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BANK HOLDING COMPANY RISK

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This study estimates the effects of allowing bank holding companies (BHCs) to enter several lines of financial business not now permitted. A simulation technique is used to estimate the risk and return of hypothetical financial corporations after merger between a BHC and a large firm in each of these industries: securities, real estate, life insurance, property and casualty insurance, and insurance agencies. The study concludes that a merger between a BHC and a life insurance company may decrease the probability of bankruptcy for the merged firm relative to the BHC alone. This result does not hold true, however, for BHC mergers with firms in the other industries. In particular, BHC mergers with securities or real estate firms are found to increase the probability of bankruptcy.

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I. Introduction

There is much current discussion about letting bank holding companies (BHCs) engage in certain financial lines of business outside commercial banking.[1] Large BHCs have argued vigorously for lowering barriers to entry into investment banking, full service securities brokerage, insurance, and real estate investment and development. These BHCs point out that nonbank financial firms such as securities firms and insurance companies have been permitted into traditional banking activities. They argue that lowering the entry barriers into nonbank activities would not only be equitable--by leveling the playing field--but would also bring some needed competition into nonbank areas.[2] This viewpoint has gained considerable support from bank regulatory agencies, the Administration, and influential members of the Senate Banking Committee. As a result, several bills have been introduced in Congress that would lower the legal barriers for BHC entry into one or more of these activities.

Critics of expanded BHC powers argue that if BHCs enter these currently prohibited activities the risk to bank subsidiaries will increase. They argue that many of the sought-after nonbanking activities are quite risky relative to commercial banking. If BHCs are permitted to expand into those areas, they say, the incidence of commercial bank failure--or its common analogue, the FDIC rescue--will quite likely increase.

Proponents of expanded powers for BHCs hold quite opposite opinions about the impact of expansion on BHC risk. They offer three views on BHC risk. One is that risk, as measured by

the variability of BHC profits, would decline because of the effect of asset diversification. A second view is that such risk might rise, but the increase in risk would be more than compensated for by a rise in average profitability. As a result, the incidence of bank failure would decline. A third view is that whether or not risk would increase doesn't really matter, because bank subsidiaries can be legally protected against adverse results originating in nonbank subsidiaries. The essence of the third view is that legal "walls" can be built around the commercial bank subsidiary to insulate it from any risky activity conducted by a nonbank subsidiary.

As argued elsewhere, we find the third view about risk fundamentally flawed.[3] However, this paper does not deal with that topic. Rather, it deals with the first two views and the debate surrounding them. Resolution of that debate is essentially an empirical matter. Surprisingly, few if any formal studies are presently available that provide empirical evidence on the likely risk/return consequences of permitting BHC expansion into the other lines of business.

A major objective of this study is to partially fill that void. The question we address is, Will the risk of bankruptcy increase if BHCs are permitted to engage in the following prohibited activities: securities, insurance, and real estate? We employ a measure of the risk of failure (bankruptcy risk) that takes into account average rates of return, the variability of rates of return, and the level of capitalization. This permits us to make explicit, and empirically test, the second view--that

mergers would reduce the risk of failure because increased average rates of return would offset increased variability of rates of return. And since the first view is a subset of the second, our analysis effectively addresses both views.

Our study has two parts. First, we analyze the risk/return characteristics of the subject industries. Using data for 249 banks and nonbank financial firms over the period 1971-84, we compute sample rate of return and risk statistics for each industry. Second, we analyze the effects of BHC expansion into currently prohibited industries. This is done by simulating mergers between BHCs and nonbank firms as if such mergers had been permitted historically. This approach permits us to generate data for hypothetical industries, for example, the "BHC and life insurance industry." Sample risk and return statistics are generated for these hypothetical industries, and these statistics are then compared to risk and return statistics for the unmerged BHC industry. All tests are conducted with market (stock price) data as well as with accounting data. The market data results are presented in Appendix A.

Brief Summary of Findings

The data suggest that the securities industry has been more profitable than most of the other financial industries, including BHCs. However, there is no evidence that BHCs have been consistently less profitable than other financial firms in general. They rank about in the middle in terms of profitability--behind some industries but ahead of others.

The industry data indicate that, among financial firms, securities and real estate firms are the riskiest and BHCs and insurance firms are the least risky. Merger simulations suggest that when BHCs combine with securities firms or with real estate developers, the volatility of returns increases and so, too, does the risk of failure. For these combinations of firms, therefore, neither the first nor the second view discussed above is supported. On the other hand, combinations of BHCs and life insurance companies seem to result in reduced volatility of rates of return and reduced risk of failure, suggesting the potential for risk-reducing diversification.

II. Methodology

A. Measures of Return and Risk

In this study we employ one measure of profitability and two measures of risk. The profitability measure is the rate of return on average accounting equity, $\tilde{R}$:

$$(1) \qquad \tilde{R}_j = 2\tilde{\pi}_j/(E_j+E_{j-1})$$

where $\tilde{\pi}$ is net income after taxes, E is total equity, and the subscript j denotes the time period. Here and throughout a tilde (~) denotes a random variable.

The first risk measure, S, is a measure of the volatility of the rate of return on equity, or more precisely, the standard deviation of R. The empirically estimated standard deviation of R is defined as

$$(2) \qquad S = \{ \sum_{j=1}^{n} (\tilde{R}-\bar{R})^2/(n-1)\}^{1/2}$$

where n is the number of sample periods and $\bar{R}$ is the sample mean of the R_j. One reason we employ the variable S is that volatility measures such as S are often used to measure risk in the banking and finance literature. Another reason is that we can use this risk measure to test the first view of BHC expansion proponents--that BHC expansion into new financial business lines will reduce the volatility of rates of return because of asset diversification.

The second risk measure, Z (or "Z-score"), is an indicator of the probability of bankruptcy. Bankruptcy is defined as the case in which $\tilde{\pi} < -E$; or verbally, losses (negative profits) exceed equity. If A = total assets, $\tilde{r} = \tilde{\pi}/A$, and $k = -E/A$, the probability of bankruptcy can be written as

$$(3) \qquad p(\tilde{\pi}<-E) = p(\tilde{r}<k) = \int_{-\infty}^{k} \phi(r)\, dr$$

where $p(\cdot)$ is a probability and $\phi(r)$ is the probability density function of r. If r is normally distributed, as is assumed here, (3) may be rewritten as

$$(4) \qquad p(\tilde{r}<k) = \int_{-\infty}^{z} N(0,1)\, dz$$

$$(5) \qquad z = (k-\rho)/\sigma$$

where ρ is the true mean of the $\tilde{r}$ distribution, σ is the true standard deviation,[4] and z is the number of standard deviations below the mean by which profits would have to fall in order to eliminate equity. It is in this sense that z is an indicator of the probability of bankruptcy. It is the risk measure used here except that sample estimates are substituted for ρ and σ, and the

estimated value of -z (z is a negative number) is labeled Z. Note that high values of Z are associated with low probabilities of failure. Z increases with the ratio of equity to assets, -k, and with the mean rate of return on assets, ρ. Z decreases with the volatility of asset returns, σ. One reason we employ the risk measure Z is that from a public policy perspective, it is the risk of failure of banking subsidiaries that is the primary concern regarding BHC product line expansion. A second reason we use Z is to directly test the second view of proponents of BHC expansion--that increases in volatility of rates of return, as represented by σ or S, would be offset by increases in rates of return, ρ, resulting in a lowered risk of failure.

It should be noted that in computing Z we treat a BHC as a single consolidated organization which survives or fails as an entity. The Z-score indicates the probability that consolidated total losses will exceed consolidated total equity. In using this approach we dismiss corporate separateness entirely and thus ignore the possibility that one or more BHC subsidiaries could survive the failure of another subsidiary. This is admittedly a simplification, one which permits us to use a single value of Z to indicate the probability of bankruptcy. However, it is consistent with our view, expressed earlier, that corporate separateness is at best a poor device to protect banking affiliates of BHCs (see note 3).

In the following sections we report industry sample statistics for the return measure, R, and the two risk measures, S and Z. These measures are first computed for each firm using the

individual firm rate of return time series. The individual firm statistics are then aggregated for each industry. We never compute risk measures based on industry aggregate profits, assets, and equity. This method would result in averaging rates of return across firms within an industry, thus lowering estimates of the risk measures by some unknown amount. We are interested in the risk effects of merging a BHC and (say) a life insurance company, not the risk effects of merging the two industries.

We summarize results using median statistics instead of the more common mean statistics. The median is not heavily influenced by one or a few outlying observations as the mean is. In only a few instances, though, are the two statistics much different in the sample results. It should be noted that comparing median industry values of the risk measures S and Z is not a conceptually valid way of investigating the risk effects of BHC diversification into the nonbank industries. As discussed in the following section, it is for that reason we conduct merger simulation studies. Even so, the industry-based risk measures are of considerable interest in themselves. Unlike simulation results, they require no complicated computer manipulations of the underlying data and no simplifying assumptions. The industry measures may therefore be viewed as representing the distributions underlying the more elaborate simulation results. Fortunately, both sets of tests lead to much the same conclusions.

B. Merger Simulations

Industry sample median values of R, S, and Z provide valuable information about the likely profitability and risk of

BHCs after expansion into the other industries. Such statistics, however, cannot fully capture the risk effects of combining a BHC with a firm from one of the other industries. The riskiness of such combinations depends not only on the standard deviation of returns in each industry, but also on the covariance between returns.

Assume, for example, that a BHC acquires a life insurance firm. Post-merger consolidated assets can be represented by α percent bank assets and $(1-\alpha)$ percent insurance assets. The rate of return on post-merger consolidated assets (or equity) will be a simple weighted average of the rates of return on bank assets (equity) and on insurance assets (equity). However, the variance (or squared standard deviation) of post-merger rates of return will be a more complicated nonlinear expression. Consider the variance of the rate of return on post-merger consolidated assets, σ_c^2. If σ_b^2 = the variance of the rate of return on BHC assets, σ_i^2 = the variance of the rate of return on insurance assets, and $\sigma_{b,i}$ = the covariance between these two rates of return, then

$$\sigma_c^2 = \alpha^2\sigma_b^2 + (1-\alpha)^2\sigma_i^2 + 2\alpha(1-\alpha)\sigma_{b,i}. \tag{6}$$

It should be clear that knowledge of the two variances is insufficient to determine the variance of consolidated returns, σ_c^2.

One way to estimate σ_c^2 is to separately estimate each component in (6), that is, the two variances, the covariance, and the proportions of bank and nonbank assets. As we have learned from previous work, however, this is a difficult process.[5] The underlying distributions of industry returns often do not exhibit

desirable statistical properties. For example, they are often not joint-normal or time-stationary, and they may exhibit significant "firm effects" within an industry. The last characteristic simply reflects the imprecision of industry definitions, but it still complicates the process of estimation.

A completely different method is employed in the present study. Instead of estimating each component of (6) from the industry data, we simulate hypothetical mergers between BHCs and firms from the other industries using historical data. For each hypothetical firm created by the simulated merger, a time series of returns is generated and estimates of R, S, and Z are made. A large number of hypothetical firms, each with its own R, S, and Z, are produced. From these, estimates of R, S, and Z for the simulated hypothetical industry are obtained. It is important to emphasize that the industry risk measures are based on risk estimates for the consolidated merged hypothetical firm, not from the individual firms that go into the makeup of the merged firm.[6]

The hypothetical merger is based on simple assumptions. We merge the firms based on their accounting (book) values. Consolidated total assets, equity, and profits for the hypothetical firm are obtained by summing the assets, equity, and profits of the merging firms. We ignore synergies resulting from the combination, out-of-pocket merger costs, merger premia, and changes in capitalization associated with the combination. Obviously, these assumptions are not realistic. Some of the assumptions will bias results in favor of expansion proponents; others will have the opposite effect. However, there is a saving grace

to this simplicity. It avoids the subjectivity inherent in the determination of hypothetical merger terms on a case-by-case basis and thus permits us to computer simulate a large number of mergers.

The actual simulations proceed as follows. First, randomly choose a BHC and a nonbank merger partner. Second, merge them during the first period in which both firms are in the sample. Third, compute consolidated total assets, equity, and profits for the merged firm from the year of merger onward. Fourth, using these time series, calculate annual returns for the merged firm. Fifth, compute firm measures of R, S, and Z. Sixth and finally, save these summary measures for the hypothetical merged firm, randomly choose another pair of firms, and repeat the entire process. This procedure is repeated 100 times for each nonbank industry, so that we have 100 hypothetical mergers of BHCs with securities firms, 100 of BHCs with life insurers, and so on. In this manner, we generate summary R, S, and Z data for six new "industries."

C. Data Sources

All of our data come from Standard & Poor's COMPUSTAT tapes and cover the years 1971-84. This source provides both market and accounting data. Included in the sample are 146 BHCs, 11 securities firms,[7] 30 life insurance companies, 15 property/casualty insurance firms, 5 insurance agent/broker firms, 31 real estate development companies, and 11 "other" real estate firms. Industry classifications are determined by Standard & Poor's. Not all sample firms have data in all sample periods, but

we required that each sample firm have at least five years of data. The firms in the sample tend to be the larger ones in their respective industries, and all are publicly traded. Information about the size distribution of sample firms appears in Table 1, and a list of firms is provided in Appendix C.

BHCs are much more heavily represented in the sample than are firms from the other financial industries. This was not a matter of choice but rather reflected what was available on COMPUSTAT. However, our merger simulations were not based on the proportion of any one type of firm in the sample. Therefore, the relatively large number of BHCs should not bias the results. On the other hand, the small sample size in some industries (especially, insurance agent/broker) reduces the reliability of results for these industries.

III. Results: Individual Industry Statistics

A. Profitability Measures

The highest median rates of return on equity belong to the insurance agent/broker industry, which has a return of 20 percent, and securities firms, which have a return of 16.5 percent (Table 2). BHC rates of return, at 13.1 percent, are roughly comparable to those of life insurance and property/casualty insurance firms. The lowest returns belong to real estate development and other real estate firms, which have returns of 10 percent and 0.7 percent, respectively. Thus, except for the securities and insurance agent/broker industries, these data do not support the contention that large BHCs have been less profitable than other financial firms. Undeniably, BHC profitability over the sample

period was much below that of securities firms, as proponents of liberalized legislation claim. However, as shown next, securities is also a riskier industry.

B. Risk Measures

As shown in Table 2, the firms exhibiting the highest risk, whether measured by S or by the Z-score, are the securities firms and both types of real estate firms. (The reader is reminded that Z-score and risk are inversely related.) The lowest risks by either measure are those of life insurance firms and BHCs.

Some proponents of expanding permissible BHC activities would not dispute these findings. They would argue, however, that industry risk is not the relevant risk when discussing the expansion of BHC powers. The relevant risk, they would say, is the risk to firms undertaking a combination of banking activities and the currently prohibited activities. In their view, combining activities would reduce the volatility of returns below that of undiversified BHCs. It is that contention that we next address.[8]

IV. Results: Hypothetical Industries Formed from Mergers Between One BHC and One Nonbank Firm

A. Profitability Measures

Results of the merger simulations are shown in Table 3. For purposes of comparison, statistics for the unmerged BHC industry are shown as a memo item in the last row of Table 3. Median returns on equity for firms created by the simulated mergers are linear combinations of the median rates of return among

the underlying industries. According to the simulations, BHCs could generally have increased their rates of return on equity by going into the securities and insurance agent/broker industries. Going into real estate development, on the other hand, would have reduced rates of return on equity.

Perhaps the most striking feature of the rate of return column in Table 3, however, is that the effects of mergers on rates of return are relatively small. This finding rests on two factors. Either rates of return for BHCs are not much different than rates of return in the other industries, or BHCs' share of consolidated assets after merger is large. (See the last column of Table 3.) These numbers clearly reflect the large size of sample BHCs in the sample relative to that of most firms in the other industries.

At this point the reader is probably asking, "Why not simply look at mergers with larger nonbank firms?" There are two responses to this anticipated question. First, we cannot create merger opportunities that do not exist. If a firm is large and publicly traded, it typically is listed on COMPUSTAT. Put another way, one factor which may tend to limit opportunities for expansion by large BHCs into other financial industries is the sheer size of banking. We are not the first to make this point. The second answer is, "Wait a moment," for as we shall see, the <u>risk</u> effects of hypothetical mergers may be substantial, even though the nonbank merger partner is relatively small.

B. Risk Measures

The risk effects of hypothetical mergers between a BHC and a firm in another industry are also shown in Table 3. As before, two measures of risk are shown, S and Z. For purposes of comparison, these risk measures are also shown in the last row for the unmerged BHC industry.

Consider first the standard deviation risk measure, S. Risk increases substantially (i.e., risk is much higher compared to the unmerged BHC industry) for mergers with securities firms, property/casualty insurance firms, and real estate development firms. Risk increases are small with respect to mergers with other real estate and insurance agent/broker firms. Only in the case of mergers with life insurance firms does risk decline.

Consider next the Z-score. The results here are quite similar to those with standard deviations. Bankruptcy risk worsens perceptibly when BHCs merge with securities, property/casualty insurance, and real estate development firms and less so with insurance agent/broker and other real estate firms. Bankruptcy risk declines for mergers with life insurance firms.

Figure 1 is a different way to examine the risk measure Z. Rather than just displaying the median, this figure shows the entire frequency distributions of Z-scores for combinations of BHCs and firms from the other six industries. There are 100 simulations of hypothetical mergered firms per panel. The objective is to be sure that the median (displayed as a star) is conveying meaningful information about the relative riskiness of the different combinations.

Figure 1 suggests that, in general, this is true. Consider, for example, the BHC-securities industry versus the BHC-life insurance industry. It is clear from visual inspection that the BHC-life insurance combinations place much more mass on the left-hand side of the figure than do the BHC-securities combinations. Further, the life insurance combinations have ten Z-scores greater than 90 and off the right-hand side of the scale. The securities combinations result in only one such outlier. There is, however, one type of merger combination for which the median Z-score may be a misleading indicator: BHC-other real estate. The median Z-score for BHC-other real estate combinations is 37.86, indicating this is the second least-risky combination. Yet examination of the Z-score distribution indicates that BHC-other real estate combinations place a lot of mass on low Z-scores at the extreme left end of the scale. Otherwise, the displays in Figure 1 support the view that BHC-life insurance combinations are relatively low risk, whereas BHC-securities combinations are relatively high risk--the same conclusion suggested by the median Z-scores.

Summarizing, we find that mergers between BHCs and securities firms are likely to increase profitability. However, they are not likely to result in the reduced risk of failure that advocates of such a step have predicted. If anything, such mergers are likely to increase BHC risk. The same conclusions about risk can be said of BHC mergers with real estate development and property/casualty insurance firms. On the other hand, mergers between BHCs and life insurance firms reduce the median value of

both risk measures, suggesting the existence of desirable diversification effects. But only this type of industry combination results in apparent risk reduction.

V. Possible Sources of Bias in the Testing: Discussion

The merger results discussed above are based on extremely simple merger rules. As we explained earlier, this was done to eliminate the need to determine merger terms on a case-by-case basis and to streamline the computer operation. We now examine those assumptions in order to determine the extent to which our results are biased for or against the proponents of BHC expansion. We briefly address a number of these assumptions, beginning with those which arguably weaken our results.

A. Biases Which Weaken Our Results

1. Merger Partners Are Chosen at Random

One might question the logic of picking random merger partners, as is done in our experiments. It might be argued that a "smart" BHC would not intentionally merge with a high-risk or low-rate of return nonbank firm. Rather, rational BHC managers might be expected to pick out the "better" merger partners from each nonbank industry.

This argument seems plausible, to be sure, but it overlooks several important facts. First, there are a limited number of firms in each industry for which data are available. When the low-risk/high-return candidates have been picked off, the firms that remain must have less desirable characteristics. It would be misleading to study a limited number of the most desirable merg-

ers, especially since (with the advantage of hindsight) we can determine exactly what the best merger combinations would have been.

Second, those nonbank firms with exceptional risk/return characteristics are likely to be attractive to all investors, not only BHC acquirers. That fact would generally be reflected in share prices, and such firms would command the highest merger premiums, too. This would reduce their expected profitability in a way our study does not take into account.

Third, and finally, it is not obvious that BHCs would want to diversify asset holdings so as to decrease risk. (We shall return to this point in a few paragraphs.)

2. Sample of Firms May Not Be Representative

The small sample of firms in some industries (e.g., five insurance agent/broker firms, eleven securities firms) may not be representative. In addition, these results do not pertain to BHC acquisitions of small nonbank financial firms or to de novo expansion.

It is true that in some industries sample size is small. Of course, we did not intentionally limit sample size; that was determined by the number of firms listed on COMPUSTAT. We specifically chose this data source because it includes only firms that are publicly traded. Many of our empirical tests (discussed in Appendix A) require stock price data. Thus, a small sample size simply reflects the fact that there are not many large, publicly traded firms in that industry. We would argue that our results are representative of these large, publicly traded firms.

To be sure, results could be quite different for BHC acquisitions of small nonbank firms or for de novo acquisitions. Whether results would be "better" or "worse" is an open question. We make no claim that our findings can be extrapolated to situations we did not study.

3. Economies of Scale and Scope Are Ignored

Any potential for synergies or scale economies is ignored in the simulations. But it is often argued that they are an important reason why BHCs want to expand into different financial industries. Presumably, such economies would result in higher profitability and, resultantly, higher Z-scores than those obtained.

We question the existence of economies of scale in banking and related financial businesses. Most available studies indicate they have not been detectable beyond a rather modest size, and some have even found diseconomies of scale.[9] We do recognize the potential gains stemming from synergies between different financial lines of business. With our methodology, it is simply not possible to capture such effects.[10]

B. Biases Which Strengthen Our Results

We next turn to sources of bias that would tend to strengthen our results.

1. Selection Bias

Our sample has a form of selection bias. It does not include any firms that failed during the sample period. Undoubtedly there were some nonbank failures since nonbanks do not have a

"safety net." On the other hand, the sample does contain some BHCs (e.g., First Pennsylvania and Continental Illinois) which might well have failed in the absence of FDIC intervention. This selection bias has the effect of understating the risk of nonbank firms relative to that of BHCs in the sample.

2. Merger Premia and Costs Are Ignored

Our methodology does not take account of merger premia and out-of-pocket merger costs, both of which would tend to adversely affect profitability and Z-scores of merged firms. Merger premia may be quite substantial, but they depend upon the type of merger--for example, exchange of shares, cash buy outs, etc.--and thus are difficult to build into our simulations.

3. "Building Block" Capitalization Is Assumed

Our methodology assumes the "building block" approach to post-merger capital structure: the merged firm's capital is simply the sum of the capital of merging firms. Now, the capital-to-asset ratios of every other industry in our study are much higher than BHCs are required to hold (see Table 2). As a result, the post-merger capital ratio will automatically rise, relative to the BHC alone, in our simulated mergers. In actual practice, however, BHC managers might well choose to reduce the post-merger capital ratio to the regulatory minimum--unless, of course, the authorities prohibited them from doing so. For that to happen, however, would require regulatory adherence to the building block standard and a prohibition against double-leveraging of nonbank acquisitions. Neither policy has been strictly enforced in the

past. In sum, the capitalization assumptions made in our simulations are quite conservative. Allowing for more leverage would increase risk, as measured by both S and the Z-score.

4. The Moral Hazard Problem Is Ignored

Many studies in banking address the so-called moral hazard problem which arises because the structure of FDIC deposit insurance may induce decision makers to seek risky balance sheet configurations.[11] This is not because they like risk per se. Rather, it is because the deposit insurance system distorts payoffs in such a way that risk-taking is more than fairly compensated. This distortion may also extend to the BHC's nonbank affiliates to the extent that the FDIC ends up insuring de facto some or all nonbank liabilities, as has actually occurred in some cases. The presence of moral hazard suggests that it may not be correct to assume that BHC managers want to diversify to reduce risk. They may, instead, prefer to take advantage of expanded asset powers to increase risk.

VI. Summary and Conclusions

The results of this analysis cast doubt on two important assertions made by proponents of expanded powers for BHCs. One is that BHC expansion into those industries would necessarily reduce the volatility of returns. We found some evidence that this is true in the case of life insurance activities. But our results suggest it is not the case with respect to securities or real estate development. If anything, our tests suggest that entering these lines of business would increase the volatility of profits.

The second assertion is that any increased volatility that might result when currently prohibited activities become permissible would be fully offset by increased average profitability. We tested this view, employing a measure of bankruptcy risk which "nets out" the offsetting effects of increased mean and variance of returns. Results indicate that the claim is not supported for BHC mergers with securities or real estate development firms. In the case of BHC mergers with life insurance firms, however, the estimated risk of failure does decline.

All these results are unambiguous in the sense that they were obtained both with accounting data (as discussed in the text) and with market data (as discussed in Appendix A). Some other results, however, depend upon the data base employed. This is true of the risk effects of simulated mergers of BHCs with property and casualty insurers, insurance agents/brokers, and other real estate firms. As discussed in Appendix A, we have somewhat more confidence in the accounting measures than in the market measures. If only the accounting risk measures are considered, results are unambiguous. Only BHC mergers with life insurance companies reduce return volatility and/or risk of failure. All other combinations increase risk, as measured by both S and Z.

Conclusion

Although the tests are arguably biased in a number of ways, it is our best guess that they are strongly biased in favor of BHC mergers with nonbank financial firms. This is because, in our judgement, the strongest assumptions in these tests are those of no merger premia and no double-leveraging of BHC acquisi-

tions. Both assumptions tend to make BHC mergers with nonbank financial firms appear to be more desirable than they actually would be. Indeed, even the finding of risk-mitigating effects of mergers between BHCs and life insurance firms could be suspect.

This is, admittedly, opinion on our part. What is less arguable are the relative effects of mergers with firms from the different nonbank industries studied here. The findings on relative risk effects are, in themselves, potentially quite important for public policy. That is, assume that policymakers are concerned about the risk of failure of BHC-affiliated banks and, further, that they are less-than-completely confident about corporate separateness as a device to shelter banks from risk. Then they should be aware that the risk implications of BHC-securities firm mergers, for example, appear to be quite different than those of BHC-life insurance mergers. And they should be more concerned about the former than the latter. That, in our view, is the basic policy message of this study.

Notes

[1]The authority to permit BHCs to engage in nonbanking activities resides partly in the Federal Reserve. The Bank Holding Company Act of 1956 and its subsequent amendments authorize the Fed to determine what nonbanking activities, other than those specifically prohibited by law, are permissible for a BHC (defined as a holding company controlling one or more banks). The basic criteria are that a permissible activity must be closely related to banking and that it provide benefits to the public. A BHC's entry into permissible activities requires prior approval by the Fed. The Bank Holding Company Act and the Garn-St Germain Depository Institutions Act of 1982 prohibit BHCs from engaging in insurance activities apart from certain exceptions. The Banking Act of 1933 (the Glass-Steagall Act) prohibits banks from engaging in investment banking. In early 1987 the Fed approved several BHC applications to underwrite commercial paper, 1-4 family mortgage-backed securities, and municipal bonds, activities that it believed were not prohibited by Glass-Steagall. This decision is currently under appeal to the U.S. Supreme Court. Congress imposed a temporary moratorium (until March 1988) on these activities so that it could examine the issue of separation of banking from securities activities. That moratorium has been extended indefinitely.

[2]Nonbank firms have exploited a loophole in the Bank Holding Company Act of 1956 which permits them to establish or acquire a bank as long as either demand deposits or commercial loans services (but not both) are offered. Firms that exhibit

these characteristics are commonly referred to as "nonbank banks."

[3]See Boyd and Graham (1986). In our view, there are several reasons why "walls," or corporate separateness, is not likely to be an effective device to shelter banking subsidiaries of BHCs from risk. Theoretically, as long as corporations have a common parent, they will also have a commonality of interests--imposed from the top if not from within. Inevitably, this commonality will produce incentives for cross-subsidization between firms. Indeed, it can be shown that, under quite general conditions, policies which maximize the profits of each subsidiary individually do not maximize total consolidated profits--and vice versa. It follows that if total consolidated profits are actually maximized, this must (by construction) be at the expense of profits of one or more of the individual affiliates.

Incentives for intercorporate cross-subsidization can be very strong, particularly if an affiliate is in financial distress. There are a myriad of ways in which resources can be moved between sister corporations with a common management, and some of them, undoubtedly, are still waiting to be discovered. The history of Fed supervision in this area suggests that it is extremely difficult to thwart such interaffiliate transfers when management is determined and creative.

We recognize that it is possible to impose such an extreme degree of corporate separateness that problems in one affiliate simply cannot spread to another. For example, regulation might prohibit all interaffiliate transactions and any shar-

ing of management. However, such restrictions would also preclude any advantages in combining banking with nonbank lines of business, e.g., economies of scope. Besides, investors can already create such combinations themselves, by buying shares in (say) a bank, a life insurance company, a brokerage, and so on. It seems fair to say that no one views total corporate separateness as a desirable approach. What is sought, instead, is a system which permits BHC affiliates to operate much like a single consolidated firm, except for the transmission of losses to bank affiliates. We doubt it is possible to create such a system.

[4]Even if $\tilde{r}$ is not normally distributed, z is still a useful risk measure as long as ρ and σ exist. We can invoke the Bienaymé-Tchebycheff inequality and

$$p(\tilde{r} \leq k) \leq \{\sigma/(\rho-k)\}^2.$$

Then z is the upper bound or "worst case" probability of bankruptcy. [See Roy (1952).]

[5]See Boyd and Graham (1986) and Boyd, Hanweck, and Pithyachariyakul (1980).

[6]In principle, we could also estimate the covariance $\sigma_{b,i}$ in (6), since we have estimates of σ_b^2 and σ_i^2 from the industry data and estimates of σ_c^2 from the simulations. However, this sort of computation is of no particular interest.

[7]In this study we use the term "securities" to represent all the activities engaged in by firms in this industry including investment banking and brokerage.

[8]The Z-scores computed with accounting data are quite large and, if the distributions of returns are normal, imply infinitesimal probabilities of failure. For several reasons, however, these measures underestimate the true probabilities of bankruptcy. First, eyeballing the return distributions suggests they may not be normally distributed. Second, by our definition, a BHC is not bankrupt unless it experiences a one-period loss that exceeds its consolidated equity. Realistically, the large BHCs would experience depositor runs, liquidity problems, and massive regulatory intervention in much less dire circumstances. Whether they were technically bankrupt or not would be a moot issue. Moreover, with our definition, failure cannot occur a little bit at a time, spread over several years. Third and finally, it seems very likely that smoothing of the accounting earnings is occurring, with the result that estimated earnings volatility is downward biased. That may be seen by comparing the accounting risk measures presented in the main body of the text, with the market risk measures presented in Appendix A. The market-based measures suggest that returns are much more volatile and also produce Z-score estimates that are much lower and arguably more plausible.

[9]See, for example, Berger, Hanweck, and Humphrey (1987).

[10]Other studies have found that some types of newly acquired nonbank subsidiaries are systematically less profitable than their unaffiliated peers. This could suggest that scope economies are unimportant or even that there are diseconomies. Alternatively, it could simply reflect a learning curve effect when going into a new line of business. [See Rhodes (1975,1980), Rhodes and Boczar (1977).]

[11]See, for example, Kareken and Wallace (1978); Dothan and Williams (1980); Sharpe (1978); Merton (1977); or Buser, Chen, and Kane (1981).

Table 1

Number and Size of Sample Firms

Average Total Assets, 1971-84 ($ million)

Industry	Number of Firms	Median Assets	Smallest	Largest	Mean Assets
BHC	146	$2567	$307	$86267	$6455
Securities	11	472	84	12159	3677
Life Insurance	30	1004	13	28196	3051
Property/Casualty Insurance	15	2590	62	16501	3546
Insurance Agent/Broker	5	553	108	584	407
Real Estate Development	31	112	6	772	137
Other Real Estate	11	129	16	831	252

Table 2

Return, Leverage, and Risk Measures by Industry

Annual Data, 1971-84

	Median Rate of Return on Equity, R	Median Capital/Asset Ratio, E/A	Median Standard Deviation of Return on Equity, S	Median Z-score, Z
BHC	0.1312	0.0580	0.0245	43.36
Securities	0.1652	0.2005	0.0909	13.33
Life Insurance	0.1282	0.2055	0.0261	36.79
Property/Casualty Insurance	0.1344	0.2206	0.0467	24.56
Insurance Agent/Broker	0.1998	0.3728	0.0554	15.97
Real Estate Development	0.1003	0.2749	0.1382	8.66
Other Real Estate	0.0065	0.2441	0.0925	12.98

Table 3

Risk and Return Measures Based on Simulated Mergers
Between One BHC and One Firm in Another Industry*
Annual Data, 1971-84

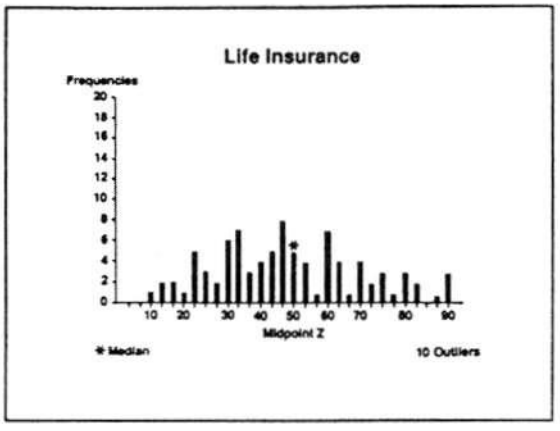
Simulated Industry	Median Rate of Return on Equity, R	Median Standard Deviation of Return on Equity, S	Median Z-score, Z	Median BHC Share of Consolidated Assets
Securities	0.1406	0.0480	24.93	0.79
Life Insurance	0.1295	0.0201	49.30	0.71
Property/Casualty Insurance	0.1297	0.0432	25.28	0.62
Insurance Agent/Broker	0.1559	0.0302	33.28	0.91
Real Estate Development	0.1008	0.0419	28.82	0.94
Other Real Estate	0.1246	0.0256	37.86	0.97
Memo: BHC Industry	0.1312	0.0245	43.36	1.00

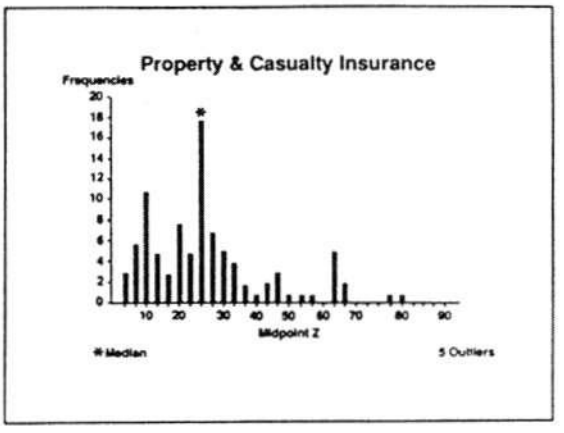
*Based on 100 random simulated mergers.

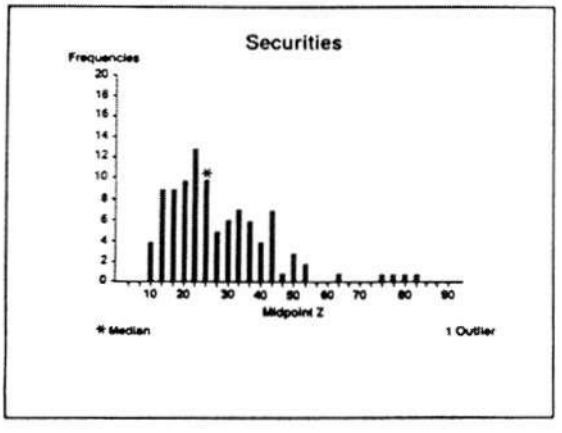
Figure 1

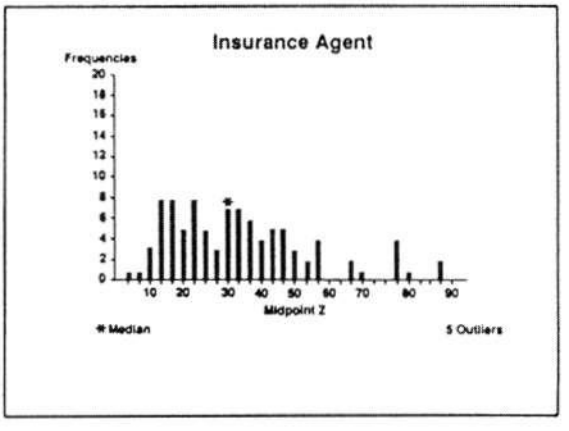
Simulated Mergers Between One Bank Holding Company
and One Firm in Another Industry:
Distribution of Z-Scores

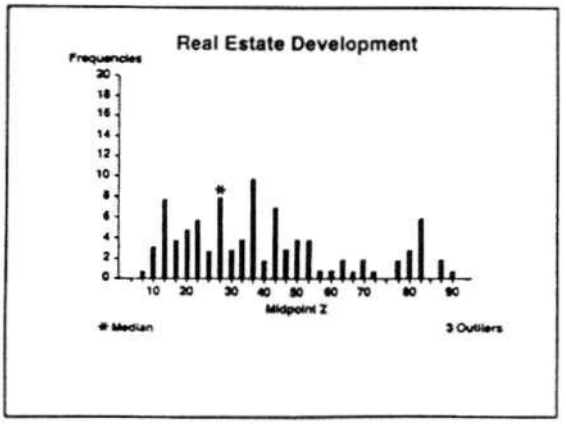
(100 Simulations Per Industry)

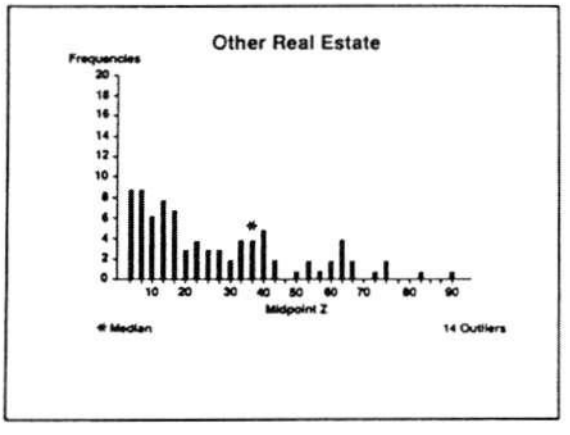












Appendix A

Some controversy exists over the question of whether accounting (book) data or market (stock price) data provide better measures of risk and return. Each data source has advantages and disadvantages. A widely recognized problem with accounting data is the intentional smoothing of reported profits. Commercial banks, for example, are permitted by their regulators to value assets and liabilities at acquisition (historical) costs, rather than at their market values (i.e., they do not mark to market). Since all our risk measures depend, directly or indirectly, on the volatility of profits, this is a potentially important problem. Market returns as reflected in stock prices are not intentionally smoothed.

Results with the sample firms indicate that market returns are, indeed, much more volatile than accounting returns for all industries studied. As may be seen by comparing Table A1 and Table 2, the standard deviations of rates of return estimated with market data are roughly from five to ten times larger than those estimated with accounting data. Similarly, estimated Z-scores are from five to ten times smaller. This finding surely reflects intentional accounting smoothing, at least to some extent. But it could reflect other factors as well. In particular, market returns may reflect random noise or at least some kind of exogenous shocks which are unrelated to the true profitability of the firm. Indeed, it remains an unsolved puzzle as to why market returns are consistently as volatile as they are [Mehra and Prescott (1985)].

Other researchers have also found a dating problem with market data which they term "look-ahead bias." They have found that market prices respond to published accounting data. The publication date of financial data typically lags the end of the reporting period by two or three months. Therefore, computing market returns based on stock prices for the same date as the end of the accounting period may imply that the investor is able to forecast without error. [See, for example, Banz and Breen (1986).]

In sum, it is not an open-and-shut case that either sort of data, accounting or market, is unambiguously "best." We have, therefore, replicated all the results presented in the body of the text, but using market data. This appendix contains risk and return results for the seven industries individually and for the six merged industries discussed earlier.

Methodology

The rate of return measure used is $(\tilde{R}^m)$:

$$(A1) \qquad (\tilde{R}^m_j) = \{P_j - P_{j-1} + D_j\}/P_{j-1}$$

where $\tilde{R}^m$ is the market rate of return on equity, P is price per share of common stock, and D is cash dividends per share. Both P and D are adjusted for stock splits and stock dividends.

The first risk measure, S^m, is the standard deviation of R^m defined as in (2).

To estimate the second risk measure, Z, using market data requires that the balance sheet and income statement be restated in market value terms. In what follows, the superscript

m denotes "market value," or an estimate derived from market prices of common stock. The superscript a denotes "accounting value."

The market proxy for net income after taxes is π^m:

$$(A2) \qquad \tilde{\pi}^m_j = \frac{(\tilde{R}^m_j)(c_j+c_{j-1})}{2}$$

where c is the number of common shares outstanding, adjusted for stock splits and dividends. The market value of total equity is E^m:

$$(A3) \qquad E^m_j = c_j P_j .$$

And finally, the market value proxy for total assets is A^m:

$$(A4) \qquad A^m = E^m + L^a$$

where L^a is the accounting value of total debt plus preferred stock. In (A4) the accounting value of L^a is used as an estimate of market value. This is, admittedly, a rough approximation both because of the inclusion of preferred stock and because some of the debt is long term.

The market-based estimate of z, Z^m, can now be defined:

$$(A5) \qquad Z^m = \frac{\{\sum_{j=1}^{n} (2\pi^m_j/(A^m_j+A^m_{j-1}))\}/n + \{\sum_{j=1}^{n} [(E^m_j+E^m_{j-1})/(A^m_j+A^m_{j-1})]\}/n}{S^{\pi m}}$$

where $S^{\pi m}$ is the estimated standard deviation of the rate of return on assets, $2\pi^m_j/(A^m_j+A^m_{j-1})$.

A third measure of risk is commonly used in the finance literature, one which can only be computed with market data. It

is the beta coefficient of a firm's common stock, a measure of the relationship between the rate of return on the stock and the average rate of return to the market. Beta is obtained by estimating the time-series regression

$$(A6) \qquad R_j^m = a + b(R_j^{SP})$$

where a is an intercept term, b is an estimate of the beta coefficient, and R^{SP} is an estimate of the return to the total market. For present purposes, R^{SP} is defined as

$$(A7) \qquad R_j^{SP} = (P_j^{SP} - P_{j-1}^{SP})/P_{j-1}^{SP}$$

where P^{SP} is the value of Standard & Poor's 500-stock index.

Results

Individual Industries. Market rates of return on equity, leverage, and risk statistics for the seven original industries are shown in Table A1. The highest median rates of return are scored by the securities and real estate development industries at 28.7 percent and 20.1 percent, respectively. Then, median returns to BHCs and life insurance, property and casualty insurance, and other real estate firms are all quite similar at around 15 percent. Insurance agent/brokers are lowest at 10.2 percent. Except for insurance agent/brokers, whose ranking changes from top to bottom, these results are similar to those obtained with accounting data. Returns to securities firms are quite high, and BHCs are roughly in the middle of the pack.

All three risk measures--median standard deviation of return on equity, median Z-score, and median beta--provide similar

results. According to all three, securities and real estate are the high-risk industries. BHCs and the insurance industries are fairly close according to these measures, but BHCs are no longer the lowest risk (as is suggested by the accounting data). What stands out most, however, is the wide divergence in risk between the securities and real estate industries at the high end and BHCs and insurance industries at the low end. Overall, the risk results using market data and accounting data are quite similar.

Hypothetical Industries. Shown in Table A2 are return and risk statistics for the six hypothetical industries formed by merging one BHC with one firm from another industry. The highest median rates of return belong to the BHC-securities combinations; the lowest, to BHC-insurance agent/brokers. These results simply reflect the ordering for the unmerged industries and merit no further comment.

Both risk measures, S^m and Z^m, suggest that the highest-risk BHC mergers are those with securities firms and with real estate development firms. According to both measures, risk is higher for such combinations than it is for BHCs alone. The lowest-risk combinations are, in increasing order, those with insurance agent/brokers, property/casualty insurers, and life insurers. These three combinations appear to mitigate risk relative to BHCs alone.

The principal differences between market and accounting data with respect to risk are the results for the BHC-property/casualty insurance and BHC-insurance agent/broker industries. When accounting data are used, both risk measures rise

when mergers take place; when market data are employed, both risk measures fall when mergers take place.

The Risk Measures: Are Accounting Data or Market Data Better?

In at least some cases, market and accounting data produce conflicting risk entailments. This led us to consider methods of testing which data source was best for the purpose of measuring risk.

The debt rating agencies make use of accounting data, market returns, and, indeed, all publicly available information about firms whose debt they evaluate. Moreover, they are primarily interested in the likelihood of failure, which is the kind of risk our Z-scores are intended to capture. Thus, debt ratings are arguably a useful alternative risk measure against which to test our Z-scores.

We obtained Moody's commercial paper ratings for all BHCs in the sample that were rated at the end of 1984--the final year of our time series. There were 71 altogether, 48 with paper rated P1 and 23 with paper rated P2 and lower. Two simple tests were then conducted. The first was a two-way analysis of variance of Z-scores against the commercial paper ratings. With accounting data, the mean Z-score of P1 firms was 60.8; for P2 firms it was 44.5. Using the standard F-test, these means were significantly different at the 95 percent confidence level. With the market data, mean Z-scores were 4.2 and 4.0, respectively, with only about 44 percent confidence that the true means were different.

Next, we used the Z-scores to classify BHCs into "low-risk" and "high-risk" groups according to the commercial paper

ratings. Only "outlying" BHCs, those with Z-scores more than one standard deviation from the mean, were used in this procedure. The accounting Z-scores correctly classified 15 out of 17, whereas the market Z-scores correctly classified only 7 out of 15.

In sum, the accounting Z-scores appear to convey much of the same information that is in commercial paper ratings. The market Z-scores do not. To the extent, therefore, that commercial paper ratings are useful measures of bankruptcy risk, these findings favor the use of Z-scores computed with accounting data.

Table A1

Market Return, Leverage, and Risk Measures by Industry

Annual Data, 1971-84

	Median Market Rate of Return on Equity, R^M	Median Market Equity/ Asset Ratio, E^M/A^M	Median Standard Deviation of Market Return on Equity, S^M	Median Z-score, Z^M	Median Beta, b
BHC	0.1562	0.0500	0.2703	3.916	0.83
Securities	0.2865	0.2242	0.5248	1.954	1.69
Life Insurance	0.1464	0.1797	0.2924	3.906	0.76
Property/Casualty Insurance	0.1579	0.2719	0.2499	4.124	0.57
Insurance Agent/Broker	0.1023	0.4986	0.2458	4.036	0.31
Real Estate Development	0.2012	0.2917	0.6441	1.744	1.77
Other Real Estate	0.1546	0.3022	0.6430	1.885	1.40

Table A2

Market Risk and Return Measures Based on Simulated Mergers
Between One BHC and One Firm in Another Industry*
Annual Data, 1971-84

Simulated Industry	Median Rate of Return on Market Equity, R^M	Median Standard Deviation of Market Return on Equity, S^M	Median Market Z-Score, Z^M	Median BHC Share of Consolidated Market Assets
Securities	0.2156	0.3636	3.279	0.79
Life Insurance	0.1530	0.2366	4.646	0.71
Property/Casualty Insurance	0.1477	0.2218	5.137	0.62
Insurance Agent/Broker	0.1211	0.2029	5.468	0.91
Real Estate Development	0.1582	0.3006	3.596	0.94
Other Real Estate	0.1482	0.2766	3.978	0.97
Memo: BHC Industry	0.1562	0.2703	3.916	1.00

*Based on 100 random simulated mergers.

Appendix B

Proponents of expanded BHC powers would probably argue that the prospects for risk reduction increase with the number of new industries BHCs may enter. This appendix investigates that issue.

The possible combinations of BHCs with other industries are far too many to analyze using the methodology employed here. With seven sample industries there are, in total, 63 possible combinations involving BHCs and one or more other industries. Our simulations require many computations, and to look at that many combinations would be prohibitively expensive. Moreover, looking at all possible combinations would raise the possibility of obtaining what appeared to be a good combination merely by chance.

Instead, we examine three-industry mergers involving combinations of a BHC, a securities firm, and a firm from one of the remaining five industries. We selected such three-firm combinations in this exercise because much of the proposed legislation specifically involves opening up the securities industry to BHCs. The idea was to see if, by adding a third industry, the undesirable risk effects of BHC-securities mergers could be reversed. The answer, apparently, is "no."

Table B1 shows the results of these simulated three-firm mergers using accounting data. Three-firm median returns on equity are always higher than that return for the BHC industry alone, regardless of which third industry is included. This was expected because of the inclusion of the highly profitable securities industry. The three-firm risk measures also turn out to be

higher than those for the BHC industry alone, regardless of which third industry is included.

Table B1

Risk and Return Measures Based on Simulated Mergers
of One BHC, One Securities Firm, and
One Firm in Another Industry*
Annual Data, 1971-84

Simulated Industry	Median Rate of Return on Equity, R	Median Standard Deviation of Return on Equity, S	Median Z-score, Z	Median BHC Share of Consolidated Assets
Life Insurance	0.1402	0.0311	34.26	0.51
Property/Casualty Insurance	0.1453	0.0397	27.01	0.40
Insurance Agent/Broker	0.1745	0.0453	23.17	0.68
Real Estate Development	0.1419	0.0516	20.79	0.61
Other Real Estate	0.1338	0.0508	23.53	0.74
Memo: BHC Industry	0.1312	0.0245	43.36	1.00

*Based on 100 random simulated mergers.

Appendix C

Sample Firms by Industry

BHC

Affiliated Bankshares--Colorado
Allied Bancshares Inc.
American Fletcher Corp.
American Security Corp.
Ameritrust Corp.
Amsouth Bancorp.
Arizona Bancwest Corp.
Atlantic Bancorp.
Banc One Corp.
Banco Popular de Puerto Rico
Bancoklahoma Corp.
Bancorp Hawaii Inc.
Banctexas Group Inc.
Bank of Boston Corp.
Bank of New England Corp.
Bank of New York Co. Inc.
Bank of Virginia Co.
Bankamerica Corp.
Bankers Trust New York Corp.
Banks of Iowa
Banks of Mid-America Inc.
Barnett Banks of Florida
Baybanks Inc.
Boatmen's Bancshares Inc.
Centerre Bancorp.
Central Bancorp. Inc.
Central Bancshares of the South
Central Fidelity Banks Inc.
Centran Corp.
Chase Manhattan Corp.
Chemical New York Corp.
Citicorp
Citizens and So. Georgia Corp.
Citizens Fidelity Corp.
Citizens FST Bancorp Inc.--NJ
Colorado National Bankshares
Comerica Inc.
Commerce Bancshares Inc.
Commerce Union Corp.
Continental Bancorp--PA
Continental Illinois Corp.
Corestates Financial Corp.
Cullen/Frost Bankers Inc.
Deposit Guaranty Corp.
Dominion Bankshares Corp.
Equimark Corp.
Equitable Bancorp.

BHC, continued

European-American Bancorp.
Fidelcor
First Alabama Bancshares Inc.
First Atlanta Corp.
First American Corp.--Tenn.
First Bank System Inc.
First Bankers Corp.--Florida
First Chicago Corp.
First City Bancorp--TX
First Empire State Corp.
First Fid. Bancorp.
First Florida Banks Inc.
First Hawaiian Inc.
First Interstate Bancorp.
First Kentucky National
First Maryland Bancorp.
First Natl. Cincinnati Corp.
First of America Bank Corp.
First Oklahoma Bancorp.
First Pennsylvania Corp.
First Security Corp.--Delaware
First Tennessee National Corp.
First Union Corp.--NC
First Virginia Banks Inc.
First Wisconsin Corp.
First Wyoming Bancorp.
Fleet Financial Group Inc.
Florida Natl. Banks of Florida
General Bancshares
Hartford National Corp.
Horizon Bancorp.
Huntington Bancshares
Indiana National Corp.
Interfirst Corp.
Intrawest Financial Corp.
Irving Bank Corp.
IVB Financial Corp.
Key Banks Inc.
Landmark Bancshares Corp.
M Corp.
Manufacturers Hanover Corp.
Manufacturers National Corp.
Marine Corp.
Marine Midland Banks
Marshall and Ilsley Corp.
Maryland National Corp.
Mellon Bank Corp.

(more)

BHC, continued

Mercantile Bancorp.
Meridian Bancorp. Inc.
Michigan National Corp.
Midlantic Banks Inc.
Money Management Corp.
Moore Financial Group Inc.
Morgan (J.P.) and Co.
NBD Bancorp Inc.
NCNB Corp.
National Bancshares Corp.--TX
National City Corp.
Norstar Bancorp Inc.
Northern Trust Corp.
Northwestern Financial Corp.
Norwest Corp.
Old Kent Financial Corp.
Old Stone Corp.
Pan American Banks Inc.
PNC Financial Corp.
Rainier Bancorp.
Republic New York Corp.
Republicbank Corp.
Riggs Natl. Corp.--Wash., D.C.
RIHT Financial Corp.
Security Pacific Corp.
Shawmut Corp.
Society Corp.
South Carolina Natl. Corp.
Southeast Banking Corp.
Southtrust Corp.
Sovran Financial Corp.
State Street Boston Corp.
Sterling Bancorp New York
Suburban Bancorp.
Suntrust Banks Inc.
Sunwest Financial Services Inc.
Texas American Bancshares
Texas Commerce Bancshares
Third National Corp.
Union Natl. Corp.--PA
Union Planters Corp.
United Banks of Colorado
United Jersey Banks
United Missouri Bancshares
United Virginia Bankshares
U.S. Bancorp.
U.S. Trust Corp.
Valley National Corp.--Arizona
Wachovia Corp.
Wells Fargo and Co.
Worthen Banking Corp.
Zion Utah Bancorp.

Securities

Diversified Industries
Dreyfus Corp.
Edwards (A.G.) Inc.
Fidata Corp.
First Boston Inc.
Hutton (E.F.) Group
Integrated Resources Inc.
Inter-Regional Financial Group
Merrill Lynch and Co.
Paine Webber Group
Phibro Salomon Corp.

Life Insurance

Aetna Life & Casualty Co.
American Family Corp.
American General Corp.
American Heritage Life Invest Corp.
American National Insurance
Business Mens Assurance Co.
Capital Holding Corp.
Colonial Life and Accident-B
Colonial Penn Group Inc.
Combined International Corp.
ICH Corp.
Independent Insurance Group
Jefferson-Pilot Corp.
Kansas City Life Ins. Co.
Lamar Life Corp.
Laurentian Capital Corp.
Liberty Corp.
Lincoln National Corp.
Manhattan National Corp.
Monarch Capital Corp.
Monumental Corp.
Northwestern Natl. Life Ins.
Protective Life Corp.
Provident Life & Accident
Torchmark Corp.
Travelers Corp.
United Cos Financial Corp.
Uslico Corp.
Uslife Corp.
Washington National Corp.

Property/Casualty Insurance

American International Group
American Plan Corp.
Avemco Corp.

(more)

Property/Casualty Insurance, continued

Chubb Corp.
Cigna Corp.
CNA Financial Corp.
Continental Corp.
Geico Corp.
General Re Corp.
Hartford Steam Boiler Inspec.
Mission Insurance Group Inc.
Orion Capital Corp.
Safeco Corp.
St. Paul Cos.
USF & G Corp.

Insurance Agent/Broker

Alexander & Alexander Services
Corroon and Black Corp.
Equifax Inc.
Hall (Frank B.) and Co.
Marsh & McLennan Cos.

Real Estate Development

Amrep Corp.
Calprop Corp.
Campanelli Industries Inc.
Centennial Group Inc.
Christiana Companies
Deltona Corp.
Development Corp. of America
Fairfield Communities Inc.
First City Industries Inc.
FPA Corp.
Gulfstream Land & Development
ITI Corp.--Ohio
Kaufman & Broad Inc.
Key Co.
Killearn Properties Inc.
Koger Properties
Leisure & Technology Inc.
Lennar Corp.
Maxxam Group
MDC Corp.--Colorado
Nelson (L.B.) Corp.
Newhall Land & Farm Cal.
Oriole Homes Corp.--CL
Pulte Home Corp.
Punta Gorda Isles Inc.
Radice Corp.
Royal Palm Beach Ltd.
Seligman & Associates
Standard-Pacific Corp.
Starrett Housing Corp.
U.S. Home Corp.

Other Real Estate

Angeles Corp.
Arlen Realty & Development
Bay Financial Corp.
British Land of America
Grubb & Ellis Company
Horizon Corp.
New Mexico & Arizona Land
PHH Group Inc.
Southmark Corp.
Weingarten Realty Inc.
Wheeling and Lake Erie Realty Co.

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