The Subsidy Provided by the Federal Safety Net: Theory, Measurement and Containment

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Abstract

Considerable controversy surrounds the issue of whether the government's commitment to prevent a systemic crisis in the banking system and to protect small depositors by maintaining a federal safety net for insured depository institutions also provides a subsidy to banks. This paper presents an intuitive and analytical model of how the safety net affects banks' cost of funds. Emphasis is placed on distinguishing between fixed and marginal costs in banking, and on the implications of the model for measuring the subsidy. Empirical results strongly suggest that the safety net has benefitted banks, and that over recent years bank holding companies have tended to move activities into a bank or a bank subsidiary. We conclude that limiting extension of the safety net subsidy should be a serious concern when designing strategies for expanding bank activities.

The Subsidy Provided by the Federal Safety Net: Theory, Measurement and Containment

Views about the value to depository institutions of the federal safety net--federal deposit insurance, the Federal Reserve's discount window, and direct access to the Federal Reserve's payments system--differ widely. Some observers argue that there is a significant net subsidy, others that there is none at all--or that, to the extent there is a subsidy, it can be controlled equally well in either the bank holding company (BHC) or the bank subsidiary structure.[1] Here, we argue that banking has benefitted from the safety net, and that the bank holding company is the preferred structure for subsidy containment.

The paper begins with intuitive and analytical discussions of the nature of the safety net subsidy. Emphasis is placed on the importance of distinguishing between fixed and marginal costs in banking, and on the implications of our model for measuring the subsidy. We then turn to the issue of how, in practice, to measure, or at least to observe, the value of the safety net, and present some new empirical results. Finally, we examine what types of banking organizations are best designed to limit transference of safety net subsidies to new business activities.

I. The Nature of the Safety Net Subsidy

The benefits to banks created by the federal safety net can be thought of as the confidence of *bank* creditors that banks will be supported in times of financial crisis.[2] This confidence is based on banks' access to federal deposit insurance, the Federal Reserve's discount window, and

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[1]See, for example, Bankers Roundtable (1997 (1)), Helfer (1997), and Whalen (1997).
[2]A useful, and brief, introduction to this subject is in Furlong (1997).

Federal Reserve payment system guarantees. But none of these features is, by itself, necessary for the expression of this confidence. Ultimately, this confidence is created by the widely held belief on the part of the public and bank liability holders that, while individual banks may be allowed to fail, *the banking system is backed by the United States Government.*[3]

Alan Greenspan, Chairman of the Federal Reserve Board, has argued that confidence in the government's support of the banking system effectively grants banks access to the "sovereign credit" of the United States.[4] Because access to the sovereign credit of the United States is limited to specific sets of institutions in our society, the associated benefits, or "rents," are a subsidy to those favored institutions. Thus, our use of the word "subsidy" is somewhat broader than the more common use of the term, which generally refers to explicit payments, or grants, by the government to a favored group. Our definition is consistent with broader definitions of the word, which include the granting of implicit benefits, or privileges, by the government to a particular group.[5]

Part of the subsidy provided by the safety net--that part which can be actuarially evaluated--can be offset by explicit charges for the services provided. However, pricing the absolute confidence that the public has in the government's support of the banking system is more difficult. The U.S. government is the only entity that cannot become insolvent in dollar

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[3]We would emphasize that preservation of the banking system does not imply protection of any individual bank. In our view, no bank should be considered too-big-to-fail in the sense that existing stockholders can lose all, current management be replaced, uninsured liability holders take losses, and the remaining firm be shrunk or sold in an orderly manner.

[4]See Greenspan (February 1997).

[5]As defined in *The New Encyclopedia Britannica* (1992, p. 344), a subsidy is "a direct or indirect payment, economic concession, or privilege granted by a government to private firms, households, or other governmental units in order to promote a public objective."

obligations, because it can create them at will. Absolute public confidence therefore cannot be

reproduced in the private sector, and the fact that the required government guarantees are granted

to banks makes banks distinct from most other firms in our society.[6]

Because of banks' access to the safety net, bank creditors are willing to accept lower risk

premiums on bank liabilities, thus lowering a bank's weighted average cost of capital, relative to

what would otherwise be the case. For deposits fully insured by the FDIC, this risk premium is

reduced essentially to zero, *no matter how risky a bank's assets are.* Other debt instruments also

benefit, although to a lesser degree than do insured deposits. The end result is that banks enjoy a

lower total and marginal cost of funding, including lower capital ratios than would otherwise be

required by the market.

While some benefits of the safety net are always available, it is critical to understand that

the value of the subsidy is smallest for very healthy banks during good economic times, and

greatest at weak banks during a financial crisis.[7] In contrast to the difficult times of a few years

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[6] In essence, the government is providing "catastrophic" insurance to bank liability holders. Individual banks may not be protected, but the government protects most liability holders from the collapse of the banking system. Such protection has value, as bank creditors need not attempt to price for very low probability but extremely negative outcomes. (For a discussion concerning market pricing, government programs, and catastrophic events, see Kau and Keenan (1996)). As discussed at length in the text, the value of this protection is hard to measure, but one might look at Fannie Mae and Freddie Mac (and other Government Sponsored Enterprises (GSEs)) who also benefit from such implicit guarantees and the resulting investor confidence. Efforts to determine the value of this confidence have placed it at 30 to 100 basis points in lower marginal funding costs relative to private corporations with similar credit risk. See Ambrose and Warga (1996). However, with the exception of GSEs, the implicit government guarantees granted to the banking system are unique among financial intermediaries in the United States.

[7] Research that has attempted to estimate the "option value" of deposit insurance strongly supports the view that the value of the safety net varies considerably across banks and over time. See Whalen (1997), and Kuester and O'Brien (1990). And, as Alan Greenspan has recently pointed out: "What was it worth in the late 1980s and early 1990s for a bank with a troubled loan portfolio to have deposit liabilities guaranteed by the FDIC, to be assured that it could turn illiquid to liquid assets at once through the Federal Reserve discount window, and to tell its customers that payment transfers would be settled on a riskless Federal Reserve Bank? For many, it was worth not basis points but percentage points. For some, it meant the difference between survival and failure." Greenspan (March 1997), pp. 13-14.

ago, today the economy is performing well, the banking industry is on the verge of its sixth

straight year of record profits, and 98 percent of U.S. banks are, at least by regulatory capital

standards, well-capitalized. In such an environment, the gross value of the safety net subsidy to

the banking industry is surely small for the vast majority of banks.[8]

Because of the benefits provided by the safety net, as manifested in lower funding costs

and lower capital ratios, the banking sector is larger than would otherwise be the case. Put

another way, the ability of banks to access directly the safety net provides banks an advantage

over nonbank competitors offering similar products, which allows banks to expand their

activities until the marginal benefits of the safety net equal its marginal costs. This benefit,

however, comes at significant cost. These costs include safety and soundness regulations

(required to control the moral hazard--the incentive to take excessive risks--created by the safety

net), noninterest-bearing reserves, deposit insurance premiums, community reinvestment

requirements, regulatory reports, and any other government-imposed actions that are both unique

to banks and that would not otherwise be conducted by banks.[9] Some commentators argue that

these regulatory costs far outweigh the value of the safety net subsidy, and thus there is no *net*

subsidy provided to banks.

Indeed, some maintain that in recent years regulatory costs have increased. However, in

our view, it appears that most of the cost increases took place in the early 1990s, and were

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[8]Even small values accumulated over a long time horizon can yield a substantial present value for the safety net subsidy. In addition, looking over a long time horizon, a bank would need to consider the value of the subsidy over the course of a business cycle, where the subsidy increases significantly in value during a recession.
[9]It is unclear if all regulatory costs are linked to the safety net. Some costs might remain even for banks without insured deposits or access to the discount window or Fedwire. For example, consumer protection and community reinvestment regulations apply to a variety of bank and nonbank financial institutions.

associated with the passage of the FDIC Improvement Act (FDICIA) in late 1991. Regulatory

costs seem to have leveled off recently and may even be falling, with large declines in deposit

insurance premiums, decreases in required reserves, and legislative and regulatory reductions in

burdens. Examples of the latter include recent changes made by the Federal Reserve Board in

Regulation Y, reductions in Section 20 subsidiaries' firewalls, and an increased emphasis on risk-

focused examinations by all the federal banking agencies.[10]

II.   An Analytical Description of the Safety Net Subsidy

This section describes an analytical model of how the federal safety net affects the

banking industry, and suggests how the safety net subsidy might be measured, or at least

observed. The presentation emphasizes the importance of distinguishing between *fixed* and

marginal benefits and costs when attempting to understand the net effect of governmental

benefits and costs on bank behavior. Most analyses of the safety net subsidy fail to make these

distinctions. Separating fixed from marginal magnitudes is important primarily because profit

maximizing banks will seek to equate marginal revenues and marginal costs, while ignoring fixed

costs.[11]   We begin with a description of the marginal cost of funds and then consider fixed costs

and profits. We ask how the value of the subsidy could, in principle, be measured, and conclude

with a discussion of how this subsidy might, in practice, be observed.

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[10]It is important to note that a primary goal of FDICIA was to reduce the benefits of the federal safety net. The act's emphasis on strong capital standards, mandate for risk-based deposit insurance premiums, requirement for prompt corrective action, restrictions on too-big-to-fail policies, and a number of other provisions were all aimed at this objective. Thus, the net effects of recent changes in regulatory benefits and costs is unclear.

[11]However, as discussed below, fixed costs are crucial to making more fundamental decisions, such as those regarding whether to enter or exit the banking industry.

A. The Marginal Cost of Funds for Banks

As depicted in figure 1, in a world without government backing, banks face a marginal cost of funds that rises as assets increase, assuming that the banks hold their leverage ratios and other relevant factors constant. Bank liability holders have different risk preferences, and bank managements, who are profit seeking, minimize the cost of funds by using funds raised from the least risk-averse liability holders first. This marginal cost of funds curve is illustrated by $MC_1(k)$ in figure 1, where k is the banking system's constant capital-to-assets ratio.[12]

In order to maximize profits, banks equate the marginal cost of funds to the marginal revenue earned by deploying these funds. Thus, in the no subsidy world, the banking industry maximizes profits at point A (figure 1), holding assets of a_1 with a yield of r_1. Once the public accepts that the government supports the banking system, the marginal cost of funds declines (in figure 1 from $MC_1(k)$ to $MC_2(k)$) because all bank liability holders now have confidence that in a banking crisis, the system will be preserved.[13] Part of this support is explicit, through the deposit insurance fund, and for this source of funds the risk premium is usually zero. Thus, as illustrated by $MC_2(k)$, the marginal cost curve is flat until assets exceed the availability of insured deposits

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[12]In figure 1, the horizontal axis measures total assets (a) in the banking system, and the vertical axis measures interest rates (r) earned on assets or paid on liabilities. Market demand for bank assets is represented by the downward sloping demand curve D, and its corresponding marginal revenue curve MR. The notion of costs embodied in $MC_1(k)$ is the broadest possible, and thus includes regulatory and supervisory costs.

[13]Note that the lower marginal cost of funds has nothing to do with the risk spreading benefits of deposit insurance, but rather derives from government guarantees supported by access to the sovereign credit of the United States. Some have argued (see Ely (1997)) that the risk spreading nature of federal deposit insurance is key. If this were true, the private sector could provide such insurance. In our view, no private insurer, or group of insurers, can credibly indemnify systemic risk--a fact that explains the failure of the few private and even state government supported deposit insurance plans. In addition, we see no evidence that either banks or their customers view the FDIC's primary benefit as spreading risk among depository institutions. Rather, the benefit is the security that only access to government guarantees can provide. Lastly, if, as Ely argues, the key problem with federal deposit insurance is the fact that low-risk banks subsidize high-risk banks, then a private deposit insurer should be able to "cherry pick" the low-risk banks into its own plan. The fact that no such private insurer has arisen is further evidence that there is (much) more to federal deposit insurance and the rest of the safety net than risk spreading across banks.

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Figure 1
Possible Competitive Equilibria for the Banking System

(this level of assets is denoted in figure 1 by a_f) and then rises, although at less of a slope than in the no subsidy case because of implicit government support promised in times of financial crisis.

With the advent of government support, the banking system moves to a new (partial) equilibrium, denoted by point B. In this new equilibrium, the banking system is bigger ($a_2 > a_1$) and the yield on assets is lower ($r_2 < r_1$). While the banking system is bigger than otherwise, this does not necessarily mean that banks will dominate every business in which they engage. As discussed below, many factors other than the safety net determine the relative competitive positions of bank and nonbank firms. In addition, and as is also discussed below, if the costs imposed on banks by the safety net are high enough, access to the safety net may not make the banking industry more profitable.

The vertical distance between the marginal cost curve in the case of an unregulated and purely private banking system ($MC_1(k)$) and that in a government-backed banking system ($MC_2(k)$) reflects the difference in the way market participants view their losses during extreme circumstances. As discussed in more detail below, this suggests that a natural measure of the marginal value of the safety net subsidy in equilibrium is the distance BB* in figure 1. Note also that if economic times are good and bank failures rare, this distance may be small or even zero, while during bad times, this distance may be great. Thus, the measurement of the value of the subsidy at a particular time is dependent on the perceptions of market participants at a particular time.

Similarly, the difference between these curves for any given bank can differ significantly based on the conditions faced by that bank at a particular time. The curves presented in figure 1, being industry-based marginal costs, represent the summation of individual banks' marginal cost

curves. Again, during good economic times, the dispersion across banks may be small.

It is interesting to note that, while in our figure the marginal cost of insured deposits is constant, and the cost of liabilities rises only after the ability of banks to attract insured deposits is exhausted, the marginal cost of insured deposits need not be constant, and in practice almost surely is not. This can occur for several reasons. For example, all depositors do not value FDIC insurance similarly. Some would not put their funds anywhere but in an FDIC-insured account, no matter what the rate disadvantage, whereas others are somewhat sensitive to yield differentials. If a bank seeks to attract this latter type of customer, it must eventually raise its rates on insured deposits. Also, since raising insured deposits is often heavily dependent upon a branch network, at some point the marginal cost of building and maintaining branches will exceed the marginal cost of uninsured, wholesale deposits.

Indeed, the relative interest-insensitivity of retail insured deposits means that in some situations, such as those that require the raising of funds very quickly, insured deposits will be a distinctly inferior source of funds. In addition, the use of "managed liabilities" easily allows a bank to increase only rates on incremental, or newly acquired, liabilities. In contrast, it is much more difficult, for example, only to raise interest rates on new insured transaction accounts. In any event, as the incremental cost of insured deposits begins to rise, the rational bank will seek to equalize the marginal benefits and costs of all of the funding instruments at its disposal. Thus, we would expect to observe, especially at the largest banks, use of a variety of funding sources. Put another way, the fact that banks fund themselves with liabilities other than insured deposits has no implications for whether a safety net subsidy exists.

B. The Importance of Distinguishing Between Fixed and Marginal Costs

The fixed costs of access to the safety net are almost surely a large proportion of the costs imposed by bank regulations and examinations. Fixed costs include, for example, many of the costs associated with an examination, regulatory reporting requirements, compliance with consumer regulations, and other regulatory and supervisory activities. Small banks often argue that fixed costs are frequently quite large and independent of bank size, and thus are *relatively* more burdensome on small than on large banks.[14] Marginal costs, in contrast, vary with the level of an activity. For example, deposit insurance premium rates vary somewhat with the riskiness of the bank, and each new dollar of discount window loans is charged a (marginal) rate. Put differently, fixed costs cannot be avoided by a bank once the bank has made the decision to be a bank. Marginal costs vary with the size and other characteristics of the bank, and result in large part from decisions the bank makes regarding how to conduct its on-going business.

Fixed costs enter our analytical framework through the average cost function, illustrated by $AC_1(k)$ and $AC_2(k)$ in figure 2. The fixed costs of the banking system are where the long-run average cost functions intersect the vertical axis (denoted by F), and the minima of the average cost functions are at points A and B, the points where marginal costs equaled marginal revenues in figure 1. Average costs (per dollar of assets) borne by the banking system are denoted c_1 in the no subsidy case, and c_2 in the subsidy case. However, the key point to note in figure 2 is that the long-run equilibrium levels of output and interest rates are unchanged by the level of fixed costs.

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[14] Research evidence supports this view. See Elliehausen (1997), pp. 45-47.

Figure 2

Costs and Profits for the Banking System
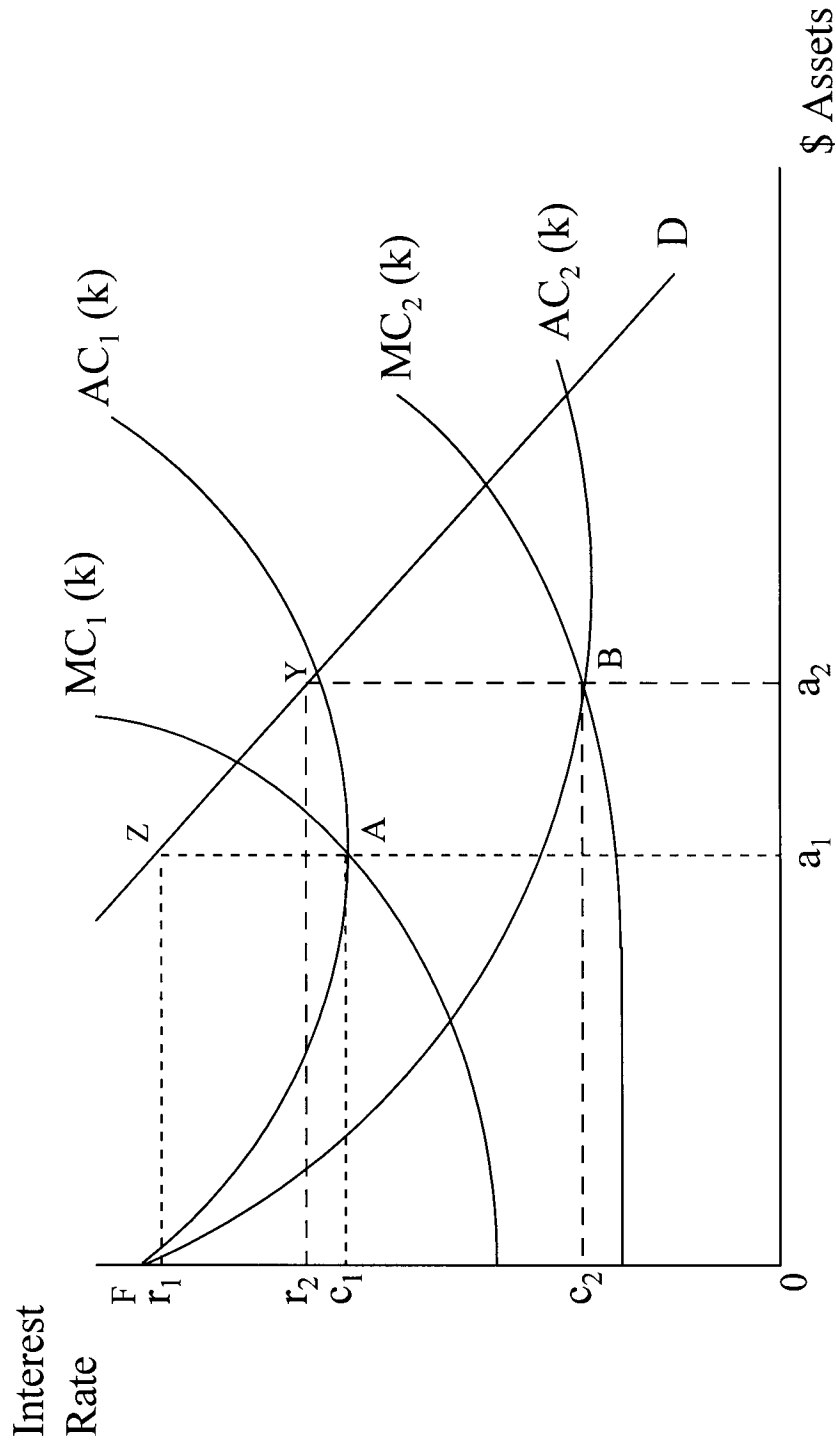
In practice, distinguishing between fixed and marginal costs is often quite difficult. For example, any level of bank examination, or even the anticipation of an examination, imposes fixed costs on a bank. But decisions by the bank regarding its degree of risk taking also can impose marginal examination costs as supervisors spend increased time in the bank examining its activities and perhaps imposing sanctions. While measurement difficulties make estimating fixed and marginal costs difficult, the distinction between the two is of more than academic interest. This is because it is marginal costs that are relevant for understanding how a bank will *choose* to behave in attempting to exploit any safety net subsidy, and such attempts are our primary concern.

A useful analogy is provided by the government-subsidized interstate highway system. Depending upon many factors such as an individual's income, location, and taste for automobile travel, the benefits of government-subsidized interstates may or may not exceed the fixed costs imposed on any given individual for having access to government highway services. For example, the taxes paid by an individual may far exceed the value he or she derives during the year from driving on an interstate. However, the size of the annual fixed costs relative to the annual benefits of the interstate highway will be irrelevant to any individual's decision of whether or not to use a subsidized interstate at any point in time. The taxes (the fixed costs) will be paid regardless of the use of the highway; thus they are irrelevant for the decision of whether or not to use the highway. When deciding whether or not to drive on an interstate today, an individual compares today's marginal benefits to today's marginal costs, and proceeds to use the interstate if this marginal benefit exceeds the cost.

C. Profits and Benefits from the Subsidy

Returning to banking, a bank will use the marginal value of the safety net--its provision of a lower cost of funds and a lower capital ratio--to the bank's advantage regardless of whether the safety net's *total* net benefits are positive or negative. For example, a bank's decision regarding whether to downstream low-cost funding to an insurance subsidiary will not depend on the (largely fixed) costs the bank incurs when it undergoes a bank examination; because examination costs are borne whether the funds are downstreamed or not.

In figure 2, the banking system's profits are denoted by the rectangle r_1c_1AZ in the no subsidy case, and r_2c_2BY in the case of a subsidy. In our drawing, profits with the subsidy exceed profits without a subsidy, but this does not have to be the case. If a subsidy also implies substantially higher fixed costs, say, as a result of regulatory or supervisory costs, profits could be lower in the case of a subsidy. Indeed, if fixed costs were high enough in either case, profits could be driven to zero or even become negative.[15] As noted below, in this latter case capital (and probably firms) would exit the industry.

While marginal benefits and costs are critical for understanding bank behavior in the presence of a federal safety net, there is one key circumstance where the total benefits and total costs of the safety net clearly enter a bank' s profit-maximizing calculations--when the bank seeks to determine whether it should escape the costs of the safety net by giving up its bank charter. The fact that we do not observe banks voluntarily relinquishing their charters suggests

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[15]Thus, shareholders (as opposed to bondholders who clearly benefit) may or may not benefit from the presence of the safety net subsidy.

that the total net benefits of the safety net are positive for the vast majority of banks.[16] Indeed, many indicators strongly suggest that the bank charter continues to have significant value, and is expected to have substantial value well into the foreseeable future. For example, indexes of BHC stock prices have generally significantly outperformed indexes of the broader market over the past two years. Such forward-looking measures are a strong vote of market confidence in the future of banking organizations. These expectations are supported by record rates of return on bank assets and equity, robust measures of overall credit quality at banks, and low rates of bank failure over the past several years. Other important signs of high value include continuing entry into the banking business by new firms, recent efforts by a number of insurance and securities companies to enter banking by acquiring a thrift institution, and the large premiums paid over the past year by acquiring banks in mergers and acquisitions.[17]

The values of both total and marginal benefits will increase with upward shifts in the marginal revenue curve. These shifts are likely as the riskiness of a given activity and the range of risky activities open to banks increases. In particular, *new* activities will provide *new* opportunities for banks to take advantage of the safety net by using funds raised at marginal costs below those of nonbanks already engaged in the same activities. Again, this is because the

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[16]We understand that relinquishing a bank charter is in fact a complex decision. For one thing, as discussed shortly, measuring the value of the safety net subsidy is very difficult. When asked about the feasibility of giving up their charter, bankers sometimes point to the fact that many existing (and quite valuable) bank customers are either required or strongly prefer to deal with an insured depository for certain transactions. Thus, a bank that gave up its charter would lose such business. We note, however, that presumably such requirements and preferences reflect customers' desires for a level of safety that only a government-backed institution can provide. To the extent this is the case, such requirements and customer choices reflect an additional benefit granted to banks by the safety net. Indeed, an aspect of the safety net that is normally not included on the list of potential safety net benefits, but which may be of substantial importance, is the value of the "certification" given to the banking industry by the government's examination and supervision of banks. Such certification seems to be of particular importance in international banking.
[17]See Boyd and Gertler (1994) and Ettin (1994) for interesting critiques of the view that banking is a declining industry.

(subsidized) marginal cost of funding does not reflect the full risk premium that bank creditors would charge the bank if there were no safety net. Thus, the riskier the activity, the larger the spread between the bank's cost of funds and the bank's expected rate of return on the activity.

These effects are illustrated using figure 3. Here, the nonbank equilibrium represents an industry that banks could not enter historically, but are now permitted to enter. With the entry of banks, the marginal cost curve falls to $MC_{Bank}(k)$, and thus yields drop from r_{old} to r_{new} and assets increase from a_{old} to a_{new}. The firms in the industry prior to the entry of banks were profitable, but without access to the subsidy, these firms suffer losses as the new competitive yield is less than their breakeven yield ($r_{even} > r_{new}$).[18] To survive, nonbank firms must lower their average and marginal costs, or differentiate their products so as to increase marginal revenues, until their earnings rise enough to provide a competitive return on equity. Possible strategies for achieving this include the adoption of new technologies, more efficient management, and shrinkage in size. In contrast, banks with access to a lower marginal cost of funds will want to enter the business because even at the lower yield r_{new} they can earn a competitive rate-of-return on capital.

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[18]Of course, it is possible for the marginal cost curve to shift down by a small enough amount to allow $r_{new} > r_{even}$. However, as is the case for the example discussed in the text, this equilibrium is not sustainable. Nonbanks must either lower their marginal costs to the level of banks or raise marginal revenues.

Figure 3
Bank and Nonbank Competition in New Industries Opened to Banks
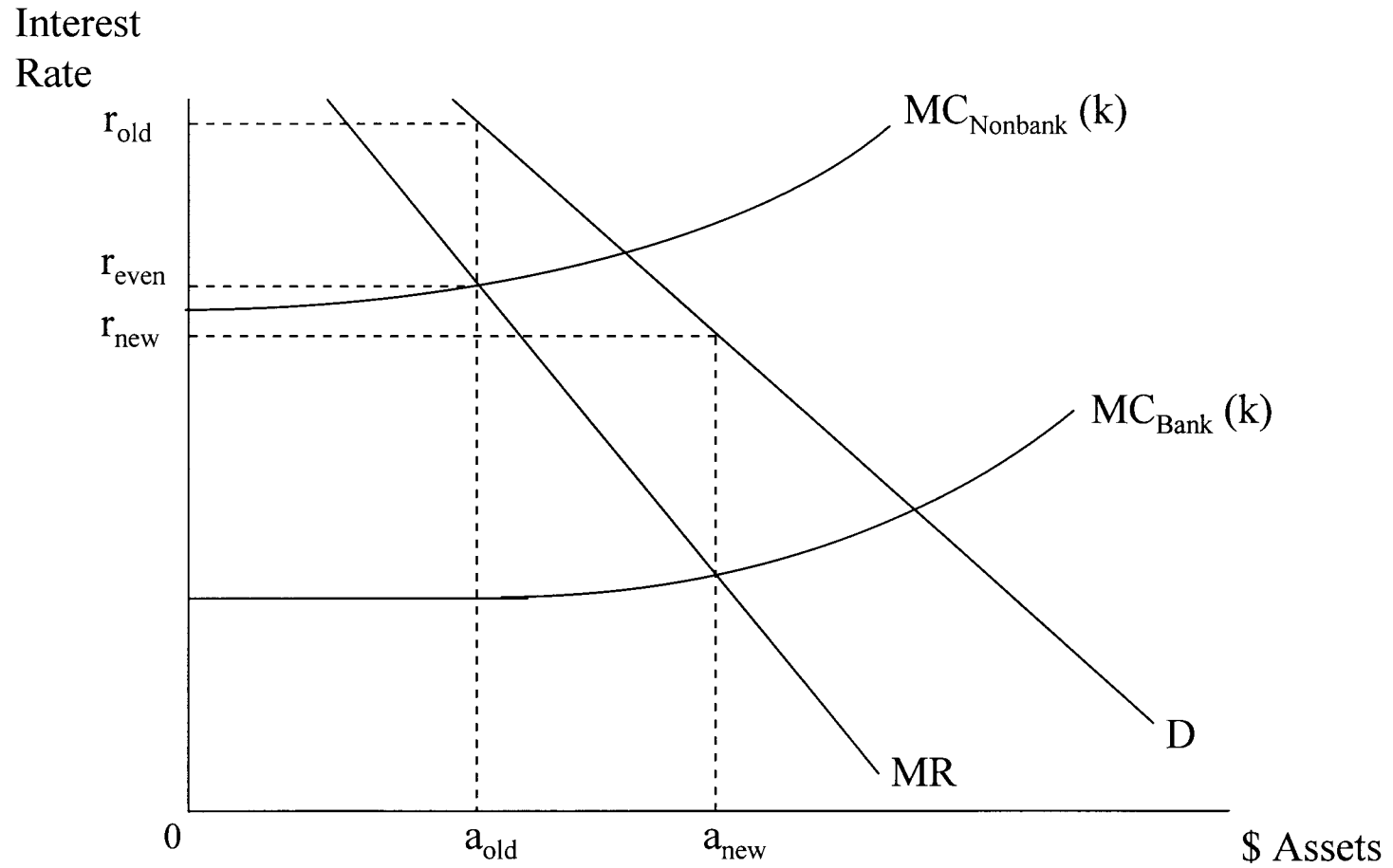
D. How Can We Observe the Subsidy?

In the model just described, the marginal value of the subsidy depends on the size and leverage of the banking industry. Returning to figure 1, as noted earlier, the safety net's marginal value (in equilibrium) is the difference between the two marginal cost curves at a_2, here the distance BB*. Viewed in this light, measuring the value of the safety net subsidy is clearly problematic, since the marginal cost curve of the nonsubsidized banking industry, $MC_1(k)$, is a hypothetical construct.

A natural approach to estimating $MC_1(k)$ in figure 1 is to estimate a marginal cost curve for firms that are highly similar to banks, but which lack access to the safety net. Unfortunately, it is extremely difficult to find such firms that *also* have publicly available data and traded debt sufficient to make reliable estimates.

In contrast, the book value of leverage--defined as the ratio of a firm's capital-to-assets-- is relatively easy to observe.[19] A leverage calculation can be made for any firm that makes a balance sheet publicly available. Of course, comparisons of leverage across institutions can be difficult because of different accounting conventions and business strategies, and because the difficultly of controlling for a variety of industry factors bedevils leverage comparisons as well as marginal cost comparisons.

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[19]The price-to-earnings ratio is sometimes suggested as an alternative, easy-to-observe, measure of the subsidy's effects. However, because the subsidy enhances earnings, it affects both the numerator and denominator of the price-to-earnings ratio, and thus the direction of the change in a firm's ratio is unclear.

Still, leverage is easier to calculate than marginal costs, and our theory suggests that firms

receiving benefits from the federal safety net should, all other things equal, operate with a lower

capital-to-assets ratio. This is illustrated in figure 4, which shows that as banks' capital-to-assets

ratio falls from k_H to k_L the marginal cost of funds curve rises (moving from $MC_3(k_H)$ to

$MC_4(k_L)$) for all liabilities except insured deposits (which, recall, are only available to fund

assets up to a_f).[20] Note that there are an infinite number of marginal cost curves between

$MC_3(k_H)$ and $MC_4(k_L)$, each characterized by a different leverage ratio. The jump in the marginal

cost curve (MC_3 to MC_4 at a_f) represents the risk premium demanded by the lowest cost,

noninsured debt holder.[21] Again, in good times for a well run bank this may be a small jump,

while in bad times or for a poorly run bank it may be very large.

Since each leverage ratio defines a different marginal cost curve, the possible equilibrium

for the banking industry could be anywhere along the line segment CD, with all levels of assets

associated with this line segment larger than the level associated with an unregulated and purely

private banking system. In fact, in a perfectly private and competitive market, as the capital-to-

assets ratio falls, the rise in marginal costs should precisely offset the lower costs associated with

less capital. That is, debt holders of firms with a smaller equity cushion demand higher risk

premiums that *fully* compensate them for the increased risk. In such a world, banks would be

indifferent as to where they operated along CD because profits would be the same at all points.

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[20]Note that the marginal cost curve for an unregulated and purely private banking system lies above MC_4; its intersection with the marginal revenue curve is depicted as point A in figure 4. Here, even though the capital ratio is higher at point A, the risk premiums demanded by bondholders in the no subsidy world more than offset the lower costs associated with a higher capital ratio. Thus, the marginal cost curve is higher in the unregulated and purely private banking system.
[21]In figure 4, this premium is depicted as a constant for all levels of noninsured debt. However, this clearly need not be the case (indeed, as discussed shortly, it probably is not the case), and our model does not depend upon this assumption.

Figure 4

The Effect of Leverage on Bank Marginal Costs
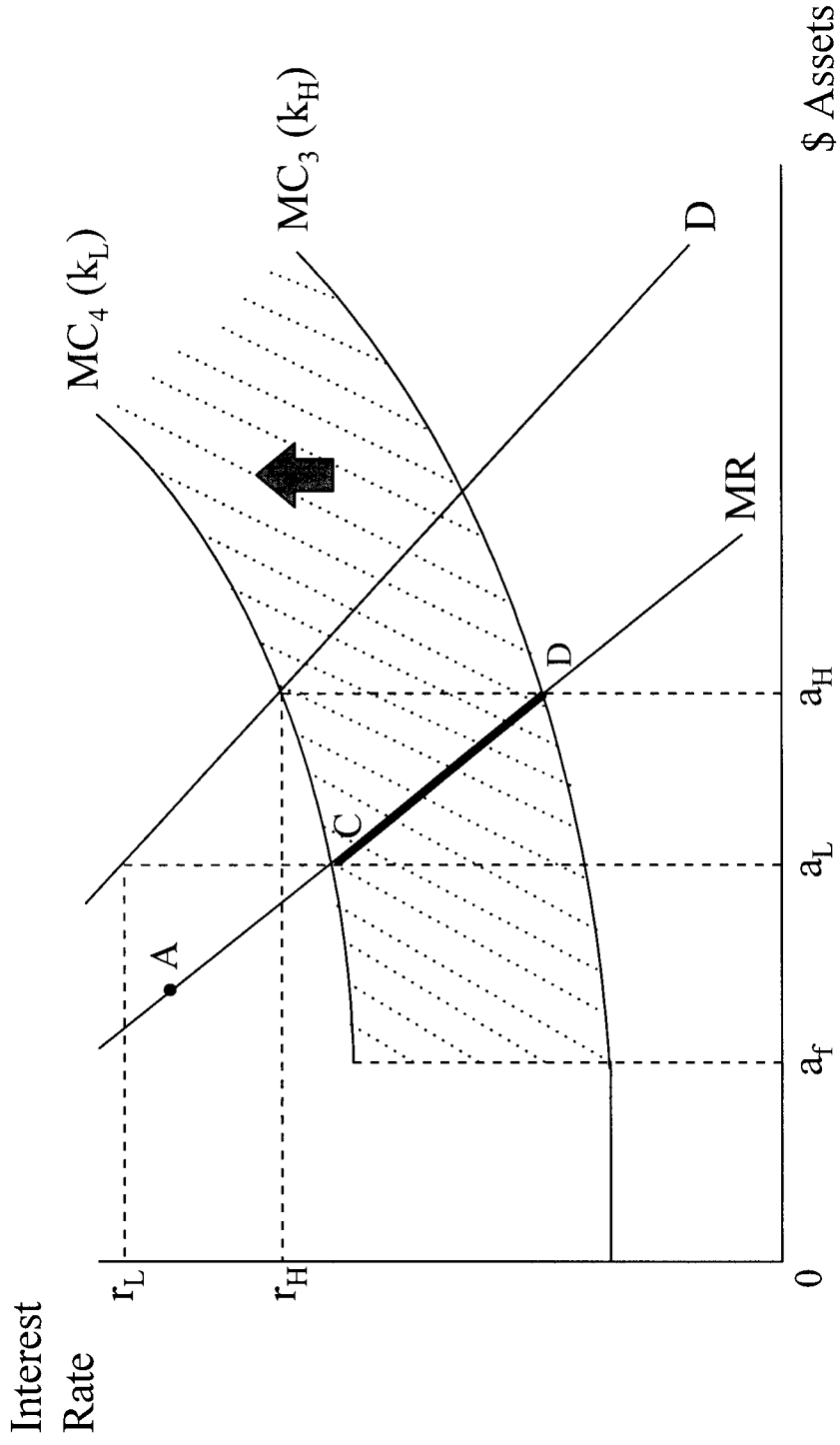
However, we believe that banks have, in practice, strong incentives to substitute debt for equity, and thus the equilibrium will tend toward C, the equilibrium characterized by a relatively low capital ratio. In part, this is because debt finance has tax advantages. However, in the context of this discussion of safety net effects, the key consideration is that bank debt holders, unlike debt holders of nonbank firms, expect that banking organizations will be protected during some, if not all, financial crises, thereby allowing them to avoid many of the substantial costs associated with bankruptcy. (The most extreme form of this expectation is held by bank creditors who believe that their banking organizations are "too-big-to-fail.") Such expectations are probably strongest for (short-term) debt instruments that are more like deposits, and are probably weakest for (longer-term) debt instruments that are more like equity.[22] Thus, risk premiums on debt that is closely related to deposits are relatively smaller than those on debt instruments more like equity, providing bank owners and managers with a profit incentive to maximize their use of debt, all other things equal.

E. Previous Estimates of the Subsidy are Flawed

While acknowledging that measuring either the gross or the net value of the safety net subsidy is difficult, a number of recent studies go on to argue strongly that there is no net subsidy. An important example is contained in March 1997 testimony given by the FDIC.[23] But a close reading of the FDIC's work--as well as more recent works published by Whalen (1997) and the Banker's Roundtable (1997)--reveal several methodological flaws. The foremost--the

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[22]This view is consistent with that of safety net reform proposals that advocate requiring increased use of subordinated debt by banks. See Litan and Rauch (1997).
[23] See Helfer (1997).

theory for which was described above--is that most estimates never distinguish between fixed

costs and marginal costs, and inappropriately sum average fixed costs and the marginal costs.

As just discussed, only marginal costs are relevant as an offset to the marginal benefits of the

safety net when considering the competitive advantage of banks relative to nonbank competitors,

especially for new activities.

In addition, previous estimates of the net subsidy do not vary across either banks or the

phase of the business cycle. As also discussed above, the value of the subsidy (and its costs) can

vary substantially over both of these dimensions. Thus, such distinctions are crucial to

measuring the value of the safety net, and for understanding the implications of the safety net for

the relative competitive positions of banks and nonbanks, especially during periods of overall

economic stress.

Finally, existing efforts to measure the total net subsidy suffer from an additional

shortcoming. Clearly, any costs that banks would incur in the absence of any safety net should be

subtracted from estimates of the total costs of the safety net today. Such actions would include

the prudent management of risks, and the maintenance of accurate and useful records. In

addition, without the "certification" benefits of bank supervision, banks could well be required by

market participants to provide information regarding their financial condition over and above

what banks provide today.[24]   Rating agencies indicate publicly that they attach value to the

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[24] The admittedly weak evidence on this point suggests "that many of the activities required by bank regulation would have been performed anyway, although perhaps not exactly in the same way." See Elliehausen (1997), p. 19. As noted by Miller (1995), "... if the government is indeed insuring bank deposits either explicitly, or implicitly via the too-big-to-fail doctrine, then it effectively stands as a creditor vis-a-vis the bank's owners; and its regulations, to be socially efficient, should resemble the measures adopted by freely-contracting private lenders in similar circumstances. And, at least in a broad-brush way, they really do. Both, for example, maintain surveillance against changes in the debtor's business activities that might jeopardize the safety of the loan; both impose equity capital requirements; and both

relative effectiveness of the U.S. supervisory system when rating bank debt. This helps U.S. banks receive higher ratings than banks in many other countries. Unfortunately, it is virtually impossible to get an accurate estimate of the cost of actions that a bank would take on its own in the absence of supervision and regulation. Thus, existing estimates of regulatory costs do not attempt to calculate any such "adjusted" measure of the true additional costs of government supervision and regulation.

On balance, in our judgment, existing estimates of both the benefits and costs of the safety net must be viewed with deep reservations.

III. Observing the Safety Net Subsidy Using Leverage Ratios

The theory advanced in section II suggests that the subsidy advantage of banks can be observed, if perhaps not measured precisely, by comparing either the marginal cost schedules for funding or the leverage ratios of banks and their nonbank competitors. For the reasons discussed above, we focus our attention on leverage ratios. A multi-comparison approach is taken because no one data set is ideal for this purpose, and because any cross-industry study is, because of the difficulties of making such comparisons, subject to substantial uncertainty.[25] By looking at the

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monitor any dividend diversions to the shareholders that might pull the capital ratio below the agreed-upon levels. So close is the mimicry in fact, that I can't help smiling at complaints from bankers about their capital requirements, knowing that they have always imposed even stronger requirements on people in debt to them."

[25]For example, while our work attempts to keep the definition of equity constant across industries, our statistical "controls" for important variables such as differences in size, asset and liability composition, off-balance sheet activity, asset quality, and other measures of risk and risk management are imperfect or nonexistent. In addition, it is not always clear whether differences between banks and nonbanks would, on balance, imply higher or lower capital ratios at banks. For example, lower asset risk at banks would imply, other things equal, a lessened need for capital; but greater liquidity risk on the liabilities side of bank balance sheets would imply a greater need for capital.

same issue from several directions, it should be possible to reach more reliable conclusions than would be possible with any single approach.

Our first set of comparisons is summarized in table 1, which provides data on publicly traded BHC and nonbank financial institutions' equity-to-asset ratios.[26] Because a primary goal of FDICIA was to shrink the size of the safety net subsidy provided to banks, table 1 splits the total 1985-1996 sample period into pre-FDICIA (1985 through 1992) and post FDICIA (1993 through 1996) periods. In this way we should be able both to roughly control for any "regime" change in regulatory policy due to FDICIA, and to examine whether evidence of such a regime shift exists. In the table, the average median equity-to-assets ratio for each type of firm is given pre-FDICIA (column 1) and post FDICIA (column 3). In addition, the differences between the average medians of the appropriate (large or small firm) BHC capital ratio and nonbank firms' capital ratios are given pre-FDICIA (column 2) and post FDICIA (column 4).

Looking first at the results in table 1 for large firms, in both the pre- and post FDICIA periods large BHCs have considerably higher equity-to-assets ratios than do large investment banks. Indeed, after FDICIA the average median equity ratio at large BHCs is 4.4 percentage points higher than the average median at large investment banks. Interpretation of these results is complicated by the fact that large investment banks hold relatively greater shares of their assets

[26]The data in table 1 are based on the annual data given in Appendix tables A1 and A2. Appendix table A1 compares equity-to-assets ratios of BHCs, investment banks, life insurance companies, and property-casualty insurance companies for the years 1985 through 1996. All data are drawn from the Computstat files, and thus are for publicly traded firms. Firms are separated into large, small, and all firms (definitions are given in the notes to the table), medians are shown for the large and small categories, and the (unweighted) mean is given for the "all" category. Table A2 shows comparable data for various categories of finance companies: personal credit companies, noncaptive finance companies, captive finance companies, and all finance companies.

Table 1.   Average Median Equity-to-Assets
             Pre- and Post-FDICIA
             Percent

Type of Firm	Pre-FDICIA 1985-1992		Post-FDICIA 1993-1996	
	(1)	(2)	(3)	(4)
	Level	BHC-Level	Level	BHC-Level
BHCs				
large	6.2	NA	7.8	NA
small	6.7	NA	8.8	NA
Investment Banks				
large	3.6	2.6	3.4	4.4
small	23.3	-16.5	27.7	-18.9
Life Insurance				
large	12.0	-5.8	8.5	-0.7
small	17.7	-11.0	14.0	-5.2
Property-Casualty Insurance				
large	15.4	-9.2	12.4	-4.6
small	26.8	-20.1	27.0	-18.2
Personal Credit Companies				
large	10.8	-4.6	10.9	-3.1
small	15.9	-9.2	17.3	-8.5
Noncaptive Finance Companies				
large	11.3	-5.1	10.4	-2.6
small	17.8	-11.1	18.7	-9.9
Captive Finance Companies				
large	9.4	-3.2	10.5	-2.7
small	14.7	-8.0	13.6	-4.8

For all definitions see notes to Appendix tables A1 and A2.

in very short-term low-risk "matched book" securities. Once the low levels of capital needed to support matched book securities are taken into account, it appears that large investment banks' lower capital ratios relative to BHCs diminish greatly or disappear.[27]

Turning to comparisons with large life insurance companies, in the pre-FDICIA period, equity ratios at large BHCs were considerably below those at large life insurance companies, but since FDICIA this difference has shrunk considerably (but is still lower at the large BHCs). Still, for eleven of the twelve years shown in table A1 the median equity-to-assets ratio at large life insurance companies exceeded the median ratio at large BHCs.[28] Stronger patterns are evident in the comparisons between large BHCs and large property casualty insurers. In particular, capital ratios at large property casualty insurers are considerably above those at large BHCs both before and after FDICIA, although the difference declines by fifty percent between the two periods. Similar qualitative results are observed across all three classes of large finance

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[27]To investigate this conjecture, we adjusted the balance sheets of the three largest investment banks--Merrill Lynch, Morgan Stanley, and Salomon--by assuming that their current (1997) short-term liabilities are used to fund inventories and marketable securities, and separating these liabilities (and a corresponding amount of assets) into "matched book" business. We then assumed that this line of business had a 2.5 percent capital requirement (the a minimum amount required of Freddie Mac and Fannie Mae for their portfolios, and probably much less than that required by the SEC), and allocated the remaining capital to the investment bank's other activities. As a result of these adjustments, the equity-to-assets ratio on the firm's other activities rose to 8.2 percent for Merrill Lynch, 6.4 percent for Salomon, and 20.0 percent for Morgan. This calculation, while suggestive, is clearly rough. On the one hand, it may understate the adjusted capital ratios because the capital needed for a matched book of securities may be less than assumed here. On the other hand, our estimate of the size of the matched book may be too large.

[28]Interpretation of the results for large insurance companies is especially difficult because many of the largest insurers are mutual organizations, and thus not included on Compustat. Seven of the ten largest life insurers are mutual firms, as are three of the top ten property-casualty companies. However, the relatively lower capital ratios at insurance companies over the past several years may be partly accounted for by the increasing use of "separate account" assets by insurance companies. These assets are transparent to the policyholder, transfer the market risk of assets from the insurance company to the policyholder, and limit the policyholder's exposure to the possible insolvency of the insurance company. All of these characteristics of separate account assets imply that insurance companies need to hold relatively less capital than if their assets consisted exclusively of "general account" assets.

companies--personal credit companies, noncaptive and captive finance companies.[29]

Comparisons across the small firm rows in table 1 demonstrate the critical role of size. While equity ratios at small BHCs rise relative to those at large BHCs, this increase pales in comparison to the increases at small nonbank financial institutions. Thus, the average median equity ratio at small BHCs is, in both the pre- and post FDICIA periods, always substantially smaller than the average median ratio at small nonbank firms.[30]

Still, the pre- and post FDICIA comparisons across the small firms are of interest. Except for the comparisons with small investment banks, where the small BHCs actually fall further behind small investment banks post FDICIA, the difference between small BHCs and nonbank firms is larger in the pre- than in the post FDICIA period. The decline in the gap is not always large, but a decrease does appear to exist.

The data presented in table 1 are consistent with three broad conclusions. First, with the understandable exception of large investment banks, BHC equity ratios are much lower than equity ratios at nonbank financial institutions. Second, FDICIA may have reduced somewhat the ability of BHCs to operate with lower capital ratios than do nonbank financial firms. The gap between equity ratios at BHCs and nonbank financial firms generally, but not always, narrows

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[29] By captive finance companies we mean firms that are closely associated with a parent corporation (e.g. General Motors Acceptance Corporation, Ford Motor Credit). However, it is important to note that separating captive and noncaptive finance companies is a very uncertain undertaking. This is because even firms that claim to be noncaptive appear to often benefit from substantial explicit guarantees (not to mention implicit guarantees) from a deep pocket parent. For example, this is true for General Electric Capital Corporation.

[30] Indeed, across all of the annual comparisons in tables A1 and A2, *only* the large investment banks in all years, and *only* large life insurance companies in 1996, have lower equity-to-asset ratios than the BHCs.

post FDICIA. Finally, with the exception of large life insurance companies, the post FDICIA differences remain quite large.

An alternative comparison of capital ratios at banks and finance companies is provided in table 2. Here commercial bank and finance company equity-to-assets ratios in only 1996 are contrasted using a different data set--the Federal Reserve's June 1996 Survey of Finance Companies and regulatory Call Report data--and a somewhat different methodology.[31] Table 2 presents averages weighted by total assets, excludes finance company subsidiaries of BHCs, and separates firms into various size classes, including those used to define large and small firms in table 1.

As may be seen in the last column of table 2, across all size categories finance company equity ratios are considerably larger than those at commercial banks. At the largest firms, the difference is 2.1 percentage points. But size is, once again, clearly important. At firms with total assets between one and ten billion dollars, the finance company ratio is 5.4 percentage points above that of comparably sized commercial banks, while for firms under one billion dollars the difference climbs to 9.0 percentage points.

In general, the market will require relatively risky firms to hold higher capital ratios. Since finance companies are normally viewed as having riskier portfolios than banks, this perception could account, at least in part, for the higher capital ratios at finance companies.[32] In an effort to control for risk differences, we conducted a firm-by-firm comparison between a small

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[31]The 1996 Survey of Finance Companies is described in August *et.al* (1997).
[32]For evidence on this point see Carey *et.al.* (1997).

Table 2.　　　Equity-to-Asset Ratios of Commercial Banks
　　　　　　　and Non Bank Holding Company Finance Companies

Percent
As of 6/30/96

Size Class	Commercial Banks	Finance Companies	CBs-FCs
TA ≥ $10 billion	7.4 (70)	9.5 (13)	-2.1
TA < $10 billion	9.3 (9531)	14.8 (191)	-5.5
$1 bil ≤ TA < $10 billion	9.0 (319)	14.4 (34)	-5.4
TA < $1 billion	9.7 (9212)	18.7 (157)	-9.0
ALL	8.3 (9601)	10.8 (204)	-2.5

Number of firms in parentheses.

All ratios weighted by total assets.

Commercial bank data from Call Reports. Finance Company data from the Federal Reserve's 1996 Survey of Finance Companies.

number of large banks and noncaptive finance companies where Moody's rating on a bank's

long-term deposits was equivalent to its rating on a finance company's long-term senior debt.

These comparisons, conducted from March 1996 through March 1997, indicated that over this

period the market required equity-to-assets ratios to be at least four percentage points higher, and

frequently seven to nine percentage points higher, at the finance companies. For example, in

order to achieve the *same* debt rating, at the end of 1996, both Bankers Trust and Commercial

Credit were rated A1 by Moody's, yet Bankers' equity-to-assets ratio was 5.4 percent, while

Commercial's was 13.6 percent. Similarly, NationsBank, First National Bank of Chicago, and

Associates Corporation of North America were all rated Aa3, while their respective capital ratios

were 6.8 percent, 7.8 percent, and 11.9 percent.

In sum, recent data on bank and finance company equity ratios strongly support the

general conclusions reached from our analysis of table 1. That is, with the understandable

exception of large investment banks, equity capital ratios at BHCs and banks are generally

considerably below those of nonbank financial intermediaries, even in the post FDICIA period.

In our judgment, these continuing differences are quite likely due, in substantial part, to the fact

that banks have direct access to the federal safety net.

IV. The Structure of Banking Organizations

Debate over whether the BHC subsidiary or the bank subsidiary organizational form is best at containing subsidies has focused on the current choice of organizational structures by banking organizations, and how bank subsidiaries might be constrained in their ability to absorb safety net subsidies. This section examines the key arguments recently put forward in this debate.

A. The Current Structure of Banking Organizations

It has been argued that the existence of a significant subsidy would imply that all BHCs would use the bank subsidiary structure for those nonbank activities that can be conducted either in the bank or in a BHC affiliate. For example, Whalen (1997) presents data which show that, as of 1996, banking organizations in fact have chosen both structures in a large number of cases. Whalen views this evidence as being either inconsistent with the widespread existence of a substantial subsidy or suggesting that the subsidy is the same for both the bank subsidiary and the BHC subsidiary organizational forms.

In our view, such data on banks' choices of organizational structure do not make a persuasive case for the lack of a significant safety net subsidy. As a general matter, we would expect to observe both bank subsidiary and BHC subsidiary structures since prudent bank managements will weigh all relevant factors, in addition to the value of the safety net, when deciding upon the best organizational structure. For example, in past years BHCs have moved many activities out of the bank in order to avoid geographic restrictions. Over time, some of

these bank affiliates have established names (or already had established names when they were purchased by a BHC) and an interstate network whose value would be reduced if subsumed within a bank. In addition, there can be adverse tax implications from shifting existing activities back to the bank. Finally, some of these activities may not be both asset intensive and relatively risky, and hence may not benefit significantly from subsidized bank funding.

More importantly, Whalen's methodology ignores the fact that banks' ability to exploit a safety net subsidy directly in the bank has improved over the last decade as legal barriers to interstate banking have declined. The removal of legal restrictions imposed by the states on geographic diversification began in earnest during the mid-1980s. For example, during the 1980s twenty-two states reduced branching restrictions compared to only six states during the 1970s. Also during the 1980s, most states passed laws allowing the acquisition of in-state banks by out-of-state organizations. By the time of passage of the Riegle-Neal Act by the Congress in late 1994, only Hawaii had not enacted some form of interstate banking at the state level.

The progressive relaxation of legal constraints on interstate banking suggests that a more compelling test of whether banking organizations prefer a bank or a bank holding company subsidiary structure would be to examine trends over the last decade in the structure of banking organizations. In addition, rather than focusing on the number of subsidiaries in each structure, a more persuasive approach would be to look at the proportions of the total dollar volumes in various organizational structures, and how these proportions have changed over time.

Table 3 presents our calculations of the dollar value and the percent of total BHC assets

in nonbank subsidiaries for selected activities that can be conducted in both a bank and a BHC

subsidiary over the years 1986 through 1996.[33] The dollar value of total BHC assets is also given

in the penultimate row of table 3. The activities selected are major activities that can be

conducted in both a bank and a BHC subsidiary. Given that total BHC assets increased by 46

percent between 1986 and 1994 (and by 70 percent from 1986 to 1996), a substantial decline

over time in the percent of assets held at the BHC subsidiary level would be consistent with the

migration of such activities from holding company subsidiaries back into the bank.[34] A decline

in dollar values would be further supportive of this view.

The results shown in table 3 are indeed consistent with the view that, over the last decade,

BHCs have been moving those activities that could be conducted in banks from BHC

subsidiaries back into the bank. Looking at the last row of the table, a steady decline in the

percent of BHC assets held in BHC subsidiaries in the included activities is clear. For example,

the percentage of the included activities in BHC subsidiaries fell from around 3.8 percent in

1986-1988 to about 1.8 percent in 1993-1994. More specifically, the drop between 1986 (3.83

percent) and 1994 (1.74 percent) was 55 percent. Even for the two years of data after the break

in series, the percentage falls from 2.3 percent to 1.8 percent.

Even more striking than the total percentages, the percentages for the three most important

individual activities--commercial finance, mortgage banking, and consumer finance--*all* show

substantial declines. The drop in the percentage for commercial finance is a standout. The percent of

total BHC assets held in commercial finance subsidiaries fell from a high of 1.4 percent in 1988 to

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[33] As noted in the table, there is a break in series in 1995 that makes interpretation across this date difficult.
[34] BHCs could, of course, simply be closing such businesses. Other than some idiosyncratic cases (and we know
of one in 1995), this seems like an unlikely explanation for any substantial and sustained decline in the percentages
shown in table 3. However, this possibility does reinforce the need to look at trends over time.

Table 3
Assets of Selected Nonbank Subsidies of Bank Holding Companies
by Type of Activity, 1986-1996
(BILLIONS of $)
(% OF BHC ASSETS)

Activity	Year							
	New Report 1996	New Report 1995	1994	1993	1992	1991	1990	1!
Commercial Finance	22.0	27.9	12.1	20.1	16.2	18.0	23.9	2
	0.52%	0.71%	0.33%	0.60%	0.52%	0.60%	0.80%	0.!
Mortgage Banking	16.6	25.0	23.1	19.4	19.2	20.7	22.1	2
	0.39%	0.64%	0.63%	0.58%	0.62%	0.69%	0.74%	1.(
Consumer Finance	20.1	20.7	17.0	14.5	11.8	15.7	18.8	2
	0.48%	0.53%	0.47%	0.43%	0.38%	0.52%	0.63%	0.!
Leasing	11.6	10.6	8.5	5.2	5.6	6.7	9.3	1
	0.27%	0.27%	0.23%	0.15%	0.18%	0.22%	0.31%	0.:
Data Processing	3.9	3.2	2.3	1.9	1.8	1.7	2.2	:
	0.09%	0.08%	0.06%	0.06%	0.06%	0.06%	0.07%	0.(
Insurance Agency	3.2	2.2	0.5	0.7	0.4	0.4	0.3	(
	0.08%	0.06%	0.01%	0.02%	0.01%	0.01%	0.01%	0.(
Total Included Nonbank Activities	77.4	89.6	63.5	61.8	55.0	63.2	76.6	9
Total BHC Assets	4225.7	3909.3	3640.4	3371.3	3091.9	3011.8	2984.5	28
Included Nonbank as % of Total BHC	1.83%	2.29%	1.74%	1.83%	1.78%	2.10%	2.57%	3.:

NOTES: The nonbank activity reporting system changed in 1995. For 1995 onward, individual subs are group
groupings used in the years 1986-1994. Thus, changes between 1995 and earlier years should only be viewed a

Data are from the FR Y-11AS for 1986-1994, and the FR Y-11Q and FR Y-11I for 1995 and 1996.

only 0.3 percent in 1994, a reduction of 76 percent. In addition, the nominal dollar assets in all three of these activities declined substantially, even across the break in series.

Qualitative impressions gained from a survey of Reserve Bank supervisory staff are consistent with the empirical results just discussed. While emphasizing the importance of case-by-case factors, Reserve Banks reported that the trend over many years has been for large BHCs to consolidate nonbank operations into the bank, in some cases through the direct transfer of nonbank subsidiaries. However, Reserve Banks noted that BHCs rarely formally transfer a nonbank subsidiary to a bank through an organizational restructuring; instead the activity is often transferred by booking transactions in the bank and permitting the nonbank BHC subsidiary to wind down and become less active.[35] Despite this observation, Reserve Banks reported more than 20 instances since the 1980s where "material" nonbank subsidiaries were transferred directly under the bank. In contrast, there were no cases identified of significant credit-extending activities being moved from a bank to a BHC subsidiary.

When asked why they might prefer conducting nonbank activities in a bank, banking organizations typically cite three reasons: (1) lower funding costs and improved liquidity; (2) elimination of Sections 23A and 23B restrictions; and (3) operating efficiencies. It is clearly reasonable to argue that the first two reasons are in large part motivated by the subsidy provided by the federal safety net.

B. The Future Structure of Banking Organizations

It is often argued that using bank subsidiaries is more efficient than using a bank holding company. Yet the proponents of bank subsidiaries who are aware of the possibility of subsidy

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[35]This practice clearly reinforces the inadequacy of just looking at the number of BHC and bank subsidiaries, even over time.

transfers also adopt the position that they can duplicate all aspects of the bank holding company relating to subsidy transfers. Thus, it is typically proposed that bank subsidiaries be subject to a number of restrictions aimed at limiting subsidy transfers. These restrictions normally include, for example, limits on transactions between a bank and its bank subsidiary similar to limits contained in Sections 23A and 23B of the Federal Reserve Act on transactions between a bank and its BHC affiliate. Advocates of such restrictions within the bank subsidiary structure fail to point out that it is precisely these types of limits that are often identified by critics as the key regulatory "inefficiencies" of the BHC organizational form. Put differently, it appears that even in the eyes of many advocates of the bank subsidiary structure either the bank subsidiary is an easier mechanism for subsidy transfers, or it must be as "inefficient" as a bank holding company affiliate.[36]

Finally, some have argued that banks need to conduct new activities in bank subsidiaries because of a need to diversify income. However, diversification gains for the bank can be achieved with either bank subsidiaries or BHC affiliates if a BHC must act as a "source of strength" to its subsidiary banks. Thus, the debate still turns on the relative ability of either organization to contain subsidy transfers. In addition, if pure diversification is the goal, it can be achieved in an easier manner by allowing banks to passively hold certain investments.[37] For example, rather than owning and running a business like insurance underwriting, a bank could better diversify its risk by investing in an index mutual fund that specializes in insurance stocks. This would reduce risk relative to holding a single insurance firm because it would average risks over many insurers. In addition, research suggests

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[36]Moreover, some of the restrictions proposed by advocates of bank subsidiaries seem to make bank law and regulation even more complex, not more straightforward. For example, the Comptroller's recent rules on bank "operating subsidiaries" expand differences between generally accepted accounting principles and regulatory accounting principles.

[37]We understand that pure diversification is not the primary goal of banking organizations that seek expanded powers. Rather, banking organizations want to provide their customers with the full range of financial products in a world where it is increasingly difficult to distinguish between traditional commercial bank, investment bank, and insurance products. Our point here is merely to note that potential diversification gains alone do not provide a strong case for locating expanded activities in a bank or a bank subsidiary.

that one should be skeptical that banks can achieve significant diversification gains by moving into other financial businesses.[31] Perhaps more importantly, the greatest concern is not about whether the typical institution needs to diversify its risks slightly, but about the behavior of the riskiest institutions, which are likely to attempt to maximize their use of the safety net subsidy by using the bank subsidiary structure for reasons that have little to do with diversification.

V. Concluding Remarks

While reasonable people can differ on the size of the safety net subsidy, the available evidence strongly suggests that the subsidy has real value to banking organizations. To some extent this is inevitable, since the subsidy is a necessary product of public policies designed to deter and limit a systemic crisis in the banking and financial system. This value, however, does not come without cost. The safety net reduces market discipline, gives banks an incentive to exploit the moral hazard inherent in any insurance scheme, and provides banks with a competitive advantage over nonbank providers of financial services. To deter moral hazard incentives and to limit extension of the safety net subsidy, an extensive structure of supervisory and regulatory policies has been constructed.

Many critics of the current bank regulatory system maintain that to the extent a safety net subsidy exists, it is preferable to eliminate a subsidy (and the corresponding regulatory burdens) than to attempt to contain the subsidy through restrictions on banking structure. Advocates of this view generally argue that public policy should go considerably further than the FDICIA and other reforms that were aimed at reducing and limiting the safety net subsidy and, more recently, at reducing regulatory burden.[32]

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[31]See Boyd, Graham and Hewitt (1993), and Kwast (1989).
[32]The Bankers Roundtable (June 1997) has advanced such proposals.

When considering such policies, it is important to remember that the safety net also provides benefits, and that these benefits are the reason for its existence. From a public policy point of view, the safety net helps to ensure a stable banking and financial system, the substantial benefits of which accrue not only to banks, but to the entire nation.[33] Moreover, it is critical to recall that the value of the safety net is lowest when economic growth is robust and the financial condition of banks is strong. Equally critical, the value of the subsidy soars when the economy turns sour and banks start to look shaky. Thus, while the safety net subsidy can, and perhaps should be reduced further, complete elimination of the subsidy would either entail risk to the economy as a whole, or impose higher private costs on the banking system. Indeed, it seems likely that reducing the value of the safety net to the point where market participants ceased to consider government's role in the banking system would likely impose very high costs on healthy banks and their customers.

Given these considerations, not to mention the risk that the political process may expand coverage of the federal safety net, it seems prudent to design financial modernization strategies in ways that reinforce recent and continuing efforts to maintain the safety net's public benefits and minimize its costs. A core component of such a strategy is to minimize the chances that safety net protections will be expanded into new activities and beyond insured depository institutions. In particular, while in our judgment expanded powers for banking organizations are essential for many reasons, such powers should not be financed with expanded taxpayer subsidies.

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[33]For a useful survey of the evidence that supports the view that "contagious" bank runs are possible, see Temzelides (1997).

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APPENDIX

Table A1. Comparison of Bank Holding Company and Nonbank Equity-to-Assets Ratios (percent)

Year	Bank Holding Companies			Investment Banks			Life Insurance Companies			Property-Casualty Ins Co's		
	Large	Small	All	Large	Small	All	Large	Small	All	Large	Small	All
	(median)	(median)	(mean)	(median)	(median)	(mean)	(median)	(median)	(mean)	(median)	(median)	(mean)
1985	5.8	6.2	6.2	3.3	20.9	27.2	15.2	23.1	21.2	15.2	23.5	24.0
1986	5.9	6.3	6.4	2.8	19.9	26.9	15.3	22.2	23.1	17.6	28.9	27.3
1987	5.9	6.9	6.5	3.7	23.0	27.6	13.3	21.8	21.5	15.7	26.8	25.8
1988	6.3	6.6	6.6	3.6	27.4	28.8	12.4	19.5	22.1	16.4	25.2	24.4
1989	6.1	6.9	6.7	3.9	26.4	27.8	10.0	16.9	17.2	14.8	26.2	26.2
1990	6.0	6.8	6.5	3.5	24.4	28.5	9.4	13.2	15.5	14.5	27.6	24.9
1991	6.4	6.8	6.7	4.0	21.4	26.4	10.2	11.5	15.2	14.9	28.5	25.2
1992	7.2	7.6	7.4	3.8	22.7	25.7	10.4	13.1	13.8	14.3	27.7	25.2
1993	8.0	8.5	9.0	3.2	26.9	27.1	10.1	14.0	14.5	13.5	26.9	27.5
1994	7.3	8.5	8.6	3.6	28.2	29.6	7.5	12.5	14.8	10.5	24.7	25.2
1995	7.9	9.1	9.0	3.4	27.0	29.3	9.0	14.5	14.1	12.7	27.7	28.2
1996	8.0	9.1	9.1	3.2	28.6	29.6	7.3	15.0	13.3	12.9	28.6	28.0

"Large" intermediaries are those with $10 billion or more in total assets. "Small" intermediaries are all others appearing in Compustat. Each firm was classified into a size group according to the value of its total assets in the most recent year for which data for the firm were available. Fluctuations in a column from one year to the next are partly due to changes in the set of firms for which Compustat offers data. Means are unweighted averages of individual firms' equity-to-assets ratios.

All data are taken from the June, 1997 Compustat tape.

Bank holding companies are those Compustat firms with "DNUM" (roughly, SIC code) values from 6020-6028. Investment banks are those with DNUM in the range 6210-6219. Life insurance companies are in the range 6310-6319. Property-casualty insurers are in the range 6330-6339. All ADR firms, as well as Berkshire Hathaway, were omitted from calculations.

Equity-to-assets ratios are measured as stockholders' equity less the carrying value of any redeemable preferred stock. Firms with zero total assets or with negative equity-to-assets ratios were dropped from the analysis.

...o-Assets Ratios for Various Categories of Finance Company (percent)

redit Companies"		Noncaptive Finance Companies			Captive Finance Companies			All Finance Companies		
Small	All	Large	Small	All	Large	Small	All	Large	Small	All
(median)	(mean)	(median)	(median)	(mean)	(median)	(median)	(mean)	(median)	(median)	(mean)
14.8	19.4	11.8	22.0	24.4	9.7	18.4	13.6	11.1	20.5	23.3
15.7	19.4	10.1	21.1	27.0	8.4	14.9	12.6	9.9	20.7	25.6
16.0	19.8	11.7	18.2	26.0	9.9	14.4	12.2	11.1	17.0	24.4
19.2	24.1	11.3	18.7	28.9	9.2	13.9	11.8	10.3	18.6	27.1
15.7	22.4	11.3	15.7	26.1	8.9	13.5	11.4	9.7	15.7	24.4
16.5	22.8	11.3	15.6	26.3	9.0	13.5	11.3	10.6	15.5	24.4
15.0	20.1	11.8	15.0	25.8	9.8	14.2	11.5	10.8	15.0	24.0
13.9	17.8	11.0	16.3	25.3	10.4	14.4	12.4	10.7	16.2	23.8
16.0	18.5	10.2	17.2	24.9	10.8	15.1	13.5	10.5	16.9	23.5
15.1	18.5	10.0	18.2	24.0	10.8	14.1	11.9	10.3	17.4	22.5
19.1	23.5	10.3	18.8	24.2	10.6	13.2	12.2	10.6	18.0	23.0
19.1	25.3	11.1	20.6	26.5	9.9	12.2	12.3	11.0	18.7	25.0

...nies are those with $10 billion or more in total assets. "Small" finance companies are the...
...a size group according to the value of its total assets in the most recent year for which data for the firm were available.
...from one year to the next are at least partly due to changes in the set of firms for which Compustat offers data. Means are
...individual firms' equity-to-assets ratios.

...the June, 1997 Compustat tape.

...ies are those Compustat firms with "DNUM" (roughly, SIC code) values of 6140 or 6141. Captive finance companies are the
...es of Ford, GM, Chrysler, Toyota, Xerox, IBM, Pitney Bowes, John Deere and McDonnell Douglas. Noncaptives are all others
...s 6150-6159 (business credit), and 6172 (leasing companies) as well as the personal credit companies.
...ted from calculations, as was Dean Witter Discover. GE finance subsidiaries and Associates Corp. and Household Finance
...in Compustat; only the lower-level subsidiary of each was included because the higher level appears to be a holding company
...y of types of financial intermediary.

...are measured as stockholders' equity less the carrying value of any redeemable preferred stock. Firms with zero total assets or
...assets ratios were dropped from the analysis.