A Comparison of Proposals
to Restructure the US Financial System

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Since the 1930s, commercial banks in the United States have been permitted to offer only a limited range of financial services. At the same time, firms engaged in non-financial activities, as well as some in financial industries, have not been permitted to own banks. Such restrictions were intended to limit the risk of bank failure, to avoid conflicts of interest and to prevent undue concentration of financial power.[2]

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[1] An earlier version of this paper appeared in Gilbert (1988).

[2] These restrictions have not been applied to the ownership of banks by individuals. Individuals who own bank stock may own and operate firms in any other industry. Under the Change in Bank Control Act of 1978, individuals and groups of individuals acting in concert must apply to the appropriate federal supervisory agency for permission to acquire the stock of a bank over certain percentages of ownership. See Spong (1985), pp. 94-95. The bank supervisory agencies may deny permission to purchase bank stock under the following conditions:

    (1)   The purchase would create a monopoly in any part of the banking industry,

    (2)   The financial condition of the acquiring party could adversely affect the bank, or

    (3)   The competence, experience or integrity of the proposed ownership would not be in the interest of

There have been many proposals in recent years to permit banking organizations to offer wider ranges of services. One major reason for permitting the common ownership of banks and firms in other industries is based on concern about the role of banks in financial intermediation in the future. Some bank customers have found cheaper sources of credit and other financial services outside the banking industry. Consequently, some analysts say, restrictions must be relaxed if banks are to survive.[3]

In 1991 the Bush Administration introduced legislation that would have permitted banking organizations to offer a wide range of financial services. Congress rejected that part of the proposed legislation. Instead, Congress enacted the Federal Deposit Insurance Corporation Improvement Act of 1991, which focuses on changes in supervision to limit the risk assumed by banks in their existing activities. Thus, arguments to broaden the range of services offered by banking firms remain as relevant as they were in the mid-1980s, when many of the proposals for restructuring the financial system were drafted.

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the bank's depositors.

[3] Corrigan (1987), Federal Deposit Insurance Corporation (1987), Huertas (1986, 1987) and Department of the Treasury (1991).

The purpose of this paper is to describe several major proposals for changing banking restrictions and to examine the concepts that underlie these proposals.

CURRENT RESTRICTIONS ON BANKING ACTIVITY

At present, the activities of federally insured commercial banks are limited essentially to accepting deposits, holding relatively low-risk securities and making loans. Banking organizations may acquire firms engaged in financial activities through bank holding companies (BHCs) -- corporations that own one or more banks. In the Bank Holding Company Act (BHCA), Congress authorized the Federal Reserve Board to determine what activities are permissible for BHCs; these activities, according to the act, should be "so closely related to banking as to be a proper incident thereto." Banks generally can engage in most activities that BHCs are allowed to pursue.[4]

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[4] Spong (1985), pp. 95-98. The major exception to this involves the nonbank banks. The BHCA, which gave the Federal Reserve jurisdiction over the acquisitions of banks by corporations, defined a bank as one that accepts demand deposits and makes commercial loans. Acquisitions of institutions that did not accept demand deposits or make commercial loans were not subject to the jurisdiction of the Federal Reserve in its capacity as regulator of BHCs. These limited-service banks are commonly called nonbank banks. The Competitive Equality Banking Act of 1987 (CEBA) closes that loophole in the law. It places restrictions on the growth and activities of nonbank banks acquired on or before March 5,

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A major distinction between banks and the nonbank subsidiaries of BHCs involves opportunities for geographic expansion. The nonbank subsidiaries of BHCs may have offices throughout the nation, whereas nationwide branch banking is not permitted.

BHCs are subject to the supervision of the Federal Reserve, which periodically inspects them to determine whether they are operating in a sound manner and in compliance with regulations. Important regulations of BHCs include capital requirements set by the Federal Reserve and restrictions on transactions between banks and their affiliates designed to limit the risk assumed by banks. On several occasions, the Federal Reserve Board has ruled that BHCs could not undertake certain activities because they were not closely related to banking,

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1987, and requires firms that acquired nonbank banks after that date to sell them or restrict their activities to those permissible for BHCs. The following restrictions apply to nonbank banks acquired on or before March 5, 1987:

(1)   They may not engage in new activities.
(2)   They may not market the goods or services of affiliates or have their banking services marketed through nonbank affiliates, except through those marketing arrangements in effect before March 5, 1987, and
(3)   Beginning in August 1988, their assets may not rise by more than 7 percent in any 12-month period.

CEBA also imposes restrictions on the daylight overdrafts of nonbank banks.

might result in conflicts of interest or might have subjected the

BHCs to greater risk.[5]

PROPOSALS FOR RESTRUCTURING THE U.S. BANKING SYSTEM

This section describes seven proposals for restructuring

the U.S. banking system. Although others could be included,

particularly those dealing with the entry of banks into specific

industries, the following proposals encompass the range of

options considered in the policy debates since the mid-1980s.

The key features of these seven proposals are

summarized in table 1. Each proposal would permit banking

organizations to engage in a broader range of activities than

currently allowed. Essentially, the proposals allow nonbanking

services to be offered through corporate entities (affiliates or

subsidiaries) distinct from the banks themselves.

There are two primary differences among the proposals.

First, they differ on whether to permit nonfinancial firms to

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[5] Volcker (1986), pp. 436-38. The following are some of the activities not permissible for BHCs and the dates of denials for those activities by the Federal Reserve Board: underwriting general life insurance (1971), real estate brokerage (1972), land investment and development (1972), operating a savings and loan association (1974), operating a travel agency (1976) and acting as a specialist in foreign exchange options on a security exchange (1986).

acquire banks or BHCs. These differences reflect conflicting views on the policies necessary to avoid conflicts of interest, decreased or unfair competition among firms offering financial services and undue concentration of economic resources. These issues have been discussed extensively elsewhere; they are not analyzed in this article.[6]

Second, the proposals differ on the policies necessary to limit the risk assumed by banks. Note that the proposals have some common features designed to limit banking risk. Each proposal in table 1 requires banking organizations to offer nonbanking services through subsidiaries or affiliates; moreover, each includes restrictions on banks lending to their nonbank subsidiaries or affiliates. These proposals rely in part on the legal concept of "corporate separateness," under which the creditors of a corporation have no legal claim on the assets of a stockholder, even if that stockholder is another corporation. Thus, creditors of the nonbanking units of a firm that also owns banks would have no claim on its banks' assets.[7]

Several proposals include special features to limit the risk of bank failure that might result from affiliation of banks and

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[6] Rose (1985).

[7] Black, Miller and Posner (1978).

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nonbanking firms. The Heller proposal (Heller (1987)) requires

BHCs to absorb all losses incurred by their bank subsidiaries;

nonfinancial firms that acquire BHCs would absorb all losses

incurred by their BHCs. The FDIC proposal (Federal Deposit

Insurance Corporation (1987)) requires bank supervisors to audit

transactions between banks and their nonbank affiliates or

subsidiaries to determine whether they are detrimental to the

banks. The Corrigan proposal (Corrigan (1987)) relies on direct

supervision of the firms that buy banks to limit the risk they

assume. Finally, the Litan proposal (Litan (1987)) requires

banks purchased by nonbanking firms to hold only low-risk

liquid assets.[8]

A FRAMEWORK FOR ANALYZING THE RISK OF BANK FAILURE

The proposals for changing bank regulations are

concerned with their likely effect on bank failures. This section

illustrates how the probability of bank failure is affected when

banks and nonbanking firms combine.

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[8] Similar proposals have been made by Kareken (1986), Gilbert (1987), Tobin (1987) and Forrestal (1987). Tobin proposes limiting the assets of all banks to short-term, low-risk assets.

Key Factors Affecting the Profits and Risks of Combining Banks and Nonbanking Firms [9]

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[9] The factors that determine the expected value and variance of profits of a firm that buys a bank and a nonbanking firm can be expressed in the following equations:

$$E(B + N) = E(B) + E(N),$$
$$V(B + N) = V(B) + V(N) + 2COV(B,N),$$

where E refers to expected value, V to variance, B to the profits of the bank, N to the profits of the nonbanking firms and COV to the covariance of the profits of the bank and the nonbanking firm. Holding constant the covariance of the two profit streams, a higher variance in the profits of the nonbanking firm means a higher variance in the profits of the combined firms. The variance of the combined profit streams depends on the covariance of the two profit streams. Finally, as the size of the nonbanking firm rises relative to the size of the bank, the variance of the combined profit streams converges to the variance of the profits of the nonbanking firm.

An analysis of the proposals to restructure the financial system involves an analysis of the mean and variance of the returns to shareholders of a firm that buys a bank and a nonbanking firm and operates them under the conditions of the various proposals. One approach to this analysis might involve expressing the mean and variance of the profits of the firm that buys the bank and the nonbanking firm in terms of the mean and variance of the profits of the bank and the nonbanking firm separately, as indicated in the equations above. The problem with this approach is that the distribution of returns to shareholders is not the same as the distribution of profits. In some outcomes, losses exceed the investment of the shareholders; losses to shareholders, however, are no larger than their investment in the firm. The distinction between the distribution of profits and the distribution of returns to shareholders is especially important for this study, since the various proposals involve different rules for truncating the losses to shareholders. Analysis of the mean and variance of returns to shareholders must be based on specific distributions of the profits of the bank and the nonbanking firm, as presented in the text, not on the expected value and variance of the profits.

If a bank offers nonbanking services, the effect on both the expected rate of return and the variability of returns to the bank's shareholders, as well as the risk of failure for the bank, depend on five factors. Suppose a bank merges with a nonbanking firm. One important factor is the average level of expected profits or rate of return for the nonbanking service. A second factor is the "risk" associated with the prospective nonbanking service; risk is often measured by the standard deviation of the profits or rates of return. A third factor is the correlation between the profit rates of the bank and nonbanking firm. A fourth factor is the size of the bank relative to the nonbanking firm. The third and fourth factors are important because the bank may actually reduce its risk by acquiring a nonbanking firm that has a higher coefficient of variation of profits than the bank. This possibility will be demonstrated later.

The fifth factor that must be considered is the "synergies" (increase in profits) involved in combining banking and nonbanking services in the same organization. Offering banking and nonbanking services through the same firm may reduce the cost of providing the services and may attract customers who value the wider array of services offered by the

combined bank-nonbank firm. These synergies could produce

profit rates that exceed the sum of the profit rates of banks and

firms in the nonbanking industry operating as separate

corporations.

Some Empirical Estimates of Rates of Return and Risk

A number of studies have investigated the profit rates

and risk in banking and selected nonbank activities.[10] One

finding, demonstrated in table 2, is that both the average profit

rate and its standard deviation are lower in banking than in

several industries that banks would be permitted to enter under

the recent proposals.[11] Indeed, the standard deviation of return

on equity, one measure of risk, is lowest in table 2 for the

banking industry. Another key finding of these studies is that

the profit rates of banks are not positively correlated with the

profits of firms in many industries that they would be permitted

to enter. Thus, banks could diversify their risk by entering

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[10] Eisenbeis and Wall (1984) survey these studies. For a summary of more recent studies, see Boyd, Graham and Hewitt (1993).

[11] Some studies measure returns to shareholders using data on stock prices and dividends. These studies report similar patterns: mean rates of return and variability of returns to shareholders are higher in several of the industries that banking organizations would be permitted to enter than in the commercial banking industry. See Boyd and Graham (1988), Boyd, Graham and Hewitt (1993), Eisemann (1976) and Macey, Marr and Young (1987).

many nonbanking industries, even if the profits of firms in those industries are more variable than those of banks.

Table 3 illustrates the potential reduction in variability of bank profits possible through mergers with firms that offer other financial services. The table illustrates this with the coefficient of variation, a measure of relative risk that is calculated by dividing the standard deviation of the profit rates by the mean. The results demonstrate, using a hypothetical situation involving the relative size of banking and nonbanking components of the firm, that the combined firm can have the same or even lower risk than the bank itself, even though risk is higher in the nonbanking industries.

Boyd, Graham and Hewitt (1993) simulate mergers of banking firms with firms in other financial industries, using accounting and stock market data. Simulated mergers with life and property/casualty insurance companies reduce the risk of bankruptcy, but mergers with securities and real estate firms increase the risk of bankruptcy of banking firms.

Because banks have not yet entered the various nonbanking industries, there is little evidence on the magnitude

of the synergies involved in combining banks with other

firms.[12] There is evidence, however, of synergies for banks

and selected financial activities. For example, before the

separation of commercial banking and investment banking in the

1930s, securities affiliates of commercial banks held a large

share of the investment banking business.[13] In nations where

commercial banking organizations may offer investment banking

services, commercial banking organizations have large shares of

the investment banking business.[14]

An Illustration

The effects of permitting banking organizations to offer

nonbanking services on the risk and returns in banking are

analyzed using two probability distributions of profits, one for a

hypothetical bank and another for a nonbanking firm. These

probability distributions, presented in table 4, are designed to

reflect the results of studies of risk and returns in banking and

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[12] Several studies estimate the effects of the combination of services offered by banks on their costs. See Gilligan, Smirlock and Marshall (1984), Benston, et. al. (1983) and Clark (1988). The results of these studies are not relevant in estimating the effects of nonbanking services on the costs of banks, since the data are for banks subject to current limitations on the services they may offer.

[13] White (1986).

[14] Daskin and Marquardt (1983).

various nonbanking industries summarized above. Profit distributions are combined in table 5 under various assumptions that reflect the proposals for restructuring the financial system described in table 1. Table 6 shows the returns to shareholders and the expected loss to the FDIC for the four cases analyzed in table 5.

The illustration is designed to be simple. Differences among the four cases might change under assumptions that would make the analysis more complex. For instance, the management of the firm that buys the bank and the nonbanking firm is assumed to make no changes that affect the capital ratios or the probability distributions of profits. Analysis of the cases under alternative assumptions is beyond the scope of this paper.

The bank begins the current year with book value of equity equal to $100. The market value of the bank is assumed to equal its book value prior to financial restructuring, which permits the affiliation of the bank with the nonbanking firm. As presented in table 4, the (discrete) probability distribution of the bank's profits in the current year has three possible outcomes: a 1 percent chance of a loss of $110, which would cause the bank

to fail, a 98 percent chance of a profit of $10 (a 10 percent

return on equity) and a 1 percent chance of a profit of $130.[15]

Table 4 also presents the probability distribution of

profits of a nonbanking firm that begins the year with book

value capital of $100. The market value of the nonbanking firm

is also assumed initially to equal $100. The nonbanking firm is

riskier than the bank: the coefficient of variation of its profits is

higher than that of the bank. This specification was chosen to

reflect the greater variability of profits shown in table 2 in some

of the industries that banking institutions wish to enter.

The effects of combining the bank and the nonbanking

firm in the same corporation are examined using three

indicators: the expected return to shareholders as a percent of

capital, the coefficient of variation of returns to shareholders of

the consolidated firm, and the expected loss to the FDIC from

the bank's failure. These measures are calculated in table 4 for

both the bank and the nonbanking firm as separate organizations

to provide benchmarks for comparison. The distribution of

returns to shareholders differs from the distribution of profits

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[15] The large profit of the bank associated with the small probability might reflect the recovery on loans previously charged off as losses or a large favorable change in market interest rates on portfolios of assets and liabilities that do not have matched duration.

because losses to shareholders are limited to the amount of their initial investment in the firm. Thus, losses to shareholders are limited to $100 for the bank and $100 for the nonbanking firm. The expected loss to the FDIC is calculated as follows. The bank fails in only one of the three possible outcomes: a loss of $110, with a chance of 1 percent. The loss to the FDIC in that outcome would be $10, since the initial capital of the bank is $100. Thus, the expected loss to the FDIC is $10 (loss to FDIC) X 0.01 (probability) = $0.10.

In deriving the distribution of returns to shareholders in table 5, one must specify their investment, which determines their maximum loss and the denominator used in calculating their expected rate of return. The shareholders' initial investment is measured as the book value of the combined firms. The use of book value, net of any accounting goodwill resulting from the acquisition of the bank and the nonbanking firm, provides a basis for specifying bankruptcy. Book value also provides a common denominator for comparisons of expected rates of return in the various cases. The market value of the firm that buys the bank and the nonbanking firm will exceed their combined book value. If this were not the case,

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the combination of these firms in the same corporation would

not benefit the shareholders.

The profits of the bank and the nonbanking firm are

assumed to be statistically independent and, thus, uncorrelated.

This assumption simplifies the analysis; it is also consistent with

some of the evidence cited previously for several industries that

banks could enter. For each outcome for the profits of the

bank, there are three possible outcomes for the profits of the

nonbanking firm. If combined into one firm, there would be

nine possible outcomes for the returns to shareholders of the

consolidated firm, as table 5 illustrates.

Table 5 and 6 ignore the existence of synergies from

combining a bank with a nonbanking firm; they assume that

there is no increase in the joint profits resulting from lower

costs or a wider array of services to offer customers. As

previously mentioned, it is difficult to determine the magnitude

of such synergies, given that such combinations have been

unlawful for many years. Such synergies, of course, must exist

to make such combinations attractive to shareholders; investors

can easily obtain the benefits of diversification by owning shares

of firms with uncorrelated profits. In this paper, however,

assumptions about the size of the synergies are unnecessary; the

relevant comparisons are made between the various cases. An increase in the levels of profits for each outcome would not alter the differences among the four cases examined in tables 5 and 6, unless the synergies eliminate bankruptcy in all outcomes.

Merger of the Bank and the Nonbanking Firm: The Simplest Case

Each proposal described in table 1 calls for the new activities of banking organizations to be conducted through corporate entities that are separate from banks. This feature of the proposals reflects the view that the chances of bank failure and the potential loss to the FDIC would be higher if the organizations that own banks offered nonbanking services through their bank subsidiaries, rather than through subsidiaries that are separate from the banks.

This view is not valid under all circumstances, as case 1 in tables 5 and 6 illustrates. In this case, the bank begins offering nonbanking services by merging with the nonbanking firm that has the profit distribution presented in table 4. The capital of the bank after the merger is $200. Given the underlying profit distributions in table 4, there is only one outcome in which the bank fails: in outcome # 1, the returns from the banking and nonbanking activities yield the largest

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possible losses. In that outcome, the shareholders lose their total investment. The bank remains in operation in all of the other outcomes. In outcomes # 2 and # 3, in which the losses from banking operations are large enough to make the bank fail if operating as a separate corporation, the profits from the nonbanking operations and the increased capital of the bank resulting from the merger keep the bank from failing.

The expected loss to the FDIC in case 1 depends on what happens to the liabilities of the nonbanking firm after the merger. Suppose the nonbanking segment of the merged firm continues to borrow from the same sources it used before the merger. If the claims of these lenders are subordinated to the claims of depositors, the merger might reduce the expected loss to the FDIC, perhaps to zero.

In this illustration, however, the merged organization converts all of its liabilities to federally insured deposits. If the bank involved in the merger goes bankrupt, the FDIC absorbs losses above the capital of $200. In outcome # 1, because the bank's maximum loss after its merger with the nonbanking firm is $225, the loss to the FDIC is $25. Although the maximum loss to the FDIC is larger after the merger, the expected loss

($25 X 0.0005) is actually smaller after the merger (compare tables 4 and 6).

The effects that a merger have on the possibility of bank failure and the expected loss to the FDIC depend on the size of the nonbanking firm relative to the bank. To illustrate, suppose the bank merges with a nonbanking firm whose distribution of profits is 10 times as large for each outcome as that presented in table 4 and whose capital is $1,000. In this case, which is not shown in the table, the expected loss to the FDIC would be $2.04, much larger than the expected loss shown in table 6. Thus, in considering a restructuring of the financial system, the size of the bank relative to the nonbanking firm is an important determinant of the expected loss to the FDIC.

Affiliation of a Bank with a Nonbanking Firm

If banks combine with nonbanking firms, one way to limit the FDIC's expected loss is to require that banks remain separate corporations within their parent organizations and limit FDIC insurance only to the deposit liabilities of the banks. Within such structures, the principle of corporate separateness would prevent the nonbanking firm's creditors from claiming the assets of the bank.

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The risk and return characteristics of a holding company that buys the bank and the nonbanking firm are presented in case 2. Under this case, labelled "affiliation, corporate separateness," losses to shareholders of the holding company resulting from losses by the nonbank subsidiary are limited to the capital of the nonbank subsidiary. The bank does not rescue the nonbank subsidiary by absorbing the additional losses. In turn, if the bank has losses that exceed its capital, the nonbank subsidiary does not rescue the bank by absorbing the additional losses. There is assumed to be no lending among units of the holding company. The holding company lends to neither the bank nor the nonbank subsidiary, and the bank lends nothing to the nonbank affiliate. The nonbank affiliate borrows, instead, from nonaffiliated lenders; the liabilities of the bank are covered by FDIC insurance.

The expected return to the shareholders is higher and the variability of returns is lower in case 2 than under a similar combination of firms arranged through a merger. Thus, the shareholders benefit more from a combination of the bank and the nonbanking firm as affiliates of a holding company than through the merger of these firms.

The benefit to the shareholders, however, comes partly at

the expense of the FDIC. The FDIC's expected loss is the same

in case 2 as in the benchmark case in table 4 but higher than

under the merger. Under affiliation and corporate separateness,

the outcomes in which the FDIC is exposed to losses are

determined by the probability distribution of the bank's profits.

Under the merger illustrated in case 1, in contrast, losses in

outcomes # 2 and # 3 that would make the bank fail are

absorbed by the profits of the nonbank segment of the merged

firm and the capital contributed by the nonbanking unit. Under

affiliation and corporate separateness, however, the expected

loss to the FDIC does not depend on the size

of the bank relative to its nonbank affiliate.

IMPLICATIONS FOR THE PROPOSALS

Merger or Affiliation

The cases in tables 5 and 6 indicate that, under some

conditions, the risk of FDIC loss would be lower if a bank

engages in a nonbanking activity directly, rather than through

affiliation with a nonbanking firm. In considering proposals for

financial restructuring, therefore, it is unnecessary to prohibit

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the direct offering of nonbanking services through banks under all circumstances.

The Financial Services Holding Company (FSHC) Proposal

The proposals by the Association of Bank Holding Companies (LaWare (1987)) and the Association of Reserve City Bankers (1987) would permit FSHCs to acquire banks as subsidiaries under the condition of affiliation and corporate separateness. The bank could not use its assets to rescue a failing nonbank affiliate, and the FSHC would not be required to rescue a failing bank.

A comparison of case 2 in table 6 with table 4 shows how the formation of FSHCs can affect risk in banking. Affiliation of a bank with a nonbanking firm reduces the probability that the bank will fail only if affiliation yields synergies that raise the profits of the bank for each possible outcome. Thus, affiliations between banks and nonbanking firms that facilitate diversification of risk for shareholders of banking firms reduce the probability of bank failure and the expected loss to the FDIC *only* if there are synergies from combining banking and nonbanking firms in the same organization.

The Heller "Double Umbrella" Proposal

The distribution of returns to shareholders under the Heller (1987) proposal is presented under case 3 in table 5. The implications of this proposal can be illustrated by comparing the distribution of returns to shareholders under various outcomes in cases 2 and 3. Under the Heller proposal, the losses of the bank and nonbank subsidiary in outcome # 1 absorb all of the capital of the holding company. The FDIC has a loss of $10 in that outcome, the amount by which the loss of the bank exceeds its capital. In outcome # 2, the bank has a loss that exceeds its capital, but the holding company is required to cover that loss, drawing on its profit of $15 from the nonbanking subsidiary and its capital. The holding company also covers the large loss of the bank in outcome # 3. In outcomes # 4 and # 7, in contrast, the holding company does not absorb all of the losses of the nonbanking subsidiary. Instead, the nonbanking subsidiary goes bankrupt. The holding company writes off its investment of $100, and nonaffiliated lenders absorb the additional loss of $15 in each of these outcomes.

The minimum level of synergies necessary to make combinations of banks and nonbanking firms attractive to investors is higher under the Heller proposal than under the

FSHC proposal. The diversification of risk illustrated in case 2 could be achieved through a mutual fund that buys shares in firms in banking and nonbanking industries. Any synergies would make the shareholders' expected rate of return higher with the bank and nonbanking firm combined in the firm under affiliation and corporate separateness than through a mutual fund. To make combinations of banks and nonbanking firms under the Heller proposal attractive to shareholders, synergies would have to exceed a level necessary to compensate the holding company for the expected cost of bailing out the failing bank subsidiary.

The synergies necessary to make the affiliation of banks with nonbanking firms profitable under the Heller proposal would be different for each potential combination of firms. For case 3, the synergies would have to raise the returns to shareholders by $0.095 to make them equal to the expected returns to shareholders in case 2, and even more to compensate shareholders for the higher variability of returns in case 3.[16]

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[16] Returns to the firm in column 3 are lower than returns in column 2 by $10 in outcome # 2, with probability of 0.009, and lower by $10 in outcome # 3, with probability of 0.0005. Multiplying $10 by each of the probabilities and summing yields $0.095.

The Corrigan Proposal

Corrigan (1987) assumes that the methods of insulating banks built into the proposals of FSHCs will be ineffective. This view is based on evidence that BHCs are integrated organizations that have used all of their resources, including those of their bank subsidiaries, to support any nonbank subsidiary in danger of failing. Corrigan also expresses concern that, in approving the acquisition of banks by nonbanking firms, the federal supervisory authorities will extend the federal safety net to the parent organizations themselves.

The Effects of Loans to Nonbank Affiliates on Stockholder Wealth

-- The Corrigan proposal reflects these views on the relationship between banks and their parent organizations. Case 4 in tables 5 and 6 examines whether such concerns reflect rational, profit-maximizing behavior. The Corrigan proposal assumes that firms are willing to risk the assets of their bank subsidiaries to aid their nonbank subsidiaries. One way for a holding company to do this is to allow the bank to lend directly to the nonbank subsidiary. To illustrate this, the bank in case 4 lends $10 to the nonbank affiliate at a zero interest rate, thus subsidizing the nonbank subsidiary at the expense of the bank.

Several assumptions have been made to derive the probability distribution of returns for shareholders of the holding company. First, the bank loan is assumed to be subordinated to other debt of the nonbank affiliate. If the nonbank affiliate goes bankrupt, therefore, the bank absorbs the first $10 of losses to creditors. Second, the interest rate on riskless assets is assumed to be 5 percent. The distribution of profits for the bank is derived by subtracting $0.50 from the profits for each possible outcome presented in table 4; this reduction reflects the opportunity cost of foregoing an alternative investment of $10 at the riskless rate.

The nonbank subsidiary saves $1.053 in interest expense on the $10 it borrows from the bank; this is the amount that a risk-neutral lender charges to compensate for the risk-free rate of 5 percent and the 5 percent chance of losing the $10 principal and foregoing the interest income if the nonbanking firm goes bankrupt.[17]

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[17] The interest rate that the nonbank affiliate would pay to borrow from a nonaffiliated lender is determined by calculating the rate that would make the expected return on such a loan equal to the risk-free interest rate. Let rl be the interest rate on the loan and rs the risk-free rate. In lending $10 to the nonbank affiliate, there is a 95 percent chance of collecting the principal plus interest at the rate rl and a 5 percent chance of losing the principal and collecting no interest. The expected returns on the alternative investments are calculated as follows:

The effects of this loan on the distribution of shareholders' returns are illustrated in table 5 under case 4. In outcomes # 1, # 4 and # 7, the bankruptcy of the nonbanking firm imposes an additional loss of $10 on the bank. In outcome # 1, in which the bank has its largest losses, the FDIC absorbs a loss of $20.50 ($10 loss from the underlying distribution in table 5, $0.50 loss of interest income on the loan to the nonbank affiliate and $10 loss on the loan to the nonbank affiliate).

The cost saving by the nonbank affiliate due to the zero interest loan from the bank raises the returns to shareholders by $1.053 in all outcomes except those in which the nonbank affiliate goes bankrupt. The return to shareholders is $0.01 higher in case 4 than in case 2; this difference is not large enough, however, to raise the expected rate of return in table 6 by 1 basis point. The important difference between the distributions of returns in case 4 and case 2 is that the coefficient of variation of the returns is higher in case 4. Thus, it is not in the shareholders' interest to have their bank lend to

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$$rl \times \$10 \times 0.95 - \$10 \times 0.05 = rs \times \$10.$$

If rs is 5 percent,

$$rl = [0.05 + 0.05] \div 0.95 = 0.1053.$$

its nonbank subsidiary, even at a subsidized rate. Such loans make their returns more variable.

Typically, bank supervisors would make such a loan even less attractive to the shareholders. Because the loan to the nonbank affiliate raises the expected loss to the FDIC, bank supervisors would require the bank to maintain a higher capital ratio. Though the bank could raise its capital ratio by reducing its total assets while keeping its capital unchanged, the asset reduction would reduce the level of profits for each possible outcome the bank faces.

This analysis is consistent with evidence that few banks make loans to their nonbank affiliates up to the limits allowed by regulation. Rose and Talley (1983) examine transactions among affiliates of 224 of the 229 BHCs that filed reports with the Federal Reserve from the fourth quarter of 1975 through the fourth quarter of 1980. In 1980, 27 percent of the BHCs had no transactions among affiliates. Among the 16 BHCs in which the bank subsidiaries made larger loans to the nonbank affiliates than the nonbank affiliates made to the banks, loans to the nonbank affiliates in 1980 were only 1.3 percent of the capital of the bank subsidiaries.

<u>Banking Risk under Assumptions Other Than Profit</u>

<u>Maximization</u> -- The distribution of returns in cases 2 and 4

reflect the assumption that, if the bank does not lend to the

nonbank affiliate, the affiliate's bankruptcy does not affect the

bank's profits. In a few cases, however, the bankruptcy of a

nonbank subsidiary of a holding company has induced depositors

to withdraw their deposits from the bank subsidiary.[18] The

management of a holding company, therefore, might justify

loans from a bank subsidiary to a nonbank affiliate as a way to

prevent the nonbank subsidiary from going bankrupt and thus

make depositors less concerned about the safety of their

deposits. In this case, the costs of bailing out the nonbanking

subsidiary might be less than the cost of adverse reaction by

depositors.

There have been several cases in which the management

of a BHC used the resources of a bank subsidiary to aid a

nonbank affiliate in distress. In the mid-1970s, for example, the

holding company that owned the Hamilton National Bank of

Chattanooga, Tennessee, arranged for the bank to buy low-

quality mortgages from a mortgage banking affiliate. The

mortgage purchase was an important factor that led to the failure

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[18] Cornyn, et. al. (1986).

of the bank.[19] In October 1987, to cite another case, the Continental Illinois National Bank made a loan that exceeded its limits for loans to one customer to a subsidiary that deals in options. The subsidiary suffered a large loss after the sharp fall in stock prices that month.

The rationalization behind bank loans to bail out the nonbank affiliate overlooks an alternative that might be more favorable to the shareholders of the holding company: let the nonbank subsidiary go bankrupt and sell the bank to another party. Losses to the holding company would be limited to its investment in the nonbank subsidiary, with nonaffiliated lenders forced to absorb any additional losses. If potential bidders are concerned that the bank made loans to the failing nonbank affiliate or in some way assumed responsibility for the debts of that affiliate, the FDIC could facilitate the sale by offering to reimburse the winning bidder for any losses resulting from the failure of the nonbank affiliate.

Management of the holding company may prefer to have the bank absorb the losses necessary to bail out the failing nonbank affiliate, rather than sell the bank, which will result in the loss of their jobs. It may be in management's interest to

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[19] Ibid., p. 186.

arrange for the bank to lend to the nonbank subsidiary and pray that some favorable outcome helps the holding company remain solvent. The possibility of such action is why government supervisors must remain aware of any financial problems in firms that own banks and must subject the bank subsidiaries of those firms to particularly close supervision.

The analysis in tables 5 and 6 of a bank lending to its nonbank affiliate is based on the assumption that the loan is used for legitimate business purposes. Loans from a bank to a nonbank affiliate, of course, could be made for fraudulent purposes. Suppose a bank is permitted to make a loan of any amount to an affiliate. One method of stealing from a bank would be to buy the bank through a holding company, arrange for a loan that exceeded the investment of the holding company in the bank and disappear with the proceeds of the loan.

The potential for fraud indicates that it may be prudent to prohibit loans to affiliates that exceed the capital of a bank. This prohibition would not prevent all forms of fraud in banking, but its violation would indicate to the bank supervisors when a bank is vulnerable to this type of fraud. It is also prudent to screen the background of those who buy banks

through holding companies, as the federal bank regulatory agencies do when individuals buy banks.

The FDIC (1987) proposal calls for greater authority to audit the terms of any loans banks make to affiliates or subsidiaries. This proposal does not indicate what bank examiners would look for in such audits. Audits to detect fraud would be appropriate.

The Safe Bank Proposal

The so-called safe bank proposal (Litan (1987)) is intended to reduce the expected level and standard deviation of profit rates of banks subject to the "safe bank" asset restrictions. As the appendix indicates, for each $100 of assets shifted from business loans to Treasury bills, the revenue of the safe bank would decline by $1.26. The asset limitations for safe banks may be so restrictive that they would prevent many affiliations of banks with nonbanking firms that would promote diversification or benefit society through synergies.

One way to evaluate the safe banking proposal is to compare the size of the synergies necessary to make bank acquisitions profitable for nonbanking firms to the synergies necessary under alternative proposals. Suppose the bank had

loans of $600.[20] If the bank becomes a safe bank by

reinvesting the $600 in Treasury bills, its revenue falls by

$7.56. It must, however, continue to pay competitive interest

rates on deposits after becoming a subsidiary to avoid a decline

in its deposits. Thus, synergies from the operation of the bank

as a subsidiary must be worth at least $7.56 to the holding

company. This amount can be compared to the synergies

necessary to make the acquisition of a bank subsidiary profitable

under the Heller proposal, which is $0.095 for the case

examined above.

This large difference reflects the fact that the safe bank

proposal imposes a significant opportunity cost on a nonbanking

firm that buys a bank under each possible outcome. The Heller

proposal, on the other hand, imposes a loss on the nonbanking

firm under an unlikely outcome -- the failure of the bank

subsidiary. These comparisons suggest that fewer combinations

of banking and nonbanking firms that would promote

diversification of risk and, possibly, more efficient use of

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[20] Suppose the bank has a capital-to-asset ratio of 10 percent.
For all federally insured commercial banks, the average ratio of
loans to assets is about 60 percent. Thus, $600 is a reasonable
level for loans of the hypothetical bank with capital of $100 and a
10 percent capital ratio.

resources would be viable under the safe bank proposal than under the Heller proposal.

CONCLUSIONS

This paper illustrates the potential for risk diversification through the common ownership of a hypothetical bank and nonbanking firm. The illustration has several implications for proposals for restructuring the financial system. Banks are not necessarily made safer by requiring that all nonbanking activities be conducted through separate subsidiaries. On the contrary, banks may be less vulnerable to failure if some nonbanking activities are offered through the banks directly. Moreover, the expected loss of federal deposit insurance funds may be lower even if the nonbanking activities are financed through insured deposits.

The major proposals for restructuring the financial system would permit firms in various industries to buy banks and operate them as separate subsidiaries. Some of the proposals build in safeguards to prevent nonbanking firms from using the resources of their bank subsidiaries in ways that would increase both the chance for bank failure and the expected loss of the federal deposit insurance funds. These restrictions are

based on the presumption that, without such safeguards, nonbanking firms would use the resources of their bank subsidiaries to benefit their nonbank subsidiaries.

The analysis in this paper indicates that the shareholders of a holding company generally do not benefit by having their bank subsidiary lend at a subsidized interest rate to the nonbank subsidiary. In fact, shareholders are made worse off by such transactions because the holding company profits become more variable. Transactions that benefit nonbank subsidiaries at the expense of bank subsidiaries do not increase the shareholders' wealth. The greatest danger in banks lending to affiliates involves management of holding companies attempting to save their jobs by bailing out nonbank subsidiaries and fraudulent schemes to steal from banks through loans to affiliates.

Two of the proposals place special constraints on the nonbanking firms that buy banks to limit the risks of bank failure. One proposal requires that the holding companies absorb all losses incurred by banks, up to the holding company's total capital. The other proposal requires the bank subsidiaries of nonbanking firms to hold only low-risk liquid assets. Both proposals raise the level of synergies necessary to make the acquisition of banks by nonbanking firms profitable. Of these

proposals, the safe banking proposal is the more restrictive. Some consolidations of banking and nonbanking firms that would yield social benefits in the form of higher profits and reduced variation in stockholder returns would not be attractive to shareholders under the safe banking proposal but would be attractive under other proposals.

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Table 1

Proposals to Restructure the Financial System

Features	Association of Bank Holding Companies LaWare (1987))	Association of Reserve City Bankers (1987)	Robert Heller (1987)	Federal Deposit Insurance Corporation (1987)
Corporate structure required of firms that own banks	FSHCs would own BHCs and holding companies that own firms engaged in financial activities in addition to banking.	FSCHs would directly own banks and firms in other industries.	BHCs could acquire banks and firms engaged in financial activities. Non-financial firms could acquire BHCs.	Firms in any industry could buy banks, and banks could engage in nonbanking activities through their own subsidiaries.
Direct or indirect ownership of banks by non-financial firms permitted	No	Yes	Yes	Yes
Restrictions on transactions between banks and their affiliates	Keep current restrictions	Eliminate restrictions in section 23B of the Federal Reserve Act.	Keep current restrictions	Impose uniform restrictions on dividends and lending limits of banks. Make these restrictions and those in sections 23A and 23B of the Federal Reserve Act apply to transactions between banks and their subsidiaries.
Supervisory authority of regulatory agencies	Supervision of banks and BHCs unchanged. No one agency supervises FSHCs, which may own BHCs and holding companies that own firms in financial industries other than banking. Subsidiaries of FSHCs in nonbanking industries subject to supervision by their regulatory authorities.	Same as for the Association of Bank Holding Companies.	No comment on the supervisory powers of the Federal Reserve over BHCs. Non-bank subsidiaries of BHCs subject to supervision by their own government authorities.	Firms that buy banks not subject to supervision by bank supervisors. Banks required to report all transactions with affiliates or subsidiaries to bank supervisors, which could audit the terms of the transactions.
Obligation to support bank subsidiaries	None	None	BHCs must absorb losses of bank subsidiaries. Nonbanking firms must absorb losses of their BHCs.	None
Restrictions on assets of banks	Current restrictions	Current restrictions	Current restrictions	Current restrictions

Gerald Corrigan (1987)	Robert Litan (1987)	Department of the Treasury (1991)
Firms that engage in financial activities exclusively could purchase banks.	Firms engaged in any activities could buy banks, subject to restrictions on the assets held by those banks.	Firms in any industry could own FSHCs. FSHCs, in turn, could own federally insured banks and firms that offer other types of financial services, including securities and insurance services.
No	Yes	Yes
Keep current restrictions	Prohibit banks owned by nonbanking organizations from lending to affiliates.	Stronger firewalls on transactions between banks and nonfinancial affiliates.
Firms that own banks subject to supervision by the federal bank supervisors, including exercise of powers to limit risks (such as capital require-ments) and aggregate concen-tration in the financial system.	Nonbank firms that own banks not subject to bank supervisors except to verify that those banks held only the designated safe assets.	Federal bank supervisory agencies provide "umbrella oversight" of FSHCs and their bank subsidiaries but no oversight of nonfinancial firms that own FSHCs.
No formal obligation, but general commitment to be a source of strength for bank subsidiaries.	None	None
Current restrictions	Bank subsidiaries of nonbanking firms may hold only	Limit investments of banks to those permissible for national banks.

Table 2

Means and Standard Deviations of Profit Rates for Firms in Financial Service Industries, 1975-84

Industry	Average after-tax return on equity (ROE)	Standard deviation of ROE
Commercial banks	12.3%	1.3%
Thrift institutions	3.4	10.7
Securities brokers	13.0	4.0
Securities underwriters	16.4	5.7
Large investment banks only	21.5	7.7
Life insurance underwriters	13.7	2.3
Property-casualty insurance underwriters	11.9	6.4
Insurance brokers and agents	12.2	4.1
All manufacturing	13.1	2.0

SOURCE: Litan (1987), p. 64.

Table 3

Variability of Profits of Hypothetical Firms formed through the Merger of Banks and Firms in Various Financial Industries, 1962-82

Item	Coefficient of variation
Banks alone	0.22
Banks plus savings and loan associations	0.18
Banks plus personal credit agencies	0.24
Banks plus business credit agencies	0.22
Banks plus securities and commodities brokers	0.22
Banks plus life insurance	0.15
Banks plus mutual insurers	0.29
Banks plus insurance agents	0.15
Banks plus real estate operators and lessors	0.20
Banks plus subdividers and developers	0.20

NOTE: A time series of the profits of each hypothetical firm is formed by assuming that 75 percent of the assets of the hypothetical firm are devoted to banking and 25 percent are devoted to the nonbanking activity. The coefficient of variation is derived for the constructed time series.

SOURCE: Litan (1987), p. 88.

Table 4

Probability Distributions of the Profits of a Bank
and a Nonbanking Firm Prior to Merger or Affiliation

Bank

Outcome	Probability	Profits	Return to shareholders
A	0.01	-$110	-$100
B	0.98	10	10
C	0.01	130	130

Nonbanking firm

Outcome	Probability	Profits	Return to shareholders
A	0.05	-$115	-$100
B	0.90	15	15
C	0.05	145	145

	Bank	Nonbanking firm
Expected return to shareholders as a percentage of capital	10.1%	15.75%
Coefficient of variation of returns to shareholders	1.6117	2.4637
Expected loss to the FDIC	$0.10	

Table 5

Distributions of Returns to Shareholders for Various Combinations of a Bank and a Nonbanking Firm

Outcome	Outcomes from underlying profit distributions (bank, nonbanking firm)	Probability (bank x nonbanking firm)	(1) Merger Return to shareholders	(1) Merger Loss to FDIC	(2) Affiliation, corporate separateness Return to shareholders	(2) Loss to FDIC	(3) Affiliation Heller proposal Return to shareholders	(3) Loss to FDIC	(4) Affiliation, corporate separateness; bank lends $10 at a zero interest rate to its nonbank affiliate Return to shareholders	(4) Loss to FDIC
1	A,A	0.01 x 0.05 = 0.0005	-$100 - $100 = -$200	$25	-$100 - $100 = -$200	$10	-$100 - $100 = -$200	$10	-$100 - $100 = - $200	$20.50
2	A,B	0.01 x 0.90 = 0.009	- 110 + 15 = - 95		- 100 + 15 = - 85	10	- 110 + 15 = - 95		-100 + (15+1.053) = - 83.947	10.50
3	A,C	0.01 x 0.05 = 0.0005	- 110 + 145 = - 35		- 100 + 145 = 45	10	- 110 + 145 = 35		-100 + (145+1.053) = - 46.053	10.50
4	B,A	0.98 x 0.05 = 0.049	10 - 115 = - 105		10 - 100 = - 90		10 - 100 = - 90		(10-0.50) -10) -100 = -100.500	
5	B,B	0.98 x 0.90 = 0.882	10 + 15 = 25		10 + 15 = 25		10 + 15 = 25		(10-0.50)+(15+1.053) = 25.553	
6	B,C	0.98 x 0.05 = 0.049	10 + 145 = 155		10 + 145 = 155		10 + 145 = 155		(10-0.50)+(145+1.053) = 155.553	
7	C,A	0.01 x 0.05 = 0.0005	130 - 115 = 15		130 - 100 = 30		130 - 100 = 30		(130-0.50-10) - 100 = 19.50	
8	C,B	0.01 x 0.90 = 0.009	130 + 15 = 145		130 + 15 = 145		130 + 15 = 145		(130-0.50) + (15+1.053) = 145.553	
9	C,C	0.01 x 0.05 = 0.0005	130 + 145 = 275		130 + 145 = 275		130 + 145 = 275		(130-0.50) + (145+1.053)= 275.553	

Table 6

Returns to Shareholders and Losses to the FDIC Under Various
Combinations of a Bank and a Nonbanking Firm

Case number	Means of combining the firms	Expected return to shareholders as a percentage of capital	Coefficient of variation of returns to shareholders	Expected loss to the FDIC
1	Merger	12.51%	1.7754	$0.0125
2	Affiliation, corporate separateness	12.93	1.6278	0.1000
3	Affiliation, Heller proposal	12.88	1.6434	0.0050
4	Affiliation, corporate separateness; bank lends $10 at zero interest rate to nonbank affiliate.	12.93	1.6860	0.1100

APPENDIX

The Opportunity Cost of Holding Safe Assets

     The safe bank proposal (Litan (1987)) would put the bank subsidiaries of nonbanking firms at a disadvantage in competing for deposits by restricting the return on their investments. This disadvantage could be offset slightly by waiving deposit insurance premiums for the subsidiaries of nonbanking firms. Under the requirements for holding only safe assets, the subsidiaries of nonbanking firms would not expose the federal deposit insurance funds to potential losses; therefore, an argument could be made for exempting "safe" banks from deposit insurance premiums.

     The opportunity cost of investing in Treasury securities instead of loans is estimated using data from the functional cost analysis program of the Federal Reserve. A change in the composition of a bank's assets affects its interest revenue and expenses. The functional cost data includes information on interest income and expenses allocated to various categories of loans, as well as expenses involved in purchasing and holding securities. Table A1 indicates that the gross yields on loans almost always exceed those on three-month Treasury bills. Net

yields on loans, which reflect expenses and losses, are lower than the net yields on Treasury bills in some years for mortgage and installment loans.

Table A2 isolates the comparisons between net yields on Treasury bills and those on three categories of loans. Net yields on mortgages and installment loans tend to fall below the net yields on Treasury bills in periods of sharp increases in interest rates. The most stable spread is that between the net yield on commercial and other loans and the net yield on Treasury securities. On average, banks lose $1.26 in net income before income taxes per dollar transferred from commercial loans to Treasury bills.

Table A1

Gross and Net Yields on Bank Assets

Year	Number of banks	Treasury bills		Real estate mortgage		Installment loans		Commercial and other loans	
		Gross	Net	Gross	Net	Gross	Net	Gross	Net
1972	86	4.07%	3.92%	7.58%	6.82%	10.19%	6.54%	6.71%	5.35%
1973	96	7.04	6.88	8.11	7.35	10.29	6.65	8.44	7.21
1974	99	7.89	7.72	8.57	7.77	10.77	6.90	10.53	9.09
1975	98	5.84	5.67	8.17	7.36	11.01	6.81	8.88	7.17
1976	109	4.99	4.83	8.39	7.46	11.11	6.91	8.22	6.39
1977	102	5.27	5.11	8.84	7.89	11.05	7.31	8.21	6.46
1978	85	7.22	7.08	8.88	7.93	11.43	8.02	9.67	8.16
1979	80	10.04	9.86	9.32	8.39	12.00	8.57	12.23	10.68
1980	59	11.51	11.28	10.01	9.29	12.90	9.18	14.31	12.62
1981	63	14.03	13.81	10.80	9.88	14.90	10.94	16.85	14.86
1982	76	10.69	10.54	10.84	9.95	15.87	11.96	14.96	12.36
1983	90	8.63	8.47	11.02	9.95	14.98	11.07	11.93	9.26
1984	82	9.58	9.43	11.41	10.31	14.39	11.10	12.82	10.34
1985	81	7.48	7.31	11.60	10.33	13.41	10.16	11.30	8.91
1986	75	5.98	5.75	10.21	8.50	12.50	9.11	10.21	7.73

NOTE: Data on the gross and net yields for the three categories of loans are derived from the functional cost accounting data. These data are for the banks with total assets greater than $200 million. The second column indicates the number of banks in that size category that reported data for the investment function each year. The choice of this largest size category in the functional cost accounting reports is based on the assumption that the safe banks owned by relatively large nonbanking firms would tend to have assets above this dollar level. Net yields on loans reflect adjustments of the gross yields for expenses in making and servicing loans and loss rates on the various types of loans. The gross yields on Treasury bills are the annual averages of yields on three-month Treasury bills, new issues. Net yields on Treasury bills are the gross yields minus the costs of buying and holding investments per dollar of investments in the functional cost accounting data. Under the safe bank proposal, safe banks could hold longer-term Treasury securities, but the longer-term securities have greater potential for capital gains and losses. This exercise uses the yields on short-term Treasury securities and ignores capital gains and losses.

Table A2

Sacrifice of Income Before Income Taxes per $100 Dollars of Loans Shifted to Treasury Bills

	Loan Categories		
Year	Real estate mortgages	Installment loans	Commercial and other loans
1972	$2.90	$2.62	$1.43
1973	0.47	-0.23	0.33
1974	0.05	-0.82	1.37
1975	1.69	1.14	1.50
1976	2.63	2.08	1.56
1977	2.78	2.20	1.35
1978	0.85	0.94	1.08
1979	-1.47	-1.29	0.82
1980	-1.99	-2.10	1.34
1981	-3.93	-2.87	1.05
1982	-0.59	1.42	1.82
1983	1.48	2.60	0.79
1984	0.88	1.67	0.91
1985	3.02	2.85	1.60
1986	2.75	3.36	1.98
Mean	.768	.905	1.262