

TOO BIG TO FAIL IN BANKING: WHAT DOES IT MEAN?

By

George G. Kaufman*

SPECIAL PAPER 222

LSE FINANCIAL MARKETS GROUP SPECIAL PAPER SERIES

June 2013

George G Kaufman is the cochair of the Shadow Financial Regulatory Committee. He is the John Smith Professor of Finance and Economics at Loyola University Chicago, where he has taught since 1981. He previously taught at the University of Oregon and was a research officer at the Federal Reserve Bank of Chicago. He was also a visiting professor at Sanford University, the University of California at Berkeley, and the University of Southern California, and a visitor at the Federal Reserve Bank of San Francisco and at the Comptroller of the Currency, where he was acting director of research. He also served as Deputy to the Assistant Secretary of the U.S. Treasury. Kaufman has published widely in leading professional journals and was a founding editor of both the journal of Financial Services Research and the journal of Financial Stability. He served as President of the Western Finance Association, the Midwest Finance Association, and the North American Economic and Finance Association is president-elect of the Western Economic Association; and is the past director of the American Finance Association. Kaufman received his PhD. Form the University of Iowa in economics.

* Loyola University Chicago and Federal Reserve Bank of Chicago. Earlier versions of this paper were presented at the annual meeting of the International Association of Deposit Insurers (IADI) in Basel, Switzerland, April 9-10, 2013 and at the Pacific Rim Conference of the Western Economic Association in Tokyo, Japan, March 14-17, 2013. I am indebted for helpful comments on earlier drafts to Colleen Baker, James Barth, Robert Bliss, Gillian Garcia, Robert Kolb, Maria Nieto, Richard Porter, Richard Rosen, Harvey Rosenblum, Kenneth Scott, and Larry Wall.

TOO BIG TO FAIL IN BANKING: WHAT DOES IT MEAN?

George G. Kaufman*

Abstract

Interest in TBTF resolutions of insolvent large complex firms has intensified in recent years, particularly in banking. TBTF resolutions protect some in-the-money counterparties of the targeted insolvent firm from losses that would be suffered if the usual bankruptcy resolution regimes used in resolving other firms in the industry were applied. Although special TBTF resolution regimes may reduce the collateral spill-over costs of the failure, the combined direct and indirect costs from such “bailouts” may be large and financed in part or total by taxpayers. Thus, TBTF has become a major public policy issue that has not been resolved in part because of disagreements about definitions and thereby the estimates of the benefits and costs. This paper explores these differences and develops a framework for standardizing the definitions and evaluating the desirability of TBTF resolutions more accurately.

* Loyola University Chicago and Federal Reserve Bank of Chicago. Earlier versions of this paper were presented at the annual meeting of the International Association of Deposit Insurers (IADI) in Basel, Switzerland, April 9-10, 2013 and at the Pacific Rim Conference of the Western Economic Association in Tokyo, Japan, March 14-17, 2013. I am indebted for helpful comments on earlier drafts to Colleen Baker, James Barth, Robert Bliss, Gillian Garcia, Robert Kolb, Maria Nieto, Richard Porter, Richard Rosen, Harvey Rosenblum, Kenneth Scott, and Larry Wall.

TOO BIG TO FAIL IN BANKING: WHAT DOES IT MEAN?

George G. Kaufman*

Introduction

Business firms fail all the time with adverse consequences for stakeholders and possible adverse externalities (collateral damage). For most failures, the adverse externalities are not very great and resolution of the failure by the usual resolution process provided in the Federal bankruptcy code or elsewhere that allocates losses to the firm's counterparties does not cause significant problems. But, for some large firms there is dissatisfaction both with their regulation while alive and with the consequences of the outcome of applying the usual resolution process to them when dead. These are the firms to which "too big to fail" (TBTF) applies. TBTF is most often applied to banking and other financial firms.

* Loyola University Chicago and Federal Reserve Bank of Chicago. Earlier versions of this paper were presented at the annual meeting of the International Association of Deposit Insurers (IADI) in Basel, Switzerland, April 9-10, 2013 and at the Pacific Rim Conference of the Western Economic Association in Tokyo, Japan, March 14-17, 2013. I am indebted for helpful comments on earlier drafts to Colleen Baker, James Barth, Robert Bliss, Gillian Garcia, Robert Kolb, Maria Nieto, Richard Porter, Richard Rosen, Harvey Rosenblum, Kenneth Scott, and Larry Wall.

Despite the recent sharp explosion in interest, “too big to fail” in banking remains a vague and fuzzy concept. TBTF means different things to different people (Hurley, 2010). It is easier to define ex-post than ex-ante – “I know a TBTF firm when I see one”. (A taxonomy of TBTF appears in Seelig, 2004.) A TBTF firm is generally a large complex firm that is perceived to require either or both special regulation to discourage failure while alive and/or a special resolution regime when dead in which governments can intervene and not have the insolvent firm resolved through the usual resolution (bankruptcy) processes that apply to other firms in the same industry, at least with respect to allocating losses. The special resolution regimes applied to covered firms permit some stakeholders (in-the-money counterparties) of an insolvent firm to be paid more than the recovery amounts that they would receive otherwise under the regular no-TBTF resolution regime. Thus everyone may not “fail” in the failure. The question is who should or who, if anyone, should not be permitted to fail? A TBTF regime modifies the loss allocation in insolvency. Except when an insolvent firm’s shareholders are paid something, TBTF applies only to the firm’s counterparties, not to the firm per se.

For reasons discussed later, TBTF has become highly controversial in recent years and numerous attempts have been made to end it, particularly in the United States. Proposals to end TBTF by modifying the resolution regime need to be differentiated from proposals to prevent large financial firms from failing through requiring higher capital and liquidity requirements, strengthening prompt correction action provisions, and imposing limitations on size by legislation, such as Dodd-Frank Act, or by regulation, such as by the Basel Committee, the Federal Reserve, or the FDIC. These are ex-ante measures intended to reduce the probability of failure (PF). In contrast, modifying the resolution regime assumes failure and is ex-post. It

intended to reduce and/or reallocate the loss given failure (LGF). This paper focuses on resolving insolvent large firms with special TBTF resolution regimes.

The direct dollar cost of TBTF resolution is the difference between the amount paid to a particular counterparty under special TBTF resolution regimes and any lower prorata recovery amount computed under the resolution regime usually applied. This “protection” is paid by third parties, generally by other large firms or taxpayers and represents a redistribution, not a change in the loss. TBTF has been applied particularly in banking, because losses suffered by some large counterparties of an insolvent large bank, including other banks, may have disproportionately large adverse externalities on the economy served by the bank¹. For the largest banks this may include much of the country and even beyond to other countries. William Dudley, President of the Federal Reserve Bank of New York, has recently stated that

the root cause of “too big to fail” is the fact that in our financial system as it exists today, the failure of large complex financial firms generate large, undesirable externalities. These include disruption of the stability of the financial system and its ability to provide credit and other essential financial services to households and businesses. When this happens, not only is the financial sector disrupted, but its troubles cascade over into the real economy. (Dudley, 2012, p.1)

But because the final all-in cost of providing such protection may be higher than the initial direct cost in terms of, among other things, fairness to other stakeholders at that or competing banks, who do not receive such protection, and reduction in the cost of failure that may lead to serious moral hazard excessive risk-taking concerns, TBTF has become a major public policy issue. However, numerous attempts to end TBTF have been unsuccessful, in part because definitions of

¹ Large adverse externalities are at times also associated with the failure of troubled large nonfinancial firms. For example, in 2008, the U.S. government also intervened to “rescue” General Motors and Chrysler by both making capital injections and effectively rearranging the legal priorities of their creditors in a prearranged resolution.

the TBTF differ. TBTF means different things to different users of the term with different winners and losers in the resolution.

In banking, TBTF frequently also goes by other names, such as: “too big to unwind”, “too big to liquidate”, “too important to fail”, “too complex to fail”, “too interconnected to fail”, and, most recently, “too big to prosecute or jail”. Each of these terms implies a somewhat different reason for the rescue operation by the government and each may have differing implications for which of the insolvent bank’s stakeholders are perceived to be sufficiently important to be fully or partially protected against loss and which may not. As the insolvent bank’s counterparties to be protected in a generic TBTF resolution regime may differ among different users of the term, the implications of TBTF also change and there is uncertainty about who precisely is being bailed out in any particular TBTF resolution.

Differences in TBTF Definitions

TBTF resolution clearly exists when an insolvent bank’s stockholders are both protected against total loss, which they would tend to suffer if the usual bankruptcy resolution regimes were applied, and remain in control of the institution. The protection (share value in excess of zero) is funded by a third party. As the bank’s capital is non-negative, all depositors and other creditors are fully protected against loss and remain whole. Such a resolution is referred to as “open bank assistance”. But the term TBTF is used more frequently to describe resolution regimes in which shareholders are not protected, so that the bank’s capital turns negative, the bank legally fails, its charter is revoked, and it is typically sold (including being transferred to a “bridge” bank) or liquidated. But some or all ex-ante uninsured depositors and other unsecured

creditors are partially or fully protected by regulators, within the boundaries of the relevant legislation. In the U.S., this limits the FDIC to providing protection to these counterparties of covered financial firms under Dodd-Frank against losses that the depositors and creditors would experience if the usual resolution regime were applied only when doing so minimizes the FDIC's own resolution losses and, for insured banks under FDICIA, also when doing so would avoid creating serious adverse effects on financial stability. Which counterparties are so protected ("bailed out") and by how much may be determined, among other ways, by the nature and extent of the collateral damage estimated by the regulators to occur if the counterparties were not protected. Some analysts make a further distinction between a TBTF and no-TBTF resolution on the basis of not only which counterparties are bailed out and which are not, but also on whether the funds for the bailout are provided by private (other institutions in the industry) or public (taxpayer) third party sources². Even though some counterparties are fully or partially protected, a private bailout might not be considered by some as a TBTF resolution and the public bailout might be. There may be general agreement that some insolvent institutions are TBT-apply the usual insolvency resolution, but less agreement as to which regime to apply.

Differences in the definition of TBTF often focus on two characteristics of the resolution process applied – 1) whether any and which groups of counterparties of the insolvent institution are partially or fully protected and 2) whether part or all of the losses from providing protection are funded by private sources or the government (taxpayers)³. Existence of alternative definitions of TBTF (or the converse – no-TBTF) in the U.S. is clearly evident in the recent statements of

² Losses from protecting some unsecured counterparties may also be paid by other unprotected unsecured counterparties of the same bank. But this solution is generally prohibited in the U.S. The relevant legislation prohibits any counterparty from receiving less in a TBTF resolution than it would in a liquidation.

³ It is unclear whether the cost of protection by the FDIC should be classified as private (premiums are paid by the insured banks) or public (the FDIC is a government agency). Does it matter whether FDIC funds are obtained from regular premiums or special assessments? Is the fact that FDIC employee email address domains are "gov" indicate government?

two major participants in the TBTF debate. Congressman Barney Frank, the co-author of the recently enacted Dodd Frank Wall Street Reform and Consumer Protection Act of 2010 (DFA), has stated that a resolution in which

shareholders are wiped out, the CEO is fired, and the institution no longer exists, and the *regulators may, at that point, the FDIC, pay off some debts if it is necessary to prevent a downward spiral, but any penny paid out{is} recouped from the large financial institutions (italics added for emphasis), (Frank, 2011, p. 4)*⁴

qualifies as a no-TBTF resolution. Does Frank assume that, despite the potential protection of some counterparties, it is not a TBTF resolution because the protection is required to prevent a threat to financial stability? That is, the protection is in the “public interest”.

A TBTF resolution appears to exist only when protection is provided to counterparties whose losses would not cause significant financial instability or is provided for other reasons or to be cautious. No-TBTF resolution may at times be consistent with protection to some counterparties. This interpretation appears consistent with a recent FDIC rule that permits it to protect unsecured deposits and other credits of less than 360 days, but not those over this number if it would reduce its resolution losses (FDIC, 2011a). Others would argue that, even though no government funds may be involved, because third party protection would be provided to some counterparties, such a resolution violates the conditions for a no-TBTF or regular resolution – one that is consistent with the usual bankruptcy process – and represents a TBTF or special resolution.

⁴ Frank repeated and reinforced this definition in oral remarks made at a program sponsored by the CME in Chicago on October 12, 2012. His statement suggests that the protection may be provided to prevent financial instability even though the DFA authorizes additional payments under OLA only to “minimize losses to the Corporation as receiver”.

Similarly, Peter Wallison, a frequent commentator on banking and financial issues, has recently argued that

... the source of funds for a bailout is not the real issue. *The possibility of a creditor* bailout creates moral hazard, no matter where the bailout funds originate, and it is moral hazard that provides the largest banks or other large financial firms with competitive advantages (italics added for emphasis), (Wallison, 2012, p. 1).

That is, a TBTF resolution exists whenever third party payments by any group are a prescribed possibility. Thus, the same resolution may appear to be TBTF to some analysts but not to others, depending not on who is protected, but on how it is financed.

In TBTF insolvency resolutions, counterparty protection is likely to entail losses to the party/agency that provides the protection. The more an insolvent bank's counterparty accounts are protected, the higher is the cost likely to be. As noted earlier, this cost may be paid either by designated surviving institutions and their stakeholders or by taxpayers. Because the cost of protection has often been borne by the taxpayers, TBTF became a public policy issue even before the term was introduced following the failure of the Continental Illinois National Bank in 1984 and has remained one that will not only not go away but has become progressively more pressing. (Historical overviews of TBTF appear in Barth et al., 2012; Kaufman, 2004b; and Stern and Feldman, 2004). TBTF is not limited to banks nor to the U.S. (See articles collected in Gup, 2004). In the United States, both the Federal Deposit Insurance Corporation Improvement Act (FDICIA) in 1991 and the Dodd-Frank Act (DFA) in 2010 promised to limit, if not outright eliminate, TBTF in the financial industry⁵. But neither Act defined what precisely is meant by

⁵ This intent is made clear in the full title of the DFA – “An Act to promote the financial stability of the United States by improving accountability and transparency in the financial system, to end ‘too big to fail’, to protect the American taxpayer by ending bailouts, to protect consumers from abusive financial services practices, and for other purposes.”

TBTF. Thus, the same resolution regime may have different TBTF interpretations by different analysts, who put different weights on the “public interest” component of this measure. This is the source of considerable confusion about whether the DFA and the FDICIA effectively outlawed or institutionalized TBTF.

This paper contributes to the extant literature by deriving alternative definitions of TBTF according to 1) the bank’s counterparties that are to be protected against loss to minimize or avoid collateral damage to specified sectors of the economy, 2) the relationship of the breadth or strength of the counterparty protection and the magnitude of expected losses to third parties, 3) whether this cost is borne by third party government or private sector entities, and 4) the welfare costs of providing protection, such as moral hazard risk taking, unfair competition, less efficient allocation of resources and political interference, and by exploring the implications of these definitions.⁶ It does not consider the economic or political basis by which TBTF firms, in which some counterparty accounts may be protected in resolution are chosen, such as on the basis of size, complexity, interconnectedness, etc.; the costs and benefits of TBTF as a policy, or the legal authority specifying the conditions under which TBTF may be invoked.

Losses in Bank Failures

A bank is economically insolvent when the market value of its assets falls short of the value of its deposits and other debt, including derivatives liabilities. Its capital (net worth) turns negative and it cannot pay off all of its creditors in full and on time. In standard resolutions, the

⁶ This paper excludes consideration of labor stakeholders, particularly bank management, in bank failures. It also excludes a discussion of federal government assistance provided under the TARP program in 2008-2011. For a description and critical review of TARP, see Bair, 2012.

bank's charter is terminated, it is placed in receivership, and shareholders assume the first loss. Thereafter, depositors and other creditors accrue potential losses of two types according to legal priorities: 1) credit losses, defined as the prorata shortfall of the realized recovery value (proceeds) of the assets from the par value of the deposits and other counterparty debt claims and 2) liquidity losses, defined as delays in the receipt of the proceeds of the realized recovery amounts because of delays in selling the bank's assets to minimize or avoid "fire-sales" or the existence of legal stays that prohibit the withdrawal of funds for a specified period of time, so that the present value of the recovery proceeds is less than the recovery proceeds in the future when assets sold. The insolvent bank's deposit and other creditor accounts are effectively lengthened in maturity and frozen. The recent temporary closing of banks in Cyprus for withdrawals by large depositors represents a liquidity loss. That is, credit losses arise from receiving recovery values rather than higher par values and liquidity losses arise from receiving the realized recovery values only on a delayed basis after the resolution date⁷. Both of these losses are viewed as especially damaging for banks. Many of their products depend on the immediate or near-immediate availability of the par values of the claims, such as in the payments system. Checks and electronic wire transfers of deposits need to be paid in full and on time to be widely accepted in payment. In the U.S., credit losses currently tend to receive greater public policy attention than liquidity losses.⁸

⁷ When the insolvent bank is sufficiently large, a secondary market may develop for the receivership certificates issued by the receiver to affected depositors and other creditors, reducing liquidity losses.

⁸ In the pre-FDIC era, banks often suspended convertibility temporarily when they encountered actual or potential financial difficulties, causing large liquidity losses to depositors and note holders. After the introduction of the FDIC and federal deposit insurance in the U.S. in 1933 insured deposits at failed banks were paid off as quickly as possible, given the state of technology at the time. Deposit insurance insures against only credit losses, not liquidity losses. Payment delays, at that time, ranged from 2 to 22 days and averaged 7 days. By 1958, the delays were reduced to 8 to 12 day and by 1970, they were 5 to 6 days. Currently, delays are often only one business day, so that liquidity losses on insured deposits are effectively eliminated. On uninsured deposits and other debt liabilities, payment delays depend on the failure resolution procedure used and can vary from the next business day to years in a few instances. In most other countries, until the recent financial crisis of 2007-09, considerably longer delays for

Bank Failure Resolution

The process for resolving insolvent firms is specified by law and may vary across industries and time. Almost from the beginning, at least in the United States, banks have been perceived to be sufficiently different from most other firms, both in the importance of the products they produce and in their fragility, to warrant a different insolvency resolution process than applies to most other firms under the Federal Bankruptcy Code (FBC). Under the Federal Deposit Insurance Act (FDIA), bank regulators are provided with powers to, among other things, place a bank in receivership, terminate its charter, sell its assets, settle claims, and, under specified limited circumstances, protect some or all bank depositor/creditor counterparties against both credit and liquidity losses (Bliss and Kaufman, 2007). Banks are important because, among other things, they provide deposits, which serve as the major part of the country's money supply; are large providers of credit to households, business firms, and government; and operate much of the country's payments system. Banks are fragile because a large percentage of their deposits and other sources of funding are short-term and can be quickly and easily withdrawn. This heavy dependency on short-term funding of longer term assets can potentially trigger hasty sales of their assets at fire-sale prices with losses that may exceed their capital and induce failure. Impairment of these activities and functions will adversely impact economic activity in the troubled bank's market area and the larger the bank, the more is the collateral damage likely to be. Moreover, because banks tend to be highly interconnected through interbank deposits, loans, and derivatives, problems at one large bank may spread quickly to others.

explicitly insured accounts were the common practice. Such delayed payment was a major cause for the retail run on Northern Rock Bank in the U.K. in 2008 that helped to ignite the crisis. (Kaufman and Seelig, 2002; Kaufman, 2004a; Bruni and Llewellyn, 2009.).

The magnitude of losses to depositor/creditor counterparties in bank failures is affected by both the banks and the bank regulators. Banks' realized losses at time of failure are likely to be larger if they had operated at enhanced levels of risk, had provided excessive compensation contracts, or had participated in fraudulent activities. These activities may also make it more difficult for a bank's stakeholders and regulators to monitor it accurately and thus legally close them before the bank's capital becomes deeply negative. Regulators may influence the realized loss amount by altering the speed of legal closure, within the parameters of the law, after the bank's capital is depleted. The sooner closure occurs after a bank's capital turns negative, the smaller on average are the losses. Indeed, in theory, if a bank can be legally closed just as its capital declines to zero, losses would be limited to its shareholders. Assets would be sufficient to pay of all depositors and other creditors at par. The regulators may also lessen liquidity losses by providing depositors and creditors with advance dividends payable at or near the time of closure on the estimated present value of future recovery amounts. Special resolution regimes may generally permit regulators to achieve these objectives better than corporate bankruptcy codes.

Selecting Counterparties to Protect

In practice, it is unlikely that regulators can avoid, as opposed to minimize, all insolvency losses. Thus, they may believe that all or some depositor/creditor groups need to be protected at some banks against one or both types of losses to mitigate the worst of the feared adverse spillover. Decisions to protect some but not all deposits and other debt accounts at insured banks are likely to depend, at least in part, on where and how much economic collateral damage, including contagion effects at other similarly situated banks, regulators estimate to result from

allowing particular deposits, other creditor claims or derivative contracts at the insolvent bank(s) to decline in value. These contingent decisions help define the TBTF regime. That is, regulators need first to identify the sectors they project to be adversely affected by a particular bank(s) failure and quantify the projected collateral damage. Then, they need to identify the corresponding bank counterparty account groups, losses to whom are likely to cause the damage. Finally, the regulators must decide whether or not to protect identified counterparty groups in order to protect the associated sector(s) of the economy and if so, by how much.

Minimizing different estimates and sources of the collateral damage is likely to require protection of different bank counterparties and thus constitutes different TBTF regimes. The extent to which different regulators at a given moment, or the same regulators through time, would protect different counterparty accounts at different banks, because of their estimated adverse impact on the macroeconomy, reflects differences in their estimates of the potential damage and results in different definitions of TBTF. Moreover, different explicit or implicit estimates of future losses from providing protection may result in the same account protection structure implying different strength TBTF regimes to different parties.⁹

Moreover, counterparty accounts protected at TBTF banks need to be identified and advertised as such ex-ante to achieve the full intended result of not destabilizing the economy through runs¹⁰. But this involves a tradeoff. By reducing credit loss risk, such protection permits perceived TBTF institutions, particularly troubled or insolvent banks, to raise funds of the type protected at a lower interest rate. As a result, TBTF banks both benefit from a competitive

⁹ Differences in regulators' estimates of the adverse economic consequences of protecting or not protecting counterparties at large banks and nonbank financial firms during the 2007-09 financial crisis are clearly described in BIS 2012.

¹⁰ This condition is similar to that for deposit insurance. The less credible is deposit insurance, the less effective is it in minimizing the threat of bank runs. If the to be protected counterparties are not identified in advance, losses and the threat of runs may still be reduced if some counterparties never-the-less perceive themselves as protected with some probability greater than zero but less than one, for example, the two large housing GSEs before their failure in 2008.

advantage over their healthier no-TBTF competitors, whose debt is not protected ex-ante, and are incentivized to engage in additional risk-taking¹¹. It is the adverse implications of such moral hazard and anticompetitive behavior, as well as of less efficient allocation of resources and threat of greater political intervention, that underlies much of the opposition to TBTF and attempts to curb, if not eliminate, it (Hovakimian, Kane, and Laeven, 2012; Bair, 2012; Brewer and Jagtiani, 2013; and Wallison, 2012).

Thus, regulators need to conduct benefit-cost analyses to identify counterparty groups for which the estimated benefits from providing protection in terms of reducing collateral damage or minimizing the FDIC's resolution costs outweigh the estimated costs from moral hazard risk taking, unfair competition, less efficient allocation of resources, and more intrusive political intervention. The values assigned to these factors are likely to be crude estimates and highly subjective and to vary greatly across regulators and over time¹². As a result, the counterparty groups to be protected are also likely to change over time as is the definition of TBTF resolutions.

Extending Special Resolution Regime

Special resolution regimes have always existed in the U.S. for commercial banks and were strengthened for “systemic” banks in 1991 in FDICIA. More recently, the fragility of some large nonbank financial companies, such as insurance companies, finance companies, money market funds, hedge funds, etc., many of which have grown rapidly in size, has been perceived

¹¹ Analysis by the BIS indicates that bonds issued by large U.S. banks would have traded at some 60 basis points higher in 2011, if the rating agencies had rated them on the basis of only the issuers' own credit risk without predicted government external support. (BIS, 2012, p.76). Likewise, both Moody's and S&P rate large banks higher than they would without perceived government support (FSOC, 2012, p.143).

¹² An attempt to quantify some of the costs of collateral damage appears in GAO 2013.

to have become more similar to that of large commercial banks, particularly with respect to funding their longer-term assets with much shorter-term funds. The adverse economic impact of the failure of such “shadow” banks also has increasingly come to be viewed as similar to that generated by the failure of large commercial banks¹³. That is, some large nonbank financial companies are increasingly perceived to be as “special” as large commercial banks in terms of the characteristics discussed earlier. Indeed, until the enactment of DFA, the damage from their failure may have even been greater since the failures were generally resolved under the Federal Bankruptcy Code, which was viewed by many as economically less efficient, more costly, and more disorderly than the resolution process for large banks under the FDIA (Board of Governors, 2011)¹⁴. The deadweight ex-post cost of applying the FBC was at times perceived to be so great by regulators that they were reluctant to force troubled large nonbank financial institutions into bankruptcy (Bliss and Kaufman, 2011). The perceived high out-of-pocket cost of resolving Lehman Brothers through the FBC in September 2008 relative to a lower counterfactual cost had there been a special resolution regime in place is frequently cited by regulators as an example of this likelihood (FDIC, 2011b).

Thus, to reduce such collateral costs, the DFA permits the resolution of troubled nonbank financial firms that, in the absence of capital regulation, are in or perceived to be in danger of default and whose failure would threaten the financial and economic stability of the United States to be effectively transferred by the Secretary of the Treasury (SOT) from the FBC resolution regime to a new Title II Orderly Liquidation Authority (OLA). The OLA resolution process resembles the Systemic Risk Exception (SRE) resolution process for insured banks under

¹³ The full protection of basically all creditors of insolvent AIG, Fannie Mae, and Freddie Mac in September, 2008 reflected this belief.

¹⁴ A good summary of the Congressional debate during the hearing for the DFA on the relative superiority of the FBC and the FDIA is provided by Hardee, 2011.

FDIA¹⁵. Both are administrative processes that grant regulators authority to initiate resolution of a troubled large institution. Both also grant the FDIC, as receiver, authority to protect some counterparties against credit and/or liquidity losses, even if they have equal legal priority – are ‘similarly situated’ – with nonprotected counterparties, i.e., they are given preferential treatment, if doing so will maximize the recovery value of the insolvent financial company or minimize losses to the FDIC from an orderly liquidation. FDICIA, but not DFA, also grants such power to the FDIC when resolving systemic commercial banks if necessary to avoid or mitigate “serious adverse effects on economic conditions or financial stability”. But because the associated potential costs may be high, adoption of these processes is made difficult. It requires a recommendation by two-thirds of both the Board of Directors of the FDIC and of the Board of Governors of the Federal Reserve System to the Secretary of the Treasury. Only then, with the agreement of the Secretary after consultation with the President, can a firm be transferred from the FBC to the OLA regime¹⁶. The FDIC is more constrained in its resolution options under DFA than FDICIA.

Both FDICIA and DFA provide for availability of effective temporary debtor in possession (DIP) financing for SRE and OLA firms. Under the DFA, claimants cannot receive less than they would in liquidation under chapter 7 of the FBC. But the two Acts differ in at least one major aspect. By removing large insured depository institutions from the requirement of the FDIA that they be resolved by least cost resolution (LCR), invoking the SRE is likely to increase the cost of resolution to the FDIC, although it may reduce the collateral damage to the

¹⁵ This provision excludes GSEs, including Fannie Mae and Freddie Mac.

¹⁶ Good descriptions of the process are in Scott and Taylor, 2012 and Hardee, 2011. A good description of the factors that the regulators must take into account in making a recommendation to the SOT is in GAO, 2012. The SRE was invoked five times under FDICIA between 1991 and 2010. These details are summarized in Appendix A. In times of general distress, such as during the height of the financial crisis in 2008-09, the barriers to invoking SRE and TBTF appear to be lowered.

macroeconomy. In contrast, by moving some large nonbank financial institutions from resolution under the FBC to under OLA resolution, out-of-pocket as well as macroeconomic resolution costs are expected to decrease. Resolution of the remaining financial companies remains under the FBC.

Strength of TBTF Resolution Regimes

As discussed earlier, TBTF means that aggregate insolvency losses in resolution may not be allocated according to absolute legal liquidation priority. Some counterparties of similar standing may be partially or fully protected against loss. That is, some counterparties may receive more than their ex-ante legally entitled share of the insolvent entity's recovery value. The more counterparties are protected, the stronger may TBTF (the weaker no-TBTF) be considered. That is, TBTF may not need be one or zero, black or white. There may be shades of gray varying by how much protection is provided by third parties. The strength of a resolution may then be scaled from 0 (100% no-TBTF or 0% TBTF) – no TBT fail any and every counterparty – to 1 (0% no-TBTF or 100% TBTF) – TBT fail every and all counterparties. The breadth of counterparty protection provided reflects the fear of economic disruptions from not protecting these counterparties.

It follows that, for commercial banks at least, the regulators' description of the estimated damage to the economy from losses to an insolvent institution's counterparties partially determines which counterparties should be partially or fully protected. If, for example, the estimated damage is limited to households and small businesses, then regulators may not need to protect accounts beyond the ex-ante insured deposit accounts. If regulators were concerned

primarily about runs from banks and nonbank (shadow) financial institutions, then only short-term deposits and derivative contracts at banks (and possibly short-term debt at nonbank financial firms) would need to be protected. If, on the other hand, protection of loan production were of primary concern, then some protection of all deposits and other debt and derivative obligations at banks (and all credit liabilities at financial firms) may be required, and in the extreme stockholders may also be partially protected (shares not declared totally worthless)¹⁷.

For illustrative purposes, Table 1 ranks the relative potential strengths of TBTF regimes for one or a number of covered institutions under alternative assumptions about counterparties that are partially or fully protected in insolvency resolution against credit and liquidity losses.¹⁸ It presents a highly simplified and stylized description of the liability side of a commercial bank's balance sheet. For the sake of simplicity, no ex-ante explicit deposit insurance is assumed. The balance sheet includes "small" deposits that might be insured if there were insurance, other short-term deposits, uninsured long-term deposits, short-term nondeposit unsecured debt liabilities, long-term nondeposit unsecured debt liabilities, and equity capital (net worth). The same structure also applies to covered nonbank financial companies except that they do not offer deposit accounts. The bank qualifies to be resolved under the FDIA invoking the SRE and the nonbank financial company, including bank holding companies, under the DFA invoking the OLA. The table does not specify who finances the protection. As noted earlier, this is an important distinction in some definitions of TBTF. Nor does the table consider legal liquidation priority. Both FDIA and DFA permit differential treatment of similar situated counterparties under limited conditions.

¹⁷ Protection of loan production may have been the primary concern of TARP as capital was injected, shareholders not wiped out, most other claimants fully protected and all senior management rarely dismissed.

¹⁸ A similar analysis was developed earlier by Gregory Udell (Udell, 2010). The analysis in this paper was developed independently by the author.

In Table 1, CB indicates an insured bank; FC indicates a financial company; C indicates credit loss; and L indicates liquidity loss. Counterparty accounts partially or fully protected ex-ante against loss by the regulators are indicated by an X. As more accounts are partially or fully protected against more types of losses (the X's move down and to the right), the stronger is the TBTF regime along the TBTF 0 to 100% range, the greater the cost of protection is likely to be, and the weaker market discipline is likely to be. For example, in the first row, no counterparties are explicitly protected against either credit or liquidity losses. Resolution of an insolvency would be no-TBTF for either a bank or a nonbank financial company. In all other rows, at least one counterparty account is protected and TBTF becomes stronger – no-TBTF becomes weaker. However, protection against either type of loss need not be total. Partial protection may be provided by limiting credit losses to a predetermined maximum that would not necessarily trigger widespread runs and be unduly harmful, e.g., 1% of par value and paying the lesser of the actual prorata or maximum loss.¹⁹ This approach would maintain some market discipline without destabilizing the economy (Bliss and Kaufman, 2011).

In row 1, all bank deposits are explicitly ex-ante unprotected; TBTF = 0. In row 2, small bank deposits are explicitly fully or partially protected against credit loss (paid at par or higher than their recovery value), but would suffer delayed payment (liquidity loss). In row 3, these deposits are protected against loss from delayed payment of recovery value but not against loss from the recovery values being lower than par value. In row 4, these deposits are explicitly protected ex-ante against both types of losses. This arrangement provides stronger but weak

¹⁹Partial protection may include risk sharing provisions borrowed from deposit insurance, such as deductibles from par value or coinsurance, which existed in the U.K. retail deposit insurance scheme before the failure of Northern Rock in 2008. The system also did not guarantee immediate payment of the insured amounts. Both factors contributed in the retail run on the bank and were changed shortly thereafter (Bruni and Llewellyn, 2009).

TBTF (weaker but still strong no-TBTF) protection than either partial ex-ante protection. Note that protection of counterparties at resolution has similar effects to deposit insurance²⁰.

For the sake of comparison, these rows are assigned pseudo or shadow TBTF strength ratings (column 8). Because, on-the-one-hand, some protection, weak as it may be, is provided, as noted earlier, some might consider the conditions specified in rows 2, 3, and 4 as describing a TBTF resolution regime, although a relative weak one (strong no-TBTF). But, on-the-other-hand, because the protection of some or all of the losses on small deposits but not on other larger deposits is perceived to be necessary to protect the payments system against runs into currency, this resolution may be viewed by others as a no-TBTF resolution regime. It follows that what constitutes a TBTF resolution regime at least partially lies in the eyes of the beholder. It may also be useful to scale TBTF resolution regimes from no-TBTF, if no counterparty accounts (possibly beyond basic minimum ex-ante deposit insurance) are protected, to weak-form TBTF, if few counterparties are to be protected, to strong TBTF if most counterparties are protected, to full TBTF, if all counterparties (but possibly equity) are protected.

Rows 5-7 extend the accounts protected to large short-term deposits to provide TBTF protection. As nonbank financial companies do not offer deposit accounts, select short-term unsecured creditor claims (e.g., repurchase agreements) may be considered comparable. Protection may be extended further and TBTF resolution progressively strengthened (no-TBTF progressively weakened) by protecting progressively less liquid and lower priority counterparty claims in resolving insolvent institutions. In the U.S., bank depositor preference provisions give any deposit claim preference over unsecured other creditor claims. This is shown by columns

²⁰ Currently, in the U.S, up to \$250,000 per legally differentiated account per bank is fully insured ex-ante by the FDIC with effectively immediate upon closure or next business day payment of par value. Insurance increases were enacted at the height of the financial crisis in mid-2008. From 2008 through yearend 2012, all noninterest bearing transactions accounts were also fully insured ex-ante by the FDIC. For a brief period, balances at money market mutual funds were insured by the Treasury Department.

progressively to the right and by progressively lower rows. TBTF becomes stronger and no-TBTF weaker. When all creditors are protected, TBTF becomes 100%. If stockholders are also protected (bottom row and last column), TBTF ultimately turns into open bank assistance.²¹ Note that if shareholders are protected to any extent, all depositors and other creditors are automatically protected.

The extent of damage that the authorities estimated ex-ante might occur may be estimated ex-post by noting which counterparty claims were in fact protected. This estimate may be obtained through “reverse engineering” by identifying which counterparty accounts were protected. Unfortunately, in the limited instances of actual TBTF observed, the government nearly always protected all nonequity claims of the bank and, at times, even of its parent holding company. This aggressive strategy surely reflects a vast overestimate of the potential damage in almost all cases. In the midst of a crisis, regulators often tend to give greater weight to short-term over long-term losses²².

Rulemaking

In an attempt to minimize the cost of TBTF, the FDIC has issued rulings as to which accounts under FDIA and DFA might be protected at SRE and OLA regime institutions. The ruling limits potential protection only to select deposits and other senior unsecured creditor accounts with maturities of less than 360 days, including Fed funds and derivative contracts

²¹ If stockholders are not protected, under both FDIA and DFA, the institution, if not sold immediately, may be initially managed in receivership or conservatorship by the FDIC, most likely in the form of a bridge institution.

²² In a recent paper, Charles Kahn has observed that

When crises arise, systematically important institutions will be protected. “Never again,” is the shout after each such crisis. In the political heat of the aftermath, such a cry is understandable. But new crises bring the same result. (Kahn, p.13)

(FDIC, 2011a). All other unsecured claims are subject to prorata “haircuts” in order of their legal liquidation priority similar to FBC.²³ While not clearly specified, the underlying rationale for this distinction appears to focus on preventing runs at large banks and other financial institutions. Thus, the FDIC does not appear to consider protecting short-term counterparties, who can run easily, as necessarily representing a TBTF resolution. The protection is in the “public interest”! But, because long-term creditors may be expected to charge higher interest rates and affected banks and other financial firms thus reduce the amount of funds attained in this manner that would be available to absorb losses, the rule may constrain but is unlikely to eliminate TBTF.

In part, as noted earlier, the apparent confusion between the goal of eliminating TBTF and concurrently protecting select counterparties in resolutions also appears to arise from different emphasis put on the source for financing any losses that may arise from protecting accounts. Both FDICIA for banks and DFA for nonbank financial companies require that any such losses be paid for by ex-post assessments on surviving similar-size or type institutions, but not by taxpayer funds. Losses are shifted from the insolvent institution’s protected counterparty to other designated third party institutions.

As noted earlier, to some, primarily government officials, eliminating TBTF appears to imply eliminating protection of only those counterparty claims that promise not to do material damage to the financial system or the economy as long as any associated losses are borne only by the private sector and not by taxpayers. Others counterparties may continue to be protected. Thus, protection per se need not indicate TBTF. It depends also on whether public or private funds are used to finance the protection. Critics, however, argue that such purely private financing is unlikely to be available in extreme instances, when damage control is required the

²³ Similar distinctions are under consideration in proposed regulations for the resolution of EU banks (Steinhauser, 2012).

most. It is exactly when counterparties of a large number of entities require protection simultaneously that the remaining solvent institutions are also unlikely to be able to absorb the resulting large losses without drawing on at least some public funds.

The range of counterparty accounts protected in resolution and the ability of the remaining solvent private institutions to pay into the rescue fund are inversely related. The broader the accounts protected, the less likely is it that all the associated losses can be paid by the remaining healthy institutions without public assistance. Thus, the strength of TBTF at any time may be more meaningfully evaluated by both the number and magnitude of the counterparty accounts protected and the likelihood that protecting these accounts at all SRE and OLA designated institutions can be financed totally by third party private funds. Moreover, the stronger TBTF, the more will protected banks and nonbank financial companies be able to raise funds at lower interest rates, giving them an unfair competitive advantage over healthier institutions, as well as strengthening their incentive to engage in additional risk-taking. In this way, special resolution regimes resemble deposit insurance schemes. But while insurance only shifts the risks to third parties, the resolution schemes can minimize or even avoid losses by resolving troubled firms before their capital turns strongly negative.

Conclusion

This paper demonstrates that the concept of TBTF for resolving insolvent firms is more complex than is frequently perceived. In banking, its definition varies widely among users and matters importantly in estimating both its benefits and its costs. Definitions differ according to which counterparties of insolvent covered firms may need to be protected, which third parties

fund the protection, and for what reason. This creates uncertainty about what is specifically meant by a given TBTF resolution.

TBTF resolutions refer to special insolvency resolution regimes for large financial firms whose insolvency are perceived to have material adverse spillover effects on other firms and sectors if it were resolved by the usual bankruptcy regimes that are likely to impose prorata losses on in-the-money counterparties. These losses are perceived to do serious collateral damage. TBTF type regimes permit regulators to bypass the usual resolution regimes and to protect some counterparties against loss if they believe that this would reduce the resolution cost to them and lessen the threat of financial instability. But this gain comes at a cost. Among other costs, the protection reduces market discipline and the cost of funds to the impacted firms, encourages moral hazard excessive risk-taking, and provides an unfair competitive advantage over their healthier not impacted competitors, making for a less efficient allocation of resources. In addition, TBTF often is accompanied by political intervention.

Policy-makers who view losses to specific counterparties as being particularly damaging to critical sectors of the economy, e.g., the payments system, are more likely to protect those counterparties, e.g., demand deposit holders. Through time, the benefits of TBTF resolutions and protecting select counterparties generally are seen first and are more concentrated than the later and more disperse costs. In time, however, the costs often become seen as exceeding the benefits and the continuation of TBTF has been widely challenged. But, it has survived to date.

In part, the large scale survival of TBTF reflects the complexity of the issue, the lack of a common definition, and the legal leeway in permitting the use of counterparty protection in resolving select large insured banks and select large nonbank financial firms. There is wide disagreement about both the definition of TBTF and the dollar estimates of the associated

benefits and costs. At the one extreme, some argue that, at least with respect to insolvency loss allocation, no special regime is needed. Bank counterparties may be treated like creditors of any other firm. None should receive protection and the resolution is effectively a no-TBTF resolution. At the other extreme, regulators may be highly fearful of widespread financial instability and protect all counterparties to minimize the collateral damage. The resolution regime is a 100 percent TBTF.

But all resolutions do not frequently fall neatly into either of these two extreme definition baskets. They need not be black or white, but can be varying shades of gray. Regulators can protect some but not all counterparties, if they believe that losses to these but not all counterparties adversely impact the firm's market and beyond. Depending on the proportion of counterparties protected and the amount of protection provided, the resolution regime may be viewed as a "hybrid" TBTF ranging on a continuum – from 100% no-TBTF or 0% TBTF, to weak TBTF with few protected counterparties, to strong TBTF, with many but not all counterparties protected to 100% TBTF or 0% no-TBTF.

Different TBTF definitions are unlikely to either incur the same costs or provide the same benefits. They will not have the same implications for the efficiency of the economy or of public policy. Many analysts do not distinguish carefully among the potential different hybrid combinations in the broad concept of TBTF. They are also unlikely to give the same weight to protecting the same specific counterparties, so that they are likely to classify the protection strength of the same resolution differently. Considerable uncertainty is likely. Moreover, differences in the legal authorization in the U.S. to protect counterparties make it likely that TBTF resolutions, however defined, will be more prevalent in resolving large insured banks than large nonbank financial firms.

To enhance certainty, the appropriate regulators should establish, justify, and publicize widely the definition of the TBTF resolution regime that they will apply to large insolvent financial firms under either SRE or OLA. Clarity is important for credibility and effectiveness.

Table 1

Strength of TBTF: Protection Against Credit and Liquidity Losses*															
ROW	1 “Small” Deposits		2 Select S-T “Large” Dep		3 All S-T “Other” Dep		4 All L-T Dep		5 All S-T Creditors		6 All L-T Creditors		7 Stock Holders	8 Strength Rating	
	C	L	C	L	C	L	C	L	C	L	C	L		CB	FC
1														0	0
2	X													1	
3		X												1	
4	X	X												2	
5	X	X	X											3	1**
6	X	X		X										3	1**
7	X	X	X	X										4	2**
8	X	X	X	X	X									5	
9	X	X	X	X		X								5	
10	X	X	X	X	X	X								6	
11	X	X	X	X	X	X	X							7	
12	X	X	X	X	X	X		X						7	
13	X	X	X	X	X	X	X	X						8	
14	X	X	X	X	X	X	X	X	X					9	3
15	X	X	X	X	X	X	X	X		X				9	3
16	X	X	X	X	X	X	X	X	X	X				10	4
17	X	X	X	X	X	X	X	X	X	X	X			11	5
18	X	X	X	X	X	X	X	X	X	X		X		11	5
19	X	X	X	X	X	X	X	X	X	X	X	X		12	6
20	X	X	X	X	X	X	X	X	X	X	X	X	X	13	7

CB – Insured Banks; FC- Nonbank Financial Company

C – Credit Loss; L- Liquidity Loss

* Protection may be total (100%) or partial (recovery<protection<100%)

**Select short-term creditors

Appendix A

USE OF SYSTEMIC RISK EXCEPTION, 1991-2010

BANK	DATE RECOMMENDATION	DATE DETERMINATION	REASON / OUTCOME
Wachovia Bank	?	9/29/2008	Pending sale to Citibank. Protect all depositors and creditors at banks. Citi and FDIC share losses. HC survived. Voided when sale cancelled. Sold to Wells Fargo without FDIC assistance.
All banks	?	10/14/2008	Protect new senior unsecured debt and non-interest transaction deposits at healthy insured banks and BHCs. Protect financial stability under FDIC—TLGP.

Source: GAO, FDIC: Regulators' Use of Systemic Risk Exemption (GAO-10- 100), April 2010

USE OF SYSTEMIC RISK EXCEPTION, 1991-2010 (cont.)

BANK	DATE RECOMMENDATION DETERMINATION		REASON / OUTCOME
Citigroup	11/23/2008	1/15/2009	Open HC assistance. Protect select assets with loss sharing. Recommendation publicly announced 11/23/08. Terminated 12/23/09, paid fees.
Bank of America	1/16/2009	Recommendation withdrawn.	Open bank assistance. FDIC guarantee of select assets. Ring fence shared with Fed and Treasury. Recommendation announced publicly. No determination by Treasury. Recommendation terminated 5/09 and 9/09 with BOA payment of fees.
Public-Private Investment Program (PPIP)	9/23/2009	?	Treasury determination pending.

REFERENCES

- Bair, Sheila, Bull by the Horns (Free Press), 2012.
- Bank for International Settlements (BIS), 82nd Annual Report, Basel, Switzerland, June 2012.
- Barth, James R., Apanard Prabha, and Phillip Swagel, Just How Big is the Too Big to Fail Problem? (Milken Institute), March 2012.
- Bliss, Robert and George Kaufman, “Resolving Insolvent Large Complex Financial Institutions: A Better Way”, The Banking Law Journal, Vol. 128, No. 4, April 2011, pp. 339-363.
- Bliss, Robert and George Kaufman, “U.S. Corporate and Banking Insolvency Regimes: A Comparison and Evaluation,” Virginia Law and Business Review, Vol. 2. No.1, Spring 2007, pp. 143-177.
- Board of Governors of the Federal Reserve System, Study on Resolution of Financial Companies Under Bankruptcy Code, Washington, D.C., July 2011.
- Brewer, Elijah and Julapa, Jagtiani, “How Much Did Banks Pay to Become Too-Big-To-Fail,” Journal of Financial Services Research, February 2013, pp. 1-35
- Bruni, Franco and David T. Llewellyn, eds., The Failure of Northern Rock (SUERF), Vienna, 2009.
- Dudley, William C., “Solving the Too Big to Fail Problem,” Speech, Federal Reserve Bank of New York, November 2012.
- Federal Deposit Insurance Corporation, “12 CFR Part 380,” Federal Register, Vol 76, No. 136, July 15, 2011a, pp. 41626-41647.
- Federal Deposit Insurance Corporation, “The Orderly Liquidation of Lehman Brothers Holdings Inc. Under The Dodd-Frank Act,” FDIC Quarterly, Vol. 5, No. 2, 2011b, pp. 31-49.
- Financial Stability Oversight Council (FSOC), 2012 Annual Report, Washington, D.C., July 2012.
- Frank, Barney, “Testimony,” Subcommittee on Financial Institutions and Consumer Credit, U.S. House of Representatives (No: 112-37). Washington D.C., June 14, 2011c.
- Government Accountability Office (GAO), Financial Regulatory Reform (13-180), (Washington, D.C.), January 2013.

- Government Accountability Office (GAO), Bankruptcy (12-735). (Washington, D.C.), July 2012.
- Government Accountability Office (GAO), Federal Deposit Insurance Act (10-100), (Washington, D.C.), April 2010.
- Gup, Benton, ed., Too Big To Fail: Policies and Practices (Praeger Publishers), 2004.
- Hardee, Jamieson L., “The Orderly Liquidation Authority: The Creditor’s Perspective,” North Carolina Banking Institute, Vol. 15, 2011, pp. 259-289.
- Hovakimian, Armen, Edward Kane, and Luc Laeven, “Variation in Systemic Risk at U.S. Banks During 1974-2010,” NBER Working Paper, w 18043, May 29, 2012.
- Hurley, Cornelius, “Paying the Price for Too Big to Fail,” Entrepreneurial Business Law Journal, Vol. 4, No. 2, 2010, pp. 351-389
- Kahn, Charles M., “Towards Time Inconsistency in Bank Regulation,” Working Paper, University of Illinois, April 2011.
- Kaufman, George G., “Depositor Liquidity and Loss Sharing in Bank Failure Resolutions,” Contemporary Economic Policy, April 2004a, pp. 237-249.
- Kaufman, George G., “Too Big T to Fail in Banking: Quo Vadis?” in Benton Gup, ed., Too Big To Fail: Policies and Practices (Praeger Publishers), 2004b, pp. 153-167.
- Kaufman, George G. and Steven Seelig, “Post-Resolution Treatment of Depositors at Failed Banks: Implications for the Severity of Banking Crises, Systemic Risk, and Too Big to Fail,” Economic Perspectives (Federal Reserve Bank of Chicago), Second Quarter 2002, pp. 27-41.
- Scott, Kenneth E. and John B. Taylor, eds., Bankruptcy, Not Bailout: A Special Chapter 14 (Hoover Institution Press), 2012.
- Scott, Kenneth, George Shultz, and John Taylor, eds., Ending Government Bailouts (Hoover Press), 2010.
- Seelig, Steven, “Too Big to Fail: A Taxonomic Analysis” in Benton Gup, ed., Too Big To Fail: Policies and Practices (Praeger Publishers) 2004, pp. 219-230.
- Skeel, David, The New Financial Deal (Wiley), 2010.
- Steinhauser, Gabriele, “Senior Bank Creditors Appear to be Safe, For the Moment,” Wall Street Journal, July 13, 2012, pp. A12.
- Stern, Gary H. and Ron J. Feldman, Too Big to Fail (Brookings), 2004.

Tarullo, Daniel K., “Speech” (Board of Governors of the Federal Reserve System), Washington, D.C., May 2, 2012.

Udell, Gregory F., “Are Bank Bailouts un-American?”, Business Horizons, Vol. 53, 2010, pp. 463-467

Wallison, Peter J., “Too Big to Ignore: The Future of Bailout and Dodd-Frank after the 2012 Election”, Financial Services Outlook (Washington, D.C., American Enterprise Institution), October 2012.