brings to society. Nothing that banks do requires that they borrow as much as they do or as much as they lobby to be allowed to do.

Good regulation should directly address the key problems that must be solved, and it should do so in the most cost-effective way possible.⁴⁷ If a key diagnosis is that banks and other institutions are too fragile, making sure that they have much more equity is the simplest and most cost-effective way to address this problem, and it will correct or reduce many distortions created by government guarantees and subsidies. The benefits of this approach are particularly strong for banks and other institutions whose distress and insolvency would impact the overall system.

Capital regulation is already in place, and improving it does not require much in the way of new laws. Regulators often have plenty of authority to act. By requiring only that banks fund their assets with more equity, capital regulation is less intrusive than any other types of regulation that may intervene in the actual business activity of the banks. As discussed in Chapter 11, prior capital regulations failed because they were insufficient, flawed, and poorly enforced. We can and must do significantly better than current proposals call for.

There are many advantages to a situation in which banks and other financial institutions would be required to have substantially more equity. First, more equity would reduce the likelihood that banks will fall into financial distress or insolvency. As we discussed in Chapter 6, this situation would increase the stability of the system and addresses contagion concerns, but it would have additional benefits. Less indebted banks are in a better position to make good loans. By contrast, highly indebted banks are more prone to taking excessive risks in lending, and they may stop lending if they get into financial trouble.

Another benefit of higher equity requirements is that they would naturally reduce the sizes and the distortive effects of guarantees and subsidies. With fewer subsidies, large banks might break up without being forced to do so by law or regulation, under pressure from investors concerned about their inefficient size or complexity. High equity requirements would make it more likely that banks would become smaller naturally.

Higher equity requirements would therefore alleviate the problem of banks' being too big, too interconnected, or too political to fail. Not only would banks be less likely to fail; they would bear more of their own losses should they incur losses, and they would be less able to take advantage of the subsidized cheap borrowing that their status as too big to fail has conferred on them.

Best of all, these many critical benefits of significantly higher equity requirements could be obtained at virtually no cost to society. Taxpayers would save on subsidies, and the public would benefit from a more stable and healthier financial system. There are therefore no trade-offs associated with this approach. Society would obtain large benefits for free.

Bankers fight higher equity requirements, but the only way that having more equity might actually be costly to them is by preventing them from benefiting at the expense of taxpayers and creditors. Throughout this book we have exposed a large collection of what we call the bankers' new clothes, invalid reasons bankers have given as to why moving to a system with much more bank equity, even at the level of 20 percent or 30 percent of banks' total assets, is undesirable or impossible.⁴⁸ These flawed arguments and bank lobbying have prevented highly beneficial reform.

For example, in discussing the cost of more equity, bankers frequently refer to the return that investors require, lamenting that they cannot deliver those required returns if they have more equity. This reasoning goes against the basic principles operating in the financial markets in which banks operate. One of these principles is that investors require compensation for risk. For example, investors are currently willing to receive almost no returns at all when investing in safe government bonds. Any discussion of returns that does not recognize this principle is fundamentally flawed. In targeting high

returns, bankers may take risks for which their shareholders are not adequately compensated and that definitely harm their creditors or the public.

The concern most often heard about higher equity requirements is that they would reduce lending. This concern is misplaced. Making loans, like other investments in the economy, should be guided by the quality of the potential loans and by the appropriate economic cost of funding them. Having banks funded with more equity would not interfere with this process; rather, it would make credit markets work better.

Bankers choose loans and other investments in light of their own incentives. As we saw in Chapter 6, for many of the major banks, making loans is currently only a small part of their business. Reductions in lending have less to do with equity requirements, instead reflecting the incentives banks have to use their funds otherwise.

The current structure of the regulations may actually introduce biases against making loans. For example, when bankers focus on investments that regulators view as less risky than they actually are, making business loans may seem less attractive than other investments. The investments that bankers find attractive may endanger the system, as happened in the run-up to the financial crisis of 2007–2009 when banks “innovated” to create AAA-rated securities that turned out to be quite risky. Requiring banks to have more loss-absorbing equity, with requirements that cannot be manipulated by conveniently designed risk models or through the flexibility of accounting rules, is likely to remove the biases and therefore encourage responsible lending that can benefit the economy.

As we have also seen, the fact that banks have so much debt also distorts their incentives, in lending and investing as well as in further borrowing. The incentive distortions are exacerbated by guarantees and debt subsidies. As bankers respond to these incentives, they endanger the financial system and the public. This situation must be corrected.

Adair Turner, chair of the Financial Services Authority of the United Kingdom, in urging radical reform and a reassessment of the role of the financial system in the economy, said in 2010, “There is no evidence that the growth in the scale and complexity of the financial system in the rich developed world

over the last twenty to thirty years has driven increased growth or stability, and it is possible for financial activity to extract rents from the real economy rather than to deliver economic value.” He continued: “We need to challenge radically some of the assumptions of the last thirty years and we need to be willing to consider radical policy responses.”⁴⁹

In Chapter 11 we made specific proposals that would be highly beneficial to the financial system, and we urged that they be taken up immediately. These proposals require nothing but the will of governments and regulators to take the essential steps. First among our recommendations is to determine which banks are insolvent and to unwind them even if the immediate costs seem daunting. Experiences in Japan and elsewhere have shown that keeping insolvent or “zombie” banks in business is harmful and costly.

Second, we strongly recommend strengthening banks by banning payouts to shareholders, such as dividends or share repurchases, until the banks have reached much higher equity levels than they currently maintain. Banks whose shares are traded on an exchange can be strengthened further by requiring them to raise more equity. As we explained in Chapter 11, these steps would entail only benefits and no costs to society, and they would not interfere with banks’ ability to make loans during the transition. Indeed, if banks refrained from making payouts to their shareholders and raised more equity, they would have additional funds for loans.⁵⁰

The standard objection to this proposal, that a ban on payouts or a request to raise new equity would make the banks’ stock prices decline, fails to recognize that any such decline would be due only to the fact that, with more equity, bank shareholders who benefit from the upside of decisions taken on their behalf would also have to bear more of the downside risks. This would merely correct a situation in which they can rely on others to bear some of the downside risks.

The official approach to the regulation of bank equity, enshrined in the different Basel agreements on so-called capital regulation, is unsatisfactory. Even the recent Basel III, which is said to be much stricter than its predecessor, permits banks to have very little equity, as little as 3 percent of their total assets. Moreover, the complex attempts in this regulation to fine-tune equity

requirements—for example, by relying on risk measurements and weights—are deeply flawed and create many distortions, among them a bias against traditional business lending.

Ultimately, all risks must be borne by someone. Some risks are unavoidable, and some are the result of decisions taken by individuals, companies, and governments. The financial system can help the economy grow and prosper by spreading risks more efficiently and by facilitating the funding of productive investments. However, this requires that the responsibility and liabilities be clearly assigned and enforced. So far, this condition is not satisfied, and therefore the financial system has become too dangerous and distorted. Correcting the distortion would not prevent any productive activity in the economy from being undertaken, and it would not interfere with the beneficial spreading of risk and funding of investments that the financial system engages in.

In Chapter 8 we noted that bankers are often given direct incentives, through their compensation, to borrow too much and to take too many risks. In that context, a legitimate concern is that, if higher equity requirements prevent bankers from magnifying the risks of their investments through the leverage associated with borrowing, they might become more reckless in order to achieve these targeted high returns.

This concern suggests that it is important to improve governance and risk control in banks. If banks have more equity, shareholders may have better incentives to control risk taking. However, because shareholders benefit from the upside of risk taking while the public shares some of the downside risk, and because effective shareholder governance can also be difficult, additional oversight—or even regulation of banks' governance and controls—may be desirable.⁵¹

The Bugbear of Shadow Banking

The bankers' new clothes that we have discussed so far include convenient narratives that downplay problems and also bugbears, warnings of unintended consequences meant to scare politicians and regulators out of tightening regulation. Among the claims we discussed are "Higher equity requirements would harm lending and growth," "Equity is expensive," and "Our competi-

tive position in global markets will be harmed.” As we have seen, with regard to at least equity requirements, and often to other proposed policy reforms, these claims are all invalid.

Another bugbear involves the warning that tighter regulation might cause financial activities to move from regulated banking to the so-called shadow banking sector, where there is less regulation and possibly no regulation.⁵² A typical example is money market mutual funds, discussed in several earlier chapters.⁵³

The argument that we should not have regulation because banks or other financial institutions might evade regulation is somewhat perverse. It turns the failure to enforce regulation into an argument against having regulation at all.

To see the fallacy, imagine a suggestion that we should not outlaw robbery because, with the police patrolling well-lit streets, would-be robbers would move to back alleys where they would be even more difficult to control. With regard to robbery and other crimes of violence, we do not accept such arguments; instead we ask the police to patrol the back alleys as well as the well-lit streets. Movies such as *High Noon* remind us how lawlessness tyrannizes society. Effective law enforcement may require courage and energy, but it improves people's lives. Similarly, we do not give up on collecting taxes just because many try to take advantage of tax loopholes. Like law enforcement and collecting taxes, regulating banks and other financial institutions is essential for society, and enforcing regulation effectively is a challenge we must take on.

In fact, the bugbear warning that risky financial activities will move to unregulated parts of the system is wrong in terms of why shadow banking has been a problem. The reason has not been excessive regulation, the inability of regulators and supervisors to enforce the regulation as needed, or a lack of tools at their disposal. Rather the source of the problem has been that regulators and supervisors have been *unwilling* to apply the tools they have had and to enforce regulations effectively.

Regulators and supervisors, at least in Europe and the United States, have always had the authority to regulate and supervise deposit-taking institutions to maintain the safety of the financial system. Yet they have allowed such institutions to sponsor and to guarantee the debts of many entities in the shadow banking system, providing substantial commitments and “liquidity

supports.” These actions contributed greatly to the buildup of risks prior to the financial crisis of 2007–2009. The Financial Crisis Inquiry Commission concluded that “widespread failures in financial regulation and supervision proved devastating to the stability of the nation’s financial markets. The sentries were not at their posts.”⁵⁴

In fact, some of the most dangerous shadow banking institutions that had a harmful impact on the financial system in 2007 and 2008, entities that held and issued mortgage-related securities, were affiliated with the regulated banks.⁵⁵ These affiliations meant that regulated banks were taking substantial risks, which should have set off alarms for regulators and supervisors. Supervisors should have treated some of the banks’ risks as unacceptable, and they could have intervened. Instead, regulators and supervisors stood by.⁵⁶

The bugbear that we should not regulate because we cannot enforce the regulation is another article of the bankers’ new clothes. Rather than throwing up our hands, we should take up the challenge of effective regulation and enforcement. The stakes are high.

Bankers and Society: How to Deal with the Conflict

The bugbear of shadow banking turns the failure of previous regulation and enforcement into an argument against beneficial regulation. Because regulation is essential, the focus must be on making enforcement easier and more effective. Some laws and regulations, however, are counterproductive and make enforcement more challenging, because they actually give banks more incentives to borrow excessively. For example, as discussed in Chapter 9, the tax codes in many countries allow corporations to deduct interest payments on debt as an expense. This treatment creates a tax penalty for funding with equity and encourages more borrowing.

Penalizing the use of equity while encouraging more debt funding is especially perverse as applied to banks, because their excessive borrowing harms the financial system by increasing its fragility. Paradoxically, the tax codes subsidize borrowing, but then capital regulation tries to reduce it. It is as if we provided tax incentives that encouraged reckless driving or pollution while at the same time enacting laws forbidding these behaviors. Giving banks tax incentives to borrow is bad public policy. The tax code should not inter-

ferre with financial stability; if anything, it should try to reduce the distorted incentives.

Other laws also make it easier for banks to borrow too much. For example, many short-term debt contracts that are used in the financial system are exempt from normal bankruptcy procedures. These exemptions can play a role in enabling the type of “borrowing rat race” that we discussed in Chapter 10, which makes the banking system more fragile;⁵⁷ they should be reexamined.

Regulation would be easier to enforce if it were supported by policies allowing investors and supervisors to better monitor and control bankers' risk taking. Making derivatives markets more transparent, for example by forcing many of them to public exchanges, would make it harder for bankers to hide the risks they are taking. Effective corporate governance is also important. If bank managers cannot be controlled by their boards and shareholders, their behavior can be particularly dangerous. Laws and regulations that promote responsible corporate governance can help reduce the conflict between those who make decisions within financial institutions and others in the economy who might be harmed but have no control.

The Essential Element: Political Will

Once the problems in the financial system are identified properly, much can be done to create a better system that supports the economy without subjecting all of us to excessive risks. This will require appropriate laws and regulations, as well as effective enforcement.

Despite the enormous damage of the financial crisis of 2007–2009, the effort to reform the financial system has been stymied. The main reason has been political. Those who prefer the status quo have dominated the debate, while those who argue for effective reform have not been as successful.⁵⁸

Politicians often prefer to neglect or forget the risks that the financial system imposes on the public. They may falsely believe that these risks are unavoidable. Or they allow other considerations, such as campaign contributions or the desire for banks to make certain investments, to interfere. The flawed and invalid claims we have called the bankers' new clothes contribute to the problem by creating confusion and providing rationalizations to those who oppose reform and regulation.

When politicians prefer to neglect the risks from banking, regulators and supervisors may also wish to avoid challenging banks. They may find it easier or more convenient, or they may feel pressured politically—for example, because Congress might threaten to reduce their budgets.⁵⁹ In the present revolving-door system, individual career concerns could also play a role. With so many factors contributing to the inability or unwillingness of regulators and supervisors to impose greater accountability and enforce regulation of the financial industry, the public interest in having a safe and stable financial system is forgotten.⁶⁰

When people have a chance to see the reality of enforcement from up close, they sometimes react strongly. In the summer of 2012, following a trial in which the SEC brought crisis-related fraud charges against a midlevel banker, the jury felt strongly enough to take the unusual step of attaching a note to their verdict. In the note jurors urged the SEC to “continue to investigate the financial industry and modify existing regulations as necessary.” The jury foreman said that “the industry seemed completely out of control with no oversight,” adding that “Wall Street actions hurt all of us and we badly need a watchdog who will rein them in.”⁶¹

We can have a financial system that works much better for the economy than the current system—without sacrificing anything. But achieving this requires that politicians and regulators focus on the public interest and carry out the necessary steps. The critical ingredient—still missing—is political will.

NOTES

ONE *The Emperors of Banking Have No Clothes*

1. Our timing of the crisis takes its cue from the turbulences of summer 2007 and the requests for support from the financial industry that continued through early 2009. See the descriptions of the Financial Crisis Inquiry Commission (FCIC 2011). Before summer 2007, mortgage and real estate markets in the United States had already been in decline for a year. After 2009, some would say that the crisis continued right into the more recent European crisis that broke out in 2010. However, the European crisis is in many ways distinct from the events of 2007–2009. Reinhart and Rogoff (2009) give a detailed history of financial crises for about eight centuries. Laeven and Valencia (2012) analyze systemic banking crises during 1970–2011.

2. Mr. Dimon's statement is from an earlier session on the same day. These quotes were reported by Reuters ("DAVOS—Sarkozy to JPMorgan Chief: Banks 'Defied Common Sense,'" January 27, 2011).

3. Around the time of the Davos exchange between Dimon and Sarkozy, in January 2011, Bob Diamond, then CEO of Barclays, said similarly that the time for remorse was over. See "Bob Diamond: No Apologies. No Restraint. No Shame," *The Independent*, January 12, 2011. A more recent interview with Jamie Dimon by Jessica Pressler was published under the title "122 Minutes with Jamie Dimon: The JPMorgan Chase CEO Is Really, Really, Really Sorry. Except When He's Not" in *New York Magazine*, August 12, 2012. In this interview Mr. Dimon is quoted as saying, "I'm an outspoken defender of the *truth*."

4. According to the Center for Responsive Politics, the financial industry spent \$477,607,675 on lobbying in 2011. This is an increase of 13.7 percent relative to 2007. (Total inflation during this period was about 7.8 percent.) We discuss lobbying and the politics of banking more generally in Chapter 12.

5. See, for example, Victoria McGrane and Jon Hilsenrath, "Fed Writes Sweeping Rules from Behind Closed Doors," *Wall Street Journal*, February 21, 2012. Sheila Bair, chair of the Federal Deposit Insurance Corporation (FDIC) from 2006 to 2011, describes in detail how bank lobbying and political and regulatory capture affect the determination and

implementation of laws and regulations in the United States and in international regulatory bodies such as the Basel Committee on Banking Supervision (Bair 2012).

6. For example, Richard X. Bove, a bank analyst who is frequently interviewed on television, found fault with a Bloomberg editorial (see Neil Hume, “Bove vs. Bloomberg,” *Financial Times* Alphaville, September 26, 2011). Patrick Jenkins and Brooke Masters, in “Higher Capital Ratio Talk Cuts Banks’ Appeal” (*Financial Times*, March 27, 2011), quote a “leading London investment manager” who referred to people in the Bank of England pushing for financial reform by saying “There is a Taliban faction of fundamentalists and purists within the Bank.” When describing lobbying by banks, Barofsky (2012, 148) writes, “A key tactic is to argue that issues related to high finance are so hopelessly complex that it is nearly impossible for mere mortals to understand the unintended consequences of the legislation. The advocates . . . so the argument goes, just don’t have the requisite experience to understand.”

7. We are not the only ones who refer to Andersen’s tale in the context of banking and financial regulation. The first chapter of Hayes (2012), which discusses Alan Greenspan, Robert Rubin, and Larry Summers, the leading policymakers of the 1990s, is titled “The Naked Emperors.”

8. For example, at a conference held in New York in November 2009, Lloyd Blankfein, Goldman Sachs CEO, admitted that they “participated in things that were clearly wrong and . . . have reasons to regret and apologize for.” (Blankfein’s statement was reported by the *New York Times* in its editorial note “Goldman’s Non-Apology,” November 21, 2009.) Similarly, in his testimony before the FCIC in January 2010, Brian Moynihan, Bank of America CEO and president, recognized that “over the course of the crisis, we, as an industry, caused a lot of damage. Never has it been clearer how poor business judgments we have made have affected Main Street” (FCIC 2011, 389).

9. Alan Greenspan, past chair of the Federal Reserve, compares trying to protect citizens against risks from the financial system to building a buffer that “may encompass expensive building materials whose earthquake flexibility is needed for only a minute or two every century, or an extensive stock of vaccines for a feared epidemic that may never occur” (see “Regulators Must Risk More to Push Growth,” *Financial Times*, July 27, 2011). This prompted a letter from twenty academics (Admati et al., “Greenspan’s Reasoning on Excessive Equity Is Misleading,” *Financial Times*, August 2, 2011). The logic of not worrying about a “once-in-a-century event” is also behind models used by banks and regulators that use the so-called value at risk measures, which are aimed at calibrating bank capital at three times the amount needed to have a 99 percent probability of withstanding losses. Losses that might happen with a probability of less than 1 percent are ignored, even though they might be extremely large and costly for society as well as for the banks. Uncertainty about the probabilities and doubts about the models and the data that are used to estimate probabilities are also ignored. See Tett (2009), Das (2010), Smith (2010), Taleb (2010), and our discussion in Chapter 11.

10. In a typical example (reported to Martin Hellwig in private communication), a lawyer working for the financial industry warns that rules restricting a bank’s exposure to any one counterparty “could hurt the cost of capital, hurt liquidity, and force institutions to take different risk management approaches that may not be as effective. . . . There are a whole

bunch of unintended consequences that haven't been completely thought through" ("Banks Fight Fed's Push to Make Them Less Entwined," Reuters, June 25, 2012). Discussing the Volcker Rule, a JPMorgan Chase official is quoted as saying, "We think [the proposed specifics] could have huge negative unintended consequences for American competitiveness and economic growth" (Edward Wyatt, "Bank Lobbyists Sought Loopholes on Risky Trading," *New York Times*, May 12, 2012). Bankers from Japan and other countries also joined U.S. banks in lobbying (see Michael Crittenden, "BOJ's Nishimura: Volcker Rule May Hurt Liquidity in Sovereign Debt," Dow Jones Newswires, March 5, 2012). We give more examples in later chapters, starting in Chapter 6.

11. Francis M. Cornford (1874–1943) was a renowned classical scholar at the University of Cambridge. His short treatise "Microcosmographia Academica: A Guide for the Young Academic Politician," published in 1908, is the source of a number of catchphrases such as "Give the present system a fair trial" and "The time is not ripe," which we discuss in Chapter 11. Written as a satire on academic politics, it contains insights that apply to the politics of any organization. It is available online at <http://larvatus.livejournal.com/222591.html>, accessed September 28, 2012. On the background of Cornford's piece, including the text of the piece itself, see Johnson (1994).

12. A piece titled "Sarkozy's Bark Worse than Bite on Banks" (Reuters, February 18, 2011) describes France as softer than the United Kingdom or Switzerland. Another, headed "Behind French Bank Drama, a Relaxed Regulator?" (Reuters, September 15, 2011), states that the bank lobby is stronger in France than elsewhere. Yet another, Tom Braithwaite's "FDIC Chief Says Watchdogs 'Succumbing' to Bank Lobby" (*Financial Times*, July 21, 2010), states that Germany, France, and Japan argued for more relaxed requirements in the Basel III discussions (see note 22 and Chapter 12). Bair (2012) provides more detail. We return to the political issues in Chapters 11–13.

13. Acharya et al. (2010, Chapter 7) discuss the adoption of a "modified Volcker Rule" in the Dodd-Frank Act. On the lobbying efforts that led to this situation, see Yalman Onaran, "Volcker Said to Be Disappointed with Final Version of His Rule," Bloomberg, June 30, 2010. On lobbying during the process of implementation see, for example, Ben Protess, "Behind the Scenes, a Lawmaker Pushes to Curb the Volcker Rule," *New York Times*, September 21, 2012. As explained by Senators Carl Levin and Jeff Merkley, "Financial lobbyists are too successful at watering down regulation of the industry" ("Senators Slam JPMorgan over London Losses and Demand Tighter Regulation," *The Guardian*, May 11, 2012).

14. For example, Gorton (2010) suggests that banks benefit the economy by "producing" opaque short-term debt that is highly liquid so that its holders can easily convert it into cash. French et al. (2010, Chapter 5), written by fifteen prominent academics, states that short-term debt has a disciplining role that makes banks more efficient. See Admati et al. (2011) and Chapter 10 for additional references and discussion.

15. The issues are discussed in sections 5, 7, and 8 of Admati et al. (2011), in the concluding remarks of Admati et al. (2012a), and in Chapters 10 and 11 of this book.

16. In a similar vein, Bair (2012) calls on Main Street to push politicians and regulators to impose more effective control of Wall Street. Although there has been much discussion

of reforms, little has actually been implemented. In the United States, many of the numerous regulations introduced by the Dodd-Frank Act have still not been implemented. For an extensive discussion of the act, see Acharya et al. (2010) and Skeel (2010). As of this writing, the full set of systemically important financial institutions has not been confirmed, and some of the key provisions are going through a lengthy process of discussion and commentary. Despite urging by many, the Securities and Exchange Commission failed to move on reforming the money market funds industry. See, for example, Christopher Condon, “Money Fund Tests Geithner, Bernanke, as Shapiro Fails,” Bloomberg, August 24, 2012.

17. For example, in his January 13, 2010, testimony before the FCIC, Bank of America CEO Brian Moynihan identified excessive leverage as one of the causes of the crisis. In his own words, “Leverage was a crucial factor” (see p. 6 of his written testimony, available at http://fcic-static.law.stanford.edu/cdn_media/fcic-testimony/2010-0113-Moynihan.pdf, accessed September 22, 2012). In the same testimony he further said that “capital is important, and the leverage of investment banks was untenable” (p. 11). Similarly, Jamie Dimon, JPMorgan CEO, recognized in the same hearing that one of “the key underlying causes of the crisis [was] excessive leverage that pervaded the system” (see p. 8 of his written testimony, available at http://fcic-static.law.stanford.edu/cdn_media/fcic-testimony/2010-0113-Dimon.pdf, accessed September 22, 2012). Finally, John Mack, then CEO of Morgan Stanley, pointed out that “many firms were too highly leveraged, took on too much risk and did not have sufficient resources to manage those risks effectively in a rapidly changing environment” (see p. 1 of his written testimony, available at http://fcic-static.law.stanford.edu/cdn_media/fcic-testimony/2010-0113-Mack.pdf, accessed September 22, 2012).

18. See “Josef Ackermann im Gespräch: ‘Ohne Gewinn ist alles nichts’” (Talking to Josef Ackermann: ‘Without profits everything is naught’), interview, *Süddeutsche Zeitung*, November 20, 2009, <http://www.sueddeutsche.de/geld/josef-ackermann-im-gespraech-ohne-gewinn-ist-alles-nichts-1.144881>, accessed September 22, 2012. Along the same lines, see Citigroup CEO Vikram Pandit’s op-ed “We Must Rethink Basel, or Growth Will Suffer,” *Financial Times*, November 10, 2010. The argument was also made in studies by the Institute of International Finance (IIF) (2010), a key lobbying institution of internationally active banks, which assumes that capital markets are unable to price equity properly, so stricter equity requirements have a substantial impact on banks’ funding costs. We discuss this fallacy in Chapter 7. In BCBS (2010a) the fallacy is maintained for the sake of the argument, but the conclusions are quite different from those of the IIF. Empirical studies find that a lack of bank equity may have a negative impact on bank lending in the short run but that this effect disappears over the course of two or three years and that in the long run higher equity requirements do not have a negative effect on bank lending and growth. (For the short-run effects, see, for example, Aiyar et al. 2012 and the studies cited by Hanson et al. 2011, 12–15; for the long-run effects, see Hanson et al. 2011, 18–19, Buch and Prieto 2012, and Junge and Kugler 2012.) As discussed by Admati et al. (2012a) and in Chapters 9 and 11 of this book, the short-run effects can be explained by the effect of the overhanging debt that banks already have and by the use of risk weights, and they can be avoided if increased

capital requirements are introduced in a suitable manner, for example, by making sure banks do not make payouts to shareholders and raise more equity. Finally, one may also question Ackermann's assertion that a reduction in bank lending "reduces growth and has negative effects for all." Not all bank lending is desirable. If banks had lent less and with greater care in the years before 2007, the economies of the United States and of many European countries would be much healthier today. See Jordà et al. (2011) and Schularick and Taylor (2012) on the consequences of excessive credit expansions and Turner (2010, 2012) on the need to distinguish between different types of lending.

19. For data on the worldwide economic downturn of 2008–2009, see IMF (2009, 2010a). IMF (2009, Chapter 4) gives projections on the long-term impact on the real economy. In 2009 there was a *contraction* of 0.6 percent in global output, as opposed to an average growth of 4 percent in the preceding years; in advanced economies, the output contraction amounted to a much larger 3.2 percent, as opposed to an average growth of more than 1 percent in the preceding years. Past experience indicates that significant parts of the output loss will be permanent, so over the years they may well add up to "astronomical figures" (Haldane 2010). For the United States, the Congressional Budget Office estimate of the loss in gross domestic product (GDP) from the recession by 2016 will be \$5.7 trillion relative to potential. The Federal Reserve estimates that during 2007–2010, median household wealth declined 38.8 percent in real terms. Better Markets (2012) estimates that the total cost of the crisis will eventually come to more than \$12.8 trillion. (See <http://bettermarkets.com/reform-news/cost-crisis-caused-wall-street-no-less-128-trillion-dollars>, accessed September 22, 2012.) In the United Kingdom, Haldane (2010) expects the long-run total output loss to be at least £1.8 trillion; in the world economy, he expects a total output loss of at least \$60 trillion. See also Huertas (2010, 1) and Laeven and Valencia (2012). Sinn (2010, Chapter 1) points out that without government intervention, output losses would have been even greater. Jordà et al. (2011) and Schularick and Taylor (2012) show that historically, recessions that have been associated with credit booms gone bust and with subsequent financial crises have been much larger and costlier than other types of recessions. On the slow recovery from the financial crisis in the United States, see Carmen Reinhart and Kenneth Rogoff, "Sorry, U.S. Recoveries Really Aren't Different," Bloomberg, October 15, 2012, and Martin Wolf, "A Slow Convalescence under Obama," *Financial Times*, October 24, 2012.

20. For example, according to the Federal Reserve Bank of St. Louis, from February 2008 to September 2009, total nonfarm employment declined by 8.138 million. Subsequent gains have totaled only 3.36 million. See Better Markets (2012).

21. This warning was raised before the G20 in June 2010, using as a basis a preliminary report prepared by PricewaterhouseCoopers, as per the banking industry's request ("Tighter Banking Rules Will Drain £1tn from Financial System, Study Shows," *The Guardian*, July 10, 2010).

22. We discuss bank capital regulation in some detail in Chapter 11. National regulation is based on international agreements that are worked out by the Basel Committee on Banking Supervision, a body of bank regulators from major countries that meets regularly

in the Swiss city. The agreement that the IIF (2010) and the British Bankers' Association objected to, also known as Basel III, is contained in BCBS (2010c, 2010e). This agreement strengthens and adds to the earlier Basel II agreement, contained in BCBS (2004).

23. Among numerous examples are the following: "U.S. pressure to toughen up how banks set aside capital suggests reform on capital adequacy could be drawn out for years," in "U.S. Turns Up Heat on Basel Bank Reform," Reuters, September 3, 2009; "New capital regulations would also require banks to set aside capital for one year for any instruments, even if they have maturities under a year," in "Regulate and Be Damned; Basel III Was Designed to Prevent Another Financial Crisis, but the Unintended Consequences Could Lock Up Global Trade," *Wall Street Journal*, February 7, 2011; and "The new Basel rules would demand that banks maintain more dollars on reserve for the same amount of business, or more capital for no new economic work," in Wayne A. Abernathy, "Shrinking Banks Will Drag Down the Economy," *American Banker*, August 27, 2012. Even Alan Greenspan, former chairman of the Federal Reserve, suggested that capital regulation would "require the building up of a buffer of idle resources that are not otherwise engaged in the production of goods and services," in "Regulators Must Risk More to Push Growth," *Financial Times*, July 27, 2011. As mentioned in note 9, this prompted a letter from twenty academics (Admati et al., "Greenspan's Reasoning on Excessive Equity Is Misleading," *Financial Times*, August 2, 2011).

24. Steve Bartlett, head of Financial Services Roundtable, as quoted by Floyd Norris in "A Baby Step toward Rules on Bank Risk," *New York Times*, September 16, 2010.

25. See, for example, IIF (2010) and the initial quote in Chapter 7 from Miller (1995). We provide additional references and discuss these statements in some detail and in Chapters 7–9.

26. For example, as of 2012, Apple, Bed Bath and Beyond, Citrix, and other companies have virtually no debt. Equity markets, as well as public debt markets, are more developed in the United States than in Europe. See, for example, La Porta et al. (1997, 1998, 1999). Although much debt is often used in so-called leveraged buyouts (LBOs), typically the debt is paid off relatively quickly. Companies taken private in an LBO often return to public equity markets within a relatively short period of time. See Berk and DeMarzo (2011). In other countries, borrowing by nonfinancial companies is often more important because stock markets are less well developed. For companies whose shares are traded on stock exchanges, indebtedness is not substantially different than in the United States; see, for example, Rajan and Zingales (1995, 1998) and Jostarndt and Wagner (2006). For non-traded companies, indebtedness is higher; however, the banks that lend to these companies impose limits on their borrowing.

27. For example, according to its annual reports, Deutsche Bank had only about 2.5 percent equity relative to its total assets at the end of 2011. For Fannie Mae and Freddie Mac, Acharya et al. (2011a, 25 ff) give numbers between 2.5 percent and 5 percent, noting that these numbers understate the problem because reported debt does not include obligations from guarantees. McLean and Nocera (2010), FCIC (2011), and Morgenson and Rosner (2011) describe the buildup of indebtedness and risk at Fannie Mae and Freddie Mac and their takeover by the government.

28. The 3 percent lower limit for equity as a fraction of total assets is given by the so-called leverage ratio regulation. Most Basel rules name higher ratios, but these refer to equity relative to what is called risk-weighted assets. Risk-weighted assets are lower, indeed often much lower, than total assets. The idea is that assets that are deemed safer may be backed by less equity, so they are not taken at face value but only at a fraction of face value; the fraction corresponds to the “risk weight” of the asset. Basel III requires common equity to be at least 7 percent of risk-weighted assets. By investing in assets that have low risk weights, banks can comply with this rule and still have equity at less than 3 percent of their total assets. A detailed discussion appears in Chapter 11.

29. See FCIC (2011, 375) and Bair (2012, 175–177, 358–359). It should be noted that General Motors Acceptance Corporation (now Ally Financial) and Chrysler Financials were large financial institutions and that GMAC in particular was involved in mortgage lending.

30. Jamie Dimon’s 2010 Annual Letter to Shareholders (http://files.shareholder.com/downloads/ONE/2103717927XOX458384/6832cb35-ocdb-47fe-8ae4-1183aeceb7fa/2010_JPMC_AR_letter_.pdf, accessed October 5, 2012). In the same document Dimon also affirms that “banks did not benefit from any kind of implicit guarantee.”

31. For example, in a statement explaining downgrades of Bank of America’s debt rating, Moody’s Investors Service made it clear that such “downgrades result[ed] from a decrease in the probability that the U.S. government would support the bank, if needed” (Moody’s Investors Service, “Moody’s Downgrades Bank of America Corp. to Baa1/P-2; Bank of America N.A. to A2, P-1 Affirmed,” Ratings News, September 21, 2011). Similarly, when explaining Citigroup’s ratings, Moody’s Global Credit Division explained that “Moody’s continues to see the probability of support for highly interconnected, systemically important institutions in the United States to be very high, although that probability is lower than it was during the financial crisis” (Moody’s Investors Service, “Moody’s Downgrades Citigroup Inc. to P-2; Citibank Prime-1 Affirmed; All Long-Term Senior Ratings Confirmed,” Ratings News, September 21, 2011).

32. In the 1990s, the effect of government guarantees on borrowing costs was at the center of complaints against the Landesbanken, public banks in Germany that enjoyed such guarantees. For these banks, rating agencies actually published separate credit ratings with and without the guarantees. Typical ratings would be AAA, the best possible, with the government guarantees, and CCC, many grades lower—in fact “junk bond” status—without the guarantees. Because this effect gave the Landesbanken a substantial advantage in borrowing, the European Commission ruled that the (explicit) guarantees represented a form of state aid that distorted competition and was therefore incompatible with what is now the Treaty on the Functioning of the European Union (Art. 107). Germany initially contested the Commission’s ruling but eventually gave in. Avoiding a lengthy trial before the European Court of Justice, in 2001 the Commission and the German government agreed that, from 2005 on, no further guarantees would be given. See European Commission, “Germany Agrees on the Implementation of the Understanding with the Commission on State Guarantees for Landesbanken and Savings Banks,” press release, February 28, 2002, <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/02/343&format=HTML&aged=1&language=EN&guiLanguage=en>, accessed September 28, 2012. In the United States,

a similar effect could be observed with Freddie Mac and Fannie Mae, two of the so-called government-sponsored enterprises. For years these banks enjoyed high credit ratings, between A and AAA, even though they were very risky and had little equity. The rating agencies were confident that, if necessary, the U.S. government would bail them out, and this is exactly what happened in 2008; see Acharya et al. (2011a) and Chapter 17 of FCIC (2011). The importance of implicit guarantees for the funding costs of banks, particularly those that are considered too big to fail, is discussed in Chapter 9.

33. For example, see “RBC Chief Nixon Concerned over Uneven Regulatory Playing Field,” Dow Jones News Service, September 20, 2011; “Regulation: Wariness over EU’s Level Playing Field,” *Financial Times*, May 9, 2011; and “JPMorgan’s Dimon: ‘We Want a Global Level Playing Field,’” Dow Jones Business News, March 30, 2011.

34. See, for example, “Geithner: International Banking Deal to Establish ‘Level Playing Field,’” Dow Jones Business News, September 22, 2010. We take up this issue more fully and provide more references in Chapter 12.

35. Some exceptions to the bankruptcy laws are in fact used extensively by the financial industry, such as the exclusion from the so-called stay that has been granted to repurchase agreements (repos), swaps, and derivatives. Their exclusions may be contributing to the fragility of the financial system by encouraging the excessive use of short-term funding and derivatives by banks and other financial institutions. See Skeel and Jackson (2012). We discuss this issue in Chapter 10.

36. The term *systemically important financial institutions* has come to be commonly used. For example, the Dodd-Frank Act includes provisions for the special treatment of such institutions. We discuss the notion of systemic risk starting in Chapter 5.

37. In 2008, when Lehman Brothers announced its bankruptcy, it had \$639 billion in total assets and \$613 billion in debt. Of course these numbers are based on accounting conventions. In more than three years of bankruptcy proceedings, there was much less for creditors to receive, and most creditors received much less than they were owed. See Valukas (2010). Hypo Real Estate had €400 billion in total assets and €394 billion in debt on December 31, 2007, and had €395 billion in total assets and €391 billion in debt on September 30, 2008; see the company’s financial reports at <http://www.hyporealestate.com/eng/6375.php>, accessed September 22, 2012. According to its annual reports, Dexia had €605 billion in total assets and €588 billion in debt (see also Thomas 2012), and UBS had 2.27 trillion Swiss francs in total assets and 2.23 trillion in debt at the end of 2007.

38. The German government initially supported Hypo Real Estate with €124 billion in guarantees for its debt. In addition, it provided Hypo Real Estate with €7.4 billion in new equity, in the process buying out the old shareholders. In the fall of 2010, in return for government bonds, €173 billion in assets was transferred to FMS Wertmanagement, a so-called bad bank installed in order to eliminate toxic assets from the bank’s balance sheets; with this transfer, the bank itself no longer needed the guarantees (see Expertenrat 2011, 94). In 2010 and 2011, this bad bank had to make provisions for losses of €3.9 billion and €11.4 billion, respectively; see press releases of May 13, 2011, and April 27, 2012, in Pressearchiv, <http://www.fmsa.de/de/presse/index.html>, accessed September 22, 2012. In the case of Dexia, the bank received bailouts for €6 billion from the governments of

Belgium, France, and Luxembourg in 2008. In 2011 Dexia received an additional €4 billion bailout and a €90 billion guarantee from the same parties. Similarly, in 2008 UBS received a \$60 billion credit line from the Swiss National Bank. At the time UBS also received a capital injection of 6 billion Swiss francs (\$5.2 billion) from the Swiss government. Bair (2012, 118) suggests that, at the time, Citigroup, Merrill Lynch, and AIG were also “truly sick” and insolvent. We discuss bailouts and the safety net of banks in more detail starting in Chapter 9.

39. On the causes and effects of the Lehman Brothers collapse, see the opinion of Judge Lewis A. Kaplan on the matter (U.S. Bankruptcy Court, S.D. New York 2011) as well as the report of the examiner Anton Valukas (2010).

40. For a detailed description, see Chapter 20 of FCIC (2011).

41. According to data from the European Policy Studies Task Force (2010), “During the crisis, 20 bank debt guarantee and 15 bank recapitalization schemes and 44 cases of individual bank aid cases were dealt with by the European Commission under the state aid rules. At the height of the crisis, the effectively committed aid amounted to some 13% of the GDP of the EU.” Recent numbers are even more dramatic. The European Commission reports that “between October 2008 and October 2011, the . . . Commission approved €4.5 trillion (equivalent to 37% of EU GDP) of state aid measures to financial institutions. This averted massive banking failure and economic disruption, but has burdened taxpayers with deteriorating public finances and failed to settle the question of how to deal with large cross-border banks in trouble” (European Commission, “New Crisis Management Measures to Avoid Future Bank Bail-Outs,” press release, June 6, 2012, <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/12/570&format=HTML&aged=0&language=EN&guiLanguage=en>, accessed September 28, 2012). On the supports and bailouts in the United States, see FCIC (2011, Chapters 19–20) and Barofsky (2012). We provide more details in Chapter 9.

42. According to the United Nations, in 2009 global output contracted by 2 percent and global unemployment rose from 178 million persons in 2007 to 205 million in 2009. Furthermore, in that same year 52 countries experienced declines in per capita income (UNDESA 2011). The World Bank Group reported a decline in average GDP growth from 6 percent in 2005–2007 to 1 percent in 2009 (Independent Evaluation Group 2012). See also IMF (2009, 2010a). Haldane (2010, 102–103) estimated that the total loss of output worldwide as a result of the financial crisis would eventually amount to between \$60 trillion and \$200 trillion and that the loss of output in the United Kingdom would be between £1.8 and £7.4 trillion. As for the effects in the United States, according to data from the Bureau of Economic Analysis, the U.S. output (GDP) fell 3.1 percent in 2009. The FCIC (2011, 390) reports that within twenty-one months, American households lost \$17 trillion and that reported unemployment hit 10.1 percent at its peak in October 2009. As mentioned in note 19, Better Markets (2012) estimates that the overall cost of the crisis to the United States economy will eventually be more than \$12.8 trillion.

43. CBS, interview with Mr. Valukas, *60 Minutes*, April 22, 2012.

44. Statement provided by Ben Bernanke in a private interview before the FCIC, as transcribed in the Commission’s final report (FCIC 2011, 354).

45. For details of the banks that were involved, see Expertenrat (2011), especially 44–50. The lists provided there do not include Iceland and Ireland, where all major banks were affected. See also Onaran (2011).

46. For example, in its 2010 *Global Financial Stability Report* the International Monetary Fund focuses on the breakdown of short-term funding and systemic liquidity risks as drivers of the crisis. According to the report, “The inability of multiple financial institutions to roll over or obtain new short-term funding was one of the defining characteristics of the crisis. Systemic liquidity risks were under-recognized by both the private and public sectors and required unprecedented intervention by governments and central banks during the crisis” (IMF 2010b, 57). Along the same lines, see also Hesse et al. (2008), Brunnermeier (2009), Gorton (2010), and Copeland et al. (2012), among others.

47. For accounts of the causes and the dynamics of the crisis, see, for example, Hellwig (2009), Sorkin (2009), Sinn (2010), FCIC (2011), and Bair (2012). According to his testimony to the FCIC (2011, e.g., 241 and 353), Ben Bernanke shares the assessment that the solvency of major financial institutions was a critical factor in causing the breakdown in funding. See also King (2010) and note 17.

48. Meltzer (2012, 34) states that the Federal Reserve followed a “too big to fail” policy, preventing the failure of banks, and increasingly nonbanks, since the 1970s; the Lehman bankruptcy was shocking because there had been an expectation that that bank, too, would not be allowed to fail. Bair (2012, 107) states that the bankruptcy “defied market expectations. Bear Stearns had been bailed out and most market players assumed that the government would step in with Lehman as well given that it was a much bigger institution.”

49. The relative size of the largest U.S. banks keeps growing. A measure of overall economic activity is provided by the country’s GDP, which indicates the value of annual production. Based on official data (balance sheets from the Federal Deposit Insurance Corporation, or FDIC, and GDP from the Bureau of Economic Analysis), the assets of the six largest U.S. banks as a percentage of GDP was 60.1 percent as of the first quarter of 2012. The same banks had combined assets of 48.4 percent of GDP in 2005, up from only 17.1 percent of GDP in 1995. These numbers would be larger if assets were valued using accounting conventions used in Europe. We discuss the balance sheet of JPMorgan Chase in Chapter 6.

50. According to the World Bank, in 2008 the total bank liabilities were 93.9 percent of GDP in the United States; the ratio for the United Kingdom was 550 percent, for Germany 135 percent, for France 273 percent, and for Switzerland 629 percent. The liabilities of UBS alone were 372 percent of Switzerland’s GDP.

51. Bank assets relative to GDP per year amounted to 800 percent in Ireland and 1,500 percent in Iceland. When Icelandic banks collapsed, the national deposit insurance system was unable to fulfill its obligations to depositors and had to be supported by the Icelandic government. This support was limited to deposits in Iceland, however. Those with deposits in the Netherlands and the United Kingdom, where Icelandic banks had been active through branches, were paid by those countries’ own governments. Agreements by which Iceland would have compensated the Netherlands and the United Kingdom for this money, €3.8 billion plus interest, around two-thirds of the annual government budget, were twice

voted down in popular votes. The conflict is pending in the European Free Trade Association Court. After the collapse of its banking sector in October 2008, Iceland faced a currency crisis, as well as a severe economic recession. Its government fell, and the country negotiated a multibillion-dollar loan from the IMF and had to seek further financial support from a number of countries (see “Iceland’s Rescue Package Flounders,” *Financial Times*, November 12, 2008). Iceland’s banking collapse was the worst relative to the size of an economy (“Cracks in the Crust,” *The Economist*, December 11, 2008). See also OECD (2009) and Lewis (2011).

52. The EU summit of November 2010—that is, the meeting of the heads of state or government of the different members of the EU—provided Ireland with loans of €85 billion, of which €17.5 billion came from the Irish Treasury and National Pension Reserve Fund and €67.5 billion from the IMF, the newly created euro-area support institutions the European Financial Stability Facility and the European Financial Stability Mechanism, and several non-euro-area members of the European Union. Of these loans, €35 billion has been used to support Irish banks; see RTE News [Ireland], “Government Statement on EU/IMF Rescue Deal,” November 28, 2010, <http://www.rte.ie/news/2010/1128/govtstatement.html>, accessed September 22, 2012. The EU summit of June 2012 decided to provide €100 billion from the newly created European Stabilization Mechanism to support Spanish banks once an effective mechanism for European supervision of banks has been developed; see http://consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/131359.pdf, accessed September 22, 2012.

53. Some countries have tried to create a process for the resolution of large financial institutions that would make it possible for financial institutions to fail without damaging the economy. Most notably, the Dodd-Frank Act in the United States gave the FDIC expanded authority for the resolution of problems with “systemically important” financial institutions. The United Kingdom has developed a process similar to that of the United States, and Germany created a somewhat different mechanism. However, for global institutions with operations in many different countries with inconsistent legal systems, determining how losses are to be shared is a major problem. We discuss this at the end of Chapter 5.

54. We discuss the flaws in proposed capital regulations in Chapter 11. The tax code also encourages borrowing by allowing corporations to deduct interest paid on debt as an expense. Exemptions from normal bankruptcy provisions granted for derivatives and repurchase agreements used extensively in the financial industry also encourage fragility. See our discussion of these issues in Chapters 9 and 10.

TWO *How Borrowing Magnifies Risk*

1. Government borrowing follows a somewhat different logic. Whereas the resources that private borrowers can use to pay for expenditures and to repay debts are determined by their incomes and their assets, the resources that governments can use depend on their ability to raise revenues through taxes. Borrowing is a way to relieve current taxpayers, for instance, from the burden of a war or to mislead the public about the costs of current government policies. Reinhart and Rogoff (2009) provide a comprehensive account of

government borrowing and bank–government relations over eight centuries. They show that excessive government borrowing has repeatedly led to defaults; given the involvement of banks in financing governments, these defaults were often accompanied by bank failures and banking crises. In some countries in Europe, the causation was recently reversed as banking problems in Iceland, Ireland, and Spain and government support for the banking systems of those countries crippled the finances of those countries' governments. As the Spanish and other Southern European governments have come under pressure, they have, in turn, leaned on their banks to lend to them.

2. As explained by Hyman (2012), buying on credit has exploded in the twentieth century in the United States, with the General Motors Acceptance Corporation among the pioneers in allowing people to buy first and pay later.

3. We discuss the situation of default in Chapter 3 on the “dark side of borrowing.” The costs and considerations from the lender's perspective are discussed in Chapters 7 and 9.

4. For example, many borrowers in Ireland went into personal bankruptcy because of their mortgage debt (see Lewis 2011). More recently, Spanish borrowers have been faced with losses and legally owe some of their debts even if evicted (see “Spanish Homeowners Rally Together to Fight Evictions by Banks,” *The Telegraph*, May 2, 2012).

5. For example, mortgages are nonrecourse in Florida, Arizona, and Texas. In California, only the first “purchase money” mortgage is nonrecourse (Ghent and Kudlyak 2009). In the case of second mortgages, which are “junior” to first mortgages and receive payments only after the first mortgages have been paid, borrowers are not entitled to this protection. California Senate Bill 458, introduced in July 2011, would extend nonrecourse protection beyond first mortgages (see “Real Estate: New Short Sale Law,” *The Examiner*, July 15, 2011).

6. The creditor might have trouble selling the house, and additional value could be lost in the foreclosure process, as well as due to lack of maintenance. The process can be quite inefficient. Campbell et al. (2011) show that the “foreclosure discount” is 27 percent. See also Michael Wilson, “Foreclosures Empty Homes, and Criminals Fill Them Up,” *New York Times*, October 14, 2011.

7. This example is simplified, without affecting the points we make, by ignoring the interest rate on the loan and the benefits from living in the house. In Chapter 8 we discuss return on equity relative to the total cost of borrowing, including the interest.

8. More generally, the magnification of the upside applies when the investments increase in value by more than the interest rate charged for borrowing. In the case of the house purchase, the interest payment can be thought of as a rent Kate pays to live in the house. We will return to the effect of borrowing on the return on equity in Chapter 8, where we also take into account the interest on borrowing, ignored in this chapter for simplicity.

9. Note that Kate's equity, which will be the equivalent of “capital” in the banking context, is always invested in the house; it is tied up there but is not idle and is not a cash reserve. Chapter 6 discusses again the pervasive confusion about the term *bank capital*, already mentioned in Chapter 1.

10. There are many forms of limited-liability companies, with legal details varying across countries and even across companies. For joint-stock companies, that is, corpora-

tions whose shares are publicly traded, many features of governance and control, such as public reporting obligations, are specified by law or regulation; this provides investors with the means to acquire the information they need for their purchasing decisions. In companies whose shares are not publicly traded there is much less need for investor protection, so there is great flexibility to determine the company's governance in the corporate charter. See Allen et al. (2009, 86–92, 183).

11. For information on the impact of walking away from debts on credit ratings, see Les Christie, “How Foreclosure Impacts Your Credit Score,” *CNN Money*, April 22, 2010, and Michelle Singletary, “What’s Worse for Credit Score—Foreclosure, Short Sale or Deed in Lieu?” *Washington Post*, August 30, 2011.

12. Public corporations, whose equity is traded on the stock exchange, must disclose their balance sheets or statements of their financial position periodically, such as every three or six months, to give information to investors. Equity is defined as the difference between the so-called book, or accounting, value of the bank's assets and its liabilities or debts. Accountants have rules about updating balance sheets over time. As discussed in Chapter 6, accounting conventions vary across countries. For more detailed information on accounting principles, see Horngren et al. (2012).

13. Sometimes there are restrictions on the ability to sell shares. For example, shares that are awarded to executives as part of their pay may be subject to a so-called vesting period during which they cannot sell the shares. Or the shares may be issued as registered shares rather than bearer shares, and the registration of a new shareholder may be subject to certain restrictions. For example, in Switzerland, from the 1970s to the early 1990s, many corporate charters gave top management the right to refuse the registration of a potential buyer of registered shares; see Hellwig (2000).

14. The benefits of the new investments may well be incorporated into the price at which the new shares are issued. If investors buying the new shares know that the funds will increase the value of the firm's assets, they will agree to pay more for the shares than the earlier price, and fewer shares will have to be issued.

15. Having more shares may also have an effect on the control of the corporation by creating a more dispersed ownership structure with more shareholders, each holding a smaller fraction of the total. However, in the case of large corporations with many millions of shares, shareholders do not individually have much impact on corporate decisions. It is a fallacy that just because the equity of a company is divided into more pieces, existing shareholders are automatically worse off when new shares are issued. See Berk and DeMarzo (2011, 469).

16. As we see in later chapters, this is particularly likely if the firm has already borrowed a lot and its ability to repay its debt is in doubt. In this case, existing shareholders might avoid making an investment that would be profitable for the corporation as a whole and might also be biased against new equity issues. The reason is that the new investments partly benefit creditors, whereas shareholders effectively fund them fully on their own. In that sense, borrowing can become addictive. This is part of an important effect called “debt overhang,” which will be introduced in Chapter 3 and will come up in many later discussions in this book. We discuss new stock issuance again in Chapters 7 and 11.

17. For much of the twentieth century, in continental Europe corporations were very stingy with dividends, retaining earnings even if the projects in which they invested were not all that promising. For a description of dividend policies in Europe, see La Porta et al. (2000a, 2000b). For a contrasting view of the origins of these tendencies, see Baker (2009). In the United States, in the early 1980s oil companies, which had rich earnings from existing oil wells, came under attack for wasting those earnings on new exploration, which was not very successful, rather than paying them out to shareholders. For example, during 1982–1984 the industry was receiving on average only 60–90 cents for every dollar invested in exploration and production, and the total market value of these returns to oil companies was even lower than if the corporations had obtained them by drilling holes in the ground. In a survey of thirty large oil companies, twenty-three of them were urged to cut 25–35 percent from their exploration and production spending. See Jensen (1986). For data and other information on the rates of exploration projects during the 1970s and 1980s, see Reiss (1990).

18. On dividend policies, see Berk and DeMarzo (2011, Chapter 17). Some managers and investors disfavor dividend payments because they can subject shareholders to unfavorable tax treatment. We discuss dividends and the potential conflicts of interest regarding payouts in Chapters 3 and 11.

19. There is evidence in the literature on lending standards suggesting that credit standards vary cyclically with banking market conditions and that lending standards have an impact on loan portfolio performance (Rajan 1994; Weinberg 1995; Dell’Ariccia et al. 2008; O’Keffee 2009). We discuss the costs of borrowing in Chapter 7. How much equity creditors require from borrowers depends on other terms of the transaction, such as collateral. For example, mortgage loans may have lower equity requirements than other types of loans because the house can serve as collateral.

20. See Holtfrerich (1981), Berger et al. (1995), Alessandri and Haldane (2009), Buch and Prieto (2012), and Haldane (2012a). For 1910, Riesser (1912, 447–448) reports that German banks had equity exceeding one-third of their debt, that is, equity exceeding one-fourth of their total assets.

21. Haldane (2011b, 3). By contrast, in Germany banks were among the first institutions to exploit the opportunities provided by the 1870 law on incorporation. See, for example, Tilly (1989).

22. One of the prominent supporters of such laws, Senator Sherman of Ohio, remarked that contingent liability would “prevent the stockholders and directors of a bank from engaging in hazardous operations” (Esty, 1998, 190). On the history of banks’ limited liability and issues associated with it, see Tilly (1989), Grossman (2001), Alessandri and Haldane (2009), Acheson et al. (2010), Grossman and Imai (2011), and Haldane (2011b).

23. See Macey and Miller (1992) and Grossman (2007).

24. See Grossman (2001, 2007).

25. The amount covered by the FDIC was increased from \$100,000 to \$250,000 in October 2008, first until the end of 2010 and later until the end of 2013. In the European Union, Directive 94/19/EC of the European Parliament and Council of May 30, 1994, on deposit-guarantee schemes, initially required all member states to have a deposit guaran-

tee scheme to cover at least 90 percent of deposited amounts, up to at least €20,000 per depositor. As a response to the 2007–2008 crisis and to restore confidence in the system, on March 11, 2009, the European Parliament and Council adopted Directive 2009/14/EC, which increased the minimum insured amounts to €50,000 initially and to €100,000 by December 2010. In Australia, on October 12, 2008, the government announced temporary arrangements to enable the guarantee of 100 percent of deposits made to Australian deposit-taking institutions. This amount was reduced to a maximum of \$1 million per customer per institution. Finally, on September 11, 2011, it was announced that the guarantee would be reduced to \$250,000 as of February 1, 2012 (see “Questions & Answers about the Guarantee on Deposits,” <http://www.guaranteescheme.gov.au/qa/deposits.html#3>, accessed October 5, 2012). We discuss deposit insurance further in Chapters 4 and 9.

26. For example, in “Banks Need More Capital, Not More Rules” (*Wall Street Journal*, May 16, 2012), Allan Meltzer states that “during America’s booms following the Civil War and World War I, commercial banks served as both commercial and investment banks. For safety they held much more capital per dollar of assets. In the 1920s, capital ratios for large New York banks ranged from 15% to 20% of assets.” For more recent ratios of equity capital to assets, see FDIC, “Basel and the Evolution of Capital Regulation: Moving Forward, Looking Back,” An Update on Emerging Issues in Banking, January 14, 2003, <http://www.fdic.gov/bank/analytical/fyi/2003/011403fyi.html>, accessed September 25, 2012.

27. See Berger et al. (1995) on the United States, Alessandri and Haldane (2009) on the United Kingdom, Holtfrerich (1981) and Buch and Prieto (2012) on Germany, and Junge and Kugler (2012) on Switzerland.

28. See, for example, Acharya et al. (2011b, forthcoming). As discussed in multiple later chapters (e.g., Chapters 5, 6, and 10), some of the ways in which banks borrow are through operations off the balance sheet or through derivatives and are therefore harder to see.

THREE *The Dark Side of Borrowing*

1. The repossession rate during 1991 was 2.5 times the twenty-year long-run average; see Satchell (2011). For additional information on the U.K. housing market and, more specifically, the 1989–1991 mortgage crisis, see Muellbauer and Murphy (1997), Aron and Muellbauer (2010), and Oxford Economics (2012).

2. For data on the use of ARMs in the United States in the late 1980s, see Schwartz and Torous (1991). In certain parts of the U.S. mortgage market, ARMs again became prevalent in the years before 2007. These mortgages often had artificially low initial teaser rates. Subsequent sharp increases in interest rates led many borrowers into distress and sometimes into default (see, for example, IMF 2007). The FCIC (2011, Chapter 7) and Bair (2012, Chapter 7) describe how losses from such mortgages forced WaMu (formerly Washington Mutual) to write off \$1.1 billion for the fourth quarter of 2007 and another \$1.1 billion in the first quarter of 2008. Gorton (2010) extols the benefits of ARMs as instruments allowing a lender to force a renegotiation of a mortgage after two years, but he neglects to describe the consequences of borrowers’ being unable to pay.

3. A debt of \$50 billion is even more the creditor's problem. This is why sovereign debt crises are so dangerous. See Reinhart and Rogoff (2009) for an extensive treatment. In the most recent sovereign default and debt restructuring, in March 2012, private creditors of Greece accepted an exchange of old debt securities for new debt securities that involved a write-down in nominal values of debt exceeding €100 billion (see, e.g., Spiegelonline International, "Greece Pulls Off Historic Debt Restructuring Deal," <http://www.spiegel.de/international/europe/historic-opportunity-greece-pulls-off-debt-restructuring-deal-a-820343.html>, accessed September 29, 2012).

4. The institution that allowed for this practice was the *manus iniectio*, which literally means "laying the hand on." As explained by Peter Struck, "In the oldest Roman legal procedure [*manus iniectio* is] a kind of execution levied on the person of one who had been condemned to pay a certain sum. If this was not done within thirty days of the condemnation, the plaintiff could seize the debtor and bring him before the praetor, who handed him over to the creditor with the word *addico* (I hand over), unless he paid there and then, or a *vindex* came forward to pay for him or to show there was no ground for complaint. The creditor kept the debtor in chains at his house for sixty days; if his claims had not been satisfied during this period, he might kill him or sell him as a slave in foreign parts" (see *Online Latin Dictionary*, <http://www.classics.upenn.edu/myth/php/tools/dictionary.php?method=did®exp=719&setcard=1&media=1&link=0>, accessed August 16, 2012). For more information, see Ford (1926) and Silva (1973, 68).

5. See Ford (1926), Freedman (1928), and "Timeline: A Brief History of Bankruptcy," *New York Times*, November 16, 2005.

6. On the history and abolition of debt prisons in the United States, see Ford (1926) and Jill Lepore, "I.O.U.: How We Used to Treat Debtors," *New Yorker*, April 13, 2009. It is worth bearing in mind that, even though debtors' prisons are illegal in the United States, "it's becoming increasingly common for people to serve jail time as a result of their debt" (Susie An, "Unpaid Bills Land Some Debtors behind Bars," *Morning Edition*, NPR, December 12, 2011). Along the same lines, see Jessica Silver-Greenberg, "Welcome to Debtors' Prison, 2011 Edition," *Wall Street Journal*, March 16, 2011. According to this report, "More than a third of all U.S. states allow borrowers who can't or won't pay to be jailed. Judges have signed off on more than 5,000 such warrants since the start of 2010 (and until March 2011) in nine counties with a total population of 13.6 million people."

7. In Thackeray's novel *Vanity Fair*, from which the epigraph to this chapter is taken, the bankrupt member of the London Stock Exchange is not sent to debtors' prison, but nonetheless his life, and that of his family, is devastated. The word "ruined," so central in Thackeray's account, meant utter social destruction. The Free Online Dictionary explains this word as the past participle of "1. to destroy completely, demolish; 2. to harm irreparably; 3. to reduce to poverty or bankruptcy; 4. to deprive of chastity." See <http://www.thefreedictionary.com/ruined>, accessed October 23, 2012.

8. The German word *Konkurs*, used for bankruptcy proceedings until 1999, was derived from the fact that all creditors are called together to list their claims and provide the basis for an orderly settlement (Latin *concurrere*, French *concourir* mean "to run to the same place, appear together").

9. Unless their past bills have been paid, the suppliers will also be among the lenders. Beyond that, they are also harmed by the loss of future business.

10. There is evidence suggesting that home prices in neighborhoods with foreclosures are lower than those in neighborhoods without foreclosures (Harding et al. 2009; Campbell et al. 2011; Whitaker and Fitzpatrick, 2012) and that lower prices may be the result of a contagion effect (Harding et al. 2009). Barofsky (2012) argues that TARP (the Troubled Asset Relief Program) was not used effectively to solve the problem. Bair (2012, Chapters 6, 11, and 13) discusses the government's failure to promote efficient restructuring of mortgages and foreclosures. In light of these failures, San Bernardino County officials have announced a plan to seize and restructure troubled mortgages using eminent domain laws. More than a dozen local governments, including those in Suffolk County, New York; Berkeley, Ontario; Fontana, California; and Chicago are considering the proposal (see Alejandro Lazo, "San Bernardino Eminent Domain Plan Draws Wall Street Criticism," *Los Angeles Times*, August 16, 2012, and Joe Nocera, "Housing's Last Chance," *New York Times*, July 9, 2012).

11. In the United States, this development goes back to nineteenth-century legal rulings in favor of employees. To date, the 1978 reform of the insolvency procedure under Chapter 11 of the U.S. Bankruptcy Code provides the most business-friendly regime. In the United Kingdom the Insolvency Act of 1986 developed the concept of administration as a mechanism for guaranteeing the survival of a company as a going concern, with the benefit of a moratorium with respect to certain debts. In Germany, the 1999 replacement of the previous bankruptcy and settlement procedures by a single insolvency procedure was also aimed at improving prospects for continuing a company as a going concern. Apart from some seemingly minor exceptions, the arrangements involved are similar to U.S. procedures under Chapter 11. For the exceptions and their impact, see note 19.

12. In the airline industry, major assets are airplanes and slots, that is, rights to take off or land at specified airports. These assets are easy to transfer from one airline to another, with little uncertainty about their value. According to LoPucki (2005), the smoothness of the procedure can depend on whether there is prepackaging. With prepackaging, the debtor corporation develops the insolvency plan ahead of time and has creditors vote on it. If creditors holding 90–95 percent of the debt agree, there is not even a need to file. If more than 50 percent of creditors holding more than two-thirds but less than the required 90 or 95 percent of the debt agree, the debtor corporation files for bankruptcy and the court can approve the plan in thirty days, imposing it even on those creditors who have disagreed with the plan. Prepackaging gives creditors little say and leaves the incumbent management in charge.

13. See Berk and DeMarzo (2011, 511–517). Enron paid \$793 million in fees to lawyers, administrators, and other advisers; Lehman Brothers has already paid \$1.6 billion in legal and administrative expenses, and the number is still growing. See Linda Sandler and Lindsay Fortado, "Lehman Fees Could Reach \$1.4 Billion, Besting Enron," Bloomberg, October 23, 2008, and Maureen Farrell, "Lehman Bankruptcy Bill: \$1.6 Billion," *CNN Money*, CNN, March 6, 2012. Davydenko et al. (2012) estimate that the average cost of default is as high as 21.7 percent of the value of the assets. We discuss the Lehman bank-

ruptcy again at the end of Chapter 5 and the impact of bankruptcy costs on the choice of funding mix by banks and other corporations in Chapter 9.

14. As experienced by Martin Hellwig—who at the time was serving on a committee dealing with applications of nonfinancial companies for government loans or loan guarantees in the crisis—this concern was raised in connection with the application of the General Motors subsidiary Opel for temporary state aid in Germany in 2009 and 2010.

15. See Hellwig (2009), Gorton (2010), Gorton and Metrick (2010), Mehrling (2010), and FCIC (2011, Chapters 19–20). The FCIC (2011, 429) states that the Commission was unpersuaded by the claims that banks had only liquidity problems and not solvency problems. Whereas bank managers claimed that their problems were due to unjustified liquidity runs, the FCIC concludes that “these firm managers knew or should have known that they were risking the solvency and therefore the survival of their firms.” This assessment is shared by Hennessey, Holtz-Eakin, and Thomas in their dissenting statement; see FCIC (2011, 429 f). We discuss the focus on liquidity problems as diverting attention from the much more important solvency concerns in Chapters 4, 10, and 13.

16. Ben Bernanke, chairman of the Federal Reserve, told the FCIC that Lehman Brothers did not have sufficient collateral to enable it to obtain additional funding (FCIC 2011, 354). Essentially this means that Lehman Brothers was insolvent when it went into bankruptcy. Timothy F. Geithner, U.S. secretary of the Treasury, said in a testimony before the House Financial Services Committee that “Lehman caused Lehman’s insolvency” (<http://www.treasury.gov/press-center/press-releases/Pages/tg645.aspx>, accessed September 29, 2012). Bair (2012) implies that the problems that led to the crisis were due to excessive borrowing and to the distress and insolvency of banks and other institutions when borrowers started defaulting on mortgages. See also notes 19–21 in Chapter 13.

17. Note that the shareholders or managers of a distressed corporation would resist raising new equity because it would protect the creditors from default at the expense of shareholders. This is because, with more equity, the debt will bear less of the downside risk. The dilution in the value of a share reflects an effective transfer of wealth from shareholders to creditors. We discuss this issue further in Chapter 11.

18. The observation that distressed borrowers may underinvest because of the overhanging debt was made by Myers (1977). When banks suffer from debt overhang, they make fewer loans, as happened in late 2008 (see Ivashina and Scharfstein 2010). There is evidence that homeowners who are underwater do not invest in their houses, and this further reduces the value of the houses and creates inefficiencies (see Melzer 2012). Ideally, of course, a creditor would share in the cost of repairing a house, but such negotiations are often difficult, particularly if the loan was sold in securitization, as discussed in the next two chapters. For corporations, Korteweg (2010) estimates the cost of financial distress at 15–30 percent of the market value of the assets of highly leveraged (distressed) firms.

19. A typical finding in bankruptcy proceedings is that the borrower delayed bankruptcy as long as possible, sometimes even resorting to fraud. This was the state of affairs in the United States before the 1978 reform of the Bankruptcy Code. The 1978 reform

strengthened the prospects that managers of large corporations could retain control. Under the new Chapter 11 of the code, they have had much stronger incentives to file for bankruptcy voluntarily, especially because competition between bankruptcy courts gave them an opportunity to shop around and see which court offered the best prospects of their not losing control. This is particularly important when management wants to present a prepackaged insolvency plan, asking the court to approve a plan that has not received the 90–95 percent rate of approval by creditors that would make a bankruptcy filing unnecessary; see LoPucki (2005). LoPucki notes that corporations getting prepackaged insolvency plans approved in Delaware, the state with the bankruptcy court that attracts most cases, are most likely to refile, that is, to declare bankruptcy again after a few years. In most other countries, the position of management in bankruptcy is much weaker, and corporate managers as well as other borrowers try to delay bankruptcy or insolvency proceedings if they can. For example, Germany’s replacement of bankruptcy and settlement procedures with a single insolvency code in the 1990s did not lead to a spate of voluntary filings as occurred in the United States. Three seemingly minor differences can explain this. First, German corporations cannot engage in forum shopping but must file with the court in whose district their headquarters are located. Second, unlike U.S. courts that may or may not appoint a trustee, a German court always appoints an insolvency administrator, and, even if corporate management remains in charge, this administrator must agree to any disposal of company assets; even before the formal opening of the procedure, a temporary insolvency administrator is entitled to full access to the company’s books. And third, the rules for creditors’ assent to an insolvency plan are fairly strict. See, for example, “Introduction to German Insolvency Law,” http://www.justiz.nrw.de/WebPortal_en/projects/ieei/documents/public_papers/german_insolvency.pdf, accessed September 29, 2012.

20. If there is only one creditor, Kate might negotiate a package involving not only the debt prepayment but also a rate decrease reflecting the fact that the prepayment will lower her default risk. When there are many creditors, such negotiations are difficult and costly.

21. Typically, the creditors of the first mortgage would be more senior and thus paid first. In such a case they would receive the entire house, while the second-mortgage creditors would get nothing because they are only paid when the first-mortgage creditors have been paid in full. However, the first-mortgage creditors might lose if the foreclosure process and the neglect of the house would lead to an even lower value for the house. If the house were to drop in value to only \$280,000, Kate would default, because she owes \$295,000.

22. In this scenario, assuming that the second mortgage is more junior, Kate will pay her first mortgage in full and default on her second mortgage. Still, the first-mortgage creditor will lose in foreclosure if the value of the house declines further in the process due to neglect and other problems.

FOUR *Is It Really “A Wonderful Life”?*

1. In the movie, the figure of George Bailey is played by the actor James Stewart. The title of Kotlikoff’s book *Jimmy Stewart Is Dead* (2010) refers to the nostalgia. Kotlikoff

makes clear that George Bailey's type of banking was fragile and unsafe, but he shares the nostalgia for the banker who is wedded to his local community (see Kotlikoff 2010, 1–3).

2. There is a slight anachronism here. Savings and loan associations, previously "building societies" or "building and loan associations," were first organized early in the nineteenth century as mutual institutions in which people held shares rather than deposits. Their original objective had been to pool resources so as to allow the participants to acquire their own homes. Subsequently the link between saving and borrowing disappeared, so institutions received savings even from people who would not borrow to acquire their own homes. Even then, however, most of these institutions did not take deposits until the advent of federal deposit insurance in the 1930s. In the Great Depression, many savings and loan associations failed, but, contrary to the story told in the movie, this was due to delinquencies and defaults on loans rather than runs. Because they did not take deposits that were due on demand, savings and loan institutions did not suffer the kind of runs commercial banks suffered. They did, however, suffer withdrawals as members drew down their savings in order to maintain their consumption. For details, see Barth and Regalia (1988).

3. On Glass-Steagall and its demise, see, for example, Fink (2008), Acharya et al. (2010, 187–191), and Johnson and Kwak (2010, Chapter 3). In Europe, so-called universal banks, which engage in all activities, have been common all along.

4. For the Bailey Building and Loan Association, like most savings banks, the liabilities side of the balance sheet included primarily savings deposits. For commercial banks, the liabilities side includes demand deposits as well as savings deposits.

5. The distinction between checking accounts and savings accounts was eroded when in 1974 some savings banks in New England began to offer NOW accounts, savings accounts that allowed depositors to use "negotiable orders of withdrawal" to pay their bills. Before that, savings accounts could not be used directly for transactions.

6. Under the Glass-Steagall Act, until the early 1980s depository institutions were actually forbidden from paying interest on deposits that could be used for checking. This regulation allowed commercial banks to earn substantial net returns by investing a large part of the funds they received in deposits. They used these returns to cover the costs of services. See, for example, Klein (1974). Today substantial parts of the costs are covered by fees.

7. See, for example, "Paul Volcker: Think More Boldly," *Wall Street Journal*, December 14, 2009.

8. The economic historian Alexander Gerschenkron went so far as to claim that bank lending to industry had made the difference between German and English economic development in the late nineteenth century, because German banks were willing to provide loans for large-scale, long-term industrial investments (see Gerschenkron 1962). Similar views have been expressed about post-World War II Japanese economic development (see Mayer 1988). For a review of the analytical and empirical bases of these assessments, see Hellwig (1991). For the case of pre-World War I Germany, more recent accounts are given by Tilly (1989) and Fohlin (2007).

9. Rajan et al. (2010) document that increased use of securitization to sell mortgages to other investors in the years leading up to the financial crisis of 2007–2009 was associated with a decline in the use of soft information in mortgage lending.

10. On a limited scale, some of this is actually happening, for example, through Web sites offering “peer-to-peer” lending (see Ron Lieber, “The Gamble of Lending Peer to Peer,” *New York Times*, February 4, 2011).

11. The presumption here is that the bank is more trustworthy than a nonfinancial borrower. If the bank is more trustworthy, its trustworthiness might be due to its being relatively less risky because it makes many different loans whose individual risks, by and large, cancel each other out; the bank might also have an established reputation, which a start-up does not. Both arguments must be taken with a grain of salt, however: if the many loans that the bank makes have risks that depend on a common underlying factor—for example, the business cycle or housing prices—the bank may be strongly affected. Moreover, the bank’s reputation may be irrelevant if new developments induce the bank’s management to take large risks. See Diamond (1984), Keeley (1990), Hellwig (1998), and Allison (2011).

12. See Diamond (1984) and Hellwig (1991, 1998). As discussed by Hellwig (1991) and Rajan (1992), problems can arise if the concentration of funds with the banks gives them monopoly power, which might allow them to impose extortionary conditions on their borrowers. Weinstein and Yafeh (1998) suggest that this was indeed the case in Japan for a long time. Boyd and De Nicolò (2005) show that such monopoly power of banks can be bad for financial stability because it can induce their borrowers to become reckless.

13. However, it is not always clear that banks put in the effort required for proper screening and monitoring of loan customers. They might try to economize on effort by using standardized screening procedures that are too coarse to provide valid assessments of borrowers or by making fewer and larger loans so they do not have to monitor as many borrowers. Such economizing on effort is not bad per se; after all, it does save real resources. However, it can be bad if, in making these loan decisions, the bank fails to consider the damage to third parties, such as the bank’s creditors, that will arise if low-quality lending—the reduced diversification that results from taking fewer and larger risks—raises the bank’s own default risk. Banks might also encourage excessive borrowing by individuals who cannot really afford the expenditures for which they borrow. Some banks have used questionable collection techniques whereby distressed individual borrowers are at a disadvantage in legal challenges. See, for example, Joe Nocera, “Why People Hate Banks,” *New York Times*, April 4, 2012, and Jessica Silver-Greenberg, “Problems Riddle Moves to Collect Credit Card Debt,” *New York Times*, August 12, 2012. The Consumer Financial Protection Bureau established under the Dodd-Frank Act is meant to help provide better information to consumers of financial products.

14. In contrast, large corporations with proven track records can go directly to the financial markets, raising money by issuing bonds that are bought by individuals or institutions such as insurance companies or pension funds. See Hoshi et al. (1990, 1991), Diamond (1991), and Rajan (1992).

15. Bernanke (1983, 1995). See also Bernanke and Lown (1991) and the work of Bernanke et al. (1996) on the credit crunch of the early 1990s, as well as Reinhart and Rogoff (2009).

16. Whereas both deposits and loans were known in antiquity, the combination of payment services, deposit taking, and lending dates back to the late Middle Ages. In traveling from fair to fair all over Europe, merchants did not want to carry gold or foreign

coins. Instead they carried paper, bills of exchange, or letters of credit, which they used to pay their suppliers or to obtain cash in distant places. These documents allowed the recipients to draw on another merchant for the amount owed. Typically the recipient would resell the claim to someone else, who would present it to a merchant or bank elsewhere, and so on, until at last it was presented to the issuer with whom the first merchant had initially made a deposit. These early bankers realized that they did not have to keep all deposits in reserve and that some of the money could be used for loans and other investments. See Lopez (1976, 78–79, 103 ff) or Kindleberger (1984, 35 ff). This earlier development repeated itself in the experience of the Amsterdam Bank, founded in 1609, and the Hamburg Bank, founded in 1619. Both banks were founded as public banks of deposit in order to enable merchants to make payments to each other without using the coins of uncertain metal content that were then circulating. When these banks subsequently learned that they did not need to have all the gold in store at all times, they took up lending as well, beginning with overdraft loans to their depositors. In the middle of the seventeenth century, people in England began to deposit gold with goldsmiths, and the goldsmiths discovered that they could use some of the gold for lending. Since then, the triad of offering payment services, taking deposits, and lending has been rediscovered several times and has come to be regarded as the essence of banking. On the Amsterdam Bank, see Kindleberger (1984, 47 ff), and on the Hamburg Bank, see Lütge (1966, 390 ff). On English goldsmiths, see Kindleberger (1984, 50 ff), Rothbard (2008), and Selgin (2010).

17. See, for example, Wikipedia (http://en.wikipedia.org/wiki/Financial_intermediary, accessed September 30, 2012). The textbook treatment by Mishkin (2007, 223) describes banking as “asset substitution” and says that “banks make profits by selling liabilities with one set of characteristics (a particular combination of liquidity, risk, size and return) and using the proceeds to buy assets with a different set of characteristics.” Besides maturity transformation, the literature on banking stresses banks’ liquidity transformation, using deposits that can be withdrawn at any time to make loans that are not easily tradable. (The term *liquidity* refers to the ease with which an asset can be turned into cash. We return to this subject in more detail in Chapter 10.) The asset transformation approach to banking, which was originally formulated by Gurley and Shaw (1960), has been criticized by Hellwig (1991, 1994, 1998) for failing to relate the banks’ activities to the markets in which the banks, their depositors, and their borrowers operate.

18. Before central banks were given a monopoly on the issue of banknotes, banks also gave bearer notes to depositors. Depositors might present these bearer notes to the banks at any time, but they might also use them directly for payments without going back to the banks. See Friedman and Schwartz (1963) and Gorton (1988, 2010) on the national banking era in the United States. Mehrling (2010) emphasizes liquidity creation in describing the so-called money view of banking. We discuss these ideas more fully in Chapter 10.

19. See Merton (1957). Bryant (1980) and Diamond and Dybvig (1983) provide formal models of bank runs arising from self-fulfilling prophecies. In the movie *Mary Poppins*, a run is triggered by a boy crying, “I want my money back,” referring to his pocket money, which others interpret as evidence that the bank has payment problems.

20. Calomiris and Mason (1997) and Schnabel (2004). Calomiris and Gorton (1991) give a more general account of the role of information in triggering runs.

21. For an authoritative account of the 1933 crisis, see Friedman and Schwartz (1963, 324 ff).

22. In addition to the FDIC, charged with providing insurance for deposits at commercial banks, the United States created the Federal Savings and Loan Insurance Corporation (FSLIC) to insure deposits at savings and loan (S&L) institutions. As a result of the S&L crisis of the 1980s, however, in 1989 the FSLIC was dismantled and its tasks given to the FDIC. The FDIC is supposed to be self-financed through fees it charges member banks. So was the FSLIC, but in the S&L crisis the funds it could obtain in fees did not suffice to compensate for the failing institutions' losses. The FDIC can borrow from the U.S. Treasury up to \$100 billion (Federal Deposit Insurance Act, Section 14, available at <http://www.fdic.gov/regulations/laws/rules/1000-1600.html>, accessed September 30, 2012). We discuss this issue again in Chapter 9.

23. The amount insured by the FDIC is limited. The limit was \$100,000 from 1980 to 2008 and was raised to \$250,000 in 2008. For a history of the evolution of insurance coverage, see "A Brief History of Deposit Insurance in the United States," Table A-2, available at <http://www.fdic.gov/bank/historical/brief/brhist.pdf>, accessed September 30, 2012.

24. See, for example, Demirgüç-Kunt et al. (2008). We return to the topic of deposit insurance and guarantees in Chapter 9.

25. Short-term interest rates in the United States reached 10 percent in 1974 and 15 percent in 1981, then fell to more normal levels and rose again to 8 percent in 1990. Historical data on commercial paper and federal funds rates are available at the Federal Reserve's Web site, <http://www.federalreserve.gov/releases/h15/data.htm>, accessed on September 30, 2012.

26. This so-called Regulation Q was imposed by the Federal Reserve using powers conveyed by the Glass-Steagall Act.

27. The first money market fund was the Reserve Fund, created in 1971. The industry took off when the leading brokerage firm Merrill Lynch began offering a "cash management account" in a money market fund. For customers this provided a way to get around Regulation Q; for Merrill Lynch it provided a way to get around the prohibition of combining deposit taking and brokerage. See also Chapter 5, note 28, and Chapter 10, note 46.

28. The Depository Institutions Deregulation and Monetary Control Act of 1980 was the key piece of federal legislation that ended the regulation of the banking industry. This act deregulated banks while giving the Federal Reserve more authority over nonmember banks. Particularly, it required nonmember banks to abide by Federal Reserve decisions but allowed for greater leeway in bank mergers. It also allowed savings institutions to offer demand deposits, eliminated interest rate ceilings for all deposits other than demand deposits, and permitted individual banks to set their own interest rates for loans. In addition, the Act raised deposit insurance to \$100,000 per account. Further deregulation—in particular, of savings institutions—came through the Garn–St. Germain Depository Institutions Act of 1982, which authorized savings institutions to make commercial loans and gave the federal agencies the ability to approve bank acquisitions.

29. After the introduction of deposit insurance in the 1930s, mortgage maturities had been significantly lengthened. See Benston et al. (1991, 309).

30. See Kane (1985), Benston et al. (1991), Dewatripont and Tirole (1994), and Hellwig (1994).

31. See Kane (1985, Table 4.6).

32. In the banks' accounts, a 6 percent fixed-rate thirty-year mortgage from 1965 would have been carried at face value without consideration of the fact that, with market rates of interest at 15 percent, return prospects on this mortgage were less than the return prospects on a new investment of half the face value. The discrepancy between the 6 percent rate on the mortgage and the rate of more than 10 percent on deposits entered the accounts only when actual payments indicated an actual loss. In addition, there also were delays in acknowledging losses. See White (1991).

33. See Benston et al. (1991), Hendershott and Shilling (1991), White (1991), and Dewatripont and Tirole (1994). As explained by Akerlof and Romer (1993), there was also outright looting, with "loans" to private companies used, for instance, to transfer resources from a savings institution to private investors related to the institution's manager.

34. See Curry and Shibut (2000).

35. In following this advice, Congress disregarded warnings that deregulation might worsen the problems. See, for example, Kareken (1983). Kane (1985) was even more outspoken. But even as late as 1987, congressional pressure prevented supervisors from dealing with apparent solvency problems and from restraining reckless investments. In the best-known episode, five senators, the so-called Keating Five, who had received financial contributions from the Lincoln Savings and Loan Association, interfered in 1987 by putting a stop to a federal investigation of the institution. When the institution failed in 1989, it cost taxpayers some \$3 billion. The Keating Five were Senators Alan Cranston, Dennis DeConcini, John Glenn, John McCain, and Donald W. Riegle Jr.

36. In this respect, modern banking history began with the 1974 crash of Germany's Herstatt Bank, brought down when Danny Dattel, a rogue trader, lost close to 500 million Deutsche Marks in currency speculation. The crash of Herstatt marked the end of the period of stability in banking that had begun in the 1930s. Herstatt was a small bank, but its bankruptcy raised doubts about the international payments system. At the time that the authorities closed Herstatt, the bank was in the middle of a currency exchange with U.S. banks. The exchange was intended to be an exchange of cash against cash, without any element of credit, but due to the time difference between the United States and Germany, the different parts of the transactions did not occur simultaneously. The bank was closed after the U.S. banks had paid Herstatt but before Herstatt had paid the U.S. banks, leaving the latter as unwitting creditors to a bankrupt bank.

37. *Crédit Lyonnais* did receive some attention, because there were rumors of government involvement in some of that institution's lending and other investment decisions. Moreover, for a while it seemed as if investigations might harm the prospects of Jean-Claude Trichet, the senior Finance Ministry official involved, to become the head first of the French and then of the European Central Bank.

38. In the United States, the downturn affected not just the S&Ls, as sketched earlier, but also many commercial banks; see, for example, Bernanke and Lown (1991) and Boyd and Gertler (1994). For other countries, see the annual reports of the Bank for International Settlements as well as Staub (1998), Berglöf and Sjögren (1998), and Englund (1999).

39. Dexia was nationalized in October 2011. Hypo Real Estate had already been nationalized in 2009, and in 2010 most of its toxic assets had been put into a “bad bank,” a separate institution that was managed by a government agency. In return for the toxic assets, Hypo Real Estate had received government bonds, so the bank was not affected by the additional losses on these assets, and these losses are borne by the government. In March 2012, the bad bank suffered more than €6 billion in losses on Greek sovereign debt. If Hypo Real Estate had still held this debt and if it had not received government support already, these losses would have pushed it over the brink. On Dexia, see Michael Birnbaum, “France, Belgium Agree to Nationalize Troubled Dexia Bank,” *Washington Post*, October 6, 2011, and Thomas (2012). On Hypo Real Estate, see “Hypo Real Estate Is Nationalized with Squeeze Out,” Reuters, October 13, 2009; Oliver Suess, “Hypo Real Will Move \$256 Billion of Assets to Bad Bank, Gets More Capital,” Bloomberg, September 22, 2010; and Expertenrat (2011).

40. Goodhart (1996) argues that the increase in financial risk should be seen as a return to normality. In comparison to the nineteenth century, the quiet period from, say, 1935 to 1975 must be seen as the exception, not the more turbulent period that we have experienced since then.

41. Commercial banks in the United States also came under pressure, but because business loans tend to have shorter lifetimes than mortgage loans, their losses and risks were somewhat smaller. Commercial banks responded to the pressure by diversifying into other activities, in particular derivatives, discussed in Chapter 5. They also began to campaign for a repeal of the Glass-Steagall Act on the grounds that universal banking would allow for a better diversification of risks across different activities. The experience of Switzerland in the early 1990s would seem to confirm this claim. In that country, regional banks with a specialization in real estate and business lending suffered a severe crisis; the large universal banks had similar problems, but they could balance their losses in traditional banking activities with profits from dealing in new kinds of financial contracts and securities such as derivatives, which are discussed in the next chapter. In other countries, such as Sweden, however, universal banking did not save the banks from the consequences of the boom-and-bust cycle in real estate.

42. The investment banker Lewis Ranieri at Salomon Brothers was among those who introduced securitization (see Lewis 1990). Technically, securitization involves the investment bank’s creating a so-called special-purpose vehicle, an independent legal entity that acquires the package of mortgages and issues different types of debt. The debt holders are paid from the payments on the mortgages in the package. For more on securitization, see Das (2010, 292–300) and FCIC (2011, Chapter 3).

43. In the 1980s and 1990s, mortgage securitization was largely in the domain of Fannie Mae and the Freddie Mac, the so-called government-sponsored enterprises of the United

States. These institutions guaranteed the debt service on the mortgage-backed securities. They also imposed minimum quality standards for mortgages that they would securitize, so-called prime mortgages. When private investment banks entered the mortgage securitization business in the early 2000s, they did not give any guarantees, and they focused on “subprime” rather than prime mortgages, that is, mortgages that did not meet the minimum quality standards that had been set by Fannie Mae and Freddie Mac. For a systematic discussion of mortgage securitization and of flaws in mortgage securitization, see Hellwig (2009) and Bair (2012, Chapter 5). Gorton (2010) denies the incentive effect without, however, considering the evidence presented by UBS in its report to shareholders (UBS 2008), or by Shiller (2008), Demyanyk and Van Hemert (2009), and Ben-David (2011). Ben-David’s work (2011), which had been available in 2007, shows that mortgage performance was significantly worse for mortgages that were passed on for securitization than for mortgages held by the originating mortgage bank. Keys et al. (2010) also show that securitization is associated with a higher likelihood of default.

44. See Demyanyk and Van Hemert (2009).

45. See Agarwal et al. (2011) and Ben-David (2011).

46. See Hellwig (2009) and FCIC (2011, Chapters 5–7).

47. From a theoretical point of view, the question is how to reconcile the desire of investors to have easy access to their funds if they need them with the long-term nature of investments in housing. Hellwig (1994) shows that the problem can be solved if housing investments are funded by long-term borrowing, for example, by banks’ issuing so-called covered bonds, with portfolios of mortgage loans serving as collateral. Covered bonds differ from mortgage-backed securities in that the issuing bank is liable for the debt. In the United States, covered bonds would not eliminate but would merely transform the solvency risks associated with maturity transformation. Because borrowers in the United States have the right to repay their mortgages prematurely, a bank that issues a covered bond at a time when interest rates are high must fear that interest rates will go down and borrowers will refinance and repay their mortgages. See also note 48.

48. It is interesting to compare mortgage-backed securities to covered bonds, which were discussed in note 47 and which are common in Europe. In the case of mortgage-backed securities, neither the originating mortgage bank nor the securitizing investment bank has liability for the debt that is issued. By contrast, the issuer of a covered bond remains liable even if the mortgage borrowers do not pay. By issuing a covered bond, the bank eliminates the risk that the mortgage loan may have to be refinanced at a higher interest rate but it retains the credit risk. Covered bonds may therefore provide better incentives to engage in creditworthiness assessments than do mortgage-backed securities. The preference for mortgage-backed securities in the United States seems to have resulted from the prepayment option that a borrower has under U.S. law. The prepayment option is most likely to be used if the initial interest rate on a mortgage was high and in the meantime interest rates have gone down. For a bank funding mortgage lending by issuing covered bonds, there is therefore a risk that if the market rates of interest decline, borrowers might prepay and the investments the banks could make will not earn enough to pay the interest on the covered bond. By contrast, the distinction of multiple tranches of mortgage-

backed securities provides some flexibility for handling prepayment risk. In most countries other than the United States, Japan, and Denmark, borrowers incur prepayment penalties for fixed-rate mortgages that are meant to compensate lenders for lost income when interest rates decline. Germany has the most severe penalties, which are waived only if a homeowner moves. See, for example, London Economics et al. (2009).

FIVE *Banking Dominos*

1. The chapter epigraph, from Lewis (2010, 72), refers to the enormous risk that insurance company AIG had taken by selling so-called credit default swaps (CDSs), insurance contracts that pay in the event of default, for a total value of close to \$500 billion. AIG greatly underestimated the possibility that many defaults might occur at the same time. We discuss this issue later in this chapter and in Chapter 11.

2. For the distinction between subprime and other mortgages, see note 43 in Chapter 4. We use the term *mortgage-related securities* for a broad class of securities containing not only mortgage-backed securities (MBS) but also securities resulting from the securitization of MBS. MBS themselves might serve as collateral for collateralized debt obligations (CDOs) (see, for example, Das 2010, Chapter 9). The idea and the procedure are the same as those for the creation of a mortgage-backed security out of a package of mortgages except that the collateral consists of MBS or more general asset-backed securities (ABS) rather than mortgages. The resulting MBS CDOs or, more generally, ABS CDOs—collateralized debt obligations with MBS or ABS as collateral—might even be securitized further to create ABS CDOs², CDOs whose collateral consists of ABS CDOs. For the loss estimates, see IMF (2008b). The estimated total losses of financial institutions from the financial crisis in this report are higher than just the losses on subprime-mortgage-related securities (\$1.4 trillion), but this larger estimate already includes significant follow-on losses.

3. Data on the values of shares traded on stock markets in the early 2000s and the year-to-year changes in these values can be obtained from the World Federation of Exchanges at <http://www.world-exchanges.org/statistics/time-series/market-capitalization>, accessed October 7, 2012. Losses in U.S. stock markets in the early 2000s involved declines in the values of financial securities held by investors; such losses are often referred to as paper losses. The losses in real resources were much lower. Similarly, for mortgage-related securities, losses from borrowers actually defaulting on their debts have so far been much lower than the \$500 billion estimated by the IMF in 2008. The relation between so-called paper losses and losses from borrowers actually in default is extensively discussed by the IMF (2008a, Chapter 2, esp. 65–66, and 2008b, Chapter 3). The full extent of actual mortgage-related losses is not yet known because many of the mortgages are still on banks' books, foreclosures have been delayed by problems with documentation, and some of the losses, such as those on second liens, have not yet been recognized.

4. On the Japanese crisis, see Hoshi and Kashyap (2010).

5. IMF (2008b), Hellwig (2009, 2010a), FCIC (2011, Chapters 12–15), and Acharya et al. (forthcoming). The reasons for this vulnerability of the system are discussed in Chapters 10 and 11.

6. Banks were not major investors in the dot-com companies. If banks had held just 10 percent of outstanding shares of listed companies, their losses would have been greater than the subprime losses.

7. According to Friedman and Schwartz (1963, 422 ff), deposits in the United States fell by one-sixth from December 31, 1932, to March 15, 1933, with 70 percent of the decline in banks that did not reopen. Of the five thousand banks that did not reopen, about three thousand were reopened later and two thousand were closed for good.

8. The German banking crisis of 1931, with a “bank holiday” on July 14 and 15 and restricted operations through August, had similar consequences. The deepening of the depression from the collapse of bank lending formed the background to the political developments of 1932–1933 that led to Hitler’s accession to power (see Eichengreen 1992).

9. See BIS (2009, 26). According to the FCIC (2011, 357), within a week of Lehman’s bankruptcy, \$349 billion was withdrawn from prime money market funds.

10. See FCIC (2011, 359).

11. See FCIC (2011, 358).

12. In line with our previous assertion that runs do not come out of the blue, the withdrawals were concentrated in institutions that were known to be in trouble, such as U.S. investment banks, or that subsequent developments would show to be in trouble because they had excessive leverage, such as Dexia in France or Hypo Real Estate in Germany. However, less risky institutions such as Aareal Bank in Germany were also hit (see Expertenrat 2011).

13. As banks came to be perceived as very risky, interest rates for unsecured lending rose dramatically. One example is the behavior of the London interbank offered rate (LIBOR), an index for the rates that London banks charge each other in unsecured borrowing and lending. Before August 2007, the difference between LIBOR and an interest rate for lending that was considered riskless was around 10 basis points (0.01 percent). On September 14, 2007, the day that the Bank of England announced emergency funding for Northern Rock, one of the largest mortgage lenders in the United Kingdom, the difference reached 85 basis points. The difference reached an all-time high (until then) of 108 basis points on December 6, 2007; another high of 83 basis points on March 17, 2008, after the collapse of Bear Stearns, and finally a record 365 basis points on October 10, 2008, after the turmoil caused by the Lehman bankruptcy. See Sengupta and Tam (2008), Acharya et al. (2010, 335–340), and FCIC (2011, 252). (Recent revelations about misreporting of rates for the LIBOR index suggest that the actual rates in interbank borrowing and lending may have been even higher in October 2008. We discuss these revelations in Chapter 13.) Each time interbank markets were in turmoil, central banks stepped in to provide banks with the liquidity they could no longer achieve in markets. For example, on August 9, 2007, after the large French bank BNP Paribas had temporarily halted redemptions from three of its funds because it could not reliably value the assets backed by U.S. subprime mortgage debt held in those funds, the European Central Bank responded with the largest short-term liquidity injection in its nine-year history until then—€94.8 billion (\$130 billion at the time) worth of overnight sale and repurchase (so-called repo) agreements (which will be discussed in Chapter 10)—and the Federal Reserve Bank of New York used

one-day repo agreements to inject \$24 billion into the U.S. banking system. See Cecchetti (2009).

14. For example, the Bank of England provided U.K. banks with an aggregate total of £500 billion in loans and guarantees. See U.K. Treasury, “Statement by the Chancellor on Financial Stability,” from October 8, 2008, available at http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/statement_chx_081008.htm, accessed October 8, 2012. The CNNMoney channel provides a full list of bailout programs and costs in United States, which is available at <http://money.cnn.com/news/storysupplement/economy/bailouttracker/index.html>, accessed October 1, 2012. See also Phil Kuntz and Bob Ivry, “Fed Once-Secret Loan Crisis Data Compiled by Bloomberg Released to Public,” Bloomberg, December 22, 2011. Sinn (2010, Chapter 9) gives an overview of bank rescue programs in different countries. We discuss the bailouts and various supports given to banks in Chapter 9.

15. For a detailed account, see BIS (2008, Chapter 2, and 2009, also Chapter 2).

16. According to FCIC (2011, 282), Bear Stearns engaged in some asset sales, but this was “too little too late.” To reduce its leverage, in May 2008 UBS also sold assets with a nominal value of \$22 billion to hedge fund Black Rock, taking a loss of \$7 billion (see http://www.ubs.com/global/de/about_ubs/investor_relations/releases/news-display-investor-releases.html/de/2008/05/21/2008_05_21a.html, accessed October 1, 2012).

17. Recognition of the extent of the crisis in July and August 2007 was triggered by two hedge funds’ becoming insolvent from losses on mortgage-related securities and related derivatives and by rating agencies’ deciding that credit risks on many securities were substantially higher than they had said before. The equity of some banks came under immediate pressure from the losses these banks had to take. Other banks had held these securities “off balance sheet” through so-called conduits, affiliates without equity for which the parent banks had given guarantees. In August 2007, market funding for the conduits broke down and the parents had to step in and take the securities into their balance sheets, at which point the reported ratio of equity to assets on their balance sheets went down. For details, see Hellwig (2009) and the references given there, as well as Acharya et al. (forthcoming).

18. Pressure to raise the ratio of equity to assets came not only from supervisors but also from institutions from which banks borrowed in the money markets. See IMF (2008a, 2008b), BIS (2008, 2009), and Hellwig (2009).

19. Of course the banks do not always need to sell assets in order to reduce their indebtedness. They might also raise more equity and either buy back some of their existing debt or use the proceeds to invest in additional assets. In 2007, in the early stages of the financial crisis, when the seriousness of the crisis had not yet been fully recognized, some banks actually issued new equity to compensate for losses. In 2008 the new equity issues came to a standstill. See, for example, IMF (2008b, 23–24). Admati et al. (2012a) discuss the different ways in which firms might reduce their leverage and show that, although banks are sometimes indifferent, under certain conditions they may have a strict preference for asset sales for the purpose of buying back junior debt. Banks choose this method if it allows them to worsen the position of senior creditors. In Chapter 11 we discuss how this form of “deleveraging” worked in Europe in the fall of 2011.

20. As we discuss later in the chapter, the fear of a systemic chain reaction associated with asset liquidations and price declines was also an important reason that in 1998 the Federal Reserve did not want the insolvent hedge fund Long Term Capital Management (LTCM) to be put into bankruptcy. A historical example of how liquidation sales in bankruptcy triggered contagion in a crisis is analyzed by Schnabel and Shin (2004).

21. This role of expectations in the developments of 2007–2008 is noted by BIS (2008).

22. See Reinhart and Rogoff (2009, Table A.3.1). Their Table A.4.1 gives a brief historical account of each crisis. The only two banking crises between 1940 and 1970 occurred in India following that country's independence in 1947 and in Brazil in connection with a downturn of the Brazilian economy in 1963.

23. As mentioned in the previous chapter, this was largely due to a change in the environment in which banks operate. In addition to movements in interest rates, which we discussed in Chapter 4, after 1973, when the system of fixed exchange rates for currencies was dismantled, exchange rate risk became important. In 1974, Herstatt in Germany and Franklin National in the United States were the first victims of this risk (see Grossman 2010, 267).

24. See Tables A.3.1 and A.4.1 in Reinhart and Rogoff (2009). For the early 2000s, Reinhart and Rogoff (2009) list seven crises; before 2007, there actually was a sense that the system might have become more stable.

25. The Japanese banking crisis did put an end to the 1980s expansion of Japanese banks in the United States, especially California. However, any effects of this retrenchment—for example, on California real estate prices, which had started to decline even before the Japanese crisis—are hard to identify given that, even before 1992, the Japanese–U.S. agreement regarding voluntary export restraints in Japan had diminished the Japanese trade surplus and hence the funds that Japanese investors could invest in the United States; moreover, in California real estate finance was already affected by the S&L crisis and the distress of major commercial banks.

26. Many banks treated these securities as available for sale, which meant that they had to be valued at going market prices. (Doing so allowed banks to arbitrage between different ways of computing regulatory equity requirements.) To stop the downward spiral, in October 2008 regulators allowed banks to transfer these securities to the so-called bank book, treating them as loans that they would hold until they expired. After that, banks no longer needed to adjust their asset valuations to changes in market prices. The role of fair-value or mark-to-market accounting has been a subject of dispute. The IMF (2008a, Chapter 3, and 2008b, also Chapter 3) discusses how this accounting rule can exacerbate a crisis and actually harm a bank that reacts by selling assets that the market values too pessimistically. Laux and Leuz (2009) and Barth and Landsman (2010) suggest that in 2008 the problem was due not so much to the use of fair-value accounting as to the reactions of banks, investors, and regulators to the results of applying these rules. Haldane (2011c) calls for a different accounting regime for banks. We further discuss the issues around the book and market value of banks in Chapter 6 and 7.

27. The problems of Germany's Industriebank and Sächsische Landesbank and the U.K.'s Northern Rock appeared as early as August 2007 (see Hellwig 2009). Over the

twelve months that followed, the downward spiral in asset markets destroyed the solvency of many other highly indebted banks.

28. Briefly in this chapter, and more fully in Chapter 10, we discuss how money market funds developed and how they came to play such a key role in the interconnectedness of the system (see Fink 2008 and Goodfriend 2011).

29. Lewis (2010, 67) reports that each time someone asked who was stupid enough to buy U.S. mortgage-related securities, the answer would be “Düsseldorf.” That city in Germany was the seat of both West LB and Industriekreditbank, major buyers of mortgage-related securities that subsequently needed billions of euros in bailout money. (Under orders from the European Commission, West LB actually was split up and largely closed down in the summer of 2012; see “State Aid: Commission Approves Splitup of West LB,” <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/1576&format=HTML&aged=1&language=EN&guiLanguage=en>, accessed October 1, 2012.) For other examples, see Hellwig (2009) and Kaserer (2010).

30. Money market funds were introduced in Chapter 4, especially note 27. Reform efforts have failed recently (see Nathaniel Popper, “Changes to Money Market Funds Stall,” *New York Times*, August 22, 2012). We discuss money market funds again in Chapters 10, 11, and 13.

31. See FCIC (2011, 356–360).

32. Decisions to hold these securities on the bank’s own account were partly influenced by governance problems inside the bank and partly by flawed regulation and supervision (see UBS 2008, Hellwig 2009, Merkley and Levin 2011, Better Markets 2012, and Acharya et al. forthcoming). We discuss these governance problems in Chapter 8 and distortions from regulation and supervision in Chapters 11 and 13.

33. In addition to all these parties, rating agencies were paid for consulting and providing credit ratings, and law firms were paid for writing the various contracts. The large number of parties involved may explain the remarkable finding in Acharya et al. (forthcoming) that banks investing in mortgage-related securities earned 10–30 basis points (0.1–0.3 percent) above the cost of borrowing in the money market when mortgage rates for subprime borrowers were actually 600 basis points higher.

34. See Tett (2009), Das (2010), Lewis (2010), McLean and Nocera (2010), FCIC (2011, Chapters 9–10), Dunbar (2011), and Morgenson and Rosner (2011). The word *swaps* was used so they would qualify for exemptions from regulation that were given to so-called swap agreements. According to Dunbar (2011, 16), “Calling them swaps would ensure that CDS would remain off the regulatory radar for a decade.” Also, although they are insurance contracts, CDSs were not overseen by regulators of the insurance industry, which often require that there be an insurable interest (so that one cannot buy insurance on another person’s house or life). Lewis (2010, 88) describes how little AIG understood about the enormous risk of the mortgages in the pools they insured, stating, “In retrospect, their ignorance seems incredible—but then an entire financial system was premised on their not knowing, and paying them for this talent.” He and others also describe the ignorance of credit rating agencies that neglected correlations between defaults and gave AAA ratings to numerous mortgage securities that later turned out to be anything but as safe as the rating indicated.

35. The bailout is described by the FCIC (2011, Chapter 19). It was triggered by AIG's needing to post cash collateral with the banks to which it sold CDS contracts because of the downgrades of the mortgage securities. The use of taxpayers' money for the bailout has been controversial, particularly because banks were paid in full even as the government invested \$85 billion and added many billions of dollars in guarantees and lines of credit while acquiring a significant stake in AIG. See Barofsky (2012) for a discussion of the AIG bailout.

36. These techniques are based on the pathbreaking work of Black and Scholes (1973) and Merton (1973), which was recognized in the 1997 Nobel Memorial Prize.

37. Among the most popular derivatives have been interest rate and currency swaps. For a description of derivatives trading and markets, see Partnoy (2009, 2010), Hull (2007), Das (2010), and Dunbar (2011).

38. Das (2010, 333) gives a definitive answer to the question we ask in the heading of this section, stating that "risk transfer proved to be the shell game of credit markets. A *short con*, quick and easy to pull off. Financial innovation did not decrease risk but increased risk significantly in complex ways."

39. Prominent examples include Sumitomo Corporation in 1996, Société Générale and Morgan Stanley in 2008, and JPMorgan Chase in 2012. For a record of large trading losses in history, see http://en.wikipedia.org/wiki/List_of_trading_losses, accessed October 1, 2012.

40. Significant amounts of public money were again put at risk in the 2000s, before the financial crisis, when public treasurers eager to improve their finances were willing victims of the banks' sales forces. In many cases, the buyers were misled about the risks of the products they bought. In a case involving so-called spread ladder swaps, bets on the future of the difference between the interest rates on long and short maturities, in 2011 the highest German court ordered Deutsche Bank to pay damages of €540,000 to a small firm that had bought these swaps. The court ruled that Deutsche Bank should have provided the customer with better information; in particular, it should have made clear that because of fees, the market value of the position the customer acquired was negative. See "Deutsche Bank to Pay Damages Over Swaps: Court," Reuters, March 22, 2011. The case received wide attention because sales of this kind of product to hundreds of small firms and municipalities were said to be valued at around €1 billion. Partnoy (2009), Lewis (2010, 2011), Dunbar (2011), and Cohan (2012) also discuss fraud.

41. See Warren Buffett, "What Worries Me," *Fortune*, March 3, 2003, available at <http://www.tilsonfunds.com/BuffettWorries.pdf>, accessed October 6, 2012. The risks and hidden leverage associated with derivatives are described by Partnoy (2009, 2010) and Das (2010).

42. This follows because, if the price that was set is considered the appropriate competitive forward price, the two sides of the forward transaction, buying euros and selling dollars, cancel themselves out. The accounting rules for derivatives use the market value of the derivatives to record the transaction, and at its initiation, this is zero. As the exchange rate changes, one side of the transaction would be indebted to the other, depending on the direction in which the exchange rate moves. This would lead one side to record the value of the position as an asset and the other side to record it as a liability or debt. See Hull

(2007). We further discuss the treatment of derivatives in accounting statements in Chapter 6.

43. See Partnoy (2009, 2010), UBS (2008), and Das (2010). Das (2010, 54) describes the hierarchy of the trading floor to a trainee in this way: “There are salespeople—they lie to clients. Traders lie to sales[people] and to risk managers. Risk managers? They lie to the people who run the place—correction, think they run the place. The people who run the place lie to shareholders and regulators.” When asked about the clients, he says that they “lie mainly to themselves” and concludes (53): “To enter the world of derivatives trading is to enter the realm of beautiful lies.” (Those are “the lies we would like to believe.”) We discuss incentives and governance problems in Chapter 8.

44. See, for example, Partnoy (2009). Among the victims of large losses at the time were Procter and Gamble, Orange County, Credit Suisse First Boston, and Salomon Brothers.

45. See The President’s Working Group on Financial Markets (1999), in particular 17–23 and 26–28. Legal uncertainty was exacerbated by the fact that the LTCM Fund was a partnership organized in the Cayman Islands. Acharya et al. (2010, 213 ff) note that ten years after the LTCM crisis the problem of contagion from the failure of an internationally active, systemically important financial institution had not been reduced.

46. For details, see Lowenstein (2001) and Das (2010).

47. FCIC (2011, 290) and Cohan (2012).

48. These partners were expected to grab the collateral that Bear Stearns had pledged; while trying to sell the collateral, they would exert great downward pressure on asset prices. Even before the end, people trying to get out of derivatives contracts with Bear Stearns played a significant role in the run on Bear Stearns (FCIC 2011, 286–291). This issue is discussed in the next chapter.

49. See, for example, Wuffli (1995) and the contributions of Freeland and Gummerlock in Hellwig and Staub (1996). At the time, Wuffli was the chief financial officer and Gummerlock the chief risk officer of Swiss Bank Corporation, which later merged into UBS; Freeland was the deputy secretary general of the Basel Committee for Banking Supervision. The limitations of quantitative models and stress tests are discussed in Chapter 11.

50. Taleb (2001, 2010) refers to such risks as “black swan” risks. Black swans are events that have been deemed impossible and that have significant consequences when they occur anyway. Taleb gives several examples in which neglect of black swan risk led to disaster. Das (2010, Chapter 5) discusses the pitfalls of “risk management by the numbers,” including the story of LTCM. Gillian Tett, in “Clouds Sighted off CDO Asset Pool” (*Financial Times*, April 18, 2005), noted that “if a nasty accident did ever occur with CDOs, it could ricochet through the financial system in unexpected ways,” and that “while banks insist that these risks can be accurately measured by their models . . . projecting default probabilities remains an art, not science.” Frydman and Goldberg (2011) argue that ever-imperfect knowledge and interpretation of information by market participants is important for understanding wide price swings and the poor performance of economic models that ignore this issue.

51. See Lewis (2010). Hellwig (2009) gives an account of developments in 2007 and 2008 and argues that, on the basis of the information that was available beforehand, the

unfolding of events could not have been predicted with any degree of precision. The data that were available did not permit the drawing of any reliable conclusions about the behavior of what is an extremely complex social system. The general proposition that, as a matter of principle, the most important developments are unforeseeable is argued by Taleb (2001, 2010). Another example in which complex strategies and trust in a model had systemic fallout is provided by the stock market crash of October 1987, which involved the use of portfolio insurance. In that case, companies that offered to insure the portfolios of pension funds and other investors relied on program trading that required markets to respond quickly to submitted buy and sell orders. When such orders overwhelmed the trading systems on the exchanges, portfolio insurers could not deliver on their promises. The stock market declined by 19 percent in one day because investors were unsure of the source of the large sell orders. See Anice C. Wallace, “The Brady Report: Looking for Flaws; Study Cites Portfolio Insurers’ Role as a Key to the Market Meltdown,” *New York Times*, January 11, 1988.

52. This is known as the “Peltzman effect” after the seminal research of Peltzman (1975), who showed that the effects of improvements in car safety are to a large extent neutralized by changes in drivers’ behavior. Das (2011, Chapter 8) provides an insider’s perspective on the failures of models to truly capture risk and of the false confidence that they inspired in market participants and regulators. We return to this issue in Chapter 11.

53. Lewis (1990, 2011), Partnoy (2009, 2010), Lowenstein (2001), and Das (2010) describe the culture. See FCIC (2011, xxix–xxv and 298–301) about the growth of derivatives markets.

54. On this point, see Hellwig (1995, 2009, 2010a).

55. See Onaran (2011) and Expertenrat (2011).

56. This decision is discussed extensively by the FCIC (2011, Chapter 18 and 433 ff).

57. See Acharya et al. (2010, 220–226), Bair (2012, 194–195), and a speech given by Martin Gruenberg, acting chair of the FDIC, on May 10, 2012, posted at <http://www.fdic.gov/news/news/speeches/chairman/spmay1012.html>, accessed October 1, 2012.

58. We discuss bailouts and subsidies in Chapter 9.

59. Under the so-called home country principle, any independent legal entity undergoes a resolution procedure in the country where it is incorporated. On the complexity of the largest institutions, see note 62.

60. See Matthew Goldstein, “Lehman Bankruptcy Gets Ugly,” *Business Week*, October 2, 2008, and Cumming and Eisenbeis (2010, 12–13).

61. For a discussion of the issue, see ASC (2012).

62. Resolution would require untangling the complex legal structures of megabanks and selling the pieces (see Bair 2012, 331). Some of these are hidden from investors and possibly from regulators. For example, Herring and Carmassi (2010) state that eight large financial institutions have more than 1,000 subsidiaries and Citi has more than 2,500 subsidiaries. However, these numbers are likely understated, and many subsidiaries and entities that are off the balance sheets of banks are not fully disclosed to investors or regulators. For example, in its 2006 financial filings (the so-called Form 10-K), Lehman Brothers listed 168 subsidiaries. Herring and Carmassi (2010, Table 8.1) report that

Lehman Brothers had 433 majority-owned subsidiaries in 2006 (with data from BankScope). Yet in highlighting the challenge of resolution, Harvey A. Miller and Maurice Horowitz, in “A Better Solution Is Needed for Failed Financial Giants” (*New York Times*, October 9, 2012), state that Lehman’s bankruptcy involved about 8,000 subsidiaries in more than 40 countries. Cumming and Eisenbeis (2010, 7) state that “interestingly, Lehman Brothers was relatively uncomplicated by comparison with less than half the average total number of subs of other large complex financial institutions (LCFIs),” mentioning that it had “operations in 20 countries compared with the average of 44 for LCFIs in general.” (Clearly, they were not aware of some of the subsidiaries mentioned by Miller and Horowitz.) A list of the subsidiaries of Bank of America as of December 31, 2011, as disclosed to the Securities and Exchange Commission (SEC), can be seen at <http://www.sec.gov/Archives/edgar/data/70858/000007085812000155/bac-12312011x10kex21.htm>, accessed October 8, 2012. On the increasing complexity of large banks and the challenges it poses, see also Boot (2011).

63. Documents from the Financial Stability Board (FSB 2011a, b) list conditions for the viable resolution of systemically important institutions. The Basel Committee on Banking Supervision (BCBS 2011b) provides an overview of what has been done. A comparison of these documents shows how far we are from having a viable system. For the European Union, in June 2012 the European Commission proposed a new directive that would require every member state to install a resolution system on the lines of what is outlined by the Dodd-Frank Act in the United States or the Banking Act of 2009 in the United Kingdom. The European Commission’s proposal for a European directive would provide for some coordination of authorities in the EU but not for the kind of joint management that would prevent the disintegration of business procedures. See http://ec.europa.eu/internal_market/bank/crisis_management/index_en.htm#maincontentSec2, accessed October 1, 2012, and Daniel Gros and Dirk Schoenmaker, “Cleaning Up the Mess: Bank Resolution in a Systemic Crisis,” *Vox*, June 6, 2012. On the lack of an ex ante loss-sharing agreement, see Schoenmaker (2010). On the overall issues, see Hellwig (2012).

64. On the credibility issue, Kane (2012c, 655) draws an analogy between the reactions of the government and those of the public to the crisis and the different stages of grief. Kane’s assessment is that “federal authorities are cycling between the stages of denial and superficial political bargaining, while the public is cycling between anger and depression.” See also Daniel Indiviglio, “Will the FDIC’s New Power End ‘Too Big to Fail?’,” *Atlantic*, January 20, 2011, and “Still Too Big, Still Can’t Fail,” *Wall Street Journal*, March 5, 2011. Mayo (2011, loc. 3121-25) states, “When it comes down to it . . . the end result will be the same. The pain of letting one of these institutions go under is almost always too much for politicians and our government to bear.”

65. For example, in the United States the Dodd-Frank Act mandates that financial institutions prepare living wills in which each institution describes how it would be unwound if it had to go through bankruptcy. Whereas the logic of giving the FDIC or similar authorities elsewhere expanded resolution authority is based on the recognition that the bankruptcy process does not work well for systemically important banks, the living

wills requirement asks institutions to consider their own resolution under bankruptcy law. The living wills are costly for the institutions to produce and for the regulators to evaluate, and the information must be updated regularly to be relevant. Because systemically important institutions expect to avoid bankruptcy and resolution, their incentives to write useful living wills are quite different from those of individuals who write living wills in part to help their loved ones. Overall, the cost effectiveness of including living wills as part of the regulation is not clear. Obviously, resolution planning requires good information about the institutions to be resolved, but if there is a credibility problem and the institutions do not actually fear failure, they have few incentives to become less complex; instead, they might have incentives to become more complex so that resolution will be even more difficult. The living wills requirement can be useful if these wills allow regulators to use their authority to impose higher capital requirements on complex institutions or force them to simplify their structures so that resolution will become an acceptable option (see Bair 2012, 329–330). However, the politics of banking, discussed in Chapter 12, is likely to make this difficult.

66. Among the reasons resolution would be lengthy and costly is the interconnectedness of the system. Jessica Silver-Greenberg and Nelson D. Schwartz, in “‘Living Wills’ for Too-Big-to-Fail Banks Are Released” (*New York Times*, July 12, 2012), quote analysts who point out that “the big banks were so intertwined that if one failed, it would probably take others with it, making it unlikely that enough healthy banks would remain to buy assets from the ailing one.”

67. See, for example, Dashiell Bennett, “The One Quote Jamie Dimon Probably Hopes Won’t Come Back to Haunt Him,” *Atlantic Wire*, June 13, 2012. In his 2010 letter to shareholders (available at http://files.shareholder.com/downloads/ONE/2103717927XOX458384/6832cb35-0cdb-47fe-8ae4-1183aeceb7fa/2010_JPMC_AR_letter_.pdf, accessed October 5, 2012), Mr. Dimon proposed that the industry pay for the resolution of what he called “dumb banks,” referring to the resolution process (on page 25) as “Minimally Damaging Bankruptcy for Big Dumb Banks (MDBFBDB).” For a comment on this idea, even from JPMorgan’s perspective, see the final part of Anat Admati, “An Open Letter to JPMorgan Board,” *Huffington Post*, June 14, 2011.

68. We discuss JPMorgan’s “fortress balance sheet” in Chapter 6.

69. See Tom Braithwaite, “JPMorgan Doomsday Scenario Revealed,” *Financial Times*, June 12, 2012. The slides of the presentation by a JPMorgan representative are available at <http://www.law.harvard.edu/programs/about/pifs/symposia/europe/baer.pdf>, accessed October 15, 2012.

70. The distorted incentives and inefficiencies associated with distress and insolvency were discussed in Chapter 3. We discuss the impact of guarantees and bailouts in Chapter 9. We further discuss the importance of timely intervention to forestall these distortions in Chapter 11. The Japanese experience of the 1990s shows that failing to address resolution issues promptly can be detrimental to the quality of lending and to economic growth (see Hoshi and Kashyap 2004 and 2010 and ASC 2012).

71. See, for example, Alan Greenspan, “Regulators Must Risk More to Push Growth,” *Financial Times*, discussed in Chapter 1, note 9.

SIX *What Can Be Done?*

1. For an accessible discussion of why markets can fail and regulation may be needed, see Wheelan (2003, Chapters 3 and 4).

2. In the same vein, Meltzer (2012), an economist who is usually known for extolling the virtues of the free market, states that banking regulation is essential in order “to limit banks’ size and appetite for risk” and to protect the public (9). He specifically endorses high equity requirements, stating that “bank equity capital deters excessive risk-taking by requiring the bank to pay for its portfolio mistakes and unforeseen changes. . . . If regulators raised capital requirements, bank stockholders would bear the risk of mistakes, which would encourage prudence. Taxpayers would not pay for bankers’ errors” (35). (See also Chapter 11, note 54.)

3. See, for example, notes 10 and 13 in Chapter 1 regarding delays in the implementation of the Volcker Rule. Securities and Exchange Commissioner Troy Paredes (2010) said that, although Congress had passed the Dodd-Frank Act, the SEC still had to study whether to implement the law. On legal challenges, see Ben Protess, “U.S. Judge Strikes Down Commodity Speculator Limits,” *New York Times*, September 29, 2012.

4. “Reform Group Defends U.S. CFTC’s [Commodity Futures Trading Commission’s] Position Limits” (Reuters, April 23, 2012) quotes Dennis Kelleher, the president of the non-profit organization Better Markets, saying, “The CFTC must be guided by the dictates of the public interest, not the burdens of regulation on industry.” For details, see Better Markets, “Industry False Claims about Cost-Benefit Analysis,” available at <http://bettermarkets.com/blogs/industrys-false-claims-about-cost-benefit-analyis>, accessed October 18, 2012. The industry’s delay tactics include bringing forward many “studies” that claim to estimate the cost of the regulation to the industry and requesting that regulators respond to these studies. The costs that financial instability imposes on the public are not considered. On these costs, recall the estimate of \$12.8 trillion for the cost of the financial crisis in the United States (Better Markets 2012), discussed in Chapter 1, note 19.

5. For example, in a hearing before the House Financial Services Committee on June 16, 2011, arguing against so-called SIFI (systemically important financial institutions)—capital “surcharges,” additional capital requirements imposed on a set of the largest banks in the world—Barry Zubrow, chief risk officer at JPMorgan Chase, said that the capital requirements of Basel III (described later in this chapter and taken up in detail in Chapter 11) would “effectively require JPMorgan Chase to hold 45 percent more capital than it took to weather the crisis.” Statements about how much better capitalized banks are now and how strict the new requirements are can be found in many bank disclosures and shareholder letters. As discussed in Chapter 11, however, the Basel III requirements are actually not very stringent. We show in Chapters 7–9 that if the banks’ costs are increased by having more equity, it is only because taxpayers currently pay some of the banks’ costs by bearing some of the risks that should be borne by shareholders and through other subsidies of debt. Zubrow (2011) is an example of the way the industry complains about costs of regulation to them without any concern for the costs of their behavior to the public.

6. The expression is used in every letter to shareholders and comes up frequently in statements and interviews. See, for example, Dawn Kopecki, “JPMorgan’s Dimon Says Balance Sheet Built to Handle ‘Surprises,’” Bloomberg, May 15, 2012. Mr. Dimon is quoted as saying, “Our fortress balance sheet remains intact” (see, e.g., *BBC News*, BBC, June 13, 2012).

7. According to its 10-K form for 2011, a report that is required by the U.S. Securities and Exchange Commission (SEC) and that summarizes the performance of a public company, JPMorgan Chase had a total of loan-related commitments that amounted to \$975 billion (note 29 of the report), of which only \$1 billion appears on the balance sheet. In addition, it had guarantees and other commitments with a contractual amount of \$316 billion, of which the amount carried onto the balance sheet was only \$4 billion.

8. On Enron, see Healy and Palepu (2003) and McLean and Elkind (2004).

9. This was the case with Germany’s Industriekreditbank and Sächsische Landesbank and the United Kingdom’s Northern Rock (see Hellwig 2009). Thiemann (2012) discusses why supervisors let banks get away with these commitments.

10. See Brady et al. (2012).

11. The numbers are based on the 10-K form for 2011 (see note 7 above) that JPMorgan Chase filed with the SEC, particularly note 3 in the report (p. 189). Under the U.S. GAAP, the net derivative assets on the balance sheet are \$92.5 billion. If JPMorgan Chase instead reports under IFRS, according to the International Swaps and Derivatives Association (ISDA) (2012), derivative receivables should be reported on a gross basis, with an asset balance of \$1.884 trillion and a corresponding liability balance of \$1.792 trillion. Comparable information is provided in the footnote on derivatives but is structured differently.

12. Information on GAAP is given in most accounting textbooks, for example, Horngren et al. (2012).

13. IFRS are prepared by the International Accounting Standards Board (IASB), a private organization. Subject to being approved by an official endorsement process, IFRS are mandatory for all corporations in the European Union that are listed on a public stock exchange. The main difference in the U.S. standards is the way they handle derivatives. See ISDA (2012) and a statement from IASB and FASB on this issue, available at http://www.fasb.org/cs/ContentServer?site=FASB&c=FASBContent_C&pagename=FASB%2FFASBContent_C%2FNewsPage&cid=1176159547684, accessed October 6, 2012. David Reilly, in “Derivatives Tide Rises at Big Banks” (*Wall Street Journal*, November 8, 2011), suggests that investors pay attention to the gross number, not just the net, because “when assets are counted in the trillions of dollars, even a very small problem can quickly become a big one.” On controversies regarding how to account for losses on loans, see also Floyd Norris, “Accounting Détente Delayed,” *New York Times*, July 19, 2012.

14. These investments reflect the investment banking activities in which JPMorgan Chase, as a universal bank, is also engaging. Traditional investment banking involves financial services for corporations and investors as well as securities trading on a bank’s own account, so-called proprietary trading. Investment banking services for corporations traditionally involve advice and marketing in connection with offerings of securities and with mergers and acquisitions. Investment banking services for investors traditionally

involve investment advice and portfolio management services. Trading on their own account arises naturally if the investment bank “underwrites” a public offering, that is, if it buys the entire lot of equity shares or bonds and resells them to the public. The development of derivatives has vastly expanded the scope of these activities.

15. ISDA (2012, 8–9) makes the same calculation using 2009 figures for the largest banks in Europe and the United States. The adjustment for netting in 2009 would have been \$1.485 trillion for JPMorgan Chase, \$600 billion for Citigroup, and \$1.414 trillion for Bank of America. This means that the total assets of JPMorgan Chase in 2009 would have been \$3.437 trillion under IFRS (instead of \$2.032 under GAAP), those of Citi \$2.389 trillion under IFRS (instead of \$1.856 under GAAP), and those of Bank of America \$3.557 trillion under IFRS (instead of \$2.224 trillion under GAAP).

16. This means that if on net JPMorgan Chase has a position where it owes Bank X \$1 million worth of derivatives and the same Bank X owes JPMorgan Chase \$1.5 million worth of derivatives, the balance sheet with netting would have a debt of only \$0.5 million that Bank X owes JPMorgan Chase. This is based on netting agreements drafted by ISDA that supposedly would allow the positions to be netted in the event that one of the counterparties were to default and go into bankruptcy. The legal validity of the agreement has not been tested when the parties are under different legal regimes. If a bank is considered “too big to fail,” scenarios in which it defaults through bankruptcy are actually irrelevant.

17. The argument usually given for the U.S. approach is that, according to the netting agreements signed by the trading partners, only the net position matters in bankruptcy. This argument overlooks the possibility that concerns of derivatives counterparties about a possible failure of the bank could be destabilizing *before* bankruptcy or resolution is actually triggered. For example, the counterparties of a distressed bank may try to transfer their exposures to others if they become concerned about the bank’s failure. The FCIC (2011, 287–288) describes the behavior of Bear Stearns counterparties. For example, “On Wednesday, March 12, the SEC noted that Bear paid another \$1.1 billion for margin calls from 142 nervous derivatives counterparties” (288). And later, “Bear experienced runs by repo lenders, hedge fund customers, and derivatives counterparties” (291). A run on derivatives also played a role preceding the Lehman failure (343). See also Bryan Burrough, “Bringing Down Bear Stearns,” *Vanity Fair*, August 1, 2008.

18. Loans are 31 percent of the assets of JPMorgan Chase under GAAP but about 17 percent under IFRS. Interestingly, when IFRS is used, equity, deposits, long-term debt, and other debt as fractions of the bank’s total assets are remarkably similar for JPMorgan Chase and for the Swiss bank UBS. However, the absolute size of JPMorgan Chase is about three times that of UBS as measured by assets. For UBS, equity amounts to 6.1 percent of total assets, as calculated under IFRS. Loans represent 28.2 percent of the bank’s total investments. For more information, see UBS (2011). ISDA (2012, 8) provides the reported derivatives and total assets of five European banks in 2009. For a discussion of trends in bank activities, see Haldane et al. (2010) and Turner (2010, 2012).

19. As we discuss in Chapters 8–12, there are reasons to believe that the relative displacement of bank lending by other activities is due to distorted incentives of bankers and banks, which are caused by a combination of flawed compensation structures and gover-

nance problems, government guarantees and subsidies, regulations, and distortionary effects of debt overhang.

20. An equity ratio based on market value could be calculated by dividing the market value of the bank's equity (so-called market capitalization) by the sum of its liabilities and the market value of the equity. Berk and DeMarzo (2011, 496) provide equity ratios calculated similarly for different industries. On accounting issues and banking regulation, see Haldane (2011c).

21. Reported balance sheets represent a mix of valuations done at historical values and adjusted under certain conventions, as well as market or "fair" values, which are taken from active markets. For banks, many trading assets are valued by market value. However, assets that do not trade frequently are often "marked to model," which gives banks significant latitude to use mathematical models and historical data to place a value on their assets. See Beattie et al. (1995), Beaver and Engel (1996), and note 26 in Chapter 5. Obviously, unrecognized losses can hide insolvencies. As already discussed in Chapters 3 and 4, bank insolvencies are dangerous and damaging. We return to the distinction between book and market values in Chapter 7 and discuss insolvencies and loss recognition again in Chapter 11. Smith (2010, 190) states, "There are plenty of ways to goose the numbers," discussing some of the same issues we raise here. Mayo (2011), a bank analyst, also mentions significant delays in recognizing losses and estimates (3091–3092) that, as of mid-2011, the banks had not recognized about \$300 billion in their financial disclosures. For healthy nonfinancial companies, one should note, market values are often significantly higher than book values. For example, on June 30, 2012, Apple reported a book value of its equity of about \$112 billion, while at the same time the market value of its equity was about \$547 billion. For Wal-Mart, on July 31, 2012, the book value of its equity was \$70 billion, while the market value was about \$253 billion.

22. According to Onaran (2011), these two banks may well be insolvent even though the books do not show it. For the largest banks that benefit from implicit guarantees, there may be a positive market value of their shares on the basis of the assumption that the banks will eventually recover, with government and central bank support, as the economy recovers. Requirements to increase equity can provide a test of solvency. If a bank cannot raise equity at any price, this is a clear signal that it might be insolvent. We return to this issue in Chapter 11.

23. For example, see "Fitch Affirms Ratings for the Bear Stearns Companies Inc.; Outlook Stable," *Business Wire*, August 25, 2006. Lehman Brothers made itself appear stronger than it was by using accounting tricks that masked its true indebtedness. See Michael J. de la Merced and Julia Werdigier, "The Origins of Lehman's 'Repo 105,'" *New York Times*, March 12, 2010, and Valukas (2010).

24. The Dodd-Frank Act (Section 610) extended existing counterparty and affiliate credit limits to include more types of positions and certain other liabilities. On industry lobbying on this issue, see Lauren Tara LaCapra, "Banks Fight Fed's Push to Make Them Less Entwined," *Reuters*, June 25, 2012. The proposed rules known as the single-counterparty credit limit proposal would force financial institutions with at least \$500 billion of assets to limit their exposure to one another to 10 percent of their capital. According to the

article, the industry “is spooked by these rules” because they would show just how exposed to each other these institutions are. Goldman Sachs is said to estimate that “U.S. banking titans are up to 18 times more exposed to one another under the proposed rule’s methodology than banks consider themselves to be now.” The piece includes many standard threats that the rules will have “unintended consequences.” Our comment letter to the Federal Reserve on this matter, Admati et al. (2012b, 7), suggests that the information contained in banks’ comment letters, including the one by The Clearing House, only point to their dangerously large exposures. See also David Clarke, “CEOs of Big U.S. Banks Bend Fed’s Ear,” Reuters, May 2, 2012, describing meetings of major bank CEOs lobbying on this matter. Mexico tried to help banks’ effort as well (see Victoria McGrane, “Mexico Balks at Fed Proposal,” *Wall Street Journal*, May 2, 2012).

25. In the United States, from 1927 to 1994 the McFadden Act prohibited banks from having branches in more than one state. For more information on the McFadden Act, see Markham (2002). In Europe, between the 1930s and the 1970s many countries regulated what banks invested in, and banks were often prohibited from moving funds abroad. For Europe, see Baltensperger and Dermine (1987) and Dermine (1990). We discuss the politics around this kind of regulation in Chapter 12.

26. For a thorough discussion of the S&L crisis in Texas, which was particularly strong, see Kane (1989). On Sweden, see Englund (1990, 1999).

27. This was a main purpose of the McFadden Act of 1927 and of many state regulations, such as rules requiring banks to do all their business under the same roof. Concentration in U.S. banking has increased dramatically since these regulations have been lifted, in particular the prohibition on interstate banking. See Johnson and Kwak (2010).

28. Examples are the 1995 merger of *Crédit Communal de Belgique* and *Crédit Local de France* to form *Dexia* and the 2000 merger of *Banque Nationale de Paris* and *Compagnie Financière de Paris et des Pays-Bas* (*Banque Paribas*) to form *BNP Paribas*. Another example of such a merger is that between the *Swiss Bank Corporation* and *UBS* in 1997. Such mergers are often justified by saying that globalization is creating larger markets, and larger markets need larger “players.” The risks that these larger institutions create for their home countries are overlooked in such arguments. See Johnson and Kwak (2010), Barth et al. (2012), and Thomas (2012).

29. Of the largest companies in the world, in 2011 the top seventy-nine corporations in the world by asset size were all banks. The largest nonfinancial corporation, *Royal Dutch Shell*, ranked eightieth, with “only” \$340 billion in assets. (See “The World’s Biggest Companies,” *Forbes*, April 12, 2012.) Of course these rankings are subject to the caveat that accounting rules that differ, as we discussed earlier. Moreover, by market value measures *Apple* was larger than *Royal Dutch Shell* at the end of 2011.

30. Hu (2012) addresses the challenge of disclosure and comprehension for the large institutions, referring to them as “too big to depict.” Boot (2011) also discusses the complexity of large banks and suggests restructuring them so as to simplify their structure. Bair (2012, 328–331) suggests that the FDIC and the Federal Reserve use their authority to mandate that large institutions restructure if they are unable to show that going through bankruptcy would not be disruptive and harmful to the economy.

31. Davies and Tracey (2012), for example, show that, with a correction to remove the value of the subsidies associated with being too big to fail, the largest banks are no more efficient, and are possibly less so, than smaller banks. Allison (2011), a long-time industry veteran, argues that the business model and recent practices of megabanks are fundamentally flawed. He states (433) that “the presumption that the megabanks have more staying power is little questioned, but it is wrong.” (However, he concedes that the banks are unlikely to break up on their own and proposes regulation to achieve this.) We discuss governance issues in Chapter 8, further discuss subsidies and excessive growth in Chapter 9, and consider distorted incentives to borrow excessively using short-term debt in Chapter 10.

32. See, for example, Berk and DeMarzo (2011, 893).

33. Johnson and Kwak (2010) call for breaking up the large banks partly to reduce their political power. Hoenig and Morris (2011) and Allison (2011) make specific proposals as to how this might be done. A recent attempt to limit the size of the largest banks was the 2010 introduction by Senators Sherrod Brown and Ted Kaufman in 2010 of the SAFE (Safe, Accountable, Fair, and Efficient) banking act, which sought to restrict the nondeposit liabilities of any one bank relative to GDP, as well as to the total size of the banking industry. On the failure of this attempt, see Ryan Grim and Shahein Nasiripour, “Senate Votes for Wall Street; Megabanks to Remain Behemoths,” *Huffington Post*, June 17, 2010. Senator Sherrod Brown introduced the SAFE banking act of 2012 (and a similar act was introduced by Congressmen Brad Miller and Keith Ellison). These proposals would also constrain banks’ leverage. See <http://www.brown.senate.gov/newsroom/press/release/brown-introduces-bill-to-end-too-big-to-fail-policies-prevent-mega-banks-from-putting-our-economy-at-risk>, accessed October 12, 2012. As our discussion of the JPMorgan Chase balance sheet suggests, accounting conventions can make a difference in the actual implementation of such laws because they can change how liabilities are measured.

34. The Volcker Rule was included in the Dodd-Frank Act in modified form. The rule has become mired in complexity because the exemptions that banks lobbied to include in the law make it very difficult to distinguish allowable trades, such as those defined as related to hedging or market making, from trades that are not allowed under the regulation. As discussed earlier, there have been much recent debate and lobbying over the implementation of the Volcker Rule. For example, see “Volcker Author: Ban Banks’ Physical Prop Trades,” Reuters, July 31, 2012, the Independent Commission on Banking (ICB 2011) in the United Kingdom, and the October 2012 report of the Liikanen Commission is available at http://ec.europa.eu/internal_market/bank/docs/high-level_expert_group/report_en.pdf, accessed October 15, 2012.

35. For some assessments, see Martin Wolf, “Liikanen Is at Least a Step Forward for EU Banks,” *Financial Times*, October 4, 2012; Helia Ebrahimi, “Paul Volcker: Ring-Fencing Banks Is Not Enough,” *The Telegraph*, September 23, 2012; and Admati and Hellwig (2011a). Turner (2010, 60) similarly states that “Volcker Rules are in principle desirable, but they are not a sufficient response.”

36. Other examples are Dexia and Hypo Real Estate. Neither bank had much by way of deposits, yet these banks were bailed out, Dexia because it was important in lending to local governments in Belgium and France, Hypo Real Estate because it was an important

issuer of covered bonds and the German government feared a loss of confidence in covered bonds. There were also concerns that other banks as lenders might be adversely affected by the failures of these institutions.

37. The Dodd-Frank Act recognizes that nonbanks and other institutions can be systemically important. For example, Section 165 places all institutions with total assets of at least \$50 billion in this category and allows the new Financial Stability Oversight Council (FSOC) to place nonbank financial companies under heightened supervision under certain conditions. However, the designation remains controversial. FSOC declared eight institutions “financial utilities” under Title Eight of the Dodd-Frank Act. See Ian Katz, “FSOC Designates Eight Financial Market Utilities,” Bloomberg, July 12, 2012. The Basel Committee has developed principles for identifying and regulating globally and nationally systemically important banks (see BCBS 2011b, 2011c, 2012). The Basel Committee has also identified twenty-seven globally systemically important banks to which the stricter regulation should apply. See Jim Brunsten, “Basel to Disclose Banks Facing Surcharges,” Bloomberg, November 3, 2011.

38. At the time, this experience motivated proposals for what is called *full reserve banking* or *narrow banking*. Under such a regime, deposit-taking institutions would be restricted to investing only in highly liquid and safe assets, that is, in cash, deposits with the central bank, and possibly short-term government debt. See, for example, Douglas et al. (1939) or Friedman (1960). Full reserve banking is also part of Kotlikoff’s (2010) reform proposals. As we explain in Chapter 10, full reserve banking would provide for effective protection of depositors without any need for a government bailout, but it would not eliminate the problem that non-deposit-taking institutions might also be too important to fail. Kay (2010) also proposes “narrow banking,” which drastically restricts the activities of deposit-taking institutions to remove credit risk. Turner (2010, 60) argues, as we do, that such an insulation of deposits and payments from risks of other activities is unlikely to solve the problem of financial instability because the rest of the system can become unstable and dangerous, in developments similar to those we have witnessed, unless it is strictly regulated.

39. Interestingly, in Switzerland, in the early 1990s a crisis rooted in losses from lending was actually mitigated by the fact that the three big banks had large profits from investment banking which balanced their losses from real estate and business lending, and also enabled them to acquire many local and regional banks that would have likely failed otherwise. On the Swiss crisis of the early 1990s, see Staub (1998). Some of the profits from investment banking, however, involved significant risk taking in derivatives, which later caused the downfall of the old UBS; see Schütz (1998).

40. This is not due just to the public nature of the Landesbanken and the local savings banks. The cooperative banks in Germany have a similar structure and had similar experiences. What is true is that, as indicated by very low margins and high risks, Germany has excess capacities in both wholesale banking and investment banking, which is why all banks, public and private, that used to rely on this business have run into problems. See Expertenrat (2011) and Chapter 11.

41. Cash pays no interest at all. In the United States, since October 2008 required reserves in accounts with the Federal Reserve Bank have earned interest at a rate of 0.25

percent per year, which is roughly comparable to the rates that banks pay each other in the money market. Before 2008 in the United States, and still today in many other countries, the interest earned on required reserves was zero. Minimum reserve requirements effectively forced banks to provide interest-free loans to the central bank. Because the profits of the central bank are distributed to the government, the government budget was the main beneficiary. This explains why minimum reserve requirements have traditionally been high in countries that have had difficulties levying taxes. In the United States today, they are at 10 percent of deposits. This compares to 1 percent in the Eurozone (where minimum reserves pay interest at the same rate that the European Central Bank uses when refinancing banks), 20 percent in Brazil, and 30 percent in Lebanon. In southern Europe in the 1970s and 1980s, they stood at around 20 percent and higher. See the essays on Italy, Spain, and Portugal in Dermine (1990). We discuss liquidity in Chapter 10 and the politics of reserve requirements in Chapter 12.

42. In addition to the liquidity coverage ratio, Basel III also proposes to introduce a so-called net stable funding ratio (NSFR), putting limits on the extent to which banks use short-term funding for long-term investments. This regulation is intended to limit liquidity risks and solvency risks from maturity transformation, which we discussed in Chapter 4. Much remains to be worked out, however, and the NSFR regulation will not come into effect before 2019, if at all.

43. It is not clear that a 10 percent reserve requirement really eliminates a bank's liquidity risk. If a depositor withdraws \$1,000, that frees just \$100 of the required reserves. The remaining \$900 must come from the bank's "free reserves," the amount of its overall reserves in excess of required reserves, or the bank must violate the reserve requirement and pay a penalty. For the 1 percent reserve requirement of the Eurozone, doubts must be even greater. The regulation of liquidity coverage ratios aims at very high percentages for foreseeable cash needs.

44. For example, are long-term government bonds that are denominated in the country's currency sufficiently "liquid"? Or does the experience with Greek sovereign debt provide a warning? What about securities such as covered bonds that are backed by specific eligible assets, such as mortgages? Such bonds might be traded in open markets, but these markets can suddenly freeze when there are concerns about default. For U.S. mortgage-backed securities, such a freeze occurred from one day to the next on August 7–8, 2007, when uncertainty about these securities made investors unwilling to trade them. See, for example, FCIC (2011, 471).

45. A disastrous example of this problem occurred during the German crisis in 1931. The major banks held bills of exchange as their major reserve of liquid assets, assuming that if they needed cash they could always present these bills of exchange to the Reichsbank, the German central bank, as collateral for borrowing. This had already been the practice under the Prussian Bank, the predecessor of the Reichsbank, in the middle of the nineteenth century. Because of the assurance that the central bank would always provide them liquidity, German banks were much more involved in long-term industry finance than were their U.K. counterparts (see Tilly 1989). In July 1931, however, when there was a run on the banks, the Reichsbank could not provide the banks with cash. Because there was also a

run on the currency, the Reichsbank had insufficient reserves of foreign currencies and gold, which by law it needed to back the money it created; see Ferguson and Temin (2003, 2004) and Schnabel (2004, 2009). The German banking system collapsed, and this greatly exacerbated the economic depression.

46. In the absence of deposit insurance, there have been critical bank runs quite recently. Examples are the runs on banks in Argentina in 2001 and on Northern Rock in the United Kingdom in 2007. Despite FDIC insurance, in the United States there was a run on Washington Mutual, a bank that collapsed in September 2008. Depositors withdrew \$16.7 billion over nine days (Jim Zarolli, “Washington Mutual Collapses,” *All Things Considered*, NPR, September 26, 2008). The bank was closed on September 25, 2008, and was placed under FDIC receivership.

47. See Michael J. de la Merced et al., “As Goldman and Morgan Shift, a Wall Street Era Ends,” *New York Times*, September 21, 2008.

48. Deposit insurance was also expanded to cover individual deposits up to \$250,000 in any one bank account. Moreover, under a two-year temporary liquidity guarantee program, also called the Transaction Account Guarantee Program, FDIC insurance was available for all non-interest-bearing deposits. This program is set to expire at the end of 2012, but banks are lobbying to extend it. See Jed Horowitz, “Banks Urge Congress to Extend Crisis-Era Deposit Insurance,” Reuters, July 30, 2012. Government guarantees are discussed in Chapter 9.

49. See Gorton (2010). Mehrling (2010) instead proposes that the central bank intervene through markets, standing ready to buy assets from banks if no other buyers can be found. We discuss these suggestions in Chapter 10 and return to the narrative that the crisis was due only to liquidity problems in Chapter 13.

50. Savings institutions invested in risky commercial real estate developments and in so-called “junk bonds,” corporate bonds that pay high interest and have a high risk of default. On the recklessness of S&Ls, see White (1991, 2004) and Curry and Shibut (2000).

51. Kaserer (2010) estimates the losses at €34–52 billion. Information that has become available since then suggests that the losses will actually be much greater than even the larger of these two numbers. Onaran (2011) argues that many banks in Europe and the United States, including Landesbanken, Citigroup, and Bank of America, have become de facto insolvent. We return to this discussion in Chapter 11.

52. Strictly speaking, this statement is true only for the simplest form of capital regulation, which imposes a lower limit for the share of assets funded by equity. The more complex versions that have been developed by the Basel Committee on Banking Supervision, the body that prepares the international agreements on banking regulation, make the amount of equity that a bank must have depend on the mix of risky and less risky assets that it holds, as well as the total amount. The details of capital regulation, including the dependence of capital requirements on asset risks, are discussed in Chapter 11.

53. Basel II, concluded in 2004, did not come into force until 2008. However, a precursor to Basel II, an amendment extending equity regulation under Basel I to “market risks”—that is, the risks that market prices of assets might change—was already concluded in 1996 and played a major role in determining banks’ behavior before the crisis. Goodhart (2011) provides an extensive discussion of the process through 1997, covering Basel I and

the start of Basel II. Tarullo (2008) discusses Basel II. See also Roubini and Mihm (2010, 203–209).

54. Basel II has actually never been implemented in the United States for banks insured by the FDIC. Sheila Bair, chair of the FDIC, objected to the leeway the regulation gave to banks to economize on equity (see Joe Nocera, “Sheila Bair’s Bank Shot,” *New York Times*, July 24, 2011, and Bair 2012, Chapter 3). We discuss Basel II and III in detail in Chapter 11.

55. See Hellwig (2009), Bair (2012), and the introductory chapter of FCIC (2011), where too little capital is mentioned as a key factor. See note 17 in Chapter 1 for quotes from bankers agreeing with this assessment.

56. See UBS (2008) for the treatment of subprime-mortgage-related securities. The bank’s total losses from such securities have been given as more than \$50 billion, more than the bank’s equity of less than 40 billion Swiss francs. See Susanne Craig, Ben Protess, and Mathew Saltmarsh, “UBS Faces Questions on Oversight after a Trader Lost \$2 Billion,” *New York Times*, September 14, 2011, as well as “Chronology: UBS in Turmoil,” <http://www.drs.ch/www/de/drs/nachrichten/wirtschaft/ubs-vom-musterschueler-zum-problemfall/72270.218256.chronologie-die-ubs-in-turbulenzen.html>, accessed October 14, 2012.

57. See, for example, “Basel III Implementation Delay Looms,” *Wall Street Journal*, August 22, 2012, describing delays in Europe, China, and elsewhere. “Europe’s Big Bang for Bank Rules Set to Sputter” (Reuters, August 24, 2012) quotes the chair of the EU committee involved in negotiating the banking regulation as saying, “It is likely that dates will be revised” and an accounting consultant as stating, “Banks have a good idea of what might be required but it’s a bit of a range at the moment.” In Chapter 11 we discuss how banks and the system can be strengthened fairly quickly given the authority that regulators already have under existing rules.

58. Interview, *Süddeutsche Zeitung*, November 20, 2009.

59. For loan rates the forecast was an increase of more than 1 percentage point, for real growth rates a reduction of roughly 0.6 percentage point.

60. Speech by Jamie Dimon, JPMorgan Chase CEO, before Chamber of Commerce, reported by Tom Braithwaite, “Dimon Warns of ‘Nail in the Coffin,’” *Financial Times*, March 31, 2011.

61. The first statement is attributed to Steven Bartlett, chair of the Financial Services Roundtable, quoted by Floyd Norris in “A Baby Step toward Rules on Bank Risk,” *New York Times*, September 17, 2010. The second is from “A Piece-by-Piece Guide to New Financial Overhaul Law,” Associated Press, July 21, 2010. Wayne A. Abernathy of the American Bankers Association wrote in *American Banker* (“Shrinking Banks Will Drag Down the Economy,” August 27, 2012), “When used efficiently, a dollar of capital on reserve allows a bank today to put ten dollars to work as expanded economic activity. The new Basel rules would demand that banks maintain more dollars on reserve for the same amount of business, or more capital for no new economic work.” Both sentences, and other statements in Abernathy’s piece, are false and misleading, implying that capital is the same as cash reserves and that Basel concerns reserve requirements. Alan Greenspan, former chairman of the Federal Reserve, is quoted by the *Financial Times* (“Alan Greenspan, Silently Fade Away, Please,” July 27, 2011) as writing that “excess bank equity capital . . .

would constitute a buffer that is not otherwise available to finance productivity-enhancing capital investment.” See, in response, Paul Krugman, “The Malevolent Ex-Maestro,” *New York Times*, July 30, 2011, and a letter from 20 academics, “Greenspan Reasoning on ‘Excess Capital’ Is Misleading,” *Financial Times*, August 2, 2011. Elsewhere, in fact, Greenspan (2010) has supported higher capital requirements, observing that had banks been funded with more equity prior to 2007, losses from mortgages might not have triggered such a global crisis and taxpayers would have been spared the cost of supporting the banks.

62. As of 2012, one would find small amounts of short-term or “current” liabilities on the balance sheet of Apple; those have to do with day-to-day operations and not with the funding of long-term investments.

63. Capital regulation allows for different so-called tiers of capital. Securities other than common equity, such as preferred equity and even long-term debt, can also be considered “regulatory capital.” We discuss this issue in more detail in Chapter 11.

64. Academic Advisory Committee (2010).

SEVEN *Is Equity Expensive?*

1. See Miller (1995, 483). The incident took place in a conference Mr. Miller had attended fifteen years earlier in Williamsburg, Virginia. Miller’s account continues as follows: “At that point, there was a rumbling noise from the audience of bankers, many of whom were selling for even less than 50 percent of book value. And when I looked up I could see through the window a platoon of soldiers in Revolutionary War costumes and muskets marching on the Village Green toward the Town Hall. My God, I thought, they’re sending for the firing squad! They did not actually shoot me, needless to say, but they did not let me say anything else either. I never could seem to catch the moderator’s eye.” Miller discusses in his article some of the issues we cover in this chapter and in Chapter 9.

2. As discussed in Chapter 6, many statements suggesting that capital is costly falsely treat capital as if it were an asset, a kind of idle reserve that is costly because it does not earn interest. When participants in the discussion recognize that, in the context of banking regulation, the word *capital* refers to equity rather than reserves, they still suggest that it is expensive, usually without providing much of an explanation. Terms such as *capital charges* or *capital surcharges* are used to suggest costs. For example, Barry Zubrow, chief risk officer of JPMorgan Chase, has said (2011, 3 and 9) that a “potential surcharge on Globally Systemically Important Financial Institutions (G-SIFIs) . . . creates costs that risk exceeding the diminishing benefits of higher capital requirements above Basel III minimum.” We will consider the specifics of this argument in the next chapter.

3. This argument underlies the preparatory studies for Basel III of the Basel Committee on Banking Supervision, for example, the estimates of the impact of increased capital requirements on banks’ funding costs and lending rates (BCBS 2010a). We discuss Basel III in Chapter 11.

4. As mentioned in Chapter 4, Weinstein and Yafeh (1998) show that in pre-1990 Japan, the monopoly power of banks was a major factor determining the borrowing costs of Japanese firms.

5. This would be more advantageous to the borrower and disadvantageous to the banks, so the banks might try to engage in price fixing. In the United States, price fixing was outlawed by the Sherman Act of 1890, in the European Union by the antitrust chapter of the Treaty on the Functioning of the European Union (Art. 101). The so-called LIBOR scandal, which we discuss in Chapter 13, may involve some elements of price fixing by traders active in interbank borrowing and lending in London, as well as fraudulent reporting. Such price fixing violates antitrust law.

6. On sovereign debt, see the fundamental work of Reinhart and Rogoff (2009). If the debt is denominated in units over which the government has no control, such as gold or a foreign currency, there is a default risk even for government debt. The relevance of this risk is made all too clear by the data that Reinhart and Rogoff present. The government debt crises in the euro area provide a vivid example. There the debt is denominated in euros. The euro is the currency of the member states of the euro area, but this currency is issued (“printed”) by the European Central Bank, a supranational institution that is independent of national governments. If the government can pay its debt by means of money creation, there is no risk of default, but the money creation is likely to cause inflation that will make the money itself lose value in real terms. The risk of inflation might lead investors to prefer real estate or stocks. It will not, however, affect the choice between a government bond and a home mortgage, which are both equally affected by the decline in the value of money. In countries where government finance through money creation and inflation are prevalent, there may arise a demand for so-called indexed debt, that is, debt whose nominal value is adjusted over time so as to keep the real value the same relative to some bundle of goods. Such debt was common in Brazil in the 1970s and is still common in Israel. If inflation is too high, borrowing in the national currency may actually become impossible. We discuss these issues further in Chapter 10.

7. According to <http://markets.ft.com/RESEARCH/Markets/Government-Bond-Spreads> (accessed October 19, 2012), interest rates for ten-year bonds on October 19, 2012 were 5.37 percent for Spain and 1.60 percent for Germany.

8. Acharya and Steffen (2012) present evidence that this is precisely what European banks are doing, especially weak banks from Southern European countries.

9. Such opportunities might exist temporarily, but investors trying to make use of them would make them disappear by changing the prices at which assets trade. We discuss this issue further in Chapter 8.

10. See “Greece Auction to Settle \$3.2 Billion of Credit Default Swaps,” Bloomberg, March 18, 2012.

11. This is probably not the only reason for the high interest on credit card debt. The very high rate that we observe probably also involves elements of market power on the side of credit card companies and helplessness on the side of borrowers who are unable to manage their personal finances. See also Chapter 4, note 15.

12. If we were to take account of the possible inefficiencies in the foreclosure process, which might leave the lender with even less than \$255,000, the interest rate would have to be even higher. In subprime mortgage lending before the financial crisis, the principles discussed here were often violated—for example, when borrowers got low-interest mort-

gages without making any down payment at all, that is, with zero initial equity. As discussed in Chapter 4, the originating mortgage banks were careless in their assessment of borrowers' creditworthiness and default risk because they expected to sell the mortgages to others for securitization and therefore had no "skin in the game." For references, see note 43 in Chapter 4. We discuss the impact of the cost of default on funding costs in Chapter 9.

13. Top management is also hurt by a price decline if this is taken as a signal of incompetence, leading the corporate board to look for a new management. If management incentives are not linked to the share price, shareholders may become victims of poor corporate governance as the company first raises money from them and then treats them badly. Such behavior has actually been quite prevalent in the past, and in some countries it still is. Thus, in the early 1900s the prominent German banker Carl Fürstenberg coined the much-quoted saying "Shareholders are stupid and impertinent! Stupid because they give their money to somebody else without having any control over what he does with it—impertinent because they ask for dividends to reward their stupidity!" Such governance problems may prevent equity markets from working properly to provide funding for corporations. For a discussion of these issues, see Shleifer and Vishny (1997). We discuss corporate governance issues further in Chapter 8.

14. The same logic applies to bond prices when interest rates change. For example, suppose the market, or "required," interest rate for one-year riskless loans was 4 percent. This means that a bond that promises to pay \$100 in a year's time would have a price of about \$96.15 (so at 4 percent interest it would pay \$100 a year later). If the market rate were higher, say 5 percent, the bond that would pay \$100 in one year would have a lower price because, at the price of \$96.15, it would not provide the return of 5 percent that investors now require, in the current market with a higher interest rate; the lower price will be about \$95.24, so the promise of \$100 in one year would pay 5 percent interest. In the case of stock, the notion of required return refers not to the market rate of interest but to an average or expected return that investors require given the risk of the stock (and in view of the riskless rate of interest in the market).

15. The average for large companies' stocks was 11.8 percent and for small capitalization stocks 15.2 percent. These numbers are taken from the *Ibbotson Valuation Yearbook*, 2012, published by Morningstar. The returns are not adjusted for inflation. On corrections for changes in prices, see, for example, "Hedging Inflation," *Forbes*, March 5, 2012, which states that the return on the stock index is 7 percent higher than the increase in the consumer price index.

16. See "Bank of America in \$8.5 Billion Settlement," *CNNMoney*, CNN, June 29, 2011. This payment reduced the bank's 2011 earnings. However, we are interested not in the way the loss is reflected in the banks' accounting treatments but in the actual loss of value of shareholders' claims. This will be more immediately reflected in the stock price or the market value of the bank. The impact on the market value will depend on what information investors glean from this settlement for the future earnings of Bank of America. Other banks might be affected if investors learn something about the likelihood and magnitude of such settlements for other banks.

17. By *assets* we mean the so-called operating assets of the company. If the funding mix itself generates tax savings or additional charges, or if it has other indirect effects on the entire balance sheet, the assets will include these effects. We discuss such situations in Chapter 9. This issue is covered in most textbooks on corporate finance. See, for example, Berk and DeMarzo (2011, Chapters 23–25).

18. The original result is in Modigliani and Miller (1958). The material covered in this chapter and in later chapters (including another Modigliani and Miller result that concerns dividends) is covered in every textbook on modern corporate finance (see, e.g., Berk and DeMarzo 2011, Part V).

19. See Berra (1998).

20. For an amusing parable that uses as an analogy a debate on whether the volume formula actually applies to all cylinders, see Pfeleiderer (2010). See also David Miles, “Don’t Dismiss Modigliani-Miller Logic on Bank Funding,” *Financial Times*, November 30, 2010, and Berk and DeMarzo (2011, 456, 470). This column generated some letters essentially saying, “This is just theory,” with responses from Miles and the two of us. (David Miles, in “Don’t Dismiss Modigliani-Miller Logic on Bank Funding,” *Financial Times*, November 30, 2010, states that “the logic of M-M cannot be dismissed so easily. And it also matters hugely why M-M might not exactly hold.” Anat Admati, in “Highly Leveraged Lenders Inflict Great Suffering on Society,” *Financial Times*, December 2, 2010, concludes that letter writers “must do more than dismiss arguments as theoretical and raise vague and unsubstantiated threats. . . . They must explain precisely what forces should lead society away from imposing high equity requirements on banks and how such an effect comes about.” Martin Hellwig, in “Recent Practice Proves Theory That Banks Need to Improve Equity,” *Financial Times*, December 2, 2010, says that “the practice of banking in the past few years has certainly taught us many lessons. One of them is that banks’ economising on equity is a source of fragility of the financial system and puts all of us at risk. This side of banking practice is overlooked by [the] correspondents.”) See Anat Admati, “What Jamie Dimon Won’t Tell You,” *Huffington Post*, December 5, 2010. (Correction: at the end of this piece, Admati implies that Wal-Mart is larger than JPMorgan Chase. In truth, even by the U.S. accounting rules, JPMorgan Chase is about ten times larger than Wal-Mart.) See also Jenkins (2012b), titled “A Debate Framed by Fallacies.”

21. The observation that deposits are special may suggest that we should refrain from regulations that would induce banks to reduce their deposits, but even here the contribution of equity to greater bank safety must not be neglected. With the same amount of deposits and *more* equity, a bank would be in a position to lend more or to engage in other kinds of profitable investments. In this case, the same argument that was given in this chapter shows that the required ROE would be lower because the bank has more equity and the bank would be able to absorb more losses without becoming insolvent.

22. The fallacy in thinking of the required return as constant and independent of the funding mix or in saying that M&M does not apply to banks has been pointed out by many over the past thirty years at least. Here is a partial list of references: King (1990), Schaefer (1990), Miller (1995), Harrison (2004), Brealey (2006), Kashyap et al. (2010), Mehran and Thakor (2010), and Miles et al. (2011).

23. Kashyap et al. (2010), Miles et al. (2011), and Tsatsaronis and Yang (2012) present empirical evidence that banks' average ROE increases with their leverage.

24. The irrelevance of book values can easily be seen by considering nonfinancial companies. For most healthy companies, stock prices or market values are significantly higher than book values reported on balance sheets. For example, on July 31, 2012, Wal-Mart reported a total of about \$70 billion in shareholder equity, which translates to a book value of about \$21 per share. At the same time, Wal-Mart's stock price was about \$75 per share, significantly higher than the book value. According to the banker's logic, it is "cheap" for Wal-Mart to fund investments with equity because its equity is priced so highly in the market. But should this fact matter when Wal-Mart tries to decide whether to make a particular investment? Whatever its book value, Wal-Mart can make good investments or bad investments, and its shareholders will want Wal-Mart's managers to make good investments that will further increase the value of their shares. If Wal-Mart wastes money on a bad acquisition, Wal-Mart's shareholders will not be happy. By contrast, if Wal-Mart makes profitable investments with retained earnings or other funding, its shareholders will be happy. In neither case does it matter to shareholders, or to the managers, that the book value is different from the market value. Our argument does not prejudge whether valuations based on stock market prices are "right." The key point of the discussion is that book values are not relevant to investment decisions. Decisions must be made in the context of all the relevant information at the time that they are made.

25. Bankers might suggest that they have better information about the quality of the bank's assets and the likelihood that the loans might not be paid. If this is true, one wonders why they are unable to communicate this information to investors in a credible way so as to increase the market price of their shares. Most likely, investors are suspicious because, more often than not, book values are inflated due to the unwillingness of bankers to acknowledge losses. For example, there are reasons to suspect that banks' reluctance to proceed with foreclosures or with mortgage restructuring may be affected by the fact that such transactions would force the banks to recognize losses that they could otherwise pretend do not exist. Bankers in the United States have been fighting against local authorities seeking to use eminent domain laws to renegotiate mortgages when they take over properties in the public interest. Many believe that the main motivation for banks is the fact that such action would force them to recognize losses that they are currently not acknowledging. The losses would be particularly severe on second mortgages, which will be repaid only after the first mortgages are paid. See, for example, Rep. Brad Miller, "No Wonder Eminent Domain Mortgage Seizures Scare Wall Street," *American Banker*, July 12, 2012. On the reluctance of banks, sometimes with the collaboration of authorities, to recognize true losses, see also ASC (2012) and BIS (2012). We return to this issue in Chapter 11.

26. Because banks are heavily indebted, any investments they make affect not just their shareholders but also their creditors. This can give rise to a debt overhang effect, which might make shareholders hold back from making investments. The debt overhang effect was introduced in Chapter 3; it is due to the conflicts of interest between borrowers and creditors and creates inefficiencies and possible harm to others. We discuss this issue further in Chapters 9 and 11.

EIGHT *Paid to Gamble*

1. See Patrick Jenkins and Brooke Masters, “Higher Capital Ratios Talk Cuts Banks’ Appeal,” *Financial Times*, March 27, 2011. In this piece Jenkins and Masters report that “according to calculations by analysts, banks’ current market valuations assume that return on equity—ROE, the traditional measure of bank profitability—will fall to an average of about 11 per cent, way down on the 20 per cent-plus that the best banks racked up in the boom years of the last decade.” A hedge fund manager is quoted as saying, “If I can get a higher ROE investing in an utterly safe regulated utility, why on earth would I invest in a bank?” Barry Zubrow, chief risk officer for JPMorgan, stated in testimony that a capital surcharge for global systemically important financial institutions would “diminish investor appetite for large bank equity, which will require large banks to abandon more capital-intensive businesses, increase prices to earn a sufficient return on equity, or push banks to reduce the size of their balance sheets. Any of these options will have impacts on the U.S. economy.” The implication is that a capital requirement will make banks less profitable because it will reduce their ROE. See Zubrow (2011).

2. Ackermann (2010, 6). See also statements in the previous note quoted by Jenkins and Masters in “Higher Capital Ratios Talk Cuts Banks’ Appeal.”

3. Mishkin (2007, 233). Frederic Mishkin was executive vice president and director of research at the Federal Reserve Bank of New York in 1994–1997 and served as a member of the board of governors of the Federal Reserve from 2006 to 2008,

4. This is especially true if problems in their bank are large enough to affect the financial system and the overall economy or the public budget. In this case, shareholders will also be affected as taxpayers and as part of the public.

5. Whereas the magnification of risk can be seen while ignoring the interest expense, the cost of borrowing must be included in the discussion when considering how the funding mix of corporations affects their ROE and how it relates to the return on their assets. The fallacy associated with ROE that we discuss in this chapter is sometimes framed in terms of the impact of corporate borrowing on earnings per share, falsely implying that borrowing benefits shareholders by increasing their earnings per share. See Berk and DeMarzo (2011, 466–468).

6. If there is almost no chance that Kate will default, it is reasonable to assume that the actual rate she is charged will be the same whether she borrows \$30,000 or \$60,000. If there is a chance of default, Kate might be charged a slightly lower interest rate if she borrows less. If there is a likelihood of default, the rate she is charged may be higher than the average or expected returns that creditors would receive. As discussed in Chapter 7, the required rate would include some compensation for the risk to the lender of making the loan. These observations do not affect any of our conclusions.

7. If the house goes up by exactly 4 percent, the actual ROE will be the same no matter how much Kate borrows. A 4 percent increase in the value of the house means that it will sell for \$312,000. With a mortgage of \$270,000 and thus a mortgage debt of \$280,800, Kate will be left with \$31,200 if the house sells for \$312,000, which is a 4 percent ROE. If she borrows \$240,000 and puts in \$60,000 in equity, she will be left with \$62,400, again a 4 percent ROE.

8. Anyone who is able to borrow at a particular rate and invest the money in such a way that the debt will be paid for sure would want to borrow as much as possible at this rate and put as much money as possible into this wonderful opportunity. Equity would not even be required if the debt were always paid for sure out of the assets. If such opportunities were readily available, there would be an enormous demand to borrow money and not enough people willing to lend at the low rate offered. The borrowing rate would then have to increase. The observation that banks get away with paying very low interest, if any, on deposits does not refute this argument. For some deposits, the reward to depositors takes the form of ATM and payment services rather than interest; providing such services may generate a surplus because depositors value them more highly than they would value the interest, but even so there is a cost to the bank that must be taken into account. Before the deregulation of the early 1980s, when government regulation prevented banks from using interest rates to compete for deposits, banks actually used their service offers to attract deposits (see Klein 1974). However, as discussed in Chapter 4, when money market funds began to compete with banks and savings institutions by offering higher returns on investments that were almost as convenient as deposits, the latter lobbied for deregulation so they could also compete by offering higher interest. Thus, even for deposits for which depositors are rewarded by the provision of services, interest rates cannot be too far from those of other investment opportunities. On all other forms of debt that banks issue like other corporations, the returns they provide to investors must reflect market conditions, that is, the returns provided by other investments and the risk that investors attribute to such debt. In Chapters 9 and 10 we discuss the incentives and ability of banks and other financial institutions to borrow at favorable rates and under favorable terms. In Chapters 10 and 13 we further consider the impact of money market funds on banking.

9. This observation was made by Sheila Bair, former chair of the FDIC, in a *Washington Post* column on April 13, 2012 titled “Fix Income Inequality Now.” Bair whimsically calls on banks to solve the inequality problem by giving everyone a \$10 million loan for ten years at an interest rate of zero, which could generate \$200,000 a year in interest for a decade. After pointing out that taking \$10 million at zero interest and investing at 2 percent would give everyone \$200,000 per year as a gift, like a “money machine,” she says: “The more adventuresome can buy 10-year Greek debt at 21 percent, for an annual income of \$2.1 million. Or if Greece is a little too risky for you, go with Portugal, at about 12 percent, or \$1.2 million dollars a year.” This recognizes that spreads from so-called carry trades typically come with some risk of loss. Acharya and Steffen (2012) provide evidence that European banks are actually engaging in this sort of gamble; the less equity they have, the more they do so. We discuss subsidized loans and guarantees given to banks in Chapter 9.

10. In an earlier episode, in 1990, when large commercial banks in the United States were on the brink of insolvency, the Federal Reserve lowered short-term interest rates to around 4 percent. With long-term interest rates around 8 percent, banks were then able to make large profits. Between 1990 and 1994, they used this money machine to rebuild their equity. However, when the Federal Reserve raised interest rates again in the spring of 1994, this increase came as quite a shock and created problems for many banks.

11. For example, if the borrowing rate is 4 percent and, on average, the bank is expected to earn a return of 6 percent on its investments, the average ROE will be 24 percent with 10 percent equity and only 11.4 percent with 20 percent equity relative to the total assets. The logic and intuition is the same as in the preceding section, where we analyzed the various scenarios for Kate. The fact that we are now talking about *average* returns rather than *actual* returns does not make a difference. Having more equity lowers the actual return on equity if the return on assets is larger than the rate paid to borrow, and it raises the actual return on equity if the return on assets is smaller. Intuitively, if the assets produce on average a higher return than the borrowing rate, the outcomes in which the actual ROE is relatively high have a larger weight in the calculation of the average ROE than the outcomes in which the actual ROE is relatively low. Because leverage increases the actual ROE on the upside, the average ROE becomes higher with more leverage (and lower with less leverage). See Berk and DeMarzo (2011, Chapter 14).

12. Even after the turmoil created by the Lehman Brothers bankruptcy, Ackermann still said that “a return on equity of 25% is achievable for the bank, and more than 20% is quite realistic” (William Launder, “Deutsche Bank CEO: 25% RoE Is Achievable for Bank,” Dow Jones Newswires, February 5, 2009). When actual returns were lower, Ackermann opined that they would come back soon (“Deutsche Bank CEO: Return to 25% ROE Target in 3 Years,” Dow Jones Newswires, December 20, 2010). In March 2011, Ackermann was quoted as saying that “the investment bank’s ROE, a key measure of profitability, should be as high as 25 per cent in two years’ time” (“Deutsche Targets ROE above 20%,” *Financial Times*, March 30, 2011). Later in the year, the targets were lowered (see “Deutsche Bank Eyes 15% Return on Equity,” *Wall Street Journal*, December 5, 2011).

13. Patrick Jenkins, “Barclays Chief Ready to Increase Risk Appetite in Search of Profits,” *Financial Times*, April 11, 2011.

14. Lewis (2011) mentions the conversion of investment banks from partnerships to corporations as a factor in increased risk taking and leverage, saying specifically that “from that moment, the Wall Street firm [Salomon Brothers, which became a public corporation in 1981] became a black box. The shareholders who financed the risk taking had no real understanding of what the risk takers were doing, and, as the risk taking grew ever more complex, their understanding diminished” (258). Bhide (2010, Chapter 9) and McLean and Nocera (2010, Chapter 11) also mention how the transformation of investment banks in the 1980s and 1990s from privately held partnerships to public corporations led to an increased focus on measures such as ROE, riskier trading strategies, and governance problems. We discuss governance issues later in the chapter.

15. Data for ROE are taken from Deutsche Bank’s annual reports (available at https://www.deutsche-bank.de/ir/en/content/reports_2012.htm, accessed October 14, 2012): 9.5 percent in 2003, 4.8 in 2004, 21.7 in 2005, 26.4 in 2006, 24.1 in 2007, –16.5 in 2008, 9.5 in 2009, 15.3 in 2010, and 10.2 in 2011. For the years before 2003, Deutsche Bank’s annual reports do not give figures for pre-tax ROE. The after-tax figures given are 41.4 percent for 2000, 2.3 for 2001, and 1.1 for 2002. These figures are dominated by the effects of a change in tax rules. A tax reform that was passed in 2000 eliminated capital gains taxation for corporations holding shares in other corporations. Deutsche Bank, like other German corporations, used the

occasion provided by this change in the law to sell many of its holdings in nonfinancial companies, realizing capital gains that had been accumulating for decades. The numbers given here correspond to U.S. accounting practices. Deutsche Bank also reports what it calls “return on active equity,” which adjusts for various effects involving the timing of dividend payments, realization of capital gains and losses, and tax effects. For this index, which is not recognized as a performance measure under official accounting rules but which Deutsche Bank, according to its press releases, treats as the key performance index, the average over the years 2003–2011 was 14.3 percent, somewhat better than for ROE before taxes, but the distance to the target of 25 percent for the average was still huge; peaks were 32.7 percent in 2006 and 29.0 percent in 2007; the trough was –17.7 percent in 2008. Remarkably, it does not seem possible to get this overall picture of how Deutsche Bank fared in the longer run without going back to its annual reports. Publicly available summaries, often giving quarterly returns, such as [http://www.wikinvest.com/stock/DEUTSCHE_BANK_AG_\(DB\)/Data/ROE/2008/Q1](http://www.wikinvest.com/stock/DEUTSCHE_BANK_AG_(DB)/Data/ROE/2008/Q1) (accessed October 9, 2012), suggest a much smoother course.

16. For example, former Fannie Mae regulator Armando Falcon Jr. told the FCIC (2011, 64), “Fannie began the last decade with an ambitious goal—double earnings in 5 years. . . . A large part of the executives’ compensation was tied to meeting this goal. Achieving it brought CEO Franklin Raines \$52 out of his \$90 million pay from 1993 to 2003. . . . However, the goal turned out to be unachievable without breaking rules and hiding risks. Fannie and Freddie executives worked hard to persuade investors that mortgage-related assets were a riskless investment while at the same time covering up the volatility and risks of their own mortgage portfolios and balance sheets.”

17. Barclays’ ROE for 2011 was 5.8 percent. The bank’s new CEO, Antony Jenkins, announced in August 2012 that his ROE target would be above the bank’s stated “cost of capital” of 11.5 percent (see “New Barclays CEO Sets Sights on ‘Credible’ RoE Plan,” Reuters, August 30, 2012). He did not explain how this cost of equity was estimated and whether it could be reduced if the bank had more equity. In fact, Allison (2011, loc. 409) states that megabanks generally fail to generate the risk-adjusted returns that shareholders should expect. Mayo (2011) describes how, as an analyst, he has often been critical of banks’ investment decisions.

18. On the flaws of ROE targets, see, for example, Anat Admati, “Beware of Bankers’ Flawed ROE Measure,” *New York Times*, July 25, 2011, and “Change Bank Pay Now—BoE’s Robert Jenkins,” Reuters, October 31, 2011, and note 33 of this chapter.

19. Andrew Haldane, the executive director for financial stability at the Bank of England, has argued that the high ROEs banks achieved for a period of time prior to the crisis can be fully explained by increased leverage and risk and cannot be interpreted as an indication of bankers’ performance; see Haldane (2010).

20. “Deutsche Bank Doubles Down with a Casino,” *Wall Street Journal*, November 17, 2010, and “Cosmopolitan of Las Vegas Loses \$58.5M in 3Q,” *Bloomberg Business Week*, November 14, 2011.

21. Such skewed incentives are generated by options with very high exercise prices or by compensation schemes with extra bonuses for super-high profits, for example, for reaching and surpassing target ROE when the target has been set at outlandishly high levels.

22. See Acharya et al. (2007) and Acharya and Yorulmazer (2008).

23. See Haldane (2012b) and Daniel Schäfer, “No Stop to Bankers’ Pay Rises, Data Reveal,” *Financial Times*, June 24, 2012. We discuss governance issues later in the chapter.

24. See Partnoy (2009, 2010) and Bhagat and Bolton (2011). Das (2010, 151) says, “Traders are given every incentive to take risk and generate short term-profits. . . . Calibrated bonus schemes encourage the ‘upfronting’ and overstatement of earnings.”

25. See McLean and Elkind (2004) and Healy and Palepu (2003).

26. This is an example of risk taking in which losses are unlikely but very large when they materialize. Taleb (2001, 2010) emphasizes that neglect of the amount of potential losses is a major source of distortion in financial trading strategies. The problem is analogous to that of car drivers with good mastery of their cars who may be very aggressive in overtaking others, even on narrow roads with poor visibility, enjoying the small reduction in travel time and neglecting the fact that, if the risks they are taking materialize, the consequences can be disastrous.

27. Bhagat and Bolton (2011) show, in contrast to Fahlenbrach and Stulz (2011), that CEOs came out significantly ahead of shareholders by any measure when considering the periods 2000–2008, as well as the subperiods 2002–2008 and 2004–2008. They argue that all evidence is consistent with the hypothesis that managerial incentives to take excessive risk played a role in the run-up to the crisis. Showing that CEOs came out significantly ahead of other shareholders, they refute the suggestion that, because top managers of banks like Bear Stearns or Lehman Brothers lost a lot personally when the values of their shares declined, one can conclude that incentive schemes for CEOs were not important and that the crisis was likely the result of “unforeseen risk.” The results are consistent with those of Bebchuk et al. (2010), who also found that incentives generated by executive compensation led to excessive risk taking by banks. Barth et al. (2012, 61 ff) argue that compensation schemes themselves were greatly affected by changes in ownership structures, mergers and acquisitions, and changes in markets and products, all of which were the results of CEO strategies, with huge effects on CEO pay. Mayo (2011, loc. 2909–11) states: “Many executives on Wall Street got tremendously wealthy by taking outsized bets for their companies and then left before those bets went bad. Some losses from the bets got socialized—picked up by the taxpayers.” Hayes (2012, 99) refers to “IBGYBG” (I’ll be gone, you’ll be gone) as a theme that underlies risk-taking incentives.

28. UBS (2008).

29. See McLean and Elkind (2004) and Hayes (2012). Wilmarth (2007) describes how cases such as those of Enron and WorldCom represented a double failure of corporate governance. In addition to the immediate corporate governance failures at the failed firms, banks experienced their own corporate governance failures as they breached their fiduciary duties and exposed themselves to massive legal and reputational risks in their rush to reap short-term profits by servicing the fraudulent schemes of Enron and WorldCom. L. McDonald (2010) gives an insider’s account of the fall of Lehman Brothers and how a short-term focus can infuse an organization’s corporate culture. Das (2010) and Allison (2011) also discuss how focus on short-term profits in compensation has led to excessive risk taking by large banks. “The Revolution Within” (*The Economist*, May 16, 2009) pre-

dicts changes to practices with respect to risk adjustments, but it does not appear that there have been significant changes.

30. Haldane (2012b) compared the mentality of bankers, the desire to “keep up with the Goldmans,” to that of elephant seals who compete, in a “winner-takes-all” manner, to mate with all the females, in the process becoming excessively bloated. Competition between banks to achieve higher returns has led banks to take more risk and to use more leverage.

31. See, for example, “Citi Chief on Buyouts: ‘We’re Still Dancing,’” *New York Times*, July 10, 2007.

32. For a skeptical view of the shareholder value concept, see Stout (2012). On governance problems, including ineffective boards that often lack expertise, see Pozen (2009, Chapter 11), Smith (2010, Chapter 7), Allison (2011, loc. 474), and Stanton (2012, Chapter 4). Mayo (2011, loc. 3226–29) states, “Boards are typically responsible for three things: (1) hiring a CEO and evaluating that person’s compensation and performance; (2) setting an overall risk appetite at the bank; and (3) providing the company with some kind of independent oversight. In all three areas, boards have struck out lately, yet in most cases they remain largely intact and unchanged.”

33. For an attempt to approach the JPMorgan board on the issue of capital regulation, see Anat Admati, “An Open Letter to JPMorgan Chase Board,” *Huffington Post*, June 14, 2011. See also Robert Jenkins, “A Bank Run for the Benefit of Its Owners? Dream On,” *Financial Times*, January 8, 2012, and Jenkins (2012c).

34. Only two major banks have publicly disclosed clawbacks (see “‘Likely’ JPMorgan Clawbacks Rare on Wall Street,” *CNNMoney*, CNN, June 13, 2012). On governance and bonus cultures, see also “Hit Bankers Where It Really Hurts, in Their Bank Accounts,” *Bloomberg*, July 13, 2012, which also mentions a potential role for the Sarbanes-Oxley Act.

35. On possible regulation of compensation structures, see Bebchuk and Spamann (2010), Bebchuk et al. (2010), Wolf (2010), and Bhagat and Bolton (2011). For a proposal that attempts to address different governance issues by creating “liability holding companies,” see Admati et al. (2012c). The Dodd-Frank Act includes provisions that mandate the regulation of executive pay that encourages risky behavior, but so far they have not been implemented.

36. Cabiallavetta, who was also in charge of the risk control of the bank, had protected the trader from all interference by risk controllers. In the merger that formed the new UBS, he was almost the only member of the board of the old Union Bank of Switzerland who remained with the new institution—for one year, until the LTCM crisis brought a further loss of \$700 million and he had to step down as well. See Schütz (1998, 74–117, esp. 80, 108, and 120).

37. On the lack of importance and resources given to risk management, see UBS (2008). Das (2010), Lewis (2010), and Smith (2010) also describe the relatively low status of risk managers within banks. Stanton (2012, Chapter 5) discusses risk management issues related to the financial crisis.

38. For example, an attempt by shareholders to affect the composition of the risk committee of JPMorgan Chase in 2011 has led to no change. The committee’s composition has not changed between 2008 and 2012. It includes three board members with little relevant

experience, one of whom was also on the board of AIG before the financial crisis. See Max Abelson, “JPMorgan Gave Risk Oversight to Museum Head Who Sat on AIG Board,” *Bloomberg*, May 25, 2012. The largest institutional investors, however, may be passive and subject to their own governance problems. Allison (2011, loc. 562), for example, states that “many of the large fund family have an obvious, disturbing motive to avoid confronting megabanks about their business practices and governance; they too have conflicts of interest. The funds’ sponsors derive substantial revenues from providing investment services . . . to the megabanks, and many rely on the banks to distribute their funds to the public.” He points to governance problems within the funds themselves.

39. See McLean and Elkind (2004). Similar issues arose in other scandals, such as those surrounding Tyco and WorldCom.

40. Francine McKenna, who often contributes to *American Banker*, has pointed to these issues in many pieces. See, for example, “Auditors Are Asleep at the Switch on Banks’ Risk Controls,” *American Banker*, July 16, 2012, and “Familiar Patterns in Spain’s Banking Crisis,” *American Banker*, June 27, 2012. The problem of conflicted auditors who are reluctant to challenge models used by banks and their accountants or to alert investors and regulators about risks from off-balance-sheet items adds to the opacity of disclosures and accounting-based valuations, all of which call into question how informative the disclosed valuations are. For example, Das (2010, 221) refers to “the looking glass world of Japanese accounting.” In describing it, he states, “This was like giving someone money and then having them give it back to you and calling it income—it did not make any sense.”

NINE *Sweet Subsidies*

1. Mr. Zandi’s comment in the epigraph is from Louise Story, “U.S. Program Lends a Hand to Banks, Quietly” (*New York Times*, April 14, 2009), referring to the ability of Goldman Sachs and Morgan Stanley to access loans from the Federal Reserve and guarantees from the FDIC after changing their status from investment banks to bank holding companies in 2008. Mr. Zandi continued by saying, “It’s an infinite subsidy.” See the section “Banks Have Uncle Sam” in this chapter.

2. Incidents such as this abound in recent history. For example, on November 1, 1986, a huge fire broke out in a dye factory on the Rhine near the Swiss city of Basel. The water used to extinguish the fire mixed with the chemicals and flowed into the river, coloring it red and killing all fish over several hundred miles downstream (see Hernan 2010). The *Exxon Valdez* and, more recently, the BP Gulf of Mexico oil spills are other examples.

3. In the entire discussion we continue to ignore the benefit Kate derived from living in the house. Considering it would not change the discussion, because she lived in the house in all scenarios.

4. To simplify the discussion we are ignoring here again the potential losses if the house had been abandoned or lost value because of lack of maintenance.

5. In the United States before 2007 many people took out second mortgages to finance additional consumption (see “Second Mortgage Misery,” *Wall Street Journal*, June 7, 2011).

6. If Kate invests \$20,000 in bonds that pay her 3 percent interest for sure instead of investing that amount in the house, she will have \$20,600 from this investment no matter what happens subsequently to the value of the house. On the upside, the guarantees do not matter; Kate will be in the same situation as she would be if she was investing all \$30,000 in the house (the bottom panel of Table 9.1 and the top panel of Table 9.2). But, on the downside, Kate will be protected from losses. For example, if the house declines to \$255,000 in value, Kate will lose only \$10,000, whereas she would have lost the entire \$30,000 if she had put it all in the down payment. In all cases, Kate is better off with the larger mortgage. The example effectively assumes that the interest rate for riskless investments in the economy is 3 percent. However, the conclusion that Kate prefers the larger mortgage does not depend on what Kate does with the money she does not put in the house; it is based only on the observation that investing less in the house takes more advantage of the guarantees. Because the bank is paid for sure, whatever Kate does not pay, her aunt does; the fact that Claire may pay more and never less implies that Kate benefits more. Of course Kate can make poor investments and take a lot of risk for which she is not fully compensated. She might make less than 3 percent on her \$20,000 and therefore possibly lose more than she would by investing it in the house. However, what we have seen is that there is a way for Kate to benefit from the guarantees if she invests the money prudently. As we will see shortly, if Aunt Claire gives Kate blanket guarantees, as long as Claire is not broke, Kate benefits no matter what she does; effectively, blanket guarantees are like money machines.

7. Kate's ROE will be further magnified if she borrows more. First, the gains on her investment in the house will be further magnified in the cases in which she is able to pay her mortgage without the guarantees. For example, if the final house price is \$345,000, Kate's ROE will be 123 percent if she invests \$30,000 in the house, as seen in Table 9.1; with only \$10,000 in equity, the \$46,300 Kate will end up with, seen in Table 9.2, represents a 363 percent ROE, much higher indeed. If the house increases in value by "only" 5 percent, to \$315,000, Kate will end up with 23 percent ROE if she invests \$30,000 in the house, while her final position of \$16,300 represents a 63 percent return on her investment of \$10,000, again higher. In the unfavorable scenarios, however, with a \$10,000 investment Kate's loss per dollar is greater. Comparing Kate's returns from investing \$30,000 in the house versus investing \$10,000 in the house and \$20,000 at a riskless 3 percent, Kate's position is obtained from the bottom panel of Table 9.2 by adding \$20,600 in each scenario. Her return will be the same as shown in the bottom panel of Table 9.1 (123 percent, 23 percent, and a loss of 27 percent, respectively) in the scenarios in which the house increases in value by 15 percent and 5 percent and in that in which it stays the same, whereas Kate will lose only 31 percent of her \$30,000 thanks to the \$20,600 that she will receive on her safe investment even though she will lose the entire \$10,000 down payment in the house.

8. Even without guarantees, if lenders believe that housing prices will always increase, as they seem to have believed in the housing bubble before 2006 (or if they believe that the borrowers will always pay their mortgage debts), they might make, and indeed have made, zero-equity loans, requiring no down payment and counting on equity to build as

the value of the house increases. As we have seen, however, housing prices do not always go up.

9. Again, if Kate puts nothing into the house and invests her entire \$30,000 safely at 3 percent, she will have \$30,900 for sure, plus whatever she might make on the house if its value ends up above \$309,000. She is guaranteed an interest rate of at least 3 percent in this case, and her return will be the same as shown in the bottom panel of Table 9.1 if the house value ends up being \$315,000 or \$345,000. Her return will be 3 percent in the other three scenarios because she does not have to cover the interest or any losses in the value of the house. If Kate makes risky investments with the funds, then of course how she will end up doing depends on how these investments turn out, but clearly, having no money in the house and experiencing only the upside from it is a highly beneficial situation for Kate.

10. This represents a recent increase in the eligible amount. Placing a higher amount under deposit insurance is easy if one divides it across multiple accounts or multiple banks. There are even deposit brokers who would help in this process. Kane (2012b) describes a regulatory arbitrage created by a deposit-swap market in which one can place practically any amount under deposit insurance. Malysheva and Walter (2010) discuss the expansion of the safety net in the United States in recent years.

11. See Acharya et al. (2010) and ASC (2012).

12. For more information on the use of guarantees and recapitalization, see Laeven and Valencia (2010, 2012).

13. On the cost of the bailouts and the recent crisis in the United States, see Better Markets (2012). For detailed descriptions of how bailout funds were used—and sometimes not used, or actually abused—see Bair (2012) and Barofsky (2012).

14. See Phil Kuntz and Bob Ivry, “Fed Once-Secret Loan Crisis Data Compiled by Bloomberg Released to Public,” Bloomberg, December 22, 2011. According to this piece, the amount that the Federal Reserve pledged in order to rescue the financial industry was \$7.77 trillion, and loan rates were below market rates and provided a large subsidy. Bloomberg News had to fight in the courts to be able to obtain the information about loans. Alan Feurer, in “Appeals Court Rules Fed Must Release Loan Reports” (*New York Times*, March 19, 2010), describes the lengthy legal battle over the information. According to this story, the Federal Reserve, helped by The Clearing House, a consortium of the largest banks, fought to keep the information from becoming public. Barofsky (2012, 88) writes regarding one of the Fed support programs, the so-called Term Asset-Backed Securities Loan Facility (TALF), that “under the terms of one TALF-eligible bond issued by Ford’s finance company, an issuer could take out a TALF loan for \$100 million that required him to pay the New York Fed 3.0445 percent interest (about \$3 million) for a bond that paid out 6.07 percent (about \$6 million), allowing the investor to pocket the difference of 3 percent (about \$3 million) each year. That’s the investor’s equivalent of shooting fish in a barrel.” In lending to entities formed in the AIG bailout, the New York Fed used LIBOR to determine the interest rate it charged for loans to the entities, knowing the rate was artificially low at the time. See Mark Gongloff, “Tim Geithner Admits Banks Bailed Out with Riggged Libor, Costing Taxpayers Huge Amount,” *Huffington Post*, July 25, 2012. See more references in the following notes.

15. See Boyd and Gertler (1994).

16. See Burnside (2011) and Acharya and Steffen (2012). As pointed out by Louise Armitstead, in “ECB’s LTRO Plan Flops as Banks Cut Lending” (*The Telegraph*, March 28, 2012), banks seem to have used these funds for lending to their governments rather than private businesses.

17. See Louise Story, “U.S. Program Lends a Hand to Banks, Quietly.” (This is the story referred to in the chapter epigraph and in note 1, where Mr. Zandi is quoted as saying that “it’s an infinite subsidy.”) On Morgan Stanley’s use of the Fed lending facility, see Jonathan Weil, “Morgan Stanley’s Deep Secret Now Is Revealed,” *Bloomberg*, March 23, 2011.

18. The German Bank Restructuring Act of 2010 follows the same logic. Only the United Kingdom’s Banking Act of 2009 acknowledges the possibility that, even though this is undesirable, support from taxpayers may again be needed in a future crisis. For a discussion, see ASC (2012) and Hellwig (2012). See also our discussion and notes at the end of Chapter 5.

19. Victoria McGrane, “Obama Signs Financial Regulation Bill,” *Wall Street Journal*, July 21, 2010.

20. According to Curry and Shibut (2000), the total cost was about \$153 billion, of which \$29 billion was paid by private funds, mostly by means of charges on other institutions in the industry.

21. Rules for interest deductibility on mortgages differ by country. For example, in Switzerland interest on mortgages is deductible up to an “imputed rent” plus 50,000 Swiss francs. In Germany mortgage interest for owner-occupied housing is typically not deductible for individuals.

22. Is there a catch? If instead of investing in a house one invests one’s money elsewhere, one will pay taxes on profits from that investment. But if one makes relatively safe investments (also to prevent having to default on the mortgage), one can choose investments that would be taxed at a lower rate than income, for example, taking advantage of the lower tax rate on capital gains. This can make borrowing to buy a house attractive even to those who have enough money to buy it without borrowing.

23. This is based on the analogy between corporations and individuals. For an individual owning a firm, interest expenses are a cost. In computing the individual’s income, interest expenses are therefore deducted. For a corporation, interest expenses are also a cost, but so are, in a sense, distributions to shareholders. From the perspective of investors—that is, the individuals ultimately affected—the key question is how taxation affects the returns they earn on the different assets that the corporation is issuing.

24. When income taxation of investors is also taken into account, the picture may change somewhat, because capital gains are often taxed at a lower rate (see Miller 1977).

25. On taxes in general, see Slemrod and Bakija (2008); on correcting the tax advantage of debt, see De Mooij (2011) and Fleischer (2011). Panier et al. (2012) focus on an explicit tax subsidy to equity introduced in Belgium in 2006.

26. There are other ways for corporations to try to avoid paying corporate taxes, such as moving funds and entities to areas with lower tax rates. See, for example, Charles

Duhigg and David Kocieniewski, “How Apple Sidesteps Billions in Taxes,” *New York Times*, April 28, 2012.

27. See, for example, Lewis (2011).

28. Allison (2011) argues that the banks are inefficient and have not generated risk-adjusted shareholder value. Clear evidence of subsidized funding through implicit guarantees is the fact that credit rating agencies give large banks “credit bumps” that allow them to borrow on better, cheaper terms. Davies and Tracey (2012), Carbo-Valverde et al. (2011), Noss and Sowerbutts (2012), and Ueda and Weder di Mauro (2012) show that the size of the subsidies for systemically important financial institutions is substantial. Allison (2011), Boot (2011), and Hu (2012) argue that the increasing complexity of banks is problematic for the banks and for regulators and the public. In addition to the complications associated with resolution and bankruptcy, the complexity raises serious concerns about governance and control. Some of these issues were discussed in earlier chapters.

29. Previous authors—for example, Berger et al. (1993)—had suggested that the efficient scale of banks might be quite low, less than \$1 billion in total assets. Hughes and Mester (2011) argue that previous estimates were distorted by not paying attention to economies of scale in banks’ risk choices, diversification of risks, and information processing. When paying attention to risk choices, they find significant benefits to banks’ becoming larger, and the larger the banks, the larger are these benefits. Anderson and Jøeveer (2012) also find significant effects of bank scale; however, these take the form of higher payments to bank managers rather than gains for shareholders. Both Hughes and Mester (2011) and Anderson and Jøeveer (2012) claim that their findings cannot be due to too-big-to-fail policies, but they do not actually take account of the effects of too-big-to-fail status on banks’ borrowing costs and on banks’ behaviors. In response to Hughes and Mester (2011), Davies and Tracey (2012) provide a study that does take account of the effect of implicit guarantees on banks’ funding costs. When adjusting for the value of guarantees, they find that there are no benefits from having banks operate at a larger scale. If anything, they find that large banks are “too big to be efficient”; that is, banks benefiting from government guarantees may well be operating at an inefficiently large scale. In discussing the role of risk choices and the benefits of better diversification of risks in large banks, Hughes and Mester (2011) also fail to allow for the possibility that risk diversification in investors’ portfolios might take the place of risk diversification in banks. One might also wonder about their focusing on data from 2007, when banks were recording large profits. Boyd and Heitz (2011) discuss the issue of efficient scale from a *social* perspective, taking account of risks for the financial system from too-big-to-fail banks; they argue that the socially efficient scale of banks is likely to be quite small. Allison (2011, loc. 437) argues that it is a “fallacy that diversification can protect the megabanks during a downturn. Markets and businesses that seemed to have low correlations during good times all converged during the crisis and compounded the banks’ losses and liquidity problems.”

30. The bank analyst Mike Mayo describes the following incident from 2010 (Mayo 2011, loc. 2677–79): “One of Citigroup’s goals . . . was to increase assets on its Citicorp business by 5 percent.” He goes on to say (2685–89) that “for a company with assets of \$1.4 trillion in the targeted growth area, a 5 percent increase means generating upward of \$70 billion

in new business every year, equivalent to half a percent of total U.S. gross domestic product. Citigroup was aiming at that kind of growth during a slumping global economy. . . . Citi's 5 percent goal was like a hitter in baseball saying he's going to go three for four in a particular game before he even knows who's pitching." When he asked the company about this, he reports (2697–99), "Pandit's approach was to say, That's not a goal. It's not something we're reaching for—we're so well positioned that we're merely going to be the passive recipient of that growth. Nice. Like manna from heaven." This is consistent with our suggestion that unlimited guarantees amount to a money machine.

31. Brewer and Jagtiani (2009).

32. See Kelly et al. (2012). Gandhi and Lustig (2012, 5) discuss the impact of guarantees and implicit subsidies on the returns of large and small banks and estimate that the value of the guarantees to the largest commercial banks has been about \$4.71 billion per year.

33. Haldane (2011b, Table 1) provides estimates of the value of the guarantees to banks in the United Kingdom and globally. The estimates for the value of the subsidy that he obtains using an options pricing approach are \$496 billion in 2007, \$1.8 trillion in 2008, about \$2.3 trillion in 2009, and \$924 billion in 2010, for an average of \$1.3 trillion per year for 2007–2010. Haldane obtains lower estimates using uplifts in credit ratings; these are differences between credit ratings for banks assuming government support relative to unsupported ratings.

34. See Haldane (2011b), Davies and Tracey (2012), Gandhi and Lustig (2012), and Noss and Sowerbutts (2012).

35. All numbers here are taken from Chapter 1 of Acharya et al. (2011a), which gives a systematic account of Fannie Mae and Freddie Mac over several decades. The \$85 billion and \$5.2 trillion in engagements in mortgages and mortgage guarantees in 1980 and in 2008 are composed of \$64.8 billion and \$1.7 trillion in residential mortgages in 1980 and 2008 and \$20.6 billion and \$3.5 trillion in mortgage guarantees in 1980 and 2008.

36. Acharya et al. (2011a, 29).

37. If the industry is not very competitive, the effect of government guarantees and subsidies might be different. Subsidies and guarantees increase the value of a bank's license. The fear of losing its license might cause the bank to be more careful about the risks it takes. Keeley (1990) suggests that the increase in banks' risk taking in the 1980s was caused by reductions in banks' franchise values due to increased competition. If the industry is very competitive, the potential positive effect of subsidies and guarantees on the banks' franchise values is usually dissipated by competition. When banks have difficulties earning a profit, their owners and managers may feel that they do not have much to lose, so they gamble—for survival or for resurrection. If depositors and other creditors do not care, the result can be very costly.

38. For an early warning about the S&Ls, see Kareken (1983). An interesting natural experiment was provided by the German Landesbanken. A 2001 agreement between the European Commission and the German government determined that government guarantees to the banks would be discontinued in 2005. Thus the expected benefits from future guarantees were reduced in 2001, but the Landesbanken had four more years to borrow with the help of government guarantees. During those years they engaged in a lot of addi-

tional borrowing and risk taking. The additional risk taking was most pronounced in those Landesbanken that were weakest. See Fischer et al. (2011) and Körner and Schnabel (2012).

39. For TARP, loss estimates now are around \$60 billion. See Mark Gongloff, “TARP Profit a Myth, Claims TARP Inspector General Christy Romero,” *Huffington Post*, April 25, 2012. For Fannie Mae and Freddie Mac, loss estimates lie between \$150 billion and \$350 billion (see Acharya et al. 2011, 2). For the assets acquired by the Federal Reserve, predictions are unclear. See also Better Markets (2012) and the list provided at <http://projects.propublica.org/bailout/list>, accessed October 12, 2012. For some cost estimates in Europe, see Sebastian Dullien, “The Costs of the Financial Crisis 2008–2009: Governments Are Paying the Tab,” *Social Europe Journal*, October 19, 2011. The German cost estimates of Kaserer (2010), amounting to €34–52 billion, have been overtaken by developments since 2010, which have added some €20–30 billion to the bill. As noted in Chapter 1, on the basis of actual (rather than projected future) costs so far, Laeven and Valencia (2012) estimate that Germany’s bailout costs in the recent crisis were 1.8 percent of GDP. The corresponding figures are 1 percent for France, 6 percent for Belgium, 3 percent for Denmark, 27.3 percent for Greece, 12.7 percent for the Netherlands, 3.8 percent for Spain, and 1.1 percent for Switzerland. Whereas Kaserer’s estimates are based on forecasts of future losses that have yet to be confirmed, Laeven and Valencia’s assessments are based on actual outlays and losses already incurred, as recorded in the governments’ books.

40. This issue will be discussed in Chapter 13.

41. See Holtfrerich (1981), Berger et al. (1995), Alessandri and Haldane (2009), and Carbo-Valverde et al. (2011).

TEN *Must Banks Borrow So Much?*

1. In fact, as we saw in Chapter 6, loans are quite a small part of the assets of global banks. Smaller banks may also make investments that are not much different from those made by other investors rather than making loans. Although banks are set up to make loans, they are not required by regulation to do so, and they choose which loans and investments to make according to their own preferences. The role of regulation in distorting banks’ incentives is discussed in Chapter 11, and we return to bank lending in Chapter 13.

2. It is derived from the Italian *banca rotta*, which literally means “broken bench” or “broken table” and is said to refer to a practice in the late Middle Ages of breaking the table of a money changer when he defaulted. This explanation of the origins of the term is given for the Italian word *bancarotta* by Pietro Ottorino Pianigiani in *Dizionario etimologico online* (<http://www.etimo.it/?term=bancarotta>, accessed October 28, 2012), and for the French word *banqueroute* by François Noël ([1857] 1993). Kluge (1975) also gives this explanation of the origin of the German *Bankrott* but warns that there is no evidence to show that the practice of breaking the tables of defaulting money changers actually existed. According to Kluge, the term *rotta* should be translated as “in default, insolvent,” a second meaning that both the Italian word and its Latin ancestor, *ruptus*, broken, took on in the high Middle Ages. Hoard (1986) also refers to the medieval meaning of *ruptus* as “insolvent.”

3. Gorton (2010) suggests that the “quiet period” in U.S. banking lasted until 2007, but he neglects the S&L crisis of the 1980s and early 1990s, as well as the hidden crisis of U.S. commercial banks in 1990. On the latter, see Boyd and Gertler (1994). The S&L crisis, discussed in Chapter 4, cost taxpayers \$129 billion (see Curry and Shibut 2000).

4. See Goodhart (1996).

5. In this vein, Gorton (2010) calls for an extension of the scope of federally guaranteed insurance from traditional deposits to other forms of short-term lending. Mehrling (2010) calls for the central bank to stand ready as a “dealer of the last resort,” buying assets when markets freeze so banks can be sure of always having enough liquidity. Both authors neglect the problem that banks might be insolvent, and they ignore banks’ incentives to take excessive risk and to borrow too much; as we saw in previous chapters, distorted incentives and the likelihood of insolvencies are larger if banks and other institutions can rely on guarantees. In focusing on liquidity, these authors fail to pay attention to the deeper problems of insolvency and possibly the need to eliminate excess capacity in banking. We discuss liquidity narratives further in Chapter 13.

6. From 1816 to 1914, a holder of a pound note could ask for a sovereign, a coin containing 1320/5607 troy ounces, or 7.32238 grams, of gold. The right to exchange pound notes in gold was suspended at the beginning of World War I. It was resumed again in 1926 and definitely ended in 1931, during the Great Depression. In 1926–1931, the right to exchange pound notes was limited to bullion rather than coins. Before the twentieth century, conversion of Bank of England notes into gold had been suspended during the wars of the French Revolution and Napoleon, from 1797 to 1816.

7. In England, the use of notes as claims on deposits that could be used for payments is said to have originated with goldsmiths in the middle of the seventeenth century. Merchants who had been used to depositing gold in the Tower of London stopped doing so and deposited their gold with goldsmiths after King Charles I had seized the gold in the Tower in 1640 to finance his war against Parliament. The goldsmiths soon used some of this gold for lending.

8. There is some controversy as to whether the goldsmiths’ use of gold deposits for lending violated the deposit contracts. According to some authors, the deposit contract was a safekeeping contract, so lending some of the gold was a breach of trust (see Rothbard 2008, 85 ff). The contrary view suggests that the deposit contract was a lending contract, so the goldsmiths were allowed to use the gold as they saw fit; the key argument for the latter view is that the goldsmiths promised to pay interest on the deposits, which would not have been possible if they had provided just a safekeeping service (see Quinn 1997 and Selgin 2010; Gorton [1985, 1988] discusses analogous issues in U.S. banking history).

9. A general overview of the development of payment systems and central banking is given by Goodhart (1988). In the United Kingdom, the Bank Act of 1844 gave the Bank of England a monopoly on the issue of banknotes. In the United States, the Federal Reserve received such a monopoly when it was created in 1913. Previously, under the National Banking Act of 1863, banknotes could be issued by any nationally chartered bank but had to be backed by debt securities of the federal government.

10. Because of their ready availability and their role in the payment system, deposits are

sometimes considered a kind of money. From the perspective of a buyer in a supermarket that accepts checks as well as cash, a dollar in a bank account may indeed be equivalent to a dollar in cash. In the tradition of Friedman and Schwartz (1963), therefore, demand deposits in banks are treated as part of the “quantity of money” in the economy. In the simplest definition, the quantity of money is said to consist of the cash and demand deposits of private individuals and nonfinancial companies. Because banks hold less than 100 percent reserves against their deposits, the quantity of money by this definition is larger than the quantity of money issued by the central bank, which consists of the cash of private individuals and nonfinancial companies along with the reserves of banks. Therefore, banks are sometimes said to be “creating money.” However, there is an important difference: if Kate, say, deposits \$1,000 in a bank, the bank owes her \$1,000. If she holds \$1,000 in cash, nobody owes her anything. A dollar in a bank account is a debt of the bank. A dollar in cash is nobody’s debt. The importance of this difference for the functioning of private banks and central banks and, more generally, for the financial system has been stressed by Tobin (1967). Some authors emphasize the role of the government and the central bank in determining what the currency is and how much cash is issued; this is the so-called “cartalist” view of money, which goes back to Knapp (1924). For a recent statement, see Goodhart (1998).

11. Mehrling (2010, 4–5).

12. Ahamed (2009).

13. See, for example, Gorton (2010) and Mehrling (2010). Goodhart (1988) explain how different mechanisms of collective actions were developed in order to mitigate the effects of fluctuations in deposits, withdrawals, and payments on individual banks, clearing houses, clubs, and finally central banks.

14. From a cartalist perspective (see note 10), banknotes can be seen as claims on the government, because the government is committed to accepting them (or claims on them such as checks) as a means of paying taxes (see, e.g., Goodhart 1998). However, beyond that, the issue of banknotes does not commit the government to anything. In particular, the government does not and cannot guarantee the future value of money. This point was driven home in a disastrous manner in the post–World War I inflation in Germany. At the time, the Reichsbank, the German central bank, stood under the influence of Knapp ([1905] 1924) and did not seem to understand that the printing of money was causing the inflation.

15. In many countries, the practice of converting banknotes into gold ended during the Great Depression of the early 1930s—in the United States in 1933, in the United Kingdom in 1931. Thereafter, until 1968 there was a central bank commitment to maintain the price of gold at \$35 per ounce. In 1968 this commitment was limited to exchanges between central banks. In 1971, even this was ended. Even before 1968, the commitment to maintain the price of gold at \$35 per ounce did not imply any obligation of a central bank to the holders of banknotes. In some countries, central banks promise to convert the notes they issue into a foreign currency. For example, in the 1990s Argentina had a so-called currency board linking the peso to the U.S. dollar; on a currency board the promise of convertibility is supported by a 100 percent reserve requirement. The Baltic states have had currency boards linking their currencies first to the Deutsche Mark and then to the euro.

16. The central bank's money issue does appear as a liability on its balance sheet, but this is a liability that does not impose any real obligation on the central bank. The only practical significance of this balance-sheet entry might be that, if the central bank makes losses on the assets it holds, its equity—the difference between its assets and its liabilities—might have to be written down and could possibly become negative. Because liabilities do not oblige the central bank to anything, this would be economically irrelevant but might draw public attention to the losses incurred on the bank's assets. By saying that central bank money has no default risk we do not mean to imply that central bank money is riskless. There is always a risk that central bank money might lose value. This is, in fact, quite likely if the central bank prints a lot of money. Reinhart and Rogoff (2009) have stressed that money creation's causing inflation—that is, a devaluation of money relative to real goods—can be understood as a form of government default on domestic debt that has been issued in a home currency.

17. Of course the choice between cash and deposits also reflects differences in convenience.

18. This observation underlies proposals for so-called narrow banking, discussed in Chapter 6, note 38.

19. For example, the eighteenth-century runs on the Bank of England occurred in 1745, when investors feared that the Stuart pretender to the English throne might win the war and impound the Bank's assets, and in 1797, when the war against the French was going badly and investors feared that the Bank's loans to the U.K. government might not be repaid (see, e.g., Bowman 1937).

20. As explained in Chapter 6, reserves have the drawback that a bank earns lower returns if it makes fewer loans. With equity, there is no such drawback because, when the bank has more equity, investing in the equity is safer and the required ROE lower.

21. If there is concern about managers' having access to excessive "free cash flow," the equity backing can be put into a separate entity, as proposed by Admati et al. (2012c).

22. This view is most strongly expressed by Gorton (2010). See also Mehrling (2010).

23. The analogy of bank debt to cars, or to printers, iPhones, and iPads, is from a talk Gary Gorton gave at the Twentieth Annual Hyman P. Minsky Conference at the Levi Economic Institute at Bard College on April 14, 2011, available at <http://www.levyinstitute.org/news/?event=32> (session 5, audio, at about 19–20 minutes), accessed October 18, 2012. Gorton (2010, 19, 42–43, 135–144) explicitly downplays the role of bank lending, borrower creditworthiness assessments, and monitoring as functions of banks as he emphasizes the importance of "liquidity creation." Gorton ignores the fact that, when banks take risks with the funds that they obtain by "producing debt," this risk can create solvency problems that would threaten the very liquidity that he extols.

24. An asset is said to be liquid if it can easily be converted into cash and used for payments. There are two reasons that an asset would seem to be "liquid." First, the issuer might give the holder the right to a quick repayment. Second, the asset might be traded in a well-functioning market. The first would apply to a demand deposit, the second to a corporate stock or bond that is traded on an organized exchange—or to cash, which serves as a means of payment in every market.

25. This is an underlying theme of Gorton (2010).

26. As discussed in note 16, there is a risk that the purchasing power of money—that is, how much can be bought for central bank banknotes—might be eroded because the government funds itself by printing more money, causing the prices of goods and services to go up. Reinhart and Rogoff (2009) refer to this use of the printing press as a form of default on domestic-currency sovereign debt.

27. Some might view a Treasury bill as safer than the cash one keeps at home, but it is not as convenient as cash for paying a grocery bill.

28. See Floyd Norris, “Buried in Details, a Warning to Investors,” *New York Times*, August 3, 2012). Other unpleasant surprises are described by Partnoy (2009, 2010) and Dunbar (2011).

29. In the run-up to the financial crisis, financial institutions invested in mortgage-related securities that were rated AAA by the credit rating agencies and paid a few basis points—that is, a few hundredths of 1 percent, more interest than other AAA-rated securities. The question of why the interest was higher seems not to have been asked. See Hellwig (2009) and the references given there, as well as Acharya et al. (forthcoming).

30. Any potential buyer of the loan would fear that the bank might be selling bad loans while keeping good ones. This is an example of what is known in economics as a “lemons problem,” after Akerlof’s (1970) Nobel Prize–winning analysis of what he called the *market for lemons*. Akerlof (1970) shows that markets in which sellers have better information than buyers may work very differently from ordinary markets. For example, in the market for used cars, potential buyers might require large discounts in compensation for the risk that sellers might be hiding important information about their cars and about their reasons for selling them. If these discounts induce owners of good cars to refrain from selling and instead to hold onto their cars a bit longer, the market for used cars might, in fact, work as a market for bad cars, “lemons.” The used cars that are actually sold are lemons, and the price reflects this expectation. Akerlof’s analysis has been applied and extended to many markets in which participants have different information—not only financial markets but also insurance and labor markets and even markets for slaves in New Orleans before the Civil War. See, for example, Spence (1973), Rothschild and Stiglitz (1976), and Greenwald and Glasspiegel (1983).

31. For example, Pozsar et al. (2010, 1) state, “Credit creation through maturity, credit, and liquidity transformation can significantly reduce the cost of credit relative to direct lending. However, credit intermediaries’ reliance on short-term liabilities to fund illiquid long-term assets is an inherently fragile activity and may be prone to runs.”

32. This is another example of the lemons problem discussed in note 30. In 2007, hedge fund manager John Paulson earned enormous profits by putting together a portfolio of mortgage-related securities that he thought were going to go down in value and having Goldman Sachs arrange for his fund to sell claims on this portfolio to other investors (see Zuckerman 2009 and Cohan 2012, 11–16). In April 2010, the SEC brought suit against Goldman Sachs for failing to inform buyers that Paulson, the seller, had played a significant role in selecting the securities. According to the SEC, the buyers thought that Goldman Sachs had selected the securities and was acting as a neutral broker; had they suspected

that Paulson, the seller, had selected them, they might have been less ready to buy the claims. The SEC subsequently allowed Goldman Sachs to settle the case for a fine of \$550 million (see “Goldman, SEC Discuss Catch-All Settlement,” *Wall Street Journal*, July 15, 2010).

33. Demyanyk and Van Hemert (2009), Hellwig (2009), Lewis (2010), McLean and Nocera (2010), Ben-David (2011), and FCIC (2011). Gorton (2010, 138 ff) dismisses the quality problems of the underlying mortgages without considering the empirical evidence.

34. One might wonder, in fact, whether the purported “liquidity” was an illusion that was exposed as such when investors became nervous about the value of the securities.

35. The classical reference on central bank support for private banks is Bagehot ([1873] 1906); see also Goodhart (1988). Whereas Bagehot emphasizes the role of the central bank as a lender of the last resort, Mehrling (2010) suggests that the central bank should act as a dealer of the last resort, standing ready to step in when banks need to sell assets to cover their liquidity needs and there are no buyers in private markets.

36. When Bagehot ([1873] 1906) discusses the role of the central bank as a lender to private banks, he insists that the private banks must provide good collateral and that they should be charged penalty rates to discourage them from looking at borrowing from the central bank as a normal source of funds. In the years since 2007, central banks have often accepted securities of dubious quality as collateral or even purchased such securities. Mehrling (2010) emphasizes the positive effects of these measures on bank liquidity without addressing the risks to central banks, and indirectly to taxpayers, of potential losses from such securities.

37. Strictly speaking, this is to be expected only for money creation in excess of the growth of economic activity in the economy. Moreover, in a time of structural change, central bank money might be created without inflationary consequences. For example, since 2008, interbank borrowing and lending have been much reduced because private banks no longer trust each other; because they cannot rely on short-term borrowing, private banks rely much more on deposits with their central bank to meet unforeseen cash needs. Such deposits have expanded greatly, without inflationary consequences. The effect is reinforced, and inflationary effects further reduced, by central banks’ paying interest on private banks’ deposits with them. An old argument, which goes back to Friedman (1969), suggests that paying interest on deposits with the central bank may actually be efficient, because deposits with the central bank are a more reliable source of liquidity than interbank borrowing. If no interest is paid on deposits with the central bank, private banks have an incentive to economize on their holding reserves at the central bank and instead turn to riskier sources of liquidity. In the logic of Friedman (1969), this way of arranging for liquidity is inefficient because liquidity through central bank deposits does not impose a cost on society.

38. For example, excessive printing of money may culminate in hyperinflation, which can destroy the monetary system altogether. Reinhart and Rogoff (2009) emphasize the use of the printing press and the inflation it induces as a means by which governments can devalue their domestic debt.

39. Some of these safeguards and rules concern the status of the central bank, others the kinds of securities that central banks are allowed to accept as collateral or to buy. The

most important institutional safeguard is to make the central bank independent of the government (see, e.g., Grilli et al. 1991, and Alesina and Summers 1993). Rules of conduct involve, for example, prohibitions against direct lending to governments, against buying shares in the stock market, or against lending to banks without collateral. The independence of the ECB and of the national central banks that are members of the European System of Central Banks, as well as a prohibition of direct central bank lending to governments, are central elements of the European Monetary Union, laid down in Articles 130 and 123 of the Treaty on the Functioning of the European Union. A major point of discussion in Europe is whether the prohibition of direct central bank lending to governments should be interpreted as implying that purchases of government bonds in the open market are also prohibited or whether these purchases should be treated as normal activities in support of the financial system, that is, private banks. In the United States, the Federal Reserve is in principle independent, but it owes this independence to a simple act of Congress that might be revoked at any time. Historical accounts suggest that in World War II and until 1951, the Federal Reserve was in fact committed to supporting the federal government's issue of debt, pegging the interest on this debt at 2.5 percent. This period was ended by the Treasury–Federal Reserve Accord of 1951, which gave the Federal Reserve the freedom to conduct monetary policy without instructions from the Treasury. See, for example, *Federal Reserve Bank of Richmond Economic Quarterly* 2001, Special Issue on the 50th Anniversary of the Treasury–Federal Reserve Accord, http://www.richmondfed.org/publications/research/special_reports/treasury_fed_accord/eq_special/index.cfm, accessed October 19, 2012.

40. *The Tragedy of Pudd'nhead Wilson and the Comedy of the Extraordinary Twins* (1894).

41. This is the typical funding pattern for covered bonds, as discussed in Chapter 4, notes 47 and 48, where a portfolio of nontradable mortgages serves as collateral for a tradable bond.

42. The risks would have been irrelevant if the mortgage-related securities had been held by pension institutions or life insurance companies, whose liabilities extend over decades and which should actually be happy to acquire long-lasting assets such as mortgages and real estate, so that the question of what to invest in when current assets expire will not arise. According to Hellwig (1994), this practice would actually be efficient if the problem of providing incentives for creditworthiness assessments were brought under control.

43. Gorton (2010).

44. Many contracts actually had very low initial “teaser” rates; after two years, the interest rates would be adjusted upward anyway. Gorton (2010, 79 ff) suggests that because of these clauses, which were bound to be renegotiated, subprime mortgages actually were short-term. Because mortgages had adjustable rates that were bound to be renegotiated, he argues that banks using short-term debt to fund their holdings of mortgage-related securities were not actually engaged in maturity transformation. This argument, however, neglects the possibility that, if the required interest is raised, the borrower might be unable to pay. In this case, the bank might repossess the property, but then it would be stuck with a long-lasting asset that might not be easy to sell. Gorton's analysis neglects the fact that the ultimate assets, namely houses, are long lasting and there are no adjustable-rate clauses

governing the comfort and other services they provide. Assessments of maturity transformation and liquidity transformation that are limited to just one element of the overall chain of transactions are incomplete and potentially misleading. For a proper assessment, the entire chain of transactions must be considered. As explained in Chapter 3, adjustable-rate mortgages led to many defaults in the high-interest phase of the late 1980s, not only in the United Kingdom but also in the United States. Interest rates were much lower in the United States in 2006–2007 than in the late 1980s, but the effects of the increase from 2004 to 2007 on borrowers' defaults were much stronger because the creditworthiness of the mortgage borrowers was much lower. On the extent of borrower insolvency and the role of mortgage banks' laxness in checking creditworthiness, see note 43 in Chapter 4 and the references given there.

45. Gorton (2010, 123 ff) argues that events in the summer of 2007 are more appropriately interpreted as a panic that resulted from the fact that nobody knew which mortgage-related securities were affected and which ones were not. He emphasizes liquidity problems from the breakdown of funding for structured investment vehicles in the summer of 2007, comparing it to a nineteenth-century run. However, the breakdown of funding for structured investment vehicles in the summer of 2007 meant only that the sponsoring banks had to take the mortgage-related securities held by these vehicles onto their own books. These banks typically did not have serious funding problems, but once they moved these assets onto their balance sheets, they did not have enough equity to back them. Because of the price declines, some, like the German Industriekreditbank and Sächsische Landesbank, became insolvent right away and had to be bailed out. Others just found that the price declines squeezed their equity more and more as the contagion effects discussed in Chapter 5 played out. The actual funding problems came later, in March 2008 for Bear Stearns and in September 2008 for Lehman Brothers, when their solvency began to be doubted. Krishnamurthy et al. (2012) show that, except for broker-dealer banks like Bear Stearns or Lehman Brothers, repo lending, which is emphasized by Gorton (2010), played a much smaller role than asset-backed commercial paper; in their account, the breakdown of funding for asset-backed commercial paper in the summer of 2007 had little semblance to a bank run; by contrast, the Bear Stearns and Lehman Brothers episodes did involve repos and did have some elements of a run.

46. Money market mutual funds were first invented in the 1970s to circumvent Regulation Q, which limited the interest paid on demand and savings deposits. It is also useful to recall that the promise of stable net asset value makes shares in mutual funds a strange hybrid: although they are shares, their denomination is such that any one of them is assigned a stable value of \$1. The result is that U.S. money market funds have grown dramatically. According to BIS (2012, 68), money market funds controlled about \$2.7 trillion in the United States, \$1.5 trillion in Europe, and \$400 billion elsewhere. Recent discussions refer to \$2.6 trillion in the United States (see, e.g., "Reform Still Looms over Money Market Funds," *Financial Times*, August 23, 2012). Money market funds are attractive to investors because they appear safe and liquid and they pay relatively high returns. In fact, they are shifting risks to others, eventually to the government and taxpayers, and at the same time adding to the fragility of the financial system. See Fink (2008) and Goodfriend (2011).

47. See Tett (2009), McLean and Nocera (2010), Dunbar (2011), Morgenson and Rosner (2011), and Thiemann (2012).

48. Similarly, money market funds are sometimes sponsored by regulated banks. This allows them to provide services similar to those of banks without being regulated as banks. Some funds are sponsored by mutual fund families, in which case they allow the funds to offer a broader menu of investments. Some money market funds are held mainly by institutions. See note 46 and Acharya et al. (forthcoming).

49. These risks were vastly underestimated, partly because of the fiction that with adjustable interest rates on the mortgages, there was no significant maturity transformation, partly because of a belief that real estate prices could only go up, and partly because the AAA ratings of these securities suggested that they were perfectly safe. The incentives of investment banks and rating agencies to sell and assess these securities were not much questioned. See Acharya et al. (2010) and Lewis (2010).

50. UBS (2008), Hellwig (2009), Tett (2009), McLean and Nocera (2010), Dunbar (2011), and Morgenson and Rosner (2011).

51. See Admati et al. (2012a).

52. For example, suppose that a bank issues a ten-year bond. If after a year it issues more debt and this debt is given priority over the ten-year bond, the default risk for the ten-year bond will go up. The ten-year creditors might put a condition into the contract saying that any new debt issue must be junior to the ten-year bond. But this condition is meaningless if the new debt comes due earlier, for example, after five years. When the five-year debt comes due, there will be nothing the holders of the ten-year bond can do to prevent it from being repaid, even though the payment may hurt their own prospects. See Brunnermeier and Oehmke (forthcoming).

53. Brunnermeier and Oehmke (forthcoming).

54. By having a loan contract with collateral dressed up as a combination sale and repurchase, the creditor avoids being drawn into bankruptcy proceedings; in fact, he has jumped ahead of all other creditors, including the FDIC-insured depositors (see Bolton and Oehmke 2012 and Skeel and Jackson 2012). According to Gorton (2010), repo lending should be considered a modern version of bank deposits and repo runs as a modern version of bank runs, except that repo lending comes from firms rather than individuals. In his view, the runs were caused by concerns about the value of the collateral and by the lack of precise information about this value. Lack of information might be useful for avoiding “lemons problems” (note 30) in normal times but might be a source of panic when there are doubts about the collateral. Using data from money market funds and securities lending, Krishnamurthy et al. (2012), however, show that the magnitude of the contraction in repos based on private-sector collateral during a crisis is relatively insignificant compared to the contraction in so-called asset-backed commercial paper. In the summer of 2007, the contraction in asset-backed commercial paper lending disrupted the funding of the structured investment vehicles that regulated banks had used to hold mortgage-related securities. Contrary to what a liquidity narrative of the financial crisis would suggest, this disruption caused not a breakdown of funding but an equity squeeze: the sponsoring banks themselves had no funding problems and stepped in, but as they did

so they had to back the investments with equity (see Hellwig 2009 and the references given there). Regarding the contraction in repo lending, Krishnamurthy et al. (2012) show that lenders' concerns about the value of the collateral could be traced to the private-sector issuers, in particular some key dealers such as Bear Stearns and Lehman Brothers. Krishnamurthy et al. (2012, 6) conclude that, in contrast to Gorton's (2010) interpretation, the run on the repo markets "looks less like the analogue of a traditional bank run of depositors and more like a credit crunch in which dealers acted defensively given their own capital and liquidity problems, raising credit terms to their borrowers." Credit crunches are actually due to the effect of debt overhang discussed in Chapter 3, which leads distressed lenders to avoid making loans that they would have made had they been less distressed.

55. As discussed by Skeel and Jackson (2012), rules from 1994 and their expansion in 2005 exempt repos and derivatives from automatic stays in bankruptcy and give them special preference. The use of collateral for so much of bank borrowing exacerbates the fragility of the system because collateralization of some debt makes other debt less safe. These problems are made worse by the practice of rehypothecation, which involves a broker dealer's reusing clients' collateral to back its own trades and borrowings. Singh and Aitken (2010, 7) study the role of rehypothecation in the 2007–2009 crisis, suggesting that "the collapse in overall funding to banks was sizable." Issues related to rehypothecation were again raised in the failure of MF Global in December 2011. For an explanation of the legal issues around the practice, which involve in particular the lax regulation of the practice in the United Kingdom, see Christopher Elias, "MF Global and the Great Wall Street Re-hypothecation Scandal," *Thompson Reuters News and Insight*, December 7, 2011.

56. There is a large academic literature that builds on this idea (e.g., Calomiris and Kahn, 1991 and Diamond and Rajan, 2000, 2001). French et al. (2010), writing after the financial crisis, state that "the disciplining effect of short-term debt . . . makes management more productive. Capital requirements that lean against short-term debt push banks toward other forms of financing that may allow managers to be more lax." Admati et al. (2011, section 5) provide a detailed discussion of the underlying logic of these models and argue that they are inadequate to guide policy. An example (not discussed by Admati et al.) is given by Dewatripont and Tirole (1994, forthcoming). In their analysis, debt is needed because debt holders are more conservative than shareholders and therefore more likely to force a bank to be shut down when a continuation of activities would be inefficient. This analysis assumes that debt holders act as a single person and neglects the impact on the rest of the system of shutting the bank down. In fact, the only reason given for banking regulation by Dewatripont and Tirole is the need for someone to act in the collective interest of debt holders and shut the bank down when this is desirable. Debt holders are assumed to be dispersed and unable to shut the bank down. This assumption stands in marked contrast with other academic work on the role of short-term debt in "disciplining" managers, which suggests that a run by depositors serves this very purpose, or with the empirical evidence on banks' being forced to shut down by runs.

57. Geanakoplos (2010) suggests that concerns about the value of collateral are a key driver of leverage and risk in the financial system. These concerns are represented by the "haircuts" that creditors apply to collateral, which measure the amount of collateral they

require to lend a given amount of money and thus are a measure of creditworthiness and are similar to an equity requirement that a creditor requires to be willing to lend. In the run-ups to the Bear Stearns and Lehman Brothers crises, lenders sharply increased the haircuts they applied because of concerns about the collateral as well as the banks. The changes in haircuts precipitated the breakdowns of Bear Stearns and Lehman Brothers.

ELEVEN *If Not Now, When?*

1. See, for example, “Danger Everywhere: The Debt Crisis in Europe Is Draining Confidence in Banks,” *The Economist*, October 8, 2011. Recall also the discussion in Chapters 1 and 6 about the confusion between equity and reserves, the presumption that it is not possible to raise more equity, and the warnings that increased capital requirements would reduce lending and harm growth.

2. As discussed in Chapter 1 (note 22) and Chapter 6, important elements of banking regulation are based on international agreements, the so-called Basel Accords, worked out and negotiated in the Basel Committee on Banking Supervision (BCBS), a body of supervisors from major countries. Banking regulation and supervision itself is in the competence of each country. The Basel Accords become effective by being put into national (or EU) laws. Most national laws comply with (most of) the conditions in these agreements because this is a prerequisite for the application of the so-called home country principle, by which a country’s banks can do business in other countries subject to supervision from the home supervisor only. For historical accounts of the BCBS, see Tarullo (2008) and Goodhart (2011).

3. See Mary Winton and Jon Hilsenrath, “Unease Rises over Funds: U.S. Regulators Worried about Exposure of Money-Market Assets to European Banks,” *Wall Street Journal*, June 10, 2011; “Concerns Rise on Exposure of Some Money-Market Funds to European Banks,” *Wall Street Journal*, June 21, 2011; and “US Money Market Funds Cut European Exposure,” *Financial Times*, August 22, 2011. According to Brady et al. (2012), more than sixty prime money market funds had positions in Dexia, the Belgian-French bank that was nationalized later in 2011. Figure 5 in Rosengren (2012) shows the substantial exposure of prime money market funds in the United States to Italy, France, and Spain between December 2010 and early 2012.

4. Central bank support was made possible by an agreement between central banks under which the Federal Reserve made dollars available to, for example, the European Central Bank (ECB), which the latter could then lend to French banks such as BNP Paribas that had lost their dollar funding. Because the funding was in dollars, the ECB could not do it alone but had to borrow dollars from the Federal Reserve. See “ECB Announces Additional US Dollar Liquidity-Providing Operations over Year-End,” ECB press release, September 15, 2011, <http://www.ecb.int/press/pr/date/2011/html/pr110915.en.html>, accessed October 15, 2012, and http://www.federalreserve.gov/monetarypolicy/bst_liquidityswaps.htm, accessed October 14, 2012. The solvency problems of European banks are further discussed in Chapter 12.

5. See Liz Alderman and Jack Ewing, “Largest Greek Banks to Receive Financing,” *New York Times*, May 22, 2012, and “Spain Creates Bad Bank, Injects Funds in Bankia,” Reuters, August 31, 2012.

6. Specifically, the requirement was that equity be 9 percent of so-called risk-weighted assets (discussed later in this chapter), and many banks had quite a bit less equity at that time. Banks were also required to acknowledge and recognize losses on government debts that they had not previously recognized. See “Statement of EU Heads of State or Government,” http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/125621.pdf, accessed October 14, 2012. Most banks held government bonds in the so-called bank book, treating them as loans that they would hold to maturity. Bonds and loans in the bank book are usually reported at face value, and their values are written down only when the bank and its accountants believe that these debts will not be repaid in full. In the summer and fall of 2011, the market values of some government debts were much below the values at which these debts were carried in the banks’ books; although no default had occurred yet, market investors were very pessimistic. For the purposes of determining the required capital, in the fall of 2011, however, banks had to value these holdings at market values. This forced them to recognize losses and to replace the equity that these losses had eaten up. See “EBA Recommendation on the Creation and Supervisory Oversight of Temporary Capital Buffers to Restore Market Confidence” (EBA/REC/2011/1), <http://stress-test.eba.europa.eu/capitalexercise/EBA%20BS%202011%20173%20Recommendation%20FINAL.pdf>, accessed October 14, 2012.

7. In November 2011, banks aiming to reach the 9 percent target set at the summit were trying to sell assets, causing further price declines in asset markets. The target had been set in terms of a ratio rather than a value, for example, the amount needed to make equity equal to 9 percent of assets in September 2011. See “Fears Rise over Banks’ Capital Tinkering,” *Financial Times*, November 13, 2011.

8. In particular, the requirement was set in terms of a ratio, 9 percent of risk-weighted assets, which gave banks too much discretion as to how to achieve it. The responses of banks to a requirement in terms of a ratio can be harmful to the economy. See Admati et al. (2012a) and the discussion later in this chapter.

9. In addition to the warnings based on mixing up capital and reserves discussed in Chapters 1 and 6, see, for example, “HSBC Warns of New Credit Crunch from Tough Bank Regulation,” *The Guardian*, May 8, 2010; Patrick Jenkins, “For Their Health, Banks Need a Holiday away from Basel,” *Financial Times*, August 9, 2011 (which elicited Anat Admati’s “Easing Capital Rules Would Lead Banks away from Vital Lending,” *Financial Times*, August 23, 2011); “Basel III: Don’t We Have Enough Problems?,” *Wall Street Journal*, May 6, 2012; “Regulate and Be Damned: Basel III Was Designed to Prevent Another Financial Crisis, but the Unintended Consequences Could Lock Up Global Trade,” *Wall Street Journal*, February 7, 2011; “Banks Warn Rule Change Will Hurt Recovery,” *Financial Times*, January 29, 2012; “Dimon Tells Bernanke He Fears New Rules Hurt Recovery,” Reuters, June 7, 2011; and Steven Davidoff, “A Debt Market’s Slow Recovery Is Burdened by New Regulation,” *New York Times*, January 21, 2012.

10. This quote and the epigraph to this chapter are taken from Cornford (1908); see Chapter 1, note 11. The title of this chapter is attributed to Rabbi Hillel, one of the most influential scholars in Jewish history. The full quote is “If I am not for myself, then who will be for me? And if I am only for myself, then what am I? And if not now, when?”

11. ASC (2012).

12. Hoshi and Kashyap (2004, 2010). Some say the crisis has not ended.

13. Onaran's book (2011), titled *Zombie Banks*, makes the same point. Among the banks he suspects as being insolvent are Bank of America and Citigroup, as well as several European banks (see note 19). Regarding Bank of America, see also a petition submitted by the nonprofit organization Public Citizen on January 25, 2012, available at <http://www.citizen.org/documents/Public-Citizen-Bank-of-America-Petition.pdf>, accessed October 14, 2012. Regarding Citigroup, see also Mayo (2011) and Bair (2012).

14. Warnings such as those cited in notes 1 and 9 and discussed earlier in the book provide the background for this fear.

15. Since the aftermath of the Lehman Brothers bankruptcy, governments have refrained from letting large banks fail, but even when they have provided funds for bailouts, they have not tried to restructure banks and banking industries to make them safer.

16. See Caprio and Klingebiel (1996, 1997). In a similar spirit, Laeven and Valencia (2012) observe that advanced economies seem to take much longer than emerging economies to get back to a normal rate of economic development; they suggest that the delay may be due to the fact that public support is not only slowing the downturn but also preventing, or at least delaying, a cleanup of the underlying weaknesses.

17. A typical example of cutthroat competition is provided by the German covered bond sector in the years before the crisis. A 2005 "reform" removed restrictions on entry into this sector. A bank that issues covered bonds—bonds that are secured by a portfolio of mortgages—has an additional need for unsecured funding because the initial value of the portfolio of mortgages must be larger than the value of the covered bonds. With excess capacity in the market before the crisis, competition was intense. To reduce the costs of unsecured funding, banks engaged in maturity transformation for the unsecured part of their funding, relying on deposits or on short-term borrowing in the money market to fund the excess of their holdings over the covered bond issue in order to be competitive. When interbank markets froze in 2008, short-term funding from the money market evaporated, and Hypo Real Estate needed government support. See "Hypo Real Estate Tripped by Funding Strategy," *Market Watch*, October 6, 2008, as well as Expertenrat (2011).

18. How would one know whether there is excess capacity in the market? In other markets, answering this question is left to market participants who enter or exit as this action appears profitable to them. In banking, the normal market mechanism does not work well because government support enables banks to survive even though they are not profitable. The experience of the German covered bond market, discussed in the previous note, had a lot to do with the fact that the Landesbanken, state-owned and state-guaranteed banks, were active in this market. These banks have been unable to earn reasonable margins even with state guarantees and have been a constant source of financial instability, but the state governments did not want to give them up. We return to this subject in our discussion of the politics of banking in Chapter 12.

19. See Expertenrat (2011), ASC (2012), and BIS (2012, 42, 63, 74). Onaran (2011) asserts that as of June 2011, the following banks were effectively insolvent: four Landesbanken, Commerzbank and Hypo Real Estate in Germany, the Cajas in Spain, and three banks

each in Ireland and Iceland, as well as Citigroup and Bank of America in the United States (see note 13). (He has not examined banks elsewhere, for example, in France.) Spanish banks have run into major problems, and the Spanish banking crisis has been threatening Europe. See “Spain Creates Bad Bank, Injects Funds in Bankia,” mentioned in note 5.

20. As already mentioned, in mid-2011 Mayo (2011, 3091–3092) assesses that around \$300 billion in losses don’t show up because of leeway in accounting rules. This assessment was made before the various scandals and lawsuits of the summer and fall of 2012. BIS (2012, 26) has noted that the observed reduction in the aggregate amount of debt in the United States in 2010 and 2011 reflects a reduction in new mortgages rather than the acceptance of losses on existing loans.

21. This is known as the “pecking order” hypothesis in corporate finance (see Myers and Majluf 1984, Mayer 1988, Hellwig 1991 and 2000, and Berk and DeMarzo 2011, 539).

22. This discussion of payout policies is simplified to make the key points. Indeed, there is another Modigliani and Miller (M&M) result, this one concerning dividends, that is the starting point of the discussion, just as the M&M result for funding discussed in Chapter 7 is the starting point for the discussion of the costs of different funding mixes. For more on this issue see, for example, Berk and DeMarzo (2011, Chapter 17). In the case of nonfinancial companies, there is a concern that investment opportunities might not be good enough to warrant reinvesting most profits. Such companies might have “cash cows,” units that earn a lot from past investments, but no good opportunities for the future. An example is oil companies with high earnings from known wells and few prospects of finding comparable wells by drilling more. See, for example, Jensen (1986, 1993). For banks the argument is less convincing because they can always invest their funds in traded securities.

23. If the shares are not traded, shareholders may have more difficulty creating a “homemade dividend,” but they might be able to borrow on their own against their assets.

24. If shareholders are concerned that bank managers do not make good investments on their behalf, this indicates a governance problem within the bank. Governance issues arise in every corporation, and some claim that such problems motivate leveraged buyouts or the use of debt. However, as discussed in Chapters 8 and 9, the governance problems of banks are a bit different, and colored by bankers’ ability to take and hide risks, and by the conflict of interest between bank managers and shareholders on the one hand, and creditors and taxpayers on the other.

25. See Acharya et al. (2011b) and Rosengren (2010).

26. TARP funds were actually given in exchange not for common equity but for preferred equity, which resembles long-term debt. In that sense, the funds given by the government created something similar to a debt burden on the banks and were not as useful for loss absorption as retained earnings would have been. With the restriction on pay and dividends that came along with TARP, the banks were anxious to pay off the government. The funds were therefore less useful for making loans to the economy. Other countries also used such hybrid securities for bailouts, with similar results. In the case of the German Commerzbank, where government support consisted of €16.4 billion in hybrid debt and €1.8 billion for a 25 percent share in the bank, the repayment of €14 billion in hybrid debt in the first half of 2011 made the bank very vulnerable to the losses from Greek and other

sovereign debts in the second half of 2011. On TARP, see Barofsky (2012); on Germany, see Expertenrat (2011).

27. Banks are required to have a plan by which to reach the Basel III level on time, not earlier. On allowing the dividends, see Anat Admati, "Force Banks to Put America's Needs First," *Financial Times*, January 19, 2011; Anat Admati, "Fed Runs Scared with Boost to Bank Dividends," Bloomberg, February 24, 2011; and a letter by sixteen academics, "Only Recapitalized Banks Should Pay Dividends," *Financial Times*, February 15, 2011. According to Jesse Eisinger ("Fed Shrugged Off Warnings, Let Banks Pay Shareholders Billions," *Pro Publica*, March 2, 2012), the Federal Reserve also ignored warnings by Sheila Bair, chair of the FDIC, and others to delay the payouts, and the large banks paid \$33 billion in 2011. Even after the difficulties in Europe in the summer of 2011, payouts were again allowed in 2012. See Anat Admati, "Why the Bank Dividends Are a Bad Idea," Reuters, March 14, 2012.

28. See, for example, Admati et al. (2011, 2012a).

29. This decline is sometimes referred to as a "dilution" of existing shareholders by a new stock issue. As discussed in Chapters 2, 3, and 7, aside from issues of corporate control, the impact of any new stock issue on the value of existing shares depends only on how the money from the stock issue is used and how returns on investments are split between creditors and shareholders. If new equity is raised to fund profitable investments that will benefit shareholders, the stock price will rise to reflect the gain to shareholders from making the investment. In the academic literature, the argument is sometimes given that managers who have better information about a company's assets than shareholders will—and should—resist issuing new shares when they believe that the shareholders undervalue the firm and its assets (see, for example, Myers and Majluf 1984). In the context of banks, the mantra that equity is expensive is sometimes associated with this argument (see, e.g., Bolton and Freixas 2006 and Hanson et al. 2011). However, as explained by Admati et al. (2011, 2012a), the use of this argument against the tighter capital regulation of banks is flawed and represents yet another article of the bankers' new clothes. First, the argument applies only to new share issues in situations in which banks have discretion over the method of funding; if the new shares are issued in response to government regulation, the asserted effects are much weaker and possibly ambiguous. Second, the purported costs are not costs to society but result from a form of redistribution benefiting new shareholders who are given an opportunity to acquire good stocks cheaply. The effect may, in fact, disappear if the new shares are issued through a rights offering. Finally, the effects will be much reduced if banks have more equity to begin with, and thus have less need to replenish their equity.

30. As shown by Admati et al. (2012a), a preference for this form of deleveraging through asset sales over a new equity issue is to be expected if assets can be sold for a good price and if it is mainly junior debt that is repaid. If the bank has lower levels of both assets and junior debt, the outstanding senior debt will be more exposed to the bank's insolvency risk.

31. In the case of the European Union, some of the deleveraging that upset financial markets in November 2011 could have been avoided if the new target ratio of 9 percent had been specified as being in relation to the assets that banks had held on September 30, 2011,

prior to the summit, rather than in relation to the assets held in June 30, 2012. For government debts, capital requirements actually were calibrated to holdings of September 30, 2011, but not for other securities.

32. The current stock price might be positive, reflecting the upside potential that the bank might recover, as well as the value of government subsidies. This does not preclude the possibility that the bank might be insolvent.

33. As indicated in note 16, Laeven and Valencia (2012) suggest that the use of government support as a way of avoiding a cleanup may be a reason that advanced economies take much longer to come out of a crisis than emerging economies.

34. In contrast, since 2007 European countries seem to have had a policy of rescuing every bank without even considering whether the bank was solvent or not. For an extensive discussion of this policy, see ASC (2012). See also Dag Detter, "Swedish Lessons for the New Owners of Spanish Banks," *Financial Times*, October 9, 2012.

35. See notes 17 and 18.

36. This 7 percent consists of a minimum equity requirement of 4.5 percent (up from 2 percent under Basel II) and a newly introduced so-called capital conservation buffer of 2.5 percent of the banks' risk-weighted assets. In addition, banks will be required to have so-called Tier 1 capital of at least 6 percent and Tier 2 capital of at least 8 percent of their risk-weighted assets, to which the capital conservation buffer must be added. Tier 1 capital and Tier 2 capital consist of common equity and, in addition, certain forms of hybrid securities that have some properties of debt and some properties of equity. In December 2011, the Federal Reserve announced that it will require U.S. banks with total assets of \$50 billion or more to satisfy the requirements of Basel III (see <http://www.federalreserve.gov/newsevents/press/bcreg/20111220a.htm>, accessed October 14, 2012).

37. Deutsche Bank itself lists "Tier 1 capital without hybrid securities" as worth €37 billion, or 9.5 percent of its risk-weighted assets. The difference reflects various deductions, such as deductions for expected losses on sovereign debt, mandated by the European Banking Authority, which have not yet entered the bank's balance sheet. The 9.5 percent ratio thus obtained put the bank in compliance with the requirement of the EU summit of October 2011 that was discussed earlier in this chapter.

38. The differences are not as large for U.S. banks, mainly because, as discussed later in this chapter, the United States has not implemented Basel II for commercial banks. However, for U.S. banks as well, the risk-weighted assets are significantly less than their total assets (see Ledo 2012). Capital requirements in the United States have traditionally included required ratios relative to total assets at least for FDIC-insured institutions. See FDIC Law, Regulations, Related Acts—Rules and Regulations, Part 325, <http://www.fdic.gov/regulations/laws/rules/2000-4400.html>, accessed October 14, 2012, and FDIC Law, Regulations, Related Acts—Bank Holding Company Act, <http://www.fdic.gov/regulations/laws/rules/6000-2200.html>, accessed October 14, 2012. For proposals of the Office of the Comptroller of the Currency, the Federal Reserve, and the FDIC regarding the U.S. implementation of Basel III, see <https://www.federalregister.gov/articles/2012/08/30/2012-16757/regulatory-capital-rules-regulatory-capital-implementation-of-basel-iii-minimum-regulatory-capital#h-10>, accessed October 14, 2012.

39. See “The Wait Is Over: The Biggest Sovereign Default in History, and the Most Anticipated,” *The Economist*, March 17, 2012.

40. As discussed in Chapter 6, note 56, this was the case for Swiss bank UBS. The Dexia insolvency was due to losses on government debt, in particular Greek government debt. We discuss Dexia in Chapter 12.

41. Bair (2012, Chapter 3) describes her attempts to argue against the Basel II risk weights.

42. Full introduction is to begin in 2015 if a foregoing trial period is deemed to have been successful. Taken literally, the term *leverage ratio* refers to the relation between debt and equity. Requiring that a bank’s equity be at least 3 percent of its total assets, that is, the sum of its debt and equity, is equivalent to requiring that the leverage ratio not exceed 97:3, that is, 32.3:1.

43. September 14, 2010. Our discussion of capital regulation in Chapter 6 referred to the regulation of leverage measured in this way.

44. The evolution of bank equity was discussed at the end of Chapter 2, and safety nets were discussed in Chapter 9. See Holtfrerich (1981), Berger et al. (1995), Alessandri and Haldane (2009), Malysheva and Walter (2010), and Haldane (2011b).

45. Some—for example, Eugene Fama, a well-known University of Chicago finance professor—argued in a CNBC interview in May 2010 that equity levels should be even higher, on the order of 40–50 percent. Kotlikoff (2010) proposes, essentially, that no debt be allowed for financial intermediaries except for a narrow bank that essentially invests only in cash. All other financial institutions should be run as mutual funds, with requirements for extensive reporting about activities and investments in order to protect shareholders. These mutual funds would not have any debt at all. Such funds might, however, have serious problems of their own. Investors want fund shares to be liquid so they can get at (some of) their money when they need it. In the case of open-end funds, investors would return their shares and get whatever the shares were worth. If the assets held by a fund were traded daily on a public exchange, determining share values would be easy. If the assets were not traded daily on a public exchange, or perhaps not traded daily at all, share values could at best be estimated. In this case, moreover, the mutual fund could be vulnerable to runs if shareholders fearing asset price declines returned their shares and the fund had to sell assets to get the cash it needed to repay shareholders. Because Germany has had such experiences with open-end mutual funds for real estate investments, the German Federal Ministry of Finance proposed in July 2012 to outlaw open-end mutual funds for real estate investments.

46. Miller (1995, 487).

47. The United States has a tradition of distinguishing institutions on the basis of the activities in which they traditionally engage. With a very literal interpretation of legal terms, this leaves room for new institutions to claim that they are doing something different than banks and therefore should not be subject to the same regulations as banks. Gorton (1994) explains how this arrangement tends to destabilize the financial system by allowing for excessive competition between “banks” and “nonbanks” performing banking services. By contrast to the U.S. law, the German law on banking regulation defines a credit institution (the German legal term for a bank) as any institution engaging in any one of a

number of activities; using this approach, “banks” and “banking” are always the same. By this logic, money market mutual funds that allow customers to participate in the payment process should be treated like banks. In particular, if money market mutual funds promise a stable net asset value, this promise should be treated as a liability and the shares as deposits. Legally, the promise might not be binding, but when a money market fund “breaks the buck”—that is, when the value of its shares falls below \$1—its “depositors” are likely to run in just the same way as the depositors of a bank. Money market funds are not explicitly insured by the deposit insurance system. Sponsoring institutions routinely provide them with backing. In the Lehman crisis, however, money market funds suffered a panic anyway until the federal government provided them with the analog of deposit insurance. Even primary money market funds take nontrivial risks in their investments without the ability to absorb losses on their own. See Acharya et al. (2010, Chapter 10), Brady et al. (2012), and Rosengren (2012). Money market funds in the United States are supervised by the SEC, as investment funds that have little to do with banking. As of October 2012, the SEC has not been able to decide on any reform of money market fund regulation.

48. Examples would be clearinghouses, in particular those designated for derivatives trading; market makers for key securities, that is, dealers who stand ready to trade these securities with anyone wishing to do so; and investment banks that are highly interconnected to other financial institutions.

49. Interestingly, hedge funds were significantly less highly leveraged in the run-up to the financial crisis (see Ang et al. 2011), and although many failed, none created any significant contagion. Nevertheless, to prevent the buildup of systemic risk, hedge funds should be watched—for example, through disclosure requirements—particularly if they become large. On hedge funds, see Mallaby (2010).

50. On clearinghouses, see Levitin (2013). Allison (2011, 426–432), after arguing that the 2007–2009 crisis (which he calls a crash) proved that diversification is a myth, states, “Instead of confirming that megabanks could get by with less capital than the total required to support their businesses on a stand-alone basis, the crash proved the opposite: They must have enough capital to sustain each business through its own highly stressed scenario, as if each were a separate unit. Therefore, in terms of reducing capital requirements, there seems to be no advantage to combining supposedly diversified financial businesses. If the capital base of a subsidiary can be tapped by an affiliate, then that subsidiary must hold additional capital against that contingency.”

51. For example, BCBS (2010a) assumes that banks target a particular fixed return on equity even as equity requirements change. Some of the models that were used (so-called dynamic stochastic general equilibrium models, semi-structural models, and reduced-form models) falsely assume that if banks have more equity, it will be costly to society, for example, by increasing lending spreads in a way that creates social costs. A model used in some of the analysis is from Van den Heuvel (2008), in which higher equity forces banks to limit their deposits, although, as we saw, deposits amount to only a fraction of the debts of some banks, and there is no reason to assume that equity cannot be added. (Van den Heuvel 2008, published around the time of the financial crisis, concludes that the Basel II capital requirements are *too high*, something that the crisis proved to be patently false. See

Admati et al. 2011, section 3.2.) Angelini et al. (2011), posted as a Federal Reserve Bank of New York staff report, claims that each additional percentage of capital requirements would reduce GDP by 0.09 percent. The report admits that it ignores the benefits of higher requirements, but its title suggests that it is about the *long-term impact* of higher requirements, and the statement about GDP declines can easily be taken out of context. Bank lobbying groups such as the Institute of International Finance or the Clearing House routinely claim that their “research” has indicated significant declines in growth, jobs, and so on as a result of increased capital requirements. One of the studies justifying the Basel III numbers (BCBS 2010d, 1) states: “The regulatory minimum is the amount of capital needed [by the bank] to be regarded as a viable going concern by creditors and counterparties.” By this criterion, however, regulation would not be necessary: if a bank failed to be regarded by creditors and counterparties as a viable entity that they could safely interact with, the bank would, virtually by definition, no longer be viable because creditors and counterparties would refuse to deal with it. The statement fails to recognize that the regulation should reduce the *collateral damage* of high leverage, the impact of banks’ distress or insolvency on the system. To achieve this, much more equity is beneficial, particularly because there is no social cost in having more equity. In BCBS (2010a), the benefits from avoiding financial crises and recessions are explicitly taken into account, but in this study the costs of higher capital requirements are assessed based on the assumption that the required rate of ROE is independent of how much equity a bank has, a fallacy we discussed in Chapter 7. (The report recognizes that this overstates the cost of additional equity but chooses this approach to show that even with this assumption, the benefits of additional equity outweigh the costs.) The studies also ignore the distorted incentives generated by the use of risk weights and their consequences for the financial system and the economy, which we discuss later.

52. Hanson et al. (2011), Miles et al. (2011), Buch and Prieto (2012), Cole (2012), and Junge and Kugler (2012) show that there would be little if any negative impact on lending and the cost of loans if banks had much more equity. As noted, Hanson et al. (2011) fails to recognize that banks’ paying more taxes or raising new equity do not have social costs. Their concerns with the shadow banking system point to the challenge of enforcement, but it is not a rationale for avoiding beneficial regulation. If there is a governance concern with managers’ having access to too much “free cash flow,” solutions such as creating a “liability holding company,” as suggested by Admati et al. (2012c) should be considered. We discuss governance problems and concerns with shadow banking again in Chapter 13.

53. “Healthy Banking System Is the Goal, Not Profitable Banks,” *Financial Times*, November 9, 2010, initiated by the two of us and signed by twenty academics, including John H. Cochrane, Eugene F. Fama, Charles Goodhart, Stewart C. Myers, William F. Sharpe, Stephen A. Ross, and Chester Spatt, criticizes Basel III as flawed and insufficient, calls for at least 15 percent equity relative to total assets, raises concerns with the use of risk weights, and proposes a ban on dividends as the obvious place to start in a transition. (Text and full list available at <http://www.gsb.stanford.edu/news/research/admatiopen.html>, accessed October 20, 2012.) For additional commentary, see Joseph V. Rizzi, “Case Is Strong for Capital Additions,” *American Banker*, February, 16, 2011; Mark J. Perry and Robert Dell,

“More Equity, Less Government: Rethinking Bank Regulation,” *The American*, February 24, 2011; Matt Miller, “The Next Bank Crisis Is Coming,” *Washington Post*, April 27, 2011; Sebastian Mallaby, “Radicals Are Right to Take on the Banks,” *Financial Times*, June 7, 2011; Simon Johnson, “Jamie Dimon’s Faulty Capital Requirement Math,” Bloomberg, June 9, 2011; Joe Nocera, “Banking’s Moment of Truth,” *New York Times*, June 20, 2011; Tim Hartford, “More Equity, Less Risk,” *Financial Times*, July 2, 2011; David Miles, “Banks Can Raise More Capital,” *Wall Street Journal*, Europe edition, July 2, 2011; John Cochrane, “The More Bank Capital, the Safer the Bank,” *Wall Street Journal*, July 15, 2011; Clive Crook, “Real Reasons That Bankers Don’t Like Basel Rules,” Bloomberg, December 20, 2011; Robert Jenkins, “Basel II Proved to Be Inadequate, So Are the New Rules Really ‘Too Severe?’,” *The Independent*, April 27, 2012; and “Rules for Bank Capital Still Broken after Four Years,” Bloomberg editorial, May 6, 2012. Bair (2012) discusses capital requirements extensively and argues for higher requirements than those in Basel III. Jenkins (2011), Haldane (2012c), and Hoenig (2012) also urge higher requirements, and both view risk weights, discussed later, as highly problematic. Senators Sherrod Brown and David Vitter echoed the sentiment in a letter to regulators written in October 2012 (see William Alden, “2 Regulators Call for Greater Bank Capital Requirements,” *New York Times*, October 17, 2012).

54. Allan Meltzer, in testimony before the Congressional Oversight Panel, recommended 20 percent equity for the largest banks. See note 120 in the report, available at <http://www.gpo.gov/fdsys/pkg/CHRG-112shrg64832/pdf/CHRG-112shrg64832.pdf> (accessed October 31, 2012), which also mentions testimony by Simon Johnson agreeing with Eugene Fama’s suggestion (see note 45) that banks should have 40–50 percent equity.

55. One could go further to suggest that even the levels of equity that were seen in the past, before the development and growth of the safety nets, have also been inefficiently low. Banks, in other words, may have been chronically inefficient, always taking too much risk given their level of equity or, equivalently, having too little equity for the risks they take. This can be attributed to the fundamental conflicts of interest about risk between borrowers and creditors and to the fact that bank creditors, such as depositors, might be more dispersed than other creditors in the economy. Their ability to withdraw their funds, in fact, gives depositors a sense that they can just withdraw when they fear that the banks are in trouble. In the middle of the nineteenth century, as we noted in Chapter 2, banks had 40–50 percent equity, and their shareholders had unlimited liability. Whereas it is not practical to rely on the personal liability of banks’ owners, it should be noted that, relative to the nineteenth century, equity markets are vastly more developed now, and the access of all companies to equity investors is much easier than it was a century or more ago.

56. Admati et al. (2011), first posted in August 2010, concludes with the statement “We have based our analysis of the costs and benefits of increasing equity requirements for banks on what we assess to be the fundamental economic issues involved. We expect that some will disagree with our conclusions. Any discussion of this important topic in public policy should be fully focused on social costs and benefits. Moreover, any assertions that are made should be based on sound arguments and persuasive evidence. Unfortunately, the level of policy debate on this subject that we have seen is not always consistent with these standards.”

57. The Federal Reserve has approved the payouts. However, after JPMorgan Chase incurred losses of \$5.8 billion in spring 2012, some of the payouts were delayed. See Dan Fitzpatrick and Matthias Rieker, “Whale’s Tail Hits Bank on Buyback,” *Wall Street Journal*, August 9, 2012.

58. A typical example (reported to Martin Hellwig by several participants) is the following. German savings banks, most of them owned by the cities or the districts in which they operate, have given warning that, if the leverage ratio regulation is put in place, lending to municipalities or districts might be restricted and in any case will become more expensive because, for the first time in history, such lending will have to be backed by 3 percent equity. Because every mayor knows a member of the Bundestag or the European Parliament, these concerns have become the subject of broad discussion in those bodies.

59. Admittedly, this view was shared in Hellwig (1995) and in Hellwig and Staub (1996) as opposed to Hellwig (2009, 2010a). However, in Hellwig and Staub (1996) the issue of how to control the quality of the models used to determine risk weights is already raised.

60. See Tarullo (2008) and Goodhart (2011).

61. See “FDIC: Crisis Validates US Basel II Delay and Leverage Ratio,” *Risk Magazine*, August 20, 2009.

62. Under Basel III as well as Basel II, there are three “pillars” of banking supervision. Pillar 1 concerns capital regulation, pillar 2 the professional quality of banking, and pillar 3 “market discipline.” Of these three pillars, pillar 1 is most important because it involves hard rules for capital requirements. Pillar 1 distinguishes assets depending on whether they are held in the “banking book” or the “trading book” of the bank; assets in the banking book are meant to be held until they are repaid, whereas assets in the trading book are available for resale at an opportune moment. For each category, banks can choose whether they want to use a “standard approach,” with risk weights specified in the regulations, or, for credit risks, an “internal ratings–based” approach and, for assets in the trading book, a model-based approach to determine the capital required. The zero-risk-weights rule for government debt is given in the regulations for the standard approach to credit risk. A major flaw of the entire approach is that it assumes that risks are independent. Correlations are neglected, for example, those due to the fact that mortgage borrowers often are likely to fail together or not at all.

63. Some of the attempts to appear well capitalized are described as “alchemy” by Tom Braithwaite in “Banks Turn to Financial Alchemy in Search for Capital” (*Financial Times*, October 24, 2011). The article quotes Jamie Dimon of JPMorgan Chase as saying that the bank will “‘manage the hell out of RWA [risk-weighted assets]’ to reach the higher levels” and concludes by saying that “capital hawks will need to watch both the banks and the national regulators if RWA is not to mean Really Weird Accounting.”

64. An example is the risk that if banks use short-term borrowing to fund long-term lending, an increase in the market rates of interest might require them to borrow at rates above those they receive on outstanding loans. As discussed in Chapter 4, this risk caused many U.S. savings banks to become insolvent in the early 1980s. Even so, it is ignored in Basel II and Basel III. By tradition, banks’ investments are separated into two groups, those in the so-called banking book and those in the so-called trading book. The banking

book includes loans that the bank plans to hold until they are paid back. For these loans, Basel II and III impose risk weights that depend only on credit risk, that is, the risk that the borrowers might not pay. The risk that funding conditions might change is not considered. Another example is the risk that many debtors might default at the same time. Existing capital regulation, the so-called Pillar 1 of the Basel rules, is based on the assumption that the credit risks of different debtors can be assessed in isolation. This would be appropriate if the risks were independent; in fact, the credit risks of, say, mortgage debtors in Southern California are highly correlated because real estate markets in Southern California depend on how the economy there is doing. Similarly, the credit risks of suppliers to the big auto manufacturers are highly correlated. Both the risk that funding conditions might change and the risk from loans' being correlated should in principle be considered under the so-called Pillar 2 of the Basel rules, which is concerned with the professional quality of the individual banks' management and procedures. However, there are no hard and fast rules as to how to do this, and in practice not much is done.

65. The Bank for International Settlements has been calling for a change in this rule (see, e.g., BIS 2012, 62–63; see also J. Caruana and S. Avdjiev, “Sovereign Creditworthiness and Financial Stability: An International Perspective,” *Banque de France, Financial Stability Review* 16 [April 2012]: 71–85). However, such calls meet with resistance from countries that have a long tradition of using banking regulation to ensure that banks pay for government deficits; as discussed in the notes to Chapter 12, zero risk weights for government debt are a key political concern of many governments.

66. First, a 1996 amendment to Basel I allowed banks to use their own risk models to determine how much equity they need for so-called market risks, the risks of changes in the market prices of their investments. In Basel II this approach was extended to credit risk, that is, the risk of default by a borrower or another partner in a contract (see Tarullo 2008, Goodhart 2011, Haldane 2011a and 2012c, and Hoening 2012). IMF (2008a) and Acharya et al. (2011) show that leverage had increased in the decade before the crisis.

67. Incentive effects of the regulation—in particular, incentive distortions from flawed risk weights—had been discussed in academic research. See, for example, Koehn and Santomero (1980), Kim and Santomero (1988), and Rochet (1992).

68. For a systematic overview and explanation why some of the flaws are fundamental and can hardly be repaired, see Hellwig (2010a). King (2010) also raises concerns about the use of risk weights. In “We Need Much Simpler Rules to Rein in the Banks” (*Financial Times*, August 26, 2012), Nicholas Brady, who chaired the Presidential Task Force on Market Mechanisms after the 1987 crash and subsequently served as U.S. secretary of the Treasury, wrote: “This computer modelling is impressive stuff. However, while these models create the appearance of mathematical certainty about the relationships between markets and the way world events will affect prices, it is essential to recognise that, at their root, these models rely on man-made assumptions about human behaviour—not iron-bound laws of nature. In addition, the behaviour of derivatives markets can be episodic and illiquid at precisely the times we most need greater liquidity and confidence. No matter how sophisticated the maths or how large the data base supporting a model, no one can predict behaviour—human or market—with certainty. Inevitably, this means the formulas break

down at the most critical times.” In the same vein, Andrew Haldane of the Bank of England has argued that Basel III is too complex and called for simplifying banking regulations (see Haldane 2011a and 2012c and Jason Zweig, “The Jackson Hole Speech People Should Long Remember,” *Wall Street Journal*, August 31, 2012). In a similar vein, Hoenig (2012), from the FDIC, criticized Basel for its failed risk weight approach and low levels of equity requirements (see “Basel III Should Be Scrapped, Hoenig Says,” *American Banker*, September 14, 2012). Roubini and Mihm (2010, 203–209 and 214) also criticize the use of risk weights and recommend caps on absolute leverage for banks of all sizes, without allowing any discretion to be given bankers to interpret the requirements.

69. UBS (2008) gives several examples of how, under certain conditions, risks in quantitative models were set equal to zero.

70. Mortgage-related securities would usually be held in the so-called trading book, loans in the bank book. For securities in the trading book, the model-based approach to determining equity requirements provided banks with much greater scope to downplay risks (see FSA 2010). Government bonds, which receive an automatic zero risk weight when they are held in the bank book, are an exception. By contrast, loans to small and medium-sized businesses are treated as fairly risky, partly because they led to large losses in the crises of the early 1990s, but in 2007–2008 they actually were much safer.

71. For a more detailed description, see Chapter 5, note 2 and Chapter 4, note 43. At each stage, a package of junior (“mezzanine”) claims, with low credit ratings of BBB or worse, would be formed, and new claims, with different priorities, would be issued against the returns from this package. Under the assumption that credit risks on the different securities in a package of mezzanine mortgage-backed securities (MBS) were independent, the senior MBS collateralized debt obligations (CDOs) would be treated as almost riskless and given ratings of AAA. However, the assumption of independence of credit risks was unwarranted because all of the underlying mortgages depended on the factors driving U.S. real estate markets, such as the overall economy, the interest rate policy of the Federal Reserve, and the real estate bubble itself. McLean and Nocera (2010, 362) sarcastically ask: “Collateralized debt obligation? Synthetic securities? What had been the point of that?” The point was that banks responded to flawed regulations in their own interest; their actions had little to do with efficiency.

72. The regulators require banks to use five years of data. For a boom-and-bust cycle in real estate that extends over a decade, this amounts to less than one full observation. For an assessment of the creditworthiness of a partner like AIG, a lot of the information from four years ago may already be irrelevant.

73. Another criticism is that the model-based approach to equity requirements focuses on probabilities rather than potential losses. Equity requirements for market risk are given by three times the amount needed to cover any losses that might occur with 99 percent probability. The size of losses that might occur with the remaining probability of 1 percent or less is not considered. This approach betrays a remarkable confidence in our ability to assess probabilities, and a remarkable lack of concern for the potentially disastrous consequences that might arise from large losses in one of those so-called tail events that are neglected.

74. See Demirgüç-Kunt et al. (2010) and Brealey et al. (2011).

75. See the Web sites of the EBA, for example, <http://www.eba.europa.eu/EU-wide-stress-testing/2011/2011-EU-wide-stress-test-results.aspx>, and the Federal Reserve, for example, <http://www.federalreserve.gov/newsevents/press/bcreg/20120313a.htm>, accessed October 19, 2012.

76. In 2010 this was the experience of the major Irish banks, in the summer of 2011 that of, for example, Dexia. See Admati et al. (2012b) for additional comments on stress tests. Because there is no reason to economize on bank equity, the cost–benefit considerations underlying the stress tests are not clear. To some extent stress tests seem to address problems arising because accounting rules mask the true financial positions of banks.

77. The treatment of these securities is a major issue in Spain. Spanish banks had sold many such securities, such as preferred stocks, to small investors, workers, or pensioners, presenting them as “savings products” without explaining the risks involved. European authorities called on to bail out Spanish banks have asked that holders of such hybrid securities share in the banks’ losses. Spanish courts, meanwhile, have judged that these sales were invalid because banks did not properly inform their customers about the risks. See Miles Johnson, Peter Spiegel, and Joshua Chaffin, “Spain Pressed to Inflict Losses on Small Investors,” *Financial Times*, July 12, 2012. See also “Unhappy Holidays: A Proposed Hit to Savers Increases the Government’s Unpopularity,” *The Economist*, August 18, 2012.

78. Following this experience, the Basel Committee on Banking Supervision proposed rules that would ensure that hybrid securities participated in losses before government funds were used for bailouts (see BCBS 2010b). These proposals, however, do not address the problem that governments might be intent on bailing out the very holders of these hybrid securities. See the discussion about triggers later in this chapter and notes 80 and 81, as well as Admati (2010) and Hellwig (2010b). In the United States, the Collins Amendment to the Dodd-Frank Act (see Bair, 2012, Chapter 19) disallows the consideration of so-called trust preferred securities, which are essentially debt, as loss absorbing in capital regulation. (The amendment also requires that the capital standards be imposed on U.S. bank holding companies and systemically important nonbank financial companies.)

79. The success of this lobbying can be seen in Europe. Whereas Basel III insists that, for banks whose shares are traded on stock exchanges, only common equity will be accepted as “core capital,” the capital requirements regulation that has been proposed by the European Commission gives a list of only fourteen criteria that must be fulfilled. The list is spelled out in such a way that, in addition to common equity, banks might also use “silent participations,” which are popular with public banks in Germany. The details of these funding instruments depend on each contract, but typically the holders are not given any rights of control and the lack of control is compensated for by a debt-like promise to pay a fixed return unless the bank is incurring losses. For the EU proposals, see http://ec.europa.eu/internal_market/bank/regcapital/new_proposals_en.htm, accessed October 21, 2012; for a critique, see Basel Committee on Banking Supervision, *Basel III Regulatory Consistency Assessment (Level 2) Preliminary Report: European Union*, Basel, October 2012, http://www.bis.org/bcbs/implementation/l2_eu.pdf, accessed October 22, 2012.

80. Contingent capital has been championed by a number of academics (see, for example, Flannery 2005; French et al. 2010, written by fifteen academics; and Calomiris and Herring 2011). In some variations, the trigger for conversion is specified as a condition on the stock price or on measures of equity on the balance sheet. In other variations, the regulation or the contract for this type of debt also specifies conditions indicating a systemic crisis that would allow regulators to convert the debt into equity. The bail-in concept is similar to resolution in many respects, relying on regulators to impose losses and convert some debt to equity. (Some of the issues around resolution mechanisms were discussed at the end of Chapter 5. For comments on BCBS 2010b, see Admati 2010 and Hellwig 2010b.)

81. For example, suppose that significant positions in these securities are held by insurance companies. If events occur that induce the contractually stipulated conversion of contingent capital into common stock, how is the government going to deal with the systemic implications of the conversion? At the conversion point, there is likely to be a discontinuous drop in the stock price. Will insurance companies bear the associated losses, or will the government prefer to preempt the conversion so as to avoid such systemic fallout? Another issue is how the conversion ratio and the degree of dilution of preexisting shareholders should be defined. Because different stakeholders (holders of co cos, existing equity holders and creditors, and bank managers) are likely to have different preferences regarding conversion, a serious concern is that manipulation and instability will occur if the triggers seem to be within reach, with different parties trying to affect accounting measures or stock prices so as to bring about the outcome desirable to them. The use of accounting triggers is further problematic because accounting numbers are often based on historical values and thus may not provide the proper triggers for recapitalization near a crisis. Issues associated with triggers are discussed by R. McDonald (2010), Sundaresan and Wang (2010), and Prescott (2012). In particular, Sundaresan and Wang (2010) and Prescott (2012) show that the use of price triggers can create significant instabilities and difficulties in pricing.

82. Among the reasons that debt-like hybrids such as co cos are more popular in Europe than in the United States is that their interest is considered a tax-deductible expense even though it has an equity-like component. In the United States, co cos do not qualify as a debt for tax purposes because they do not offer “creditor rights.” On the other hand, the tax code recognizes payments for so-called trust-preferred securities, which banks have used as part of their regulatory capital even though they are effectively debt securities. This practice has allowed banks to appear better capitalized than they were. The Collins Amendment to the Dodd-Frank Act seeks to stop this practice. On ways banks have tried to use the securities, see Yalman Onaran and Jody Shenn, “Banks in ‘Downward Spiral’ Buying Capital in CDOs,” Bloomberg, June 8, 2010. The use of preferred stock instead of equity is also problematic because it constrains banks in many ways and thus adds a debt overhang that can interfere with lending, as discussed in Chapter 3 and earlier in this chapter.

83. The discussion in Chapter 7 about whether equity is “expensive” also applies to the comparison of equity and co cos. It is false to suggest that using equity is more expensive than using co cos just because equity is riskier and thus has a higher required ROE than

co cos. Although co cos would have a lower required ROE than equity, using co cos instead of equity would make equity more risky and thus increase its risk and its required ROE. French et al. (2010) suggest that short-term debt “disciplines” managers. However, this suggestion does not explain why co cos are superior to equity, because co cos are in fact *long-term* debt. As discussed in Chapter 10 (note 56) and in Admati et al. (2011, section 5), the suggestion that debt disciplines managers is not supported empirically; the models that argue this ignore important features of the real world, such as banks’ repeated ability to borrow (the rat race of borrowing) and the distorted incentives of bank managers to increase leverage and risk, discussed in Chapters 8 and 9. If co cos are instead issued as equity from the start, effectively converting immediately, they will automatically be able to absorb the same losses in the same scenarios as do co cos, fixing the banks’ investment decisions (see Admati et al. 2011, section 8, and Admati and Hellwig 2011a).

84. Bob Diamond of Barclays admitted as much in 2011, saying the bank would seek to use co cos in an attempt to avoid harming its ROE (see “Barclays Chief Ready to Increase Risk Appetite in Search of Profits,” *Financial Times*, April 11, 2011, discussed in Chapter 8; see note 13).

85. See the discussion in note 82 of this chapter.

86. See Patrick Jenkins, “UK Banks to Issue New Equity for Bonuses,” *Financial Times*, March 4, 2012. The banks were responding to pressure from the Bank of England to avoid depleting their equity.

87. The range between 20 and 30 percent provides for a so-called conservation buffer where banks must try to conserve their equity and not let it be depleted by payouts such as dividends. Basel III includes this sensible concept, with a range of 4.5–7 percent of Tier 1 capital (primarily equity but often including other securities, such as preferred equity) relative to risk-weighted assets. Basel III also postulates the use of countercyclical buffers meant to contain the credit booms that often lead to credit busts (see BCBS 2010e). Goodhart (2010) also discusses the need for graduated capital standards.

88. As noted in Chapter 6, JPMorgan had 8 percent equity relative to its total assets as measured by U.S. accounting standards in December 2011, but its equity would have been only 4.5 percent of its total assets using the standards that are applied to European banks. See Tucker (2012) for similar observations on consolidating assets on balance sheets. Other areas of concern are the use of collateral to hide indebtedness in contracts such as repos (see Skeel and Jackson 2012) and the practice of rehypothecation. Singh and Aitken (2010, abstract), from the IMF, state that “from a policy angle, supervisors of large banks that report on a global consolidated basis may need to enhance their understanding of the off-balance sheet funding that these banks receive via rehypothecation from other jurisdictions.”

89. In the case of Lehman Brothers, so-called repo 105 transactions made the bank appear stronger than it actually was. See Valukas (2010) and Michael J. De La Merced and Julia Werdigier, “The Origins of Lehman’s ‘Repo 105,’” *New York Times*, March 10, 2010. Haldane (2011c) calls for a reexamination of accounting rules for banks so as to provide better information to regulators.

90. There remains the concern about the governance of banks and whether bankers have incentives to take excessive risks. We will revisit this issue in Chapter 13.

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1. See Chapter 11, notes 4 and 5.

2. Central banks are prohibited from acquiring equity in other banks, so the only support they can give is in the form of loans against collateral, as “lenders of last resort” (see “Bank State Aid in the Financial Crisis,” Center for European Policy Studies Task Force Report, October 29, 2010, <http://www.ceps.eu/book/bank-state-aid-financial-crisis-fragmentation-or-level-playing-field>, accessed October 15, 2012).

3. On the history of Dexia (already mentioned in Chapter 4; see note 39), from its founding in 1996 to the end in 2011, see Thomas (2012). In the 2011 bailout, €95 billion of toxic assets were split off into a “bad bank” that was guaranteed by the two governments. In addition, the Belgian government paid €4 billion for Dexia’s Belgian retail business, which it nationalized. The operations and remaining assets and liabilities of the French part of Dexia were transferred to two government-owned institutions in France. See “Governments to Take Toxic Assets Off Dexia’s Hands: Report,” *Agence France Presse*, October 9, 2008; “Rescued Bank Dexia Posts 3.3 Billion Euros Losses for 2008,” *Agence France Presse*, February 26, 2009; and “France, Belgium Reach Pact on Ailing Dexia,” *Wall Street Journal*, October 10, 2011.

4. “Lagarde Calls for Urgent Action on Banks,” *Financial Times*, August 27, 2011.

5. Mr. Noyer’s remarks are quoted in a piece by David Enrich and David Gauthier-Villars, “Struggling French Banks Fought to Avoid Oversight,” *Wall Street Journal*, October 21, 2011. Similar remarks were made by the French finance minister, who said that there was no reason “to question or worry about the French banking system” (see “French Finmin Says Country’s Banks Healthy,” Reuters, August 31, 2011).

6. See “Paris and Berlin Seek to Dilute Bank Rules,” *Financial Times*, January 22, 2012; “French Banks Lobby Politicians over Basel Concerns,” Reuters, January 29, 2010; Brian Blackstone and David Enrich, “Germany Holds Out for Better Deal at Basel,” *Wall Street Journal*, July 28, 2010; Tom Braithwaite, “FDIC Chief Says Watchdogs ‘Succumbing’ to Bank Lobby,” *Financial Times*, July 20, 2010; “Heavy Lobbying Leads to Easing of Basel III Banking Norms,” Reuters, July 27, 2010; and “Feud Deepens over EU Bank Rules; Germany, France Lead Effort to Relax Regulations; U.K. Urges Tougher Approach,” *Wall Street Journal*, June 18, 2011. Bair (2012, Chapter 22) describes the negotiations.

7. Kaserer (2010) estimates that the costs of the bailout to the German taxpayers will eventually come to €34–€52 billion. Information that has become available since his estimate—for example, on the sizes of the “bad bank” portfolios of Hypo Real Estate and WestLB and of losses in these portfolios from the sovereign debt crisis in Europe—suggests that this estimate should be raised by some €20–30 billion. The Dexia bailouts in 2008 and 2011 were costly to France as well as Belgium (see note 3). In the mid-1990s, Crédit Lyonnais, then the largest French bank, had losses in excess of €20 billion and required an injection of taxpayer money amounting to €15 billion.

8. As an example, see the discussion of the role of the City of London in ICB (2011, 15), which reads, “The recommendations in this report will be positive for UK competitiveness overall by strengthening financial stability. That should also be good for the City’s inter-

national reputation as a place to do business.” Andrew Tyrie, chair of the Parliamentary Committee on Banking Standards, wrote that banking is “one of the UK’s most important industries and if banks are to be at the heart of our economy, they must be allowed to remain internationally competitive” (“A Mandate to Tackle Our Banks’ Failure,” *Financial Times*, October 1, 2012). Thiemann (2012) shows how supervisors’ concerns about the competitive positions of “their” banks had been responsible for some of the worst lapses of supervision before the crisis. In the context of Basel III, France and Germany not only resisted increases in capital requirements as such; they also wanted to preserve some past rules that allowed securities other than banks’ common equity to be treated as “capital”—in the case of France, minority participations in insurance companies owned by the banks, in the case of Germany, so-called silent participations, hybrids between debt and equity, which are debt-like in that they have given nominal claims with priority over payments to shareholders and are equity-like in that these claims are reduced or even voided when the banks are incurring losses. In practice, the banks’ shareholders experience mainly the debt-like nature of these hybrids, in particular the burden of debt when the bank is in distress; for an account of problems this can create, see Expertenrat (2011).

9. See Viscusi et al. (2005). A famous example of capture is the transformation of the Interstate Commerce Commission, created in 1887 to protect consumers from railroad companies exploiting monopoly power, into an agency that prevented competition between railroad (and later also trucking) companies and imposed high prices for transportation, in particular long-haul transportation. See Friedman and Friedman (1990, 183ff) and the references given there. On capture in the financial industry, see Kane (2001), Johnson and Kwak (2010), Wilmarth (2011), and Kwak (2012). See also Lessig (2011) on the increasing effect of lobbying in U.S. politics. Barofsky (2012, Chapter 1) describes the culture in Washington, D.C., as one based on narratives and everyone’s thinking about their next job. The book opens by describing a conversation in which Mr. Barofsky is advised that his career would suffer if he challenged those in the system too much.

10. Olson (1982) and Acemoglu and Robinson (2012) discuss the origins of such differences and show how economic and political performance are affected by them.

11. Dimon, interview in the *Financial Times*, September 12, 2011.

12. “German Banks Try to Fend Off Basel III,” *Financial Times*, September 6, 2010. See “Behind French Bank Drama, a Relaxed Regulator?” *Wall Street Journal*, September 15, 2011.

13. See “EU Warns US to Speed Up Bank Reform,” *Financial Times*, June 1, 2011.

14. See Ronald Orol, “Geithner Urges Global Capital Rules for Swaps,” *Market Watch*, June 6, 2011.

15. See note 6, as well as notes 33–34 in Chapter 1. Clear warnings about the impact of such pressures were expressed by Swiss supervisors in 1995 and 1996; see the statements of Kurt Hauri in Blattner (1995, 826–827) and of Daniel Zuberbühler in Hellwig and Staub (1996, 768–771).

16. We neglect the sequencing of payments. In practice, a business first has to obtain funding through borrowing or raising equity. It can use this funding to pay for inputs, such as labor, machines, or raw materials. When the output is sold, it can use the revenues

to repay its debt and pay the remainder to its owners. If the activity is maintained, the payments to creditors and owners may be limited to interest and dividends; this avoids the need to acquire new funding for input purchases for further activity.

17. See Lewis (2011); “Financial: Iceland: From the Devil to the Deep Blue Sea: After the Banking Collapse, a Stricken Nation Hopes a Return to Fishing Will Save It,” *The Guardian*, June 3, 2009; and “Tiny Iceland’s Huge Banking Debt Led to Downfall,” Reuters, October 7, 2008.

18. This is the essence of the theory of international trade with competitive markets, one of the classics of economics, first developed by David Ricardo (1817, Chapter 7). The argument is independent of any considerations of distributive fairness in the sense that any alternative to the market outcome would involve at least one set of participants who were worse off; moreover, these people’s losses would in the aggregate be larger than the gains of people who benefited from the move away from the market outcome.

19. See OECD (2009). The costs may become larger yet. A conflict with the Netherlands and the United Kingdom about some €4 billion for compensation to depositors in Dutch and U.K. branches of Icelandic banks is still pending in European courts. On the 2011 rejection by voters, see “Icelanders Reject Deal to Repay U.K., Netherlands,” *Wall Street Journal*, April 11, 2011. Oral arguments began on September 18, 2012 (see Stephanie Bodoni, “Iceland Neglected U.K., Dutch Icesave Clients, Watchdog Says,” Bloomberg, September 18, 2012).

20. For an overview of the European assistance package for Ireland, see http://ec.europa.eu/economy_finance/articles/eu_economic_situation/2010-12-01-financial-assistance-ireland_en.htm, accessed October 21, 2012.

21. The conclusion also applies if governments use tariffs and monopoly franchises to provide their “champions” a generous source of profits at home that enables them to “conquer” foreign markets with much lower prices.

22. On corn subsidies, see Lessig (2011, 50). Some have suggested that banks should be taxed to correct the distortion (see Acharya et al. 2010, Chapter 5). However, it is not clear how such a tax should be determined. Measuring the risks and the costs that a bank’s actions impose on others is extremely difficult. The arguments that were raised in Chapter 11 against the fine-tuning of capital requirements according to risks apply here as well. High equity requirements would reduce the subsidies, in effect relying more naturally on market forces to determine the funding costs of the bank in a less distortive manner.

23. The assessment of subsidies (and taxes) presumes that markets are competitive and that firms do not have market power. The so-called strategic theory of international trade has shown that if markets are not competitive and have room for only a small number of suppliers, a country can gain by subsidizing firms so that they can be successful in gaining a place in the market, from which they can charge high prices to the rest of the world. The practical relevance of the argument is limited, however, because the political system does not have the information that would be needed to implement such a policy successfully. Moreover, the argument is invalid if the companies in question are foreign owned—that is,

if the profits obtained by exploiting market power accrue to foreign shareholders. For a discussion of the pros and cons of strategic trade policy, see Krugman (1996) and Monopolkommission (2005) and the references given there.

24. See, for example, “U.S. Relief for Steel Expected,” *New York Times*, September 30, 1980, and Leonard Silk, “Protectionism: Reagan’s View,” *New York Times*, November 12, 1980.

25. Jaffe et al. (1995) give an overview of the literature and the issues. They suggest that the effects of environmental regulation on the competitiveness of U.S. manufacturing were actually small. For some of the industries that have dramatically shrunk or even disappeared, one may suppose that changes in unit labor costs, driven by competition from other industries, may have been the most important reasons for the change.

26. For example, French et al. (2010, 69) state: “Capital requirements can also affect the competitiveness of a country’s banking sector. If capital requirements in the United States, for example, are too onerous, firms may turn to banks in other countries for financial services. This would undermine an important American industry.”

27. Very few countries have investigated the reasons and responsibilities for the crisis, and none had anything like the 1933 Pecora hearings, in which the U.S. Senate Banking and Currency Committee, under the guidance of its chief counsel, Ferdinand Pecora, uncovered much of the recklessness that had characterized bankers’ behavior and their treatment of clients in the late 1920s. On the Pecora hearings, see Perino (2010). Only Iceland had substantial criminal proceedings. See “Trial of Iceland Ex-PM Haarde over 2008 Crisis Begins,” *BBC News Europe*, BBC, March 5, 2012.

28. Switzerland set capital requirements higher than other countries in what is dubbed a “Swiss finish” (see “Bankers’ Group Warns of Overly Tough Swiss Capital Rules,” Reuters, January 16, 2012). However, Swiss banks are known for having particularly low levels of risk-weighted assets relative to their total assets, and the requirements are formulated relative to risk-weighted assets (see Chart 5 in Ledo 2012). Regarding Sweden, see Mark Scott, “Sweden Proposes Higher Capital Requirements for Bank,” *New York Times*, November 25, 2011. The United Kingdom has balked at attempts to harmonize the requirements (see Alex Barker, “Barnier vs the Brits,” *Financial Times*, November 8, 2011). As discussed in Chapter 6, the United Kingdom’s ICB (2011) proposed “ring fencing” for retail banking, requiring retail banking to be done by separate legal entities that must satisfy higher capital requirements. A legislative proposal to implement this measure was introduced by the British Government on October 12, 2012 (see http://www.hm-treasury.gov.uk/d/icb_banking_reform_bill.pdf, accessed October 21, 2012).

29. The quotation in the heading of this section is a statement that legend incorrectly attributes to the bank robber Willie Sutton when he was answering a reporter who had asked why he robbed banks (Keys 2006).

30. For accounts of pre-1990 Europe, see Borges (1990), Bruni (1990), and Caminal et al. (1990) for Southern Europe, as well as Englund (1990) for Sweden. For 1987, Bruni (1990, 250) lists the shares of governments’ debts in banks’ portfolios as 35.4 percent for Italy and 37.4 percent for Spain; Borges (1990, 330) reports 43 percent for Portugal in 1988. Though minimum reserves in fact paid some interest, Bruni (1990, 258) estimates that the

cost to the private sector of this implicit taxation of banking was 0.6–1 percent of GDP in Italy. Borges, though he does not give a numerical estimate, makes clear that the implicit taxation through banking regulation of Portuguese banks in the 1980s was also quite substantial. See also CEC (1988).

31. After the July 2011 stress tests, the European Banking Authority (EBA) published data showing that, out of €98 billion in Greek government debt held by the banks tested, €67 billion was held by Greek banks (see EBA, *2011 EU-wide Stress Test Aggregate Report*, http://stress-test.eba.europa.eu/pdf/EBA_ST_2011_Summary_Report_v6.pdf, accessed October 20, 2012). The March 2012 default and assistance package for Greece therefore included assistance for Greek banks as well as the government.

32. If the U.S. Congress refuses an increase in the debt ceiling, a default might be possible, but even then it is unlikely that the government would end up not paying its debt. The notion that money is printed should be treated as a metaphor. Most money today is created electronically in the form of book entries in certain accounts. From World War II to the 1970s, the Federal Reserve had a long history of buying up federal debt with newly created money, thus “monetizing” the government debt. Before the Treasury Fed Accord of 1951, it was actually mandated by the Treasury to do so—more precisely, to maintain the interest rate at a given low level. After 1951 the Federal Reserve became independent but continued to keep market rates of interest at relatively low levels, which required buying government debt with (newly created) money. Thornton (1984) gives an overview of the historical development. He also questions the intentionality of monetization, at least for the period since the early 1970s when the Federal Reserve began to formulate its policy in terms of monetary aggregates rather than interest rates. In Italy in the 1970s, the central bank was actually obliged to purchase those Treasury securities that had not been taken up by the market. See also Goodhart (2012).

33. The Mexican default of 1982 marked the beginning of the international debt crisis of the 1980s. A few years earlier, in the mid-1970s, New York City avoided bankruptcy only through the intervention of New York State with the Municipal Assistance Corporation to impose fiscal discipline, as well as a restructuring of New York City debt (see, e.g., Dunstan 1995). For a more recent discussion of state bankruptcy issues, see Conti-Brown and Skeel (2012).

34. Reinhart and Rogoff (2009) show that over the centuries, this risk has appeared again and again and has shaped relations between banks and governments. They also warn that the “risklessness” of domestic debt must not be taken too seriously. Printing money to pay for the government leads to inflation, that is, a loss of the real value of government debt. For banks, whose debt is denominated in domestic currency, this devaluation may be less serious than a simple government default, but for investors there is not much of a difference between a loss from default and a loss from inflation.

35. See Directive 2006/48/EC of The European Parliament and of the Council of June 14, 2006, “relating to the taking up and pursuit of the business of credit institutions” (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:177:0001:0001:EN:PDF>, accessed October 21, 2012), Annex VI, item 4; see also Art. 109, Section 4, of the European

Commission's Proposal for a Regulation of the European Parliament and of the Council on prudential requirements for credit institutions and investment firms (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0452:FIN:en:PDF>, accessed November 25, 2012). Zero risk weights for government debt are not actually required by the Basel agreement, which in principle has a scheme for setting risk weights according to credit ratings, but the agreement permits exceptions to be made for debt that is denominated and funded in the government's home currency. See BCBS (2004) and BCBS (2010e).

36. Dexia (discussed earlier in the chapter, particularly in note 3) was formed in 1996 by the merger of the *Crédit Communal de Belgique* and the *Crédit Local de France*, two institutions that had dominated lending to municipalities in Belgium and France. For this type of lending, the zero-risk-weight rule applied because municipalities were effectively guaranteed by the central governments. Fear of disturbing the flow of funds to local governments was a major reason for the 2008 and 2011 bailouts and perhaps also a reason for the toleration of the very low equity that Dexia had. On December 31, 2008, three months after the first bailout, the bank's balance sheet reported that it had equity equal to 2.7 percent of its total assets; in fact, this was possible only because, in conflict with International Financial Reporting Standards, Dexia had not written down the value of certain assets it held as the market values of these assets had gone down. See Thomas (2012), in particular Part 1 on the founding of Dexia and p. 168 on Dexia's equity.

37. See Reinhart and Rogoff (2009) for a history of government borrowing and banking crises over the past 800 years.

38. Some of the development of subprime mortgage lending in the United States in the 1990s and 2000s may be linked to the 1994 changes in the application of the Community Reinvestment Act (CRA) and to political pressure for financial institutions to be more forthcoming with housing finance for low-income families. How much these developments contributed to the crisis has been controversial. The FCIC (2011, executive summary, 27, and Chapter 7) concludes that the CRA "was not a significant factor." Das (2011, 187), an industry insider, concluded, "It was not lending money to poor people that was the problem. The problem was lending money poorly." A dissenting view by FCIC member Peter Wallison (available at http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/fcic_final_report_wallison_dissent.pdf, accessed October 21, 2012) claims that housing policy was the primary cause of the crisis. Empirical investigations by staff of the Board of Governors of the Federal Reserve (available at http://www.federalreserve.gov/newsevents/speech/20081203_analysis.pdf, accessed October 21, 2012) and the BIS (see Ellis 2008) do not support such an interpretation.

39. The system of public banks in Germany involves the local savings banks, owned by municipalities and districts, and the *Landesbanken*, jointly owned by the *Länder*, the German analogues of U.S. states, and the regional associations of local savings banks. For an overview, see Krahen and Schmidt (2003), in particular Chapter 3. Sinn (2010) explains that this structure was partly responsible for the recklessness of certain German banks before the financial crisis and for their vulnerability in the crisis. See also Chapter 11, note 18.

40. Egregious examples are Bayerische Landesbank and Westdeutsche Landesbank. WestLB is said to have cost the taxpayers €18 billion since 2005 alone (see “WestLB-Desaster kommt Steuerzahler teuer zu stehen,” *Financial Times Deutschland*, June 20, 2012). In 2008 BayernLB required €10 billion in new equity from the state of Bavaria, in addition to €15 billion in debt guarantees from the federal government. Kaserer (2010) shows that most of the costs of the crisis to taxpayers were due to losses of the Landesbanken.

41. See Chapter 11, notes 17 and 18 and the references given there.

42. In this context it is worth noting that, whereas in the United States the word *public* refers to something that is openly accessible, in France *public* refers to something that is in the domain of the state (see Fourcade 2009). Fourcade also notes that the notion of “state” is not the same in the United States and France.

43. *Enarques* can be translated as “rulers from the ENA,” “enarchs.”

44. A generation earlier, Jean-Yves Haberer had enjoyed an even more distinguished ministerial career before being appointed CEO of the bank Paribas and, later, CEO of Crédit Lyonnais, then the largest French bank. His tenure ended in 1993, when Crédit Lyonnais needed €15 billion in taxpayer money to avoid bankruptcy. Bad real estate loans, loans to politically connected businessmen, and fraudulent accounting were among the causes of the scandal. Apart from the revolving-door effect, this system also strengthens the home-team effect because the supervisors and the supervised went to the same school and on occasion may even have been classmates (see “Old School Ties,” *The Economist*, March 10, 2012).

45. In 2000 the governor of the Bank of France, Jean-Claude Trichet, played a very active role in the merger of Banque Nationale de Paris and Paribas, two of the largest French banks, into BNP Paribas, thus preempting any merger of these banks with a foreign bank. He made it clear that he would have preferred that Société Générale, another large bank, also join in the merger, but the shareholders of that bank refused. See Nicolas Lecaussin, “What’s the Matter with the French Banks? Whether the Market’s Worst Fears Are Realized or Not, the Financial System Maintains Too Close a Relationship to the State,” *Wall Street Journal*, September 13, 2011. See also Thomas (2012) on Dexia.

46. Investment banks spent \$169 million on such contributions in 2008, giving 57 percent to Democrats (third-highest amount overall); they spent \$104 million in 2010, giving 49 percent to Democrats (fourth-highest overall). In 2012, so far banks have spent \$128 million, giving 38 percent to Democrats. There was a notable shift toward the GOP after 2008. See “Wall Street Shifting Political Contributions to Republicans,” *Washington Post*, February 24, 2010. Mian et al. (2010) show that the amount of campaign contributions from the financial sector is a strong predictor of voting on the Economic Emergency Stabilization Act of 2008, which provided the Treasury up to \$700 billion in bailout funds that could be used to support the financial industry. Stiglitz (2010, 42) states that the political contributions might be the most profitable investments of banks in recent years. Ross (2011, 75) also makes the connection between favorable legislation and political contributions. Lessig (2011, 83) reports, “From 1999 to 2008, the financial sector expended \$2.7 billion in reported federal lobbying expenses; individuals and political action committees in the sector made more than \$1 billion in campaign contributions. . . . Comparing the cam-

paign contributions of the one hundred biggest contributing firms since 1989, we find contributions from firms in the financial sector total more than the contributions of energy, health care, defense and telecoms combined.”

47. For example, German savings banks have mounted a strong campaign against the introduction of a leverage ratio, requiring banks to have equity equal to at least 3 percent of their total assets. The campaign has been joined by their owners, the municipalities, which have so far benefited from the fact that lending to government institutions requires no capital at all. See “Basel Bank Plans Eased after Heavy Lobbying,” Reuters, July 26, 2010.

48. Ryan Grim, “Dick Durbin: Banks ‘Frankly Own the Place,’” *Huffington Post*, May 30, 2009. Lessig (2011) calls such relations “corruptive dependencies.” The impact of money on politics has been identified and discussed more generally by many others recently, particularly Johnson and Kwak (2010), Ferguson (2012), and Hayes (2012).

49. Johnson and Kwak (2010), Lessig (2011), Morgenson and Rosner (2011), Ferguson (2012), Hayes (2012), and Kwak (2012).

50. Johnson and Kwak (2010, Chapters 6 and 13), Kane (2012c), and Barth et al. (2012).

51. Johnson and Kwak (2010, Chapter 5) and other accounts describe how the initial proposal by Brookley Born, chair of the Commodity Futures Trading Commission, to regulate derivatives trading, made in 1998, was dismissed and followed by the Commodity Futures Modernization Act, passed in December 2000, exempting most over-the-counter derivatives from regulation. This Act is seen as a major reason that significant risk could build up and go unchecked in the derivatives markets.

52. William Cohan, in “How We Got the Crash Wrong” (*Atlantic*, June 2012), suggests that, contrary to what others have written, this decision actually tightened capital regulation for investment banks. The fact remains that the ruling allowed them to have much less equity than U.S. commercial banks, on the order of 3 percent of their total assets or less. In addition, the regulators allowed investment banks to keep many securities off their own balance sheets in special-purpose vehicles.

53. See Patrick Jenkins and Brooke Masters, “Finance: London’s Precarious Position,” *Financial Times*, July 29, 2012. However, because the United Kingdom has been particularly hard hit by the financial crisis, U.K. authorities have taken the lead in the debate on tightening banking regulation. The Independent Commission on Banking proposed the imposition of significantly stricter regulation than the Basel Committee on Banking Supervision, and Adair Turner, head of the Financial Services Authority, has been a strong advocate for the type of reform we propose in this book (see, e.g., Turner 2010, 2012). Many calls for higher capital requirements have also come from the Bank of England (e.g., Miles et al. 2011, Haldane 2012a,c, and Jenkins 2012a,b).

54. Johnson and Kwak (2010), Dunbar (2011), Barth et al. (2012), and Kane (2012a).

55. These entities had practically no equity. They were funded by short-term borrowing and held various asset-backed securities. An extreme example is Sächsische Landesbank, with more than €40 billion in guarantees to conduits and SIVs when its equity was less than €4 billion. See Acharya et al. (forthcoming).

56. On revolving doors, see Kristina Cooke, Pedro da Costa, and Emily Flitter, “The Ties That Bind at the Federal Reserve,” Reuters, September 30, 2010, and Brooke Masters,

“Enter the Revolving Regulators,” *Financial Times*, April 23, 2012. The phenomenon is pervasive (see Suzy Khimm, “How JPMorgan Exploits Washington’s Revolving Door; the Project on Government Oversight Points out That JPMorgan Frequently Dispatches Former Government Officials to Lobby Current Regulators Who Are Writing the Rules for Wall Street Reform,” *Washington Post*, June 22, 2012; “Why Can’t Obama Bring Wall Street to Justice? Maybe the Banks Are Too Big to Jail. Or Maybe Washington’s Revolving Door Is at Work,” *Newsweek*, May 14, 2012; and Nicolas Lecaussin, “What’s the Matter with the French Banks? Whether the Market’s Worst Fears Are Realized or Not, the Financial System Maintains Too Close a Relationship to the State.” *Wall Street Journal*, September 13, 2011. Lessig (2011, 123) states that in 2009 the financial sector had seventy former members of Congress lobbying on its behalf. He further describes the revolving door with staffers (222–223). Zingales (2012, 277–278) argues that capture is more likely when regulators need to have highly specific skills.

57. See, for example, Annalyn Censky, “Why Is Jamie Dimon on a Federal Reserve Board?” *CNNMoney*, CNN, May 21, 2012.

58. In March 2008, when Mr. Dimon was on the board of the New York Fed, JPMorgan Chase acquired the failing investment bank Bear Stearns, with guarantees from the New York Fed. Johnson and Kwak (2010, 159) state that “this was a coup for JPMorgan, which was paying for Bear Stearns approximately what its *building* was worth.” Richard Fuld, CEO of Lehman Brothers, served on the board of the New York Fed from 2005 and had just started his second three-year term when Lehman Brothers went into bankruptcy. See Huma Khan, “Federal Reserve Board Rife with Conflict of Interest, GAO Report,” *ABC News*, ABC, October 19, 2011. On the perception of investors that having a director on the board of the local Federal Reserve Bank is beneficial, see Adams (2011).

59. Empirical research has shown that in sports in which referees’ judgment calls are important, these judgment calls tend to favor the home teams. Referees seem to be subconsciously influenced by the watching crowds’ sympathies for the home team. See Barth et al. (2012), who use the analogy in discussing capture in banking, and references therein.

60. This insight is originally due to Olson (1965), Stigler (1971), and Peltzman (1976). According to the Center for Responsive Politics (information available at <http://www.opensecrets.org/lobby/top.php?showYear=a&indexType=c>, accessed October 21, 2012), the financial industry spent \$479,237,675 on lobbying in 2011, an increase of about 13.9 percent relative to 2007. (Total inflation during this period was roughly 8 percent.) Lessig (2011, 147) notes that “in October 2009, around the time the Dodd-Frank Act was debated, there were 1,537 lobbyists representing financial institutions registered in D.C. . . . twenty-five times the number registered to support consumer groups unions and other proponents of strong reform.” This does not take into account the direct connection between politicians and prominent bankers who make substantial campaign contributions.

61. See Jackie Calmes and Louise Story, “In Washington, One Bank Chief Still Holds Sway,” *New York Times*, July 18, 2009.

62. An example is the intense battle in the United States over the Financial Consumer Protection Bureau (see Wilmarth 2012a,b; Nathan Kopel, “Consumer Protection Bureau Mired in Politics,” *Wall Street Journal*, June 15, 2011; and Michelle Singletary, “Consumer

Financial Protection Bureau Got Off to a Good Start in Its Inaugural Year,” *Washington Post*, July 10, 2012). Bair (2012, 342) states that “industry lobbyists have found that the best way to harass the SEC and the CFTC [Commodity Futures Trading Commission] and block efforts at financial reform is through convincing appropriation committees to restrict how these agencies can use their money.” She describes efforts to “prohibit the CFTC from using its funds to implement rules forcing more derivatives into public trading facilities and other measures.”

63. For example, the old monopolies in telecommunications were lifted when would-be new suppliers managed to convince judges and politicians that they had legitimate reasons for wanting to enter those markets and that there was much to be gained from competition and innovation (see Crandall 1991, Waverman and Sirel 1997, and Viscusi et al. 2005).

64. The National Transportation Safety Board is dedicated to investigating causes of major accidents in transportation systems; a similar agency that might prevent financial “accidents” is lacking (see Fielding et al. 2011). The Financial Stability Oversight Council established by the Dodd-Frank Act is made up of existing regulators; so far there is little evidence that it has been useful for this purpose (see, e.g., Bair, 2012, 337–339). Similarly, the Dodd-Frank Act established the Office for Financial Research, but this agency has been slow to develop, and its potential impact is unclear as of this writing.

65. An exception that proves the rule is that Nikolaus von Bomhard, CEO of the world’s largest reinsurer, Munich Re, called for banking reform. At the same time he stated that the insurance sector does not add systemic risk and thus should not receive as much attention from regulators. See “Munich Re CEO Says Europe Needs to Push Forward Structural Reforms,” *Wall Street Journal*, July 16, 2012. In the United States, Paul Singer, a hedge fund manager, called for financial reform (see “Donor Urges Romney Shift on Banks,” *Financial Times*, August 15, 2012). However, as Eric Rosengren, president of the Federal Reserve Bank of Boston, said, “Financial stability has no constituency” (see “Money-Market Funds Still Need Reform,” *Wall Street Journal*, April 26, 2012, and Rosengren 2012).

66. There are a number of organizations dedicated to improving financial regulation for the public, such as Better Markets and Americans for Financial Reform in the United States and Finance-Watch in Europe. In “Facing Down the Bankers” (*New York Times*, May 20, 2012), Annie Lowrey describes Dennis Kelleher from Better Markets as “battling against Wall Street and its lobbies to regulate the banking system” and quotes former senator Byron Dorgan as saying, “It’s David versus Goliath, but at least David’s there.” See also Scott Patterson, Serena Ng, and Victoria McGrane, “Boo, and Backers, for ‘Volcker Rule,’” *Wall Street Journal*, February 14, 2012, and Simon Johnson, “Opening up the Fed,” *New York Times*, Economix blog, February 23, 2012. Lessig (2011) describes the excessive impact of money on policy in the United States. In the broader context, Ross (2011, 68) states that “it is not clear that contemporary political institutions, whether national or international, do in fact successfully give sufficient attention to the common interests of humanity. Instead, it’s increasingly evident that these institutions instead [*sic*] elevate the interests of the most powerful interest groups over collective interests, and neglect long-term primary needs.”

67. See Norimitsu Onishi and Ken Belson, “Culture of Complicity Tied to Stricken Nuclear Plant,” *New York Times*, April 26, 2011.

THIRTEEN *Other People's Money*

1. For the full letter, see <http://www.bbc.co.uk/news/business-18678731>, accessed October 15, 2012.

2. LIBOR, the “London interbank offered rate,” is not actually quoted in any market but is based on interest rates reported by participating banks. If traders manipulate their reports, this can change the interest on all LIBOR-related debts—for example, on any debt with interest specified at a variable rate equal to “LIBOR + 1 percent.” The traders themselves profited from the way the lower rates affected their own positions in derivatives or the costs attributed to the funds they were employing. In addition to alleged manipulations of this sort by individual traders who, according to released e-mails, may have helped each other, there seems to have been a more coordinated effort by banks to report lower figures so as to avoid alerting investors to their financial difficulties. Regulators seemed aware of manipulations at least after 2007.

3. See “Diamond Cuts Up Rough as He Quits Barclays,” *The Guardian*, July 4, 2012, and “MPs Slam Barclays and Bank of England over Libor Scandal,” *The Guardian*, August 18, 2012.

4. Within the industry, the manipulation seems to have been well known since at least the early 1990s. In the *Financial Times* of July 27, 2012, Douglas Keenan, a former trader for Morgan Stanley, reports that, in one of his first experiences as a trader in 1991, he lost money because, due to the manipulation of reporting by traders at other banks, the value at which LIBOR was fixed differed from the interest rates that he had actually seen on his screen. Morgan Stanley itself was not among the banks reporting their LIBOR quotes, but, as Keenan reports, the practice of misreporting was well known to his colleagues, who smiled at his naïveté. At the time, the head of interest rate trading at Morgan Stanley was Mr. Diamond, who is now surprised that such practices should have been engaged in at Barclays. According to an investigation by the Financial Services Authority (FSA) in the United Kingdom, LIBOR manipulation by traders was common; the FSA mentions 257 e-mails pointing to manipulation between 2005 and 2009. Separately, in 2007–2008 there was a more coordinated effort by banks to shave down their reported borrowing rate so as to appear healthier and less distressed than they actually were. It seems that regulators were aware of this. See “Timeline: Barclays’ Widening Libor-Fixing Scandal,” *BBC News* business, BBC, July 17, 2012. On issues related to the setting of LIBOR, see Peter Eavis and Nathaniel Popper, “Libor Scandal Shows Many Flaws in Rate-Setting,” *New York Times*, July 19, 2012. See also “Libor’s Trillion-Dollar Question,” editorial, Bloomberg, August 27, 2012.

5. Such questions are asked in a *Financial Times* editorial titled “Shaming the Banks into Better Ways,” June 28, 2012. Hayes (2012, 100) discusses the “culture of lying” on Wall Street. Das (2010, 53) describes derivatives as the world of “beautiful lies.” See also Smith (2010).

6. The summer of 2012 saw many scandals, from the loss by JPMorgan Chase of close to \$6 billion in derivatives trading in London to banks being charged with manipulating municipalities and energy prices and with defrauding clients. Also, two hedge funds went

into bankruptcy in the United States, and in both cases customer accounts were compromised. Over the centuries, a willingness to cut corners and bend the law in the pursuit of wealth has often characterized behavior in financial markets. See, for example, Perino (2010) on the late 1920s or, for a more general overview, Kindleberger and Aliber (2005). However, from the 1930s to the 1970s, the stakes for individual traders were much smaller, and there seems to have been less scope for abusing trust. For developments since the 1980s, see Lewis (1990, 2010, 2011), Partnoy (2009, 2010), Das (2010), and Dunbar (2011). See also Greg Smith, “Why I’m Leaving Goldman Sachs,” *New York Times*, March 14, 2012. For a response that puts the issue in perspective, see Frank Partnoy, “Goldman’s ‘Muppets’ Need Treating Like True Clients,” *Financial Times*, March 15, 2012. Mr. Partnoy says, “No one should expect derivatives salespeople to be honourable, any more than we should expect a zebra to scrub off its stripes. Nor should we be sympathetic to municipal treasurers and pension fund managers who succumb to their own animal instincts and sit at the poker table when they should not.” He goes on to insist on the need to regulate derivatives markets.

7. The vast majority of the traders are males (see, for example, “Women Sue Goldman, Claiming Pay and Jobs Bias,” *New York Times*, September 15, 2010; see also “Keep Taking the Testosterone,” *Financial Times*, February 10, 2012).

8. See, for example, Lewis (1990), Partnoy (2009, Chapter 8), Das (2010, Chapter 7), Rohatyn (2010), and Morgenson and Rosner (2011). Some of the unethical behavior in banking is not illegal, but it involves taking advantage of people’s ignorance, leading them to take risks that they are not aware of and that they might not be able to bear. When investing money, many people are particularly vulnerable because they are not in a position to assess the risks. They often fail to realize that, if something sounds too good to be true, such as earning high returns at little or no risk, it is most likely not true. Moreover, if an investment adviser is shading the truth just slightly or neglecting to mention some relevant information, the fraud may be difficult to detect. An example in which even some of the bankers involved may not have understood the risk is given in an article by Floyd Norris, “Buried in Details, a Warning to Investors” (*New York Times*, August 2, 2012). The first paragraph states: “The bank that put together the unusual security did well. The customers who bought it suffered large losses. No one—at least no one who traded the security—seems to have understood the risks that were hidden deep in the prospectus.”

9. According to Barofsky (2012, 8), “‘adopting a narrative’ was a tried-and-true tactic in Washington: define the status quo as a success, and then ignore all evidence that suggests otherwise.”

10. According to the “profit” narrative, authorities supported the markets by buying assets at low prices when market participants had lost confidence, and they ended up making money when confidence returned. See, for example, “New York Fed Sells Last of Its Bonds from AIG Bailouts,” *New York Times*, August 24, 2012. This account leaves out the cost of the support that was given to Fannie Mae and Freddie Mac. The cost of taking over Fannie and Freddie is estimated at \$151 billion (see, e.g., “U.S. Nets \$25 Billion on Mortgage Debt,” *Wall Street Journal*, March 19, 2012). As of April 2012 it was estimated that taxpayers were still owed \$119 billion on TARP investments (see “Billions in Loans Still in

Doubt,” *Wall Street Journal*, April 25, 2012). The inspector general of TARP estimated that close to \$10 billion written off by the Treasury will not be returned. The supposed profits also do not account for the risks to which taxpayers were exposed. As discussed in Chapter 9, providing guarantees and loans at below-market rates is also a form of subsidy.

11. The enormous cost of the crisis was discussed in Chapter 1, note 19. For society, one has to distinguish between the direct cost of providing subsidies through underpriced and implicit guarantees that may be called on in bailouts and supports (discussed in Chapter 9) and the collateral damage to society of a financial crisis or of having distressed or insolvent banks, impacted by the inefficiencies of the dark side of borrowing that we discussed in Chapter 3.

12. As discussed in Chapter 10, Gorton (2010) focuses on describing the crisis as resulting from runs similar to earlier runs by depositors. The liquidity narrative was used in the lobbying that beat back efforts to reform the U.S. money market fund industry in 2012 (see James Stewart, “Influence of Money Market Funds Ended Overhaul,” *New York Times*, September 7, 2012). The article states that “Vanguard has also argued that the 2008 crisis set off by the Reserve Fund was a liquidity crisis.”

13. According to this interpretation, the breakdown of liquidity caused by the runs disrupted the flow of money through the economy, and the central bank had to step in and provide money when and where it was needed. Not surprisingly, Chairman Bernanke is fond of the liquidity narrative (see David Ignatius, “Ben Bernanke, Quiet Tiger at the Fed,” *Washington Post*, May 28, 2009).

14. See, for example, Mehrling (2010) and Duffie (2012); Gorton (2010) compares liquidity provision by the financial system to electricity.

15. On extensions of government guarantees, see Gorton (2010), on the role of the central bank Mehrling (2010).

16. See Calomiris and Mason (1997) and Schnabel (2004).

17. The first models of runs in economic theory have focused on the case in which an institution will be solvent if nobody runs, and everybody knows that this is the case. In this setting, a run is necessarily due to coordination failure. If the solvency of the institution is in doubt, however, the question is how the information possessed by different investors might be put together to permit a better assessment of the institution’s solvency. Letting investors withdraw when they lose confidence is one way to do so (see Calomiris and Kahn 1991, Morris and Shin 1998, Goldstein and Pauzner 2005, Hellwig 2005, and Admati et al. 2011, section 5).

18. See Hellwig (2009), and Krishnamurthy et al. (2012). As discussed in Chapter 10, notes 45 and 54, the results of Krishnamurthy et al. (2012) show that the most popular version of the liquidity narrative of the crisis does not quite fit the facts. The “panic of 2007,” as Gorton (2010) calls it, involved asset-backed commercial paper rather than repo (repurchase agreement) markets, and it damaged the financial system because the commercial banks that were involved became squeezed for equity rather than for liquidity. It should also be noted that boom-and-bust developments in Irish and Spanish real estate markets were similar to the real estate bubble in the United States. In Ireland and Spain, the real estate bubbles were also fueled by excessively easy bank lending, but the mortgages were

held by the issuing banks rather than securitized. See the dissenting statement of Hennessey, Holtz-Eakin, and Thomas to the Financial Crisis Inquiry Report, available at http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/fcic_final_report_hennessey_holtz-eakin_thomas_dissent.pdf, accessed October 18, 2012. In both countries, government support preempted any runs. This support did not, however, eliminate the underlying solvency problems. In both countries the banks' losses and the resulting solvency problems were so large that the governments had to apply for assistance from the IMF and the other members of the European Union.

19. This is a clear conclusion from the analysis of the history of financial crises by Reinhart and Rogoff (2009), who conclude their book by saying, "We have come full circle to the concept of financial fragility in economies with massive indebtedness. . . . Highly leveraged economies . . . seldom survive forever, particularly if leverage continues to grow unchecked. . . . Encouragingly, history does point to warning signs that policy makers can look at to assess risk—if only they do not become too drunk with their credit bubble-fueled success." Similarly, Lawrence Summers, the U.S. Treasury secretary from 1999 to 2001, refers to "the increasing salience of long-standing financial-sector weaknesses, arising from some combination of insufficient capitalization and supervision of banks and excessive leverage and guarantee—the combination that, along with directed lending, has been captured in the term 'crony capitalism,'" as a root cause of most crises (Summers 2000, 5). Turning to runs, Summers (2000, 7) states that "they are not driven by sunspots: their likelihood is driven and determined by the extent of fundamental weaknesses" and concludes that "preventing crises is heavily an issue of avoiding situations where the bank run psychology takes hold, and that will depend heavily on strengthening core institutions and other fundamentals." See also King (2010) and Schularick and Taylor (2012).

20. The risks are described by Tett (2009), Lewis (2010, 2011), McLean and Nocera (2010), Morgenson and Rosner (2011), Dunbar (2011), and the FCIC (2011). Barth et al. (2012) focus particularly on the regulatory failures.

21. See Tett (2009), Mclean and Nocera (2010), Dunbar (2011), FCIC (2011), and Barth et al. (2012). We discussed many of the issues related to the design and enforcement of capital regulation in Chapter 11.

22. The FCIC (2011, page ix) concludes that "a combination of excessive borrowing, risky investments and lack of transparency put the financial system at a collision course with crisis." Acharya and Richardson (2009, Chapter 1) also describe the crisis as a result of high leverage and a credit boom that led to insolvencies. Blundell-Wignall and Atkinson (2009) argue that the crisis was a solvency crisis that was exacerbated by liquidity problems. See also notes 18 and 19 of this chapter as well as note 47 of Chapter 1.

23. See, for example, "Bernanke: Banking System Stronger, but Mortgage Credit Still Tight," *Dow Jones Business News*, May 10, 2012.

24. See the discussion in the first part of Chapter 11.

25. This argument was originally developed by Olson (1965, 1982). Stigler (1971) and Peltzman (1976) applied it to the politics of regulation of an industry, Grossman and Helpman (1994) to the politics of protection from foreign competition. See also Wilson (1980) and Lessig (2011).

26. See the discussion and references in Chapter 12 regarding regulatory capture.

27. On the accounting debate and its conclusion, see Carruth (2003) and Farber et al. (2007). See also “High Anxiety: Accounting Proposal Stirs Unusual Uproar in Executive Suites,” *Wall Street Journal*, March 7, 1994; “Stock Options Are Not a Free Lunch,” *Forbes*, May 18, 1998; and the concluding remarks of Admati et al. (2011) on “the political economy of fallacious arguments.” On flawed arguments in bank lobbying, see Jenkins (2011, 2012b).

28. In 2009 Nicholas Brady, the U.S. Treasury secretary under George H. W. Bush, who chaired the Presidential Task Force on Market Mechanisms following the stock market crash of 1987, stated that President Obama had “wasted” the crisis and criticized reform proposals as “incoherent” (see Edward Luce, “Obama ‘Wasted’ Reform Chances,” *Financial Times*, June 29, 2009). The sentiment is expressed in a number of books about the crisis, for example, McLean and Nocera (2010), Dunbar (2011), Morgenson and Rosner (2011), and Ferguson (2012). Mayo (2011, 2928–2932) writes, “The truly outrageous thing about the financial crisis is not that it happened. . . . No, the truly outrageous thing about Citi is that all the factors that led to the problems over its long history and especially over the past decade—questionable accounting, the separation of risk from reward, outsized executive pay—are *still* happening. It’s like we’ve learned nothing.”

29. The statement in the heading of this section is a paraphrase of the last paragraph of an April 26, 2013, column in the *Wall Street Journal* by Eric Rosengren, president and CEO of the Federal Reserve Bank of Boston, titled “Money-Market Funds Still Need Reform.” Rosengren concluded by stating, “While it often seems that financial stability has no natural constituency, that constituency is actually all of us who want to avoid another autumn of 2008 and its aftermath.”

30. On the erosion of Glass-Steagall, see, for example, Fink (2008), Partnoy (2009), and Johnson and Kwak (2010, Chapter 3).

31. Simon Johnson, “The Federal Reserve and the Libor Scandal,” *New York Times*, July 19, 2012, and Sudeep Reddy, “Congress Joins Libor Probes; Focus Includes U.S. Regulators Who Knew about Problem as Early as 2007,” *Wall Street Journal*, July 10, 2012. See also “The Federal Reserve and the Libor Scandal,” *New York Times*, July 19, 2012. On the United Kingdom, see the BBC timeline, <http://www.bbc.co.uk/news/business-18671255>, accessed October 15, 2012.

32. “Financial Crimes Bedevil Prosecutors,” *Wall Street Journal*, December 6, 2011; “Federal Prosecution of Financial Fraud Falls to 20-Year Low, New Report Shows,” *Huffington Post*, November 11, 2011; Matt Taibi, “Why Isn’t Wall Street in Jail?” *Rolling Stone*, February 16, 2011; and Hayes (2012, 72).

33. Mr. Madoff’s being sentenced to 150 years in prison for defrauding thousands of people of large amounts of money over many years is an extreme and rare exception.

34. Daniel Kaufman, “Judge Rakoff Challenge to the S.E.C.: Can Regulatory Capture Be Reversed?” Brookings Institution research opinion, December 2, 2011, <http://www.brookings.edu/research/opinions/2011/12/02-rakoff-challenge-kaufmann>, accessed October 15, 2012.

35. Lessig (2011) uses the term “corruptive dependencies” to describe relationships such as those between lobbyists or wealthy individuals and policymakers. On accountability looked at in a historical perspective, see Adrian R. Bell’s somewhat whimsical “Libor Scandal

Is No Match for Its Medieval Precedent,” Bloomberg, July 27, 2012, and “Should Crimes of Capital Get Capital Punishment?,” *Wall Street Journal*, July 27, 2012.

36. Brandeis ([1914] 2009), whose book title is “Other People’s Money and What Bankers Do with It,” was mainly concerned with the power bankers derived from their control over money. In contrast, we are concerned with the risks inherent in their dealing with other people’s money.

37. See Cochrane (2005) and Korteweg and Sorensen (2010).

38. For a discussion of the need to focus on this objective without allowing other concerns to interfere, see Admati and Hellwig (2011b).

39. In the 1990s, Argentina had a currency board that required the issue of pesos to be fully backed by dollars. Because the government could not use the central bank’s printing press, it borrowed from private banks. In 2000–2001, when it had become clear that government borrowing was unsustainable, there was a run on the banks because people wanted to withdraw pesos to convert them into dollars before the currency regime was changed. The run precipitated a severe financial and economic crisis. The standard of living dropped drastically.

40. See, for example, Johnson and Kwak (2010), Allison (2011), and Hoenig and Morris (2011). The Federal Reserve Bank of Dallas (2012) dedicated its 2011 annual report to a call to “end too big to fail now.” Many other colorful expressions are used to describe these banks. For example, see Thomas Hoenig, “Too Big to Succeed,” *New York Times*, December 1, 2010; Sebastian Mallaby, “Woodrow Wilson Knew How to Beard Behemoths,” *Financial Times*, July 5, 2012; Patrick Jenkins, “Too Big to Be Trusted: Banks’ Balance Shifts towards the Historical and Ethical,” *Financial Times*, July 17, 2012; Jim Wells, “Too Big to Behave, Not Too Big to Be Punished,” *American Banker*, July 20, 2012; and George Will, “Too Big to Maintain?” *Washington Post*, October 12, 2012. Hu (2012) discusses the problem of banks’ being “too complex to be depicted.” Referring to Haldane (2012b), see “Bank of England Official Likens Banks to Overgrown Elephant Seals,” *Financial Times*, April 25, 2012.

41. The risk is greater when many banks choose similar strategies. If they expect supervisors and central banks to pursue a too-many-to-fail policy, they may actually want to choose lending strategies so that, if the loans do badly, they will all fail at the same time and the authorities will have to clean up the mess (see, for example, Acharya et al. 2007, Acharya and Yorulmazer 2008, and Farhi and Tirole 2011). The S&L crisis of the 1980s in the United States, the Japanese banking crisis in the 1990s, and the recent crisis of the Spanish *cajas* (local or regional savings banks) all involved many banks’ failing. These crises show that bailouts may also be difficult to avoid if many banks are in trouble at the same time. Not only are such bailout policies costly; they can also distort the banks’ incentives so that they become motivated to take risks so that different failures will occur at the same time.

42. In the first round, the damage involved short-term creditors, such as money market funds and hedge funds, as well as participants in derivatives markets who had expected Lehman Brothers to serve as market maker. The first-round effects had further repercussions through runs on other investment banks and on money market funds and through price declines in many asset markets.

43. Paradoxically, Bear Stearns and Lehman Brothers were more lightly regulated than commercial banks, and this contributed to their downfall. As pure investment banks, they were regulated by the Securities and Exchange Commission (SEC), which allowed them to apply the Basel II approach to determining their equity requirements, as do European banks. As a result, these banks' indebtedness and risk taking grew to such levels that they could not absorb their large losses in 2007 and 2008. The Lehman bankruptcy was discussed at the end of Chapter 5.

44. The CDS contracts were structured so that AIG would have to post cash collaterals if the insured mortgage securities were downgraded. These were the commitments that AIG could not fulfill and that were paid in full by the U.S. government. See Barofsky (2012).

45. Interconnectedness will actually be increased if the breakup means that some institutions must borrow from others, whereas previously the two had been under the same corporate roof. For example, under the McFadden and Glass-Steagall Acts in the United States, some depositors' funds would be lent from local commercial banks to the large money center banks, and some depositors' funds would be lent from commercial banks to investment banks. In European universal banks with large branch networks, all of these would be in-house transactions. The ultimate problem of controlling what risks are taken with the money is the same in both regimes. However, in a regime in which the commercial banking units have a say as to where the funds from depositors go, control of these risks is likely to be more effective than in a regime in which investment banking units rule the roost and can ask for any funds they like at the prevailing "price" that the parent organization is setting. For an example of how the control of investment banking by senior management in a universal bank can fail, see UBS (2008). One might think that control of investment bankers would be stricter if they had to obtain funding through an arm's-length relation with another party. However, as discussed in Chapter 10, arm's-length funding of investment banks such as Bear Stearns or Lehman Brothers by money market funds and other institutions did not provide much discipline, either. Structural arrangements between complete integration of the UBS type and complete separation of the Glass-Steagall type—for example, an organization of deposit taking and investment banking in separate subsidiaries of the same parent corporation—might give rise to fake arm's-length relations between the different subsidiaries. An example of such fake arm's-length relations is provided by the system of German public banks, in which local savings banks, which are active in retail banking, collect more funds from depositors than they can use themselves and automatically invest large parts of their surplus funds with the Landesbanken, which are active in investment banking. In any arrangement, the key question is how to ensure proper governance for the funding of risky investment banking activities.

46. Attempts to form central clearinghouses for derivatives might actually create new and particularly dangerous systemically important institutions. Being owned by the participating banks would make the clearinghouses highly connected. It is essential that they have sufficient ability to absorb losses without needing any support from banks or from the government. Regulating them effectively would be critical. If more derivatives were

traded on exchanges, this might increase financial stability without much harm to the economy. See Levitin (2013) for a discussion of clearinghouses.

47. See Admati and Hellwig (2011b).

48. As discussed in Chapter 11, it is misleading to use the existing sizes of banks or the banking industry as a base from which to calculate the astronomical amounts of new equity that such requirements would supposedly entail. It may well be the case that the industry or individual banks ought to shrink because their current size is inefficiently large for society; in this case, much less equity needs to be raised. As we argued in Chapters 11 and 12, we cannot tell what the size of the industry should be because of the existing distortions brought about by subsidies and the harmful fragility of the system. Banks have a significant amount of debt that is not part of their business and that seems underpriced. With more equity, the funding costs of banks would be brought in line with the overall economy, and the sizes of banks and the industry would be determined in a less distorted market.

49. The quotes are from Turner (2010, 5 and 57 respectively). In a similar vein, Haldane et al. (2010), provocatively titled “What Is the Contribution of the Financial Sector: Miracle or Mirage?,” focuses on the need for bank performance measures to be adjusted for risk, as we discussed in Chapter 8. Both Turner and Andrew Haldane, executive director of financial stability at the Bank of England, call for higher equity requirements as a key element of financial reform. See also Haldane (2012a,c).

50. As discussed in Chapter 11 and in Admati et al. (2012a), capital requirements that are specified in terms of equity ratios relative to risk-weighted assets can lead to inefficient reductions in lending. The transition to higher equity requirements, therefore, must be managed by regulators to avoid this effect.

51. This issue was discussed in the last part of Chapter 8.

52. For example, Kashyap et al. (2010) warn that increased capital requirements will lead to a migration of risk out of the regulated system and will increase the overall fragility. Patrick Jenkins et al., in “New Forces Emerge from the Shadows” (*Financial Times*, April 10, 2012), quotes bank CEOs warning that tighter regulation will drive activity to the shadow banking system. In Chapter 10 we debunked the notion that the existing shadow banking system is efficient. Rather, the system has been developed primarily to evade regulation, and the buildup of fragility in this system reflects distorted incentives and a rat race of borrowing that are inefficient.

53. For an overview of the shadow banking system, which includes hedge funds, special-purpose vehicles, and other entities, see Poszar et al. (2010), Acharya et al. (2010, Part III), and FCIC (2011, Chapter 2), and FSB (2012). As discussed in Chapter 4 (see note 27) and Chapter 10 (see note 46), money market mutual funds were developed in the 1970s in order to get around the regulation of commercial banks and savings banks. These funds are regulated by the SEC, which means that they are very lightly regulated relative to banks and operate with few restrictions. The concern with shadow banking and so-called regulatory arbitrage can be traced to the establishment of money market funds. Since that time, regulators have feared that regulating banks might lead to the displacement of regulated

banks with new unregulated institutions. The problem of enforcement is particularly challenging in the United States because the regulatory system is highly fragmented. Under the Dodd-Frank Act, the Financial Stability Oversight Council is authorized to provide “comprehensive monitoring to ensure the stability” of the U.S. financial system, with the idea of closing regulatory gaps (see <http://www.treasury.gov/initiatives/fsoc/Pages/default.aspx>, accessed October 22, 2012).

54. FCIC (2011, xviii). See also Tett (2009), McLean and Nocera (2010), Morgenson and Rosner (2011), and especially Dunbar (2011) and Barth et al. (2012). Thiemann (2012) discusses the politics underlying the passivity of supervisors in different countries.

55. See Hellwig (2009), FCIC (2011, Chapter 10), and Acharya et al. (forthcoming). Sometimes the affiliations were indirect—for example, money market funds holding SIVs, which had to be supported by large banks, as described by the FCIC (2011, Chapter 13). See also Jonathan Weil, “Citigroup SIV Accounting Looks Tough to Defend,” *Bloomberg*, October 24, 2007. Ang et al. (2011) show that the leverage of independent hedge funds during the crisis was low relative to that of other entities in the shadow banking system that were affiliated with regulated banks.

56. See the references in the previous two notes. Supervisors could have invoked rules that forbid banks from taking large risks with a single partner in order to limit the guarantees that banks give to their SIVs. That would have drastically limited funding for these vehicles.

57. This refers to derivatives and so-called repos. The laws regarding rehypothecation can also create problems (see note 55 in Chapter 10 and note 88 in Chapter 11).

58. See Chapter 12.

59. Or they might be directly under orders from the government, as is the case in many European countries.

60. In this context it is important to find ways to improve the incentives of supervisors and regulators and to combat the effects of regulatory capture. Kane (2012a, 2012c) and Barth et al. (2012) propose some useful approaches.

61. Peter Lattman, “A Jury’s Message for Wall Street,” *New York Times*, August 4, 2012. The manager was found not guilty, but the defense and the jurors wondered why higher-up officials were not charged.

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