On the Portfolio Effects of Financial Convergence —A Review of the Literature

Simon H. Kwan and
Elizabeth S. Laderman

Kwan is a Senior Economist and Laderman is an Economist at the Federal Reserve Bank of San Francisco. The authors would like to thank Judy Peng for research assistance and Fred Furlong, Ramon Moreno, Jose Lopez, John Krainer, and Kevin Lansing for helpful comments.

This paper reviews the literature on the effects of combining banking and nonbank financial activities on banking organizations' risk and return. In general, securities activities, insurance agency, and insurance underwriting are all riskier and more profitable than banking activities. They also have the potential to provide diversification benefits to banking organizations. While real estate agency, title abstract activities, and real estate operation are more profitable than banking, real estate development may not be. Real estate activities are riskier than banking activities in general, and their diversification benefits for banking organizations are less clear.

The somewhat fragmented financial services industry in the U.S. is shaped by a number of key pieces of legislation that separate banking from commerce and commercial banking from investment banking. The Glass-Steagall Act of 1933 bars national banks from investing in shares of stocks and prohibits them from underwriting and dealing in most securities, prohibits Federal Reserve member banks from being affiliated with any organization that is engaged principally in underwriting or dealing in securities, and makes it unlawful for securities firms to accept deposits. The Bank Holding Company Act of 1956 and its 1970 amendments prohibit bank holding companies (BHCs) from owning shares in companies other than banks, except companies that engage in lines of business closely related to banking. As a result of these statutes, the U.S. has a relatively restricted commercial banking industry in terms of permissible activities.

The passage of the Glass-Steagall Act was prompted by concerns about various kinds of abuses by commercial banks' investment banking affiliates, including overstating the quality of the underwritten securities issued by the commercial banks' clients, packaging bad commercial loans into securities, and misusing responsibility for trust accounts. Recent research, however, suggests that those concerns were invalid (Kroszner and Rajan 1994, Puri 1994, and Ang and Richardson 1994). Furthermore, since 1933, Congress has passed securities laws that prohibit the use of inside information for financial gains, and the Federal Reserve has written banking regulations that prohibit unfair or unsound banking practices. The argument for repealing the Glass-Steagall Act is further bolstered by the potential for scope economies between commercial and investment banking, as well as for improving small- to medium-sized firms' access to the capital markets (Kwan 1995).

In addition to achieving scope economies, the merger between banks and nonbank financial institutions may also improve the quality of banking companies' earnings through diversification, and hence the stability of the banking sector. Financial firms also are attracted to the idea of merging banking with securities and insurance companies due to the opportunities for cross selling. The potential for increasing economic efficiency is so large that it prompts both legislators and regulators to rethink the rigid organizational structure that was imposed upon banking firms.

During the late 1980s, financial innovations and regulatory liberalization started to erode the legal barriers preventing banking organizations from entering the securities and insurance markets. First, the Federal Reserve authorized securities subsidiaries of BHCs to engage in limited underwriting and dealing of traditionally bank-ineligible securities, creating the so-called Section 20 subsidiaries.[1] Second, by interpreting the National Banking Act more liberally, national banks started to engage in a wide range of general insurance activities in small towns of under 5,000 people, both within the state in which the institution is headquartered and also across state lines. In addition, the Office of the Comptroller of Currency has authorized national banks to provide a number of insurance and insurance-like products, including the underwriting and sale of credit life, credit health and accident, and credit disability insurance, mortgage life and disability insurance, and annuities.

The regulatory movement to expand banking powers parallels congressional efforts to introduce legislation to modernize the financial system. Current legislative proposals consider the integration of the banking, securities, and insurance industries and, to a lesser degree, the integration of banking and commerce. Furthermore, a number of banking firms also have expressed interest in engaging in real estate activities, and many real estate activities already are conducted by thrift institutions.

While the idea of financial convergence is gaining appeal among policymakers and financial services participants, its implications for financial stability and bank safety and soundness, and hence the supervision and regulation of future financial services firms, require vigorous analysis. In this paper, rather than adopting a broad view of the public benefits and costs of financial modernization, we focus on the portfolio effects of mixing banking and nonbank financial activities. In particular, we review empirical evidence regarding the potential effects of financial integration on banking organizations' profitability and risk. We are interested in the risk-return tradeoffs in expanding banking activities to include other financial activities, as well as the effects of engaging in new activities on banking organizations' total risk. We examine securities, insurance, and real estate activities, in that order.

The rest of the paper is organized as follows. Section I sets the stage by discussing several key methodological and theoretical issues. Since the empirical results can vary with the methods used in the studies, it is important to understand some of the differences in underlying methodologies in order to interpret and compare the results from various papers. Sections II, III, and IV survey the results of papers that examine the return and risk of securities, insurance, and real estate activities, respectively. Section V focuses on results regarding stock returns and the variability of stock returns. Section VI concludes with a summary of the review's key findings and their policy implications.

I. METHODOLOGICAL ISSUES

In this paper, we are mainly concerned with the effects on banking organization profitability and risk of banking organizations engaging in nonbank financial activities that are not currently permitted or are permitted only in a restricted form, as with securities activities. For the most part, this means that we necessarily will be reporting results that are based on data from nonbank financial institutions not affiliated with banks. This has the disadvantage of not allowing for scale or scope economies and not capturing the effects of firm-specific risk preferences and customer relationships. However, it does allow for the kind of forward-looking experiment that we wish to investigate. Moreover, there will be some activities for which we report results that are based on data from banks or bank affiliates. For example, White (1986) uses data from the pre-Glass-Steagall securities affiliates of banks to study the profitability and risk of securities activities overall. Also, Kwast (1989) uses the returns on banks' trading account securities to study the return and risk of bank-eligible securities trading. In addition, Kwan (1998) compares data from BHCs' Section 20 securities subsidiaries to bank data to study the relative profitability and risk of securities activities overall and of securities underwriting. He compares banks' nontrading activities to the trading activities in Section 20 subsidiaries and banks to study the relative return and risk of securities trading.[2]

Another methodological issue is whether the effect of nonbank activities on bank risk or the effect of nonbank activities on BHC risk is being measured. In this paper, we are concerned with the safety and soundness implications of nonbank activities. Ultimately, we care about the safety and soundness of the bank itself, because it has access to the safety net, and the BHC does not. With a few exceptions, the studies discussed in this paper compare nonbank return and risk to BHC return and risk and examine the effect of the nonbank activity on BHC risk. This approach is useful to the degree that an increase in BHC risk may imply an increase in bank risk, and a decrease in BHC risk

1. See Kwan (1998).

2. See Section II for the definition of bank-eligible securities.

may imply the opposite. To the degree that corporate separateness may be difficult to enforce, BHCs may upstream funds from their banks to the holding company, thereby increasing bank risk. On the other hand, if BHCs are sources of strength for the bank, then decreases in BHC risk may improve bank soundness.

Researchers have used various profitability and risk measures. The three main profitability measures have been accounting return on assets (ROA), accounting return on equity (ROE), and stock returns. For measuring risk, researchers have used the standard deviation of ROA, the standard deviation of ROE, the standard deviation of stock returns, the coefficient of variation (the standard deviation divided by the mean) of ROA, the coefficient of variation of ROE, the coefficient of variation of stock returns, and the probability of failure.[3]

In this review, we separate out the discussion of the results on profitability and risk that focus strictly on stock returns except for those that use market data to derive the probability of bankruptcy. We have two reasons for separating out stock return results. First, a bank is claimed by its liability and equity holders, and stock returns ignore the welfare of liability holders, who supply the bulk of funds to banks. Second, stock returns have both systematic and idiosyncratic components. While the systematic component is relevant to equity investors, it is the idiosyncratic component that is most relevant to regulators, who must intervene in failure situations. Despite these shortcomings, stock returns may be of some value to regulators, due to their incorporation of forward-looking expectations.

The coefficient of variation has been used extensively as a risk measure. Less popular, but more directly relevant from the regulators' standpoint, is the probability of failure. The probability of failure (or the probability of bankruptcy) is the probability that losses will wipe out capital. We discuss two papers, Boyd and Graham (1988) and Boyd, et al. (1993), which use the probability of failure as a risk measure.[4] They calculate the probability of bankruptcy for firms in each particular industry they look at, banking and selected nonbanking, by estimating the mean and the variance of ROA and the mean of the capital-to-assets ratio from individual firm data. They calculate the probability of bankruptcy for each hypothetical bank/nonbank industry by randomly pairing BHCs with firms from a particular nonbank industry and adding together their capital, assets, and net income and then proceeding as with the stand-alone industries.

Like the coefficient of variation, the probability of failure decreases as the mean of ROA increases and increases as the variance of ROA increases. However, it is possible for the coefficient of variation and the probability of failure to move in opposite directions. This is because the sensitivities of the coefficient of variation and the probability of failure to changes in the mean and the variance of ROA are likely to be different. For example, an increase in the coefficient of variation need not imply an increase in the probability of failure. Specifically, the coefficient of variation may increase even if the variance of ROA decreases, if, at the same time, the mean of ROA decreases by a sufficient amount, but there is no guarantee that such a decrease in the mean also would be sufficient to increase the probability of failure. Likewise, a lower coefficient of variation need not imply a lower probability of failure.

However, the probability of failure itself is not necessarily an ideal risk measure. For example, regulators may ultimately care about the expected cost to the bank safety net, which is a function of the probability of failure and the cost of failure, should failure occur. At this point, the literature is far from assessing such costs. In addition, from an even broader social welfare perspective, a given increase in the expected cost to the safety net may be justifiable if, at the same time, the overall efficiency of the financial system increases sufficiently. This, too, is an issue that is far beyond the scope of the current literature. Finally, the effect of a nonbank activity on the probability of failure of a banking organization is a combination of the effect on asset risk and the effect on capitalization. Boyd and Graham (1988) and Boyd, et al. (1993) assume that the capital-to-assets ratios of their hybrid bank/nonbank organizations are weighted averages of the capital-to-assets ratios of the component BHCs and nonbanks. To the extent that capitalization can be measured more easily and accurately than asset risk (Flannery 1991), it might be more informative to calculate the effect of a nonbank activity on the probability of failure for, say, a range of capital-to-assets ratios for the hybrid firm.

Beginning in the next section of the paper, we will discuss what the literature has found regarding the profitability and risk of nonbank activities relative to banking and the potential effect of engaging in nonbank activities on banking organization risk. The reader will note that some papers which analyze the relative return and risk of nonbank activities do not explicitly discuss whether the activities could reduce banking organization risk. However,

3. A few studies use the market beta to measure risk. The market beta is the coefficient of the return on the market portfolio in the market model that regresses individual stock returns on market returns. According to the Capital Asset Pricing Model, the market beta captures the stock's systematic risk, that is, the stock's comovement with the overall market. The market beta is the relevant risk measure for a stock investor, but it may not be directly relevant for regulators.

4. More accurately, these authors use the Bienayme-Tchebycheff inequality to calculate an upper bound on the probability of failure.

some of these papers use the variance of returns as the risk measure and also calculate the correlation between nonbank and bank returns. If the correlation is negative, we know that there is a potential for a reduction in the banking organization's variance of returns. If the correlation is positive, we do not necessarily know whether it is small enough for the variance of returns to be reduced.[5] To be conservative, we will interpret a positive correlation as no evidence on the effect on the variance of returns, unless shown otherwise in the paper.

It should also be noted that no paper tests the statistical significance of risk or return differences or of the effect on risk. In addition, it is important to note that even in cases where there appears to be a potential for risk reduction, this may not occur at all levels of nonbank activity.[6] Therefore, the portfolio weight on the nonbank activity, that is, the proportion of assets that are nonbank assets in the consolidated bank/nonbank organization, may be important. We will report which nonbank portfolio weights will permit a reduction in banking organization risk whenever the authors provide this information. We will say that there are "diversification benefits" if there exists a nonzero weight on nonbank assets such that a combination of banking and the nonbank activity has lower risk than banking by itself.

If possible, we will attempt to determine the thrust of the literature as a whole regarding relative profitability and risk and the effect on banking organization risk of nonbanking activities. In some cases in which papers disagree, we may make a judgment regarding the relative appeal of the papers' methodologies. In particular, one of the most important differences in methodologies is whether returns are calculated using aggregate data, i.e., by dividing aggregate industry net income by aggregate assets or equity, or whether returns are calculated from individual firm data. Boyd, Hanweck, and Pithyachariyakul (1980) point out that using industry average returns to calculate risk biases risk downwards. Therefore, in cases where there are disagreements between papers that use industry-level data to calculate risk measures and papers that use firm-level data to calculate the same risk measures, we will side with the papers that use firm-level data. Nevertheless, papers that use industry-level data will be cited in cases where there is no disagreement or where they offer the only evidence on a certain topic.

In other cases in which there are disagreements, we let those disagreements stand. Most importantly, we do not seek resolution when differences in relative profitability or risk rankings or in the effects on risk might be attributable to differences in the types of measures used. In addition, although there are numerous instances in which different papers reach the same conclusion despite different sample periods, several cases occur in which differences in sample periods do seem to matter. (This is most apparent with respect to real estate activities.) In such cases, we simply attribute the differences to the differences in sample periods. We treat some discrepancies in results that correspond to differences in data sources or methodologies in the same manner.

Table 1 provides a synopsis of the results described in the next three sections. For each nonbank activity that we discuss, the table shows whether the activity has higher or lower profitability or risk than banking and whether the activity would decrease banking organization risk at some nonzero nonbank weight, or, alternatively, would increase banking organization risk at any nonzero nonbank weight. We say that the result varies whenever different papers reach different conclusions and we have not made a judgment regarding the validity of the different results. Although we do discuss results based on stock returns in Section V, Table 1 does not represent those results, nor do those results enter into our conclusion.

II. SECURITIES

The Glass-Steagall Act provides the legal basis that limits commercial banks' securities activities. Specifically, Section 16 of the Act bars national banks from investing in shares of stocks, limits them to buying and selling securities as an agent, and prohibits them from underwriting and dealing in securities. Section 20 prohibits Federal Reserve member banks from being affiliated with any organization that is engaged principally in underwriting or dealing of securities. Section 21 makes it unlawful for securities firms to accept deposits, and Section 32 prohibits officer, director, or employee interlocks between a Federal Reserve member bank and any organization primarily engaged in underwriting or dealing in securities. However, certain securities are exempted from the Act. They include municipal general obligation bonds, U.S. government bonds, private placements of commercial paper, and real estate

5. See Sharpe (1970), p. 48, for a necessary and sufficient condition, in terms of the correlation and the standard deviations of returns of the two activities, for the combination of two activities to yield lower variance of returns than for either activity alone.

6. The set(s) of portfolio weights on bank and nonbank activities that minimize the coefficient of variation and the set(s) that minimize the probability of failure are each a subset of the sets of weights that yield "efficient" portfolios, i.e., those portfolios with the maximum expected return for a given variance of returns or the minimum variance of returns for a given expected return. Therefore, instead of finding weights that allow a reduction in a particular risk measure, some researchers have looked for efficient portfolio weights. (See, for example, Litan 1985.)

TABLE 1

RISK AND RETURN CHARACTERISTICS OF SELECTED NONBANK ACTIVITIES

ACTIVITY	RELATIVE TO BANKING		POTENTIAL EFFECT ON BHC RISK OF ENGAGING IN NONBANK ACTIVITY[1]
	PROFITABILITY[2]	RISK[3]	
SECURITIES[4]			
Overall	higher	higher	varies[5]
Primary Dealers	lower	higher	decrease
Non-primary dealers	same	higher	decrease
Underwriting[6]	varies[7]	higher	decrease
Primary Dealers	same	higher	decrease
Non-primary dealers	lower	higher	decrease
Trading	higher	higher	varies[7]
Primary Dealers	higher	higher	decrease
Non-primary dealers	higher	higher	increase
Bank-eligible Securities	higher	higher	decrease
INSURANCE			
Agency	higher	varies[5]	varies[8]
Underwriting			
Property & Casualty	higher	varies[8]	varies[8]
Life	varies[8]	varies[5]	varies[8]
REAL ESTATE			
Agency	higher	higher	N.A.
Development	varies[9]	varies[8]	increase
Direct Equity Investment	varies[10]	higher	varies[10]
Title Abstract	higher	varies[8]	N.A.
Operators	varies[5]	varies[11]	N.A.
Condominium Management and Co-op	lower	higher	N.A.

[1]The effect on banking organization risk of engaging in the nonbank activity. "Decrease" indicates that there exists a nonzero weight on nonbank assets such that an organization with bank and nonbank assets has lower risk than an organization with only bank assets. However, there may not be a decrease in risk for all nonbank weights, and the maximum nonbank weight that permits a decrease in risk may be quite small. "Increase" indicates that all nonzero weights on the nonbank activity would increase banking organization risk.

[2]Some studies use accounting ROE and some use accounting ROA as return measure.

[3]Variance of ROE or ROA, coefficient of variation (standard deviation of returns divided by mean of returns) of ROE or ROA, or probability of bankruptcy.

[4]Unless otherwise noted, securities activities involve bank-eligible and bank-ineligible securities. See text for the definitions of bank-eligible and bank-ineligible securities.

[5]Depends on profitability or risk measure and, depending on the risk measure, may also depend on methodology or particular study.

[6]Underwriting, dealing, and brokerage. May also include providing investment advice.

[7]Depends on whether data from primary dealers or non-primary dealers are used.

[8]Depends on profitability or risk measure used.

[9]Depends on profitability measure and time period.

[10]Depends on whether REIT data or thrift service corporation data are used, and may also depend on time period and/or methodology.

[11]Depends on time period.

bonds, which collectively are called "bank-eligible securities." All other securities that are not in the above asset classes are deemed "bank-ineligible."

Since the terms "engaged principally" and "primarily engaged" were not defined in the Act, bank regulators have had to determine the meaning of these terms in enforcing the law. Beginning in 1987, the Federal Reserve authorized BHCs to establish securities subsidiaries to engage in limited underwriting and dealing of municipal revenue bonds, mortgage-related securities, consumer-receivable-related securities, and commercial paper. To comply with the Glass-Steagall Act, the revenues from the above bank-ineligible securities activities could not exceed 5 percent of the securities subsidiary's total gross revenues, on an eight-quarter moving average basis. By satisfying this limit, the securities subsidiary would be considered by the Fed as not engaging primarily in underwriting and dealing of ineligible securities. Since the ineligible securities activities were authorized by the Fed under Section 20 of the Glass-Steagall Act, these securities affiliates are commonly referred to as Section 20 subsidiaries. Over time, as the Fed gained more experience in regulating securities activities conducted by banking organizations, it has expanded the securities power of Section 20 subsidiaries on several occasions. In 1989, the Fed authorized Section 20 subsidiaries to underwrite and deal in all debt and equity securities and raised the ineligible revenue limit from 5 percent to 10 percent. In 1997, the Fed further raised the ineligible revenue limit to 25 percent.

With the exceptions of White (1986), Kwast (1989), and Kwan (1998), past studies of the relations between securities activities and commercial banking compared the risk and returns of securities firms to banking firms, which were not allowed to affiliate with each other since the Glass-Steagall Act. Thus, these studies ignored any potential scope economies in the production and risk management of financial products spanning both the securities and banking industries. Moreover, a number of studies including Wall and Eisenbeis (1984), Litan (1985), and Wall, et al. (1993) conducted the analysis using industry-level data, which are prone to aggregation bias in the measurement of risk.

Based on accounting measures of profitability, including ROA and ROE, Wall and Eisenbeis (1984), Litan (1985), and Wall, et al. (1993) reported that the securities industry tends to have higher profits than the banking industry. Boyd and Graham (1988) and Boyd, Graham, and Hewitt (1993) simulated mergers between BHCs and nonbank financial firms using firm-level data and reported that securities firms tend to have higher ROE than banking firms. White (1986) studied the securities activities of national banks before the Glass-Steagall Act and found that the mean return to securities affiliates was higher than to commercial banks. Kwast (1989) examined the return relationship between commercial banks' trading account securities and non-trading assets. Although his analysis did not include any bank-ineligible securities activities, Kwast found that banks' trading account securities on average have higher ROA than banks' non-trading assets. Kwan (1998) examined the risk and return relationship between banking activities and securities activities using data from BHCs' bank subsidiaries and their Section 20 affiliates, which both deal in and underwrite bank-ineligible securities. He found that banking organizations' securities subsidiaries that were primary dealers of government securities actually had lower ROA and ROE than their bank affiliates; Section 20 subsidiaries that were not primary dealers had levels of ROA and ROE similar to those of their bank affiliates. By separating securities activities into trading and securities underwriting, Kwan reported that securities trading has higher ROA than banking, regardless of whether the Section 20 subsidiary was a primary or a non-primary dealer. However, securities underwriting performed by non-primary dealer Section 20 subsidiaries was found to have lower ROA than banking, while underwriting by primary dealers had a similar level of return to banking activities. In sum, empirical evidence suggests that securities activities could be more profitable than banking activities. However, since securities activities encompass a wide range of products with very different return profiles, an important lesson from past research is that the mix of securities activities is a crucial determinant of the overall profitability of securities activities.

Regarding the riskiness of securities activities, empirical evidence indicates that they tend to be riskier than banking activities. Again, however, the relative risk of securities activities depends on the kinds of securities activities that are being compared. Wall and Eisenbeis (1984), Litan (1985), and Wall, et al. (1993) reported that both the levels of earnings and cash flows in the securities industry exhibited a higher degree of variability than in the banking industry. The studies by Boyd and Graham (1988) and Boyd, et al. (1993) also reported that securities firms tend to be riskier than banking firms, based on the probability of bankruptcy, and Boyd and Graham (1988) reported that securities firms have higher variance of ROE than banking firms. White (1986) found that before the Glass-Steagall Act, national banks enjoyed lower variance in accounting returns than their securities affiliates. Kwast (1989) reported that the return on banks' trading account assets tended to have higher variance than the return on banks' non-trading assets. Kwan (1998) found evidence that Section 20 subsidiaries had higher variance in ROA and ROE than their bank affiliates. He found strong

evidence that trading activities were riskier than banking activities and only weak evidence that underwriting activities had higher return variability than banking activities.

On the effects of securities activities on banking organizations' safety and soundness, the bulk of empirical evidence indicated some potential for risk reduction in expanding banks' securities powers. Wall, et al. (1993) reported a negative correlation of ROA between the securities brokerage industry and the banking industry, while the ROA correlation between the commodity brokerage industry and banking was sensitive to the sampling period. They also found that diversifying up to 25 percent of BHC assets into securities brokerage can reduce the holding company's ROA variability and that putting up to 10 percent of holding company assets into commodity brokerage has a similar risk reduction effect. Using pre-Glass-Steagall data, the study by White (1986) found that banks with a securities affiliate had a smaller probability of failure. To the extent that banks and their securities affiliates were operated as separate subsidiaries, the risk reduction could not be achieved from diversification per se but from other linkages such as information flow or cross-selling. Kwast's (1989) analysis of banks' eligible trading and non-trading assets showed low return correlation between trading account assets and non-trading assets, suggesting that banks' engagement in eligible securities activities reduces risk through diversification. With regard to bank-ineligible and bank-eligible securities activities as a whole, evidence from Kwan (1998) showed a close to zero return correlation between banks and their Section 20 securities affiliates, suggesting that the combination of a Section 20 subsidiary and a bank subsidiary can improve the risk and return trade-off of the banking organization. In his activity level analysis, Kwan found a negative return correlation between trading and banking activities for banking organizations that were primary dealers of government securities, indicating strong diversification effects of securities trading on banking. However, while the return correlations between trading and banking activities for non-primary dealers were close to zero, trading activities did not seem to provide diversification benefits due to the high stand-alone risk of securities trading among non-primary dealer Section 20 subsidiaries. Securities underwriting was found to have a close to zero return correlation with banking activities, and its combination with banking activities offered a superior risk and return trade-off, regardless of whether the Section 20 subsidiaries were primary dealers or not. The only two studies that found adverse effects of securities activities on bank risk are the merger simulations in Boyd and Graham (1988) and Boyd, et al. (1993). Using firm-level data, both papers reported that bank holding companies' diversification into securities activities would increase their probability of insolvency, and Boyd and Graham (1988) reported that it would increase their standard deviation of ROE as well.

With a somewhat different motivation, Whalen (1998) compared the efficiency, profitability, risks, and funding costs of foreign securities subsidiaries of U.S. banking organizations that were organized as holding company subsidiaries to those that were organized as direct or indirect bank subsidiaries, without actually comparing the performance between securities activities and banking activities. He concluded that bank subsidiaries do not tend to be more risky than holding company subsidiaries, and that bank subsidiaries do not appear to enjoy any funding advantage relative to holding company subsidiaries. His results, however, should be interpreted with caution given the domination of three firms in his entire sample and the lack of control for currency translation and country specific factors.

III. INSURANCE

In this section, we discuss the return and risk characteristics of impermissible insurance activities. Except for general insurance activities in small towns of under 5,000 people and the underwriting and sale of credit life, credit health and accident, credit disability, mortgage life, and mortgage disability insurance, insurance activities are not permitted for banking organizations. Impermissible insurance activities include insurance agency and the underwriting of general property and casualty insurance and life insurance.[7] Table 1 presents a synopsis of the results.

There is ample evidence that insurance agency is more profitable than banking, based on studies spanning 20 years of varying economic conditions (Johnson and Meinster

7. "Insurance agency" is an SIC code that includes several large corporations that are agents for unusual and risky insurance contracts, such as those involving the insurance of oil tankers. Insurance agency does not in general refer to the business of insurance agency for standard property or life insurance.

A few papers also examine the return and risk of mutual insurance companies (Wall and Eisenbeis (1984), Litan (1985), and Wall, et al. (1993)). An insurance company is mutually owned if, under its charter, its policyholders receive dividends based on its earnings experience. Life insurance companies and property and casualty insurance companies can be mutually owned. Given that the distinction between companies classified as mutual insurance companies and those classified as life insurance or property and casualty insurance companies rests largely on how they are capitalized and the fact that mutual insurance companies may underwrite either type of risk, we do not report results for mutual insurance.

1974, Heggestad 1975, Boyd and Graham 1988, Rose 1989, Boyd, et al. 1993, and Wall, et al. 1993). Property and casualty insurance also appears to be more profitable than banking, based on evidence from Boyd and Graham (1988), Rose (1989), Boyd, et al. (1993), and Wall, et al. (1993).

Relative profitability results for life insurance underwriting are mixed, in that they depend on which measure was used. Rose (1989) and Wall, et al. (1993) both found that ROA is higher for life insurance firms than for BHCs, while Boyd and Graham (1988) and Boyd, et al. (1993) concluded that ROE is lower for life insurance firms than for BHCs.

In general, insurance activities appear to be riskier than banking. For example, although results are mixed, most measures point to higher risk for insurance agency than for banking. Although Heggestad (1975) found that the coefficient of variation of ROE is lower for insurance agency than for banking, Johnson and Meinster (1974), Heggestad (1975), Boyd and Graham (1988), Rose (1989), and Boyd, et al. (1993) found, variously, that the standard deviation of ROA, the standard deviation of ROE, and the probability of bankruptcy based on accounting data are higher for insurance agency than for banking. In addition, Rose (1989) concluded that the coefficient of variation of ROA is higher for insurance agency than for banking. Rose's result conflicts with Heggestad (1975) and Wall and Eisenbeis (1984) and agrees with Litan (1985) and Wall, et al. (1993). We simply side with Rose (1989) in this case because the latter four studies used industry average returns to calculate risk, whereas Rose used individual firm returns. Boyd and Graham (1988) and Boyd, et al. (1993) disagree on the probability of bankruptcy based on market data of insurance agency relative to that of banking. While Boyd and Graham (1988) found that the probability of bankruptcy based on market data is lower for insurance agency than for banking, Boyd, et al. (1993) found the opposite. As discussed in Section II, the two papers used the same methodology to study relative risk. Moreover, their sample periods showed significant overlap; Boyd and Graham (1988) examined data from 1971–84 and Boyd, et al. (1993) examined data from 1971–87.

Results regarding the relative risk of property and casualty insurance underwriting are mixed. Boyd and Graham (1988), Rose (1989), and Boyd, et al. (1993) concluded, variously, that the standard deviation of ROE, the standard deviation of ROA, the coefficient of variation of ROA, and the probability of bankruptcy based on accounting data are higher for property and casualty insurance underwriting than for banking. In addition, although Wall and Eisenbeis (1984), Litan (1985), and Wall, et al. (1993) used industry average returns, these papers also found that the coefficient of variation of ROA is higher for property and casualty insurance firms than for BHCs.[8] No study found the opposite. On the other hand, Boyd and Graham (1988) and Boyd, et al. (1993) found that the probability of bankruptcy based on market data is lower for property and casualty insurance underwriting than for banking.

Life insurance underwriting appears to be riskier than banking by most measures. Again, though, the probability of bankruptcy based on market data yields conflicting results. Boyd and Graham (1988), Rose (1989), and Boyd, et al. (1993) found, variously, that the standard deviation of ROE, the standard deviation of ROA, the coefficient of variation of ROA, and the probability of bankruptcy using accounting data are higher for life insurance companies than for BHCs.[9] Boyd and Graham (1988) found that the probability of bankruptcy based on market data is higher for life insurance firms than for BHCs, but Boyd, et al. (1993) found the opposite.

The literature indicates that most insurance activities can reduce some kinds of BHC risk. This appears to be true, for example, for insurance agency activities, at least at low levels of investment. Using market data, both Boyd and Graham (1988) and Boyd, et al. (1993) found that insurance agency could reduce BHCs' probability of bankruptcy. However, using accounting data, Boyd and Graham (1988) concluded that insurance agency would increase BHCs' standard deviation of ROE and probability of bankruptcy, while Boyd, et al. (1993) continued to find that BHCs' probability of bankruptcy would decrease. The disagreement between the two papers regarding the effect on the probability of bankruptcy based on accounting data may be because Boyd and Graham (1988) used nonbank weights that were determined by the relative sizes of the sample BHCs and nonbank firms, whereas Boyd, et al. (1993) allowed their nonbank weights to vary freely. In particular, using accounting data, Boyd, et al. (1993) found that about 4 percent of BHC assets was the maximum investment in insurance agency that would permit a reduction in the probability of bankruptcy. In contrast, the median investment in insurance agency for the hypothetical BHC-insurance agent combinations in Boyd and Graham (1988)

8. Litan (1985) found that the coefficient of variation of ROA was higher for property and casualty insurance underwriting than for banking in the 1962–1981 period and in the 1973–1981 period. He found the opposite only for the 1962–1972 period.

9. Wall and Eisenbeis (1984), Litan (1985), and Wall, et al. (1993) found that the coefficient of ROA is lower for life insurance companies than for BHCs, but these authors used industry average returns to calculate risk.

was 9 percent of BHC assets.[10] Using market data, Boyd, et al. (1993) found that investing up to about 16 percent of BHC assets in insurance agency could reduce the probability of bankruptcy. In contrast to Boyd and Graham (1988) and Boyd, et al. (1993), each of which found some risk reducing possibilities for insurance agency, Wall, et al. (1993) concluded that investing 5, 10, 25, 50, 75, or 90 percent of assets in insurance agency would increase the coefficient of variation of BHC ROA.

Although the literature has produced some conflicting results, on the whole it suggests that property and casualty insurance underwriting also offers some risk reduction possibilities. Using market data, both Boyd and Graham (1988) and Boyd, et al. (1993) found that property and casualty insurance activities would reduce BHCs' probability of bankruptcy. However, using accounting data, Boyd and Graham (1988) concluded that property and casualty insurance activities would increase BHCs' standard deviation of ROE and probability of bankruptcy, while Boyd, et al. (1993) continued to find that BHCs' probability of bankruptcy would decrease. As with insurance agency, the disagreement between the two papers regarding the effect on the probability of bankruptcy based on accounting data may be because of differing nonbank weights. Using accounting data, Boyd, et al. (1993) found that about 11 percent of BHC assets was the maximum investment in property and casualty insurance activities that would permit a reduction in the probability of bankruptcy. In contrast, the median investment in property and casualty insurance for the hypothetical BHC-property and casualty insurance combinations in Boyd and Graham (1988) was 38 percent of BHC assets.[11] Using market data, Boyd, et al. (1993) found that any level of investment in property and casualty insurance underwriting could reduce the probability of bankruptcy. In contrast to the above studies, Wall, et al. (1993) concluded that investing 5, 10, 25, 50, 75, or 90 percent of assets in property and casualty insurance underwriting would increase the coefficient of variation of BHC ROA.

Boyd and Graham (1988) reported that life insurance underwriting could lower BHCs' standard deviation of accounting ROE and probability of bankruptcy, based on either accounting or market data. The median investment in life insurance underwriting for the hypothetical BHC-life insurance combinations for which they drew this conclusion was 29 percent of BHC assets. Boyd, et al. (1993) also concluded that a BHC could reduce its probability of bankruptcy, measured using accounting data, by investing up to 60 percent of its assets in life insurance underwriting. When these authors measured the probability of bankruptcy using market data, they found that any positive investment in life insurance underwriting would reduce the BHC's probability of bankruptcy. Again, in contrast to the above studies, Wall, et al. (1993) concluded that investing 5, 10, 25, 50, 75, or 90 percent of assets in life insurance underwriting would increase the coefficient of variation of BHC ROA.

IV. REAL ESTATE

In this section, we discuss the return and risk characteristics of impermissible real estate activities. These include real estate agency, real estate development, direct equity investment in real estate, title abstract services, management and operation of real property, and condominium management and co-ops.

Across a wide time span, Johnson and Meinster (1974), Heggestad (1975), and Rose (1989) all found that real estate agencies are more profitable than BHCs. However, relative profitability results for real estate development appear to depend at least partially on the time period being studied. Given the profitability measure, earlier periods tend to indicate higher profitability and later periods lower profitability for real estate development than for banking. Examining data for 1954–69, Johnson and Meinster (1974) found that ROA was higher for real estate development firms than for BHCs. Using a sample period of 1953–67, Heggestad obtained the same result. Although Rose (1989) analyzed a somewhat later period (1966–85), he arrived at the same conclusion, as did Wall, et al. (1993) for the 1974–80 period. However, Wall, et al. (1993) found that ROA was lower for real estate development firms than for BHCs in the 1981–89 period. Similarly, Johnson and Meinster (1974) and Heggestad (1975) concluded that ROE was higher for real estate development firms than for BHCs, while Boyd and Graham (1988) and Boyd, et al. (1993) found the opposite for the 1971–84 and 1971–87 periods, respectively.

10. The 9 percent median insurance agency share is based on simulated mergers between BHCs and insurance agents for which the authors had accounting data. The authors do not give an analogous statistic for the simulated mergers between BHCs and insurance agents for which they had market data.

11. The 38 percent median property and casualty insurance company share is based on simulated mergers between BHCs and property and casualty insurance companies for which the authors had accounting data. The authors do not give an analogous statistic for the simulated mergers between BHCs and property and casualty insurance companies for which they had market data.

Relative profitability results for direct equity investment in real estate appear to depend somewhat on whether real estate investment trust (REIT) data or thrift service corporation data were used. Using REIT data, Rose (1989) and Rosen, et al. (1989) found that direct equity investing in real estate yields a higher ROA than does banking, while Rosen, et al. (1989) concluded that thrift service corporations' direct real estate investing resulted in lower asset returns than banking. The results in Wall, et al. (1993) are somewhat inconsistent with this pattern; they used REIT data and found that for the period 1981–89, ROA for direct real estate investing is higher than for banking, but for 1974–80, the results are reversed. The difference between the Wall, et al. (1993) 1974–80 result and the Rosen, et al. (1989) REIT result likely is due to a difference in sample periods; Rosen, et al. (1989) examined data from 1980–85, a period similar to the Wall, et al. (1993) 1981–89 period. The difference between the Wall, et al. (1993) 1974–80 result and the Rose (1989) ROA result could be due to Rose's much longer sample period (1966–85) and/or to a difference in methodologies. In particular, Rose (1989) calculated the pooled cross-section time-series average of firms' ROAs, resulting in an unweighted average across the panel of firms, while Wall, et al. (1993) divided industry net income by industry assets, resulting in a weighted average across firms.

The literature indicates that, at least in the 1950s and 1960s, title abstract companies were more profitable than BHCs. Johnson and Meinster (1974) and Heggestad (1975) found that title abstract companies have higher ROA and higher ROE than do BHCs. The literature also indicates, with one exception, that real estate operators are more profitable than BHCs. Johnson and Meinster (1974), Heggestad (1975), and Wall, et al. (1993) found that ROA is higher for real estate operators than for BHCs. However, although Heggestad (1975) found that ROE is higher for real estate operators than for BHCs, Johnson and Meinster (1974) found the opposite. There is no obvious reason for the conflict in results, since the two papers used the same data set (industry return data from the Internal Revenue Service), identical methodologies, and very similar sample periods. Wall, et al. (1993) is the only study that examined the profitability of condominium management and co-ops, and they found that these activities have lower ROA than banking activities.

The literature has found that, by most measures, real estate activities tend to be riskier than banking. For example, Johnson and Meinster (1974), Heggestad (1975), and Rose (1989) concluded, variously, that the standard deviations of ROA and ROE and the coefficient of variation of ROE are higher for real estate agents than for BHCs. In addition, Rose (1989) found that the coefficient of variation of ROA is higher for real estate agents than for BHCs.[12]

With the exception of one risk measure, real estate development also appears to be riskier than banking. Johnson and Meinster (1974), Heggestad (1975), Boyd and Graham (1988), Rose (1989), and Boyd, et al. (1993) found, variously, that the standard deviations of ROE and ROA and the probability of bankruptcy have been higher for real estate developers than for BHCs over a long period. In addition, Rose (1989) concluded that the coefficient of variation of ROA is higher for real estate developers than for BHCs.[13] In contrast, Heggestad (1975) found that the coefficient of variation of ROE is lower for real estate developers than for BHCs.

Wall and Eisenbeis (1984), Rosen, et al. (1989), Rose (1989), and Wall, et al. (1993) agreed that direct equity investment in real estate is riskier than banking. In addition, Johnson and Meinster (1974) and Heggestad (1975) found that title abstract companies have higher standard deviations of ROA and ROE than BHCs. However, Heggestad (1975) also found that title abstract companies have lower coefficients of variation of ROA and ROE than do BHCs.

Results regarding the risk of real estate operators relative to that of BHCs appear to depend somewhat on the sample period, with earlier periods pointing to lower risk for real estate operators and later periods to higher risk for real estate operators. Examining data for 1954–69 and 1953–67, respectively, Johnson and Meinster (1974) and Heggestad (1975) found that the standard deviation of ROE is lower for real estate operators than for BHCs, and Heggestad found the same for the coefficient of variation of ROE. Although Heggestad (1975) also found that the standard deviation of ROA is lower for real estate operators than for BHCs and Johnson and Meinster (1974) found the opposite, both studies found that the standard deviations for the two types of firms were very close. Heggestad (1975) concluded that the coefficient of variation of ROA is lower for real estate operators than for BHCs, and Litan (1985) found the same for the 1962–72 period. However, using 1973–81 data, Litan found the coefficients of variation for the two industries to be very close. Wall and Eisenbeis (1984) and Wall, et al. (1993) concluded that the coefficient of variation of ROA for real estate operators is

12. Heggestad (1975) found that the coefficient of variation of ROA is lower for real estate agents than for BHCs, but he used industry average returns to calculate risk.

13. Four studies, Heggestad (1975), Wall and Eisenbeis (1984), Litan (1985), and Wall, et al. (1993), used industry average returns to calculate the coefficients of variation of ROA of real estate developers and BHCs. Results varied, and we do not report them above.

higher than for BHCs, based on data for 1970–80 and 1974–89, respectively. Wall and Eisenbeis (1984) and Wall, et al. (1993) agreed that the coefficient of variation of ROA is higher for condominium management and co-ops than for banking.

The literature has relatively few results regarding the risk effects of engaging in real estate activities. Boyd and Graham (1988) found that real estate development would increase BHCs' standard deviation of ROE, while Boyd and Graham (1988) and Boyd, et al. (1993) found that real estate development would increase BHCs' probability of bankruptcy. Based on REIT data, Rosen, et al. (1989) concluded that a direct investment of up to 4 percent of BHC assets in real estate could lower BHCs' standard deviation of ROA. However, thrift service corporation data indicated that any direct investment in real estate would increase BHCs' standard deviation of ROA.

V. PROFITABILITY AND RISK BASED ON STOCK RETURNS

Some papers use the mean of stock returns as a measure of profitability and the variance of stock returns or the coefficient of variation of stock returns as a measure of risk. As stated above, stock returns ignore the welfare of liability holders, including the deposit insurance fund. In addition, stock returns are composed of an idiosyncratic component and a systematic component, but only the idiosyncratic component is relevant to regulators. However, stock returns do incorporate forward-looking expectations, which other measures do not, and they are widely studied. Therefore, in this section we will report on findings pertaining to the profitability and risk of securities, insurance, and real estate activities as measured by stock returns.

Securities

Eisemann (1976) and Stover (1982) used the equity returns of commercial banks and nonbank financial institutions to investigate the potential diversification gains of allowing banking firms to engage in nonbank activities, including securities activities. Based on portfolio theory, Eisemann found that a mean-variance efficient portfolio should have some positive investment in securities activities. Stover examined the effect on a banking firm's value of establishing a portfolio of banks and nonbanks. To the extent that expanding into nonbank activities increases a firm's debt capacity without increasing its bankruptcy risk, Stover argued that such nonbank activities would add value to the banking company. Using this approach, Stover found that investment banking (along with fire and casualty insurance, land development, and savings and loan companies) should be included in the portfolio of banking companies because it increases the firm's debt capacity and, by implication, lowers its risk given constant leverage. However, both Eisemann and Stover suffered from samples that had only two investment banking firms.

More recently, Apilado, Gallo, and Lockwood (1993) investigated the effect of the April 1987 Federal Reserve ruling that authorized Section 20 securities subsidiaries on bank stock returns. They found that shares of both money center banks and regional banks benefited from the expansion into securities activities without significant change in stock return risk. Bhargava and Fraser (1998) found similar results surrounding the first Federal Reserve ruling regarding banking companies' securities activities. The findings suggest that the market reacted favorably to the limited expansion of securities activities by commercial banks. Interestingly, regarding the January 1989 Federal Reserve ruling that authorized Section 20 subsidiaries to engage in limited underwriting and dealing of corporate debt and equity securities, and the September 1989 and August 1996 rulings that increased Section 20 subsidiaries' bank-ineligible revenues to 10 percent and 25 percent, respectively, Bhargava and Fraser reported that commercial banks suffered significantly negative abnormal stock returns around those events. Furthermore, they found total and unsystematic risk of bank stock returns went up significantly around those three later events. Hence, the subsequent relaxations of banks' securities activities seemed to be received unfavorably by the market.

Insurance

Boyd and Graham (1988) and Boyd, et al. (1993) found that the median of the time series means of stock returns is lower for insurance agents than for BHCs. This disagrees with Rose (1989), but Rose used the cross-sectional average of firms' mean stock returns, which is more sensitive to outliers than the median. Therefore, we conclude that insurance agents' stock returns are lower than BHCs' stock returns.

Eisemann (1976), Boyd and Graham (1988), Rose (1989), and Boyd, et al. (1993) found that property and casualty insurance firms have higher stock returns than BHCs. However, Saunders and Walter (1994) concluded that, although property and casualty insurance firms have higher stock returns than money center BHCs, they have lower stock returns than regional BHCs.

Boyd and Graham (1988) and Boyd, et al. (1993) found that the median of stock returns is lower for life insurance firms than for BHCs. Rose (1989) concluded that stock

returns are higher for life insurance firms than for BHCs, but, again, he used cross-sectional means instead of medians to arrive at his conclusion. Although they also take averages, Eisemann (1976) and Saunders and Walter (1994) agree with Boyd and Graham (1988) and Boyd, et al. (1993) that stock returns are lower for life insurance firms than for BHCs.

Rose (1989) found that the coefficient of variation of stock returns is higher for insurance agencies than for BHCs. Boyd and Graham (1988) concluded that the standard deviation of stock returns is lower for insurance agencies than for BHCs, while Eisemann (1976) and Brewer, Fortier, and Pavel (1988) found the opposite. However, the latter two studies used industry average returns to calculate risk. In addition, although Rose (1989) also concluded that the standard deviation of stock returns is higher for insurance agencies than for BHCs, a difference in methodologies again favors the Boyd and Graham (1988) result. Specifically, Boyd and Graham (1988) calculated the standard deviation of each firm's stock returns and then took the median, while Rose (1989) calculated the standard deviation of pooled time series observations of stock returns. The former methodology is not as likely to be influenced by outliers as is the latter, so we conclude that the standard deviation of stock returns is lower for insurance agents than for BHCs.

Studies of property and casualty insurance underwriting show a similar pattern of results. Rose (1989) and Saunders and Walter (1994) found that the coefficient of variation of stock returns is lower for property and casualty insurance underwriting than for banking. In addition, Boyd and Graham (1988) and Saunders and Walter (1994) found that the standard deviation of stock returns is lower for property and casualty insurance companies than for BHCs. Although Eisemann (1976), Brewer, et al. (1988), and Rose (1989) found the opposite result from Boyd and Graham (1988) and Saunders and Walter (1994), differences in methodologies again favor the Boyd and Graham (1988) results.

Rose (1989) and Saunders and Walter (1994) agree that life insurance underwriting has a higher coefficient of variation than banking. Eisemann (1976), Brewer, et al. (1988), Boyd and Graham (1988), and Rose (1989) reported that life insurance underwriting also has a higher standard deviation of stock returns than banking. However, Saunders and Walter (1994) reported the opposite.

Regarding the effect on BHC risk, Brewer, et al. (1988) concluded that if 5 or 10 percent of the market value of equity of the BHC were from insurance agency activities, the variance of stock returns would be lower than for an undiversified BHC. Boyd and Graham (1988) also found that insurance agency activities would decrease BHCs' standard deviation of stock returns.

Campbell, Dietrich, and Weinstein (1985) found that diversification into property and casualty insurance underwriting by a BHC could reduce its variance of stock returns. These authors found that a reduction in the variance of stock returns could be achieved by deriving up to 94 percent of the BHC's market value from property and casualty insurance underwriting. Boyd and Graham (1988) also found that property and casualty insurance underwriting could decrease the standard deviation of BHC stock returns. In addition, Saunders and Walter (1994) concluded that a BHC's standard deviation of stock returns and coefficient of variation of stock returns could be reduced by combining with property and casualty insurance underwriting. Brewer, et al. (1988), in contrast to Campbell, et al. (1985), Boyd and Graham (1988), and Saunders and Walter (1994), found that property and casualty insurance underwriting would increase the variance of BHC stock returns. However, because Brewer, et al. (1988) used industry average returns, we discount their results.

Campbell, et al. (1985) found that diversification into life insurance underwriting by a BHC could reduce its variance of stock returns. These authors found that a reduction in the variance of stock returns could be achieved by deriving up to 91percent of the BHC's capitalization from life insurance underwriting. Although Brewer, et al. (1988) used industry average returns, they also concluded that if 5 or 10 percent of the market value of equity of the BHC were from life insurance activities, the variance of stock returns would be lower than for an undiversified BHC. In addition, Boyd and Graham (1988) found that engaging in life insurance underwriting could lower BHCs' standard deviation of stock returns, and Rose (1989) found a negative correlation between life insurance firm and banking firm stock returns. Finally, Saunders and Walter (1994) also found that diversification into life insurance underwriting by a BHC could reduce the BHC's standard deviation of stock returns and coefficient of variation of stock returns.

Real Estate

Based on stock returns, Rose (1989) found that real estate agency and real estate development are more profitable than banking. Relative stock returns for real estate development may depend on the time period being studied. Eisemann (1976) found that stock returns were higher for real estate development firms than for BHCs in the 1961–68 period, and Boyd and Graham (1988) and Rose (1989) found the same for 1971–84 and 1966–85. However, examining

data that included a few later years (1971–87), Boyd, et al. (1993) concluded that stock returns were lower for real estate development firms than for BHCs.

Based on stock returns, Boyd and Graham (1988) and Rose (1989) concluded that real estate agents and real estate developers were riskier than BHCs. Rose (1989) concluded that the standard deviation of stock returns is higher for direct equity investment in real estate than for banking but that the coefficient of variation of stock returns is lower.

Regarding the effect on BHC risk, Boyd and Graham (1988) found that real estate development would increase BHCs' standard deviation of stock returns.

VI. Summary and Conclusion

This paper has reviewed the literature on the effects of combining banking and nonbank financial activities on banking organizations' risk and return. We focused our discussion on the effects of expanding banking powers to include securities and insurance activities, both of which are at the forefront of the financial modernization debate. In addition, we also examined the implications of allowing banking firms to engage in real estate activities, as a number of banking firms have expressed interest in engaging in such activities, and real estate activities already are widely conducted by thrift institutions.

Securities activities in general are both riskier and more profitable than banking activities. Existing evidence also seems to indicate that securities activities can provide diversification benefits to banking organizations. However, the literature also suggests that it is important to distinguish various kinds of securities activities. For example, securities trading tends to be more profitable and riskier than banking, but may not provide diversification benefits to banking organizations due to its high stand-alone risk. While securities underwriting activities can diversify banking risk, their relative profitability is ambiguous, depending on whether the underwriter is a primary dealer of government securities.

Regarding insurance activities, available empirical evidence suggests that insurance agency activities, underwriting of property and casualty insurance, and underwriting of life insurance tend to be more profitable, but also riskier, than banking activities. The weight of the empirical evidence also seems to indicate that engaging in either insurance agency activities or insurance underwriting activities has the potential to reduce BHC risk and, in particular, the probability of bankruptcy.

On the relative profitability of real estate related activities, while agency activities are found to be more profitable than banking activities, the relative profitability of real estate development is ambiguous, depending on the sampling period. Other real estate servicing industries, such as title abstract companies and real estate operators, are found by most measures to be more profitable than banking. However, the bulk of empirical evidence also indicates that banking activities are less risky than both real estate agency and development activities, while the results on the relative risk of real estate servicing are mixed. Due to the lack of evidence, the portfolio effect of engaging in real estate activities by banking organizations is unclear.

From the point of view of portfolio diversification, it seems to make sense to allow banking organizations to engage in both securities and insurance activities. Broadening banking firms' revenue base can improve their earnings stability and provide them with a better trade-off between risk and return. To the extent that bank holding companies are a source of strength to their bank subsidiaries, a more stable holding company earnings stream would improve bank safety and soundness. A better risk-return trade-off would permit the holding company to attain its risk preference without necessarily increasing bank risk. However, as past studies show that both securities and insurance activities tend to be riskier than banking activities, in the course of financial modernization, policymakers must carefully design an organizational structure for banking companies to exercise their new powers without compromising bank safety and soundness.

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