Statement for
Senate Committee on Banking, Housing and Urban Affairs Subcommittee on Financial Institutions and Consumer Protection

by

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Chairman Brown, Ranking Member Toomey, and members of this Subcommittee, I commend you for holding this hearing and am grateful for the opportunity to speak to you. I am a Professor of Finance and Economics at Stanford Graduate School of Business and my recent research and writings have focused on issues immediately relevant to today's hearing.

Recent experiences have helped foster the expectations of government support mentioned in the title of this hearing. Since 2008, the Treasury, the Federal Reserve and the FDIC provided through various programs massive and unprecedented support to the financial system. The largest bank holding companies, to varying degrees, have had access to hundreds of billions, even trillions of dollars in relatively cheap loans and guarantees, and they benefitted from bailouts of their counterparties such as AIG. For some, e.g., Citigroup, the support was critical.[1]

[1] The banks and the Federal Reserve tried to keep information about the extent of Fed loans hidden. The information was released after Bloomberg fought in court. See Phil Kuntz and Bob Ivry, "Fed Once-Secret Loan Crisis Data Compiled by Bloomberg Released to Public," Bloomberg, December 22, 2011. Citigroup is discussed further below.

Trillions of U.S. taxpayer funds were put at risk. The supports prevented the collapse of the system and helped many financial institutions avoid default, bankruptcy, or resolution in which their shareholders would be wiped out and at least some of their creditors would suffer losses. Yet, the programs did little to solve the housing crisis, failed to improve business lending meaningfully, and at times were excessively generous and inefficient.[2]

Implicit guarantees for which banks do not pay create a subsidy, essentially free insurance for their debts, or at least a partial insurance that lowers the likelihood of losses in some scenarios. Because such subsidies are implicit and invisible, determining their value with any precision is difficult; there is no market in which the implicit guarantees are being valued (although some have tried to use credit insurance contracts to try to estimate their value). Any estimate depends on many variables that change over time, and estimation requires making many assumptions; such assumptions might or might not be true in reality. In fact, many of the variables that affect the size of the subsidy vary across different institution in complex ways. Moreover, actions by the institutions, by investors, and by regulators also have important impacts. Later in this document I will have additional comments on measuring the subsidies.

When implicit-guarantee subsidies are provided to institutions that have significant discretion about their investments and the risks they take, the results can be perverse. Policymakers may hope that the subsidies are passed on to specific investments or people, but the institutions, as they benefit from the guarantees, may well have incentives to make different investments altogether.

For example, guarantees may be provided in the hope that the banks will make certain loans, when in fact, given their compensation structures and the flawed regulations we have in place (e.g., the use of risk weights), the banks may only make the loan if it is very safe or if it is guaranteed by the government. Instead, banks may prefer to invest in derivatives markets with more upside.

The institutions benefiting most from the subsidies often deny the existence of any benefit and claim that they are happy to give up the implicit subsidies. “Please,” they may say, “let

[2] Cole (2012) shows that TARP did not help improve business lending, which is not surprising since the programs did not reduce the institutions' indebtedness and the resulting debt overhangs (see Admati and Hellwig (2013a, Chapter 3, and Admati et al., 2014). Barofsky (2012) and Bair (2012) describe the bailouts programs. Additional references in the notes to Chapter 9 of Admati and Hellwig (2013a), whose text is attached to this testimony.

banks fail when they should."[3] The difficulty is that letting systemic institutions – or many institutions at the same time – fail may be disruptive and entail enormous collateral damage. Even if the direct costs of the failure are covered, the disruptions and inefficiencies that result are costly for the economy and the harm is borne by innocent citizens. As I will explain below, we do not have workable options for the failure of systemic institutions; moreover, the harm from their distress and even from the fear of their failure creates instabilities.

Financial crises are sometimes portrayed as if they were unpreventable natural disasters, implying that bailouts are similar to emergency aid after an earthquake. This narrative is misleading. The crisis of 2007-2009 was an implosion of a system that had become too fragile, reckless, and distorted. Regulatory failures, including flawed and ineffectively enforced regulations, must take much of the blame for the excessive fragility and the buildup of risk. These failures can be corrected, and regulators have authority to do so under current laws, but, remarkably, obvious lessons have not been learned, and not enough has been done to make the system as safe as it can and should be. Some counterproductive laws have also remained in place.[4]

The situation in banking is disturbingly similar to allowing heavy trucks with dangerous cargo to drive recklessly at 95 miles per hour in residential neighborhoods. If drivers get a bonus for reaching the destination quickly, and face little risk of injury or death even in an explosion (imagine that they have a special protective mechanism), they will drive recklessly and endanger innocent citizens. Authorities can send firefighters to put out fires and medics to treat the injured if an explosion occurs, but the public would wonder why truck companies reward reckless driving and, most importantly, why a safer speed limit was not set and enforced to prevent harm.

Similar questions must be asked about the failure of financial regulation. We should have a financial system that supports the economy as efficiently and consistently as possible without

[3] For example, in his letter to shareholders in April 2011, Jamie Dimon, CEO of JPMorgan Chase, denies his bank benefits from implicit subsidies and suggested that the industry pay any expenses associated with the failure of "dumb banks." For a response to this letter, see Anat Admati, "An Open Letter to JPMorgan Chase Board of Directors," reprinted in Huffington Post, June 14, 2011). This letter, which was sent to at least one person within the bank, did not receive any acknowledgment and did not appear to affect the banks' strategy. Misleading comments by bank executives and bank lobbyists as well as others are discussed in Admati and Hellwig (2013a) and in a number of short pieces, some of which are cited later in this document.

[4] I am referring, for example, to the distortive corporate tax code that penalizes equity funding and encourages borrowing, which can become excessive, and to the sweeping exemptions of repos and derivatives from stay in bankruptcy, which has likely enabled and encourage excessive growth in these markets. These issues will come up briefly below and they are discussed in Admati and Hellwig (2013a, Chapters 5, 9 and 10).

major distortions. The system we have instead is too dangerous, exposing the public to unnecessary risk and distorting the economy. Much can be done – even within existing laws – to improve this situation.

This committee has an important role in helping bring about beneficial changes. In the rest of this document, I will elaborate on the above statements, diagnose the key problems, and outline some recommendations. Additional materials are attached and referenced; I will be happy to provide more at your request.

Can/Will Large Bank Holding Companies ever "Fail" and if so, how?

The Dodd-Frank Act (DFA) intended, among other things, to eliminate bailouts. Yet virtually everyone involved in the financial system – even if some would not admit it – expects that the government, possibly through the Federal Reserve and FDIC, will again provide supports to large bank holding companies and other institutions considered "systemic" if authorities fear that the failure of these institutions would cause significant harm to the economy. If many small institutions become distressed at the same time, they too may be supported.

This assessment is based on the realities of today's system and the state of its regulation.[5] Whereas regulators receive significant authority under DFA (some of which they had all along), the implementation of the law has been messy and uneven. Some of the most critical rules are insufficient and flawed; others appear wasteful, too costly relative to the benefit they provide.

Policymakers who were involved in the bailouts extoll the virtues of their actions while appearing willfully blind to their failure to reduce the fragility of the system before the crisis and to learn the lessons since. If anything, investors may reasonably expect that supports would be forthcoming for fear of another "Lehman moment" even with the alternative to bankruptcy offered through the new and still untested resolution authority by FDIC.

The DFA titles most relevant for this discussion are Titles 1, 2 and 7. I'd like to focus my discussion mainly on Titles 1 and 2, although Title 7, which deals with derivatives markets, is also critical. The still-too-opaque markets in derivatives allow banks to hide enormous amount of risk from investors and regulators. Ineffective implementation of Title 7 and poor disclosures can undermine Titles 1 and 2 and the objective of having a healthier financial system.

[5] The dynamics of contagion are explained in in Admati and Hellwig (2013a, Chapter 5), White (2014), and testimony of James Thomson before this Subcommittee on July 16, 2014.

Stating the obvious (but see more below for nuances), a business "fails" when it does not fulfill its debt commitments or is feared to be unable to pay the debts. For "normal" companies in the US, failure involves filing for bankruptcy or liquidation under Chapter 11 or Chapter 7.

Title 1 of DFA requires, among other things, that large bank holding companies submit "living wills" to regulators. These documents are meant to play out a scenario in which the holding company goes through bankruptcy process, presumably under Chapter 11. In her testimony before your committee on July 15, 2014, Fed Chair Janet Yellen was asked some pointed questions about the living-wills process by Senator Elizabeth Warren. The exchange brings out some key issues. According to Chair Yellen, the largest bank holding companies have by now submitted three rounds of living-wills documents, and received feedback on the first set of submissions. The parts of these documents that are made public provide little information, often less than is included in standard financial statements. The full submission, according to Chair Yellen, goes into tens of thousands of pages.

Senator Warren asked Chair Yellen a critical question: "Can you honestly say that JP Morgan could be resolved in a rapid and orderly fashion as described in its plans with no threats to the economy and no need for a taxpayer bailout?" The Senator pointed out that JPMorgan Chase has $2.5 trillion in assets and 3,391 subsidiaries, compared to Lehmann Brothers, which had $639 billion in assets and 209 subsidiaries prior to its failure.

The Lehman Brothers bankruptcy, filed on September 15, 2008, caused severe disruption and damage to the global financial system. In its immediate aftermath, stock prices imploded, investors withdrew from money market funds, money market funds refused to renew their loans to banks, and banks stopped lending to each other. Banks furiously tried to sell assets, which further depressed prices. Within two weeks, many banks faced the prospect of default.

To prevent a complete meltdown of the system, governments and central banks all over the world provided massive supports to financial institutions. These interventions stopped the decline, but the downturn in economic activity was still the sharpest since the Great Depression. Anton Valukas, the lawyer appointed by the bankruptcy court to investigate Lehman Brothers, put it succinctly: "Everybody got hurt. The entire economy has suffered from the fall of Lehman Brothers . . . the whole world." Within twenty-one months, American households lost $17 trillion; reported unemployment hit 10.1% at its peak in 2009. [6]

[6] These two paragraphs are adapted from Admati and Hellwig (2013a, p. 11), and the crisis is described in some

Chair Yellen stated that Title 1 of DFA only requires the Fed to give feedback to the companies about their plans. She referred to an "iterative process" of submission and feedback. Title 1 apparently does not *require* that regulators give a pass/fail grade to the living wills nor to determine definitively whether bankruptcy is a viable option. However, the title definitely *authorizes* regulators to take a number of strong actions *if* they find that bankruptcy would entail too much collateral damage. Such actions include increasing capital (equity) requirements, requiring that structures be simplified and assets sold (potentially "breaking up" the banks), etc.

The US bankruptcy code to which Lehman Brothers was subjected has not changed since 2008. Other countries have different processes, which Lehman Brothers' foreign subsidiaries must follow. The tens of thousands of pages of living wills JPMorgan Chase has submitted to regulators might be of some use should it file for bankruptcy, at least under US law (although they may well be dated by the relevant time, because banks' counterparties and businesses can change in a matter of days or months). But the process will not be much faster and simpler than Lehman Brothers bankruptcy. Moreover, should the numerous counterparties of JPMorgan Chase become concerned that bankruptcy might be forthcoming, runs and disruptions similar to those observed in 2007-08 when Bear Stearns and Lehman Brothers became distressed will likely start significantly before any filing.

It defies credibility to suggest that, at the current speed of the "iterative process" that Chair Yellen described regarding the living wills, and without major changes to their structure and funding mix, enormously large and complex institutions like JPMorgan Chase will be able to go through bankruptcy without major harmful effects. Yet, regulators may continue to "iterate" and fail to use their authority to act even knowing that bankruptcy is not viable, refusing to admit to and deal with this reality. I doubt this situation was the intent of Title 1.

DFA authors, perhaps mindful after the Lehman Brothers experience that bankruptcy may not be a realistic option for large financial institutions, included an alternative mechanism in Title 2, which gives the FDIC authority to deal with the failure of any institution deemed "systemic" through a so-called Orderly Liquidation Authority (which actually doesn't intend to liquidate the company). The FDIC has engaged in the last few years in a serious effort to make its plans for this process credible, focusing on an approach called Single Point of Entry (SPOE).

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detail in Chapters 5 and 9 (the latter is attached to this testimony). Mr. Valukas made the statement here quoted in an interview on CBS *60 Minutes*, aired April 22, 2012. The last fact is included in the 2011 report of the Financial Crisis Inquiry Commission (p. 390).

SPOE represents an important and useful development, but, as bankruptcy expert David Skeel (2014, p. 3) assesses, "the technique also has important vulnerabilities, and some of the claims made on its behalf are quite exaggerated." Among them, SPOE does not work for institutions that are active globally and that have systemically important operations in several countries, unless all the countries that are involved agree to such an approach. A recent coordination effort between US and UK may allow for SPOE of US authorities in US holdings companies without intervention of UK authorities in UK subsidiaries, so the problem of UK authorities entering a Lehman Brothers subsidiary and finding that there is no cash to keep systemically important functions going might not arise.

However, the US-UK coordination is the only attempt of this sort, and it does not seem to be fully symmetric. If Barclays or Deutsche Bank were to run into trouble, US authorities would probably not be willing to accept SPOE resolution by the domestic authorities of these banks, but instead would intervene directly in the holdings companies that organize these banks' US activities. Multiple-entry resolution, however, destroys operational procedures that have been managed in integrated fashion across jurisdictions, for cash management, as in the case of Lehman Brothers, or, even more importantly, the joint use of Information Technology systems.

From the perspective of the different countries involved, single-entry resolution would involve significant conflicts of interest. If US authorities had been in charge of Lehman Brothers, London, as well as the parent, would they have paid proper attention to London-specific concerns, including the systemically important market-making activities of Lehman Brothers in London? Alternatively, is it acceptable for US authorities to follow the procedure suggested in the living will of Deutsche Bank, which argues that damage from resolution would be minimized if US authorities were willing to trust the German authorities (Bafin, the supervisor, and FMSA, the resolution authority)? In a cross-border setting, SPOE resolution leaves too much room for the authority in charge to shift losses to other countries and it is therefore hardly workable.[7]

Even if we had SPOE resolution for globally systemically important banks, some of these banks would most likely be "too big to fail." Procedures would be lengthy and cumbersome and, meanwhile, there might be substantial systemic fallout. Regulators would then be reluctant to use the procedure if multiple financial institutions face default at the same time, or if resolution would expose problems at one or more subsidiaries. In sum, Title 2 is useful, but it is certainly

[7] Even the Nordic countries have not been able to agree on an SPOE procedure for Nordea.

not a silver bullet for addressing the "too-big-to-fail" problem and it does not eliminate expectations of support for large bank holding companies. Moreover and importantly, even under the best scenario, using Title 2 resolution would be costly and entail collateral damage and, as in the case of bankruptcy, the distress of the corporation, and the fear or anticipation that Title 2 resolution might be invoked by its counterparties would likely already cause harm.[8]

The living wills requirements and Title 2 of DFA try to make palatable the notion that, like other companies, financial institutions structured as limited liability corporations should fail if they take risk and become unable to pay their debts, thus wiping out their shareholders and imposing losses on their creditors through an orderly legal process. In a vibrant market economy, innovations involve risk, and failures should be tolerated.

For normal companies, bankruptcy typically follows an actual or imminent default. Restructuring debts may allow the company to continue operating. Bankruptcy laws try to control the actions of managers and shareholders in insolvent companies, who have incentive to benefit themselves at the expense of creditors by taking out cash or gambling for survival. Since such problems and the legal and other costs of bankruptcy are anticipated by creditors, the terms of the debt claims, including both the interest rate and the conditions the contract puts on the borrower, are set by prudent lenders to compensate for the losses in the event of default and bankruptcy, and to control borrowers' actions that go against the lenders' interests.

A source of great inefficiency in banking is that banking institutions can persist in a state of distress or even insolvency without their creditors becoming alarmed and without the institution experiencing the difficulty of most distressed borrowers to raise funds and continue operating. One reason for this anomaly is that banks' creditors include depositors, who are insured and dispersed. Depositors are particularly passive in their role as lenders to the banks (a status most of them do not quite realize they have) and do not behave as normal creditors with standard debt contracts. Depositors rely on insurance and regulators to protect them.

Banks can use depositors' funds to invest in various loans and other assets that can sometimes be used as collateral and enable the bank to borrow even more under attractive terms. Creditors whose debts are secured by collateral care less than unsecured creditors about the borrower's solvency. Lending to financial institutions through so-called repurchase agreements

[8] See also White (2014) for a discussion of the issues regarding "fail" scenarios in "too big to fail."

(repos) is even safer than secured lending, because, under safe harbor laws from 2005, repos, as well as derivatives, are exempted from the normal stay in bankruptcy.[9]

For bank holding companies considered too big to fail, even unsecured bond holders feel reasonably sure they will be paid in full. In the financial crisis the creditors of numerous banking institutions, including those whose claims had counted as "regulatory capital" and were meant to absorb losses, were paid in full even as the institutions received large amounts of bailout funds and other supports. As discussed above, even today, and despite DFA, it is quite possible and even likely that the creditors of one of the largest bank holding companies will be paid in full even if the institution is insolvent.

As long as creditors are paid and do not constrain the borrowing bank much, it can continue operating. In that case, only regulators are in a position to intervene even as highly distressed or insolvent borrowers, including banks, are extremely inefficient and their decisions are distorted by conflicts of interest with creditor. In fact, I will argue below that by most standards, the banks are permanently in a state of financial distress, yet they manage to get away with it

Essential, yet Flawed and Insufficient Regulation

In addition to the living-wills requirement, Title 1 of DFA authorizes the Federal Reserve, in collaboration with other regulators, to design prudential regulations meant to maintain the safety and soundness of the system. The Fed is charged with regulating bank holding companies as well as all institutions declared systemic by the Financial Stability Oversight Committee.

As discussed above, the scenarios that involve default and failure of systemic institutions are complicated, disruptive, and harmful. There are no good options. It thus appears particularly important to try to prevent reaching these failure situations through prudent supervision and regulations. Most important among those safety measures are capital requirements meant to control the funding mix of these companies, including to ensure that they fund their investments by appropriate amount equity – money from owners and shareholders – so that they can continue making loans and investments and still pay their debts even if they incur losses. (**Note**: *the*

[9] Skeel and Jackson (2012), and Mark Roe, another bankruptcy expert, (see, e.g., "Reforming Repo Rules," Project Syndicate, December 21, 2011), call for re-examining these exemptions. Skeel (2014) also warns with regard to Title 2 resolution that "it reinforces problematic incentives for financial institutions to rely on short-term financing."

jargon that refers to capital as something banks "hold" or "set aside" is confusing, suggesting that capital represents idle funds like cash reserves that banks cannot use, which is ***false***.[10])

According to its financial statements, on December 31, 2007, the largest the bank holding company at the time, Citigroup, reported that its shareholder equity or net worth (the difference between its reported assets and liabilities) was 5.2% of its total assets. Citigroup's assets were valued at almost $2.2 trillion. As Lawrence White from New York University Stern School notes, however, this information does not capture some important facts. He writes (White, 2014, p. 7, footnotes omitted): "Citigroup is best understood as a (roughly) $1.2 trillion depository institution, on top of which was a (roughly) $1 trillion holding company (including its non-depository subsidiaries). The holding company's net worth was smaller than the depository's net worth; in essence, if the net worth of the depository (i.e., the capital of the depository, which also counted as an asset for the holding company) was ignored, the holding company was insolvent."

Citigroup proceeded to collapse at the end of 2008 and needed a series of bailouts and massive other supports. Remarkably, the government injected of $25 billion of TARP funds into Citigroup on October, 8, 2008, and, even with the market value Citigroup stock falling below $25 billion in November, the company was offered tens of billions in additional bailouts and hundreds of billions in cheap loans and guarantees from the Fed. (Citigroup, according to Arthur Wilmarth from George Washington University Law School is "a case study in managerial and regulatory failure."[11])

Indeed, regulators often show forbearance and allow insolvent banks to persist and even hide their losses. Insolvent institutions are highly dysfunctional and harm the economy. They do not make new loans and may become reckless, gambling for survival or looting the institutions. Recklessness was pervasive in the Savings and Loan Crisis of the 1980, and the dysfunctionality of weak banks is evident in Europe in recent years. Yet, when banks are supported, their indebtedness is often maintained because the supports are given in the form of *more* loans.[12] Solvent corporations can in fact raise equity at *some* price, although their managers and

[10] On this insidious confusion, see Admati and Hellwig (2013a, Chapters 1 and 6), Admati et al (2013, Section 3.1), Claims 1 and 2 Admati and Hellwig (2014), which is attached to this testimony, and my Tedx Stanford talk http://www.youtube.com/watch?v=s_I4vx7gHPQ&feature=youtu.be&a

[11] See Wilmarth (2014). Bair (2012) and Barofsky (2012) include vivid descriptions of the bailouts.

[12] Onaran (2011) argues that both Citigroup and Bank of America were insolvent or "zombies" even in 2010. Admati and Hellwig (2013a, Chapters 3, 4 and 11) emphasize the harm of allowing weak banks to persist.

shareholders are unlikely to do so voluntarily. Creditors or regulators can bring about reduction of indebtedness through covenants or regulation.[13]

A glaring failure of regulatory reform efforts across the globe (not just in the US, indeed, the situation is worse in Europe) is that, even as the largest global financial institutions have grown ever bigger, more complex, more connected and more dangerous, they continue to be allowed to operate with dangerously high levels of indebtedness and much too little equity, and to hide too much risk in opaque markets and off their balance sheets.

The minimal requirements agreed upon in Basel III allow equity to be as low as 3% of the total assets. Even with the harsher US requirements, 95% of the total assets of the largest bank holding companies can be funded with debt. Note that *this requirement would have been satisfied by Citigroup in December, 2007*. Capital regulations also rely on an enormously complex and manipulable system of risk weights that distorts banks' decisions and exacerbates the fragility of the system, among other things making business lending relatively unattractive.

Bankers and regulators claim that the new capital regulations are tough when in fact these reforms amount to a tweak and they have no valid justification. In the speeding analogy, the reforms are analogous to reducing the speed limit for loaded trucks from 90 miles per hour to 85 miles per hour in residential neighborhoods, with police unable to measure the actual speed. The claims made to justify the regulation or to fight higher equity requirements are fraught with flaws that range from false statements to misleading claims that divert the discussion. These statements are discussed in details in many of my writings, with colleagues, over the last four years; a small sample of which is attached to this testimony.[14]

A key observation for understanding corporate funding decisions is that heavy borrowing creates strong conflicts of interest between borrowers and lenders and potentially distorts the investments and funding decisions made by borrowers once debt is in place. Overhanging debts create inefficiencies when borrowers – or managers in an indebted corporation acting in the interests of shareholders – make decisions in their own interest and do not take into account the impact of their actions on creditors or third parties. For example, borrowers may underinvest in worthy projects if they expect the returns to accrue in part to their creditors or they may make

[13] Admati et al (2014) discusses in detail how borrower-creditor conflicts affect funding decisions in highly indebted corporations, and the analysis is particularly applicable to banks.

[14] See Admati (2014), Admati and Hellwig (2013a, 2014), and Admati et al (2013, 2014). Admati et al (2013) was first posted in August, 2010. These and additional references are available at http://bankersnewclothes.com/: and (for more academic writing) http://www.gsb.stanford.edu/news/research/admati.etal.html

excessively risky investments if they expect the downside of the risks to be borne by creditors, or by deposit insurance institutions and taxpayers.[15]

As a result of these distortions and other costs associated with distress or bankruptcy, heavy borrowing can actually reduce the total value of a firm (i.e. the sum of the values of all claims, including debt and equity). Borrower-creditor conflicts also create an "addiction" to debt on the part of heavy borrowers, biasing subsequent funding decisions towards more debt and away from equity that makes existing creditors safer.[16] As mentioned above, the conflicts are particularly intense when corporations are in a state of distress or insolvency, which for most corporations are rare but which in fact are considered normal in banking.

Without any regulation of their funding, and despite a (distortive) tax code that subsidizes borrowing and penalizes the use of equity, most corporations do not borrow heavily.[17] Even those who tend to use more debt, including private equity firms or Real Estate Investment Trusts, rarely have less than 30% equity in their funding mix. As discussed above, prudent creditors write restrictive covenants that constrain dividend payouts and other decisions by the borrower, and adjust the cost of borrowing to reflect anticipated legal costs and delays should the borrower go into bankruptcy, as well as the possibility that the borrower would take additional debt that might dilute their claims.

Banks, however, can persist in distress because they do not experience the "dark side of borrowing," including the increased costs and harsh terms that naturally prevent other corporations from heavy borrowing. Although they use a lot of debt, much of this debt comes with fewer strings attached than those other borrowers face (and, indeed, the terms the banks often place those to whom they lend). Deposit insurance and implicit guarantees lighten the burden of debt, allowing banks to continue to borrow and take risks without much effect on the terms of their debts. Supports and guarantees enable, encourage, and feed this addiction to debt.[18]

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[15] As discussed in Admati and Hellwig (2013a, Chapter 3), the effects of overhanging debt can be seen in the case of homeowners who would not invest in the house if its value is low relative to the mortgage, or who might take a second mortgage even as this may put the lender of their first mortgage at risk.

[16] This phenomenon is explores in details in Admati et al (2014), which is highly relevant to understanding the rationale for leverage regulation. See also Admati et al (2013) and Admati (2014).

[17] White (2014) provides some comparisons based on book value of equity. The comparisons of banks and nonbanks on the basis of market value are starker. The latter have on average 60% or more equity relative to total assets.

[18] Some claim that debt disciplines managers. In banking, this idea is a myth, as discussed in Admati et al (2013, Section 5), Admati and Hellwig (2013b) and Admati and Hellwig (2014, Claim 22), attached.

Guarantees can also exacerbate the inefficiencies and distortions in banks' investment decisions. If you could use borrowed money in a casino, keep the winnings and continue to borrow when you lose, you would certainly love gambling even if the odds were significantly against you. Chapter 9 of Admati and Hellwig (2013a), whose text is attached to this testimony, provides an accessible explanation.

The fact that banks choose to rely so much on debt does not mean that their indebtedness levels are essential or efficient. These levels are the result of a failure of internal governance and a failure of normal credit markets to constrain the love of borrowing by banks and bankers. Compensation structures that reward return on equity (ROE), which are pervasive in banking, effectively pay bankers to gamble at the expense of creditors or taxpayers who are exposed to greater risks. Even shareholders may be exposed to risks for which they are not properly compensated.[19] Few benefit while the rest are harmed by this situation. When markets fail, effective laws and regulations must correct the distortions. Otherwise laissez faire can become crony capitalism.

The idea of finding ways for banks to fail, discussed above, is obviously meant to bring back market discipline into banking. However, given the collateral damage from the failure of one or more institutions, and the fact that disruptions and harm start even before an actual default, the primary focus should be on prevention. Much more can be done on this front. There is simply no justification for the current inefficient levels of indebtedness in banking. Reducing it will achieve major benefits for society at virtually no relevant costs.

The inefficiencies of heavy borrowing in banking also distort the provision of credit in the economy. Making loans is a critical contribution banks can make to the economy.[20] Heavily indebted banks, however, may make too few worthy (but relatively "boring") business loans that don't have much upside, while at the same time making too many risky loans, including credit card loans, which may lead others to borrow too much and suffer the consequences. The distortions create cycles of booms, busts and crises. Regulations based on risk weights exacerbate these distortions.

[19] This is explained in detail in Chapter 8 of Admati and Hellwig (2013a) and in many other writings. See Claim 8 in Admati and Hellwig (2014), attached.

[20] Despite the emphasis often placed on banks as sources of credit for firms, lending is actually a small part of what the largest bank holding companies do (see Admati and Hellwig (2013a, Chapter 6). On the evolution of business of banking in the US, see Omarova (2013).

It is possible and highly beneficial to transition to a system in which banks use significantly more equity, thus reducing the likelihood of costly failures or bailouts and at the same time permitting banks to invests more efficiently on behalf of all its investors, thus supporting the economy better and with fewer distortions.

Whereas many extoll the importance of increasing equity requirements, the status quo seems to be the benchmark against which changes are measured. This benchmark is entirely inappropriate. Banks are as fragile as they are only because those who make decisions in the banks benefit from the status quo and they have so far gotten away with maintaining it, even after the most recent crisis.

Requiring that banks use more equity is not a silver bullet, and much depends on the details of the regulations and its implementation and enforcement, but effective regulation of banks' indebtedness can make other, more costly, regulations less important or necessary.[21] Liquidity breakdowns are less likely if banks can trust each other to be solvent, and the liquidity offered by deposits and other short term debt by banks would only be enhanced if banks have more equity.[22]

Existing laws still allow regulators to revise capital regulation. Title 1, specifically in the context of the living wills requirements, allows significant increases in equity requirements for institutions deemed systemic, if regulators admit that bankruptcy is not a viable option.

Comments on Measuring the Value of the Implicit Subsidies

As discussed at the start of this document, it is very difficult to measure the value of the implicit subsidy associated with guarantees. Because there are no markets for these guarantees, assumptions must be made about the underlying forces and the data being used. One can also try to focus on the cost to taxpayers or in terms of benefits to banking institutions who receive the subsidies. In fact, these two need not be the same because of the collateral impact of the banks' choices of investment and funding, and especially of their distress and failure scenarios.

In assessing the costs to taxpayers, it is important to realize that expenses for supporting financial institutions in a systemic crisis occur at the every moment when the macro-economy is doing poorly, the country’s fiscal situation is very tight and money is sorely needed in many

[21] In Chapter 11 of Admati and Hellwig (2013a) we outline briefly how better regulation can be designed and how to transition to a better system.
[22] These issues are discussed in detail in Admati and Hellwig (2013a, Chapter 10).

places.[23] Similarly, in assessing the benefits to banks, it is important to realize that government guarantees are most useful in times of crisis, when private protection schemes are breaking down and the very survival of the institution is at stake. As discussed above, banks' decisions about lending and investments are most distorted at that time, and bailouts that do not reduce indebtedness and thus do not alleviate banks' distress may keep banks going but be unhelpful to the rest of the economy. (Ineffective banking regulations have caused much harm in Europe in recent years; many problems can be traced to a weak and bloated banking system and the politics of banking.)

With these caveats, I will make a few observations about attempts to estimate the size of the subsidy, but I do not wish to focus on this technical issue. As I will argue below, the size of the subsidy does not actually matter much to the policy recommendation.

1. There is compelling evidence that the government provided a sector-wide collective bailout guarantees to the financial sector in 2007-2009.[24]
2. The value of the subsidy, if thought of as the amount the banks would have to pay to receive perpetual (even partial) insurance for their debts in the private markets, is sensitive to many variables and can change dramatically over time depending on the level of uncertainty, the state of the local and global economy, and various fragilities in the financial system. The value is highest when uncertainty is large and when the economy and/or the financial sector are weak, and especially in a crisis. Boom times, however, when the value of the subsidy might be thought low, can quickly turn to bust. For example, uncertainty indicators were low in 2006 and through summer 2007 only to explode in late 2008 and 2009.)
3. When focusing on the funding costs of the institutions, particularly their borrowing costs, the relevant thought experiment in trying to assess the value of the implicit subsidies to the institutions who receive them from an ex ante perspective, i.e., when institutions fund their investments in light of the expectations of support, is to consider how institutions would have fared in the hypothetical scenario in which they tried to raise funding, such as unsecured,

[23] For example, in the Swedish crisis of 1992–1994, government support for the banks necessitated cutbacks in other government spending, which greatly contributed to the sharp economic recession. Citizens in Ireland and Iceland are still suffering

[24] In one example, Kelly, et al (2014) document the fact that during the recent financial crisis, (out-of-the-money) index put options that provide protection against large drops in the value of the entire financial sector were surprisingly cheap compared to the individual options of the financial institutions that are part of this index. This finding is consistent with the notion that the government will not tolerate large equity losses for the financial sector as a whole. As a result, the market underprices the cost of insurance against these sector-wide losses for financials.

junior debt, *without any chance of a guarantee*, and specifically in a world in which the full costs of any failure, including bankruptcy costs and the distortions of distress and insolvency, would fall on shareholders and creditors. This counterfactual scenario cannot be observed, thus comparison requires many assumptions. One approach is to use credit ratings uplifts. The approach makes sense if the uplifts actually capture the true distinctions in the context of an individual institution and specific bond issuance.

4. None of the approaches takes into account the extreme opacity of the large banking institutions' and the difficulty in assessing their risks, including those lurking off their balance sheets and in derivatives markets.[25] Many banks use derivatives to get certain risks off their balance sheets. But then the counterparties on these derivatives might fail. If the counterparties have many parallel positions, as was the case when AIG wrote credit default swaps for $500 billion on mortgage-backed securities, CDOs, and the like, the risk that the counterparty might fail is correlated with the underlying risk, i.e. the attempt to hedge risks through derivatives may end up being ineffective. In the case of AIG, fear of systemic fallout from such a failure was a major reason for the bailout.
5. Correlations of risks, i.e., the risk that the same event affects multiple institutions, are notoriously difficult to measure. This is especially true of the correlations among the risks against which derivative contracts are written and the default risks on these contracts. If these correlations are improperly measured, however, credit ratings and credit ratings uplifts are unlikely to be reliable. If these correlations are neglected, as has been the case in the past (for example the possibility that housing price declines will affect numerous mortgages at the same time), the estimates of the total risk in banks' assets are likely to be too low, and so are all estimated of the value of government guarantees protecting against such risks.
6. In this context, it is also important to appreciate the role played by government guarantees for counterparties of banking institutions. In a financial system with a complex network of inter-institution contracts, the individual institution benefits not only from government guarantees protecting its own creditors but also from government guarantees protecting the counterparties of those in which it invested. For example, the AIG bailout benefited many counterparties of AIG, not the least of these being the many banks that had purchased credit

[25] On the poor disclosures of the banks and investors' inability to assess their risk, see for example Jesse Eisinger and Frank Partnoy, "What's Inside America's Banks," *The Atlantic*, January 2, 2013.

insurance from AIG. The benefit of such protection for AIG to, say, Goldman Sachs, however, cannot be assessed merely by looking at data for Goldman Sachs and relating the interest Goldman Sachs must pay to the risks they are taking. The embeddedness of their activities in a system to which the government provides comprehensive support can hardly be gathered from data about individual institutions.

7. Even a resolution process such as under Title 2 of DFA may offer guarantees to some of the institutions' debt in order to avoid disruptions or runs, which would transfer some downside risk to the government at least temporarily.[26]
8. Being able to borrow at below-market rates relative to the risk taken with the investments provides a subsidy that affects the institutions' stock price and can favorably affect the terms at which the institution can raise equity. When an insolvent institution is given supports and does not fail, its shareholders are not wiped out. Other things equal, therefore, a systemic institution's stock price is higher in reality than in the hypothetical without support. Indeed, raising equity has been surprisingly cheap for the largest US banks over the past four decades, but expensive for the smallest banks, because large bank stocks are priced under the assumption that they are relative safe while the stocks of small banks are not, despite the fact that large banks tend to be more heavily indebted.[27] The fact that guarantee become an asset, and the fact that commonly used assumptions about the risks banks are subject to may well be inappropriate, may lead the value of the subsidies in some studies to be under-estimated.[28]
9. Comparisons between the interest charged on debt of large and small banks may not be informative because the large banks may well have significant risks that are harder to assess due to their more opaque disclosures. As mentioned earlier, this applies particularly to banks heavily involved in derivatives trading. The larger banks also tend to have more complex structures, more lines of business, and more off-balance sheet exposures than small banks. These factors would affect funding costs in the hypothetical scenario without support and

[26] DFA directs the FDIC to cover any shortfall by charging the surviving institutions, but doing so might be difficult if they too are experiencing losses.

[27] Gandhi and Lustig (2014) find that over the past four decades the stock returns realized on the largest US commercial banks, after adjusting for risk differences, are abnormally low compared to the stock returns on the smallest US commercial banks. These differences are large (around 6% per year). The authors also provide evidence that large bank stocks are significantly less exposed to losses during recessions and financial crises, even though these large banks are typically much more heavily indebted. These findings are consistent with the notion that government guarantees are perceived by investors to protect shareholders in large banks, but not in small banks, in financial disasters.

[28] See, for example, Stefan Nagel, "Too Big to Fail is Bigger than You Think," Bloomberg, March 2, 2014.

thus the comparison between large and small banks, and they might not be sufficiently observable to correct for. Similar considerations apply to comparisons of large banks with other large corporations, whose disclosures, and business models are often simpler and less opaque.

The challenges in measuring how the banking industry as a whole, and especially the largest institutions, benefit from the possibility of future support do not change my bottom line, that the subsidy is perverse and insidious, rewarding and encouraging recklessness and excessive use of debt which endangers the public while allowing banks to make investments of many kinds to maximize their own profits that may not always benefit society.

Because the public pays for any subsidy, and the result of implicit supports is a dangerous and distorted system, these subsidies are, on net, enormously costly for society. Even if banks were to pay in full for the guarantees, at least collectively – similar to how deposit insurance works – the impact of the implicit support is harmful and distortive. The same institutions whose failure would cause significant collateral damage – individually and when they fail at the same time – have incentives to borrow too much, take too much risk, and become more highly interconnected, so as to increase the likelihood of government support. In responding to these incentives, they can put us at yet more harm, unless these incentives are countered effectively by regulations.[29]

Among the perverse consequences of implicit guarantees is that they encourage and enable the largest institutions to grow even to inefficiently large sizes. There is no valid evidence of true scale economies for banks as they grow to trillions in assets. Such sizes are unseen in the rest of the economy. [30] Indeed, the problem of "empire building" by managers to benefit themselves appears particularly severe in banking.[31] The largest institutions seem to suffer from serious

[29] See, for example, Brandao et al (2013) for evidence on excessive risk taking as a result of expectations and support. Section 5 in Admati et al (2014) which discusses the why the leverage ratchet effect (addiction to borrowing by heavy borrowers) is particularly relevant in banking and exacerbated by guarantees, and this effect exacerbates other distortions. Admati and Hellwig (2013a, Chapter 9) provide additional references. See also Anat Admati, "Bank Immensity Undermines Responsibility," *New York Times* Room for Debate, May 16, 2014.

[30] Davis and Tracey (2014) use estimates of the subsidies based on credit rating uplifts and argue that, once the effect of subsidies is controlled for, the largest institutions are "too large to be efficient."

[31] For example, Mayo (2011) describes excessive growth that appears inefficient, for example in Citigroup. A recent book (Fraser, 2014) describes the recklessness of the Royal Bank of Scotland and its CEO, which led to its spectacular failure and bailout by UK taxpayers.

governance and control problems, as evidenced by repeated scandals and fines.[32] However, because the status of being too big to fail confers significant benefits and better access to funding, the largest institutions are unlikely to shrink naturally (as conglomerates often do).

These perverse effects undermine any notion of market discipline and they breed recklessness, even lawlessness, on the part of those within the largest institutions who benefit the most from the guarantees and subsidies, whose compensation reward gambling, and who rarely pay a personal price when charges for wrongdoings, including crimes, are settled by authorities or when excessive risks that harm the public, and even the shareholders of the corporations, are taken. Both corporate governance and regulations appear to fail. It is essential to take steps to counter these perverse incentives of the implicit subsidies and reduce their impact.

Fortunately, there is a straightforward and cost-effective way to do just that while reaping other critical benefits; that is to reduce banks' excessive use of debt and requiring significantly more equity than banks are currently required to have.[33] There is no reason for banks to live so dangerously. Importantly, *aside from possibly losing subsidies associated with borrowing, the overall funding costs of banks would not increase if they use more equity and less debt*.[34] Since subsidies come from public funds, reducing them does not represent a social cost.

Encouraging and subsidizing banks to fund themselves with as much debt as is currently allowed (up to 95% for the large bank holding companies) as perverse as encouraging and subsidizing reckless speed for trucks or rewarding the captains of large oil tankers to go ever closer to the coast. More equity would force banks to stand more on their own when they take risk, rather than shift some of the risk and cost of bearing it to others. Shareholders who benefit from the upside, and not creditors or taxpayers, should be the ones to bear the downside.

Whatever else is done to reform the financial system so it works better for the rest of the economy, bringing banks' indebtedness to more reasonable levels appears enormously cost-beneficial. With the perverse incentives banks have, and their ability to get away with harmful actions, many of the problems will not be corrected by markets. Making the system safer

[32] For example, the report by the Senate Committee on Investigation chaired by Senator Carl Levin on "London Whale" scandal, entitled "JPMorgan Chase Whale Trades: A Case History Of Derivatives Risks and Abuses," reveals serious control problems in our largest banks. Suspicion of fraud and other evasion of laws and regulations appear routinely in the press.

[33] Additional benefits are outlined in Admati et al (2013, Section 2) and Admati (2014).

[34] This is explained in details in Admati et al (2013, see especially Section 4); see Chapter 9 of Admati and Hellwig (2013a) Claim 11 in Admati and Hellwig (2014), both in attached documents. Taxes are public funds, and the tax impact of higher equity requirements can easily be neutralized, as explained in Admati et al, (2013, Section 4.1).

requires focused and effectively enforced regulation. If the size of individual banks, or of the banking industry, shrinks as a result, the resulting size would likely be more appropriate. The size and structure of firms and industries should be determined by undistorted markets, but the markets we have are entirely distorted. Bloated and inefficient, the financial industry may be able to attract talented workforce that may be more productive elsewhere in the economy. This system works for few and harms all the rest. When regulations fail to correct such distortions and harm, the public pays the price. Because the issues are misunderstood and the harm from excessive risk in finance, unlike that from exploding trucks, is abstract, the public may not fully realize the situation, particularly with the extent of lobbying by the industry.

Summary: If not Now, When?[35]

In March, 2013, the Senate voted unanimously to approve an amendment proposed by Senators Brown and Vitter to eliminate the too-big-to-fail subsidies. As discussed above, among the many benefits of forcing the large banks to use more equity and less debt is that any subsidy they benefit from is immediately reduced. This benefit is obtained without having to break up the banks, and is realized in addition to all the other benefits of preventing their failure and reducing the distortions in their lending.

The focus on making the failure option palatable is as misguided as a focus on preparing ambulances for a possible explosion while police allows loaded trucks to drive at 95 miles an hour in residential neighborhoods. Whoever pays for the ambulances, explosions harm innocent people. Requiring that banks fund themselves so that those who benefit from the upside of risk bear more of its downside brings about more safety and corrects distortions.

In the exchange on July 15, 2014 between Senator Warren and Chair Yellen referred to earlier, Senator Warren pointed out that under Title 1 of DFA, the Fed has authority to break up the largest bank holding companies if it finds that bankruptcy is not a viable option if they fail. The Fed certainly has authority to ban dividends and other payouts to shareholders until banks are better prepared to absorb losses from risks they take without failing or becoming distressed.

[35] This is the title of Chapter 11 in Admati and Hellwig (2013a), whose epigraph is "time has a trick of getting rotten before it gets ripe." For an excerpt, see Anat Admati and Martin Hellwig, "Must Financial Reform Await Another Crisis?" Bloomberg View, February 6, 2013.

As it goes through the "iterative process" of the living wills, and while it is not ready to assert that the failure of the largest bank holding companies will not harm the economy, the Fed must act prudently and protect the public. Corporations routinely retain their profits to fund investments, and banks should do the same. Retained profits would enable banks to make more worthy loans, and may increase their incentives to actually make them. The profits from any investments belong to shareholders as long as debt is paid.[36]

Not only do banks have access to their own profits to become more resilient, they can sell shares to investors at appropriate prices. Other companies may be forced by debt covenants or prohibitive borrowing costs to raise equity when they are distressed. For banks, action must come from regulators. Banks unable to raise equity at any price fail a basic market "stress tests" and might be too opaque or not viable without subsidies. Such banks are unhealthy and must be dealt with promptly.

The Fed justifies allowing banks to make payouts to their shareholders on the basis of "stress tests." This methodology uses models to predict regulatory capital levels that mean little in actual distress and especially in a crisis. The models are incapable of predicting the within-system dynamics that might follow adverse scenarios because the Fed does not have sufficient information on the many layers of interconnectedness that go beyond single counterparty exposures. Trusting models that should not be trusted has contributed to the causes of the financial crisis. The lesson from the failures of these models must be learned, particularly when there is no scarcity of equity just for banks, and no justification for allowing them to live as dangerously as they do.[37]

If banks deny that they benefit from implicit subsidies, moreover, they cannot at the same time complain that their funding costs would increase significantly if they must use more equity.[38] The fact that banks are anxious to make payouts to their shareholders rather than use their profits for making worthy loans, even at their very low equity levels, calls into question their motives and exposes the disconnect between claims that higher equity requirements would prevent lending and making payout to shareholders instead of using the funds to make loans.

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[36] Warren Buffett's company Berkshire Hathaway, for example, rarely makes payouts to its shareholders, continuing to invest on their behalf and retained earnings are considered first in the "pecking order" of funding. See Admati et al (2014), for example.

[37] See Claims 13-14 in Admati and Hellwig (2014), attached, for a brief discussion.

[38] In that case, the only private cost is that banks might have to pay more corporate taxes, but, as explained in Admati et al (2013, Section 4.1), this is not a social cost, and the effect can anyway be neutralized.

It is baffling that the Fed finds it appropriate, before it can assert that the largest bank holding companies would not harm the economy if they fail, to allow these institutions to make payouts to shareholders that deplete their most reliable loss-absorbing capacity, namely their equity.[39] A significant increase in equity requirements must be considered the most cost-effective way to make it less likely that we face difficult choices when institutions become weak, as well as to reduce the fragility of the system and many distortions. The Fed has the responsibility and the ability to protect the public, yet as a regulator, it has failed the public. On behalf of the public, I hope you will take my comments into consideration and implore it to do better.[40]

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[39] I have written many commentaries on this issue, see Anat Admati, "Dividends Can Wait Until the Banks are Stronger," *Financial Times*, January 19, 2011, "Only Recapitalized Banks Should Pay Dividends," a letter signed by 16 academics, *Financial Times*, February 15, 2011, Anat Admati, "Fed Runs Scared with Boost to Bank Dividends," Bloomberg View, February 24, 2011, and "Why the Bank Dividends are a Bad Idea," Reuters, March 14, 2012. Admati and Hellwig (2011, Chapter 11) provide a more detailed explanation.

[40] Other claims are made in response to such recommendations, such as concerns about the so-called shadow banking systesm or about the competitiveness of our banks. These concerns are invalid excuses, as explained in Admati and Hellwig (2013a, Chapters 12 and 13) and Claims 26-28 in Admati and Hellwig (2014), attached.

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