

The Parade of the Bankers' New Clothes Continues:

34 Flawed Claims Debunked

Anat Admati and Martin Hellwig*

Revised August 2019

The debate on banking regulation has been dominated by flawed and misleading claims. The title of our book *The Bankers New Clothes: What's Wrong with Banking and What to Do about It* (Princeton University Press, 2013, see bankersnewclothes.com) refers to flawed claims about banking and banking regulation, and the book discusses and debunks many of them.

Flawed claims continue to be made in the policy debate about banking and financial regulations, most recently in the context of proposals to weaken regulations meant reduce the excessive reliance of banks on debt funding. Because the financial system remains dangerous and distorted and because regulations to reduce indebtedness, if properly designed and enforced, would be highly beneficial for society, flawed claims about the issues must not win the policy debate.¹

This document provides a brief account of claims that we have come across since the book was published in February 2013. We provide brief responses, with references to more detailed discussions in the book and elsewhere.² Many claims are asserted without any justification. Some are simply false or based on fallacious reasoning. Others are misleading or irrelevant, for example confusing costs and benefits to banks or bankers with costs and benefits to society, which must be

*This document is a revision of an earlier document. The first version debunked 23 flawed claims in 2013, the second took on 28 flawed claims in 2014, and the third debunked 31 flawed claims in 2015. In addition to some updates and additional discussion and references, the main changes in this draft is the expansion of claims pertaining to “money creation” by banks (Flawed Claims 5-8). We are grateful to Peter Conti-Brown, Paul Pfleiderer and Kim Schoenholz for comments on earlier drafts.

¹ The preface of the paperback edition of our book, available at <http://press.princeton.edu/chapters/p10230.pdf> remains relevant, but a number of individuals have joined us to challenge flawed claims. They include, John Cochrane (e.g., “Capital and Language” posted at <http://johnhcochrane.blogspot.com/2014/09/capital-and-language.html>), Mark Whitehouse (e.g., “Seven Dumb Things Bankers Say,” April 5, 2013 and “Too-Big-To-Fail Myths, Goldman Sachs Edition,” May 28, 2013, both in Bloomberg View), Bloomberg View Editors (e.g., “What’s so Radical about a Safer Financial System?” April 9, 2013), Simon Johnson (e.g., “Two Views on Finance.” Project Syndicate, September 29, 2014), Martin Wolf (e.g., “Banking remains far too undercapitalised for comfort,” Financial Times, September 21, 2017), John Vickers (2017, 2018), Morris Goldstein (2017), and Kevin Dowd (e.g., “Fed stress tests: One big public relations campaign,” *American Banker*, August 29, 2017 and Dowd (2018). Paul Pfleiderer has been active in the debate with academics privately and publicly (see Pfleiderer, 2018, first posted in 2014).

² In some cases, we give specific references to writings where flawed claims are made, but we have not attempted to give exhaustive lists of such references. Since 2015, we have stopped keeping track and only picked up the most glaring examples. Some of the claims have come up in discussions of the book that we have had after its publication. Aside from the book website <http://bankersnewclothes.com/> related materials are linked on our personal websites (<https://admati.people.stanford.edu/advocacy> and <https://www.coll.mpg.de/martin-hellwig>), on SSRN, or on this website on the topic <http://www.gsb.stanford.edu/news/research/admati.etal.html>

the focus of policy. Still other claims are based on myths, i.e., implausible theories that ignore important parts of reality and are protected by the use of special jargon.

We first provide a list of the flawed claims that the rest of this document takes on. References to chapter numbers refer to our book. Nothing that we heard or read changes our conclusions or our strong policy recommendations.

List of Flawed Claims

Flawed Claim 1: Capital is money that banks hold or set aside as a reserve, like a rainy day fund; higher capital requirements keep money out of the economy.

Flawed Claim 2: Requiring banks to hold cash reserves equal to 15% or more of their assets does not make them significantly safer, and therefore even such high capital requirement would not address the key problems in banking.

Flawed Claim 3: The argument for requiring banks to have substantially more equity is based on a theoretical result called the Modigliani-Miller theorem. This result is not relevant in the real world because its assumptions are unrealistic. .

Flawed Claim 4: 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.

Flawed Claim 5: Banks are special because bank deposits serve as “money.”

Flawed Claim 6: Banks are special because they create their own funding: When a bank makes a loan, it creates a deposit.

Flawed Claim 7: 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.

Flawed Claim 8: An individual bank that loses deposits can always replace the lost funding by borrowing in wholesale markets.

Flawed Claim 9: 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.

Flawed Claim 10: Increasing equity requirements would increase the funding costs of banks because investors require higher returns when investing in equity than when investing in debt.

Flawed Claim 11: Increasing equity requirements would lower the banks’ return on equity (ROE) and thus make investors unwilling to invest in banks’ stocks.

Flawed Claim 12: Increasing equity requirements would force banks to reduce lending.

Flawed Claim 13: Higher equity requirements would be harmful for the economy because banks would be less willing to make loans.

Flawed Claim 14: 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.

Flawed Claim 15: Higher equity requirements are undesirable because they would prevent banks from taking advantage of government subsidies and force them to charge higher interest on loans.

Flawed Claim 16: Historically, banks have never had as much as 30% equity; requiring as much equity would therefore harm the business of banking.

Flawed Claim 17: There is not enough equity around for banks to be funding with 30% equity.

Flawed Claim 18: Because banks cannot raise equity, they will have to shrink if equity requirements are increased, and this will be bad for the economy.

Flawed Claim 19: Increasing equity requirements would harm economic growth.

Flawed Claim 20: Basel III is already very tough, doubling or tripling previous requirements; banks that comply with Basel III requirements are safe enough.

Flawed Claim 21: Basel III, and capital regulations as implemented in different jurisdictions are based on careful scientific analysis of the cost and benefits of different levels of equity requirements.

Flawed Claim 22: Because capital requirements should be adjusted to risk, it is essential to rely primarily on requirements that are based on assigning risk weights to assets.

Flawed Claim 23: Stress tests have repeatedly shown that, by now, banks have enough equity to withstand even major shocks.

Flawed Claim 24: Instead of issuing more equity, banks should be required to issue debt that converts to equity when a trigger is hit, so-called "contingent capital," or co-cos.

Flawed Claim 25: 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.

Flawed Claim 26: The Dodd-Frank Act in the US, or the Bank Recovery and Resolution Directive (BRRD) and the Single Resolution Mechanism 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.

Flawed Claim 27: If equity requirements are increased, banks will increase their “risk appetite,” which will make the system more dangerous.

Flawed Claim 28: If equity requirements are increased, bank managers will be less disciplined.

Flawed Claim 29: The best way to make banking safer is to require banks to put funds from deposits into reserves of central bank money or 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 to impose equity requirements.

Flawed Claim 30: The financial system would be safe if banks were subject to a 100% reserve requirement so they could take no risk with depositors’ money, while non-bank financial institutions would be entirely prohibited from borrowing.

Flawed Claim 31: 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.

Flawed Claim 32: Since banking is a global business, it is important to maintain a “level playing field.” Therefore, banking regulation must be coordinated and harmonized worldwide.

Flawed Claim 33: Stricter national regulation would harm “our” banks; instead we should be supporting them in global competition.

Flawed Claim 34: The politics of banking makes effective regulation impossible, and therefore debating the merits of specific regulations such as equity requirement is “beside the point.”

Flawed Claims Debunked

Flawed Claim 1: Capital is money that banks hold or set aside as cash reserve, like a rainy day fund; higher capital requirements keep money out of the economy.³

³ For example, Tim Pawlenty, president of the Financial Services Roundtable, is 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,” CNN Money and *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 BusinessWeek, September 18, 2014 help clarify the terminology.

What's wrong with this claim? This statement is plainly false. As discussed in Chapters 1 and 6, capital in banking is a source of funding that can be used to make loans and other investments. This source of funding, elsewhere called equity, must be distinguished from debt, i.e., funds obtained by borrowing. Whereas banks typically fund 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 (if they can find lenders).

Flawed Claim 2: Requiring banks to hold cash reserves equal to 15% or more of their assets does not make them significantly safer, and therefore even such high capital requirement would not address the key problems in banking.⁴

What's wrong with this claim? This claim rests on the same confusion between bank capital (equity) and cash reserves as Claim 1. Bank capital is *not* a cash reserve but a way of funding the bank. *Capital requirements do not impose any restriction on what assets banks hold.* They do not require banks to hold cash reserve. Since current requirements, and even the proposed Basel III reform, allow banks to have as little as 3% equity relative to their total assets, requiring 15%, or even 30% would make banks *significantly* safer. With equity levels considered minimal for healthy companies in the rest of the economy, banks would be able to absorb significantly more losses without becoming distressed or insolvent and without needing support, and, as we discuss in many writings, many distortions in the economy would be alleviated.⁵

Unlike equity requirements, reserve requirements are not as useful for maintaining the safety of banks unless they are very high. For example, if a bank has \$97 billion in deposits and \$3 billion in equity funding, 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 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, it would easily withstand the \$4 billion loss and even a much larger loss without becoming distressed or insolvent. (However, see the discussion of Claims 23-24 regarding 100% reserve requirements.)

Flawed Claim 3: The argument for requiring banks to have substantially more equity is based on a theoretical result called the Modigliani-Miller theorem. This result is not relevant in the real world because its assumptions are unrealistic.⁶

What's wrong with this claim? Our argument for requiring much more equity is based entirely, as it should be, on a comparison of the costs and benefits *to society* of different funding mixes for

⁴ See for example, Cyrus Sanati, cited in Footnote 3, who criticizes the higher capital requirements proposed by Senators Brown and Vitter and who, throughout the piece, falsely refers to the proposal as if it concerns cash reserves.

⁵ See Chapter 6, Admati et al (2013, Section 2) and Admati (2014).

⁶ 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), and Elliott (2013).

banks. We argue, in particular, that there is a large cost, *and no benefit* to society, from having banks funded with as much debt as they can under current regulations. The argument is *not in any way* based on the false presumption that the funding mix, in banking or elsewhere, does not matter for the cost of funding.

In referring to “Modigliani-Miller,” one must be careful to distinguish between the so-called irrelevance result and the analytical approach of Modigliani and Miller. The irrelevance result asserts that, under certain conditions, the funding mix does not matter for the cost of funding and for market outcomes. The conditions are unrealistic, and the conclusion does not hold in the real world, but the underlying insight of Modigliani and Miller holds universally, namely that purely re-arranging how the risk taken by a corporation is divided among investor does not *by itself* change its funding costs. *Other considerations* may imply that the funding mix affects funding costs, but those considerations are precisely the subject of our analysis. In fact, most of the effects of equity finance on funding costs turn out to be private costs that are not social costs as the additional equity provides external benefits that corporate decision makers do not take into account.⁷

Flawed Claim 4: 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.⁸

What’s wrong with this claim? The economics of funding for banks is different from that of other companies, but nevertheless the key insights from corporate finance are relevant for banks. In terms of the arguments given for the preceding claim, the Modigliani-Miller irrelevance theorem does not apply to banks, but the key insight behind the approach of Modigliani and Miller does apply to banks, with due attention to what makes banks special.⁹

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. However, the fact that, in contrast to one of the assumptions of Modigliani-Miller analysis, bank

⁷ Whereas Chapter 7 discusses the Modigliani-Miller approach, including the irrelevance result, Chapter 9 discusses distortions from taxes and too-big-to-fail 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. .

⁸ See, for example, Oxford Economics (2013), and Barclays Credit Research, referenced in Footnote 6, and “Safety in Numbers,” *The Economist*, April 11, 2013. DeAngelo and Stulz (2015), mis-characterize our arguments as relying only on Modigliani and Miller 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.

⁹ We discuss this question in Chapter 7, pp. 110-112, as well as Admati et al. (2013).

depositors care about liquidity benefits and payment services as well as portfolio returns 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 actually gives another spin to the message that “banks are special”: In the absence of deposit insurance, the threat, and even more so the actual occurrence, of bank distress and insolvency are likely to impair the liquidity of deposits and other short-term bank debt. Thus in a world of uncertainty, the Modigliani-Miller insight about the implications of debt funding for the allocation of risks is immediately relevant for bank’s ability to provide depositors with liquidity benefits. If one only looks at required returns, deposits may seem cheap, but that cheapness presupposes sufficient equity funding to stave off default. A greater probability of losing potential liquidity benefits in bankruptcy is a cost of increasing leverage.¹⁰

Can banks be expected to 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, the 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 using the same criteria for all investments. The same considerations apply to the borrowing by banks from other financial institutions.¹¹ For large banks, this

¹⁰ 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.

¹¹ 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

observation is important because typically more than half of their debt funding comes 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,” including the strong conflicts of interest 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.¹²

Flawed Claim 5: 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.¹³ 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.¹⁴

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*.¹⁵ Banks are obliged

the enormous frictions and collateral damage on the system that borrowing creates, which we discuss in Chapters 3, 6, 8 and 9. See also Pflleiderer (2015) and Admati and Hellwig (2013).

¹² 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.

¹³ 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 3.) 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).

¹⁴ 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).

¹⁵ 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

to pay the depositor when he or she asks for it. If a bank cannot repay depositors, it is in trouble.¹⁶ Cash issued by a central bank, by contrast, is nobody's debt.¹⁷ (For a detailed discussion, see Chapter 10.)

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 banks may endanger the liquidity benefits of their deposits by excessive borrowing justifies regulation limiting their indebtedness rather than suggesting that it interferes with the benefits banks provide in taking deposits.

Flawed Claim 6: Banks are special because they create their own funding: When a bank makes a loan, it creates a deposit.¹⁸

What is wrong with this claim? This claim is often made in opposition to a “loanable funds” view of banks as intermediaries that collect deposits in order to fund their loans. 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 deposited,*

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 (2019b).

¹⁶ For the difference between bank deposits and central bank money for the issuer, see Tobin (1967) and Hellwig (2019b).

¹⁷ 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

¹⁸ See, e.g., McLeay et al. (2014). For details of the criticism, see Hellwig (2019b).

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 applies to deposits as well as any other form of debt.

Flawed Claim 7: 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.¹⁹

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 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; in 2012, 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 key role in the run 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.

Flawed Claim 8: An individual bank that loses deposits can always replace the lost funding by borrowing in wholesale markets.²⁰

What is wrong with this claim? First, for reasons given in our refutation of Claim 7, funding available to a given financial 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

¹⁹ 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 (2019b).

²⁰ In combination with Claims 6 and 7, this claim suggests that bank lending is not constrained by deposit funding. Bank lending creates deposits, these deposits move around in the banking system but their movements can always be neutralized by interbank borrowing and lending.

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, money market lenders may 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 9: 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

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

Relying on more equity would actually *enhance* a bank's ability to provide 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 actually 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 actually enhances the banks' ability to provide benefits to depositors without needing support from central banks or governments.

In this context, however, the banks have flawed incentives, which lead them to borrow excessively. If the banks' owners and managers could firmly commit all their future funding decisions, they would take account of the fact that additional equity enhances the safety and the liquidity of their debt and makes the creditors willing to accept lower interest rates. As a matter of fact, however, such commitment is impossible. Over time, banks repeatedly take new funding decisions. In these decisions, the interest rates on previously-contracted debt are taken as given. Banks have no reason

²¹ Barclays Credit Research, referenced in Footnote 6, DeAngelo and Stulz (2015), *The Economist*, referenced in Footnote 8, 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

to take into account the fact that additional equity makes their previously-contracted 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, may generate a ratchet effect that makes the bank's leverage increase whenever new needs or opportunities call for additional borrowing, whereas there is an aversion (on the part of the bank's owners, shareholders and managers) to decreasing leverage because such a decrease would benefit incumbent debt holders. Because of this effect, 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 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.

The discussion above also suggests that the increased reliance of banks on short-term debt that we have seen in the past three decades cannot be presumed to be beneficial for society or even privately for the banks. This increase instead is fully in line with the incentives that banks' managers and shareholders have as a result of debt overhang.²²

Flawed Claim 10: 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

What's wrong with this claim? First, as discussed in Chapter 7, 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 go down if the bank has more equity. As discussed in Chapter 9, and below in the context of Claim 13, a reason that total funding costs of banks might increase as a result of higher equity requirements is that with more equity banks would be less able to benefit from guarantees and subsidies, which come at the expense of taxpayers. As shown in Admati et al (2018), the shareholders of heavily indebted corporations resist having more equity and reducing indebtedness because doing so entails shareholders taking on downside risks otherwise borne by existing creditors (and possibly giving up tax subsidies associated with corporate borrowing). For the policy debate, however, 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

²² 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 Chapter 11 of the book are relevant for making leverage regulation work.

²³ See, for example, Oxford Economics (2013), and Barclays Credit Research (in Footnote 6), *The Economist* (referenced in Footnote 8), and Elliott (2013).

financial system where banks and other financial institutions borrow excessively, and thus it would be highly beneficial.”

Flawed Claim 11: 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? As explained in Chapter 8, the first statement is false; when asset returns are low, the ROE is actually higher with more equity. Investors’ willingness to invest in banks’ stocks, or in the stocks of other firms, depends on whether they are properly compensated for the risk they take, not just on the stocks’ expected returns. If managers target specific ROE levels, they may actually harm 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.

Flawed Claim 12: Increasing equity requirements would force banks to reduce lending.²⁴

What’s wrong with this claim? As explained in Chapters 6 and 11, to comply with higher equity requirements, healthy banks can increase their equity levels by retaining their earnings or by selling new shares to investors. In either case, with more equity banks would have *more* funds, which can in turn be used to increase their lending. Indeed, suggesting that equity requirements force banks to reduce lending when they are making large payouts to shareholders in the form of dividends and share buybacks, is preposterous, because the money paid out could be retained as a way of raising additional equity and used for additional loans instead of making payouts.

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 Chapters 3, 8, and 10 and in other writings, this phenomenon is due to the effect of overhanging debt and the conflicts of interest created by indebtedness which create a sort of addiction to borrowing that is reinforced and encouraged by government guarantees and by compensation structures in banking.²⁵ Banks that are unable to raise equity at any price may well be insolvent and should be unwound, as discussed in Chapter 11.

Banks’ lending decisions also depend on how attractive loans are relative to other investments. Many banks, including most of the large banks in the United States, are not even using all the funding they obtain from depositors to make loans.²⁶ If banks do not make loans, therefore, the

²⁴ See, for example, S&P, “Brown Vitter Bill: Game-Changing Regulation for U.S. banks,” April 25, 2013 and references in Footnote 3. 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, the arguments he gives that allude to information asymmetries are not applicable to new equity issues through rights offerings.

²⁵ Admati et al. (2018) explores in detail the leverage ratchet effect and explains why the effect is so important in banking.

²⁶ 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

problem is *not* a lack of funds *nor* an inability to raise more funds for profitable loans, but rather the banks' choices to focus on other investments instead.²⁷ The risk-weighting system used in capital regulation, which we discuss in some detail in Chapter 11, also creates incentives for banks to invest in securities in the market rather than, for example, make business loans.

Flawed Claim 13: Higher equity requirements would be harmful for the economy because banks would be less willing to make loans.²⁸

What's wrong with this claim? This claim obscures the fact that credit crunches are primarily due to heavy indebtedness and financial distress, not from "too much equity." More equity generally enables banks to *increase* their lending and to be able to continue to lend in downturns.²⁹ As discussed in our response to the preceding claim, in Chapter 11, and in Admati et al (2018), if banks choose to make fewer loans, the reason would most likely be because their overhanging debt makes issuing new shares or investing in worthy low-risk loans or other assets unattractive (and possibly even make selling some assets attractive), or because they intensify their efforts at "risk weight management," which, under the current system of capital regulation, induces a bias against lending and in favor of other investments. Controlling the transition to more equity by banning payouts to shareholders and specifying target levels of equity rather than ratios would mitigate any such effect.

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 on. In fact, as already noted, credit

fact may not be as obvious because of the pervasive confusion between capital and cash reserves discussed in Claim 1 above).

²⁷ 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.

²⁸ See references in Footnote 6 and S&P, referenced in Footnote 24. References in Footnote 3 are also relevant here, because those who present "capital" as cash being set aside also claim that more "capital" would prevent banks from lending.

²⁹ 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 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 complaints by President Donald Trump that banks are not making loans because of regulations.

crunch and reduced lending are due to the effect of debt overhang, which comes from excessive borrowing, not from having “too much equity.”³⁰

Flawed Claim 14: 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

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 with the Flawed Claims 10 and 11, about bank lending, such questions of portfolio choice do not depend on the bank’s funding mix. To comply with higher equity requirements, banks 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.³² 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.

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

³⁰ For a more extensive discussion, see Admati and Hellwig (2019).

³¹ 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.).

³² See, for example, Pagano and Roell (1990, 1993) and Roell (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.

(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.³³

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 Rule 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.³⁴

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 15: Higher equity requirements are undesirable because they would prevent banks from taking advantage of government subsidies and force them to charge higher interest on loans.³⁵

What’s wrong with this claim? Whereas deposit insurance is useful for preventing inefficient bank runs, it is often underpriced for individual banks, and it has the undesirable impact of enabling and encouraging banks to take risk and to “economize” on equity. Underpriced explicit or implicit guarantees to any form of bank borrowing make bank funding artificially cheap and create a distortion in the economy. By rewarding debt and penalizing equity funding the subsidies are socially harmful, especially at the very high levels of debt the banks choose. Even if all the subsidies are passed to banks’ customers in the form of cheaper loans, they contribute the financial system’s being inefficient, bloated and fragile, and they distort competition and the allocation of resources in the economy.

³³ 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.

³⁴ See Galbraith (1954, pp. 105-120).

³⁵ See, for example, Oxford Economics (2013), and Elliott (2013). 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.”

There are two types of subsidies banks receive when they borrow but not when they use equity funding. First, the tax code in most countries gives debt a tax advantage relative to equity for all corporations. Despite this tax treatment, and even with no regulation of their funding, no healthy corporation maintains as little equity as banks. The tax effect can be neutralized, but there is no social cost if banks pay more taxes.

Second, explicit guarantees through deposit insurance for which banks often do not pay the appropriate economic costs, and implicit guarantees that allow banks to borrow at terms that are more favorable than their indebtedness and the risks they take would normally imply, encourage and subsidize excessive borrowing.³⁶ Measuring the size of subsidy is difficult because it amounts to an underpriced insurance contract whose value changes with 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.³⁷ Despite the overwhelming evidence that the subsidies are substantial, large banks deny the existence of subsidies, while claiming that their cost of funding would increase with more equity. These claims are inconsistent with one another.

Requirements that banks use much more equity do not impose a cost to society; rather, they attempt to correct distortions and reduce excessive subsidies. If it is deemed desirable to subsidize specific loans or any other activities, subsidies should be given directly to the intended recipient, for example by attaching the subsidies to specific loans. Blanket subsidies to bank borrowing, by contrast, provide banks with below-market funding that they can use at their discretion. The cheap funds may not actually go to the loans that the economy needs, and instead the borrowing itself makes banks more fragile, exposes the economy to substantial risks, and distorts banks' investment

³⁶ There is broad agreement that the subsidies are substantial. 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 implicit guarantee is perfect, this would raise the interest TBTF banks have to pay. (See “What is Inside America’s Banks,” Frank Partnoy and Jesse Eisinger, *The Atlantic*, January 3, 2013 also shows banks’ disclosures make it difficult for investors to assess the risk.) 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 GS 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.

³⁷ 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.

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.³⁸

For more on these issues, see Chapter 9, entitled “Sweet Subsidies,” which discusses harmful effect of guarantees and subsidies, and Chapters 12 and 13. The critical distinction between private costs to the banks and social costs to society is discussed in more detail in Admati et al, (2013, Section 4). If banks' funding costs (or any costs to banks' shareholders) increase because banks are less able to take advantage of subsidies, the impact is entirely private. The cost and harm of excessive indebtedness in banking is borne by the broader public without producing any corresponding benefit. Nevertheless, subsidizing banks through implicit guarantees is attractive for policymakers, because it does not show on budgets as it is given, thus appearing costless. In fact, the costs to society of providing banks with outsized and highly distortive subsidies are large, and equity requirements that reduce these subsidies and correct the distortions are thus highly beneficial.

Flawed Claim 16: Historically, banks have never had as much as 30% equity; requiring as much equity would therefore harm the business of banking.³⁹

What's wrong with this claim? The statement is false. First, references provided in our book (particularly in notes 20-27, pp. 242-243) 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 stand* on any historical figures, but are rather based on the economic arguments and observations of leverage in other, unregulated industries and on considerations of the social cost of banks' leverage. As indicated in Claims 4-6 above, the economics of high leverage is not fundamentally different for banks even if some of banks' debt is

³⁸ 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.

³⁹ Calomiris (2013) and Levitin (2014).

useful for providing liquidity.⁴⁰ Quite clearly, the bankruptcy of Lehman Brothers had 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.

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 most large banks today, deposits amount to less than half of their funding.⁴¹ The 30% ratio we propose is roughly what banks themselves impose on financial institutions, such as hedge funds or REITs, to which they lend.

Flawed Claim 17: There is not enough equity around for banks to be funding with 30% equity.⁴²

What's wrong with this claim? As explained in the context of 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.⁴³

Flawed Claim 18: Because banks cannot raise equity, they will have to shrink if equity requirements are increased, and this will be bad for the economy.

What's wrong with this claim? As we discuss in Chapter 11, solvent banks can always raise equity by selling additional shares, to existing shareholders through rights offerings or to new shareholders in the market. The value of a bank's equity is equal to the value of its assets minus its debt plus the value of the option to default on debt by letting the bank go bankrupt, which is

⁴⁰ Levitin (2014) also argues that the market does not demand 20% or 30% of small banks that can fail or of investment banks. But small banks have insured deposits who don't bear deadweight bankruptcy costs, and Lehman Brothers' creditors may have well believed that they would be paid in full, as were the creditors of Bear Stearns even though they were not explicitly insured.

⁴¹ See Advisory Scientific Committee (2014), as well as Chapter 6.

⁴² 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

⁴³ A more detailed discussion of this argument is offered in Sections 7 and 9 of Admati et al (2013). 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 Claim 18 and Admati (2016).

positive. If the value of the bank's assets before an equity issue exceeds the liabilities, the value of the assets after equity issue exceeds the liabilities by at least the proceeds of the issue, so there is some price at which investors are willing to acquire the new shares. Incumbent shareholders however are diluted and prefer for the bank to shrink. If a bank cannot raise equity at any price, the bank is likely to be insolvent.⁴⁴

The existence of nonviable banks that cannot raise equity may reflect excess capacity in banking. (Excess capacity appears to be a serious problem in some countries and maybe globally at this time.) In this case, some downsizing of the industry would benefit the economy, contrary to the claim. The remaining banks would be viable and would have fewer incentives to gamble at the expense of their creditors, the taxpayers and the economy.

Flawed Claim 19: Increasing equity requirements would harm economic growth.⁴⁵

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. They 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.

Reference to the impact of higher equity requirements on bank lending ignores the fact that it is overhanging debt, and not excessive equity that lead to credit crunches, as discussed above in the context of Claim 11. In fact, banks with more equity to absorb losses without becoming distressed would be more able to sustain lending in a subsequent economic downturn, which would have positive effects for investment and the economy. Growth, as seen for example in Iceland and Ireland, can be temporary and illusionary when it reflects a boom that is followed by bust. As we discuss in Chapter 11, if the transition to a system with more equity funding for banks and other institutions is handled properly, there would be no negative consequences to making the financial system less indebted and thus safer and less distorted.

Flawed Claim 20: Basel III is already very tough, doubling or tripling previous requirements; banks that comply with Basel III requirements are safe enough.⁴⁶

⁴⁴ For details of the arguments, see Admati et al. (2013, 2018)

⁴⁵ See for example Oxford Economics, referenced in footnote 6. Levitin (2014, p. 2036) complains that we have not dealt with this claim in the book even as he does not explain why the claim should be true (except that bankers such as Josef Ackermann have asserted it to be true). In the book and elsewhere (including in the current document) we have argued that whatever justification (if any) is given to this claim, it is invalid or misleading.

⁴⁶ Claims that the requirements are tough and that banks are stronger now are frequently made by regulators, bankers and others. For example, Tom Braithwaite, in "Quest for Profits can Make Banks Safer," *Financial Times*, February

What’s wrong with this claim? As we discuss in Chapter 11 (on the basis of the arguments of previous chapters), these statements use a false benchmark for the desired and feasible equity levels. Basel III still allows banks to fund up to 97% of the assets on their balance sheets by borrowing, which is what Lehman Brothers did just before going bankrupt. The vaunted tripling of requirements refers to risk-weighted, rather than total assets. The rules give banks a lot of room for “risk weight management,” and the numbers in Basel III are not based on sound analysis; the papers justifying them are fundamentally flawed. Moreover and importantly, the requirements refer to accounting measures of equity relative to risk-weighted assets, which have proven very poor for predicting banks’ ability to withstand losses. They ignore many off-balance sheet commitments and counterparty risks in chains of intermediation that make the system fragile. 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). As discussed below (Claims 21-25), capital regulations also rely on debt-like alternatives to equity such as contingent capital or so-called TLACs, which have significant disadvantages relative to equity.⁴⁷

Flawed Claim 21: Basel III, and capital regulation as implemented in different jurisdictions, are based on careful scientific analysis of the cost and benefits of different levels of equity requirements.⁴⁸

What’s wrong with this claim? Basel III, and regulations as implemented, are the result of political haggling much more than of valid scientific analysis. As we discuss in Chapter 11 and elsewhere, the studies that support the Basel III rules are based on flawed models and their quantitative results are meaningless. For example, they 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 can impose on the rest of the financial system and the economy.⁴⁹ The “scientific” papers that discuss costs and benefits of different capital requirements

18, 2013, suggests that the “lust for improved ROE” is a helpful, ignoring the possibility that a lust for return often involves taking risks and borrowing inefficiently, including to get around regulations based on risk weights.

⁴⁷ A partial list of individuals who have argued that capital requirements under Basel are inadequate is included in Footnote 1. 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), Goldstein (2017), and Cecchetti and Schoenholtz (2017) also argue that capital requirements under Basel III are inadequate.

⁴⁸ 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.”

⁴⁹ Admati et al (2013) discusses some of flaws in papers produced by the Basel Committee on Bank Supervision and other authors.

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.⁵⁰

Some theoretical models in the literature claim that, under their assumptions, fragility in banking can help “discipline” managers, which we discuss as Flawed Claim 27 below. In a subsequent paper discussing this academic myth, we compare the use of flawed theoretical models as a basis for quantitative analysis to the use of the distorted “map of the world as seen from New York’s 9th Avenue” for orientation in traveling through the American Midwest.⁵¹

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. Countering the banks’ tendency to choose unsafe levels by effective regulation is essential.

A significant challenge in specifying any specific capital ratio has to do with setting the appropriate numerator and denominator, which involves valuations of the relevant assets and liabilities. Accounting conventions can matter greatly, including how they treat off-balance-sheet exposures and derivatives. As explained in Chapter 11, the key to effective capital regulation is high requirements for genuine, loss absorbing equity, and prompt intervention by regulators if equity is depleted through losses.⁵²

Flawed Claim 22: Because capital requirements should be adjusted to risk, it is essential to rely primarily on requirements that are based on assigning risk weights to assets.⁵³

What’s wrong with this claim? As we discuss in Chapter 11, the system of risk weights that we currently have has more to do with politics and tradition than with science. In fact, the Basel rules negate 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. Correlated borrower defaults were a major factor in the subprime

⁵⁰ 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).

⁵¹ See Admati and Hellwig (2013), which includes material omitted from the book for being too esoteric.

⁵² On accounting issues and ways banks can manipulate them through securitization and derivatives, see Kerr (2011).

⁵³ For example, Tom Braithwaite (referenced in Footnote 46) praises the Basel risk weights system for controlling banks’ risks. Most regulators appear to take it for granted that risk weights are essential, and the Federal Reserve has proposed to adopt Basel III, including the use of risk weights, for all US banks.

mortgage crisis of 2006-2009. Even if the politics of the regulation could be dealt with, attempts to improve risk weighting are limited by a lack of data and by the never-ending changes in the risks and correlations.

In practice, the system of risk weights 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 more risky, 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 bound on the banks' leverage. 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. The system also distorts banks investment decisions, typically against business lending, and is highly manipulable by the banks.⁵⁴

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.⁵⁵

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.”⁵⁶

The Basel Committee has by now recognized that there is a problem with risk weights. Starting from the observation that model-based risk assessments exhibit an unconscionable amount of heterogeneity across banks, it initiated another round of negotiations on what it called “the

⁵⁴ See further discussion in Chapter 11. 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 (2012, 2013), Hoening (2013), Joe Rizzi, “Risk-Based Capital: The Good, the Bad and Mostly the Ugly,” *American Banker*, May 20, 2013, William Isaac, referenced in Footnote 35, 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.

⁵⁵ FSA (2010).

⁵⁶ See Behn et al. (2014).

completion of Basel III” – the industry used the term “Basel IV”. Under the new rules, finalized in 2017, 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 standard approach.⁵⁷ 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.

Flawed Claim 23: 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.⁵⁸ 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.

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. 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.

Flawed Claim 24: Instead of issuing more equity, banks should be required to issue debt that converts to equity when a trigger is hit, so-called “contingent capital,” or co-co’s.⁵⁹

⁵⁷ See Basel Committee on Bank Supervision BCBS (2015, 2017)

⁵⁸ 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).

⁵⁹ 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

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. Indeed, 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. 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 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.⁶⁰

Flawed Claim 25: 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.⁶¹

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

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.

⁶⁰ As discussed in the context of 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 (2016, 2017 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 25 below. Co-cos and ERNs that they are meant to convert some debt to equity ahead of insolvency and failure are better than debt claims that can only suffer losses within a “bail-in” process or in a resolution or bankruptcy (which are discussed in the context of Flawed Claim 25 below). And they are obviously a less fragile funding source than short-term debt that is subject to runs.

⁶¹ See FSB (2015).

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 23 concerning co-cos and the likelihood that holders of co-cos 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.⁶²

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.⁶³

Flawed Claim 26: 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.⁶⁴

What's wrong with this claim? As we discuss at the end of Chapter 5 and in Chapter 9, this claim ignores a number of critical points and is not credible.⁶⁵ First, to minimize the economic

⁶² See "Italy bank rescues spark bail-in debate as anger at Renzi grows," James Politi, *Financial Times*, December 22, 2015.

⁶³ Persaud (2015) calls the bail-in concept "fool's gold" as a solution to the too-big-to-fail problem.

⁶⁴ 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 35. This claim is the basis for 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).

⁶⁵ See also Simon Johnson, "The Myth of a Perfect Orderly Liquidation Authority for Big Banks," *New York Times* Economix, May 16, 2013, and Simon Johnson and Marc Jarsulic, "How a Big Bank Failure Could Unfold," *New York*

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.⁶⁶ 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 die Vicenza and Veneto Banca in Italy uses funding from Intesa Sanpaolo with taxpayer guarantees against losses.⁶⁷

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 21-22, 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 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.⁶⁸

Flawed Claim 27: If equity requirements are increased, banks will increase their “risk appetite,” which will make the system more dangerous.⁶⁹

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

Times Economix, May 23, 2013. See also Anat Admati, “Too Much Equity? If Anything, Brown-Vitter Asks Too Little,” *American Banker*, June 24, 2013.

⁶⁶ The Bank Recovery and Resolution Directive in the European Union ignores the problem altogether.

⁶⁷ For details of the different episodes, see Hellwig (2017, 2018, 2019a).

⁶⁸ See Advisory Scientific Committee (2012). The more recent Financial Stability Board's “Principles for Cross-border Effectiveness of Resolution Actions,” November 3, 2015 includes 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, and they have not been met as of the end of 2015. For the European Reforms, see also Hellwig (2014, 2017, 2018, 2019a)

⁶⁹ See, for example, Bill Black, “Brown-Vitter Will not and Cannot Work but it is Criminogenic,” *Naked Capitalism* blog, May 11, 2013.

are not, the claim raises serious concerns about governance that should trouble banks' shareholders and boards of directors. 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? The claims appear related to the flawed focus on ROE in banking that we discuss in Chapter 8.⁷⁰

Flawed Claim 28: If equity requirements are increased, bank managers will be less disciplined.⁷¹

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.

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, including Chapter 10, 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.⁷² 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 suggestion that long-term debt provides better discipline to managers than equity is flawed in the context of banking. First, whereas long-term debt does not cause a risk of runs, it may still generate systemic risk. As discussed in the context of Claims 21 and 22, if debt holders are sufficiently important for the financial system, for example large insurance companies, it may be deemed undesirable to impose losses on them in resolution or insolvency. Moreover, the too-big-to-fail problem is relevant for long-term debt as well as short-term debt in that the collateral

⁷⁰ 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.

⁷¹ A recent example is Raghuram Rajan, "Love the Bank, Hate the Banker," Project Syndicate, March 27, 2013, which refers to the Washington Mutual (WaMu) bank failure, claiming that it is an illustration that the threat of runs helps provide "discipline" to bank managers. In fact, the timing of the events in the WaMu case is at odds with the argument Rajan seems to be trying to make. Significant withdrawals from WaMu started after the Lehman Brothers bankruptcy on September 15, 2008, and the bank was closed on September 24, 2008. By that time, it was too late to "discipline" the bank's managers. William Isaac, referenced in Footnote 35 argues that long-term debt provides better discipline than equity. Seemingly echoing such claims, Jamie Dimon, CEO of JP Morgan Chase, warned in 2011 that bankers might do "stupid things" if they had "too much capital." (See Alistair Barr, "J.P. Morgan's Dimon concerned about too much capital: Surfeit of capital may make people do 'stupid things,' CEO says," *Wall Street Journal MarketWatch*, February 15, 2011.) His statement raises the concern of why bankers would do stupid things with shareholder money, and why they would expect to get away with it.

⁷² We have discussed this problem in earlier writings, particularly Admati et al (2013, Section 5), which first appeared in 2010. In Admati and Hellwig (2013), we explain that fragility in banking is more likely to reflect a *lack* of discipline, which allows bankers to continue to borrow and thus prevents debt from providing any discipline. Pflleiderer (2018).

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.

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 29: The best way to make banking safer is to require banks to put funds from deposits into reserves of central bank money or Treasury Bills (so-called narrow banking, also known as the Chicago Plan for 100% reserve banking).⁷³ Such a shift will give us a stable financial system, and there would be less need 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 and/or less safe. If final investors maintain current funding patterns, banks will provide a lot of funding to the government; which may well come at the expense of funding of nonfinancial firms. The experience of southern European countries in the decades before 1990 shows such crowding out of private borrowing by government borrowing can have substantial negative effects on economic growth.⁷⁴

More likely, narrow banking would lead investors to put substantially more of their money in other institutions, for example money market funds which are “bank-like” without being subjected to the same regulation as banks. As we have seen in the weeks after the Lehman bankruptcy, 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.

⁷³ 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 (2019b). 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.

⁷⁴ See, e.g., the essays by Caminal et al., and Borges in Dermine (1990).

Flawed Claim 30: The financial system would be safe if banks are subject to a 100% reserve requirement so they can take no risk with depositors' money, while non-bank financial institutions are entirely prohibited from borrowing.⁷⁵

What is wrong with this claim? This 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 fairly 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.⁷⁶

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 many mortgages and other loans would give rise incentives to those with access to better information to engage in such trading if the shares of banks with 100% equity were traded on stock exchanges. The information-insensitivity of banks' debt is valuable for liquidity provision and the idea of requiring significant equity (such as 30% or even more) 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.

Flawed Claim 31: 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.⁷⁷

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 the past weakness of enforcement. The most dangerous parts of the shadow banking system developed primarily to avoid existing regulation. 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, not that we should give up on rules.

⁷⁵ See Kotlikoff (2010) and Cochrane (2014) for such proposals.

⁷⁶ 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.

⁷⁷ See, for example Elliott (2013).

Dealing with regulatory arbitrage is challenging, but the challenge can be met, and it must be met if the regulation is important and beneficial.⁷⁸

Flawed Claim 32: Since banking is a global business, it is important to maintain a “level playing field.” Therefore, banking regulation must be coordinated and harmonized worldwide.⁷⁹

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 regulation 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.⁸⁰

Flawed Claim 33: Stricter national regulation would harm “our” banks; instead we should be supporting them in global competition.

What’s wrong with this claim? Like the preceding claim, this claim is false, as discussed in detail in Chapter 12.⁸¹ The success of a nation’s banks in global competition is not an appropriate objective for policy. 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 creates 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

⁷⁸ 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.”

⁷⁹ This argument is made frequently. See, for example, The Clearing House, referenced in Footnotes 6 and 64, and S&P, referenced in Footnote 24.

⁸⁰ See also Anat Admati and Martin Hellwig, “Global Level Playing Field Arguments are Invalid,” a version of which appeared as a comment in *Financial Times*, June 3, 2011. (The text is available at <http://www.gsb.stanford.edu/news/research/admati-battle-begun.html>) The Federal Reserve has effectively rejected this notion in other aspects of U.S. financial regulation by mandating the creation of intermediate holding companies to focus all the assets and liabilities of foreign banks operating in the United States to make it harder for these banks to evade national regulation. This model can be extended and applied to other aspects of international banking in a way to reduce the consequences of a failure of international financial regulatory harmony.

⁸¹ See also our article referred to in the previous footnote.

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.

Flawed Claim 34: The politics of banking makes effective regulation impossible, and therefore debating the merits of specific regulations such as equity requirement is “beside the point.”⁸²

What's wrong with this claim? This claim, typically made without a suggestion as to how to overcome the political challenge, 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) 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 the issues and empowering more people to participate can create public pressure on those who refuse to engage or to take action, and can eventually bring about the necessary political will for better regulation.⁸³

In reviewing 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.”⁸⁴ Admati (2017) discusses the motivation and tactics of the numerous enablers of the system that make change so challenging. Mr. Wolf's final assessment is that: “we have failed to remove the cause of the crisis. Further such crises will come.” 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 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.

⁸² 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, in particular, 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.

⁸³ We discuss the problem of willful blindness in the preface of the book and of the paperback edition, both of which are available on the book website.

⁸⁴ See Martin Wolf, “Why Bankers are Intellectually Naked,” *Financial Times*, March 17, 2013.

References⁸⁵

- 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., 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, Anat R., and Martin F. Hellwig (2019), “Bank Leverage, Welfare, and Regulation”, in: Douglas W. Arner, Emiliios Avgouleas, Danny Busch and Steven L. Schwarcz (eds.), *Systemic Risk in the Financial Sector: Ten Years After the Great Crash*, CIGI Press, Ch. 13, forthcoming, fall 2019.
- 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 (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 (2017), “Basel III: Finalising Post-Crisis Reforms”, Bank for International Settlements, December.
- Behn, Markus, Rainer Haselmann, and Vikrant Vig (2014), “The Limits of Model-Based Regulation,” Institute for Monetary and Financial Stability, University of Frankfurt, Working Paper 82/2014.
- Brandao, Luis Marques, Ricardo Correa, and Horacio Saprizza (2013), “International Evidence on Government Support and Risk Taking in the Banking Sector,” IMF Working Paper WP/13/94.

⁸⁵ As mentioned in Footnote 1, our writings and additional materials are available on our personal websites (<https://admati.people.stanford.edu/advocacy> and <https://www.coll.mpg.de/martin-hellwig>, on SSRN, the book website <http://bankersnewclothes.com/> (mostly for materials 2013-2016), and on this website on the topic <https://www.gsb.stanford.edu/faculty-research/excessive-leverage>).

- 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.
- 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. and Kermit Schoenholtz (2017), “Regulatory Reform: A Scorecard,” CEPR Discussion Paper 12465
- 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.
- 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.
- 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.
- Elliott, Douglas (2013), “Higher Bank Capital Requirements Would Come at a Price,” Brookings paper, February.
- Federal Reserve Bank of Minneapolis (2017), “The Minneapolis Plan to End Too Big to Fail,” December.
- 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.
- 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. (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.
- Hellwig, Martin F. (2014), “Yes, Virginia, There Is a European Banking Union! But It May Not Make Your Wishes Come True,” 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. (2018), “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. (2019a), “Banks, Politics, and European Monetary Union,” forthcoming in: European Central Bank (ed.), “*ECB Forum on Central Banking 2019: 20 Years of European Monetary and Economic Union*”.
- Hellwig, Martin F. (2019b), “Fallacies in Monetary Economics,” forthcoming Discussion Paper, Max Planck Institute for Research on Collective Goods, Bonn.
- Hoenig, Thomas (2013), “Basel III: A Well Intentioned Illusion,” Speech to Association of Deposit Insurers, April 9, Basel.
- 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.
- Kapan, Tümer and Camelia Minoiu (2013), “Balance Sheet Strength and Bank Lending During the Global Financial Crisis,” IMF working paper 13/102.
- Kerr, Gordon (2011), “The Law of Opposites: Illusory Profits in the Financial Sector,” Working Paper.
- 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.
- 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,
- 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 Roell, Ailsa (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 Roell (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 PB14-23
- 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*.
- Pozsar, Zoltan (2014), “Shadow Banking: The Money View,” Office of Financial Research, Working Paper 14-04, July 2004.
- Roell, 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.
- Singh, Manmohan and Zohair Alam (2018), “Leverage, a Broader View,” IMF Working Paper No. 18/62.
- 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.