Research

Reconsidering Too Big to Fail

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EXECUTIVE SUMMARY

This paper re-examines the notion that a financial firm is "too big to fail" (TBTF). In doing so, it emphasizes four main points:

- TBTF is not the result of poor firm management, unethical conduct, or other behaviors. It is the result of creditors' beliefs that financial shocks will be transmitted among banks (contagion) and that policymakers will undertake firm-specific policies to stop any such transmission. The cost of TBTF is inappropriate perception of safety accorded financial firms' securities as a result.
- TBTF perceptions did not arise as a result of the crisis and response in 2008. The roots of TBTF expectations can be traced back decades.
- Numerous studies have attempted to quantify the cost of TBTF; none is without potential weaknesses in empirical methods. A review suggests a new strategy for measuring TBTF costs in the future.
- Dodd-Frank contains elements that reduce the likelihood of failure and contain the costs of any failures. Evidence suggests that the upshot is to reduce, but not eliminate, the perception of TBTF.

INTRODUCTION

In the immediate aftermath of the financial crisis, there was no epithet more feared than "too big to fail" (TBTF) – a designation that simultaneously conveyed having an unfair advantage against competitors and emblazoned a conspicuous scarlet letter across the public image of the target. TBTF was variously used to explain the bank bailouts, the record size of financial institutions, the labyrinthine structure of the financial sector and its increasingly arcane products, and the very causes of the financial crisis itself. As such, the major financial regulatory reform that followed – the largest in 20 or 70 years, depending on how one gauges such things – was an undertaking largely concerned with TBTF.[1]

Concerns over TBTF spawned numerous rhetorical progeny: too interconnected to fail[2], too influential[3], complicated[4], important[5], systemic,[6] too big to jail,[7] and so on. Each charge implies there are particular characteristics of the financial sector – or rather, of certain financial firms vis-à-vis others – that provide immunity from the market and regulatory forces that normally buffet and constrain firm behavior.

Policymakers and other observers rightly worry about a system whereby some firms are rewarded for their size, complexity, or other factors, at the expense of others, and ultimately put at risk the entire financial system and taxpayers. At the heart of the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act (heretofore "Dodd-Frank") was an attempt to wrestle with this issue. But determining the extent to which TBTF exists, and whether it has improved or been made worse in recent years is not a straightforward undertaking. The intuition underlying TBTF belies the much more complicated reality.

In what follows, I begin by clearly defining TBTF and trace its history in public policy. I then turn to the variety

of attempts to measure the empirical scale of the TBTF phenomenon; including a case study of U.S. auto firms and a proposal to hone the precision of estimates. The next section examines the degree to which Dodd-Frank addresses TBTF. The final section is a summary and conclusion.

WHAT IS "TOO BIG TO FAIL?"

To begin, presume too big to fail is real. Now, what *is* it and what is it *not*? First, TBTF is not a market failure. TBTF is a rational market response to expectations set by government policy. Lenders to a certain subset of banks perceive a given probability that policymakers will not allow those banks to fail, and thus will prop them up via extraordinary measures (which may include a bailout). This results in the firm being treated as less risky than it otherwise would, making the prospect of lending to the bank appear safer.

This safety is, in turn, reflected by a lower yield in the institution's bonds. In addition to creating an inefficient allocation of capital, this effectively "subsidized yield" encourages the bank to borrow beyond what it otherwise would, grow larger, and assume marginally more risk. In the extreme case of this scenario, the bank's decisions, which expose it to more risk and debt, eventually precipitate the need for the very extraordinary government support that led to a TBTF expectation.

It's important to note in the above case, even in this pernicious model of self-reinforcing TBTF, the bank itself is something of a passive agent in the process – merely an endogenous response mechanism to the interplay between government policy expectation and the lenders who attempt to price the likelihood of that expectation.[8] As one policymaker put it, too big to fail is:

> *a type of inefficiency in the allocation of societal resources. In particular…the excessively risky investments that are incented when* ***creditors*** *of a financial institution believe that there is some likelihood that at least some of their losses will be absorbed by the government.*
>
> *…The definition emphasizes the role of* ***creditor beliefs*** *about prospective governmental transfers. The beliefs of other parties are much less relevant. For example, to the management or board of directors of a given financial institution, the TBTF problem simply means that their costs of debt finance are relatively unaffected by the amount of risk in their firm's investment portfolio.*[9]

Of course, the bank adjusts to the lower cost of borrowing by taking on more risk. But it does so as any firm would, attempting to maximize return-on-equity subject to constraints imposed by bondholders on risk-taking.

And where from does this expectation emanate? Why would creditors believe certain institutions have some likelihood of being singled out for extraordinary beneficial treatment by the government? It is dependent upon the mutual expectation that certain failures or financial shocks cause contagion (externality) to other firms, and that policymakers will take necessary steps to prevent or contain it. That there is a risk of contagion due to financial interdependencies is fairly well accepted, although the magnitude of the risk is an open empirical question.[10]

In an attempt to "cure" TBTF, policymakers will need to convince market participants that there will not be a bailout. Thus, policymakers may make promises to the effect that bailouts will not be forthcoming, but the market's response will depend on the credibility of those promises.[11] Policymakers will attempt to bind their own hands in order to increase credibility. But alternatively, they can create other policy responses that forgo the need for a bailout to the same ends: stringent capital and liquidity rules, supervision, proscription of

allowable activities, and prescribed procedures for non-disruptive failure (bankruptcy, orderly liquidation, etc.).[12]

A BRIEF HISTORY OF TOO BIG TO FAIL

To most, the idea of TBTF dates to 2008, a year marked by major, disruptive, and in some cases unprecedented market events and concomitant policy decisions. While it was inarguably the most consequential year in modern history with respect to TBTF many others argue that the expectations of bailouts and TBTF advantages for some financial institutions was a gradually building process beginning many years back.

Continental Illinois

One narrative traces the origin of TBTF to 1984.[13] A conventional commercial bank by most measures, Continental Illinois had funded risky investments with unguaranteed deposits from around the world. They had of course deposits guaranteed by the Federal Deposit Insurance Corporation (FDIC), but they also managed to attract large corporate deposits exceeding FDIC limits, which in turn commanded higher interest rates. As the bank's lending portfolio turned south, these uninsured and highly mobile funds pulled out leaving the bank insolvent. The seventh or eighth-largest bank in the country (and largest commercial and industrial lender at the time) on the brink of failure clearly posed some potential problems.[14] As one recounting tells it, "Continental forced regulators to recognize not only that very large institutions could fail but also that bank regulators needed to find satisfactory ways to cope with such failures."[15] Observers worried about the contagion effects of such a failure. Large foreign depositors were thought to view the American commercial banking system as a whole, and not differentiate much among individual banks, such that a major failure like Continental Illinois would precipitate a system-wide run – the insolvency of one bank would in turn be the cause of insolvency at many.[16]

Prior to the final federal assistance package, Continental borrowed $3.6 billion via the Federal Reserve discount window, as well as $4.5 billion in loans from other banks. These measures proving insufficient amidst increasing withdrawals, "regulators were faced with a potential crisis that might envelop the entire banking system."[17] The eventual intervention was a complicated mixture of direct capital injection, loan guarantees, liquidity assistance, unsecured loans from other banks, chargeoffs, transfer of bad loans, and perhaps most controversially, guarantee of all deposits regardless of previously established limits. This was very much a dramatic departure from previous policy, in effect for roughly 50 years, the duration of the post-Depression banking era. It was perhaps even more remarkable because the incumbent regulatory system was set up with an explicit alternative to such assistance: the FDIC's own resolution process.[18] The bank went on, in a modified form, eventually taken over by Bank of America nearly a decade later. The Continental Illinois affair resulted in the government taking a nearly 80 percent stake in order to support the bank – though it differed in what we might think of as a typical bailout because management was forced out. Bondholders, shareholders, and depositors were all protected.

But was it such a major departure? The FDIC argued their assistance was borne out of the agency's "essentiality" doctrine. Though not exactly the same, it was of a type with previous assistance given to Greenwich Savings Bank (1981) and United Southern Bank (1983).[19] Unity Bank was the first such recipient of assistance under the essentiality doctrine, all the way back in 1971.[20]

Long-Term Capital Management

Another major milepost in the TBTF journey is Long-Term Capital Management (LTCM). Started in 1994, LTCM was a high-flying hedge fund founded by a "rock star" bond trader, with an illustrious group of academic advisors, using highly sophisticated quantitative models. A series of highly leveraged bets (more than 50-to-one in some cases) on sovereign debt spreads, illiquidity of assets, and increasing margin calls eventually led the firm to the brink in 1998.[21]

It's unclear why LTCM management rejected a Warren Buffett-led group willing to takeover the firm. The consortium of course was offering a deep discount (nearly wiping out shareholders), but some observers insist management must have known a better deal was in the offing.[22]

LTCM eventually did agree to a deal brokered by Fed authorities. Under this deal, a new consortium of financial institutions would provide $3.65 billion of capital "in exchange for 90 percent of the firm's equity [and] existing shareholders would therefore retain a 10 percent holding, valued at about $400 million."[23] Additionally, existing management remained, though overseen by a committee selected by the consortium.

The LTCM intervention was unusual "because the fund was not a major firm[;] at the time of its near demise, it was not even a major money center bank."[24] Thus LTCM is less a case of a direct TBTF institution, but an indirect one. To wit, the argument goes LTCM was not necessarily viewed as TBTF proper, but its lenders were commercial and investment banks seeking higher returns, and it was *their* creditors expecting downside protection who failed to perform their risk constraining role.[25]

This was in contrast to recent major investment firm failures such as Drexel Burnham Lambert and Barings (U.K.) with no extraordinary government involvement or major disruptions.[26]

Federal Savings and Loan Insurance Corporation

The failure and resulting clean up costs of the Savings and Loan (S&L) sector are also sometimes pointed to as evidence of an incipient TBTF regime. "The extraordinary costs of the 1980s S&L crisis" could "eventually exceed $160 billion" when all is said and done.[27] The S&L case is somewhat unique though. Instead of banks and bondholders, the relevant nexus is the banks' insurer and depositors.

Savings & Loans had been the largest providers of long-term fixed-rate mortgages up until their crisis. Like a traditional commercial bank, the S&Ls funded these long-term loans with short-term funding, namely deposits. This maturity mismatch is not unique to S&Ls, but their growing share of the mortgage market (at one point over 70 percent of single-family mortgage debt outstanding)[28] compounded the problem for the industry's erstwhile deposit insurer, the Federal Savings and Loan Insurance Corporation (FSLIC). The S&Ls were not individually particularly large, complex, or interconnected institutions. However, owing to unintended interactions between various regulations, poor supervision, and "deposit insurance [that] was actuarially unsound from its inception," these savings institutions collectively exposed FSLIC to an ever-increasing risk of losses without commensurate increases in premiums.[29]

Moreover, instead of dozens or hundreds of complacent bondholders and other sophisticated institutional debtholders, it was thousands of individual savers who were ultimately protected from their inability to monitor risk.[30] Just as commercial bank depositors would be made whole (up to the insurance limit) by the FDIC's insurance fund in the case of a bank closure, S&L depositors were inured to poor management

practices. Ultimately, a taxpayer-funded bailout was necessary for FSLIC. Though not a case of a classic TBTF problem, mismanagement of FSLIC (under the authority of the Federal Home Loan Bank Board) led to insolvency and rescue.

The above does not thoroughly encompass all the failures which have been argued to contribute to the TBTF expectation. Depending on how widely one draws the line around TBTF incidents, the history of TBTF and bailouts is somewhat circuitous. It is not a straightforward pattern of large banks consistently receiving assistance in times of distress. It is much more an unpredictable pattern of *ad hoc* interventions toward institutions of various types and sizes, resulting from different solvency pressures. Moreover the interventions are intermittent, and not always forthcoming – in fact, given the history of financial institution failures, it's fairly rare.

Nonetheless, even if TBTF expectations do not consistently build over time, it can be both monotonically increasing in time and salient for market participants even if the probability of bailout is much less than one. But it begs the question of how creditors, depositors, and counterparties identify with *any* certainty which institutions vis-à-vis others are likely to be singled out. In fact, there is evidence that insofar as the market prices in a positive probability of a bailout, it does so in a way that implies a sector-wide bailout and not one benefitting particular firms.[31] Estimates of the size of this sector-wide support can be significant, owing to systemic concerns. The available evidence on this front does not "provide any strong conceptual explanation for why one would expect a relationship between size of a bank and systemic risk, or why large banks disproportionately benefit from state support."[32]

Money Market Mutual Funds

In September 2008, in response to the Lehman Brothers bankruptcy, the Reserve Primary Fund "broke the buck" by posting a net asset value (NAV) of under $1 per share. The money market mutual fund, having to write down assets owing to exposure to Lehman Brothers, prompted a massive influx of fund redemptions, leading administration officials to worry about further runs on funds (in total a $3.4 trillion market),[33] as well as certain assets types such as commercial paper.[34] Ultimately the Treasury Department announced the use of up to $50 billion from its preexisting Exchange Stabilization Fund to guarantee any NAV shortfalls for investors.[35]

Although this was not a bailout in the form of funds provided to an institution in danger of failure, it had a similar flavor by protecting the affected funds and their investors from certain losses. It also had the classic justifications of extraordinary assistance: risk of contagion,[36] broad categorical eligibility rather than institution-specific targeting, liquidity concerns being of primary concern.[37] But it also differed from the TBTF hypothesis: the fund sponsors were not large banks or even banks at all,[38] and the assistance was in the form of a broad guarantee (structured to hopefully minimize moral hazard) rather than a capital infusion or above market equity purchase.

Yet one may counter that the primary beneficiaries (or potential victims) of the kinds of assets at risk in the incipient money market mutual fund run were exactly the large banks which are TBTF. Although they indeed participate heavily and rely on these kinds of assets (e.g., asset-backed commercial paper) more so than smaller banks, many nonfinancials also depend on these markets for short-term funding as well.

There are other wrinkles and considered anomalies from the most recent crisis which further cloud the picture of TBTF. The GSEs (Fannie Mae and Freddie Mac), AIG, the "Detroit bailout" (discussed below), distribution of TARP funds to small and midsize institutions, etc. all complicate the straightforward intuition underlying TBTF.

MEASURING TOO BIG TO FAIL

Various studies over the past few years attempt to quantify the effect of TBTF expectations. If such expectations are capitalized into the price of certain debt instruments for particular institutions, they will cause deviations from the efficient equilibrium. The difference between the efficient outcome and the actual outcome can be said to be the cost of TBTF. Again, it is worth pointing out that whatever this difference is, if it exists, it is because lenders or investors perceive certain institutions as being TBTF, and not because those institutions have behaved any differently. The institution's response, if then further reflected in bond prices or market share, is what may be called the "indirect effect."[39]

Of course determining what the counterfactual "non TBTF" world looks like is problematic. Several methodologies have been employed in the search and quantification of the TBTF subsidy.[40]

Cost of Funds

One could compare bond yields between TBTF and non-TBTF institutions, with the resulting difference used to impute a TBTF subsidy. One problem with this approach is that separating TBTF from non-TBTF institutions is difficult.[41] If the subsidy results from market perceptions of bailout likelihood, these could just as easily (in fact more likely to) run on a continuum from zero to one, from least likely for policymakers to intervene on their behalf to most likely—as opposed to categorical distinctions that operate in a binary manner.[42] Another problem is even if one does credibly separate TBTF institutions from non-TBTF institutions, the difference in their bond yields may indeed be due to bailout expectations *among* other reasons.[43] If the former tend to be larger, it means they exhibit other economic characteristics that may determine their creditworthiness and thus will reflect different bond yields. For instance, corporate bonds for larger firms tend to have lower yields across industries. This may be for several reasons including the size of the market in their debt, liquidity, actual historical performance, information advantages, etc.[44] It may also be due to economies of scale.[45]

Furthermore, this yield spread may be ever changing; indeed, it has at times even become negative.[46] As it changes, one must conclude either that: (1) the TBTF subsidy is in fact changing and transferring among institutions over time;[47] (2) the yield spread attributable to TBTF is being swamped by other effects; or (3) the yield spread is not a reliable measure of the TBTF subsidy.

There's also a completeness issue. A yield spread approach is necessarily limited to the universe of bond-issuing banks, omitting the many non-issuing banks (of which a nontrivial number are over $50B in assets). The TBTF subsidy, if it exists, should affect other types of funding, and not just corporate bonds, which are merely used as a means of teasing out the subsidy magnitude and not the complete expression of it. Using the yield spread is subject to some level of selection effect and thus a bias in the result. Implied counterparty risk in repo and commercial paper markets should also reflect TBTF expectations.

Another recent study uses a similar approach, wherein the authors assert that size – as a proxy for systemic importance – demonstrates an inverse relationship with a firm's credit spread.[48] They further show that as a firm's size increases (i.e., systemic importance) its spread's sensitivity to risk is decreasing. Although

other research claims the preexisting subsidy became a premium after passage of Dodd-Frank and that risk sensitivity improved.[49]

A novel approach uses both cost of funds as well as stock returns as the measures of the benefit of TBTF status, and crossing the TBTF threshold ($100 billion in assets) through merger and acquisition activity as the exogenous change. Using 1991-2004 data, the authors of this study conclude banks paid a premium of $15.3 billion for threshold acquisitions. Of course it still runs into the problem that a nominal threshold is established *a priori*, as well as the fact that even though their time window was one of extensive M&A activity, only eight transactions qualify as relevant.[50]

Deposits are also an important source of funding for commercial banks, though they are not strictly subject to the same market pricing effects as longer-term funding like bonds. However, since many types of deposits are guaranteed by government insurance up to a limit, one may look at the interest rate differences between insured and non-insured deposits to get a measure of market risk perception.[51] Comparing this insured/non-insured difference between large and small banks can give you an indicator of the former's size advantage. However you're still left with the issue that many non-TBTF variables might (partially) explain the difference. One study using such an approach attempted to control for "common risk variables" and concludes that the residual premium is attributable to TBTF expectations, amounting to 15-40 basis points.[52]

Credit Ratings

Another approach relies on the use of ratings from credit rating agencies. Assuming credit ratings are material to the determination of funding costs,[53] they do so by accurately reflecting two different components: (1) the financial health of the firm; and (2) expected level of public support for the firm. By looking at the effect of the change in the ratings' indication of that second component on yield spreads, researchers can attempt to tease out the market value of such bailout expectations.

In one such study, the findings indicate that among the 895 banks (around the world) for which the necessary data was available, two percent were likely to receive public support in 2007, but 13 percent were likely to receive such aid by 2009. Moreover, they find that France, Germany, and Switzerland were the governments most likely to provide support, though the U.S. had the largest increase in likelihood of all major banking centers. The bottom line from this study is that using this methodology, this TBTF subsidy (they refer to "Systemically Important Financial Institutions") amounted to 60 bps pre-crisis, and 80 bps post-crisis, "after key governments confirmed bailout expectations."[54] The study concluded that not only does a nontrivial TBTF subsidy exist, but that it increased as a result of the crisis.

Though not employing an empirical strategy, many ratings agencies opinions come with explicit explanation of their outcomes, if not explanation of their full methodology. Although one should resist the temptation to take their declarations as dispositive, it is instructive nonetheless. Standard & Poor's has indicated that the likelihood of "extraordinary government support" has decreased and as a result the credit outlook of some large institutions (e.g., JP Morgan) has deteriorated.[55] They caution that the possibility of support may not be entirely eliminated, but is dependent on the "evolving resolution framework."[56] It should also be noted that in many cases the probability of government support is not limited to the largest banks exclusively, though some research indicates that the effect of the rating agencies' government support measure is larger for larger banks.[57]

Event Study / Difference-in-difference

One study which uses an event methodology looks at the change in cost of funds from FDIC data, from before and after TARP. The logic goes that "TARP and other bank rescue efforts following the collapse of Lehman Brothers in September 2008" had the effect of "formaliz[ing] a commitment to a 'too big to fail' policy."[58] The authors assert that the change in the spread in average cost of funding between the largest institutions (assets over $100B; totaling 18 banks) and all others from before to after the crisis is the net effect of the TBTF subsidy, which "many investors may have assumed" existed pre-crisis but could not guarantee like they could post-crisis.[59] Note that they do not use bond yields, but rather FDIC's cost of funds (which includes interest paid to depositors in addition to that paid on other borrowed funds).[60] More formally, this study could also be characterized as a difference-in-difference approach: the authors presuppose that historical differences in the cost of funding between small and large banks may be the result of various factors not related to TBTF, and so use that difference as a baseline. Assuming the only (major) change which occurs between their "before" and "after" periods is the set of policies which create a TBTF subsidy, they can look at the extent to which the cost of funding differential changes and thus attribute the change to TBTF.

This study estimates the TBTF subsidy is between 9 and 69 bps, which amounts to a subsidy of $6.3 to $34.1 billion to banks with more than $100 billion in assets.[61] Problems with this approach can go in both directions. One study insists this estimate should be treated as too low because they do not take into account that a TBTF subsidy may exist in the before period. Moreover, there is a gap between the two periods of nine months. The authors assert it is during this time that the major events which solidify TBTF occur. However TARP, which they explicitly single out, was not signed into law until October 3, 2008, during the fourth quarter of the year, which is included the "after" period and not the interim. Of course they do use an average over the next two quarters, so the effect may be partially reflected in the change in cost of funding spread – in fact, this may further make the estimate too low.

However, even if the beginning of the "after" datum was adjusted to reflect the final passage of TARP, there were many exogenous policy shocks, each of which may have had its own effect (and sign) on a supposed TBTF subsidy. Most people would agree that the first-order effect on market expectations resulting from the resolution of Bear Stearns was likely different (even opposite) than the final resolution of Lehman Brothers.[62] The treatment and policy toward a firm like AIG – not a bank and not particularly large in relative terms – further complicates the presumed effect of the 2008 period. One could further delineate various market and policy events during this period and ask what, if any, effect they had on TBTF expectations. Such methodologies must be necessarily limited in their "treatment" period so that one can be confident that only one policy change is driving the result, and not many which may confound the effect.[63]

Finally, there is again the persistent problem of how to group firms. This study uses a grouping that follows logically from the source of the data: the FDIC cost of funds report is neatly grouped such that assets of $100 billion is a categorical cutoff point. But the authors do not provide any justification for why that cutoff makes sense. Data limitations often drive such considerations, and for back-of-the-envelope calculations they may be sufficient.[64]

Using CDS Prices

Credit default swap price data offer several advantages over bond prices. The former are thought to be more informationally-rich because they can be structured in a bespoke manner, their trading frequency can occur

intraday, and they are subject to (some) different credit specific factors. Moreover CDS data can exist on a wider universe of reference entities, and are not subject to the same cyclical supply flows of corporate bond issuances (which can be low during times of financial distress).

The funding advantage may be positive, but time-discontinuous, such that they exist during times of crisis only and not during pre- or post-crisis periods. Nonetheless, using a structural model, one study finds this crisis advantage to be significant for shareholders ($129 billion) and bondholders ($236 billion)—the advantage peaking in first quarter 2009.[65]

Ultimately, those using this approach must account for additional stylized empirical realities which seem to be at best only ambiguously consistent with the TBTF thesis. That is, "CDS spreads for the six largest US bank holding companies were very low, stable, and nearly identical" until mid-2007.[66] During the crisis, they become very high but also exhibit wide variation and instability amongst them, and following the crisis they come down significantly but "continue to be substantially higher and more differentiated than in the pre-crisis period."[67] The intuitive interpretation of such a pattern does not fit neatly into the narrative that TBTF banks became more insulated from failure during and following the crisis: why would their implied default risk be so low prior to the crisis and so much higher during/after, and what would account for the significant variation?

Use of CDS spreads (as well as bond yield spreads as noted above) must to some degree assume away any effect of policy changes in the last few years in reducing the default risk of the largest banks for non-TBTF reasons. If Dodd-Drank, for instance, managed in any way to reduce risk-taking and increase oversight and transparency at the largest institutions vis-à-vis smaller ones, one is incorrect in assuming all of or any of the increase in the large/small spread is due to TBTF expectations.

Program Valuation

A related methodology, which does not attempt to measure the implied market TBTF subsidy, looks at the explicit valuation of specific government support to financial institutions during the crisis relative to alternatives. For example, a recent GAO report suggests that Treasury, via TARP, paid an excess of price of "18 to 27 percent over…and 26 to 50 percent over estimated market prices" under two capital support programs.[68]

As stated elsewhere (referencing the UK system, but generally applicable):

> *What matters for the analysis of potential distortions related to state support is the expectation of state support, not the actual payments by the state once a failure has occurred. The actual payments made reflect only one of many potential market outcomes—they are realisations* [sic] *of particular scenarios in the distribution of possible market outcomes, and a different systemic shock could have resulted in a different market outcome and corresponding allocation of payments.**[69]***

THE CASE OF THE AUTO INDUSTRY

An illustrative case may be one that didn't have to do with a bank or financial firm at all, but rather the bailout of the auto firms: General Motors and Chrysler. In late 2008, after Congress failed to pass a $14 billion appropriation in order to assist the failing carmakers, $17.4 billion was apportioned from the already approved TARP to help the companies through restructuring and give them time to develop plans for possible Chapter 11

bankruptcy.[70] Additional funds were provided in March 2009.[71] Ultimately bankruptcy could not be avoided, and with the U.S. and Canadian governments taking significant ownership stakes, the original company's shareholders were wiped out and the companies reorganized through Chapter 11. Whatever one's conclusion about the success of the public support program, the means of assistance fit the classic definition of a "bailout" in which the public sector provides funds to prevent, delay, or otherwise ease the pain of firm failure. Though targeted at firms outside the financial sector proper, the calculus facing policymakers is much the same as when faced with failure of large, complex banks with potential for system-wide disturbance.

However, it was due to the bailout that the bankruptcy did not proceed as usual, and more to the point, not as claimants in the proceeding would have normally expected. Chrysler's secured creditors were given drastic haircuts and denied their usual priority standing, instead placed behind other unsecured creditors (i.e., United Auto Workers' pension plans). Various terms of the restructuring violated "longstanding bankruptcy principle[s]" and were certainly contrary to the expectations of bondholders – expectations developed over decades of bankruptcy jurisprudence.[72] Similar deviations from the norm occurred in the GM bankruptcy as well. Whereas the standard story of a TBTF subsidy says that such firms borrow at a reduced risk premium because creditors expect public funds to become available to satisfy the firm's obligations if necessary, the GM/Chrysler case demonstrates that it was the political strings attached to such a bailout which in fact made some creditors worse off. As one commenter put it, "The car bailouts have sent the message that, if a politically important industry is in trouble, the government may step in, rearrange the existing creditors' normal priorities, and dictate the result it wants. Lenders will be very hesitant to extend credit under these conditions."[73] One logical conclusion is that for those who worry about the pernicious effects of bailouts, it's plausible their effect on TBTF firms' creditors is in fact negative—that is, creditors might rightly worry that their claims will be reprioritized should a bailout come to pass.

A logical rejoinder to such concerns, would be to point out the lessons of the auto industry case are *sui generis* and not applicable to other cases, especially the banking sector. But public rescue of industry, no matter which industry, has some consistent features: they are *ad hoc*, discretionary in nature, politically influenced, and all things considered, relatively rare. Especially on the discretionary nature of bailouts, creditors attempting to properly price the possibility of government rescue must also include the likelihood that such a rescue may work against them – that their expected payoff, conditional on bailout, may be lower. The political nature of such extraordinary measures necessarily carries a possibility that some manipulation of outcomes will occur.[74]

A PROPOSED EMPIRICAL STRATEGY

Although an empirical study is outside the scope of this essay, I offer here a brief description of an approach that could address some of the limitations of earlier work. Building on the difference-in-difference approach outlined in Kroszner (2013), I hereby suggest a triple difference approach to minimize the number of necessary assumptions and ease identification problems.

The first step is estimating the large/small implied default risk differential using CDS data, for both banking (BHCs really) and other industries, while including the standard controls in the literature thus far ("firm and market risks, liquidity, etc."[75]). Using a nonparametric test, the second step involves testing the difference between banking and other industries (perhaps a weighted average). The third step is determining how that inter-industry differential has changed before and after specified major market and policy events (e.g., Lehman bankruptcy, failure of TARP passage, passage of TARP, passage of Dodd-Frank, etc.) depending on theoretical assumptions of what effect those events ought to have on TBTF.

I'll forgo the full details with this approach. The data sample should be limited to U.S. firms to eliminate the effect of international policy differences. As a robustness check, the large category should be demarcated at over $100B and over $50B because of discrete policy reasons, as well as the 10 largest firms in each industry (for equivalence reasons).

An additional control possibility is using the inter-industry differential between banking and the least/less financial dependent industries as outlined in prior research.[76] If we assume that TBTF effects are less/non-present in non-financial sectors, we can ensure this by using those sectors where returns are least correlated to returns in the financial sector. Moreover, this approach in a sense incorporates the possibility of systemic risk (as proxied by financial dependence) as being the motivation for policymakers' likelihood to provide extraordinary aid.

EFFECT OF DODD-FRANK

The Dodd-Frank Act represents the most dramatic change in financial regulation in over a generation (and perhaps in several generations). Undertaken as an overhaul of nearly the entire financial regulatory structure, its proponents argue that it addresses those issues that led to and exacerbated the most recent financial crisis. It does this by strengthening, consolidating, refocusing, or creating anew, agencies and oversight regimes.

According to its primary authors and namesakes, the legislation:

> *set out to reform our antiquated regulatory system and develop a new framework that provide[s] regulators with the tools they need to help prevent any future economic crisis – and end taxpayer bailouts and the concept of too big to fail.*[77]

The full effect, if determinable, of the sum of these policy changes "remains uncertain" and "will depend on how they are implemented."[78] Broadly, there are two non-exclusive policy approaches to pursue in order to minimize TBTF effects: (1) those policies which reduce the likelihood of failure[79]; and (2) policies which ease and contain failure.[80]

Orderly Liquidation Authority

Specifically, Title II of the law goes to the heart of TBTF with its creation of an "Orderly Liquidation Authority." By creating a process for resolving and unwinding "a financial company that would otherwise be too big to fail," Title II attempts to create a credible alternative to bailouts that market participants can expect to be subject to (during both normal conditions and times of crisis).[81] As one Fed governor put it, "it was recognized that, left unaddressed, the necessary but unpalatable government interventions during the crisis would only further entrench the too-big-to-fail status of systemic financial firms."[82] Dodd-Frank's approach was specifically conceived as an alternative to the prevailing approaches. Speaking in 2009, Ben Bernanke told a Congressional hearing: "after Lehman Brothers' and AIG's experiences, there is little doubt that we need a third option between the choices of bankruptcy and bailout for such firms."[83]

The legislation itself, however, left much work to be done by regulators in order to implement the resolution regime. In particular, the Federal Deposit Insurance Corporation (FDIC) has been tasked with "build[ing] out the statutory provisions of the Dodd-Frank orderly liquidation authority."[84] This includes, especially, the "single point of entry" approach outlined therein.[85]

Bankruptcy

The bankruptcy code is the set of rules and procedures by which most firms in distress or that are insolvent are reorganized or liquidated. Many critics of the Dodd-Frank approach would prefer that financial firms, systemically important or not, go through this process and thus not be subject to differential treatment. The problem as some observers saw it, including supporters of Dodd-Frank's Title II, was that "a special resolution mechanism is needed to take account of the characteristics of financial markets, and of larger firms operating in those markets, that do not fit easily with normal bankruptcy practice."[86] The aim of reform was thus twofold: not only to provide a practicable regime in which even the most complicated and large financial firms can be resolved without major systemic disruption, but additionally to create a credible commitment to which future policymakers can hew, especially in a time of crisis.

Critics contend the provisions as written do not preclude the possibility of a bailout at taxpayer expense, and have even recently proposed "repeal and replace" legislation.[87] The fact that Title II explicitly creates a financial institution-specific resolution regime, has led to calls for "bankruptcy, not bailouts."[88] One proposed alternative to Title II is "Chapter 14" (an unused chapter number in the U.S. Bankruptcy Code). In contrast to orderly liquidation which, they argue, "is less transparent, with more discretion by government officials and opportunities for review," the Chapter 14 approach allows "debtors and creditors [to] negotiate with clear rules and judicial review….rel[ying] more on the rule of law and less on discretion."[89] This proposal and others like it nonetheless explicitly acknowledge "the complexity, and potential systemic consequences, of…large financial institutions'" failure.[90]

Did it Work?

One test of the effectiveness of the Title II approach, such as it is, is whether market expectations changed in response. On that there is some evidence that "passage of Dodd-Frank did not eliminate expectations of government support."[91] But passage of the bill may not be the relevant demarcation. After all, the resolution process was merely outlined in the legislation, and detailed explication is still underway.[92] Dodd-Frank authorized the creation of new powers for regulators and supervisors, but the full unpacking of these powers and their implementation is ongoing—at a very rapid pace to boot.[93]

One industry group contends Title II is:

> *consistent with, rather than a departure from, the general approach adopted by Congress over decades. Recognizing that financial institutions are different from commercial and industrial companies, special statutory resolution regimes have long been established for banks, insurance companies, and broker-dealers. Title II…is available only when the pre-existing resolution mechanisms – e.g., bankruptcy… – would result in significant adverse systemic consequences. It ends the perceived "too-big-to-fail" problem…by requiring that shareholders lose their entire investment, creditors bear all remaining losses…and no cost is imposed on the taxpayer.*[94]

Of course the ultimate test of how and whether the new resolution regime works as intended will be the next crisis that implicates a large, complex financial institution.

Unfortunately, assessing the effect of any resolution regime on expectations is further complicated by the fact there exists a system "of government regulation meant to prevent…failure."[95] This system was broadened and heightened as a result of Dodd-Frank. That is, existing rules were augmented with stricter capital rules, liquidity

rules, stress tests, and other rules (e.g., Volcker Rule). So if investors appear broadly risk-insensitive, as in the study cited above, it's not clear whether they are acting as such as a result of expectations of government assistance to protect creditors, or whether the system of rules designed to prevent failure in the first place create the pretense of eliminating some measure of risk. Indeed, it is the largest financial institutions that are subject to the most extensive and strictest safety and soundness regime, for the very reason that they are perceived as TBTF. Seen in this light, a given resolution regime and the sum of regulations governing bank behavior may act as complements, or may work in opposite directions, in which case the net effect on the downside risk for creditors is ambiguous. Taken together, resolution and regulation are an attempt to thread a needle in which risk of failure is minimized but in the event of failure, it is done so expediently, predictably, and with appropriately imposed losses.

As implementation is ongoing, it may be too soon to examine the net effect of Dodd-Frank, Basel III, the Financial Stability Oversight Council designations, and other simultaneous supervision regimes on financial institutions' default risks (or perceptions thereof) and the differential effect on the largest institutions (or, again, perceptions thereof). Even if one stipulates that TBTF exists and has become worse, a cursory look at the sum of policy changes must conclude that default risk at the largest, supposed TBTF institutions is lower, and so *some* decrease in spreads must owe to that.

CONCLUSION

The questions surrounding too big to fail are most intensely focused on "to what extent" and "how much," and almost never inclusive of "should." That is, one would be hard-pressed to find anyone who would willingly declare that there *ought* to be TBTF institutions, and consequently a policy which entrenches such a status. Despite much of the rhetoric implying otherwise, the debate has always been whether a TBTF subsidy exists, if so how should it be addressed, and how should authorities structure regulation and crisis responses in light of TBTF – there just isn't a "pro-TBTF" caucus clamoring for the benefits of subsidies.

That said, the existing literature which attempts to identify and quantify the extent of the TBTF subsidy, though admirable, all largely suffer from the assuming away of important confounding factors. Proper inclusion of these factors may not only weaken many of the conclusions, but indeed may actually reverse or at least nullify them. However, given the contemporary, dynamic, and complicated nature of the question, a clean empirical examination of the issue may not be possible. Taken together, the extant literature is an admirable attempt to wrestle with one of the more important financial regulatory policy questions today.

As stated earlier, the intuition underlying the existence TBTF is perfectly understandable. As such, in the absence of convincing empirical evidence one way or the other, policymakers must largely fall back on this intuition as they consider changes to the regulation of the financial system. There are reasonable assumptions which both support and undermine the TBTF thesis: that the pattern of previous policy decisions, especially in times of potential crisis, have led creditors of major financial institutions to believe that they will be the beneficiaries of support should failure be imminent. Bailouts *have* been forthcoming in several instances in the past, though not in a predictable manner, not consistently to the largest firms, and not always to the financial industry. Nonetheless, taken altogether, it is certainly possible that all these factors taken together still add up to a non-zero probability of bailout.

I have tried here to outline some of the relevant issues in thinking about TBTF, clarify some of the ambiguity surrounding the issue, and consider the various empirical strategies employed thus far in quantifying it. Much more work needs to be done, especially on this last area, and as policy is continually changing, the true answer

is no doubt a moving target.

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[1] As former FDIC chair Sheila Bair put it: “One of the things that frustrates me with critics of Title II is that they perpetuate the myth of Too Big To Fail by insisting that the government is still going to do bailouts, notwithstanding clear language in Dodd-Frank to the contrary,” in Mike Konczal, “Sheila Bair: Dodd-Frank really did end taxpayer bailouts,” *Washington Post*, WonkBlog interview with Sheila Bair, May 18, 2013, http://www.washingtonpost.com/blogs/wonkblog/wp/2013/05/18/sheila-bair-dodd-frank-really-did-end-taxpayer-bailouts/. In a twist of Derridian irony, some have argued that this solution to TBTF is itself too difficult to execute: Kevin Drawbaugh, “Is ‘too big to fail’ too big for Dodd-Frank?” *Reuters*, February 28, 2011, http://www.reuters.com/article/2011/02/28/us-finance-summit-liquidate-idUSTRE71O6ED20110228.