STANFORD GRADUATE SCHOOL OF BUSINESS, ANAT ADMATI, ET. AL.

Proposal and Comment Information

Title: GSIB-Regulatory Capital Rule: Risk-Based Capital Surcharges for Global Systemically Important Bank Holding Companies; Systemic Risk Report (FR Y-15), R-1889

Comment ID: FR-2026-0009-01-C49

Submitter Information

Organization Name: Stanford Graduate School of Business

Organization Type: Organization

Name: Anat Admati, et. al.

Submitted Date: 06/18/2026

See attached letter and attachment from Anat Admati, Paul Pfleiderer and Amit Seru, Professors at Stanford Graduate School of Business.

GRADUATE SCHOOL OF BUSINESS
STANFORD UNIVERSITY
KNIGHT MANAGEMENT CENTER
STANFORD CA 94305-7298

ANAT R. ADMATI
GEORGE G.C. PARKER PROFESSOR OF FINANCE AND ECONOMICS

PAUL PFLEIDERER
C. O. G. MILLER DISTINGUISHED PROFESSOR OF FINANCE

AMIT SERU
STEVEN AND ROBERTA DENNING PROFESSOR OF FINANCE

June 18, 2026

Via Electronic Mail

Benjamin W. McDonough, Secretary
Board of Governors of the Federal Reserve System
20th Street and Constitution Avenue NW
Washington, DC 20551
Docket Nos. 1889
RIN 7100-AH22

Re: **GSIB-Regulatory Capital Rule: Risk-Based Capital Surcharges for Global Systemically Important Bank Holding Companies; Systemic Risk Report (FR Y-15) [R-1889], as combined with other proposed rule changes (Docket Nos. 1887 and 1888)**

To whom it may concern

We are finance academics from Stanford Graduate School of Business, who have studied extensively for the last two decade the substantial risks posed by the banking system to the economy and the ways in which regulations can contain those risks or instead maintain and even exacerbate the risks and other distortions created by the current system. We are writing to express very serious concerns about the proposed rules issued on March 19, 2026 that in combination would further weaken the already insufficient and poorly designed regulatory capital framework for the largest and most systematically important U.S. banking organizations. These banking organizations already gain significantly from implicit subsidies, which in many cases encourage risk-taking that benefits the banks but harms the public by making our economy more vulnerable to a financial crisis. Capital requirements are meant to make the institutions and the system less fragile and, at the same time, reduce the outsized subsidies from which these institutions benefit. These subsidies distort banks' decisions in dangerous ways and do not provide societal benefits that in any way offset the risks they create.

The current proposal comes less than a year after agencies proposed lowering the enhanced Supplementary Leverage Ratio (eSLR). On August 26, 2025, the three of us submitted a comment

letter criticizing that proposal. The current proposal is accompanied by two other proposals (Docket Nos. 1887 and 1888). As Governor Barr noted in his March 19, 2026 statement, the changes would harm the resilience of banks and the U.S. financial system. Not only are these changes unjustified and unnecessary, but they also move us in entirely the wrong direction.

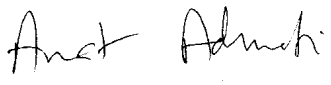
Also of great concern is that, as Jeremy Kress and Graham Steele note in a comment letter about Docket Nos. 1887 and 1888, some proposed changes may violate Section 171 of the Dodd Frank Act (the so-called Collins Amendment). That provision was designed, among other things, to ensure that post-crisis capital standards would not be weaker than those in place before the 2007–09 financial crisis: a crisis that itself exposed the shortcomings and inadequacies of the pre-crisis regulatory framework. We are concerned that the current system, including the growth of non-bank and crypto-based financing, is extremely fragile and prone to crises as severe as the 2007-2009 crisis or worse.

The following attachments include materials written previously that are highly relevant for the current proposed rules and explain why we view the proposals with great concern:

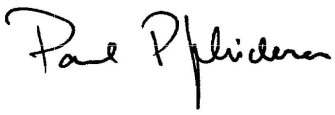
1. A comment letter from the three of us submitted August 26, 2025, regarding the proposed lowering of the eSLR, including three attachments.
2. A 2016 essay entitled “The Missed Opportunity and Challenge of Capital Regulations” that identifies key weaknesses in the Basel-based capital rules. These weaknesses are exacerbated by recent and current proposals.

Thank you for considering our views on this very important matter.

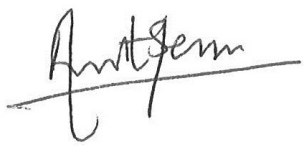
Sincerely,



Anat R. Admati, George G.C. Parker Professor of Finance and Economics



Paul Pfleiderer, C. O. G. Miller Distinguished Professor of Finance



Amit Seru, Steven and Roberta Denning Professor of Finance

GRADUATE SCHOOL OF BUSINESS
STANFORD UNIVERSITY
KNIGHT MANAGEMENT CENTER
STANFORD CA 94305-7298

ANAT R. ADMATI
GEORGE G.C. PARKER PROFESSOR OF FINANCE AND ECONOMICS

PAUL PFLEIDERER
C. O. G. MILLER DISTINGUISHED PROFESSOR OF FINANCE

AMIT SERU
STEVEN AND ROBERTA DENNING PROFESSOR OF FINANCE

August 26, 2025

Via Electronic Mail

Chief Counsel's Office
Attention: Comment Processing
Office of the Comptroller of the Currency
400 7th Street, NW
Suite 3E-218
Washington, DC 20219
Docket ID OCC-2025-0006

Ms. Jennifer M. Jones
Deputy Executive Secretary
Attention: Comments/Legal OES
Federal Deposit Insurance Corporation
550 17th Street NW
Washington, DC 20429
RIN 3064-AG11

Ms. Ann E. Misback
Secretary
Board of Governors of the Federal Reserve System
20th Street and Constitution Avenue NW
Washington, DC 20551
Docket No. R-1867, RIN 7100-AG96

Re: Regulatory Capital Rule: Modifications to the Enhanced Supplementary Leverage Ratio Standards for U.S. Global Systemically Important Bank Holding Companies and Their Subsidiary Depository Institutions; Total Loss-Absorbing Capacity and Long-Term Debt Requirements for U.S. Global Systemically Important Bank Holding Companies

To Whom It May Concern:

We write to express our strong opposition to the proposal to weaken leverage rules for the holding companies and depository institution subsidiaries of global systemically important bank holding companies (G-SIBs). The proposed changes are alarming and take us in the wrong direction given the extreme and unnecessary fragility and the many distortions in the financial system. The existence of many institutions considered "too big to fail," which benefit from excessive privileges,

distort markets, and have strong incentives to take excessive risk and borrow too much on subsidized terms contributes to this fragility and remains a very concerning risk to the public. Well-designed rules that would counter these distorted incentives, and particularly ones that require *much more equity funding relative to debt funding* than current rules allow, are urgently needed. We respectfully urge you to abandon this proposal which takes us in the wrong direction and instead consider the well-reasoned recommendations many have made that would take the rules towards trying to ensure greater stability and fewer distortions. Recent developments, including the move to allow stablecoin and other digital assets to become a part of the system and the expansion of opaque private markets, only serve to make the system more opaque, complex and fragile and give more urgency to this plea.[1]

There is no valid rationale for the proposed rule and no reason to believe the changes would address any flaws in the current system that would offset the significantly increased risks the changes create. An objective analysis of the economics of funding applied to banks reveals that excessive use of debt funding by banks is not at all essential to their ability to serve the economy and the public interest. Rather, it is the result of distorted incentives that can only be countered by effective regulations. Banks' intense aversion to equity funding stems largely from their already high levels of indebtedness and their desires and ability to borrow ever more so as to transfer some of their costs and risks to others and benefit from outsized subsidies that would not be available with equity funding and that are not available to others in the economy. Heavy corporate borrowing is addictive, and in the case of banks, this addiction to borrowing is fed and enabled by guarantees and subsidies ultimately provided by the public.[2] This excessive borrowing not only makes individual institutions more fragile than they need to be, but it also interferes with their ability and incentives to make loans and provide consistent liquidity without support from governments or central banks and with the system being so interconnected, it creates systemic risk and externalities for the entire global financial system.[3] The financial crisis of 2007-2009 illustrated how even small "shocks" (such as house price declines in the U.S.) can create havoc in a fragile financial system

[1] For an extensive discussion of stablecoins, see a 2025 paper by Arthur Wilmarth of George Washington University entitled "The Looming Threat of Uninsured Nonbank Stablecoins" (forthcoming in the *Delaware Journal of Corporate Law*), available at https://scholarship.law.gwu.edu/faculty_publications/1793/. On risks to financial system due to stablecoins also see "Can Markets Trust Stablecoins," Amit Seru, Wall Street Journal, July 28, 2025. On the impact of private equity on the fragility of banks and the financial system, see "How private Equity Tangled banks in a Web of Debt," Ortenca Aliaj, Sam Learner, Irene de la Torre Arenas, Sam Joiner, Will Louch, and Kaye Wiggins, Financial Times, July 23, 2024 https://ig.ft.com/private-equity/

[2] On the addictiveness of corporate borrowing, which is most strongly evident in banking, see Admati, Anat, Peter DeMarzo, Martin Hellwig and Paul Pfleiderer, "The Leverage Ratchet Effect," *Journal of Finance*, 73(1), 145 – 198 (Working paper version available here https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2304969.) See also Anat Admati and Martin Hellwig, "Bank Leverage, Welfare, and Regulation," in: Douglas W. Arner, Emilios Avgouleas, Danny Busch and Steven L. Schwarcz (eds.), *Systemic Risk in the Financial Sector: Ten Years After the Great Crash*, CIGI Press. (Working paper versions available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3257957.)

[3] This point was made clearly in 2010 in a paper, later revised in 2013, by Anat Admati, Peter DeMarzo, Martin Hellwig and Paul Pfleiderer entitled "Fallacies, Irrelevant Facts and Myths in the Discussion of Capital Regulations: Why Bank Equity is Not Socially Expensive." For links to this paper and more materials on the topic see https://www.gsb.stanford.edu/faculty-research/excessive-leverage

Comment letters on the current proposal by Jeremy Kress, Graham Steele, as well as one from Sheila Bair, Thomas Hoening, and Thomas Curry, express many concerns that we concur with, *including concerns with the exclusion of Treasury securities from the denominator of the leverage ratios*. Risk-based regulations, by treating government securities as riskless, blatantly ignore the interest rate risk at the core of banking, the very risk that triggered the failures of Silicon Valley Bank (SVB) and others and forced the Fed to extend extraordinary loans to stabilize the system. These rules already tilt the playing field in favor of government bonds, while the search for yield pushes banks away from the "boring" business loans that are vital for supporting the real economy.[4] By contrast, well-designed equity regulations deliver enormous benefits at little or no social cost. They remain the greatest regulatory bargain available.

Arguments by industry participants against higher equity requirements, which we suspect are brought up to support the current proposal or require further weakening of requirements, are self-serving and must be treated with suspicion given the intense conflict of interest banks have with the rest of society on these issues. Most of the claims made in favor of the proposal include invalid threats and false or misleading arguments. While banks assert that equity requirements lead them to avoid making some loans or investments, the fact that banks choose to make payouts to shareholders, which deplete their equity rather than make loans or other investment shows how disingenuous these claims are. An attachment to this document includes a collection of claims you might hear and why they should be dismissed.[5]

There has always been a strong and powerful conflict of interest between what is good for banks and bankers and what is good for society when it comes to the funding mix of banks, and specifically with how much equity funding banks should use to fund their investments. More equity would enable institutions to make loans and provide market liquidity more reliably and be able to absorb losses should they occur. We have written extensively over the years and in many formats and lengths on these issues. We note as well mandating equity issuance and/or restrictions on payouts to shareholders may be necessary to avoid inefficiencies in adjusting to ratio-based requirements (including eSLR).[6]

---

[4] Buchak Greg, Gregor Matvos, Tomasz Piskorski, and Amit Seru (2024), "The Secular Decline of Bank Balance Sheet Lending," NBER Working Paper 32176, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4738613 document the long-run decline in bank balance sheet lending and shows how regulation has tilted banks toward securities holdings rather than traditional loans.

[5] The document is by Anat Admati and Martin Hellwig and available here https://gsb-faculty.stanford.edu/anat-r-admati/publications/the-parade-of-bankers-new-clothes-continues/ Earlier contributions, such as a 2010 paper (revised 2013), coauthored also by Peter DeMarzo and Paul Pfleiderer, is entitled "Fallacies, Irrelevant Facts and Myths in the Discussion of Capital Regulations: Why Bank Equity is Not Socially Expensive." For links to this paper and more materials on the topic see https://www.gsb.stanford.edu/faculty-research/excessive-leverage See also Anat Admati and Martin Hellwig, "Bank Leverage, Welfare, and Regulation," in: Douglas W. Arner, Emilios Avgouleas, Danny Busch and Steven L. Schwarcz (eds.), *Systemic Risk in the Financial Sector: Ten Years After the Great Crash*, CIGI Press. (Working paper versions available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3257957.)

[6] The fact that the most straightforward way to build up equity is through retained earnings and new issuance is made in a 2010 letter from 20 academics attached to this comment. On the dynamics and addictiveness of corporate

Contrary to some narratives, the depositor runs on SVB, Signature Bank and First Republic Banks were not due to sudden "liquidity problems." Rather, the liquidity problems and their manifestation as a "run" were caused by legitimate concerns that these banks were *insolvent*, which indeed they were. SVB's need to recognize losses when it sold some of its securities, and its inability to raise equity, made its actual state of insolvency impossible to hide any longer. An academic study coauthored by one of us, examining bank losses from Q1 2022 to Q1 2023, found that bank asset values fell by at least 10%, and in some cases by as much as 20%, with unrealized losses across the system totaling $2.2 trillion. Scores of banks became potentially insolvent because they lacked the equity needed to absorb these losses.[7] These findings are truly alarming. Heavy reliance on debt is also known to weaken incentives to manage risk properly, and this problem becomes more intense as banks get deeper into distress and insolvency. Indeed, concurrent evidence shows that weak banks in the US "gambled for resurrection" as interest rate increases led to losses.[8]

Importantly, in many circumstances accounting rules are not well designed to capture the ability of a bank to absorb losses. For example, the rules failed to account for losses in the fair market value of "held to maturity" (HTM) securities. Unrealized losses matter, as the case of SVB made abundantly clear. Banks may not be able to hold assets to maturity if their funding costs are high, especially when needing to pay higher interest to retain deposits. Beyond unrealized losses on "safe" securities as experienced in SVB, "extend and pretend" strategies to hide large losses in commercial real estate markets are also a looming problem, and they may further expose the fragility of the system.[9] We see repeatedly that banks deemed at one moment to be "well capitalized" according to the standards used at the time are suddenly revealed to be weak or insolvent. Opaque and misleading financial statements contributed to delays in recognizing the weakness of Credit Suisse. Ultimately extraordinary measures were taken in Switzerland to avoid

---

borrowing generally, which is most strongly evident in banking, see Admati, Anat, Peter DeMarzo, Martin Hellwig and Paul Pfleiderer, "The Leverage Ratchet Effect," *Journal of Finance*, 73(1), 145 – 198 (Working paper version available here https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2304969.) The paper also analyzes adjustments to leverage ratio-based regulations and suggests banks may choose to sell assets or restrict certain investments inefficiently when needing to reduce indebtedness measured by a ratio.

[7] Jiang, Erica, Gregor Matvos, Tomasz Piskorski, and Amit Seru (2023), "Monetary Tightening and the U.S. Bank Fragility in 2023: Mark-to-Market Losses and Uninsured Depositor Runs?," NBER Working Paper 31048, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4387676 estimate the decline in market value of banks' assets, including securities portfolios, commercial loans, leases, and residential mortgages.

[8] The poor risk management of SVB was noted extensively in the reports about this case by the Federal Reserve. On the behavior of banks through the system, see Erica Jiang, Gregor Matvos, Tomasz Piskorski and Amit Seru (2023), "Limited Hedging and Gambling for Resurrection by U.S. Banks During the 2022 Monetary Tightening?," SSRN Working paper https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4410201

[9] See, for example, the January 14, 2024 segment of CBS 60 Minutes on the topic that explains the issues and mentions the strategy, transcript here https://www.cbsnews.com/news/real-estate-owners-saddled-with-half-empty-offices-as-hybrid-work-continues-60-minutes-transcript/. See also, Joao Granja, Erica Jiang, Gregor Matvos, Tomasz Piskorski and Amit Seru (2024), "Book Value Risk Management of Banks: Limited Hedging, HTM Accounting, and Rising Interest Rates,", NBER Working Paper 32293, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4779867

imposing losses on holders of securities nominally designated to absorb losses ahead of central bank and government support.

Given the huge complexities involved and cross-border complications, the resolution of global systemic institutions is effectively unworkable.[10] This makes the need for adequate equity for absorbing losses without needing supports and bailouts all the more critical. *Had equity requirements been much higher and well enforced, the turbulence we have experienced since spring 2023 in the US and in Switzerland could have been prevented and banks today would be in a better position to absorb losses in the future.*

Global institutions considered "systemic" and rightly viewed as "too big to fail" enjoy enormous privileges. They can raise debt cheaply, take enormous risks, and grow to inefficient size. "Supplementary" requirements for these institutions (sometimes referred to misleadingly as "surcharges" when in fact they are designed to reduce outsized subsidies) are a step in the right direction. However, at the current levels they are still insufficient, enabling some of these institutions to become very complex and "too big to manage" and since they often break laws with impunity ("too big to jail").[11]

The debate on banking regulation in recent decades has been dominated by fallacious and otherwise flawed and misleading claims. The following attachments correct these flawed claims and elaborate on the points made above.

1. A short letter from 20 academics published in the *Financial Times* just ahead of G20 Finance Ministers signing the Basel III accord on November 11, 2010.[12]
2. A list, with links, of previous comment letters submitted by us in various combinations and sometimes with others, related to the Proposed Rule.
3. A document posted on April 8, 2024 (by Admati and Hellwig) that lists and discusses 44 flawed claims made in the debate about the issue of bank funding, so called "capital regulations." The document should be helpful as you evaluate comments submitted by others, particularly those with a private interest in certain outcomes. Flawed claims should not win policy debates.

---

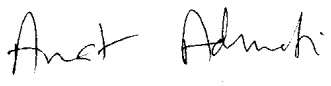
[10] For a detailed discussion of the issue and many references, see Chapter 16, entitled "Bailouts Forever" of *The Bankers New Clothes: What's Wrong with Banking and What to Do About it* by Admati and Hellwig (Princeton University Press, 2024 edition). See also Chapters 9 and 15 on the subsidies banks, particularly those that are too big to fail, benefit from. We raise the question at the end of Chapter 16 whether having such institutions is worth the risk and cost to society.

[11] See also Chapter 17 in *The Bankers' New Clothes:* mentioned in the previous note.

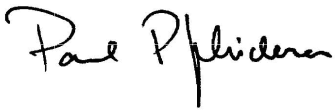
[12] The original document was submitted in mid-October 2010 as a longer "open letter to the G20 Finance Ministers," but it ultimately had to be shortened and appeared in the letters section. On November 10, Vikram Pandit, Citigroup CEO, published an opinion piece in the *Financial Times* entitled "Rethink Basel or Growth will Suffer," making the threats we and others debunk in our writings. On the enablers of the excessively fragile financial system system, see 2017 book chapter entitled "It Takes a Village to Maintain a Dangerous Financial System," by Anat Admati, https://gsb-faculty.stanford.edu/anat-r-admati/publications/it-takes-a-village-to-maintain-a-dangerous-financial-system/

Thank you for considering our views on this very important matter.

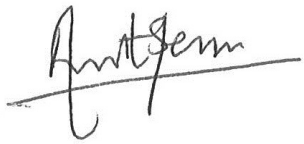
Sincerely,



Anat R. Admati, George G.C. Parker Professor of Finance and Economics



Paul Pfleiderer, C. O. G. Miller Distinguished Professor of Finance



Amit Seru, Steven and Roberta Denning Professor of Finance

Healthy Banking System in the Goal, Not Profitable Banks

Letter from 20 Banking and Finance Academics,
Financial Times, November 9, 2010 (posted online Nov 8, 2010)

The Basel III bank-regulation proposals that G20 leaders will discuss fail to eliminate key structural flaws in the current system. Banks' high leverage, and the resulting fragility and systemic risk, contributed to the near collapse of the financial system. Basel III is far from sufficient to protect the system from recurring crises. If a much larger fraction, at least 15%, of banks' total, non-risk-weighted, assets were funded by equity, the social benefits would be substantial. And the social costs would be minimal, if any.

Some claim that requiring more equity lowers the banks' return on equity and increases their overall funding costs. This claim reflects a basic fallacy. Using more equity changes how risk and reward are divided between equity holders and debt holders, but does not by itself affect funding costs.

Tax codes that provide advantages to debt financing over equity encourage banks to borrow too much. It is paradoxical to subsidize debt that generates systemic risk and then regulate to try to limit debt. Debt and equity should at least compete on even terms.

Proposals to impose a bank tax to pay for guarantees are problematic. High leverage encourages excessive risk taking and any guarantees exacerbate this problem. If banks use significantly more equity funding, there will be less risk taking at the expense of creditors or governments.

Debt that converts to equity, so-called "contingent capital," is complex to design and tricky to implement. Increasing equity requirements is simpler and more effective.

The Basel Accords determine required equity levels through a system of risk weights. This system encourages "innovations" to economize on equity, which undermine capital regulation and often add to systemic risk. The proliferation of synthetic AAA securities before the crisis is an example.

Bankers warn that increased equity requirements would restrict lending and impede growth. These warnings are misplaced. First, it is easier for better-capitalized banks, with fewer prior debt commitments hanging over them, to raise funds for new loans. Second, removing biases created by the current risk-weighting system that favor marketable securities would increase banks' incentives to fund traditional loans. Third, the recent subprime-mortgage experience shows that some lending can be bad for welfare and growth. Lending decisions would be improved by higher and more appropriate equity requirements.

If handled properly, the transition to much higher equity requirements can be implemented quickly and would not have adverse effects on the economy. Temporarily restricting bank dividends is an obvious place to start.

Many bankers oppose increased equity requirements, possibly because of a vested interest in the current systems of subsidies and compensation. But the policy goal must be a healthier banking system, rather than high returns for banks' shareholders and managers, with taxpayers picking up losses and economies suffering the fallout.

Ensuring that banks are funded with significantly more equity should be a key element of effective bank regulatory reform. Much more equity funding would permit banks to perform all their useful functions and support growth without endangering the financial system by systemic fragility. It would give banks incentives to take better account of risks they take and reduce their incentives to game the system. And it would sharply reduce the likelihood of crises.

Anat R. Admati
George C. Parker Professor of Finance and Economics
Stanford Graduate School of Business

Franklin Allen
Nippon Life Professor of Finance;
Professor of Economics
Co-Director, Financial Institutions Center
The Wharton School, University of Pennsylvania

Richard Brealey
Emeritus Professor of Finance
London Business School

Michael Brennan
Professor Emeritus, Finance
Anderson School of Management, UCLA

Markus K. Brunnermeier
Edwards S. Sanford Professor of Economics
Princeton University

Arnoud Boot
Professor and Director Amsterdam Center for Law & Economics
University of Amsterdam

John H. Cochrane
AQR Capital Management Professor of Finance
University of Chicago Booth School of Business

Peter M. DeMarzo
Mizuho Financial Group Professor of Finance
Stanford Graduate School of Business

Eugene F. Fama
Roger R. McCormick Distinguished Service Professor of Finance
University of Chicago Booth School of Business

Michael Fishman
Norman Strunk Professor of Financial Institutions
Kellogg School of Management,
Northwestern University

Charles Goodhart
Professor, Financial Markets Group
London School of Economics

Martin F. Hellwig
Director Max Planck Institute for Research on Collective Goods, Bonn

Hayne Leland
Professor of the Graduate School,
Haas Finance Group
Haas School of Business, UC Berkeley

Stewart C. Myers
Robert C. Merton Professor of Financial Economics
Sloan School of Management, MIT

Paul Pfleiderer
C.O.G. Miller Distinguished Professor of Finance
Stanford Graduate School of Business

Jean Charles Rochet
SFI Professor of Banking
Swiss Banking Institute, University of Zurich

Stephen A. Ross
Franco Modigliani Professor of Financial Economics
Sloan School of Management, MIT

William F. Sharpe
The STANCO 25 Professor of Finance, Emeritus
Stanford Graduate School of Business
(Nobel Laureate, 1990)

Chester S. Spatt
Pamela R. and Kenneth B. Dunn Professor of Finance; Director, Center for Financial Markets
Tepper School of Business,
Carnegie Mellon University

Anjan Thakor
John E. Simon Professor of Finance
Olin School of Business, Washington University

Comments and Testimonies Related to Leverage Requirements, 2010-2024

(Signed by at least one of Anat Admati, Paul Pfleiderer and Amit Seru)

To US Federal Agencies and Congress

- Comment Letter to the Banking Regulators about "Basel 3 Endgame," Anat Admati, January 16, 2024 https://gsb-faculty.stanford.edu/anat-r-admati/files/2024/01/Admati-Comment-Basel-Endgame.pdf

- Comment Letter Banking Regulators about "Basel 3 Endgame," 50 academics including Anat Admati, Paul Pfleiderer and Amit Seru, January 16, 2024 https://gsb-faculty.stanford.edu/anat-r-admati/files/2024/01/Basel-III-Academic-Comment-Letter.pdf

- Comment Letter to the Banking Regulators about Long Term Debt proposal, Anat Admati, January 16, 2024 https://gsb-faculty.stanford.edu/anat-r-admati/files/2024/01/Admati-Long-Term-Debt-Comment.pdf

- Comment Letter to Banking Regulators on Systemic Institutions "Capital Surcharges," (Anat Admati, Jeremy Kress and Jeffery Zhang, January 16, 2024 https://gsb-faculty.stanford.edu/anat-r-admati/files/2024/01/GSIB-Surcharge-Comment-Letter.pdf

- Comment Letter to the Banking Regulators, Anat Admati, Paul Pleiderer and Amit Seru, January 22, 2019. https://gsb-faculty.stanford.edu/anat-r-admati/files/2022/04/fed-letter-january-22-2019-final.pdf

- Letter to Senate Banking Committee re Implementation of the Economic Growth, Regulatory Relief, and Consumer Protection Act, Anat Admati, John Cochrane, Paul Pfleiderer and Amit Seru, September 25, 2018 https://gsb-faculty.stanford.edu/anat-r-admati/files/2022/04/admati-cochrane-pfleiderer-seru-letter-9-25-2018.pdf

- Letter on proposed changes to the Dodd-Frank Act Anat Admati, Paul Pfleiderer and Amir Seru), U.S. Senate Committee on Banking, Housing & Urban Affairs, March 2018. https://www.gsb.stanford.edu/sites/gsb/files/admati-pfleiderer-seru-letter-s.2155-final.pdf

- Testimony for hearing on "Examining the GAO Report on Expectations of Government Support for Bank Holding Companies," [Written statement], Anat Admati, Senate Committee on Banking, Housing and Urban Affairs Subcommittee on Financial Institutions and Consumer Protection, July 2014. https://www.banking.senate.gov/imo/media/doc/AdmatiTestimonyFICP73114.pdf

- Testimony for hearing on "Examining the Impact of the Proposed Rules to Implement Basel III Capital Standards," Anat Admati, Subcommittee on Financial Institution and Consumer Credit and Subcommittee on Insurance, Housing, and Community Opportunity, U.S. House of Representatives, November 2012. https://www.gsb.stanford.edu/sites/gsb/files/examining-the-impact.pdf

- Comment letter on Sections 165 and 166 of the Dodd Frank Act Anat Admati, Sheila Bair, Simon Johnson, and Richard Herring, Board of Governors of the Federal Reserve System, March 2012. https://www.gsb.stanford.edu/sites/gsb/files/rule165-166-doddfrank.pdf

- Comment letter on Sections 165 and 166 of the Dodd Frank Act Anat Admati, Peter DeMarzo, Martin Hellwig and Paul Pfleiderer, Board of Governors of the Federal Reserve System, April, 2012. https://www.federalreserve.gov/SECRS/2012/May/20120507/R-1438/R-1438_050312_107297_334689900548_1.pdf

- Testimony submitted to the U.S. Senate Committee on Banking, Housing and Urban Affairs Financial Institutions and Consumer Protection Subcommittee hearing on "Debt Financing in the Domestic Financial Sector," Paul Pfleiderer, August 3, 2011, https://www.banking.senate.gov/imo/media/doc/PfleidererTestimony8311.pdf

To global regulatory bodies and other authorities on related issues

- Comment letter on Proposal to Ensure the Loss Absorbency of Regulatory Capital at the Point of Non-viability, Basel Committee on Bank Supervision, October, 2010. https://www.gsb.stanford.edu/sites/gsb/files/stanfordunivers.pdf

- Comments to the UK Independent Commission on Banking, Anat Admati and Martin Hellwig), July 4, 2011. https://gsb-faculty.stanford.edu/anat-r-admati/files/2022/04/admati-hellwig_icb-comments.pdf

- Comment for the UK Treasury Select Committee Capital Inquiry Recovery and Resolution, Anat Admati March 5, 2017 https://gsb-faculty.stanford.edu/anat-r-admati/files/2022/04/admati-uk-parliament-special-committee-march-5-2017_1.pdf (also https://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/treasury-committee/capital-and-resolution/written/48317.html)

- Comment to the Financial Stability Board on Too Big To Fail, Anat Admati, June 21, 2019. https://gsb-faculty.stanford.edu/anat-r-admati/files/2022/04/admati_fsb_comment_on_tbtf_062119.pdf

- Second comment to the Financial Stability Board on Too-Big-to-Fail, Anat Admati, September 20, 2020 https://gsb-faculty.stanford.edu/anat-r-admati/files/2022/04/admati-fsb-tbtf-sep-30-2020.pdf

The Parade of the Bankers' New Clothes Continues: 44 Flawed Claims Debunked

Anat Admati and Martin Hellwig

This version April 8, 2024

Abstract

The debate on banking regulation has been dominated by flawed and misleading claims. Such claims provided the basis for poorly designed rules. Despite experiences like the 2007-2009 financial crisis, the rules have not been changed much, and the financial system has remained unconscionably fragile. The fragility was in evidence in the spring of 2023, and it persists today.

In our book *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It*, first published in 2013, we discussed many flawed claims and reviewed their significance in the context of the 2007-2009 financial crisis. A new and much expanded edition, including developments until May 2023, came out in early 2024.

Bankers, policymakers, academics, and others have continued to make the same flawed claims we debunked in our book, and some new ones, including in current policy debates. This document provides an overview of flawed claims with brief rebuttals and references to more detailed arguments. The first version of this document, put out in 2013, discussed 23 flawed claims; this new version includes 44 flawed claims.

The persistence of flawed claims and poorly designed and inadequate rules reflects the politics of banking. Public debate should be based on the principle that it matters whether something is true or not. To ensure that it matters in public debate whether something is true or not, enough people must overcome the temptation to be willfully blind to truth.

List of Flawed Claims

Introduction **1**

Basics about Bank Capital and Bank Funding **3**

1. "Bank capital is something that banks *hold*." 3
2. "By forcing banks to 'hold' more capital than they want and more than is good for the economy, capital requirements prevent banks from making worthwhile loans." 5
3. "Requiring banks to 'hold' capital equal to 15% or more of their assets would not make them much safer and therefore even such high capital requirement would not address the key problems in banking." 6
4. "Equity funding is expensive. Therefore, equity requirements must not force banks to have too much equity." 7
5. "Theoretical arguments from corporate finance are irrelevant for assessing bank capital requirements because their assumptions are unrealistic." 9
6. "Equity requirements must be calibrated to the risks that banks take, so that a bank with very risky activities must use more equity funding than a bank with safer activities." 10

"Banks are Special" **12**

7. "The key insights from corporate finance are not relevant for banks because the economics of funding for banks is entirely different from that of other companies." 13
8. "Banks are special because deposits are 'money'." 15
9. "Banks do not intermediate between their depositors and other creditors and their own borrowers. Banks create their own funding: When a bank makes a loan, it creates a deposit." 16
10. "Whereas deposits might move within the banking system, once deposits are 'created' by lending, they will always be somewhere in the system. Deposit funding for the banking system as a whole is reduced only when loans are repaid." 17
11. "An individual bank that loses deposits can always replace the lost funding by borrowing in wholesale markets." 18
12. "A key role of banks in the economy is to take deposits and to make loans, which facilitates real investments whose economic lifetimes are much longer than the terms for which current investors are willing to commit their funds. Exposure of banks to the risks that come with this *maturity transformation*, especially interest rate risk, is an unavoidable side effect of this role." 18

Economic Effects of Higher Bank Equity Requirements 20

13. "Increasing equity requirements would harm economic growth." 21
14. "Increasing equity requirements would reduce banks' ability to take people's deposits and issue short-term claims that are liquid and can be used like money." 21
15. "Increasing equity requirements would increase the funding costs of banks because investors require higher returns when investing in equity than when investing in debt." 23
16. "Increasing equity requirements would lower the banks' return on equity (ROE) and thus make investors unwilling to invest in banks' stocks." 23
17. "Profitable banks may be unable to raise their equity levels to satisfy higher equity requirements." 24
18. "Increasing equity requirements would force banks to reduce lending." 25
19. "Increasing equity requirements would harm the economy because banks would be less willing to make loans." 26
20. "Increasing equity requirements would force banks to charge higher interest on loans, which would harm the economy." 28
21. "If equity requirements are increased, the banking sector will have to shrink, and this will be bad for the economy." 30
22. "Higher equity requirements would restrict banks' ability to provide market-making services, harm market liquidity, and prevent banks from stabilizing volatile stock markets by countering adverse price movements." 31
23. "Higher equity requirements would cause banks to increase their "risk appetite," which will make the system more dangerous." 32
24. "If equity requirements are increased, the discipline that creditors impose on bank managers will decline." 33
25. "Historically, banks have never had as much as 30% equity; requiring as much equity would therefore harm the business of banking." 35
26. "There is not enough equity around for banks to be funded with 30% equity." 36

"Bank Regulation and Supervision are Already Tough" 36

27. "Basel III is already very tough, doubling or tripling previous requirements; banks that comply with Basel III requirements are safe enough." 37
28. "Basel III and its implementation in different jurisdictions, are based on reliable scientific analysis of the costs and benefits of different levels of equity requirements." 39

29. "Assigning risk weights to assets when determining required equity is a way of bringing serious quantitative analysis to bear on bank regulation." 40
30. "The fate of Silicon Valley Bank (SVB) shows that equity is unimportant for a bank's survival; a bank's survival depends on its liquidity, and that can vanish for no reason at all if depositors or other short-term creditors decide to run or not to roll over the bank's debt." 42
31. "For fixed-rate loans and securities that banks intend to hold until they mature (in the so-called bank book), interest rate risk does not matter, and it is appropriate that risk weights under Basel III do not take this risk into account." 44
32. "Except for the effect of credit risk, the market prices of assets in the bank book, which banks intend to hold until they mature, are irrelevant to the banks' health, and therefore there is no need to adjust their valuation (i.e., 'mark to market') to this risk in the banks' accounts." 45
33. "Stress tests have repeatedly shown that, by now, banks have enough equity to withstand even major shocks." 46

"No More Bailouts!" 47

34. "Governments want to avoid bailouts." 47
35. "Bailouts that are paid for by the industry should not be considered genuine bailouts." 48
36. "To reduce the likelihood of bank failures, it is enough to have banks issue debt that converts to equity when a trigger is hit, so-called "contingent capital," or co-co's." 49
37. "Whereas equity is needed for banks as going concerns, banks in resolution need long-term debt that can be bailed in. Total Loss-Absorbing Capacity ("TLAC") in resolution must be large enough to permit a quick recovery." 50
38. "The Dodd-Frank Act in the US, or the Bank Recovery and Resolution Directive (BRRD) and the Single Resolution Mechanism (SRM) in the European Union, have done away with the need to bail out banks. If a bank gets into trouble, the authority in charge of resolution will be able to resolve it without cost to taxpayers; there is therefore no need to increase equity requirements." 51

More Radical Approaches? 53

39. "The best way to make banking safer is to require banks to put funds from deposits into reserves of central bank money or short-term Treasury Bills (so-called narrow banking, also known as the Chicago Plan for 100% reserve banking). Such a shift will give us a stable financial system and there would be less need, perhaps even no need at all, to impose equity requirements." 53

40. “The financial system would be safe if banks were subject to a 100% reserve requirement so they could take no risks with depositors’ money, while non-bank financial institutions are entirely prohibited from borrowing.” 54

Politics of Bank Regulation and Global “Competitiveness” 55

41. “Tighter regulation of banks, and in particular higher equity requirements, are undesirable because they would cause activities to move to the unregulated shadow banking system.” 55
42. “Since banking is a global business, it is important to maintain a ‘level playing field.’ Therefore, banking regulation must be coordinated and harmonized worldwide.” 55
43. “Stricter national regulation would harm ‘our’ banks; instead, we should be supporting them in global competition.” 56
44. “The politics of banking makes effective regulation impossible, and therefore debating the merits of specific regulations such as equity requirement is ‘beside the point’.” 57

References 59

The Parade of the Bankers' New Clothes Continues: 44 Flawed Claims Debunked*

Anat Admati and Martin Hellwig

April 8, 2024

Introduction

Since the early 1990s, the development of bank regulation has been dominated by flawed and misleading claims. Flawed and misleading claims provided the basis for the poor design of bank regulation that contributed greatly to the financial crisis of 2007-2009, the buildup of risks before the crisis and the contagion processes in the crisis. Flawed and misleading claims also caused post-crisis regulatory reform to be very timid so that financial institutions and the overall financial system remain unconscionably fragile.[1] The fragility was in evidence in the spring of 2023, when several US banks and Swiss megabank Credit Suisse collapsed. Whereas the Federal Reserve has remained sanguine about the situation, the US Office of Financial Research (OFR) has warned that "banking conditions remain fragile and uncertain."[2]

In our book *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It*, first published in 2013, we discussed and debunked many of the flawed claims. We refer to these claims as the Bankers' New Clothes and show that they have as much substance as *The Emperor's New Clothes* in Hans-Christian Andersen's tale. However, the debunking has not deterred the bankers, lobbyists, policymakers, academics, and others from continuing to make these flawed claims, as well as some new ones. Such claims still dominate policy discussion, including the ongoing debate about the so-called Basel Endgame, an effort to eliminate some of the worst abuses of existing regulation. Many of the people making these claims do not care whether they are true but employ them strategically in order to gain the allegiance of certain target audiences and to win the legislative debate about bank regulation.

We discuss these developments in detail in a new edition of our book (Admati and Hellwig, 2024). This new edition retains the earlier text and adds a discussion of events between 2013 and May 2023. It also explains in some detail the role of central banks in supporting fragile financial institutions, the persistence of bailouts, and the failure of the vaunted post-crisis mechanisms for

---

*This document is a new revision of a document that was first posted in 2013 and has been revised and expanded several times since. This version adds more claims and discussion and organizes the list according to the specific nature of flaws the claims involve. We are grateful to Peter Conti-Brown, Kim Schoenholtz, Greg Buchak and Amit Seru, and especially to Paul Pfleiderer for useful conversations and comments.

[1] Admati et al. (2013), first published in 2010, had classified many of the claims we take on as "fallacies, irrelevant facts, and myths."

[2] The report was posted on December 2023. It mentions that rating agencies have downgraded several banks and warns of potential problems to the system. It also identifies banks that are highly distressed and likely insolvent because of recent losses and low levels of equity. See https://www.financialresearch.gov/briefs/files/OFRBrief-23-04-two-new-metrics-bank-securities-portfolio-risk.pdf

dealing with insolvent banks. In addition, we discuss the position of financial institutions in our political and legal systems and argue that the outsized influence of banks and their leaders undermines democracy and the rule of law.

Shortly after the first edition of our book came out in 2013, we prepared a document listing 23 flawed claims with brief rebuttals and references to more detailed arguments in our book and elsewhere. Over the years, we updated the document several times as new claims were added to the list. This document presents another update, now with 44 flawed claims.[3]

Some of the flawed claims involve confusion about basic terminology and ignorance about basic mechanisms of corporate funding. Others involve special pleading, with exaggerated accounts of why banks are different from all other corporations and why certain traditions in banking cannot be abandoned. Many flawed claims involve a confusion between private costs to bankers and social costs to all of us. Deliberate neglect of damage and risks for others, including taxpayers, is pervasive.

Like our book, the document reflects our view that the enormous reliance of banks on funding by debt is a result of distorted incentives and badly designed rules. Excessive debt funding of banks imposes undue risks on the rest of us. It also distorts the banks' decisions on lending and other investments, as well as their ability to provide consistent liquidity without supports from governments or central banks. The funding decisions we criticize are not mandated by the necessities of the business of banking, and the decisions should be restrained by properly designed and enforced rules so that the harm they cause to society is minimized.

The persistence of flawed and misleading claims in the debate and the persistence of flawed rules reflect the politics of banking. Politicians have incentives to give banks and bankers special treatment because banks are a source of funding and are also viewed as such by voters. Threats that regulation may prevent banks from providing voters with whatever goodies they are hoping for are very effective. By contrast, risks of harm to society from flawed bank strategies receive less attention in public debate, despite the experience of the financial crisis of 2007-2009. In public debate, the lobby is joined by many enablers, while others have few incentives to challenge the flawed claims.[4]

The policy debate since 2010 has led us to be deeply concerned about the ability of our democracies to deal with powerful corporations and their ability to corrupt public debate with

[3] The new edition of our book refers to Admati and Hellwig (2023) with 38 flawed claims. The current document, completed in January 2024, discusses 44 flawed claims.

[4] Economist John Cochrane acknowledged this issue in the context of the debate on capital regulation in his blog by saying: "The rest of us read the gobbledygook in the newspapers, chuckle at the faculty lunch – "Ha ha, xyz is CEO of a huge bank and has never heard of Modigliani-Miller! Ha Ha -- pdq is a senior regulator and doesn't know the difference between capital and reserves!" -- and then we go about our business." See "The banker's new clothes -- review," John Cochrane, *The Grumpy Economist*, March 1, 2013 https://johnhcochrane.blogspot.com/2013/03/the-bankers-new-clothes-review.html See also our discussion of Flawed Claim 44.

claims that they maintain even after they have been shown to be false, confident that many in the audience will not be able to tell the difference and that those who are able to tell it will not bother to object.[5] Public debate should be based on the principle that it matters whether something is true or not. If something is shown not to be true, the responsible parties should stop spreading the falsehood and, if they refuse, they should suffer damage to their public reputation.

To ensure that it matters in public debate whether something is true or not, enough people must overcome the temptation described by Margaret Heffernan when she wrote: "We turn a blind eye in order to feel safe, to avoid conflict, to reduce anxiety, and to protect prestige."[6] With this document, as with our book, we hope to contribute to overcoming willful blindness in the debate about bank regulation.

This document is organized as follows. We first provide a full list of the flawed claims, divided into seven groups by type and topic. For each group of claims, we provide a brief introduction before going through the claims one by one, explaining what is wrong with them. Throughout the document, chapter references refer to the new edition of our book, Admati and Hellwig (2024). In this new edition, Chapters 1-13 are unchanged from the original edition. Chapters 14-17 are new.[7]

Flawed Claims Debunked

Basics about Bank Capital and Bank Funding

Flawed claims 1-6 reflect basic confusions and fallacies about the literal meaning of words, the economics of corporate funding, and the rationale for regulating the mix of debt and equity in bank funding.

Flawed Claim 1: Bank capital is something that banks *hold*.

What's wrong with this claim? The word "hold" suggests that bank capital is an asset. As discussed in Chapters 1 and 6, however, bank capital is a source of funding, provided in return for ownership titles or shares. For other corporations this source of funding is called equity. Debt is another source of funding, provided in exchange for promises of payments for interest and

[5] Proctor and Schiebinger, eds (2008) refer to "the making of ignorance" as. "agnotology" and it can be seen in other areas, such as denials of the harm from tobacco and of climate change. See our discussion in Chapter 17 of Admati and Hellwig (2024).

[6] See Heffernan (2012). Admati (2017) and Chapter 17 of Admati and Hellwig (2024) discuss the motivation of many participants, including academics, who produce flawed narratives or serve as enablers.

[7] The Table of Contents, preface, Chapter 1 and index are available by clicking "look inside" https://press.princeton.edu/books/paperback/9780691251707/the-bankers-new-clothes

repayment of principal.[8] Banks use the funds they obtain by issuing equity and debt to acquire assets, to hold cash, to buy securities and to make loans.

The confusion between capital as an asset and capital as a source of funding is due to the fact that the word "capital" has multiple meanings in economics. When economists talk about producing goods with capital and labor, the word "capital" refers to machines and the like, which are indeed assets. However, when accountants or finance experts refer to borrowed capital (debt) versus own capital (equity), they refer to the *funding* that is used to invest and acquire assets. Funding is not something that anyone "holds," especially not the corporation that obtains the funding. *Investors who provide the funding to a corporation hold shares and debt titles of the corporation* and expect to receive dividends or interest from the corporation. The corporation makes these payments out of the returns it earns on the assets it has purchased with the funding it obtained. In the case of banks, these investors include depositors, who are creditors of the banks.

What banks *do hold* are *reserves* of central bank money, i.e., cash and deposits in the central bank. Those funds are actually set aside and not used to make loans that may benefit the real economy. Banks may in fact find it more beneficial to hold deposits in the central bank, especially if the central bank pay generous interest on those deposits (just as individuals like interest-bearing deposits in their banks). According to the Wall Street Journal, in late 2023 and early 2024, the Federal Reserve paid even higher interest on the deposits of commercial banks than it charged on the loans it offered banks under the emergency Bank Term Funding Program (BTFP) created in the aftermath of Silicon Valley Bank collapse on March 12, 2023. Perversely, it thus provided a windfall opportunity for banks at the expense of taxpayers.[9]

---

[8] Some kinds of debt have features that are characteristic of equity. For example, the obligation to make interest payments may be made to dependent on whether the bank earns positive returns. Or the nominal value of the debt, which forms the basis for determining the interest and principal that the debt must pay, may be written down in certain situations. Bank regulation treats some of these hybrid forms of funding as a kind of equity. This treatment reflects industry lobbying under the mantra "anything but equity." We are skeptical of this treatment because, at least when they are issued, the hybrid forms of funding come with payment obligations that to do not depend on the bank's success in its markets and usually they share the feature of debt in having priority over equity. In the financial crisis of 2007-2009, holders of hybrid debt were not made to share in losses; governments bailed them out along with the holders of ordinary debt because they were afraid of making the crisis worse. We discuss the issues and the experience in Chapters 11, 14, and 16. More recently, the complete write-down of AT1-Securities, contingent-convertible debt, of Credit Suisse, even as shareholders received some money, took most people by surprise and led to strong negative reactions by investors and by bank supervisors outside of Switzerland. On investors' reactions, see for example Swiss Federal Department of Finance, *The Need for Reform after the Demise of Credit Suisse: Report of the Expert Group on Banking Stability 2023.* On the reaction of regulators and supervisors outside of Switzerland, see for example the March 20 statement of EU authorities, *SRB, EBA and ECB Banking Supervision statement on the announcement on 19 March 2023 by Swiss authorities*, https://www.srb.europa.eu/en/content/srb-eba-and-ecb-banking-supervision-statement-announcement-19-march-2023-swiss-authorities

[9] See "The Fed Launched a Bank Rescue Program Last Year. Now, Banks Are Gaming It." David Benoit and Eric Wallerstein, *Wall Street Journal*, January 10, 2024. At the time, the BTFP charged banks 4.89% for a loan (compared with 5.5% rate at the short-term discount window), and paying 5.4% interest on reserve, thus banks earned a 0.51% spread, entirely risk-free. See "The Fed Decision Markets Need to Pay More Aattention to," Karen Petrou, *Financial Times*, January 11, 2024. By early February 2024, possibly as a result of such publicity, the rates on BTFP were set

Flawed Claim 2: By forcing banks to "hold" more capital than they want and more than is good for the economy, capital requirements prevent banks from making worthwhile loans.[10]

What's wrong with this claim? This claim involves the very confusion between capital as an asset and capital as a source of funding (equity) that we discussed in the context of Flawed Claim 1. The claim suggests *falsely* that bank capital is something like a cash reserve, which provides banks with a rainy-day fund that they can draw on when they need it, for example to meet withdrawals of deposits. In fact, bank capital is *not* a cash reserve, and capital requirements must not be confused with minimum reserve requirements. Capital requirements concern the mix of debt and equity that banks use for funding, minimum reserve requirements concern the amount of cash and of deposits that that banks must hold with their central bank.[11]

In a hearing of the US Senate Committee on Banking, Housing, and Urban Affairs on December 6, 2023, Ranking Member Tim Scott (R-S.C.) falsely "translated" the terminology around capital regulations "for the average American sitting at home" by stating that proposed rules about bank capital are about "simply requiring more capital on the sidelines, which then means fewer dollars to lend to small businesses, first-time homebuyers, car loans." He continued to claim that "the actual impact of a higher regulatory standard is fewer dollars to lend to Americans who need desperately to be engaged in the process of achieving the American Dream that is typically defined by having access to capital." In this "explanation," the cash banks are required to put "on the sidelines" is preventing Americans from obtaining "capital" (i.e., funding) to fulfill the American Dream.[12] This view of equity requirements is nonsensical and false, and it

---

equal to the interest on reserves, 5.4%. By contrast, since 2019, the European Central Bank's deposit facility has paid interest at half a percentage point (50 basis point) below the main refinancing rate at which the ECB lends to commercial banks, currently 4% versus 4.5%. The ECB has never set the rate at which it lends to banks below the rate it pays on the banks' deposits.

[10] This fallacy about the meaning of capital regulations or requirement, is pervasive and insidious. Tim Pawlenty, then president of the Financial Services Roundtable, was quoted in *Wall Street Journal* on July 20, 2015 ("Fed Lifts Capital Requirements for Banks," by Ryan Tracy, Victoria McGrane and Justin Bear) claiming that "this rule will keep billions of dollars out of the economy." In "How to Solve the Bank Capital Goldilocks Question," *Fortune*, May 6, 2013, Cyrus Sanati falsely claims that capital requirements ask banks to "hold some cash on the sidelines." The comparison of capital to "a rainy day fund" has also been used in Andrew Ross Sorkin, "Easing of Rules for Banks Acknowledges Reality" *New York Times*, January 7, 2013, and in Gretchen Morgenson, "Trying to Slam the Bailout Door," *New York Times*, April 27, 2013. In early 2019, Gary Cohn, who was at the time White House National Economic Council Director said "Banks are forced to hoard money because they are forced to hoard capital, and they can't take any risks." (See "Dodd-Frank Do-Over a Win for Banks: Trump Advisor Gary Cohn, Henry Fernandez, Fox Business, March 30, 2017." By contrast, "A Simple Rule to Stop the Next Financial Crisis," Pat Ragnier, CNN Money, September 15, 2014, and "Bank Rules Debate, Capital Matters – and Words Too," Peter Coy, *Bloomberg BusinessWee*k, September 18, 2014 help clarify the terminology.

[11] The new Chapter 15 gives a detailed account of the role of the central bank, particularly in relation to commercial banks.

[12] Similarly, in the 2010 discussion about increased regulatory reform after the global financial crisis, the British Bankers' Association proclaimed that proposed reforms would require British banks to have 700 billion pounds more capital and that meant 700 billion less in lending to private households and to firms. The claim would have been correct, if this had been 700 billion pounds set aside in accounts with the Bank of England. In fact, British banks could have responded to the reform by raising 700 billion pounds in additional equity and that could have meant 700 billion more in lending to private households and to firms.

does not become true because others also maintain it.[13] As Chair Sherrod Brown (D-OH) stated correctly, speaking to bank CEOs who testified in the same December 6, 2023 hearing: "Let's be clear: Absolutely nothing in these rules would stop your banks from making loans to working families and small businesses. Absolutely nothing."[14] Yet, a January 18, 2024 *New York Time* story about the Basel Endgame debate falsely "explained" that capital is "cash-like assets."[15]

Flawed Claim 3: Requiring banks to "hold" capital equal to 15% or more of their assets would not make them much safer and therefore even such high capital requirement would not address the key problems in banking.[16]

What's wrong with this claim? Funding by equity allows banks to absorb losses without defaulting on their creditors. The claim is false because additional equity allows a bank to absorb more losses without becoming distressed or insolvent and without needing support. Currently internationally agreed regulations allow banks to have equity funding amounting to only 3% of their total assets.[17] At that level of equity funding, a loss of more than 3% on its assets makes a bank insolvent. Silicon Valley Bank's had unacknowledged losses amounted to more than 8% of their assets and more than their equity so the bank was in fact insolvent. Requiring equity funding of at least 15% of assets would make banks *significantly* safer.

Whereas banks typically fund much less than 10% of their investments by equity, it is rare for any healthy non-financial company to have less than 25% in equity, and many successful companies borrow little or nothing, although there is no regulation that prevents them from borrowing as much as they would like. Banks get away with much less equity funding because their creditors are less organized than the creditors of most non-financial companies. This failure in the governance of banks creates many distortions.[18]

---

[13] See examples in footnote 10.

[14] See https://www.banking.senate.gov/imo/media/doc/brown_statement_12-6-23.pdf. The Bank Policy Institute (BPI), a lobbying organization, labeled Senator Brown's statement a "false claim" (https://bpi.com/bpinsights-december-23-2023/). The BPI did not take a stand on Senator Scott's nonsense but presented claims of its own, which echo Flawed Claims 13-21 below.

[15] See "Why Big Banks (and Some Odd Allies) Oppose a Plan to Protect Banks," Emily Flitter, *New York Times*, January 18, 2024. The story referred to some of the comment letters from bank lobbies and from non-profit organizations favoring the rules, but did not link to Anat Admati's comment, Admati (2024a), which included also Admati (2016) on the "missed opportunity" of Basel reforms and a version of the current document dated January 4, 2024. See https://gsb-faculty.stanford.edu/anat-r-admati/files/2024/01/Admati-Comment-Basel-Endgame.pdf

[16] Cyrus Sanati, cited in Footnote 10, criticized the higher capital requirements proposed in 2013 by Senators Sherrod Brown (D-OH) and David Vitter (R-LA) that would have required 15% equity for the largest banks and, falsely referred to the proposal as if it concerned cash reserves. About the Brown-Vitter proposal, which never was discussed in the Senate, see https://www.brown.senate.gov/newsroom/press/release/brown-vitter-leverage-ratio-standards-represent-major-step-forward-but-congress-must-pass-legislation-ending-too-big-to-fail

[17] This is the so-called leverage ratio under Basel III, an international accord that was concluded in 2010. The accord sets minimum requirements for bank regulation. US banks that are regulated by the FDIC have actually been subjected to a stricter requirement.

[18] See Chapter 6, Admati et al. (2013, Section 2), Admati (2014), Admati and Hellwig (2019).

The flawed claim may reflect the confusion between equity requirements and minimum reserve requirements discussed in the Context of Flawed Claims 1 and 2. Importantly, *a reserve of cash or deposits with the central bank does not contribute to the ability of a bank to absorb losses without defaulting on its debt*. For example, if a bank has $97 billion in deposits and $3 billion in equity funding, a cash reserve of $15 billion will not help it to survive if it loses $4 billion on its loans and other investments. After the loss, it has $96 billion in assets, less than the $97 billion it owes, and is insolvent, just as a homeowner is "under water" if the mortgage is larger than the value of the house.

If instead the bank had $85 billion in deposits and $15 billion in equity funding, it would easily withstand the $4 billion loss and even a much larger loss without becoming distressed or insolvent. After a loss of $4 billion, the bank's equity would still amount to $11 billion. Ordinarily, this amount should be sufficient to give depositors and other creditors the confidence that they need to continue lending to the bank or to provide further funding if some investors wish to liquidate their positions. For a bank with assets of $96 billion and equity of $11 billion, it may also not be difficult to raise additional funds by issuing equity for $4 billion and using the proceeds to buy new assets.

Flawed Claim 4: Equity funding is expensive. Therefore, equity requirements must not force banks to have too much equity.[19]

What's wrong with this claim? The claim rests on the observation that shareholders usually require higher rates of return than creditors. For existing shareholders, it therefore seems cheaper to raise additional funds by borrowing than by issuing new equity. However, as we explain in some detail in Chapter 7 and in the context of Flawed Claim 15 below, the returns that shareholders require depend on the funding mix, and required returns change when the funding mix changes. Shareholders require higher returns per dollar invested than creditors, at least on average, because the returns to shareholders are riskier. Whereas creditors only bear risks related to the bank's failing, shareholders bear all the other risks to the corporation's returns. With a greater share of equity funding, however, the risks to shareholders are more widely spread and therefore the risk per dollar invested in equity is lower. Therefore, the excess of expected returns per dollar invested over creditors' returns that shareholders require is also lower.

[19] This claim dominates the discussion about bank regulation. See Chapter 6, as well as Admati et al. (2013). Recent instances involve Schütz's (2023) discussion of the demise of Credit Suisse and the US Bank Policy Institute's labelling of reform proposals as "Basel's Universal Tax on Every Bank Borrower and Intermediation Activity", https://bpi.com/about-excessive-calibration-of-capital-requirements-for-operational-risk/ The "explainer" of "How Capital Works" https://stopbaselendgame.com/capital-101/posted on the website of the same lobbying organization also uses this false logic.

It is fallacious to talk about "costs of equity funding" in isolation. It only makes sense to talk about the overall funding cost for a given funding mix, taking account of the impact of the mix on the corporation's returns and the risks borne by shareholders and creditors.

More equity funding in the mix means that the bank is using more of the "more expensive" kind of funding, but the per unit "cost" in terms of required returns is lower because the per-dollar risk to shareholders is lower. The question is which of the two effects dominates and why. Under some circumstances, it so happens that the two effects just cancel each other out and the overall funding cost is independent of the funding mix.[20] These circumstances hardly ever occur in the real world, but the underlying analysis provides a basis for studying how changes in circumstances can make equity expensive for bankers. The analysis also shows that what is expensive for bankers can be costless for society. Unless one believes that only the bankers' interests count, *the difference between private and social costs of different funding mixes calls for having regulation in the form of equity requirements, in order to prevent bankers from choosing funding strategies that impose undue harm on others*.[21]

A major reason why banks and other corporations consider equity to be expensive involves a bias in the tax system that favors debt funding over equity funding of corporations. We discuss this bias in Chapters 9 and 14. Corporate profits, which benefit shareholders, are subject to corporate income taxation while interest on debt is exempt. Because of this tax subsidy, the use of debt can lower the funding costs of a corporation. From the perspective of society however, this tax advantage is a private benefit to banks; it comes at the expense of others, taxpayers and citizens, who enjoy fewer public services or must pay more taxes, depending on whether the difference in government revenue causes public services to be lower or other taxes to be higher.[22]

Whereas the tax subsidy to debt is available to all corporations, another distortion concerns mainly banks. Banks' depositors and possibly other creditors benefit from explicit and implicit guarantees that the government will reimburse them for the damage they might suffer if their banks fail. The guarantees make them willing to lend to banks at artificially low rates of interest, so borrowing costs do not reflect the default risks implied by the banks' decisions, in funding as well as investments.

Finally, shareholders – and managers – are likely to prefer additional borrowing over a new equity issue because some of the benefits from new equity issue provide a windfall gain to creditors or taxpayers at the expense of shareholders. The funds raised by a new equity issue can be used to buy back debt or to buy additional assets. In either case, default and insolvency become less likely,

[20] This is known as the Modigliani-Miller theorem. As we explain in discussing the following claim, the interest of the theorem is not so much in the conclusion of the theorem itself but in the development of a conceptual framework for analyzing real-world deviations from the conclusion.

[21] Chapters 7-9 and 14 provide detailed discussions of the arguments and their implications for bank regulation. See also Admati et al. (2013, 2018) and Admati and Hellwig (2019).

[22] This concern is neglected in many contributions claiming that equity funding of banks is expensive. For example, French et al. (2010), a policy document written by fifteen prominent academics, make this claim without considering the impact of tax subsidies and guarantees and the distinction between private and social costs.

which makes the (remaining) outstanding debt becomes safer. As default and insolvency become less likely, the right that shareholders have to stop paying creditors when the bank fails becomes less valuable. By contrast, new borrowing may make it more likely that the bank cannot meet its obligations so the shareholders' right to stop payments when the bank fails becomes more valuable. This benefit to shareholders from increasing indebtedness comes at the expense of existing creditors and possibly taxpayers.[23]

If managers' bonuses are tied to shareholders' returns or to the stock price, their assessments will take these effects of new funding decisions on shareholders into account so they will also be biased in favor of debt funding over equity funding. Some bonus schemes make managers even more eager to avoid new equity issues than the existing shareholders themselves.[24]

In addition to the private costs to shareholders and managers, any policy assessment of banks' funding decisions must also take account of the costs that the banks' decisions impose on others, particularly the banks' existing creditors and taxpayers. The fact that banks consider funding by equity to be expensive reflects the fact that they are not taking into account the effects of their decisions on others. If one considers the *social costs* of bank funding decisions that include the costs to others, rather than merely the private costs to banks and their managers and shareholders, the claim that equity is expensive is not true.

Further considerations would also take account of the damage from systemic effects of bank defaults and bank failures of the kind that we saw after the Lehman Brothers bankruptcy (discussed in Chapter 5 under the heading "banking dominos"). Once all effects are considered, the conclusion that equity is *not socially expensive* emerges more strongly. From the perspective of the overall economy, instead, having more equity in the funding mix of banks is actually *cheap* and excessive bank borrowing is expensive. Borrowing merely appears cheap to the banks because it enables them to impose risks and costs on others.

Flawed Claim 5: Theoretical arguments from corporate finance are irrelevant for assessing bank capital requirements because their assumptions are unrealistic.[25]

[23] The discussion here concerns the so-called default option shareholders have because of limited liability. Whereas the effects of tax subsidies and guarantees had been known for a long time, Admati et al. (2018) explain that the effect of debt overhang on new funding decisions creates a ratchet mechanism that tend to make debt go up over time, not because this is efficient but because outstanding debt causes new funding decisions to be biased. In principle, this effect is relevant for all corporations, but, as we discuss in the context of Flawed Claim 7 below, as well as Admati and Hellwig (2019), it is particularly strong in banking because the bank's creditors are highly fragmented and unable to impose and enforce contracts that would prevent it.

[24] Chapter 8 shows that many bonus schemes make managers even more prone than shareholders to take risks at the expense of others; the arguments given there apply to risks from additional borrowing as well as risks from investments.

[25] For example, Barclays Credit Research, "The Costs of a Safer Financial System," March 25, 2013, The Clearing House, "Vanquishing TBTF," March 26, 2013, Oxford Economics (2013), Elliott (2013) and Cline (2017).

What's wrong with this claim? The preceding discussion of the claim that bank equity is expensive rests entirely on two observations whose real-world relevance is beyond doubt: First, funding costs depend on the entire funding mix, and it makes no sense to talk about costs of equity in isolation. Second, banks' assessments of their own private costs of different funding mixes are not a good guide for policy because these assessments neglect the costs banks impose on the rest of society.

The presumption that the funding mix does not matter for the cost of funding is empirically false, not only for banks but also for other corporations. However, the two observations that a corporation's funding costs depend on the entire funding mix and that private cost assessments do not provide a good measure of social costs are universally valid, for banks as well as for other corporations. The arguments we gave show that, when considering the social costs of bank funding, bank decision making is biased in favor of debt and against equity. Once these biases are properly taken into account, one sees that there are large social benefits and virtually no social costs to banks having significantly more equity in the funding mix than they would like and that current rules allow them to get away with.[26]

Flawed Claim 6: Equity requirements must be calibrated to the risks that banks take, so that a bank with very risky activities must use more equity funding than a bank with safer activities.[27]

What's wrong with this claim? The claim refers to the practice of determining a bank's required equity in relation to its so-called risk-weighted assets, rather than its total assets. Whereas the claim suggests that risk-weighting should be used to raise equity if the bank takes large risks, this rarely happens.[28] Most of the time, risk-weighting is a device to *reduce* required equity. The people who put the claim forward really mean that a bank that *claims* to be pursuing a safe strategy should be allowed to get away with a lower requirement, sometimes almost no equity funding at all.

---

[26] Whereas Chapter 7 discusses the corporate finance analysis summarized in the context of Flawed Claim 4, Chapter 9 discusses distortions from tax subsidies and guarantees, Chapter 8 discusses incentives to take excessive risks that are created by debt overhang and compensation structures in banking. Taking on additional debt even though indebtedness is already high is one form of excessive risk taking, a sort of "addiction" to borrowing. The resulting leverage ratchet effect is studied in detail in Admati et al. (2018). Chapter 10 and Admati and Hellwig (2019) show that the fact that banks provide liquidity services through some of their borrowing generally leads to excessive and inefficient, rather than appropriate levels of indebtedness and risk. We elaborate on the distortions associated with the tax subsidy of debt in Chapter 14 and discuss bailouts extensively in Chapter 15 and 16. See also Flawed Claims 34-38 below.

[27] The "risk-based approach" is baked into all discussions of capital regulations, see, for example, the latest proposal from the Federal Reserve https://www.federalregister.gov/documents/2023/11/27/2023-23911/regulatory-capital-rules-risk-based-capital-requirements-for-depository-institution-holding

[28] An exception that proves the rule involves the treatment of crypto assets, particularly cryptocurrencies like Bitcoin. Banks that invest in crypto currencies assets must fund these investments fully (100%) with equity, much more than the 8% required equity for standard loans; See BCBS (2022). We suspect that this rule was in part motivated by fears that growth of crypto currencies would undermine traditional banks and money altogether.

This situation is dangerous because it allows banks to take enormous gambles with hardly any equity to absorb losses. If the risk weight of an asset is zero, no equity funding is required at all. If it is close to zero, a small amount of equity can support a huge gamble. In the runup to the crisis of 2007-2009, many large banks had equity funding of 2% of assets or even less. For securities and other assets in the so-called trading book, equity funding was around 1%.[29] Assets were deemed to be almost riskless, but then, in the crisis, even AAA-rated securities lost enormously in value.

The claim pretends that risks can be defined and measured in some objective way. The industry also pretends that the banks' own risk modelers are experts for such measurements. Such pretenses are useful for lobbying but have little to do with the reality of risk measurement and risk management in banking. Allowing required equity to depend on the risk weights attached to banks' assets creates significant conflicts of interest, not only in relations between banks and supervisors but also in relations between investment units and risk control units of banks.[30]

Empirical research has shown that the ability of banks to withstand losses in the financial crisis was highly correlated with how much equity they had relative to their total assets; in contrast, equity relative to their risk-weighted assets seemed to be irrelevant.[31] Despite the skepticism that this experience generated, the Basel III accord basically stuck to the system of calibrating bank equity requirements to the banks' risks as assessed by the banks themselves. However, as we discuss in Chapter 14, in the mid-2010s, the supervisors found that different banks come to very different assessments of the same risk of the assets they were asked to consider, so there is nothing objective about the resulting risk weights. Under the guise of "finalizing" the Basel III agreement of 2010, the supervisors then proposed to limit the extent to which the banks can use their own quantitative risk assessments in determining the amount of equity funding they are required to use. The industry has been fighting this "Basel III endgame" quite furiously, arguing that risk-based regulation is necessary, and that any deviation will harm bank lending.[32]

The reference to bank lending, particularly to small and medium enterprises, is disingenuous because risk-weighting of assets in the assessment of equity requirement works against lending and in favor of securities. Risk weighting is particularly important for assets in the

[29] FSA (2010).

[30] For examples, see UBS Report to Shareholders on UBS's Write-downs and Behn et al. (2022). We discuss the issue in Chapters 11 and 14.

[31] Demirgüç-Kunt et al. (2010), Brealey et al. (2011).

[32] See, for example, the claims by bankers in this recent debate https://www.brookings.edu/events/requiring-banks-to-hold-more-capital-benefits-and-costs/ The Bank Policy Institute started a website and a major advertisement campaign under the slogan "Stop Basel Endgame" (see https://stopbaselendgame.com/) and has mobilized a number of comments to regulators based on the threats that specific individuals and organizations, particularly minorities, local governments and small businesses, will have difficulty funding their consumptions and investment. These claims ignore the fact that the cheap funding provided to banks is based on subsidies that can be given directly to those who need them most, as well as the banks' own admission that they will make investments on behalf of their shareholders, which may well not include reasonably priced loans to small businesses or needy individuals. Nothing in the rules guarantees that banks will make the investments they threaten to withhold or that they will make them at attractive prices.

trading book, where risk weights are more easily manipulated. Thus, before 2007, banks used risk-weighting based on their own risk models to claim that equity equal to 1% of assets provided sufficient loss absorption capacity. Flawed risk weights introduce biases into banks' investment decisions, and these biases tend to go *against lending*.

"Banks are Special"

Whereas our discussion of Flawed Claims 1-6 has used basic concepts of corporate finance to debunk claims about bank "capital," Flawed claims 7-12 involve the view that "banks are special" and should therefore be given a special treatment.

The view that banks are special rests on the observation that, in contrast to other corporations, banks take deposits and make loans. For certain megabanks, however, this characterization is an anachronism because, in addition to taking deposits and making loans, these institutions also raise funds in wholesale markets, invest in securities and have a large derivatives business so that one might think of them as large hedge funds with a side business in traditional banking and the government guarantees that come with this side business. Even so, the view that banks are special pervades much of the debate about bank regulation.

Arguments for this view take many forms. Some argue that banks are special because deposits are a form of money, created by a bank in the act of lending. Some argue that banks are special because they "create liquidity," i.e., they enable their depositors and other short-term lenders to liquidate their investments quickly and predictably. From this perspective, susceptibility to runs and other forms of fragility of banks are not viewed as bugs but as features of the banking system, bothersome but necessary by-products of the services banks provide. Finally, banks are said to be special because their lending is crucial for non-financial firms, especially small and medium enterprises.

Every lobbyist claims that the business he or she represents is special. A lobbyist for a high-tech company might argue that the company is essential for innovation and growth and therefore should be given special treatment, e.g., through a reduction of corporate income taxes on retained earnings that might funds further investments and further growth. The claim that a business is special must therefore be treated with some skepticism. Thus, in his first review of our book, Martin Wolf of the Financial Times wrote: "Banks are not special, except for what they are allowed to get away with." [33]

[33] See Martin Wolf, "Why Bankers are Intellectually Naked," *Financial Times*, March 17, 2013. In the book we also discuss how banks get away with breaking laws and recklessness more broadly, quoting Joris Luyendijk, "How the Banks Ignored the Lessons of the Crash," *The Guardian*, September 30, 2017 saying that large banks learned from the financial crisis that "in the end there is very little they will not get away with." Admati (2016) also includes a discussion of the "specialness" of banks and the flaws of Basel III.

The rules of the market economy presume that nobody receives privileges because he or she is "special." Differential treatments of some firms and industries may be called for if these firms and industries benefit or harm others, including society as a whole. In this respect, banks have a history of being special in causing financial and economic crises and in being bailed out by governments and taxpayers. Moreover, bankers' incentives are biased in the direction of borrowing and risk taking at the expense of others.

Flawed Claim 7: The key insights from corporate finance are not relevant for banks because the economics of funding for banks is entirely different from that of other companies.[34]

What's wrong with this claim? The claim is false. Although the economics of funding for banks is somewhat different from that of other companies, key insights from corporate finance are highly relevant for banks and the appropriate banking regulation.

Most references to banks being special are motivated by the observation that investors value bank deposits for their liquidity and for the associated payment services. Because of these benefits, depositors are willing to accept lower interest rates on bank deposits than on other forms of debt.[35] However, the fact that bank depositors care about liquidity benefits and payment services as well as the monetary returns they receive does not invalidate the key insight that equity and debt have different risk characteristics and that the per-dollar risks to shareholders and to debt holders – including depositors – are the larger, the more the borrower is indebted. For banks, as for all other borrowers, debt is a legal promise to pay, and a heavily indebted borrower is more likely to become distressed or insolvent. When investments turn out badly, someone must bear the losses; if there is too little equity, the losses must be borne by the bank's creditors, including depositors, or by taxpayers.

This observation gives another spin to the message that "banks are special." The threat, and even more so the actual occurrence, of bank distress and insolvency are likely to *impair* the liquidity of uninsured deposits and other short-term bank debt. Depositors worried about this risk will require much higher interest or withdraw their funds altogether. *The notion that deposits are cheap presupposes that banks have sufficient equity funding to stave off default – or that they are*

[34] See, for example, Oxford Economics (2013), and Barclays Credit Research, referenced in Footnote 25, and "Safety in Numbers," *The Economist,* April 11, 2013. DeAngelo and Stulz (2015), mis-characterize our arguments as relying only on the irrelevance result of Modigliani and Miller, discussed in the context of Flawed Claim 4, and proceed to develop a model of liquidity benefits from deposits in a model that assumes no uncertainty, which is hardly suited for discussing the notion of "liquidity." The DeAngelo and Stulz analysis involves assumptions about pricing and the appropriation of consumer surplus by banks that are incompatible with market equilibrium, which they never actually study. Cline (2017) also criticizes the application of the irrelevance result which in fact does not describe reality as such, yet ignores the actual reasons equity appears expensive to bankers.

[35] By contrast, standard analyses in corporate finance, as considered in the discussion of Flawed Claims 4 and 5, assume that investors only care about monetary returns.

protected by taxpayers. Increasing indebtedness (leverage) and raising the probability of bank failure put these liquidity benefits of deposits at risk; their loss would be a *social* cost.[36]

Do banks take this effect into account? As we discuss in Admati et al. (2018) and Admati and Hellwig (2019), the answer to this question is usually No. Banks are not only special because deposits provide liquidity benefits. They are also special in that their own creditors are highly fragmented and unable to coordinate on imposing and enforcing covenants that would limit bank leverage. In decentralized contracting with multiple creditors, the contracting parties have incentives to engage in excessive debt funding because the impact of the higher debt on the default probability is partly borne by those creditors who are not present in the negotiation. Admati et al. (2018) show that this effect is present even incumbent creditors are protected by seniority clauses. The effect is reinforced if the government steps in to protect banks' creditors through deposit insurance and other forms of explicit or implicit guarantees. Such government protection —which exacerbates the conflicts of interest and distortions associated with heavy borrowing — may well be what is really special about banks.

For bank borrowing in wholesale markets and bond markets, insights from corporate finance are also applicable. In these markets, banks interact with the same investors that buy shares and bonds of other corporations, and like for other firms, the risk they take must be borne by all investors (unless it is borne by taxpayers). Investors value banks' shares and bonds in the context of their overall portfolio and use the same criteria for all investments. The same considerations apply to the borrowing by banks from other financial institutions.[37] They probably also apply to some of the large uninsured deposits that banks have acquired in the years of the covid pandemic, when market rates of interest were close to zero, for example, the $4 billion deposit that Circle Corporation had with Silicon Valley Bank.[38] For large banks, this observation is important because very substantial parts of their debt funding come from markets rather than depositors.

Importantly, like other firms, *banks can choose how much equity to use for funding and how much to borrow*. And banks are also more likely to become distressed or insolvent when they have little equity and borrow heavily. The issues discussed in Chapter 3, entitled "The dark side of borrowing" and again in Chapters 9-10 and 14-16, including the strong conflicts of interest

[36] We discuss this issue in Chapter 10. DeAngelo and Stulz (2015) miss out on this effect because they assume that there is no uncertainty. They also miss out on the possibility that, because of debt overhang effects, ongoing funding choices may not be value maximizing let alone socially efficient, see Admati et al. (2018) and Admati and Hellwig (2019). Gorton and Winton (2017) allow for this effect in principle but then impose special assumptions that eliminate it again, namely, either there are no assets outside of banks or equity is raised at a time when the incidence of risk is already known.

[37] In some of the academic literature on banking, the statement "MM does not apply to banks" is used to postulate frictions that, under the assumptions of the models, might be addressed by borrowing, while conveniently ignoring the enormous frictions and collateral damage on the system that borrowing creates, which we discuss in Chapters 3, 6, 8 and 9. See also Pfleiderer (2015) and Admati and Hellwig (2013).

[38] Hanson et al. (2024) discuss substantial growth in uninsured deposits post 2020, but do not allow for the possibility that this growth was a result of standard portfolio choice responses in a zero-interest market environment, rather than an essential feature of banking in the 21st century. They also do not discuss the moves out of deposits that occurred in 2022, when market rates of interest went up again.

between borrowers and creditors, and the distortions and inefficiencies of high indebtedness and particularly of distress and insolvency, apply to banks. Because of these distortions, the dynamics of leverage are characterized by an excessive growth of debt, which again exacerbates the distortions, as discussed in Admati et al. (2018). These distortions and inefficiencies can spill over to taxpayers and the public, something that those who seek to justify the banks' choice of funding mix as efficient often neglect.[39]

Flawed Claim 8: Banks are special because deposits are "money."

What's wrong with this claim? The notion that bank deposits are "money" is based on the fact that people regard the funds they have in a bank deposit as being similar to cash and are able to use those funds for payments, such as by checks, credit cards, and bank transfers.[40] Monetary economists therefore refer to people's total holdings of cash and of deposits in the economy as the amount of "money" in the economy.[41]

Putting demand deposits and cash into the same macroeconomic aggregate does not mean that they are literally the same. A critical difference is that *deposits are a form of debt*.[42] Banks are obliged to pay the depositor when he or she asks for it. If a bank cannot repay depositors, it is in

[39] The arguments of Admati and Hellwig (2019), as well as Admati et al. (2018) on the inefficiency of high leverage even from the private perspective of the bank and its investors apply here as well.

[40] Some (e.g., Gorton, 2010) have suggested that the use of short-term borrowing, for example through so-called repos, is a modern-day form of deposits. (See also Cyrus Sanati, referenced in footnote 10.) Repos share with deposits the very short-term nature of the lenders' claims. Unlike deposits, however, repo borrowing is not accompanied by provision of payment services. The repo lender, e.g., a money market mutual fund, might provide payment services to its own investors, but those services have nothing to do with the bank that acts as repo borrower. Repo borrowing takes place in wholesale markets with financial institutions acting as lenders. In these markets, as discussed in the context of Claim 4, the insights about the economics of funding that apply to all firms are fully relevant. The so-called shadow banking system, with money market mutual funds offering money-like claims and investing the funds they get in short-term claims on banks as well as other institutions, poses problems for monetary policy as well as prudential regulation and supervision. On the former, see Pozsar (2014), on the latter Gorton and Metrick (2010).

[41] This aggregate is typically larger than the amount of "high-powered money" in the economy, i.e. the money that the central bank has created. High-powered money consists of cash and of the deposits that banks hold with the central bank. Legally, these deposits are claims to cash and may therefore be regarded as equivalent to cash. "Money" in the sense of cash and deposits of non-banks exceeds central-bank money because the reserves of cash and central-bank deposits that banks hold are smaller than the banks' own customers' deposits. Under "fractional reserve banking," banks have only a fraction of the deposits available in central bank money because they deem it unlikely that all their deposits be called at once. The phenomenon is called "money creation by commercial banks." For a perceptive discussion of the difference between money creation by commercial banks and money creation by central banks, see Tobin (1967).

[42] One of the strangest statements in this context comes from John Stumpf, the CEO of Wells Fargo Bank, who reportedly said in an interview: "Because we have this substantial self-funding with consumer deposits, we don't have a lot of debt." (See Tom Braithwaite, "Wells Chief warns Fed over Debt proposal," *Financial Times*, June 2, 2013.) "Self-funding" ordinarily refers to equity and retained earnings. Deposits, by contrast, are a form of debt. It is false, indeed a contradiction in terms, to say that a bank that relies primarily on deposit funding does not have a lot of debt. For an extensive discussion see Hellwig (2018b).

trouble.[43] Cash issued by a central bank, by contrast, is nobody's debt.[44] (For a detailed discussion, see Chapters 10 and 15.)

The key difference between deposits and other kinds of debt is *not* that deposits are "like money" or that deposits may be created by lending (discussed below), but rather that the bank provides depositors with services such as payments through checks and credit cards or access to ATM machines that make funds available continuously. The demand for deposits depends on these services as well as the interest that the bank may offer, and it may also depend on the risk of the bank becoming insolvent or defaulting. However, as discussed in the context of the preceding claim, this special property of deposits does not invalidate the relevance of the insights of corporate finance for banks. Indeed, the finding that excessive borrowing by banks may endanger the safety and the liquidity benefits of their deposits justifies regulation limiting their indebtedness. Rather reducing the ability of banks to provide liquidity benefits such regulation *enhances* liquidity benefits by giving depositors and other short-term creditors more confidence that they can actually get at their money when they need it.

Flawed Claim 9: Banks do not intermediate between their depositors and other creditors and their own borrowers. Banks create their own funding: When a bank makes a loan, it creates a deposit.[45]

What is wrong with this claim? This claim is often made in opposition to the description of banks as intermediaries that raise funds through deposits, other borrowing and by equity in order to make loans (so-called "loanable funds" view of banks). The claim rests on the observation that, if a commercial bank makes a loan to a nonfinancial firm or to a private household it provides its borrowers with a claim on a deposit account. However, this fact is hardly relevant for the bank's funding policy. The nonfinancial firm or household that receives a loan from a bank will typically use the associated deposit for payments. If the recipients of the payments do not have accounts with the bank, the transfer reduces the bank's deposits and its reserves of central bank money.

The claim that banks create their own funding when they lend confuses stocks and flows. The fact that new lending involves a claim on a deposit account provides for a link between the *flow* of new lending and the *flow* of new deposits. The bank's funding problem, however, involves the *stocks* of debt and equity that it has outstanding and the *stocks* of securities, loans, and cash that it holds. When the borrower has used the funds that the bank lent him, i.e., when the borrower has drawn down the amount in the deposit account, the loan is still on the bank's book and requires funding. If this funding involves deposits, *the bank owes the depositors the full amount they*

[43] For the difference between bank deposits and central bank money for the issuer, see Tobin (1967) and Hellwig (2018b).
[44] Deposits with the central bank usually are claims to receive cash. Since the central bank can itself create this cash, these deposits do not involve serious obligations for the central bank. We explain the workings of central banks in Chapter 15.
[45] See, e.g., McLeay et al. (2014). For details of the criticism, see Hellwig (2018b).

deposited, regardless of any losses that it might make on its loans and other operations. The logic of risks per dollar invested being increased by leverage (as discussed in Chapter 2) applies to deposits as well as any other form of borrowing, by banks or others. As explained in Chapter 15, this problem does not affect *central banks* because the banknotes they issue do not oblige them to anything and the deposits they have from commercial banks oblige them only to deliver banknotes if called upon.[46]

Flawed Claim 10: Whereas deposits might move within the banking system, once deposits are "created" by lending, they will always be somewhere in the system. Deposit funding for the banking system as a whole is reduced only when loans are repaid.[47]

What is wrong with this claim? Cash withdrawals reduce not only the deposit funding of an individual bank but also the funding that is available to the banking system as a whole. The same is true if deposits are used for transfers to other countries or for investments in treasury bills. Whereas some authors suggest that deposits are *only* created when banks lend and *only* destroyed when borrowers repay loans, depositors themselves can engage in actions that create or destroy deposits.

A standard response to these arguments is that these other modes of deposit creation and destruction do not matter. Cash is unimportant in a modern economy. Transfers of funds abroad are relatively unimportant, as are purchases of treasury bills. In normal times, this assessment may be appropriate. For example, cash may be unimportant because people find non-cash transactions much more convenient. In a crisis, however, they may want cash anyway because they deem it to be safer than bank deposits.

Cash withdrawals played a key role in the runs on US banks in the Great Depression, and they played again a key role in Greece in the spring and summer of 2015. Shifts of funds to other countries also played an important role in the euro crisis where in 2012 the banking systems of the southern periphery countries came under pressure because many investors shifted their funds to financial institutions in the northern "core countries." Shifts of funds into treasury bills played a

[46] As we explain in Chapters 10 and 15, central banks did have to worry about their own indebtedness in a previous era when banknotes were promises to pay in gold.

[47] The term "banking system as a hole" refers to all the institutions that have deposits with the central bank and use these deposits to make interbank payments. See McLeay et al. (2014), and Jakab and Kumhof (2015). See also Thomas Mayer, "Lasst Bankpleiten zu!" (Allow banks to fail!), *Frankfurter Allgemeine Sonntagszeitung*, January 5, 2014, Martin Wolf, "Only the Ignorant Live in Fear of Inflation," *Financial Times* April 10, 2014, and "Strip Private Banks of Their Power to Create Money", *Financial Times* April 24, 2014. Some even suggest that this "deposit creation through lending" is said to be the way money from the central bank gets into the economy. For a detailed discussion, see Hellwig (2018b).

key role in the runs on banks in September 2008. In all these cases, the amount of funding to the banking system as a whole imploded, with dire consequences for the economy.[48]

Flawed Claim 11: An individual bank that loses deposits can always replace the lost funding by borrowing in wholesale markets.[49]

What is wrong with this claim? First, for reasons given in our refutation of the preceding claim, funding available to a given banking system as a whole may be reduced. If that happens, some institutions will find it impossible to replace the lost funding. The effect will be reinforced if money market lenders worry about their own liquidity and become unwilling to lend to others, preferring to hold central bank money or Treasuries instead. Second, if the bank in question has insufficient collateral, or if its solvency is in doubt, uninsured depositors may withdraw their funds, as happened at Silicon Valley Bank in early March 2023, when it became obvious that the bank's insolvency would shortly be acknowledged. In such a situation, money market lenders are also likely to be unwilling to provide funding even if the funds are available. The fates of Bear Stearns and Lehman Brothers provide examples of how mistrust by lenders can induce a money market run that pulls a bank down. The weeks following the Lehman Brothers bankruptcy show how general mistrust can induce a money market freeze, leading to a severe funding shortage and liquidity crisis at many financial institutions. The shortage of cash motivated enormous fire sales, inducing dramatic declines in asset prices that in turn caused doubts about solvency and reinforced the lending freeze.

Flawed Claim 12: A key role of banks in the economy is to take deposits and to make loans, which facilitates real investments whose economic lifetimes are much longer than the terms for which current investors are willing to commit their funds. Exposure of banks to the risks that come with this *maturity transformation*, especially interest rate risk, is an unavoidable side effect of this role.[50]

What is wrong with this claim? The claim interprets traditional arrangements in banking as if there was no alternative. It overlooks the fact that, in the past, these arrangements caused many

[48] The crisis of March 2023 in the US also involved runs, but in these runs the funds stayed inside the system as depositors moved from regional banks to the larger banks.

[49] In combination with Flawed Claims 9 and 10, this claim suggests that bank lending is not constrained by deposit funding. Bank lending creates deposits, these deposits move around in the banking system, and their movements can always be neutralized by interbank borrowing and lending.

[50] Chapters 4 and 10 provide references to such claims, routinely made by scholars who specialize in banking. In a 2014 workshop for bank supervisors where one of us presented our research, a participant claimed that "banks are special because they transform people's deposits and savings into loans." In fact, of course, *all corporations* "transform" funds raised from investors into assets. We have recently encountered this claim in discussions about the demise of Silicon Valley Bank.

banking crises. It also overlooks the fact that because of technical and institutional innovations since the 1970s, the viability of these arrangements today is doubtful.

As we discuss in Chapter 4, banks and savings institutions traditionally took deposits and made loans to nonfinancial firms and to homeowners. Depositors received promises of fixed amounts for repayment of principal and accumulated interest. Depending on the terms of their contracts, depositors could ask for their money any time (demand deposits) or after a specified term had elapsed (term deposits); the time frame of these contracts is typically much shorter than the time frame of loans.

From the perspective of the other participants, the bank or savings institution in this arrangement performs two distinct functions, not just one. First, it reconciles the short time horizons of investors with the long economic lifetimes of assets such as houses and factories. Investors can get out early, even if the assets that their deposits have helped to fund have not yet matured. This reconciliation is feasible if investors who want to liquidate their positions are easily replaced by new investors.

Second, the bank or savings institution provides investors and borrowers with protection against uncertainty about changes in the economic environment. As investors are promised fixed amounts for repayment of principal and interest, risks from lending and risks associated with replacing deposits that are withdrawn are fully assumed by the bank or savings institution. Fixed interest rates on loans and mortgages also protect the borrowers against uncertainty about changes in the intermediary's refinancing conditions.

References to *maturity transformation* as a key role of banks often lump the two functions together without any distinction. However, there is no reason why these two functions should always be linked. Moreover, as we explain in Chapters 4 and 10, the experience of the past fifty years suggests that, because of changes in institutions and technology, the traditional combination of the two aspects of maturity transformation is problematic, a sure-fire recipe for a crisis. For example, in the United States, savings and loans institutions had traditionally used fixed-rate deposits with maturities of at most seven years to fund fixed-rate mortgages with maturities of thirty or forty years. In the early 1980s, when market rates of interest were 15% per year and higher, the fair values of claims on 1960s' mortgages were substantially below the nominal mortgages' nominal values, and interest income from these mortgages was substantially below the costs of deposit funding.

There is a strong presumption that *liquidity transformation*, allowing investors to get at their funds when they wish, regardless of what is the remainder of the real assets that have been funded, is indeed a key role of financial institutions. Banks and savings institutions invest in loans and other long-term assets that cannot be traded easily. They fund these investments by issuing short-term debt and tradable securities. When the original investors leave, new investors step in to roll over the short-term debt or to buy the securities.

However, such liquidity transformation can also be performed without insuring investors against uncertainty about the payments they will receive when they get out. For example, a mortgage-granting institution can fund itself by issuing long-term bonds, using portfolios of mortgages as collateral. If there are markets for these bonds, buyers of bonds are not forced to hold on to them until they mature but can sell them at any time when the markets are open. However, investors do not have any insurance against uncertainty about the prices at which they will be able to sell their bonds.[51]

There is *no* presumption that the institutions involved in liquidity transformation should also provide investors with full insurance against the uncertainty about the prices at which they can get out. For example, why should a depositor with a seven-year term deposit be given a claim that is completely independent of the value of the mortgage portfolio that a savings institution holds. When the deposit matures, many mortgages in the portfolio still have many years to go. If market rates of interest at that time are high, the fair value of these mortgages will be less than their nominal values, as was the case in 1981. One might argue that risks attached to individual borrowers should stay with the mortgage lender so that the lender has appropriate incentives for creditworthiness assessments. However, this argument does not apply to the risk that changes in market rates of interest – or other macroeconomic developments – impose on the fair value of the mortgage portfolio. Many banking crises have been caused by the inability of banks and other financial intermediaries to bear such risk and withstand shocks from macro developments. Silicon Valley Bank's succumbing to interest rate risk is the most recent example.[52]

Economic Effects of Higher Bank Equity Requirements

Whereas Flawed Claims 6-12 involved the funding side of banks' activities, Flawed Claims 13-26, to which we now turn, concern the implications of bank equity requirements for the banks' lending and other investments. In 2010, the late Paul Volcker, Federal Reserve Chair from 1979 to 1987, told a US senator that "just about whatever anyone proposes, the banks will come out and claim that it will restrict credit and harm the economy. It's all bullshit."[53] Underlying these claims there is also a notion that banks are special, but now this notion involves the dependence of many non-financial firms and of private households on being able to borrow from banks. This

[51] As we explain in Chapter 4, this is also the logic underlying mortgage securitization. There is however on important difference between covered bonds and mortgage-backed securities: With covered bonds, the issuing bank is liable to investors, with mortgage-backed securities, liability is limited to the returns on the mortgage portfolio. With covered bonds therefore the issuing bank retains strong incentives to check the creditworthiness of the borrowers and the quality of their collateral.

[52] On the welfare economics of the allocation of interest rate risk, see Hellwig (1994).

[53] Even Paul Volcker probably did not imagine that the bullshit would extend as far as the claim that a change in capital requirements would increase grocery prices, as claimed in the video here https://center-forward.org/what-we-do/protect-our-economy/?utm_source=ol. This video was aired at football games in the U.S in early 2024.

dependence provides the banking industry with a certain amount of power, which it does not hesitate to use in political lobbying.

Flawed Claim 13: Increasing equity requirements would harm economic growth.[54]

What's wrong with this claim? Those who make this sweeping assertion do not typically provide a coherent explanation for why increased equity requirements, which amount to a reshuffling of financial claims in the economy, would have a harmful effect on growth. In the 2010s, such dire predictions about the impact of higher equity requirements under Basel III have been thoroughly refuted by experience.[55]

Those who make this claim also neglect the fact that the worst downturn in economic growth occurred as a result of the actions taken by highly indebted banks and other financial institutions, which led to the financial crisis in the last quarter of 2008. One reason for the severity of this crisis was the lack of equity in banks, which made banks vulnerable to the decline in US real estate markets, defaults on subprime mortgages and the collapse of the markets for asset-backed securities.

In fact, banks with more equity to absorb losses without becoming distressed are better able to sustain lending in a subsequent economic downturn, with positive effects for investment and the economy. As seen for example in Iceland and Ireland, growth can be temporary and illusionary when the boom is followed by a bust.

Flawed Claim 14: Increasing equity requirements would reduce banks' ability to take people's deposits and issue short-term claims that are liquid and can be used like money. [56]

What's wrong with this claim? The claim falsely assumes that the amount of a bank's equity is fixed and limited, and that none of the banks' debt can be replaced with equity without interfering with "liquidity provision." In fact, a bank can raise the amount of equity by retaining and reinvesting its earnings, or by issuing new shares, either in addition or instead of some of its debt. By increasing its equity, the bank could actually raise the amount of deposits it can take. If equity

[54] See, e.g., Angelini et al. (2011). Cline (2017) also claims that "an increase in capital requirement by 1 percent of total assets would reduce long-term GDP by 0.15 percentage point."
[55] See Cecchetti (2015).
[56] Barclays Credit Research, referenced in Footnote 25, DeAngelo and Stulz (2015), *The Economist,* referenced in footnote 34*,* and Kling, "What Do Banks Do?" *The American*, February 26, 2013 warn of the reduction in bank deposits that, in their view, would be implied by higher equity requirements. Gorton (2012) refers to banks as "producers of debt" in the form of deposits and other short-term claims that people want because these debts are similar to money. Gorton views equity and investments as "inputs" for this debt "production." There is actually no sense in which the bank's equity is an input to its debt when both debt and equity entitle investors to payments from the bank, both being on the same side of the bank's balance sheet. Indeed, it makes little sense to refer to debt promises the bank makes to its creditors as something it "produces."

requirements are increased adding equity would allow the bank to keep its deposits and other "liquid" debts unchanged.

This objection to the claim is also valid if we think about deposit creation as a by-product of lending, as discussed in the context of Flawed Claim 9, rather than a result of depositors' choices. If equity were fixed and limited, equity requirements may indeed constrain the bank's ability to create new deposits through additional lending. However, nothing prevents the bank from increasing its equity and engaging in additional lending and deposit creation. The concerns we raised in the context of Flawed Claims 9-11 about maintaining funding when the beneficiaries of new loans use the newly created deposits for payments, are unaffected.

Relying on more equity would in fact *enhance* a bank's ability to maintain its deposit funding and its provision of useful liquidity because, with more equity, the bank's debt is more trustworthy. Thus, contrary to the claim, the "liquidity" or "money-like" nature of deposits and other short-term bank debt is *improved* when the bank is less highly indebted and has more equity. By making the banks' deposits and other short-term debt safer, additional equity therefore enhances the banks' ability to provide benefits to depositors without needing support from central banks or governments.

Banks may, however, be *unwilling* to increase their equity in response to higher requirements, because, in the presence of existing deposits and other debt, bank managers and shareholders have incentives to undervalue the benefits from additional equity to their depositors and to their resiliency. If the banks' managers and shareholders could have previously committed firmly to all their future funding decisions, they would have taken account of the fact that additional equity enhances the safety and the liquidity of their debt and makes their (potential) lenders willing to provide funding at more favorable terms. In the real world, however, such a commitment is impossible. Over time, banks repeatedly take new funding decisions without having made commitments to depositors and other lenders that they would avoid continuing to borrow. In these decisions, the interest rates on previously contracted debt are taken as given. Banks have no reason to take into account the fact that additional equity makes their existing debt safer whereas additional debt and the risky investments funded with this new debt make it less safe.

Debt overhang, i.e., the existence of previously contracted debts, generates a ratchet effect that makes the bank's indebtedness increase whenever new needs or opportunities call for additional borrowing, whereas there is an aversion on the part of the bank's shareholders and managers to decrease leverage because such a decrease would benefit incumbent debt holders at the shareholders expense.[57] The mix of debt and equity funding of banks that we see is likely to take insufficient account of the beneficial effects of additional equity for the safety and liquidity

[57] This aversion reflects the fact, discussed in the context of Flawed Claim 4, that the shareholders' option to default on the bank's debt by allowing the bank to fail becomes less valuable as risk is shifted back from depositors or the public to the shareholders and managers who benefit from the upside.

of deposits and other reforms of "money-like debt" of banks, in addition to not taking account of the effects of the risks to which their actions expose the rest of the financial system and the overall economy.

Therefore, the strong reliance of banks on short-term debt that we observe cannot be presumed to be beneficial for society. Whereas this reliance is fully in line with the incentives of bank managers and shareholders, it is in conflict with the interests of other stakeholders and society as a whole. This conflict creates not only a strong rationale for equity regulation to substitute for the missing ability to pre-commit future funding decisions. It also poses challenges for the implementation of equity requirements over time, which should direct banks to retain profits or issue certain amounts of equity rather than selling assets to meet the regulatory ratios.[58]

Flawed Claim 15: Increasing equity requirements would increase the funding costs of banks because investors require higher returns when investing in equity than when investing in debt.[59]

What's wrong with this claim? First, as discussed in Chapter 7 and in the context of Flawed Claims 4 and 5, it is fallacious to suggest that using more equity in the funding mix raises funding costs because the required return on equity is higher than the required return on debt. The required return on equity, debt, or any other security depends on the entire funding mix, and the required return on equity (as well as generally on other securities, including debt) will be lower if the bank has more equity. As discussed in Chapter 9, and in the context of Flawed Claim 4, the total funding costs of banks might increase as a result of higher equity requirements, but such an increase would be due to banks' being less able to take advantage of guarantees and tax subsidies for debt, which come at the expense of taxpayers. For the policy debate, the relevant concern must be the cost and benefits *to society* of banks using different mixes of funding with different levels of equity. Because the fragility of the financial system is costly and harmful to society, a correct statement, contrary to the claim, is: "*Increasing equity requirements would reduce the cost to society of having a fragile and inefficient financial system where banks and other financial institutions borrow excessively, and thus would be highly beneficial*."

Flawed Claim 16: Increasing equity requirements would lower the banks' return on equity (ROE) and thus make investors unwilling to invest in banks' stocks.

What's wrong with this claim? The reasoning in this claim is fallacious. As explained in Chapter 8 and in the context of Flawed Claim 4, investors' willingness to invest in banks' stocks, or in the stocks of any other firms, depends on whether they are properly compensated for the risk they

[58] For more detail, see Admati et al. (2013, Sections 4.2 and 4.3) and Admati et al. (2018). The latter contains a detailed analysis of this effect as well as the method by which banks would choose to reduce leverage in response to leverage ratios requirements. This analysis and our recommendations in Chapters 11 and 14 are relevant for making leverage regulation work.

[59] See, for example, Oxford Economics (2013), and Barclays Credit Research (in footnote 25), *The Economist* (referenced in footnote 34), Elliott (2013) and, more recently, the "explainer" of "How Capital Works" posted on the Bank Policy Institute website https://stopbaselendgame.com/capital-101/ .

take, not just on the stocks' expected returns. [60] If managers target specific ROE levels, they may harm rather than shareholders by exposing them to risk without proper compensation. Moreover, when managers borrow excessively or take excessive risks, they harm creditors and taxpayers and endanger the public, which includes most of their shareholders. *Corporations outside banking have, by the logic of this claim, too much equity even though their funding mix is not regulated*. The fixation of ROE in banking reflects the desire by banks and bankers to shift costs and risks to others and benefit from subsidies, as we discuss in Chapters 9, 15 and 16.

Flawed Claim 17: Profitable banks may be unable to raise their equity levels to satisfy higher equity requirements.

What's wrong with this claim? A profitable bank can always raise its equity by retaining and reinvesting profits. A bank that is not currently earning profits can raise equity by selling shares to investors *provided that these investors believe that they will ultimately get a return*.

When bankers claim that they cannot raise new equity in the market, they really mean that they cannot raise new equity at a price that the existing shareholders are willing to accept. A decline in the share price of the bank is merely another application of the finding, discussed in the context of Flawed Claim 4, that shareholders of a highly indebted corporation dislike the issuance of new equity because the increase in equity makes a failure of the bank less likely and therefore devalues the bank's right to cease payments to creditors when it fails.

If a bank is truly unable to raise new equity in the market, there is a strong presumption that it may be insolvent, i.e., that the fair value of its assets may amount to less than its liabilities, as was the case with Silicon Valley Bank (SVB). As we explain in Chapter 14 and in the context of Flawed Claim 30 below, the fair value of SVB's assets had been smaller than SVB's liabilities since at least September 2022, but the insolvency had been hidden because the accounting rules did not force the bank to adjust the values of securities classified as "held to maturity." The failure of the bank's attempt to raise new equity on March 8, 2023 reflected the underlying insolvency.[61]

If a bank is known to be solvent, i.e., to have assets whose fair values amount to more than its liabilities, it can always raise new equity in the market: The value of the bank's total equity after the new shares have been issued will not be smaller than the amount of money that the new shareholders have contributed. To get the new shareholders to come in, it suffices that the fraction of the total equity they acquire be equal to the share of the money they contribute in the bank's

[60] We interpret the claim as referring to expected ROE. People who make the claim tend to lump actual ROE and expected ROE together without appreciating that investment decisions are based on expected returns. For actual ROE, the first statement is actually false; when asset returns are below the borrowing rate, actual ROE is in fact *higher* if there is more equity. See Admati et al. (2013).

[61] The December, 2023 OFR report mentioned in footnote 2 also confirms that the fair value of SVB losses was greater than its equity by December 2022, i.e., it was insolvent.

overall net wealth. Existing shareholders may lose a lot, but this loss is entirely due to the devaluation of the right to stop payments to debtholders if the bank fails.

Whether a bank should be regarded as solvent or insolvent may be a matter of dispute, especially since fair values of assets such as loans to households and nonfinancial firms are hard to assess in the absence of markets for these assets. However, if a bank is unable to raise new equity in the market, this fact in itself is a signal that many investors have doubts about the bank's solvency. In a very real sense, such a bank does not pass a "market-based stress test." Its failure to pass such a test should alert the bank's supervisors that they must look into the matter and perhaps initiate corrective action.[62]

Flawed Claim 18: Increasing equity requirements would force banks to reduce lending.[63]

What's wrong with this claim? Most banks use their funds for other investments, not just lending. Those investments include securities and, in many cases, derivatives. Silicon Valley Bank, for example, had more than tripled its deposit funding between early 2020 and March 2022, with an increase of deposits by $147 billion. During this period, its lending went from $33 billion to $68 billion. At the same time, SVB invested an additional $98 billion in Treasury bonds and guaranteed mortgage-backed securities. Quite obviously, the bank had plenty of funds with which to make loans but chose not do so. The situation is the same in most other banks. For example, as of December 31, 2023, JPMorgan Chase had nearly $2.5 trillion in deposits and its loans amounted to about $1.3 trillion. In the December 2011 balance sheet of JPMorgan Chase, which we discussed in Chapter 6, the amount of loans was also substantially below that of deposits.[64]

Further, in Chapters 6 and 11 and in the discussion of Flawed Claims 2 and 17, we noted that to comply with higher equity requirements profitable banks can increase their equity levels by retaining earnings or by selling new shares to investors. In either case, with more equity, banks would have *more* funds and could increase their lending. Suggesting that equity requirements *force* banks to reduce lending is preposterous when they are making large payouts to shareholders in the form of dividends and share buybacks. There is nothing to prevent them from raising their equity by retaining the money they pay out and using the funds for additional loans.

If increased equity requirements cause banks to reduce their lending, the reason is that *they do not want to increase their equity*. As explained in Admati et al. (2018) and in the discussion of

[62] For detailed discussions of these issues, see Chapters 11 and 14. Chapter 14 also discusses the problem that the extreme opaqueness of banks tends to undermine investor confidence in their solvency.

[63] See, for example, S&P, "Brown Vitter Bill: Game-Changing Regulation for U.S. banks," April 25, 2013 and references in footnote 10. Elliott (2013) stresses that frictions in capital markets make it difficult or impossible for banks to raise new equity. As we discuss in Admati et al. (2013, Section 5) and in Chapter 11, the arguments he gives, which allude to information asymmetries, are not applicable to new equity issues through rights offerings.

[64] Buchak et al. (2024) and Hanson et al. (2024) provide detailed information on how over the last few decades banking in the U.S. has moved away from the traditional combination of deposit taking and lending. These studies suggest that at the margin, the investment funded by additional deposits is likely to be a security rather than a loan.

Flawed Claims 4 and 14, this phenomenon is due to the distorted incentives created by overhanging debt. The distorted incentives create a sort of addiction to borrowing that is reinforced and encouraged by government guarantees and by compensation structures in banking.[65]

The greatest downturn in lending since the Great Depression of the 1930s occurred in the fourth quarter of 2008, when losses on subprime mortgages and mortgage-backed securities threatened, and in some cases even destroyed, the solvency of banks and other financial institutions. If these institutions had had more equity funding, they would have been better able to withstand those losses, and the downturn in lending would have been much smaller.

If equity requirements are formulated in terms of a ratio for equity to some measure of assets that must be met and if banks are free to adjust their asset holdings, an increase in the required ratio may initially lead to a reduction in lending because banks do not want to raise additional equity. However, the increased loss absorption capacity of banks that comes with a greater share of equity in funding has the effect that subsequent losses are more easily borne and a downturn in lending after such losses is much smaller.[66] The initial effect itself can be avoided if the equity requirement is not simply imposed in the form of a higher ratio of equity to assets, leaving banks free to reduce their assets. Instead, during the transition, the banks should have to satisfy the new requirement for the investments in place at the time the requirement was imposed.

Flawed Claim 19: Increasing equity requirements would harm the economy because banks would be less willing to make loans.[67]

What's wrong with this claim? Like Flawed Claim 18, this claim focuses on the initial effect of the introduction of higher equity requirements and overlooks the fact that, subsequently, higher equity enables banks to withstand losses more easily, and without being possibly forced by their distress, reduce lending radically. More equity today generally enhances the banks' ability and willingness to continue lending after a potential downturn in the future, such as a year or two later.[68]

---

[65] Admati et al. (2018) explores in detail the leverage ratchet effect and explains why the effect is so important in banking.

[66] Jordà et al. (2012).

[67] See references in Footnote 25 and S&P, referenced in Footnote 61. References in Footnote 6 are also relevant here, because those who present "capital" as cash being set aside also claim that more "capital" would prevent banks from lending. In the ongoing debate on capital regulation in the US, the website set up by the Bank Policy Institute to "stop Basel Endgame" (https://stopbaselendgame.com/) states in enormous letters "This proposal will have REAL CONSEQUENCES FOR EVERYDAY AMERICANS." The lobbyists warn that the proposal will interfere with the "American Dream" of low-income Americans and harm small businesses. As noted in the context of Flawed Claim 1, some US senators echo these claims made in many advertisements.

[68] In the same spirit, King (2013) said: "Those who argue that requiring higher levels of capital will necessarily restrict lending are wrong. The reverse is true. It is insufficient capital that restricts lending. That is why some of our weaker banks are shrinking their balance sheets. Capital supports lending and provides resilience. And, without a resilient

In fact, credit crunches are primarily caused by heavy indebtedness and financial distress, with insufficient equity to absorb losses. They are *not* caused by banks funding with "too much equity." The initial effect of higher equity requirements on lending that is due to the banks' unwillingness to raise equity can be avoided by having special rules for the transition to more equity. Banning payouts to shareholders in the transition and specifying target *levels, rather than ratios*, for equity would mitigate the initial impact effect. To be sure, a ban on payouts is only effective if the bank earns profits. Moreover, a new equity issue may not be feasible if investors in the market do not believe that the bank is solvent. In such circumstances, however, as we discussed in the context of Flawed Claim 17, *there is a presumption that the bank may be already insolvent.* As we explain at length in Chapters 3 and 11, such a situation would call for supervisory action anyway, possibly even for closing the bank.

Even without special rules for the transition, the initial effect of higher equity requirements need not be large. Banks' lending decisions depend not only on the amount of funding available to banks but also on how attractive loans are relative to other investments. Many banks, including most of the large banks in the United States, are far from using all their funding to make loans.[69] For example, from late 2019 to March 2022, Silicon Valley Bank (SVB) almost quadrupled its deposits, from $51 billion to $198 billion. During the same period, loans went from $33 billion to $68 billion. Most of the increase in the bank's funding went into securities, mainly government debt, rather than loans. From late 2019 to March 2022, the bank's securities holdings rose from $29 billion to $127 billion. The relatively slow growth of the bank's loans was not due to a lack of funds or an inability to raise more funds, but to the banks' choices to focus on other investments instead.[70]

Although government debt only paid 1.5% per year in interest, SVB considered it to be more attractive than loans. To some extent, this development may have reflected the impact of the Covid pandemic on the demand for loans. It may also have reflected distortions from the risk-weighting system used in capital regulation, which we discuss in Chapters 11 and 14. As we discuss in the context of Flawed Claims 6 and 29 below, this system completely neglected (and

banking system, it will be difficult to sustain a recovery." Kapan and Minoiu (2013) show that "banks with strong balance sheets were better able to maintain lending during the crisis," and suggest that "strong bank balance sheets are key for the recovery of credit following crises." Cole (2013) shows that bank lending to businesses suffered when banks incurred losses and that the Troubled Asset Relief Program (TARP), which did not alleviate the banks' indebtedness, did not result in improved lending. See "Trump Cites Friends to Say Banks Aren't Making Loans. They Are," Zeke Faux, Yalman Onaran, and Jennifer Surane, *Bloomberg*, February 4, 2017, debunking complains by President Donald Trump that banks are not making loans because of regulations.

[69] See, for example, Elizabeth Dexheimer, "JPMorgan Leads U.S. Banks Lending Least Deposits in 5 Years," Bloomberg, February 20, 2013. In the same story quotes a principal at Deloitte & Touche LLP, saying that new regulations that include "holding more capital to cushion losses" would impede lending. Quite obviously, especially in the context of the story (about the low ratio of loans to deposits), this statement is fallacious and misleading. This fact may not be as obvious because of the pervasive confusion between capital and cash reserves discussed in Claim 1 above).

[70] Under-investment is among the distortions and inefficiencies associated with heavy borrowing, again due to a "debt overhang" effect. This problem is explained in Chapter 3.

still neglects) the risks of changes in the market values of most of the securities SVB held, and no equity backing was required for them at all. Such a bias in risk-weighting creates incentives for banks to invest in securities in the market rather than, for example, make business loans.

For the largest banks, loans to individuals and businesses actually represents a very small fraction of their investments. We point this out in discussing the balance sheet of JPMorgan Chase in Chapter 6, and the same is true today.

It is also false to presume that all lending is useful. Banks help the economy by making *appropriate* loans at *appropriate* interest rates that reflect the borrowers' risks and the cost of funds. Some loans (such as, quite clearly some subprime mortgages prior to 2008) might actually be wasteful and inappropriate; such loans are usually the result of banks counting on someone else to bear the losses. Excessive lending can also result when there are too many banks with too much capacity; in this case, banks' "gambling for survival" may offer cheap loans for a while, but their actions may expose the economy to increased risk of a major crisis later. In fact, as already noted, credit crunch and reduced lending are due to debt overhang from excessive borrowing.

Flawed Claim 20: Increasing equity requirements would force banks to charge higher interest on loans, which would harm the economy.[71]

What's wrong with this claim? The claim is disingenuous. If banks charge higher interest when equity requirements increase, the reason is that they have higher funding costs. As we explained in the context of Flawed Claim 4, such an effect of increasing equity on funding costs reflects the decrease in benefits that banks draw from tax subsidies to borrowing and from government guarantees to the banks' creditors. Tax subsidies and government guarantees for bank borrowing introduce a dangerous bias into bank funding, causing banks to fund more with debt and less with equity than is desirable for society.

Low equity funding raises the likelihood of a bank failure, with substantial consequences for the banks' depositors and other creditors and possibly the rest of the economy. If the banks' depositors and other creditors are bailed out by the government, the consequences are borne by taxpayers.[72] Equity requirements therefore attempt to correct the distortions and to reduce the risks

[71] See, for example, Oxford Economics (2013), Elliott (2013) and Cline (2017). William Isaac, in "Better than Brown-Vitter: Make Banks Issue Long-Term Debt," *American Banker*, June 4, 2013 warns that higher equity requirements on the largest banks would cause them "to decrease their lending dramatically and/or increase significantly the price of loans." Anat Admati responded with "Too Much Equity? If Anything, Brown-Vitter Asks Too Little," *American Banker*, June 24, 2013, citing the original version of this document and available here https://gsb-faculty.stanford.edu/anat-r-admati/files/2022/04/too_much_equity_if_anything_brown-vitter_asks_too_little_american_banker.pdf.

[72] In the case of Silicon Valley Bank, the costs are borne by the other banks, which must pay a special levy to the FDIC. In the Savings and Loans crisis of the early 1990s, the surviving institutions were too weak to bear the costs, so the government had to provide $124 billion (out of a total bailout cost of $153 billion). In the spring of 2023, unrealized, unacknowledged losses of US banks were estimated to amount to something like $2 trillion, an amount

from excessive bank borrowing. The increase in loss absorption capacity of banks that comes from higher equity requirements reduces the danger of a bank failure and the collateral harm it causes or a need for the government to make good on its guarantees.

As explained in the context of Claim 4, the resulting reduction of the value of government guarantees and of tax subsidies to the bank is likely to raise the banks' per-dollar fundings costs. Therefore, banks may end up charging more for their loans. In this sense, the claim that higher equity requirements may end up burdening the banks' borrowers is correct. However, the change would be due to the reduction of the banks' ability to shift costs and risks to others. It might also be due to banks becoming more careful about risks in lending as they must bear the risks of losses themselves instead of having the government underwrite these risks. Such care would hurt high-risk borrowers but benefit low-risk borrowers, who would profit from reduced gambling incentives of banks.

One may believe that certain activities of banks, such as lending to small firms, should be subsidized by the government because market frictions keep these activities at artificially low levels. Such subsidies, however, should be directed precisely to the targeted activities. A blanket subsidy to bank borrowing would merely provide banks with artificially cheap funding, which they can use at their discretion, making any investment they find attractive. As noted in the discussion of Flawed Claim 18, the cheap funds may not actually go to any loans that the economy might need. Instead, the borrowing itself makes banks more fragile, exposes the economy to substantial risks, and distorts banks' investment decisions, giving them incentives to take excessive risk in their investments or to under-invest in relatively safe but worthy loans because bankers do not find them to have enough upside.[73]

The size of the subsidies is not known but there is broad agreement that they are substantial.[74] Measuring their size is difficult even for explicit the explicit subsidies involved in

---

that is likely to exceed the industry's ability to pay through a levy. As of this writing, this problem is stil being kicked down the road.

[73] For example, Levitin (2014) questions our statements that there is no social cost in reducing distortive subsidies, missing the distinction between social and private costs that is explained in detail in Admati et al. (2013, Section 4). Matt Yglesias, in "Banks Borrow Too Much," Slate, March 7, 2013, expresses concerns regarding the potential cost of withdrawing the banks' subsidies. However, in his subsequent blog post entitled "How I Learned to Stop Worrying and Love Higher Capital Requirements," March 8, 2013, he states that in our book we "in many ways end up underselling the power of [our] idea," emphasizing that, as we explain in Admati et al. (2013, Sections 2 and 9), not only would more equity make banks safer, but it will also make their lending and investment decisions more appropriate and better for society.

[74] For example, see Chapter 3 of IMF 2014 Financial Stability Report, yet in documents such as, "Measuring the TBTF effect on bond pricing," by Goldman Sachs Global Markets Institute, May 22, 2013, large banks argue that large banks do not benefit from a too-big-to-fail effect on their funding costs. There are a number of critical flaws in the Goldman Sachs analysis, and most are discussed in Mark Whitehouse "Too-Big-To-Fail Myths, Goldman Sachs Edition," *Bloomberg View*, May 28, 2013. (See also Christopher Cole, "Goldman's TBTF Study Used Flawed Data to Reach Flawed Conclusions," *American Banker*, May 30, 2013.) First, it compares interest rates on bonds of large banks and small banks without adjusting for differences in the risk creditors are supposedly exposed to. As discussed by Brando et al. (2013), however, too-big-to-fail banks tend to take more risks in their investments than smaller banks; unless the

deposit insurance. The subsidy there is inherent in the underpricing of the insurance, the amount of which depends on the likelihood and extent to which it will be needed. In fact, there is reason to believe even many academic studies under-estimate the subsidies.[75] For implicit guarantees, such as the too-big-to-fail treatment of uninsured depositors of Silicon Valley Bank, the subsidy is greater yet.[76]

Flawed Claim 21: If equity requirements are increased, the banking sector will have to shrink, and this will be bad for the economy.

What's wrong with this claim? As we discussed in the context of several preceding claims, increases in equity requirements do not force banks to shrink. Banks have a choice of whether to raise equity or to divest assets. Quite likely they will choose to divest assets rather than raise equity, but this is a matter of preference rather than necessity. Moreover, such reactions can be forestalled by introducing the new rules in such a way that, at least during the transition, the levels of equity have to be increased and not just the ratios of equity to some measure of banks' assets.

If banks are genuinely unable to raise equity, there is a presumption that they may be insolvent and the supervisors should look into the matter and possibly force the bank to leave the industry. Having the industry shrink by removing insolvent banks makes the industry healthier, which is good for the economy, contrary to the claim. Continued existence of banks with hidden insolvencies would be dangerous because such banks are likely to engage in ruinous competition, putting harmful pressure on other banks.

The existence of nonviable banks that cannot raise equity may indicate that there is excess capacity in the industry. Excess capacity in banking is to be expected if failing banks are bailed out and do not leave the industry. Even before banks fail, guarantees may contribute to excess capacity and ruinous competition by enabling the survival of banks that would not otherwise by viable. In such a situation, downsizing of the industry would be called for and would benefit the

---

implicit guarantee is perfect, this would raise the interest TBTF banks have to pay. Second, the observation that creditors suffer more in failures of small banks relative to those of large itself reflects too-big-to-fail policies, including support from the Federal Reserve that has provided ample and cheap funding to banks since 2008. The Goldman Sachs paper dismisses findings of a large literature (some of which is also cited in Chapter 9) without engaging on substance, including academic studies that conclude that the value of the subsidies is in the tens of billions of dollars and particularly large in downturns. Many other industry-sponsored studies also fail to correct properly for the funding mix and other parameters of the bank borrowing that would affect the risks that their long-term creditors would be exposed to, relative to those of other companies that do not have access to safety nets.

[75] See Stefan Nagel, "Too Big to Fail is Larger than You Think," Bloomberg View, March 2, 2014. Given the opacity and complex structure of the liabilities of the largest banks, it is possible that without any guarantees, the cost of unsecured borrowing to these banks would be prohibitive. Of course, among the reasons banks are able to borrow as much using collaterals is that deposits are unsecured, and at least some assets purchased with deposits can be used as collateral for additional borrowing.

[76] For more on these issues, see Chapter 9, entitled "Sweet Subsidies," which discusses harmful effect of guarantees and subsidies, and Chapters 12 and 13. Chapter 15 discusses the role of central banks in bailouts, Chapter 16 the politics of bailouts.

economy. The remaining banks would be viable and would have fewer incentives to gamble at the expense of their creditors, taxpayers, and the economy.[77]

Flawed Claim 22: Higher equity requirements would restrict banks' ability to provide market-making services, harm market liquidity, and prevent banks from stabilizing volatile stock markets by countering adverse price movements.[78]

What's wrong with this claim? There is no automatic connection between equity requirements and the ability of banks to provide market-making services, or to enhance market liquidity. If banks merely act on commission for their customers, their own accounts are not affected at all. If banks act as counterparties, buying securities that the customers want to sell or selling securities that the customers want to buy, the question is how these transactions fit into the bank's own asset management and portfolio decisions. As discussed in the context of Flawed Claims 18-19 about bank lending, such questions of portfolio choice do not generally depend on the bank's funding mix. To comply with higher equity requirements, banks can retain their earnings and raise more equity. With ample equity, it is moreover likely that asset choices are undistorted by excessive incentives to take risks.

From the customers' perspective, banks' professed desire to provide market making services can be a mixed blessing. In many instances in the past, banks have used their customers' dependence on such services in order to take advantage of the information provided by customers' orders, using practices such as front-running or dual-capacity trading to speculate on the basis of privileged information about their customers' orders.[79] Whereas banks claim that their services improve market liquidity, such practices, which are almost impossible to prevent, actually harm the customers' confidence and the liquidity of the markets.

---

[77] A relevant example is provided by Germany since the 1970s, where the Landesbanken benefitting from government guarantees and bailouts cannibalized wholesale banking at the expense of the large private banks. More generally, the fact Europe has been much slower than the US in consolidating banks after the crisis of 2007-2009 has contributed to keeping the profitability of European banks low and slowing down the post-crisis cleanup of bank balance sheets. We discuss problems caused by excess capacity in Chapters 11, 14 and 15.

[78] For example, "Bank Capital Needs Seen Soaring on Basel Market-Risk Review," John Glover and Boris Groendahl, Bloomberg, October 20, 2015, quotes Mark Gheerbrant from the International Swaps and Derivatives Association (ISDA) saying "We're concerned about the impact [increased capital requirements] will have on market liquidity". Jürgen Fitschen, Co-CEO of Deutsche Bank claimed that, as we saw recently, banks will be less able to counter adverse market moves, with reference to the stock market declines in the summer of 2015 (see "Wenn es uns zu gut geht, machen wir Fehler" – "If we are doing too well, we make mistakes," Handelsblatt, September 3, 2015,). Duffie (2016) also argues that higher equity requirements will harm market liquidity, making the (flawed) assumption that regulators do not have tools to counter inefficient responses in a transition to higher equity requirements, such as by restricting payouts and mandating equity issuance and thus referring to "balance sheet space" as something costly that we must encourage or enable banks to use for such things as market making.

[79] See, for example, Pagano and Röell (1990, 1993) and Röell (1990). The debate on high-frequency trading involves similar issues. Some of the episodes in Lewis (2014) illustrate the problem and the potentially large social costs involved.

Market liquidity captures the ability and ease of converting financial securities to cash through trading in markets and the price at which securities can be bought and sold. Liquidity is determined by the balance of reasons for trading of various market participants, namely the availability of buyers and sellers at a given time and price, the trading mechanism that determines the market price (for example, how buyers and sellers find each other, whether an intermediary or an exchange is involved, etc.), and, importantly, on the information that participants have about the value of the security, which may differ across participants. Liquidity can be reduced, or even break down, if some participants have much better information than others, creating so-called adverse selection (similar to the market for used car). Whether some financial institutions must use more equity funding for their trading does not bear directly on any of these considerations. More generally, the resilience of intermediaries is likely to enhance, rather than harm, market resilience.[80]

There is also no automatic connection between equity requirements and the positions banks take in stock markets, except perhaps that stock market investments might involve higher risk weights than other kinds of investments. Solvent banks can always raise additional equity if their portfolio decisions require it. Higher risk weights for stock market investments – or prohibitions of stock market investments under the Glass-Steagall Act or the Volcker Role in the United States) – reflect the assessment that such investments may be too dangerous for banks. The banker's promise that he will do his best to prevent stock prices from falling, if actually not empty, should raise concerns about the risks the banks are taking. When banks tried to stop and reverse a falling stock market on October 24, 1929, it only took four days for them to realize the futility of the effort and the size of the losses they had incurred.[81]

In this context, it is useful to note that the worldwide decline in stock market values after the Lehman Brothers bankruptcy amounted to some $20 trillion, three or four times the decline after the burst of the tech bubble in the early 2000s. This decline was greatly exacerbated by banks' scrambling for cash and selling assets as money markets on which they had relied for funding ceased to function. Lack of equity to absorb losses from "toxic" assets was one reason so many banks were mistrusted and were unable to roll over their short-term funding.

Flawed Claim 23: Higher equity requirements would cause banks to increase their "risk appetite," which will make the system more dangerous.[82]

What's wrong with this claim? As we discuss in Chapter 8, such a claim was made by Bob Diamond when he was CEO of Barclays. Statements like these may be empty threats, but if they

[80] See "Bond Market Liquidity: Should we be Worried?" Stephen G Cecchetti and Kermit Schoenholtz. Blog, August 17, 2015. Liquidity requirements, which mandate the holdings of assets within specific set, may have a direct effect on the willingness of institutions to trade in or make certain markets.
[81] See Galbraith (1954, pp. 105-120).
[82] See, for example, Bill Black, "Brown-Vitter Will not and Cannot Work but it is Criminogenic," Naked Capitalism blog, May 11, 2013.

are not, they raise serious concerns about governance that should trouble not only regulators and supervisors but also banks' shareholders. If risks are worth taking on behalf of the banks' investors, why aren't the banks already taking them? If the risks are not worth taking, why would the banks take them when they are funded with more equity?

Contrary to what the claim suggests, having more equity funding would seem to *reduce* the shareholders' "risk appetite." If equity is low, a risky strategy may look attractive because taxpayers bear the losses if the strategy fails. With higher equity, this strategy may become unattractive because the threshold for losses at which taxpayers come in is higher, i.e., shareholders bear a greater part of the downside risk. By the same logic, a strategy that shareholders consider unattractive when equity is low should be even more unattractive to them when equity is higher.

The claim appears related to the flawed focus on ROE in banking that we discuss in Chapter 8 and Flawed Claim 16.[83] When equity is higher, the rate of return per dollar invested in equity is lower. A manager who gets a bonus of $1 million if ROE exceeds 20% and none if ROE is less than 20% may decide that with higher equity, he must gamble in Las Vegas because otherwise he has no chance of getting an ROE above 20%. In Las Vegas, his chance of getting there may be miniscule, but at least it is not zero. However, not adjusting the bonus system to the regulatory environment is a serious flaw in corporate governance.

Flawed Claim 24: If equity requirements are increased, the discipline that creditors impose on bank managers will decline.[84]

What's wrong with this claim? The claim rests on the false notion that bank creditors can "discipline" bankers, or provide better governance, than shareholders, and that bankers are more disciplined when investing borrowed money than when they invest shareholders' money.

[83] See also Anat Admati, "Beware of Banks' Flawed Focus on Return on Equity," *New York Times* Dealbook, July 25, 2011, and Anat Admati and Martin Hellwig, "The Case Against Banking's Case for Less Capital," Bloomberg View, February 5, 2013.

[84] For example, French et al. (2010) asserts, with no evidence: "Debt is valuable in a bank's capital structure because it provides an important disciplining force for management." Raghuram Rajan, in "Love the Bank, Hate the Banker," *Project Syndicate*, March 27, 2013, refers to the Washington Mutual (WaMu) failure and claims that it illustrates how the threat of runs helps provide "discipline" to bank managers. In fact, the timing of the events in the WaMu is at odds with Rajan's claim. The run on WaMu started after the Lehman Brothers bankruptcy on September 15, 2008, the bank was closed on September 24, 2008, and there is no evidence of disciplinary effects of the threat of a run before September 15. See also Rajan's contribution to the Nobel Symposium in Stockholm 2018, (https://www.youtube.com/watch?v=3rvUXmrv5Hk) and Martin Hellwig's comments at the same symposium (https://www.youtube.com/watch?v=_Mf_AEKpVjk). Hanson et al. (2024, n.27) assert the flawed claim about discipline without paying attention to the fact that, in the cases of SVB and Credit Suisse, the threats of runs – and even the outflows of deposits in 2022 – had no discernable effect on managerial behavior. They fail to discuss the fact that SVB had been insolvent since at least September 2022.

The academic literature includes theoretical models that claim to capture the idea that "debt disciplines managers." Some such theories are specific to banks, arguing that by threatening to withdraw their funding, depositors and short-term creditors can provide "discipline." As we have argued in various writings, these models are a poor basis for policy advice because they lack empirical support and ignore critical elements of the real world which, if included, would reverse their conclusions.[85] The fact that assertions about the real world are made on the basis of theoretical models without justifying the appropriateness of the models or addressing the critical issues we raise about their inadequacy is highly disturbing.

The experience of Silicon Valley Bank (SVB) confirms this assessment. From March 2020 until March 2022, this bank experienced enormous growth in uninsured deposits. It invested many of the additional funds in securities that paid interest on the order of 1.5% per year, fixed over many years. At a time when Federal Reserve policy kept market rates of interest near zero, depositors were pleased to avoid the hassles of recurrent money market investments and just kept their funds at SVB. The average deposit amounted to some $4 million, so the depositors' stakes were quite substantial. Yet the depositors did not pay attention to the risks that the bank was running, let alone "discipline" the risk taken by bank's managers. With money interest rates near zero, it should have been obvious to all that, at some point, interest rates would have to go up, at which point depositors might want to move into money market investments again and, at the same time, the securities held by the bank would lose in value. When interest rates did rise in 2022, depositors did begin to move their funds out of the bank and the bank's investments did lose substantially in value so that as early as September 2020, the value of the bank's assets was less than its liabilities. However, a run only occurred when the bank's own announcement on March 8, 2023 made it clear that the bank's insolvency would be laid open shortly. Depositors did not exert any discipline when there was still time.

Perhaps, the depositors of SVB did not care about the bank's risks because they expected to be bailed out anyway, as they actually were when the bank went under. If so, the notion of creditors exerting discipline is altogether moot since bailout expectations remove any incentives to monitor.

This consideration is also relevant for long-term debt. In some of the discussion on debt funding as a disciplining device, long-term debt is proposed as an alternative to short-term debt because long-term debt does not involve much risk of a run.[86] Even so, however, long-term debt may still generate systemic risk. If debt holders are sufficiently important for the financial system,

[85] See Admati et al. (2013, Section 5), which first appeared in 2010, and Admati and Hellwig (2013). The latter document concerns that we omitted from the book after we were told that they were of interest to academics only. In Admati and Hellwig (2013), we explain that high indebtedness in banking, and the fragility it causes, probably reflect a *lack* of discipline, as bankers have unchecked access to borrowing even if bankruptcy is already imminent. See also Pfleiderer (2018), Anat Admati "Political Economy, Blind Spots, and a Challenge to Academics," ProMarket, November 15, 2019 and Chapters 14 and 17.

[86] French et al. (2010), Poole (2010).

for example large insurance companies, it may be deemed undesirable to impose losses on them in resolution or insolvency.

Indeed, the too-big-to-fail problem is relevant for long-term debt as well as short-term debt in that the collateral damage associated with distress or insolvency may lead to bailouts. If debt holders believe they can count on being bailed out, they will not impose any discipline on the bank. We discuss this point further in the context of Claims 36 and 37 below, which concern proposals to regulate the banks' funding by loss-absorbing long-term debt, rather than equity.

Second, even if long-term creditors want to impose discipline, the scope for doing so is limited. For example, with a ten-year bond, on average one tenth of the debt is rolled over each year. But discipline can only be imposed when the debt must be renewed, and investors negotiate with the bank for the conditions under which a renewal would be granted. As we have argued in the context of the possibility that deposit and short-term debt provide "discipline," long-term debt may in fact provide the precise *opposite* of discipline: Negotiating with new short-term creditors or offering them collateral can make incumbent long-term creditors worse off (should they expect to bear losses), yet these creditors are unable to withdraw their claims until the debt expires.

Flawed Claim 25: Historically, banks have never had as much as 30% equity; requiring as much equity would therefore harm the business of banking.[87]

What's wrong with this claim? The statement is false. First, references provided in our book (particularly in notes 20-27 to Chapter 2) support the claim that going back more than a century to the period before bank owners and shareholders could rely on creditors, central banks, or governments to pay their creditors, it was common for banks to have as much as 50% equity. Second, arguments based on history presume that circumstances are similar. However, since the 1970s (uninsurable) macroeconomic risks have become much larger than they had been in the preceding decades. More importantly, financial institutions worldwide have become much more interconnected; this has greatly increased systemic from contagion. In some parts of the business also competition has become much more intense; this has reduced the ability of banks to rely on margins to provide buffers against shocks.

Our proposed leverage ratios *do not only stand* on historical figures but are rather based on the economic arguments, on observations of funding mixes in other, unregulated industries, and on considerations of the social costs of banks' choices when they borrow so excessively. As explained in details in the book and earlier in this document, the economics of debt and equity funding is not fundamentally different for banks even though some of the rewards to the banks' debtholders are provided through services, for payments and other uses of liquidity. Quite clearly,

[87] Calomiris (2013) and Levitin (2014).

the bankruptcy of Lehman Brothers caused significant collateral damage. As Admati et al. (2013, 2018) explain, markets may allow leverage to get socially, and even privately, excessive. Requiring investment banks, which can scale up risk and become systemic, to have 30% equity corrects this situation and produces substantial social benefits with minimal if any relevant cost.[88]

We are sometimes asked why we do not go to 100% equity. The reason is precisely that deposits do provide benefits that are not captured by standard corporate finance arguments. However, for many large banks today, deposits account for only a part of their funding.[89] The 30% ratio we propose is roughly what banks themselves impose on financial institutions, such as hedge funds or REITs, to which they lend, which have similarly diversified portfolios.

Flawed Claim 26: There is not enough equity around for banks to be funded with 30% equity.[90]

What's wrong with this claim? As explained in the context of Flawed Claim 1, equity is not a cash reserve but a financial claim that banks can issue to obtain funding for their investments. Contrary to this claim, higher equity funding for banks does *not* require new savings and new inflows into capital markets. If a bank issues more equity and uses the funds it obtains to buy listed securities, capital markets will adjust so that investors who have sold the other securities will hold additional bank shares because the bank's returns would partly reflect the returns on those other securities. No new savings and no new inflows of funds into capital markets are required. To the extent that all assets in the economy are held by, and all risks are borne ultimately by end investors and taxpayers, the effect of a reshuffling of financial claims to make sure more equity funds banks' investments would generate less distorted, more appropriately priced investments in the economy.[91]

"Bank Regulation and Supervision are Already Tough"

Bankers and policymakers repeatedly assert that regulations are tough enough, that banks are "safe enough" and that any tightening is unnecessary and costly. In fact, the "reformed" rules are not based on any serious analysis of the lessons of the financial crisis of 2007-2009 and other

[88] Economist John Cochrane concluded his *Wall Street Journal* review of our 2013 book by the statement: "How much capital should banks issue? Enough so that it doesn't matter! Enough so that we never, ever hear again the cry that "banks need to be recapitalized" (at taxpayer expense)!" See "Running on Empty," John Cochrane, *Wall Street Journal*, March 1, 2013, posted with an introduction at https://johnhcochrane.blogspot.com/2013/03/the-bankers-new-clothes-review.html. Cochrane summarizes the bottom line of his review as being "Banks should issue a lot more equity, a lot less debt, especially short-term debt, and a heck of a lot less nonsense.""

[89] See Advisory Scientific Committee (2014), as well as Chapters 6 and 14.

[90] For example, Elliott (2013) stresses that frictions in capital markets make it difficult or impossible for banks to raise new equity. As we discuss in Chapter 11, and in Admati et al. (2018), the arguments he gives that allude to information asymmetries are not applicable to retention of earnings or to new equity issues through rights offerings.

[91] A more detailed discussion of this argument is offered in Sections 7 and 9 of Admati et al. (2013), as well as Admati et al. (2012). At current levels of indebtedness, individual institutions, and the banking sector as a whole, are likely to be inefficiently bloated due to excessive subsidies. See also the discussion of Flawed Claims 17 and 21.

experiences. They rest on politics, tradition, and pseudo-science, and are not well-suited to support financial stability.

Flawed Claim 27: Basel III is already very tough, doubling or tripling previous requirements; banks that comply with Basel III requirements are safe enough.[92]

What's wrong with this claim? These statements use a flawed benchmark. Basel III was considered tough because previous requirements had been extremely lax. As Martin Wolf put it in the *Financial Times,* "tripling almost nothing does not give one very much."[93]

The vaunted tripling of requirements refers to risk-weighted, rather than total assets. On the use of risk-weighting, see our discussion As of Flawed Claim 6. Before the crisis of 2007-2009, many important banks had used risk-weighting and *risk-weight management* to fund 98% or more of their assets by borrowing; their equity funded less than 2% of their assets. Tripling the ratio of required equity to risk-weighted assets does not have much of an effect on required equity if the risk weights are zero or almost zero.

Turning from equity relative to risk-weighted assets to equity relative to total assets, we note that Basel III allows banks to fund up to 97% of the assets on their balance sheets by borrowing, i.e., to have equity funding as low as 3%. This so-called *leverage ratio* requirement was introduced to take account of the fact that, in the crisis, risk-weighting of assets had been seen to be unreliable and that banks with very low risk weights and very low equity relative to total assets had been most vulnerable. However, equity equal to 3% of total assets is just what Lehman Brothers had shortly before going bankrupt. At this low level of equity, investors' doubts about the values that Lehman Brothers had assigned to mortgages in its portfolio, quickly became doubts about the solvency of Lehman Brothers.[94] These doubts triggered the collapse of the bank.

All the requirements refer to accounting measures of asset holdings and of equity. Accounting conventions can matter greatly, including how they treat off-balance-sheet exposures and derivatives. [95]

---

[92] The term "Basel III" refers to the agreement concluded in 2010, which we discuss in Chapters 6 and 11. Claims that Basel III is tough have been made throughout, by regulators, bankers and others. However, as we discuss in Chapter 14, by the mid-2010s, regulators and supervisors became concerned about the scope for flawed assessments in risk weighting, so in 2017, they concluded a new agreement, called "Finalizing Basel III", which proposes to limit the scope for abuses of risk-weighting somewhat (BCBS 2017). See also our discussion of Flawed Claim 6 above.

[93] Martin Wolf, "Basel: The Mouse that Did not Roar," *Financial Times*, September 14, 2010

[94] These mortgages were held in "warehousing". They had been acquired for the purpose of securitization. However, as the markets for mortgage-backed securities had broken down, the bank was unable to securitize and sell them without substantial losses. Investors were concerned that the bank had not (or not much) depreciated the values of these mortgages in its accounts. On this issue, see Ball (2018), Chari (2022).

[95] On accounting issues and ways banks can manipulate them through securitization and derivatives, see Kerr (2011). According to Singh and Alam, 2018, off-balance- sheet funding for many banks was greater in 2016 than in 2007.

Accounting measures ignore many off-balance sheet commitments. They also involve significant biases towards overvaluing assets and overstating equity. Overvaluations of assets are to be expected because bank managers have strong incentives to avoid showing losses in asset value. Showing such losses will likely reduce the bonus components of their remuneration. It may also raise questions about their past strategy choices – and even about the bank's solvency. The overstatement of equity that goes along with an overvaluation of bank assets also suits the bank's managers by providing more room for borrowing.

The accountants often go along because they do not want to lose profitable clients.[96] Some accounting rules actually seem designed to make room for the overvaluation of assets. One example involves "tax assets," the assessed value of savings on future taxes that are expected because of past overpayments of taxes or because of a loss carry-forward that can be used to reduce taxable profits in the future. The value of these assets depends on the taxable profits one expects to earn in the future. Any self-respecting bank manager "knows" that these profits will be large. In the late summer of 2022, however, the decline of Swiss megabank Credit Suisse was much accelerated when it had to acknowledge that it was writing US tax assets of almost 4 billion Swiss francs down to zero because there was no prospect of earning enough profits to benefit from these assets.

Other examples involve valuation rules for securities that are classified as "held to maturity" and for subsidiaries. Valuations of securities that are classified as "held to maturity" are exempt from rules requiring adjustments to changes in market values. Our discussion of Flawed Claim 29 below shows that this rule enabled Silicon Valley Bank to maintain the appearance of being solvent, with an accounting value of equity on the order of 8% of total assets, even as unacknowledged losses exceeded the accounting value of equity, i.e., the bank was insolvent already. In the case of Credit Suisse, the valuations assigned to different subsidiaries and different financial reporting lines differed quite markedly between the consolidated group accounts under international reporting standards and the parent's accounts under Swiss law. For the end of 2022, the consolidated group accounts showed equity equal to 45 billion Swiss francs, the parent's accounts showed equity of 22 billion Swiss francs. The parent's accounts also showed a loss of 24 billion Swiss francs, in contrast to 7 billion Swiss francs in the consolidated group accounts. Whereas the much larger loss in the parent's account is attributed to depreciation in the value of participations, the consolidated group accounts are accompanied by the statement that a thorough examination of business prospects showed no need for any further depreciation in values attached to any line of business, as well as a statement that "internal control over financial reporting was not effective."

Given the biases in asset valuations and equity statements, the appropriate standard for assessing equity requirements is not given by the actual equity banks used in the runup to the crisis

[96] We discuss the role of accountants and other "gatekeepers" in Chapter 17.

of 2007-2009. The question is whether the requirement for reported equity is sufficient to make the bank robust against losses even when one takes account of the fact that true loss absorption capacity may be significantly smaller than is indicated by reported equity.[97]

Flawed Claim 28: Basel III and its implementation in different jurisdictions, are based on reliable scientific analysis of the costs and benefits of different levels of equity requirements.[98]

What's wrong with this claim? Basel III and its implementation in different jurisdictions are the result of politics rather than serious analysis. The same is true for the 2017 amendment to the 2010 Basel III accord, which is discussed under the label "finalization of Basel III" in the European Union and under the label "Basel Endgame" in the United States.

Originally the Basel Accord was meant to provide a set of minimal standards with the effect that the banks of any jurisdiction that satisfied these standards would be admitted to doing business in other jurisdictions while supervised by their home country authorities. When Basel III was agreed, however, the European Union chose to deviate from it, for example, by counting certain kinds of contingent debt as equity even though it was not. In the current discussion, it is going even further, loosening some of the new requirements in order "to take account of European specificities."[99] At the same time, US banks are lobbying furiously against the proposed "Basel Endgame" rules. The actual legislation that emerges is determined by politics, where different jurisdictions test what they can get away with without provoking strong retaliation from others.

In the years after Basel III was introduced, the Basel Committee came to recognize that there is a problem with risk weights under the model-based approach. The Committee observed that model-based assessments of risks of the same asset portfolios exhibit an unconscionable amount of heterogeneity across banks. On the basis of this observation, it initiated another round

[97] We make this case in detail in Chapters 11 and 14. Among those providing evidence, Haldane (2011) shows that banks that needed significant bailouts ("crisis banks") had regulatory ratios that were, if anything, stronger than banks that did not need as much supports. Singh and Alam (2018) show that off balance sheet exposures appear higher in 2017 than in 2007. Sarin and Summers (2016) show that "the ratio of the market value of common equity to assets on both a risk-adjusted and risk-unadjusted basis has declined significantly for most major institutions" (relative to pre-crisis period). Efforts to point out the poor design and inadequacy of Basel III go back to 2010. Following Admati et al. (2010, revised 2013), a letter from twenty academics in finance and banking, published in Financial Times on November 9, 2010 and available here https://www.gsb.stanford.edu/faculty-research/excessive-leverage/healthy-banking-system-goal states: "The Basel III proposals… fail to eliminate key structural flaws in the current system…. Basel III is far from sufficient to protect the system from recurring crises. If a much larger fraction, at least 15%, of banks' total, non-risk-weighted, assets were funded by equity, the social benefits would be substantial. And the social costs would be minimal, if any." The letter makes briefly many of the points discussed elsewhere in this document. Hoenig (2013, 2023), Goldstein (2017), and Cecchetti and Schoenholtz (2017) also argue that capital requirements under Basel III are inadequate and problematic. We discuss the risk-based design in other claims.

[98] Claims that the requirements are tough and based on "science" are frequently made by regulators, bankers and others. For example, in a November 19, 2013 interview to *Die Welt,* Lloyd Blankfein, CEO of Goldman Sachs, said: "The new capital adequacy regulations under Basel III are the results of a long and meticulous process."

[99] See Chapter 14 and the references given there. Even as the negotiations about the "completion of Basel III" were taking place, France, Germany and the European Commission announced that the European Union would not abide by the new rules.

of negotiations that led to the 2017 agreement "to finalize Basel III." Under this new agreement, the model-based approach for computing capital requirements can only be used if risk-weighted assets under this approach are no less than 72.5 % of risk-weighted assets under the so-called standard approach. [100] The reform reduces the scope for manipulating capital requirements through the design of risk models, but it does not address the problem that even in the standardized approach, important risks are overlooked.

As for the "science" underlying capital requirements, in Chapters 11 and 14 we argue that the studies that supposedly support the Basel III rules are based on flawed models and their quantitative results are meaningless. For example, these studies assume that the required return on equity is independent of risk; one paper purports to derive the "optimality" of Basel III without even considering the costs that bank failures impose on the rest of the financial system and the economy.[101] The "scientific" papers that discuss costs and benefits of different capital requirements also ignore the distinction between private and social costs, the distortions in investments associated with high leverage, and the problems with risk weights, discussed below.[102]

The fact that studies end up with precise numbers for "optimal" capital regulation is irrelevant if the foundations of the studies are shaky. We are not aware of any theory or model that would provide appropriate estimates of the costs and benefits to society associated with different funding mixes for banks. Despite this, we are confident in asserting that equity levels of three percent of total assets, as admitted by Basel III, are unsafe, and that a significant increase will substantially improve the health and safety of the financial system. Low levels of equity expose the banks and the economy to unnecessary risk. And allowing banks to rely as much on subsidized borrowing distorts the economy. Effective regulation to counter the banks' tendency to choose unsafe levels of equity is essential.

Flawed Claim 29: Assigning risk weights to assets when determining required equity is a way of bringing serious quantitative analysis to bear on bank regulation.[103]

[100] See Basel Committee on Bank Supervision BCBS (2015, 2017). We discuss this development in Chapter 14.
[101] The paper is Angelini et al. (2011). Admati et al. (2013) discusses some of flaws in this paper as well as others produced by the Basel Committee on Bank Supervision and other members of the supervisory community.
[102] A recent paper, Brooke et al. (2015) still includes a flawed analysis of the tradeoffs. For a discussion of some of the flaws, see Admati (2016).
[103] Most regulators appear to take it for granted that risk weights are essential. The 2007-2009 financial crisis led regulators to add a *leverage ratio* requirement. asking banks to have equity funding of at least 3% of their total assets, but this was only brought in as a subsidiary measure. The "finalization of Basel III" that the Basel Committee on Banking Supervision proposed in 2017, which is currently discussed in the US under the label "Basel III Endgame" was justified by the Basel Committee's finding a great deal of heterogeneity in the way banks used their own models to compute required equity, rather than explicit mistrust of the risk-weighted approach altogether. In addition to our discussion of Flawed Claims 27 and 28, see Chapter 14 and the references given there.

What's wrong with this claim? As we discuss in Chapters 11 and 14 and above in the context for Flawed Claims 6 and 28, risk weights under the Basel approach have more to do with politics and tradition than with science. In fact, the Basel rules ignore important sources of risk altogether: Risks from sovereign debt that is funded in the currency of the country in question, risks of changes in funding conditions for medium or long-term loans, risks from the possibility that borrowers might default simultaneously because their default risks are correlated. Risk from sovereign debt that is funded in the currency of the country was in evidence in the Greek default in 2012. Funding risk for long-term loans was a key factor in the S&L crisis in the 1980s and again in the US crisis in spring 2023 involving Silicon Valley Bank (SVB) and First Republic Bank. Correlated borrower defaults were a major factor in the subprime mortgage crisis of 2006-2009.

Even if the politics of the regulation could be defused, the problem of measuring risk can hardly be solved. For example, in cross-border lending, a bank may try to eliminate the exchange rate risk by denominating the contract in its own currency. If the borrower is a bank in another country, it may also try to eliminate the exchange rate risk by denominating the contract in the currency in which it borrows. If the final borrowers are entrepreneurs, however, who earn money in the currency of their country, the mismatch between the currency in which they earn money and the currency in which they owe money may cause them to go bankrupt if their home currency is devalued. The banks that lent to these entrepreneurs may then also go bankrupt, and the international banks that lent to these banks may find that their wonderful risk management has only transformed the exchange rate risk of their loan into a credit risk.[104]

Such constellations, where attempts to hedge some underlying risks by suitable hedge strategies merely transform the risks into correlated counterparty credit risks, occur in many contexts. Proper measurement of the risks to which a bank is exposed would have to consider the counterparty credit risks and their correlations with the underlying risks of the banks. The scope for doing so is limited by a lack of data and by the never-ending changes in risks and correlations that occur when counterparties change their own positions.

In practice, the use of risk weights in bank regulation allows banks to be extremely highly indebted, masks important risks, and adds to the interconnectedness of the system. Whereas proponents of the system argue that it is important to require banks to have more equity funding when their assets are riskier, in fact the system allows banks to get away with *much less* equity funding when they say that their assets are less risky. A uniform ratio of required equity to total assets would provide a lower bound on the banks' leverage and would enable supervisors to intervene when the ratio is breached before it may be too late. By contrast, because some risk weights are (near) zero, the risk-weighting system allows very high leverage. Thus, banks could take large positions in assets with (close to) zero risk weights, such as Greek sovereign debt or AAA-rated toxic securities and fund them almost entirely with debt and with hardly any equity.

[104] The text describes the experience of international banks, Thai banks and Thai entrepreneurs in the 1997 crisis.

The system also distorts banks investment decisions, typically against business lending, and is highly manipulable by the banks.[105]

The ability of banks to "economize on equity" is enhanced by their ability to use their own models to assess risks. The scope for manipulation they have is largest for assets in the trading book, which is why they were keen to put mortgage-backed securities and the like into the trading book, subject to mark-to-market accounting rules. Most of the losses in 2007-2009 were incurred on assets in the trading book, where equity often was as low as 1 percent of investments.[106]

Credit risk on assets in the bank book, i.e., assets that banks claimed they intended to hold to maturity, played less of a role in the crisis (except for sovereign exposures in the euro crisis). The changes in regulation ("Basel II") that allow banks to use their own models to assess credit risk were only being introduced when the crisis unfolded. However recent empirical research has shown that the use of model-based internal ratings to assess credit risk and determine risk weights for capital regulation has gone along with a significant deterioration in the quality of these assessments: for comparable borrowers, internal ratings are better and actual risk incidence is worse than under the previously used "standard approach."[107]

Flawed Claim 30: The fate of Silicon Valley Bank (SVB) shows that equity is unimportant for a bank's survival; a bank's survival depends on its liquidity, and that can vanish for no reason at all if depositors or other short-term creditors decide to run or not to roll over the bank's debt.

What's wrong with this claim? While the collapse of SVB involved a depositor run, this run did not occur "for no reason at all." SVB's equity had actually been negative since at least since September 2022. The fact that the bank had been insolvent during the months since then was merely hidden because of inappropriate accounting rules that allowed losses to go unrecognized. The bank's announcements of March 8 made clear that the insolvency would shortly be laid open, and that information triggered the run.[108]

---

[105] See further discussion in Chapters 11 and 14. The report on JP Morgan Chase "London Whale" loss by the Senate Committee on Investigation specifically refers to attempts to manipulate models, and points to poor risk controls. See, for example, David Henry and Lauren Tara LaCapra, "JPMorgan and other banks tinker with risk models," Reuters, March 18, 2013, and Floyd Norris, "Masked by Gibberish, the Risks Run Amok," *New York Times*, March 21, 2013. On the flaws in the Basel approach, see also Haldane (2011, 2012, 2013), Hoenig (2013), Joe Rizzi, "Risk-Based Capital: The Good, the Bad and Mostly the Ugly," *American Banker*, May 20, 2013, William Isaac, referenced in Footnote 71, and Robert T. Taylor, "Basel Rules Echo Missteps of S&L Era," *American Banker*, June 19, 2013. See also a related discussion in Dowd (2015) in the context of stress test.

[106] FSA (2010).

[107] See Behn et al. (2022, first put out as a discussion paper in 2014).

[108] Chapter 14 discusses the SVB experience in detail, including the parallels between SVB and the experience of US savings and loan institutions in the 1980s. See also Anat Admati, Martin Hellwig and Richard Portes, "When Will they Ever Learn? The US Banking Crisis of 2023," VoxEU, May 18, 2023.

During the pandemic, in 2020 and 2021, while interest rates in money markets were near zero, many investors found it easier to hold their liquid assets in the form of deposits with SVB and other banks rather than in money market investments. SVB invested primarily in long-term securities, such as government bonds.[109] These bonds had no default risk, but they were subject to interest rate risk. The 1.5% interest on government bonds issued in 2020 and 2021 was better than the rates paid in money markets in those years, but it was worse than the rates paid in money markets in the second half of 2022 and in 2023, when these rates had risen to over 4%. rates Given the higher interest rates in the market the market prices of these low-rate long-term securities had to fall so that the rates of return on investing in them would be competitive with money market investments. This fall in securities prices caused losses for SVB. By September 2022, these losses exceeded the bank's equity. The losses were shown in the notes accompanying SVB's quarterly accounts but not in the accounts themselves because SVB had classified them as "held to maturity." This classification exempted the bank from adjusting these assets' valuations to the changes in market prices.

At the same time, as market interest rates had gone up, many depositors had alternative opportunities to obtain higher rates in the market and left SVB. The bank's announcement on March 8 of losses from selling some of its government bonds showed that, because of these withdrawals, it would shortly have to start selling "held-to-maturity" securities, at which point, it would have to acknowledge the market value loss for the entire portfolio and acknowledge its insolvency. Given this information and the observation that no new equity was forthcoming, the depositors ran immediately.[110]

An equity requirement on the order of 20% would have restricted the bank's growth in 2020 and 2021. It would also have improved the bank's ability to absorb the market value losses on the securities it purchased. Moreover, it would have caused the authorities to intervene before the insolvency became obvious. There would have been much less of a bailout of uninsured depositors, if any at all. The other members of the industry would have been spared the extra levy needed to cover the FDIC's losses from the bailout that did occur.

[109] First Republic Bank, which also went under in the spring of 2023, provided long-term mortgages to wealthy clients.
[110] The hidden insolvency of First Republic Bank also became apparent at this point. First Republic Bank used loans from the Federal Reserve as well as, like SVB before its failure, from the Federal Home Loan Bank of San Francisco to avert default. These loans required collateral, further depleting the assets FDIC could possess after closing them. On the Federal Home Loan Banks (FHLB), which the authors refer to "a byzantine corner of the US financial system," see Stephen Cecchetti, Kim Schoenholtz, and Lawrence White, "The Dangerous Role of America's Weird Lenders-of-Next-to-Last Resort," *Financial Times*, August 17, 2023. Hanson et al. (2024) discuss the collapse of SVB without discussing the role of the zero-interest-rate environment in 2020-21 and the slow withdrawal process in the 12 months following March 2022. The also do not discuss the persistent solvency problems of US regional banks.

Flawed Claim 31: For fixed-rate loans and securities that banks intend to hold until they mature (in the so-called bank book), interest rate risk does not matter, and it is appropriate that risk weights under Basel III do not take this risk into account.

What's wrong with this claim? Whereas the interest that banks earn on fixed-rate loans and securities is independent of market rates of interest, which can change, the same is not true for the conditions that govern bank funding. Deposits and money market borrowing have short maturities. If they are not renewed, the bank may be unable to go through with the intention of holding longer-term assets until they mature. Nonrenewal of short-term funding is most likely when market rates of interest have risen so that investors have attractive alternatives elsewhere, as happened to SVB starting in 2022. As we discuss in Chapters 4 and 14, it is also what happened to US savings and loan institutions (S&Ls) around 1980, when money market funds offered interest rates on the order of 15% for deposit-like investments, in line with the development of money market rates, while government regulations kept interest rates on saving deposits at much lower levels.

If maturities are short, a continuation of funding can be assured if banks adjust their deposit rates to changes in market rates. Thus, in the early 1980s, deregulation of deposit rates enabled the S&Ls to compete with money market funds and to maintain their deposits and even experience substantial growth in the 1980s.

However, the maintenance of bank funding by an adjustment of deposit rates does not altogether solve the problem posed by the increase in market rates of interest. In the early 1980s, after deregulation of deposit rates, the S&Ls found themselves paying 15% to depositor while earning 6% on the forty-year mortgages they had granted in 1965, which still had over twenty years to go. This mismatch caused large losses even without any changes in the reported accounting values of those mortgages from the 1960s. If reported accounting values had been adjusted, probably more than one half of the S&Ls would have been considered insolvent right away. Instead, the insolvencies remained hidden, the zombies went on to "gamble for resurrection" by taking large risks, and the industry all but collapsed around 1990, at huge costs to taxpayers. [111]

In 2022 and 2023, US authorities seemed intent on repeating the S&L experience. In 2022, they failed to recognize that, as market rates of interest increased, investors who had moved into bank deposits in 2020 and 2021, when market rates were near zero, would move out of deposits again to avail themselves of more attractive alternatives in the market. They also failed to recognize that the increases in market rates of interest caused the market values of fixed-rate investments to decline and that this decline was threatening the banks' solvency. In 2023, US authorities treated the banks as if they had only liquidity problems, so after the collapse of SVB and other banks, the Federal Reserve expanded its liquidity provision to the industry. However, if liquidity is provided

[111] See the discussion in Chapter 4 and the references given there, particularly, Benston et al. (1991), Kane (1985, 1989), and White (1991) and the discussion of the previous claim, as well as Jiang et al. (2023a, 2023b) concerning unrealized losses as well as excessive risk taking by distressed or insolvent banks in 2023.

at 5% and securities purchased in 2020 and 2021 yield 1.5% per year, banks have a hard time even if they can avoid realizing or even acknowledging the market value losses on their assets. The profit squeeze from the mismatch between the interest banks must pay and the interest they earn on long-term assets is likely to distort their ongoing decisions, with potentially disastrous consequences for the future. [112]

In summary, interest rate risk does matter even if banks intend to hold their assets until they mature. Neglect of this risk in Basel III is an example of tradition and politics winning out over analysis. So much for the "science" underlying Basel III!

In the euro area, supervisors have begun to take account of interest rate risk in the bank book. They do so under auspices of what is called Pillar 2, the part of Basel III that deals with the quality and professionalism of bank management, particularly risk management.[113] US supervisors do not as yet seem to have seen that interest rate risk in the bank book poses a problem.

Flawed Claim 32: Except for the effect of credit risk, the market prices of assets in the bank book, which banks intend to hold until they mature, are irrelevant to the banks' health, and therefore there is no need to adjust their valuation (i.e., "mark to market") to this risk in the banks' accounts.[114]

What's wrong with this claim? As discussed in the context of the previous claim, the fact that a bank intends to hold assets until they mature does not mean that it will actually be able to do so. SVB did intend to hold on to the securities it had purchased in 2020 and 2021 but was unable to do so when the depositors the bank had gained in 2020 and 2021 moved back into other

[112] Hanson et al. (2024) discuss the need to take account of interest rate risk *ex ante*, as well as market value losses *ex post*. However, they overlook the need to deal with the hidden solvency problems, remain a a serious issue for US regional banks. Instead, they discuss the need for tightening liquidity requirements, the so-called Liquidity Coverage Ratio (LCR). The complexity of this discussion reinforces our view, expressed in Chapter 6, that the politics of liquidity requirements are too byzantine to allow for liquidity regulation to be effective. Our discussion in Chapter 6 refers only to the question of which assets are considered sufficiently liquid. The SVB experience indicates there also is an issue about how to assess the maturity of deposits in this context. Although repayments of deposits can be demanded at any time, in practice there is a presumption that only a fraction will be demanded in a short period of time. The number used for that fraction is likely to be a matter of dispute between banks and their supervisors; in Switzerland, for example, Post Finance has gone to court against the supervisor over this matter. However, none of the numbers used in this context would have matched the final run. The view that stricter liquidity requirements would have provided a basis for SVB to survive the final run is unrealistic.

[113] This approach is somewhat controversial because, in principle, Pillar 2 is meant to deal with bank-specific interventions, in contrast to Pillar 1, which sets hard rules that apply to everyone. As a legal norm, Pillar 2 is weaker than Pillar 1, and interventions for infringement of Pillar 2 rules might be more easily challenged in court.

[114] The need for adjustments for credit risk, i.e., the risk that the debtors' default on promised payments is not controversial in principle, but in practice adjustments tend to involve long delays. The rules concerning such adjustments, referred to as Current Expected Credit Losses (CECL) Standard under Generally Accepted Accounting Principals in the US and IFRS 9 in Europe, were changed recently to require forward looking assessments of default probabilities rather than the actual occurrence of a credit event, much to the chagrin of some banks and supervisors See Kim et al. (2023) and Kund and Rugilo (2023) on the impact of these changes.

investments. By March 2023, it became clear that this drain would force a sale of "held to maturity" securities. Not marking these securities to market in 2022 gave a distorted picture of the health and the vulnerability of the bank. The distortion contributed much to the delay in supervisory action towards SVB.

The principle that "held to maturity" securities need not be marked to market also distorts the risk-weighting approach to assessing required equity under Basel III. Because the reported accounting values do not reflect changes in market values, risks to market values that are associated with changes in interest rates are neglected, and risk weights do not take account of these risks. Thus, SVB needed no equity to back the government debt that it claimed to be holding to maturity.

Flawed Claim 33: Stress tests have repeatedly shown that, by now, banks have enough equity to withstand even major shocks.

What's wrong with this claim? Stress tests provide false assurances.[115] In many instances, banks that passed the stress tests and thus were declared safe became insolvent or required public support shortly afterwards. Well-known examples are the Irish Banks in 2010, Dexia in 2011 and Greek Banks in 2014. They suffer from a dependence on the banks' accounting data and the banks' own risk models. The shocks they consider are special, and there is no analysis of additional, unexpected scenarios. In some instances, the choice of scenario itself has been biased with a view to obtaining reassuring results. Second-round effects, from fire sales of assets on asset values or from bankruptcies on further defaults and insolvencies, have not been considered.

In the case of Silicon Valley Bank, some have claimed that the bank's problems were not recognized because, following the 2018 modification of the Dodd Frank Act (so-called S.2155), only banks with total assets exceeding $250 billion, rather than the previous $50 billion were subject to enhanced supervision and stress tests (i.e., considered "systemic"). Being under $250 billion in assets, SVB was no longer subject to stress testing. In fact, however, the stress tests that the Federal Reserve undertook in 2022 would not have noticed SVB's vulnerability because it did not consider the banks' robustness to a substantial interest rate shock. When the 2022 stress test scenarios were laid down in early 2022, the "severely adverse scenario" presumed hardly any change in interest rates at all.[116] Thus, the major risk that affected the US banking system and that

[115] We discuss stress tests in Chapter 11. For devastating critiques, see also Vestergaard and Retana (2013), Goldstein (2017), and Dowd (2018). Goldstein (2017) and Dowd (2018) argues strongly that the tests are highly problematic and misleading. Lawrence Summers recently called the claim that the U.S. banks are well capitalized on the basis of stress tests "a comically absurd conclusion that is belied by the most elementary analysis of the beta of those major financial institutions." He further asserted that "the fact that that assertion continues to be made has to undercut whatever credibility one would otherwise attach to the very substantial efforts that have been made to strengthen financial regulation." (See "Larry Summers Calls Fed Bank Stress Test Results 'Absurd'" Craig Torres and Christopher Condon, Bloomberg, September 8, 2018).

[116] On the Federal Reserve's 2022 stress test, see https://www.federalreserve.gov/supervisionreg/dfa-stress-tests-2022.htm.

forced the Federal Reserve and the FDIC to intervene quite dramatically in 2023 had not even been considered in early 2022. Yet, at that time, US inflation was already substantial, and only one month later, the Federal Reserve initiated the steep interest rate increases that ended up bankrupting SVB.

Whereas banks routinely pass stress tests, their behavior is consistent with intense debt overhang and clear evidence of the distortions explored in Admati et al. (2018) and discussed especially in Chapters 3 and 14. For example, they are anxious to make payouts to their shareholders (in the form of dividends and share buybacks), which in the U.S. they can do if they pass the stress tests. This behavior contradicts the standard "pecking order of funding," in corporate finance, by which "normal" corporations that are not distressed or insolvent use retained earnings as the most preferred source of funding. Banks also lobby furiously against any increase in equity requirements and generally seek to "economize" on equity as they make all funding and investment decisions, including in response to risk-weight based capital requirements. The pressure for payouts from banks' shareholders suggests that equity investors do not trust banks' health and prefer to shift risk and costs to others.

"No More Bailouts!"

The bank bailouts in 2007-2009 created much public resentment and led bankers and policymakers to declare in public that they will reform the system so that bailouts of the financial sector are no longer needed and led bankers and policymakers to commit publicly that they will reform the system so bailouts of the financial sector are no longer needed. When he signed the Dodd-Frank Act that set out to reform financial regulations, President Obama received a lengthy loud applause as he declared "No more bailouts. Period."[117] Public officials in governments, central banks and regulatory authorities put in a lot of work on reforming the available procedures for dealing with failing banks without causing damage for the rest of the economy. They repeatedly claimed that no more bailouts would occur and no more taxpayer money engaged in bailouts. These claims are in fact false. Bailouts persist because governments, central bank, and other authorities have their own reasons for bailouts. Silicon Valley Bank and Credit Suisse provided only the most recent examples.

Flawed Claim 34: Governments want to avoid bailouts.

What's wrong with this claim? Whereas politicians and regulators like to preach that no taxpayer money should be used to bail out banks or the creditors of banks, they typically prefer to provide supports anyway. Most recently, the uninsured depositors of Silicon Valley Bank were bailed out. Bailouts were also provided to the creditors of some of the European banks that got into trouble in

[117] Around minute 10:58 here https://www.youtube.com/watch?v=bIsBFUAVxhE

the 2010s. In Chapter 16 (entitled Bailouts Forever), we give examples showing that politicians do not like to have uninsured creditors share in the losses of a failing bank because they fear the economic and political fallout. Economic fallout concerns domino effects of the bank failure imposing a loss on creditors, in the case of SVB the tech firms that had large deposits with the bank, in the case of the German Landesbanken the local savings banks that had large deposits with these institutions. Political fallout concerns voter reactions when the public gets the impression that creditors got a bad deal and the government should have bailed them out. For example, the losses imposed on holders of subordinated debt of Italian banks in 2017 contributed to the Italian government's losing the 2018 general election. The Italian government would have liked to bail out these debt holders but could not do so because the European Commission was strict in enforcing EU rules against bailouts.

In the case of Credit Suisse in the spring of 2023, the government did impose a total loss on so-called AT1 securities, a form of subordinated, convertible debt, even as shareholders were given some payoff. This decision accords with the observation that AT1 securities holders were spread across the globe, with few of them voting in Switzerland, but Credit Suisse chares were widely held inside the country.

Flawed Claim 35: Bailouts that are paid for by the industry should not be considered genuine bailouts.[118]

What's wrong with this claim? Payments by the industry are usually not voluntary. In the US, banks are *forced* by law to fund bailouts from the FDIC. In the European Union, banks are also *forced* by law to contribute to the euro area's Special Resolution Fund. Members of the industry pay because the government *forces* them to do so. These payments are called *assessments* or *levies* but that does not make them different from a tax. Such levies are paid for by the surviving banks and ultimately their shareholders, by their creditors if the banks end up failing too, and by taxpayers if the industry's ability to pay is exhausted. The banks and bankers who had made legal promises to repay their depositors and other creditors and were unable to fulfil these promises benefitted

[118] The March 12, 2023 announcement by the Department of the Treasury, the Federal Reserve, and the regarding Silicon Valley Bank and Signature Bank that all depositors, including all uninsured depositors, will be paid in full (see https://www.federalreserve.gov/newsevents/pressreleases/monetary20230312b.htm), included the claim that "No losses associated with the resolution of Silicon Valley Bank will be borne by the taxpayer" and that the same will be true for Signature Bank. The fact that other banks, particularly the large banks, must replenish the deposit insurance fund came up in the US Senate Banking Committee hearing on December 6, 2023 (see https://www.c-span.org/video/?532146-1/oversight-wall-street-firm) , when multiple large bank CEOs, including Brian Moynihan of Bank of America argued and Jamie Dimon of JPMorgan Chase pointed out that large banks pay for FDIC bank resolutions. Mr. Dimon said that "the American public should know that the banks pay for FDIC. It is not government money," and the CEOs seemed critical of FDIC for providing bailouts to all uninsured depositors, with Mr. Dimon expressing desire to take over FDIC himself. Chapters 9, 15 and 16 discuss the mechanics and politics of bailouts in detail. Ohlrogge (2023) provides an analysis of the history, and the increased costs in recent years, of FDIC policy of bailing out uninsured depositors.

from magnified upside and walked away from their commitments, leaving it for others to deal with the fallout of their losses.

In the case of Silicon Valley Bank (SVB), uninsured depositors were bailed out because the authorities in Washington considered it convenient to do so. Banks that had nothing to do with SVB, except for being in the same industry and therefore part of the deposit insurance system, were forced to pay money for this purpose Bailouts that are paid for by a levy on the industry should be considered genuine bailouts. The government used its power over these banks to obtain payments that it could use for its own purposes. The purpose itself, indemnification of uninsured depositors, had no basis in the law. Moreover, one might have expected the large depositors to invest somewhat more care in their decisions to invest their funds with SVB and to keep them with SVB months after the bank had become technically insolvent. If Circle Corporation puts $4 billion into a bank deposit, the people in charge of Circle Corporation should not just rely on the government to bail them out. Another aspect of this claim concerns the question of what happens if industry members are unable to pay for bailing out failing banks' creditors. This is what happened in the S&L crisis of the 1980s. Total bailout costs amounted to roughly $153 billion, to which the industry levy contributed $29 billion. The remainder, $124 billion came from taxpayers.[119] This experience shows that the boundary between a bailout financed by an industry levy and a bailout financed by general taxes is less clearcut than the claim would seem to suggest.

Flawed Claim 36: To reduce the likelihood of bank failures, it is enough to have banks issue debt that converts to equity when a trigger is hit, so-called "contingent capital," or co-co's.[120]

What's wrong with this claim? As we explain in Chapter 11 (pp. 187-188), in a section entitled "Anything but Equity," and in Admati et al. (2013, Section 8), the various proposals to use hybrids between debt and equity as a way of forcing investors rather than taxpayers to bear losses offer no advantages, and in fact have important disadvantages, relative to equity. First, like other debt, they raise the specter of domino effects or near the triggers where debt converts to equity (or is written down, depending on what the contract says). If the institutions that hold the co-cos are systemic, the consequences of a conversion to equity can be dramatic, and fear of these consequences might motivate a bailout. In 2008-2009, holders of long-term debt and other hybrid securities meant to absorb losses as Tier 2 capital were paid even as banks were bailed out with taxpayer funds.[121] Second, when conversion is imminent, the strategic behavior of market participants can induce dramatic changes in prices of equity and/or co-cos. Thus, co-cos do not provide reliable loss

[119] See Curry and Shibut (2000) and the discussion in Chapters 4, 10, and 14.

[120] See, for example, Calomiris (2013). Proposals to use co-cos instead of equity have been implemented in Switzerland and have been discussed in the UK (see UK Independent Commission on Banking) and the European Union (see Liikanen Report). A variation on the concept is Equity Recourse Notes (ERNs) proposed by Bulow and Klemperer (2014), which amount to debt whose coupon payments are made in equity when a trigger is hit.

[121] In March 2023, the write-down of Credit Suisse contingent capital (AT1 securities) did not have fatal effects on the holders of these securities but the Swiss government's treating these securities worse than equity did cause substantial damage to the markets for contingent capital. See the report of the Expert Group on Banking Stability entitled "The need for reform after the demise of Credit Suisse," September 1, 2023.

absorption and can create instability in a crisis. Third, as long as they have not been converted to equity, co-cos and other debt-like claims add distortions to banks' lending decisions by exacerbating the effect of debt overhang and contributing to credit reductions in downturns.

There is no sense in which having banks rely on these hybrid securities is "cheaper" or better for society than relying on equity. For the purpose of regulation, using equity simply dominates these alternatives. Those who propose such alternatives as a substitute for equity have yet to give a valid reason for their proposal that is relevant for policy considerations.[122]

Flawed Claim 37: Whereas equity is needed for banks as going concerns, banks in resolution need long-term debt that can be bailed in. Total Loss-Absorbing Capacity ("TLAC") in resolution must be large enough to permit a quick recovery.[123]

What's wrong with this claim? The suggestion that debt that serves as TLAC (or, as the European Bank Recovery and Resolution Directive calls it, bail-in-able debt) can do something that equity cannot do is misleading. Obviously, once a bank is insolvent, there is no equity left and thus any losses must be borne by some debt holders if a bailout is to be avoided. However, the more equity there is, the more losses it can absorb *so as to avoid entry into resolution in the first place*. The total loss absorbing capacity of equity and bail-in-able debt is not increased when equity is replaced by bail-in-able debt.

To the contrary, if the authorities end up being unwilling to impose losses on debt holders, a replacement of equity by bail-in-able debt *reduces* loss absorption capacity. The arguments in the discussion of Flawed Claim 36 concerning co-cos and the likelihood that holders of co-cos

[122] As discussed in the context of Flawed Claim 13, compromising financial stability in order to give tax subsidies to inefficient funding by banks makes no sense. (Because they can force conversion to equity and do not confer creditors' rights on their holders, co-cos do not qualify as debt under the US tax code, and thus do not have the tax advantage over equity in the US that they appear to have in Europe.) In trying to address the Too Big to Fail problem, Federal Reserve Bank of Minneapolis (2017) recommends dramatic increases in equity requirements" and does not include any non-equity security as a form of loss absorbing capital, and John Vickers (2017, 2018) emphasized the superiority of equity relative to substitutes. See also "FDIC's Hoenig Questions Fed's Debt Proposal for Big Banks On the claim that long-term debt provides better discipline than equity, see the discussion of Claim 24. Co-cos and ERNs that they are meant to convert some debt to equity ahead of insolvency and failure are better than debt that can only suffer losses within a "bail-in" process or in a resolution or bankruptcy. And they are obviously a less fragile funding source than short-term debt that is subject to runs.

[123] See FSB (2015). In the United States, regulators have imposed requirements for "eligible" long-term debt meant to absorb loss in resolution on "systemic" banks whose assets are larger than $250 billion and in August 2023 in light of the failure of SVB, Signature and First Republic Bank that were below this limit, regulators proposed imposing such requirements on smaller banks; see https://www.fdic.gov/news/financial-institution-letters/2023/fil23045.html In her comments on this rule (Admati, 2024b), Anat Admati quoted a December 2022 comment on an earlier proposal, co-authored by Thomas Hoenig, former FDIC vice chair as well as "Bank Resilience: Equity Capital versus Long-Term Debt," Thomas Hoenig, FinRegRag, September 26, 2023 https://www.finregrag.com/p/bank-resilience-equity-capital-versus. She cited similar comments by many academics and policymakers going back to 2010. https://gsb-faculty.stanford.edu/anat-r-admati/files/2024/01/Admati-Long-Term-Debt-Comment.pdf

might be bailed out after all apply equally to bail-in-able debt or TLAC. Legally, the holders of TLAC have stronger than those of the holders of hybrid (convertible) debt considered as regulatory Tier 2 capital before the crisis but in 2008, yet even those weaker claims were bailed out routinely and did not absorb losses. The one exception to this rule, Washington Mutual, was highly disputed inside the US Government, and the systemic effects from the bail-in of unsecured senior debt holders of Washington Mutual has convinced many that, in a systemic crisis, such bail-ins are to be avoided. These considerations are bound to be brought back if there is a question of bailing in unsecured senior debt in a situation of systemic stress. Holders of bail-in-able debt may also be small savers who have not realized that they might be called upon to absorb the banks' losses, as happened in Spain and more recently in Italy, thus causing a political problem if losses are large or many institutions fail.[124]

The claim that equity absorbs losses before resolution and TLAC absorbs losses in resolution may be correct, but then it is precisely the virtue of equity that it absorbs losses *without anyone triggering a formal resolution procedure*. Systemic effects from the triggering of such a procedure may well prevent the procedure from being triggered at all, in which case any notion of loss absorption by certain debt instruments is moot.[125]

In the case of Credit Suisse, in March 2023, the bank had more than CHF 100 billion in reported equity, contingent capital and bail-in-able debt, but even so the authorities preferred to avoid a resolution procedure. One reason was that some of the bail-in-able debt had been issued under US and UK law, and the conversion of this debt into equity was fraught with procedural difficulties in those countries. The notion that bail-in-able debt makes for an easy addition to loss absorption capacity was revealed to be an illusion.[126]

Flawed Claim 38: The Dodd-Frank Act in the US, or the Bank Recovery and Resolution Directive (BRRD) and the Single Resolution Mechanism (SRM) in the European Union, have done away with the need to bail out banks. If a bank gets into trouble, the authority in charge of resolution will be able to resolve it without cost to taxpayers; there is therefore no need to increase equity requirements.[127]

---

[124] See "Italy bank rescues spark bail-in debate as anger at Renzi grows," James Politi, *Financial Times*, December 22, 2015.

[125] Persaud (2015) calls the bail-in concept "fool's gold" as a solution to the too-big-to-fail problem.

[126] See Federal Department of Finance, The need for reform after the demise of Credit Suisse: Report of the expert group on banking stability, September 1, 2023.

[127] In addition to President Obama's comment on Dodd-Frank that we quoted in the introduction to the group of claims about the need for bailouts, see, for example, the announcements of Deutsche Bundesbank on the effects of the BRRD (https://www.bundesbank.de/en/tasks/banking-supervision/individual-aspects/recovery-and-resolution/recovery-and-resolution-623118) and of Swiss supervisor Finma on the effects of Swiss too-big-to-fail reforms (https://www.finma.ch/en/enforcement/recovery-and-resolution/too-big-to-fail-and-financial-stability/). In November 2014, Mark Carney, Governor of the Bank of England and Chair of the Financial Stability Board,

What's wrong with this claim? This claim is not credible. In Chapter 16, we provide a detailed account, confirming the skepticism we had previously expressed in Chapter 5.[128] Three major issues arise. First, to minimize the economic disruptions from having banks go into resolution, it may be necessary to maintain some important operations at least temporarily. This requires funding. Under the Dodd-Frank Act, such funding might be obtained by borrowing from the government; such borrowing puts the taxpayer at risk.[129] Under the BRRD in the EU, there is no provision for such funding. Thus, to avoid a default, Banco Popular Español had to be sold overnight to Banco Santander, without any attempt to see whether other bidders might be available. And the winding down of Banca Popolare di Vicenza and Veneto Banca in Italy used funding from Intesa Sanpaolo with taxpayer guarantees against losses.[130] In the case of Credit Suisse, the Swiss government preferred the takeover by UBS to a resolution procedure because that way it could reduce its own input to the provision of liquidity backstops and guarantees.

Second, whereas both the Dodd-Frank Act in the US and the BRRD in the EU rely on industry levies and on creditor bail-ins to absorb losses, in a crisis, when many banks may be weak at the same time and the financial system is at risk, the industry as a whole or the banks' creditors (which may be other financial institutions) may be too weak to perform this role. Even if the charges are spread over time, the burden of obligations they impose may be so great that the institutions involved become incapable of functioning. These concerns arise even if the debt in question is long-term or, as in Claims 36-37, subject to contingent conversion clauses. If the banks were required to rely on equity levels much higher than the low levels current regulations allow, loss absorption would be obtained without any of these disruptions.

Third, cross-border issues in the resolution of global banks, which played an important role in the Lehman Brothers bankruptcy, have hardly been addressed. If a bank with systemically

---

announced that the international agreement on requiring banks to have sufficient bail-in-able (TLAC) funding would prevent bailouts in the future. These announcements and claims were taken up by the industry in arguing that there was no need for more equity. See, for example, presentation by the Clearing House to the Board of Governors of the Federal Reserve regarding Title II of Dodd Frank Act on February 13, 2013, and their March 26, 2013, "Vanquishing TBTF." See also William Isaac, referenced in Footnote 71.

Using these arguments to deflect calls for higher equity requirements does not prevent the industry from also fighting TLAC requirements because "TLAC is expensive." See for example, Wells Fargo CEO Stumpf's reactions cited in footnote 42. Discussions about proposals by the Federal Reserve to force bank holding companies to use more long-term debt (see, e.g., Governor Daniel Tarullo testimony to Senate Committee on Banking, Housing and Urban Affairs, February 6, 2014), and similar discussions by the Financial Stability Board about so-called GLAC "Gone Concern Capital Absorbing Capacity" (e.g., "Progress and Next Steps Towards Ending Too-Big-to-Fail," Report to G-20, September 2, 2013) must be seen in this context. For the most recent proposal, see https://www.federalreserve.gov/newsevents/pressreleases/bcreg20230829a.htm .

[128] For early criticisms, see also Simon Johnson, "The Myth of a Perfect Orderly Liquidation Authority for Big Banks," *New York Times* Economix, May 16, 2013, Simon Johnson and Marc Jarsulic, "How a Big Bank Failure Could Unfold, *New York Times* Economix, May 23, 2013, and Anat Admati, "Too Much Equity? If Anything, Brown-Vitter Asks Too Little," *American Banker*, June 24, 2013, linked in footnote 70. For a more recent account, see Hellwig (2021), written in response to a report on too-big-to-fail reforms by the Financial Stability Board, FSB (2021). The latter report acknowledges that mechanisms for dealing with failing banks are as yet far from satisfactory.

[129] The Bank Recovery and Resolution Directive in the European Union ignores the problem altogether.

[130] For details of the different episodes, see Hellwig (2017, 2018a, 2019).

important operations in different countries goes into a resolution procedure, the procedure will be handled by different authorities in the different countries in which the bank has legally independent subsidiaries; because the different authorities act independently and each authority takes care of problems in its domain, integrated operations in areas such as cash management and IT systems are no longer feasible. It may therefore be impossible to maintain, even temporarily, some of the functions which are essential for the rest of the financial system. Proposals to deal with this issue by having only one authority in charge of resolving a failing bank, so-called Single Point of Entry (SPE) resolution, are politically unacceptable und unworkable.[131]

More Radical Approaches?

Our proposals are often considered radical, but others have proposed even more radical approaches that would interfere with some of the benefits banks can bring. These proposals will be more costly for society and are less likely than our approach to address the fragility of the system.

Flawed Claim 39: The best way to make banking safer is to require banks to put funds from deposits into reserves of central bank money or short-term Treasury Bills (so-called narrow banking, also known as the Chicago Plan for 100% reserve banking).[132] Such a shift will give us a stable financial system and there would be less need, perhaps even no need at all, to impose equity requirements.

What's wrong with this claim? Requiring banks to put all funds into cash or Treasury Bills will make these narrow banks safer, but the financial system as a whole may become less efficient in allocating resources and risk and likely less safe. If final investors remain attached to banks, a lot of funding will be given to the government, likely at the expense of funding of individuals, small businesses and nonfinancial firms. The experience of southern European countries in the decades

[131] See Advisory Scientific Committee (2012). The Financial Stability Board's "Principles for Cross-border Effectiveness of Resolution Actions," November 3, 2015includes an enormous wish list and recommendations that would help make cross border resolution viable, but the implementation of these recommendations cannot be expected any time soon. The June 2014 IMF document "Cross-Border Bank Resolution: Recent Developments" summarizes the key challenges. The Financial Stability Board's evaluation of 2021 acknowledges that these challenges have still not been met. For the European Reforms, see also Hellwig (2014, 2017, 2018a, 2019, 2021).

[132] The so-called *sovereign-money initiative* ("Vollgeld-Initiative") that the electorate of Switzerland voted on (and rejected by a ¾ majority) in June 2018 presented a modern variation on this scheme. In addition to the Chicago plan's 100% reserve requirement, the sovereign-money initiative called for a legal separation of deposit taking and reserve holding from other activities of banks. For a critique see Hellwig (2018b). On narrow banking more generally, see also Stephen G. Cecchetti and Kermit L. Schoenholtz, "Narrow Banks Won't Stop Bank Runs," Money, Banking and Financial Market blog, April 28, 2014.

before 1990 shows such crowding out of private borrowing by government borrowing can have substantial negative effects on economic growth.[133]

More likely, narrow banking would lead investors to shift more investments to other institutions, for example money market funds which are "bank-like" without being subjected to the same regulation as banks. As discussed in Chapters 5, 14 and 15, such institutions can also be subject to runs and can be a major source of systemic risk. Financial instability would merely shift from banks to those "bank-like" institutions. In this context, it is useful to recall that Lehman Brothers was an investment bank, AIG was and is an insurance company and, in Europe, Dexia and Hypo Real Estate were in the covered-bond business; none of the institutions had any deposits.

Flawed Claim 40: The financial system would be safe if banks were subject to a 100% reserve requirement so they could take no risks with depositors' money, while non-bank financial institutions are entirely prohibited from borrowing.[134]

What is wrong with this claim? This claim ignores the benefits of using *some* debt to fund difficult-to-value investments such as loans. Moreover, having no debt in financial intermediation would not necessarily eliminate fragility and possible harm to small investors. Investors want much of their money to earn some interest and yet to be liquid so they can get it quite reliably when they need it. If banks must operate as open-end mutual funds with no debt, investors who need cash would return (or sell) their shares and get whatever the shares were worth. Determining share values would be easy if the assets held by a fund (of the fund itself) were traded daily on a public exchange, but otherwise would be problematic, and the mutual fund could suffer something similar to runs if shareholders fear significant asset price declines returned their shares and the fund had to sell assets in a hurry.[135]

Trading in stock markets exposes individuals who need to trade for liquidity reasons to losses from better-informed investors. The opacity of assets consisting of hard-to-value loans would give rise incentives to those with access to better information to engage in such trading if the shares of financial institutions with 100% equity were traded on stock exchanges. The so-called *information-insensitivity* of banks' debt is valuable for liquidity provision, and the idea of requiring significant equity (such as 30%) but not as much as 100% is intended to preserve this function and strike a balance between liquidity provision and the stability of the banking system.

[133] See, e.g., the essays by Caminal et al., and Borges in Dermine (1990).
[134] See Kotlikoff (2010) and Cochrane (2014) for such proposals.
[135] Gordon and Gandia (2013), for example, show that money market funds with floating value were also quite unstable at the same time that those that promised fixed net asset value were experiencing runs in 2008. 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.

Politics of Bank Regulation and Global "Competitiveness"

A favorite but flawed claim by sectors who lobby for favorable treatment, subsidies and lax rules is that it should be a national priority that they succeed when competing with corporations in other jurisdictions. The symbiotic relations between banks and governments have led to a situation in which policymakers act to help "champion" corporations even while harming their own citizens. The politics of banking is particularly challenging because politicians have incentives to view banks as a source of funding and ignore the risk and harm they cause.

Flawed Claim 41: Tighter regulation of banks, and in particular higher equity requirements, are undesirable because they would cause activities to move to the unregulated shadow banking system.[136]

What's wrong with this claim? As we discuss, particularly in Chapter 13, the development of the shadow banking system and the risks it poses point to past weakness of enforcement. The most dangerous parts of the shadow banking system have developed primarily to avoid existing regulation in what is called regulatory arbitrage. Examples include the so called off-balance-sheet special purpose vehicles and money market funds, both of which played in infamous role in the 2007-2009 financial crisis. The lessons should be that we need better rules and better enforcement for all institutions, not that we should give up on rules. Dealing with regulatory arbitrage is challenging, but the challenge can be met, and it must be met if the regulation is important and beneficial.[137] Unregulated institutions that do not take deposits, including those that engage in mortgage lending, often rely on significantly more equity funding than banks.[138]

Flawed Claim 42: Since banking is a global business, it is important to maintain a "level playing field." Therefore, banking regulation must be coordinated and harmonized worldwide.[139]

---

[136] See, for example Kashyap et al. (2010), Hanson et al. (2011) and Elliott (2013). Such claims are made repeatedly by bankers, including in the December 6, 2023 hearing on Oversight of Wall Street Firms in the Senate Committee on Banking, Housing and Urban Affairs mentioned in the context of Flawed Claim 1.

[137] Levitin (2014, p. 2037) asserts that "Admati and Hellwig think that [dealing with the shadow banking system] is easy." In fact, we have not claimed it is easy to enforce the regulation effectively, only that it is important and possible. In "We are Still Hostages to the Big Banks," *New York Times*, August 26, 2013, Anat Admati summarized the response: past failures to make sure that banks could not hide risks using various tricks in opaque markets is hardly reason to give up on essential new regulations. We must face the challenge of drawing up appropriate rules and enforcing them or pay dearly for failing to do so." For more details see Chapter 13 and Admati et al. (2013, Section 10).

[138] See Jiang et al. (2020).

[139] This argument is made plays a key role in discussions about rules set by the Basel Committee on Banking Supervision. Since the first Basel Accord, "Basel I," concluded in 1988, there has been an understanding that the rules

What's wrong with this claim? The claim, discussed in Chapter 12, is false. If some countries foolishly allow their banks to pursue very risky strategies and to borrow excessively, this is not a reason why other countries should do the same. Each country should be concerned with how much of a risk from its banks it is willing to accept, just as each country has its own building codes, consumer safety standards, environmental regulations, and energy policy. We would not allow chemical companies to pollute rivers and lakes simply because the industry maintains that somewhere in the world another country is allowing these things. The search for "level playing fields" in global competition is highly damaging if it leads to a race to the bottom, where each country ends up fighting stricter regulation on behalf of its members of the industry.[140]

Flawed Claim 43: Stricter national regulation would harm "our" banks; instead, we should be supporting them in global competition.[141]

---

on which the Basel Committee agrees will provide a minimum standard for legislation and regulation of participating states such that banks from jurisdictions that satisfy these standards can be active in other countries subject only to supervision from home country authorities. Because the traditions and practices of banks in different countries differ, there always is a question to what extent the jointly agreed rules allow for the differences. Bankers from any one jurisdiction are quick at complaining that given rules are biased against them. For example, in debates about "finalizing Basel III" or about the "Basel Endgame," European bankers and governments have complained that stricter equity requirements for real estate mortgages would tilt the playing field in favor of US financial institutions because, in Europe, mortgages are largely held by the issuing banks and, in the US, they are largely securitized and sold, so the share of mortgages in bank balance sheets is larger in Europe than in the US. US banks also complain routinely about capital rules in the US being harsher than those imposed in Europe, putting US banks at a competitive disadvantage in the global marketplace. See, for example, Sean Campbell, "Large Bank Capital and International Competitiveness: US vs. Europe", September 30th, 2019, a document prepared for the Financial Services Forum, a "policy and advocacy organization whose members are the chief executive officers of the eight largest and most diversified financial institutions headquartered in the United States;" https://fsforum.com/news/large-bank-capital-and-international-competitiveness.

Haselmann et al. (2022) provide evidence showing that negotiators in the Basel Committee are mainly motivated by the desire to get a set of rules favoring "their" banks. The European Union is deliberately deviating from the 2017 agreement "finalizing Basel III" in order "to take account of European specificities." The US very much reduced the impact of the home country principle by requiring foreign institutions to organize all their US activities under the umbrella of bank holding companies under US law.

[140] The race to the bottom is a natural consequence of the interactions described in the preceding footnote. See also Anat Admati and Martin Hellwig, "Global Level Playing Field Arguments are Invalid," *Financial Times*, June 3, 2011, at https://gsb-faculty.stanford.edu/anat-r-admati/files/2022/04/battle_to_regulate_banks_has_just_begun.pdf and, in a slightly longer version, at https://gsb-faculty.stanford.edu/anat-r-admati/files/2022/04/print_-_global_level-playing-field_arguments_are_invalid_economists_forum.pdf l

[141] Under the guidance of Chancellor Hunt, the UK government's Financial Services and Markets Bill proposed to make the competitiveness of banks in the UK a focus of regulation, along with (instead of?) financial stability. A group of academics objected on the grounds that the costs of having favored competitiveness over financial stability had been shown to be astronomical in the financial crisis (see a letter posted here https://financeinnovationlab.org/wp-content/uploads/2022/05/Economists-Competitiveness-Letter-16-May-22-Final.pdf). In the Senate Committee hearing on December 6, referred to in the context of Flawed Claim 1 and elsewhere, (available here https://www.c-span.org/video/?532146-1/oversight-wall-street-firms) bank CEOs repeatedly claimed that they are "strategic assets" of the U.S. Jane Fraser, Citigroup CEO said that the Basel Endgame proposal will harm US competitiveness in international markets multiple times. See also the discussion of Flawed Claim 42.

What's wrong with this claim? Like the preceding claim, this claim is false, as we discuss in detail in Chapter 12.[142] The success of a nation's banks in global competition is not an appropriate objective for policy. Before the crisis of 2007-2009, Icelandic and Irish banks were very successful in global competition indeed, and for both countries, the ultimate outcome was a disaster.

The global economy is not a sports event where a country might win medals in all disciplines. Rather, it is a system in which people and firms from different countries trade with each other, and a country necessarily "loses" in the markets for those goods which it imports. For the country, and for the people living in it, it is efficient to specialize on goods they are good at and to import the others. Government subsidies to banks, or indeed any firms, in international competition is undesirable; such subsidies create distortions in favor of these firms at the expense of others in the economy, and it may direct too many resources, including talent, inefficiently to one industry over others. Weak regulation that allows banks or other firms to take risks at the expense of others is also very distorting. It is also legitimate for national regulators to protect their citizens by regulating foreign banks' subsidiaries if they deem regulations in the banks' home country to be insufficient or ineffective. Instead, there is evidence that discussions of regulation at the Basel Committee on Bank Supervision, regulators tend to align their claims domestic "national champion," namely the largest banks in their jurisdiction.[143]

Flawed Claim 44: The politics of banking makes effective regulation impossible, and therefore debating the merits of specific regulations such as equity requirement is "beside the point."[144]

What's wrong with this claim? This claim suggests that there is no choice but to allow flawed claims and dangerous policies to persist. The claim is analogous to saying that "politics makes corruption unavoidable, thus debating the merits of specific anti-corruption strategies is beside the point," or: "the politics of organized crime makes effective criminal enforcement impossible, thus debating specific strategies for fighting organized crime is beside the point." Whereas the politics of financial reform (including the outsized influence that banks have on the political process and the symbiotic relations of banks and governments, described in many places in the book, particularly the new Chapters 14 and 17) certainly makes quick progress unlikely, the eventual success of many reform movements has shown that change is possible. Reform, however, requires public awareness and debate, and sensible debate requires understanding of the issues. Clarifying

[142] On the expansion of US banks globally, see Steele (2023). See also Wilmarth (2013) on the politics of banking regulation in the US.
[143] See Haselmann et al. (2022).
[144] This claim is made in Levitin (2014, p. 2067), who reviews our book together with others. A few of these books describe the writers' experiences in politics and regulation. The books by Sheila Bair, Neil Barofsky and Jeff Connaughton highlight the political challenge and aim to increase political pressure for reform, but they do not explain the underlying economics in as much detail as we do in our book.

the issues and empowering more people to participate can contribute to public pressure on those who refuse to engage or to take action.

In reviewing the first edition of our book, Martin Wolf concluded that our views are not more widely accepted because "bankers are so influential and the economics are so widely misunderstood." [145] This situation persists. In the final chapter of the new edition of our book, we discuss the motivation and tactics of the numerous enablers of the system that make change so challenging.[146] Because risk from banking is more abstract than risk from plane crashes or shoddy bridge construction, flawed claims about banking may have more staying power. However, the harm from a distorted and dangerous financial system is large and affects many people. The current rules and regulations can be greatly improved, bringing large benefits to society. And understanding the issues does not require advanced training. If more people understand the issues, improving policy becomes more likely.

[145] See Martin Wolf, "Why Bankers are Intellectually Naked," *Financial Times*, March 17, 2013.
[146] See also Admati (2017).

References[147]

Admati, Anat R. (2014), "The Compelling Case for Stronger and More Effective Leverage Regulation in Banking," *Journal of Legal Studies*, 531-561.

Admati, Anat R. (2016), "The Missed Opportunity and Challenge of Capital Regulation," *National Institute Economic Review*, February.

Admati, Anat R. (2017), "It Takes a Village to Maintain a Dangerous Financial System," *Just Financial Markets: Finance in a Just Society*, Lisa Herzog, Editor, Oxford University Press

Admati, Anat R. (2024a), "Comment to US Federal Regulators on Regulatory Capital Rule: Large Banking Organizations and Banking Organizations with Significant Trading Activity," January 16, available at https://gsb-faculty.stanford.edu/anat-r-admati/files/2024/01/Admati-Comment-Basel-Endgame.pdf

Admati, Anat R. (2024b), "Comment to US Federal Regulators on Long-term Debt Requirements for Large Bank Holding Companies, Certain Intermediate Holding Companies of Foreign Banking Organizations, and Large Insured Depository Institutions," January 16, available at https://gsb-faculty.stanford.edu/anat-r-admati/files/2024/01/Admati-Long-Term-Debt-Comment.pdf

Admati, Anat R., Peter Conti-Brown, and Paul Pfleiderer (2012), "Liability Holding Companies," *UCLA Law Review*, 852–913.

Admati, Anat R., Peter M., DeMarzo, Martin F. Hellwig and Paul Pfleiderer (2013, first draft August, 2010), "Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is Not Socially Expensive," Working paper.

Admati, Anat R., Peter M., DeMarzo, Martin F. Hellwig, and Paul Pfleiderer (2018), "The Leverage Ratchet Effect," *Journal of Finance* 73(1), 145 – 198.

Admati, Anat R. and Martin F. Hellwig (2011), "Comments to the UK Independent Commission on Banking," Submitted July 4.

Admati, Anat R. and Martin F. Hellwig (2013), "Does Debt Discipline Bankers? An Academic Myth about Bank Indebtedness," Working paper.

Admati Admati, Anat R., and Martin F. Hellwig (2019), "Bank Leverage, Welfare, and Regulation," in: Douglas W. Arner, Emilios Avgouleas, Danny Busch and Steven L. Schwarcz (eds.), *Systemic Risk in the Financial Sector: Ten Years After the Great Crash*, CIGI Press, Chapter 13.

Admati, Anat R. and Martin F. Hellwig (2024), *The Bankers New Clothes: What's Wrong with Banking and What to Do about It* (new and expanded edition), Princeton University Press

Angelini, Paolo, Laurent Clerc, Vasco Cúrdia, Leonardo Gambacorta, Andrea Gerali, Alberto Locarno, Roberto Motto, Werner Roeger, Skander Van den Heuvel, and Jan Vlček (2011),

[147] Our writings are available on our personal websites (https://admati.people.stanford.edu/advocacy and https://www.coll.mpg.de/martin-hellwig, on SSRN, at http://bankersnewclothes.com/ (mostly for material from 2013-2016) and on this website on the topic https://www.gsb.stanford.edu/faculty-research/excessive-leverage).

"Basel III: Long-Term Impact on Economic Performance and Fluctuation." Staff Report 485. Federal Reserve Bank of New York, New York.

Advisory Scientific Committee (2012), "Forbearance, Resolution, and Deposit Insurance", Report 01 of the Advisory Scientific Committee of the European Systemic Risk Board, Frankfurt, July 2012.

Advisory Scientific Committee (2014), "Is Europe Overbanked?" Report 04 of the Advisory Scientific Committee of the European Systemic Risk Board, Frankfurt, June 2014.

Basel Committee on Banking Supervision (BCBS) (2015), "Regulatory Consistency Assessment Programme (RCAP) – Report on risk- weighted assets for counterparty credit risk (CCR)," Bank for International Settlements, October.

Basel Committee on Banking Supervision (BCBS) (2017), "Basel III: Finalising Post-Crisis Reforms," Bank for International Settlements, December.

Basel Committee on Banking Supervision (BCBS) (2022), "Prudential treatment of cryptoasset exposures," Bank for International Settlements, December.

Behn, Markus, Rainer Haselmann, and Vikrant Vig (2022), "The Limits of Model-Based Regulation," *Journal of Finance* 77(3), 1635-1684.

Brandao, Luis Marques, Ricardo Correa, and Horacio Sapriza (2013), "International Evidence on Government Support and Risk Taking in the Banking Sector," IMF Working Paper WP/13/94.

Brealey, Richard A., Ian A. Cooper, and Evi Kaplanis (2011), "International Propagation of the Financial Crisis," mimeo, London Business School.

Brooke, Martin, Oliver Bush, Robert Edwards, Jas Ellis, Bill Francis, Rashmi Harimohan, Katharine Neiss and Caspar Siegert (2015), "Measuring the Macroeconomic Costs and Benefits of Higher UK Bank Capital Requirements," Financial Stability Paper 35, Bank of England.

Buchak, Greg, Gregor Matvos, Tomasz Piskorski, and Amit Seru (2024). "The Secular Decline of Bank Balance Sheet Lending." NBER Working Paper 32176

Bulow, Jeremy and Paul Klemperer (2013), "Market-Based Capital Regulation," Working Paper.

Calomiris, Charles W. (2013), "Reforming Banks Without Destroying Their Productivity and Value," *Journal of Applied Corporate Finance*, Vol. 25 (4), 14-20.

Cecchetti, Stephen G. (2015.), "The Jury Is In." In The New International Financial System: Analyzing the Cumulative Impact of Regulatory Reform, ed. Douglas D. Evanoff, Andrew G. Haldane and George G. Kaufman, 407–423. World Scientific Publishing

Cecchetti, Stephen G. and Kermit Schoenholtz (2017), "Regulatory Reform: A Scorecard," CEPR Discussion Paper 12465

Cline, William (2017), *The Right Balance for Banks: Theory and Evidence on Optimal Capital Requirements*, Columbia University Press.

Cochrane, John H. (2014), "Towards a Run-Free Financial System," working paper.

Cole, Rebel A. (2013), "How did the Financial Crisis Affect Business Lending in the U.S?" Working paper.

Curry, Timothy, and Lynn Shibut (2000), "The Costs of the Savings and Loan Crisis: Truth and Consequences." *FDIC Banking Review* 13: 26–35.

DeAngelo, Harry and René M. Stulz (2015), "Liquid-Debt Production, Risk Management, and Bank Capital Structure: Why High Leverage is Optimal for Banks," *Journal of Financial Economics*, 216-236.

Demirgüç-Kunt, Asli, Enrica Detragiache, and Ouarda Merrouche (2010), "Bank Capital: Lessons from the Financial Crisis", Policy Research Paper 5473 World Bank, Washington, D.C.

Dermine, Jean (ed.) (1990), *European Banking in the 1990s,* Blackwell, Oxford.

Dowd, Kevin (2018), "No Stress: The Flaws in the Bank of England's Stress Testing Programme." Working paper.

Duffie, Darrell (2016), "Financial Regulatory Reform After the Crisis: An Assessment," ECB Forum on Central Banking.

Elliott, Douglas (2013), "Higher Bank Capital Requirements Would Come at a Price," Brookings, February.

Federal Reserve Bank of Minneapolis (2017), "The Minneapolis Plan to End Too Big to Fail," December.

French, Kenneth, Martin N. Baily, John Y. Campbell, John H. Cochrane, Douglas W. Diamond, Darrell Duffie, Anil K. Kashyap, Frederic S. Mishkin, Raghuram G. Rajan, David S. Scharfstein, Robert J. Shiller, Hyun Song Shin, Matthew J. Slaughter, Jeremy C. Stein, and René M. Stulz (2010), The Squam Lake Report: Fixing the Financial System, Princeton University Press

FSA (Financial Services Authority) (2010), "The Prudential Regime for Trading Activities: A Fundamental Review, Discussion Paper 10/4, Financial Services Authority, London.

FSB (Financial Stability Board) (2015), "Principles on Loss-absorbing and Recapitalisation Capacity of G-SIBs in Resolution: Total Loss-absorbing Capacity (TLAC) Term Sheet," November.

FSB (Financial Stability Board) (2021), Evaluation of the Effects of Too-big-to-fail Reforms, April.

Galbraith, John K. (1954), *The Great Crash 1929*, Houghton Mifflin, Boston.

Goldstein, Morris (2017), *Banking's Final Exam,* Peterson Institute for International Economics, Policy Analyses in International Economics 106, Washington, DC.

Gordon, Jeffery N. and Christopher Gandia (2013), "Money Market Funds Run Risk: Will Floating Net Asset Value Fix the Problem?" Working paper.

Gorton, Gary and Andrew Metrick (2010), "Regulating the Shadow Banking System," *Brookings Papers on Economic Activity* 41(2), 261–312.

Gorton, Gary (2012), *Misunderstanding Crises: Why We Don't See them Coming*, Oxford University Press.

Gorton, Gary and Andrew Winton (2017), "Liquidity Provision, Bank Capital, and the Macroeconomy," *Journal of Money, Credit and Banking*, 5-37.

Haldane, Andrew G. (2011), "Capital Discipline," speech given at the American Economic Association Meetings, Denver, Colorado, 9 January 2011.

Haldane, Andrew G. (2012), "The Dog and the Frisbee." Speech at the Federal Reserve Bank of Kansas City's 366th economic policy symposium, Jackson Hole, Wyoming, August 31.

Haldane, Andrew G. (2013), "Constraining discretion in bank regulation," speech at the Federal Reserve Bank of Atlanta Conference, April 9.

Hanson, Samuel, Anil K. Kashyap, and Jeremy C. Stein (2011), "A Macroprudential Approach to Financial Regulation," *Journal of Economic Perspectives* 25(1), 3-28.

Hanson, Samuel G., Victoria Ivashina, Laura Nicolae, Jeremy C. Stein, Adi Sunderam, and Daniel K. Tarullo (2024), "The Evolution of Banking in the 21st Century: Evidence and Regulatory Implications," *Brookings Paper on Economic Activity*, forthcoming.

Haselmann, Rainer, Arkodipta Sarkar, Shikhar Singla |and Vikrant Vig (2022), "The Political Economy of Financial Regulation," LawFin Working Paper No. 45, Goethe University.

Heffernan, Margaret (2012) *Willful Blindness: Why We Ignore the Obvious at Our Peril*. New York: Bloomsbury Publishing

Hellwig, Martin F. (1994), "Liquidity Provision, Banking, and The Allocation of Interest Rate Risk," *European Economic Review* 38(7): 1363-1389.

Hellwig, Martin F. (2014), "Yes, Virginia, There Is a European Banking Union! But It May Not Make Your Wishes Come True," Austrian National Bank (ed.), *Towards a European Banking Union, Proceedings of the 42nd Economics Conference*, Vienna 2014, 157-181; also: Preprint 2014/12, Max Planck Institute for Research on Collective Goods, Bonn.

Hellwig, Martin F. (2017), "Precautionary Recapitalisations: Time for a Review," Report to the European Parliament's Committee on Economic and Monetary Affairs.

Hellwig, Martin F. (2018a), "Valuation Reports in the Context on Banking Resolution: What Are the Challenges?" Report to the European Parliament's Committee on Economic and Monetary Affairs.

Hellwig, Martin F. (2018b), "Bargeld, Giralgeld, Vollgeld: Zur Diskussion um das Geldwesen nach der Finanzkrise," (Cash, Bank Deposits, Full Money: The Discussion about Money after the Global Financial Crisis), in: Deutsche Bundesbank (ed.), *Proceedings of the 4th Symposium on the Role of Cash*, Frankfurt 2018, 94-147.

Hellwig, Martin F. (2019), "Banks, Politics, and European Monetary Union," in: European Central Bank (ed.), *"ECB Forum on Central Banking 2019: 20 Years of European Monetary and Economic Union"*, 250-261.

Hellwig, Martin F. (2021), "Twelve Years after the Financial Crisis—Too-big-to-fail is still with us", *Journal of Financial Regulation* 7, 175–187.Hoenig, Thomas (2013), "Basel III: A Well Intentioned Illusion," Speech to Association of Deposit Insurers, April 9, Basel.

Hoenig, Thomas (2023), "Basel Risk-Weighted Capital Standards: History of Poor Outcomes," House Subcommittee on Financial Institutions and Monetary Policy Hearings, October 24.

Jakab, Zoltan and Michael Kumhof (2015), "Banks Are Not Intermediaries of Loanable Funds – and Why this Matters," Bank of England Working Paper No. 529, May.

Jiang, Erica, Tomasz Piskorski, Amit Seru, and Gregor Matvos (2020), "Banking Without Deposits: Evidence from Shadow Bank Call Reports." Working Paper.

Jiang, Erica, Gregor Matvos, Tomasz Piskorski, and Amit Seru (2023a), "Monetary Tightening and the U.S. Bank Fragility in 2023: Mark-to-Market Losses and Uninsured Depositor Runs?" NBER Working Paper, available on SSRN.

Jiang, Erica, Gregor Matvos, Tomasz Piskorski, and Amit Seru (2023b), "Limited Hedging and Gambling for Resurrection by U.S. Banks During the 2022 Monetary Tightening?" NBER working paper, available on SSRN.

Jordà, O., B. Richter, M. Schularick, and A. Taylor (2021), "Bank Capital Redux: Solvency, Liquidity and Crisis," *Review of Economic Studies* 88 (1), 260–286,

Kapan, Tümer and Camelia Minoiu (2013), "Balance Sheet Strength and Bank Lending During the Global Financial Crisis," IMF working paper 13/102.

Kashyap, Anil K., Jeremy C. Stein, and Samuel Hanson (2010), "An Analysis of the Impact of "Substantially Heightened" Capital Requirements on Large Financial Institutions," Working Paper.

Kerr, Gordon (2011), "The Law of Opposites: Illusionary Profits in the Financial Sector," Working Paper.

Kim, Sehwa, Seil Kim, Anya Kleymenova, and Rongchen Li (2023), "Current Expected Credit Losses (CECL) Standard and Banks' Information Production," Federal Reserve Finance and Economic Discussion Paper 2023-063.

King, Mervyn (2013), "A Governor looks back – and forward," speech given at the Lord Mayor's Banquet for Bankers and Merchants of the City of London, June 19.

Kotlikoff, Laurence J. (2010), *Jimmy Stewart Is Dead: Ending the World's Ongoing Financial Plague with Limited Purpose Banking*, Wiley.

Kund, Arndt and Daniel Rugilo (2023), "Does IFRS 9 increase banks' resilience?" SUERF Policy Brief, No 585.

Levitin, Adam J. (2014), "The Politics of Financial Regulation and the Regulation of Financial Politics: A Review Essay," Harvard Law Review, 1991-2068.

Lewis, Michael (2014), *Flash Boys: A Wall Street Revolt*, Norton.

McLeay, Michael, Amar Radia, and Ryland Thomas (2014), "Money Creation in the Modern Economy," Bank of England Quarterly Bulletin Q1, 14-27,

Ohlrogge, Michael (2023), "Why Have Uninsured Depositors Become De Facto Insured?" Working paper.

Oxford Economics (2013), "Analyzing the impact of bank capital and liquidity regulations on US economic growth," A report prepared for The Clearing House, April.

Pagano, Marco and Ailsa Röell (1990), "Trading Systems in European Stock Exchanges: Current Performance and Policy Options," Economic Policy 5(No. 10), April 1990, 63 – 115.

Pagano, Marco and Ailsa Röell (1993), "Front Running and Stock Market Liquidity," in: Vittorio Conti and Rony Hainaut (eds.), *Financial Market Liberalization and the Role of Banks*, 178-199.

Persaud, Avinash D. (2014), "Why Bail-in Securities are Fool's Gold," Peterson Institute for International Economics, Policy Brief PB14-23Proctor, Robert N., and Londa Schiebinger, eds (2008) *Agnotology: The Making and Unmaking of Ignorance*. Stanford, CA: Stanford University Press.

Pfleiderer, Paul (2015), "On the Relevancy of Modigliani and Miller to Banking: A Parable and Some Observations," working paper.

Pfleiderer, Paul (2018), "Cameleons: The Misuse of Theoretical Models in Finance and Economics," *Economica*.

Poole, William, (2010), "Ending Moral Hazard," *Financial Analysts Journal*, Nov/Dec, 17-24.

Pozsar, Zoltan (2014), "Shadow Banking: The Money View," Office of Financial Research, Working Paper 14-04, July 2004.

Röell, Ailsa (1990), "Dual-Capacity Trading and the Quality of the Market," *Journal of Financial Intermediation* 1, 105-124.

Sarin, Natasha and Lawrence H. Summers (2016), "Have big banks gotten safer?" Brookings Working Paper.

Schütz, Dirk (2023), "Zu hart am Wind: Warum die Credit Suisse untergehen musste," Bilanz Verlag, Zürich.

Singh, Manmohan and Zohair Alam (2018), "Leverage, a Broader View," IMF Working Paper No. 18/62.

Steele, Graham (2023),"Banking on the Edge." University of Chicago Business Law Review 2 (1) 171–254.

Tobin, James (1967), "Commercial Banks as Creators of 'Money'," in: *Financial Markets and Economic Activity*, ed. Donald Hester and James Tobin, Cowles Foundation Monograph 21, Yale University Press, New Haven, CT.

Vestergaard, Jakob and María Retana (2013), "Behind Smoke and Mirrors: On the Alleged Recapitalization of Europe's Banks," DIIS Report.

Vickers, John (2017), "Banking reform nine years on," Vox, September 18, 2017.

Vickers, John (2018), "Safer but not Safe Enough," Keynote address at the Abu Dhabi 20th International Conference of Banking Supervisors, 29 November.

Wilmarth, Arthur E (2013) "Turning a Blind Eye. Why Washington Keeps Giving in to Wall Street." University of Cincinnati Law Review 81(4), 1283–1446.

Check for updates

THE MISSED OPPORTUNITY AND CHALLENGE OF CAPITAL REGULATION

Anat R. Admati*

Capital regulation is critical to address distortions and externalities from intense conflicts of interest in banking and from the failure of markets to counter incentives for recklessness. The approaches to capital regulation in Basel III and related proposals are based on flawed analyses of the relevant tradeoffs. The flaws in the regulations include dangerously low equity levels, a complex and problematic system of risk weights that exacerbates systemic risk and adds distortions, and unnecessary reliance on poor equity substitutes. The underlying problem is a breakdown of governance and lack of accountability to the public throughout the system, including policymakers and economists.

Keywords: Banking regulation; capital regulations; banking; equity in banking; capital structure; leverage; agency costs; leverage ratchet effect; Basel; risk weights; TLAC

JEL Classifications: G21; G28; G32; G38; H81; K23

Introduction

The events of 2007–9 exposed the failure of regulators to prevent the build-up of risk in the financial system and showed that flawed rules and ineffective enforcement of financial regulations can cause significant harm to the rest of the economy. Despite this experience, the effort at regulatory reform has been messy and unfocused. The small adjustments to capital regulations, in particular, are far from sufficient to protect the public, and the regulation is still based on a flawed approach that distorts markets, exacerbates systemic risk, and undermines the purpose of the regulation.

A healthy and stable financial system is essential for enhancing the allocation of resources, risk sharing and economic welfare. If designed and implemented properly, capital regulation can be a powerful tool for correcting market failures, reducing externalities, and ensuring that the financial system serves the economy. The continued failure of this regulation has permitted an unhealthy, opaque, inefficient and excessively fragile system to persist. This system exposes the public to unnecessary risks and distorts the economy.

The causes for the failure of capital regulation seem to reflect, at least in part, confusion about why this regulation is essential and beneficial and about the relevant tradeoffs. Studies purporting to provide guidance to policy routinely make flawed assumptions and ignore the critical distinction between private and social costs and benefits. The specialised jargon used in banking has obscured the issues and further muddles the debate.

In this essay I explain the key issues and how capital regulations fall short. I start by discussing the economics of funding and the forces that cause banks to use too little equity, which make effective capital regulation essential and beneficial. I then provide an overview of current status of the regulations, point to some key flaws and discuss some of the claims made in the policy debate. I close with remarks that place the debate in a broader governance context.

Are banks special and if so, how?

Capital regulation places restrictions on how banks and other institutions are funded in order to address distortions in their incentives. Well-designed capital regulation ensures that an appropriate part of funding is obtained and maintained from owners and shareholders who provide equity. Because owners and shareholders are not *promised* any specific payments, they automatically absorb losses as long as debts are paid.

A mantra in banking is that 'equity is expensive'. This view is taken to imply that requiring banks to use more

*Graduate School of Business, Stanford University. E-mail: admati@stanford.edu. I am grateful to E. Philip Davis, Martin Hellwig, Paul Pfleiderer, Matthew Zuck and two anonymous referees for helpful comments.

equity entails meaningful costs that should be balanced against the benefits of more equity. In fact, the costs of using more equity are entirely private and incurred by a small set of individuals. These private costs arise because when more equity is required these individuals are less able to pass costs and downside risk to creditors and to taxpayers, and they are more than offset by the substantial benefits to the broader society. Policy must be based on social, rather than narrowly private costs and benefits.

Before discussing the economics of funding and how they apply in banking, we must address an insidious confusion that often perverts the discussion. The confusion concerns the meaning of the word 'capital' in banking. Many believe that bank capital is analogous to cash reserves or a rainy day fund, and that capital requirements force banks to 'set aside' or 'hold in reserve' idle cash that cannot be used to make loans or other investments. This suggestion is patently false. Capital requirements do *not* require banks to hold anything; they only concern the source of funding banks use and the extent to which investments are funded by equity (or other forms of 'loss absorbing capital', as discussed below). Corporations do not 'hold' their own funding; rather, investors hold (own) claims such as common shares that are paid from cash flows the firm generates.

If capital is falsely thought of as idle cash, the discussion of capital regulation is immediately derailed by imaginary tradeoffs. Nonsensical claims that increased capital requirements prevent banks from making loans and 'keep billions out of the economy' may resonate with media, politicians and the public just because the jargon is misunderstood.[1] In light of this confusion and its ability to muddle the debate, it is disturbing that regulators and academics, who should know better, routinely collaborate with the industry to obscure the issues by using the misleading language and failing to challenge false statements. If, instead, the language that is used focused attention properly on funding and indebtedness, the debate would be elevated and more people would be able to understand the issues. Instead of saying 'hold' or 'set aside more capital' one can say, for example, 'use more equity', 'rely less on debt/borrowing', or 'borrow less'.

The economics of funding start with the observation that borrowing always creates leverage and magnifies risk. In financial markets, the required return on any security depends on risk because investors are risk averse. A seminal insight, made in 1958 by Franco Modigliani and Merton Miller and taught in basic courses in finance, is that rearranging risk among different investors does not *by itself* change the overall funding costs of a corporation.

Are banks so special that this basic principle and everything else we know about the economics of funding do not apply to them?[2] One way banks are special is that some of their funding comes from depositors, who accept lower returns in exchange for services such as ATMs. To the extent that deposits involve provision of these services, deposits are a bit different from other debts, but the logic of Modigliani and Miller and much of what we know about funding still apply to banks and particularly to their funding with equity and borrowing in wholesale markets. In those markets banks interact with the same investors who provide funds to businesses and corporations and who value securities in the context of portfolios using the same criteria for all investments.[3]

Importantly, like all other firms, banks have owners or shareholders who have some discretion about the mix of debt and equity used to fund the banks' assets. And like other firms, banks are more likely to become distressed or insolvent when they are highly indebted and take risks in their investments. The distortions and inefficiencies brought about by distress and insolvency are particularly relevant for banks, as discussed below.

The funding mix of non-financial corporations is rarely regulated. Companies can rely on any amount of debt funding if they find willing lenders to provide this funding. Despite the tax advantage of debt over equity for corporations, and without any regulation, most healthy corporations maintain significant equity levels, and some borrow very little. It is rare for corporations to maintain on a regular basis less than 30 per cent equity relative to their total assets. Retained earnings are a popular source of internally-generated equity funding. Many successful companies grow and thrive by routinely using their profits to make additional investments without taking on more debt.

Banks, like other companies, *can* retain their profits or sell additional shares to investors, which would enable more loans and investments. Yet banks often choose to make payouts (such as dividends) to their shareholders and continue to borrow even while their equity levels might be 5 per cent or even less relative to their assets.[4]

Because they operate with little equity and their assets are often opaque and difficult to value, banks are fragile. Even small losses can raise concerns about their insolvency. If depositors or short-term creditors

are concerned they might not be paid, the result can be a run, even if the bank is still solvent. Because banks provide essential services, the collateral harm of their default and failure can be large. If many banks fail or become distressed at the same time, the economy as a whole is disrupted and harmed.[5]

Does the business of banking imply that banks must be heavily indebted and use very little equity? Must we, as a society, tolerate this fragility in order to obtain the benefits banks provide? The answer is a resounding *No*. Nothing about the business of banking makes it essential or beneficial for banks to operate with the very low equity levels they choose to maintain. On the contrary, banks are better and more consistently able to make all worthy loans at appropriate prices and their ability to provide reliable liquidity to depositors and other creditors would be *enhanced* if they were safer by using more equity. A safer bank would be less likely to experience liquidity problems or runs, and because it is more likely to be solvent when experiencing a liquidity problem, the central bank will be better positioned to serve as a lender of last resort.

Why then do banks persist in having such high leverage and why do bankers fight furiously against regulations that would force them to use more equity? To answer these questions, it is useful to consider why nonbanks do not borrow more even though using more debt funding can save on their taxes. A key reason is that borrowing has a dark side.

First, high levels of debt can lead to financial distress and bankruptcy, which in turn create delays, legal costs, and disruptions that deplete the remaining assets of the firm. Second, and more important, borrowing creates fundamental conflicts of interest between borrowers and lenders regarding subsequent investment and funding decisions. The conflicts arise because borrowers benefit fully from the upside of any risk taken while they share the downside risk with creditors. Because of these conflicts of interest, decisions made by the managers and shareholders of an indebted corporation may harm creditors and reduce the combined total value of the firm to all investors. Specifically, decisions on behalf of shareholders when debt is in place reflect a bias in favour of riskier investments and additional borrowing and against relatively safe investments with insufficient upside and any reduction of leverage.

Anticipating the costs of bankruptcy and the potential distortions to decisions made against their interest, lenders typically try to protect themselves by increasing the interest rate they charge, and they may attach restrictive conditions to debt contracts to constrain shareholders' subsequent actions. Debt covenants, however, cannot cover all contingencies and, because they may restrict the flexibility of the firm to take advantage of beneficial opportunities, may be renegotiated later. Covenants are also costly to enforce, particularly if creditors are dispersed and face a free-rider problem in pursuing them. As a result, heavy borrowing becomes expensive and unattractive for many companies despite the tax advantage of debt. The problem is particularly intense for banks because they are so highly indebted already.

Admati *et al*. (2015) explore the implications of borrower-creditor conflicts on corporate funding. We show that these conflicts of interest create a *leverage ratchet effect* that can have profound impact on the dynamics of corporate leverage. Borrowing and indebtedness can become addictive, excessive and irreversible, because shareholders avoid actions to reduce the amount of debt and increase the equity, such that they take downside risk that would otherwise be borne by creditors. Shareholders may, however, increase leverage to benefit themselves.

The leverage ratchet effect is particularly relevant for banks, because part of banks' business involves taking deposits, which involves borrowing.[6] Once debt is in place and the conflicts of interest take hold, bankers prefer to increase leverage and 'economise' on equity. If deposits are explicitly or implicitly insured, bankers have little reason to worry about depositors withdrawing funding en masse. Importantly, insured depositors do not generally monitor banks' activities and do not put in place constraints on the risks or additional borrowing that banks take, on the payouts banks make to their managers and shareholders. Since deposits are not secured by collateral, banks can use assets purchased with deposits as collateral to obtain more debt funding from investors under attractive terms.[7]

Thus, bank creditors fail to counter properly the intense leverage ratchet effect that accompanies heavy borrowing and, without regulations, the resulting inefficiencies of distress or insolvency can persist for extended periods of time. As long as the bank meets its commitments and its creditors feel safe, the creditors may not notice if the bank becomes distressed through losses or additional borrowing, or even if it becomes insolvent. The addiction to borrowing in banking thus is tolerated, enabled and encouraged by the passivity of their creditors and by guarantees and subsidies.

The unusual passivity of depositors as creditors can cause bankers to forget that deposits are part of the banks' debts. For example, in criticising rules that would force banks to issue long-term debt that might absorb losses, John Stumpf, CEO of Wells Fargo Bank, made the nonsensical claim that because his bank has a lot of retail deposits, it does not have a lot of debt. Mr. Stumpf was also quoted in the same context saying "The last thing I need is debt".[8] The story title referred to Wells Fargo Bank as "debt averse".

In criticising proposals for long-term debt, Mr. Stumpf did not advocate more equity, and his bank remains heavily indebted. If Wells Fargo Bank was actually debt averse, it could reduce its indebtedness by retaining its profits or selling new shares. Mr. Stumpf's objection to issuing long-term debt likely stems from the fact that, unlike insured depositors, investors who might suffer losses, even if this event is highly unlikely, are concerned with the risk of investing in Wells Fargo Bank, and might find the bank's financial disclosures poor.

Equity investors would be even harsher with Wells Fargo Bank and similarly large and complex banks given their complexity and poor disclosures. An investigative report that examined the financial statements of Wells Fargo Bank, which is less active in derivatives than other large institutions but has extensive off-balance-sheet exposures, quotes many investors and accounting experts stating that the large banks are so opaque that they are "uninvestible".[9] Andrew Haldane of the Bank of England has also pointed to the opacity and complexity of these institutions.[10] If regulations forced more equity funding, appropriate valuations based on true value creation and fewer subsidies and better disclosures would restore market discipline that is currently missing.

In summary, banks borrow too much and resist using more equity because their managers and shareholders have strong incentives to do so. These incentives include the already-high leverage in banking and the guarantees and subsidies that feed and reward their strong 'addiction' and which enable leverage to ratchet up.[11] Because the result of this leverage ratchet is that costs and downside risks are simply shifted to others while making the financial system fragile and creating further distortions, from society's perspective, and contrary to the mantra 'equity is expensive', it is having too little equity in banking that is expensive and highly inefficient. This situation can be corrected only by effective regulations. Unfortunately, the regulations we have are entirely inadequate and their design adds further distortions.

A critique of capital regulation based on Basel III

The Basel III accord agreed in 2010 and implemented, with some variations, around the world, recommends a modest increase in capital requirements relative to Basel II. Although it strengthens some definitions and rules, Basel III still allows equity levels to be much too low, and it maintains an approach where capital requirements are stated relative to risk-weighted assets (RWA). Among other things the regulation establishes a 'conservation buffer'. Banks have to rebuild their buffers by avoiding payouts to shareholders and bonuses if their equity falls below 7 per cent of RWA, and more interventions take place if the ratio falls to 4.5 per cent. The new leverage ratio introduced in Basel III requires that equity be at least 3 per cent of total assets, allowing assets to be more than 30 times larger than equity as measured by book value.

Banks designated as globally systemic institutions are required to have up to 2.5 per cent additional equity relative to RWA and, in addition, a recent proposal by the Financial Stability Board agreed upon by G20 leaders in 2015 adds a requirement for banks to use long-term debt called TLAC (Total Loss Absorbency Capacity) that is supposed to absorb losses in some situations.

It is important to note that regulatory capital ratios are based primarily on accounting conventions that can be quite arbitrary and vary by jurisdictions. Balance sheet disclosures tend to obscure significant exposures to risk, allowing much risk to lurk 'off balance sheet', and to manipulate the disclosures, particularly since auditors are subject to their own conflicts of interest and are unlikely to challenge managers.[12]

Regulatory capital ratios, especially those based on risk weights, can therefore give misleading reassurances. Through the financial crisis of 2007–9, these ratios still appeared strong even as banks were failing and receiving bailouts and supports. The intense lobbying by banks against any increase in required equity only reinforces the view that the requirements are entirely inadequate.

In addition to the problems related to accounting measures, there are three key flaws in capital regulations based on the Basel III accord. (See Admati and Hellwig (2013a, Chapter 11) for a more detailed discussion.)

(i) Required equity levels are much too low.

(ii) The use of complex manipulable risk weights that ignore some risks exacerbates systemic risk and distorts incentives, particularly because equity levels are so low.

(iii) Debt-like securities are used in the regulations although they are complex, unreliable, and entirely dominated by equity.

Dangerously low equity levels

Bankers and policymakers claim that Basel III capital requirements are much improved, citing the fact that they are 'multiples' of those specified under Basel II. The requirements are actually very modest in absolute terms. Multiplying a small number such as 2 per cent equity to risk weighted assets in Basel II by a factor of 2, 3 or even more does not result in a large number. The 3 per cent 'leverage ratio' of equity to total value is outrageously low. Whereas some countries such as the US have adopted higher leverage ratios (5 per cent for bank holding companies and 6 per cent for deposit-taking banks), the levels are still too low. (Much of the regulation uses risk weighted assets as denominator. As discussed below this approach is highly problematic.)

Increasing equity requirements substantially brings about numerous benefits beyond increasing loss absorption capacity that allows banks to continue making loans after incurring losses without needing support. With more equity, liquidity problems, runs and all forms of contagion are less likely. Moreover, any loss in the value of the assets is a smaller fraction of the equity, thus fewer assets must be sold under distressed conditions to 'delever.' Better yet, distortions in banks' lending and funding decisions due to overhanging debt are alleviated. As another bonus, more equity is the best way to reduce the implicit guarantees subsidy that distorts markets and rewards recklessness.[13]

All the studies I am aware of that claim to provide scientific guidelines for the design of capital regulations have fundamental flaws that render their conclusions meaningless. The estimates they provide for costs and benefits of specific capital ratios are based on many inappropriate assumptions. None of the models captures properly the relevant costs and benefits and none provides meaningful estimates that should guide policy.

A recent paper produced in the Bank of England, Brooke *et al.* (2015), cites earlier flawed studies and provides its own set of flawed estimates. For example, the benefits of higher capital requirements are only described in terms of crisis prevention, ignoring all the other benefits discussed above, including the fact that more equity reduces the externalities associated with intense asset sales in distress. The authors presume falsely that all lending is valuable and neglect the fact that bad loans are wasteful and too much risky lending can put banks operating with little equity at risk of insolvency, which can create disruptions and reduce lending even if there is no crisis or if losses are absorbed by investors. As recent experience illustrated, credit and growth suffer when banks have *too little* equity. Credit cycles and distortions are evidence of unhealthy financial instability that better laws and regulation can and should contain.

The analysis of the costs of higher equity requirements in Brooke *et al.* (2015) is fundamentally flawed because it fails to make the critical distinction between private and social cost; the authors provide no coherent model for how any *social* costs would come about. The stated policy regarding 'too big to fail' institutions is to eliminate bailouts. Current efforts focussing on loss-absorbing debt are said to achieve this objective, but, as discussed below, the arrangement presumes a willingness to let banks go into resolution, which is not credible in a crisis. With equity, this problem does not arise. Equity is the simplest, most reliable and most beneficial way to reduce those subsidies while also enhancing the health and safety of the system.[14]

The disturbing fact that debt funding is subsidised and equity is penalised through the tax code is also not discussed in Brooke *et al.* (2015), but it is relevant. There is no economic rationale for the tax subsidies of debt broadly given to corporations. The *Economist* magazine (on 15 May, 2015) called this subsidy 'a vast distortion in the world economy'. Having a tax code that encourages excessive and harmful indebtedness in banking, which only exacerbates the intense leverage ratchet effect and the impact of explicit and implicit guarantees, is perverse. The tax code must be changed, neutralised or ignored for the discussion of capital regulation. Even if banks pay more taxes, there is no cost to society because taxes are to be used by governments on behalf of the public. [15]

When banks have high levels of debt and little equity, the leverage ratchet effect is intense and as a result the choices they make in response to requirements specified in capital *ratios* might entail unintended consequences such as reduction in lending or selling assets in ways that exacerbate price declines for others. To avoid such problems, especially in transition to higher

requirements, regulators must instruct banks to raise specific *amounts* of equity through retained earnings and new issuance. Inability to raise equity must raise concerns about the institution's health. Insolvent banks are dysfunctional and dangerous; they must be dealt with promptly. These issues are discussed in Admati and Hellwig (2013a, Chapter 11) and explored in more depth in Admati *et al*. (2015, Sections 5–6).

How much equity should banks have? Historically, equity levels in banking were much higher than they are today. As partnerships in the 19th century, for example, banks' equity often accounted for 50 per cent of their assets, and bank owners had unlimited liability, so owners' assets could be used to pay depositors. Equity levels in banking were commonly 20 or 30 per cent of total assets early in the 20th century, and owners had double, triple or unlimited liability in the US until after the deposit insurance was established.[16]

Admati and Hellwig (2013a) propose that equity requirements be set at 30 per cent of total assets and allowed to decline to 20 per cent, maintaining a conservation buffer between 20 and 30 per cent. Such levels are considered minimal for healthy companies outside banking. They are common for hedge funds and, as noted above, were prevalent in banking before safety nets were put in place. It is important to note that the meaning of any number depends critically on how the ratio is defined and measured and on how assets are valued, which is extremely challenging. One thorny issue is accounting for derivatives and other off-balance-sheet exposures. Another is asset classification, and whether regulators are able to build equity buffers in advance and intervene promptly as needed. The detail of the rules and how they are implemented are critical for their effectiveness. Supervisors play a critical role.

There are more flawed claims made in the discussion of capital regulation and about the 'specialness' of banks. A few are taken later in this essay; others are discussed in writings such as Admati and Hellwig (2013a, b; 2015) and Kay (2015).

Highly problematic risk weighting system

Capital regulations under the 2004 Basel II accord were based on a complex way to calibrate regulatory ratios to risk. They did this by attaching a 'risk weight' to each asset and defining the denominator of the capital ratio as the sum of these 'risk-weighted' assets. This approach was maintained and only tweaked under Basel III. It is abundantly clear that the system of risk weights used in Basel II did an extremely poor job of assessing how high capital requirements should be. In the period leading up to the crisis, banks had strong incentives to create and invest in highly-rated securities, particularly if the securities were rated AAA, because such securities had a zero risk weight and did not require any equity funding.

Risk weights introduce distortions in multiple ways.

(i) They allow the use of internal models that often ignore tail risk, thus encourage concentrated tail risks and increase systemic risk;

(ii) The use of banks' internal models allows manipulation of the requirements in order to increase leverage and risk.

(iii) Risk weights distort bank lending, often away from business lending and towards government lending and other investments. A recent example is the excessive lending of private banks in Europe to the Greek government in 2001–10. Such lending received zero risk weight and thus the risk was ignored.

Combined with extremely low equity levels, the complex risk weights system provides banks many ways to ratchet up leverage and increase systemic risk while satisfying the requirements.[17] A crude leverage ratio, *at levels significantly higher than any of the levels implemented today*, can go a long way towards making sure that risks taken in banking are borne by investors and not by taxpayers. If a system of risk adjustments is used, it is particularly important that no assets that may entail risk, even when risk is deemed small by banks or rating agencies, receive zero or near zero risk weight. Risk weights should only be used to increase equity requirements when opacity makes any risk estimation difficult. The point of equity requirements is to prepare for the 'unknown unknowns.' Having 'too much' equity must not be a concern in the foreseeable future.

Poor equity substitutes

Another flaw of existing capital regulations is that they try to 'economise' on equity by requiring the largest banks to issue debt securities designated as 'loss absorbing capital'. The term that is used is TLAC (total loss absorbing capital), and the securities are meant to provide an alternative to bailouts by 'bailing-in' some creditors. A related concept is contingent capital or cocos, which uses various trigger points to convert debt to equity. The idea behind these securities is to create mechanisms other than bankruptcy and, in the case of TLAC closely related to resolution by regulators,

which would impose loses on investors other than shareholders to avoid government bailouts.

In the past, the inclusion of debt as part of capital regulation has not worked. Tier 2 capital included only debt-like securities and even Tier 1 capital allowed many non-equity claims that were held by investors expecting specific returns. Yet, holders of such claims did not suffer losses even when banks ran into trouble and received government bailouts. Nevertheless, and ignoring the lessons and the economic considerations, regulators claim that next time will be different.

Persaud (2014) rightly refers to bail-in securities as 'fool's gold'. It is unrealistic to expect that regulators will trigger recovery and resolution processes that are complex, costly and untested so that losses can be imposed on debt-like TLAC securities, and that they would be politically able to follow up with imposing losses on creditors or mandatory conversion to equity. This is particularly true if a potential crisis is looming, since pulling triggers and inflicting haircuts might have unpredictable consequences throughout the opaque financial system. A thorny issue concerns cross-border coordination of any resolution, which bail-in would be part of. The legal challenges are daunting.[18]

Since there is no sense in which more equity in banking is 'expensive' from society's perspective, it is baffling that regulators devise such complex and unreliable securities when equity would accomplish the objective of absorbing losses more simply and reliably at no additional relevant cost. When risk is taken, losses must be absorbed by someone. Shareholders who are entitled to the upside and who absorb losses without the need to go through complex and costly triggers, are the most obvious candidates. Especially given the low levels of equity, the better approach would be to focus entirely on increasing equity levels.[19] It makes no sense to plan for scenarios that would be costly and disruptive even in the best case when much more can be achieved by trying to prevent reaching those bad scenarios. Moreover, equity is already on the banks' balance sheet and often trades in a well-developed and liquid market. None of this holds for the complex and untested alternatives.

By far the most important approach to enhancing financial stability and increasing loss absorbing capacity is a dramatic increase in equity requirements for banks and other financial institutions. Genuine, reliable, credible and cost-effective loss absorption cannot be achieved by any of the other means. The use of debt securities instead of equity ignores both the lessons from past attempts and the economic considerations. This approach is misguided, poorly motivated, and fraught with problems; it represents a false hope.

Is equity scarce for banks?

A question often asked regarding proposals to increase equity requirements for banks dramatically is 'where would all this 'new' equity come from?' The concern is misplaced. As explained in Admati *et al.* (2013, Section 7), a change to the funding mix of banks, even a radical change, does not by itself interfere with any of the overall productive activities in the economy and does not involve any radical change in the way risks in the economy are held and shared. All that is involved is a certain 'reshuffling' of financial claims.

Higher equity requirements help place risks where they should belong, namely with shareholders, for the purpose of aligning incentives and reducing distortions. Requiring more equity funding 'privatises' risks that are otherwise borne by governments and taxpayers. Once risks are privatised and conflicts of interest are reduced, undistorted markets can determine the appropriate allocation of resources and the size of individual banks and of the industry. Currently, markets fail because of the distortions of excessive leverage and subsidies and flawed regulation that further distorts incentives.

The easiest way to implement the transition to higher equity requirements is to ban payments to equity until banks are better capitalised. Avoiding cash payouts to shareholders, and even requiring that some executive compensation comes in the form of new shares rather than cash, can build up equity buffers. It may also be useful for regulators to mandate specific amounts of equity issuance. Banks that cannot raise equity must be viewed as failing a basic market stress test. They may well be too opaque, insolvent, or too big and inefficient. Such institutions should not persist.

Instead of relying on market tests, regulators use annual stress tests to reassure themselves and the public that the banks are safe enough. The premise of the stress tests is the flawed notion that equity is scarce and expensive and that banks should have 'just enough' of it. In fact, there is little harm and much benefit in more safety, and the stress tests give false reassurances. The tests rely on many of the same flawed measures used in capital regulations and on numerous unreliable and untested assumptions.[20]

It is impossible to predict with any precision how an actual crisis, which may come from an unexpected

direction, would play out in the highly interconnected system. The opacity of the system and the existence of many layers of intermediation make it difficult to assess true counterparty risk and the correlation between underlying macro risk and counterparty risk. Risks that are assumed to be transferred and dispersed may instead be concentrated elsewhere, as happened in the case of AIG. Hansen (2013) discusses the difficulty of estimating systemic risk with any precision, and Hellwig (2014) concludes that given the challenge of devising macroprudential regulations, ensuring significant equity buffer for banks must be a key approach to reducing systemic risk.

Flawed excuses

A claim often made against increasing equity requirements is that it would force activities to move to the 'shadow banking system.' This argument is flawed. The shadow banking system actually grew as a direct result of the failed enforcement of previous (light) regulations. Regulated institutions were able to hide risk exposure from regulators in the shadow banking system, and they continue to do so.

The lesson is that we must do better at enforcing regulations. Tracing the exposures of the biggest institutions, which can be viewed as 'shadow hedge funds' given their enormous scope and complexity, would be an important start. Pillar 2 of the Basel agreement gives authority to supervisors to intervene in imprudent practices, and they must use this authority to prevent blatant attempts at regulatory arbitrage. If effective enforcement is deemed impossible, maybe radical solutions, such as those proposed in McMillan (2014), should be considered.

Another argument against higher equity requirements is that the requirements must be coordinated internationally to maintain a 'level playing field,' or that it is a policy priority to help 'our' banks succeed in global competition. Such flawed policy concerns explicitly interfere with financial stability, as admitted in Brooke *et al.* (2015). In fact, banks are in competition not only in markets for financial services but also in markets for inputs, including scarce talent. The people that they have drawn into the financial sector have not been available to other industries. Extolling the competitive success of the financial sector ignores the opportunity costs of these successes.

For the economy as a whole, the question is not whether banks are successful but where resources are most usefully employed. We usually rely on the market system to guide resources to their best uses. Absent distortions, a firm's ability to compete successfully in input and output markets is prima facie evidence that its use of the resources is economically desirable. But this assessment is unwarranted if market functioning is distorted by externalities and/or government taxes and subsidies.[21]

Policymakers must focus on protecting their citizens, not 'their' banks. Implicit guarantee subsidies distort competition and impair the ability of the market system to provide proper allocation of resources. More generally, the economy may be putting too many resources into the financial sector. In that case, eliminating these distortions through higher equity requirements will improve the market system and enhance economic welfare, even as financial-sector activities are reduced. The global success of banks in Ireland, Iceland and Cyprus has brought disaster on their citizens, and nations with large banking sectors should be particularly concerned with protecting their citizens from reckless, excessively leveraged banks.

Concluding remarks

Our fragile and unhealthy financial system would be much better able to support credit and growth if capital regulation were better designed and implemented. The view that equity levels in Basel III are much too low is shared by many. For example, in 2010 a short letter signed by twenty academics (Admati *et al.*, 2010) pointed to the key flaws discussed here and urged more radical reform.[22] Hoenig (2013) [from FDIC] called Basel III 'a well-meaning illusion.'

Despite the extremely strong case for requiring much more equity and for improving the design of the regulation, recent statements from regulators suggest that the debate over capital regulation is largely over, with virtually no major improvements over the flawed Basel III.[23] A story on 1 December, 2015 with the headline 'Bank of England draws the line on bank bashing' quotes Governor Mark Carney saying "there is no Basel IV". Bankers were of course quite pleased.[24]

Instead of questioning their assumptions, re-examining the issues, and acting in the public interest, policymakers and many others, including academics, have maintained flawed narratives and displayed wilful blindness. Instead of simple and cost-effective regulations to counter distorted incentives that harm the economy, regulators have devised extremely complex regulations that may not bring enough benefit to justify the costs but which allow the pretence of action. [25]

The quest for high equity requirements should not be viewed as 'bank bashing' but as a common sense approach that is based on a proper costs and benefit analysis. Individuals who work in banks respond in predictable ways to their incentives to benefit themselves. The rules must recognise and account for these incentives. Where possible laws and regulations should be designed to reduce the conflict between what is good for banks and those who work for them and what is good for the broader public. When laws, regulations, enforcement, and overall governance fail, it is policymakers and watchdogs who deserve criticism for creating flawed rules that tolerate recklessness and exacerbate distortions, and for betraying the public trust.

Martin Wolf, who served on the UK Independent Commission on Banking, wrote an excellent summary of the issues related to capital regulations: "Allowing such important businesses to operate with almost no equity cushions encourages dangerous conduct. Banks are not special, except for what they are allowed to get away with. The problem is bigger than that banks are 'too big' or 'too interconnected' to fail. It is that they are so complex and so grossly undercapitalised. The model is intellectually bankrupt. The reason that this is not more widely accepted is that bankers are so influential and the economics are so widely misunderstood." He concluded by asserting that "we have failed to remove the causes of the crisis. Further such crises will come".[26] Many have reached the same conclusion, including among regulators and the industry.[27]

Why are bankers so influential, and why are the economics so widely misunderstood? The problem appears to be rooted again in people's incentives and the lack of accountability. It is easier and more convenient to believe that free markets achieve efficient outcomes, and to avoid challenging those with power. The 'other people' whose money and welfare are at stake are either unaware that they are harmed or unable to do much about it. Governance and control appears broken at all levels. When the public is confused about the issues, there is no accountability for flawed claims and bad policy.

It is both sobering and alarming to contemplate the failure to learn key lessons from a crisis as harmful as that of 2007–9. A developed financial system meant to allocate risk and resources efficiently continues to distort the economy and endanger the public. My fear is that this system persists because it benefits powerful people, and that even if we experience more major crises in the future, convenient narratives and narrow interests will again prevail to prevent effective reform. My hope is that more people engage on these issues, gain better understanding, and do what they can to change this situation. The issues go beyond crisis prevention; our banking system is inefficient, distorted and harmful every day. Collectively, we must find ways to improve it.

NOTES

1 Such claims are made routinely by lobbyists. A recent example is Tim Pawlenty of the Financial Services Roundtable (see 'Fed lifts capital requirements for banks', Ryan Tracy, Victoria McGrane and Justin Baer, *Wall Street Journal* on 20 July, 2015. For more discussion, see Admati *et al.* (2013, Sec 3.1), Admati and Hellwig (2013a, Chapters 1, 6) and Admati and Hellwig (2015, Claims 1–2).

2 This question is addressed in Admati *et al.* (2013, 2015), Admati and Hellwig (2013a, Chapters 4 and 7–10; 2015), Pfleiderer (2015), and Kay (2015).

3 In some of the academic literature on banking, the statement 'MM does not apply to banks' is used to postulate frictions that, under the assumptions of the models, might be addressed by borrowing, while conveniently ignoring the enormous frictions and collateral damage on the system that borrowing creates. See Admati and Hellwig (2013a, Chapters 3, 6, 8 and 9; 2013b), and Pfleiderer (2014; 2015).

4 These ratios may depend on accounting convention and they might be poor measurements of indebtedness or solvency. The so-called distance to default depends on the market value of the assets relative to the amount it would take to settle all the debt.

5 See Admati and Hellwig (2013a, Chapter 5) for a discussion of contagion effects in banking.

6 It is sometimes argued that debt helps resolve governance problems between managers and shareholders. These considerations, however, do not apply to the funding considerations of banks that are the main focus of this chapter. For discussions of debt as a 'disciplining' device for managers, see Admati *et al.* (2013, Section 5) and Admati and Hellwig (2013b), which represents an 'omitted chapter' from Admati and Hellwig (2013a).

7 In the case of repo and derivatives, there is a also a bankruptcy exemption that further reassures creditors and lowers their concern with the overall risk, thus adding fragility. See, for example, Skeel and Jackson (2012). Brunnermeier and Ohemke (2013) discuss the shortening of maturity as another distortion in funding that is due to conflicts of interest and relevant in banking.

8 The first quote is from 'Wells Chief warns Fed over debt proposal', Tom Braithwaite, *Financial Times*, 2 June, 2013. The second from 'Fed disaster plan is a bitter pill for debt-averse Wells Fargo,' Jesse Hamilton and Ian Katz, *Bloomberg*, 30 October, 2015.

9 'What's inside America's banks', Jesse Eisinger and Frank Partnoy, *The Atlantic*, January 2013. On the huge complexity of the structure of the largest banks, see Blundell-Wignall *et al.* (2009), Advisory Scientific committee (2014) and Carmassi and Herring (2014).

10 See 'We should go further unbundling banks', Andrew

Haldane, *Financial Times*, 2 October, 2012. Kerr (2011) shows how banks can artificially inflate reported profits and capital levels and mislead investors and regulators. There has been no meaningful change in this situation. Accounting properly for risk in derivatives markets and exposures off balance sheet remain major challenges to investors and regulators.

11 Admati and Hellwig (2013a, Chapters 7–10), Admati *et al.* (2013; 2015) and Kay (2015) discuss the incentives in more detail. On distinctions among shareholders, see 'The great bank escape', Anat Admati, *Project Syndicate*, 31 December, 2012.

12 Huizinga and Laeven (2012) show that distressed banks are prone to manipulating their financial statements. Kerr (2011) explains how banks can manipulate reported profits and regulatory capital. On conflicts of interest in auditing firms, see, e.g., Shah (2015). On this and related governance issues, see, e.g., 'Investigate KPMG's audit of HBOS, urges Tyrie', Tim Wallace, *Telegraph*, 14 December, 2015.

13 Admati *et al.* (2013, Section 2) and Admati and Hellwig (2013a, Chapters 6 and 13) discuss the benefits of higher equity requirements in some detail.

14 Implicit subsidies are discussed in detail in Admati and Hellwig (2013a, Chapter 9) and in Admati (2014). Admati *et al.* (2013, Section 9) discusses capital regulation and lending.

15 On tax and other subsidies, see Admati *et al.* (2013, Section 4), Admati and Hellwig (2013a, Chapters 6 and 9) and Admati (2014).

16 See Admati and Hellwig (2013a, Chapter 2) and references there, as well as Turner (2014).

17 Hellwig (2010), Admati and Hellwig (2013a), Bair (2012), and Haldane (2011, 2012) discuss the issues in some detail.

18 For more on the legal challenges associated with TLAC debt, the bail-in concept, and cross-border resolution, see, for example, Wilmarth (2015). In Europe, the implementation of a banking union with deposit insurance and resolution is mired in legal and political complications as of this writing.

19 Admati and Hellwig (2013a, pp. 187–8) and Admati *et al.* (2013, Sec. 8) elaborate. Similar considerations apply to so-called contingent capital.

20 Dowd (2015) provides an extensive discussion of the weaknesses in stress tests.

21 See Admati and Hellwig (2013a, Chapter 12) for more discussion.

22 The full text and signatories' names and titles are available at https://www.gsb.stanford.edu/faculty-research/excessive-leverage/healthy-banking-system-goal. The 15 per cent figure was meant to illustrate that the 3 per cent figure in Basel III is entirely in the wrong range. As discussed above, exact numerical ratios are not meaningful until an appropriate measures of the total assets is specified, which involves thorny accounting issues. Links to two other letters from many academics published in 2011 and many other writings are provided at https://www.gsb.stanford.edu/faculty-research/excessive-leverage.

23 'Bank regulators see mood shift as rule-making phase nears end', Huw Jones and Steve Slater, *Reuters*, 22 October, 2015 quotes Andrea Enria, chair of European Banking Authority: "The rule-making phase in banking is coming to an end. We will then move to consistency and implementation issues". William Coen, secretary general of Basel Committee on Bank Supervision stated: "there's not a prevailing view among the Basel Committee that we need more and more capital, I think we've got a good handle on the amount of capital".

24 *Financial Times* headline, report by Chris Giles, Caroline Binham and Martin Arnold.

25 On wilful blindness, see Heffernan (2012). *Other People's Money* is both the title of Kay (2015), a chapter title in Luyendijk (2015) and the final chapter title of Admati and Hellwig (2013a). Regarding the academics, Admati *et al.* (2013, Section 5–7), Admati and Hellwig (2013a, b; 2015) and Pfliederer (2014) point to flawed models and analyses and their misuse in policy.

26 'Why bankers are intellectually naked', *Financial Times*, 17 March, 2013.

27 See, e.g., Luyendijk (2015), which is based on many interviews and concludes that the system has "an empty cockpit".

REFERENCES

Admati, A.R. (2014), 'Examining the GAO Report on Expectations of Government Support for Bank Holding Companies', Testimony for hearing of Senate Committee on Banking, Housing and Urban Affairs Subcommittee on Financial Institutions and Consumer Protection, 31 July.

Admati, A.R., Allen, F., Brealey, R., Brennan, M., Brunnermeier, M.K., Boot, A., Cochrane, J.H., DeMarzo, P.M., Fama, E.F., Fishman, F., Goodhart, C., Hellwig, M.F.,Leland, H., Myers, S.C., Pfleiderer, P., Rochet, J.C., Ross, S.A., Sharpe, W.F., Spatt, C.S. and Thakor, A. (2010), 'Healthy banking system is the goal, not profitable banks,' *Financial Times*, 9 November.

Admati, A.R., DeMarzo, P.M., Hellwig, M.F. and Pfleiderer, P. (2013), 'Fallacies, irrelevant facts, and myths in the discussion of capital regulation: why bank equity is not socially expensive', Working Paper (original draft August, 2010).

—(2015), 'The leverage ratchet effect', Working Paper.

Admati, A.R. and Hellwig, M.F. (2013a), *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It,* Princeton University Press.

—(2013b), 'Does debt discipline bankers? An academic myth about bank indebtedness', Working Paper.

—(2015), 'The parade of bankers' new clothes continues: 31 flawed claims debunked', Working Paper.

Advisory Scientific Committee (2014), 'Is Europe overbanked?', Report to the European Systemic Risk Board (ESRB), No. 4, June.

Bair, S. (2012), *Bull by the Horns: Fighting to Save Main Street from Wall Street and Wall Street from Itself*, New York: Free Press.

Blundell-Wignall, A., Wehinger, G. and Slovik, P. (2009), 'The elephant in the room: the need to deal with what banks do', *OECD Journal: Financial Market Trends*, 2, pp.11–39.

Brooke, M., Bush, O., Edwards, R., Ellis, J., Francis, B., Harimohan, R., Neiss, K. and Siegert, C. (2015), 'Measuring the macroeconomic costs and benefits of higher UK bank capital requirements', Financial Stability Paper 35, Bank of England.

Brunnermeier, M.K. and Oehmke, M. (2013), 'The maturity rat race', *Journal of Finance*, 68(2), pp. 483–521.

Carmassi, J. and Herring, R.J. (2014), 'Corporate structures, transparency, and resolvability of global systemically important banks,' Working Paper.

Dowd, K. (2015), *No Stress: The Flaws in the Bank of England's Stress Testing Programme*, United Kingdom: ASI (Research).

Haldane, A.G. (2011), 'Capital discipline', speech delivered at the American Economic Association, Denver, 9 January.

—(2012), 'The dog and the frisbee', speech delivered at the Federal Reserve Bank of Kansas City's 366th economic policy symposium, Jackson Hole, Wyoming, 31 August.

Hansen, L.P. (2013), 'Challenges in identifying and measuring systemic risk', Becker Friedman Institute for Research in Economics Working Paper No. 2012–012.

Heffernan, M. (2012), *Willfull Blindness: Why We Ignore the Obvious at Our Peril*, New York: Bloomsbury USA.

Hellwig, M.F. (2010), *Capital Regulation after the Crisis: Business as Usual?*, Max Planck Institute for Research on Collective Goods, Bonn, Preprint 2010–31.

—(2014), 'Systemic risk and macro-prudential policy', in Houbel, A., Nijskens, R. and Teunissen, M. (eds), *Putting Macroprudential Policy to Work*, Occasional Series 12–7, pp. 42–77, Amsterdam: De Nederlandse Bank.

Hoenig, T. (2013), 'Basel III: a well intentioned illusion', speech to Association of Deposit Insurers, 9 April, Basel.

Huizinga, H, and Laeven, L. (2012), 'Bank valuation and accounting discretion during a financial crisis', *Journal of Financial Economics*, 106, pp. 614–34.

Kay, J. (2015), *Other People's Money: The Real Business of Finance*, Norton.

Kerr, G. (2011), 'The law of opposites: illusionary profits in the financial sector', Working Paper.

Luyendijk, J. (2015), *Swimming with Sharks: My Journey into the World of the Bankers,* Guardian Faber Publishing.

McMillan, J. (2014), *The End of Banking: Money, Credit and the Digital Revolution*, Zero/One Economics.

Persaud, A.D. (2014), 'Why bail-in securities are fool's gold', Peterson Institute for International Economics Policy Brief PB14–23.

Pfleiderer, P. (2014), 'Cameleons: the misuse of theoretical models in finance and economics', Working Paper.

—(2015), 'On the relevancy of Modigliani and Miller to banking: a parable and some observations', Working Paper.

Shah, A.K. (2015), 'The chemistry of audit failure: the case of HBOS', Working Paper, Suffolks Business School.

Skeel, D.A. Jr. and Jackson, T.H. (2012), 'Transaction consistency and the new finance in bankruptcy', *Columbia Law Review*, 112, pp. 152–202.

Turner, J.D. (2014), *Banking in Crisis: The Rise and Fall of British Banking Stability, 1800 to Present*, Cambridge UK: Cambridge University Press.

Wilmarth, A.E. (2015), 'The financial industry's plan for resolving failed megabanks will ensure future bailouts for Wall Street', *Georgia Law Review*.