

**The Securities Activities of the  
Foreign Subsidiaries of U.S. Banks: Evidence on  
Risks and Returns**

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**Abstract:** This study provides new evidence of the risks and returns associated with bank involvement in securities activities. This empirical evidence is drawn from an extensive analysis of the performance of the foreign securities subsidiaries of U.S. banking companies over the relatively lengthy 1987-1996 time period. Both industry- and firm-level estimates of securities risks and returns from overseas securities activities are constructed from the data since previous studies have found that these two sets of estimates can differ markedly. Systematic differences in performance associated with alternative organizational structures are also investigated because regulations permit structural variety overseas.

The results are somewhat sensitive to the aggregation method employed and the precise time period examined. In general, when industry-level data are used, mean securities returns are roughly the same as those earned in domestic banking, while measures of securities risk are modestly higher. When firm-level data are used, mean securities returns typically exceed those of domestic banking by a considerable margin, but the estimates of securities risk are higher, both absolutely and relative to comparable estimates for domestic banking. Both sets of data, as well as a more detailed examination of the performance of individual holding companies, indicate that banking companies can lower their risk by engaging in overseas securities activities.

Comparison of the securities returns and risks of direct and indirect bank securities subsidiaries with those of holding company affiliates using industry aggregation revealed some differences in performance. The mean securities returns of the combined bank subsidiary group were slightly above those of the holding company affiliates over some time intervals, and their measured risk was lower in all periods examined. That is, the evidence suggests that permitting U.S. banking organizations to engage in securities activities overseas through direct and indirect bank subsidiaries has not had a significant, deleterious impact on their performance. Although additional research is necessary to establish the definitiveness of these findings, the results presented here are the only tangible empirical evidence on the domestic structural issue currently available.

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## I. Introduction

Debate about the effects of permitting U.S. commercial banks to expand their range of activities--particularly in securities underwriting and insurance--has intensified in recent years. Proponents argue that greater freedom to enter securities and other nontraditional lines of business will enable banks to earn returns above those available in more traditional activities. They also emphasize the possibility of risk reduction through greater diversification. Removal of barriers to bank entry into additional financial markets is also expected to result in greater competition, with attendant benefits to consumers.

Opponents of expanded powers counter that the banks might not earn higher returns in these nontraditional activities or may use such product expansion opportunities to raise rather than lower their risk. To mitigate the possibly increased risk to the banking organization stemming from expanded activities, some opponents endorse expansion of powers only if it is accompanied by constraints on bank organizational form, in conjunction with so-called "firewalls."<sup>1</sup> There is further debate about the relative merits of the two main competing organizational paradigms. One is the holding company model, in which expanded powers are exercised only by nonbank subsidiaries of bank holding companies. The other is the bank subsidiary model, in which nontraditional powers can be exercised by direct subsidiaries of a

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<sup>1</sup>Others emphasize the need for organizational constraints and firewalls to decrease the likelihood that a significant subsidy stemming from bank access to the federal safety will be transferred to nonbank subsidiaries of the bank or the holding company. For a discussion of this issue see Whalen (1997B).

bank.<sup>2</sup>

The risk implications of greater bank involvement in securities and other nontraditional activities and the appropriate role for constraints on organizational form are basically empirical issues. In general, the empirical evidence in studies done over the past two decades suggests that banks are likely to enjoy modest benefits if constraints on securities activities are relaxed.<sup>3</sup> But the evidence from the extant research may be of limited value in the current debate for several reasons. Most importantly, the extent to which U.S. banks have been able to engage in securities activities domestically has been sharply limited until quite recently. Before 1987, banks generally were not authorized to engage in securities activities.<sup>4</sup> In that year, banking organizations obtained some latitude to engage in “impermissible” securities activities through their so-called Section 20 subsidiaries, but the amount was sharply restricted through 1996.<sup>5</sup> To date, basically no empirical studies of the performance or riskiness of these subsidiaries have been published.<sup>6</sup> Further, banking organizations are required to organize these domestic securities units exclusively as nonbank holding company affiliates, so differences in structure and any related differences in

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<sup>2</sup>For a discussion of the relative merits of these two organizational models, see Whalen (1997A).

<sup>3</sup>For a good review of these studies, as well as some relatively recent evidence on this issue, see Wall, Reichert and Mohanty (1993).

<sup>4</sup>Exceptions include the ability to underwrite U.S. government debt and certain types of municipal securities.

<sup>5</sup>This quantitative limit was relaxed in January 1997 when Section 20 subs were authorized to derive up to 25 percent of their income from “ineligible” activities, substantially above the previous cap of 10 percent.

<sup>6</sup>Actually, Kwan (1997) is a preliminary, unpublished study on this subject.

returns and risks cannot be observed.

Because of the past limits on bank involvement in domestic securities activities, most of the empirical evidence on this issue has come from studies that focus on estimates of securities returns and risk that use return data for independent securities firms, often only industry aggregate data for such firms.<sup>7</sup> Some authors have noted possible biases in estimates of activity risk associated with the use of aggregate industry data.<sup>8</sup> In several other studies, the authors use individual firm data and estimate the risks and returns associated with bank entry into a variety of nonfinancial businesses by simulating mergers between banks and firms in securities and other types financial industries.<sup>9</sup> All of these sorts of studies implicitly assume that bank managers operate the surviving entity passively. One author tried to remedy data problems by studying the risks and returns associated with bank trading of permissible securities, which they can do domestically through their trading account desk.<sup>10</sup> This approach does result in a large sample of individual banking firms actually involved in securities activities for study, but it is not clear that the risks and returns associated with this sort of activity are reflective of securities activities generally. It also is not possible to explore any effects associated with possible differences in leverage across activities because banks do not disclose the amount of capital supporting their trading account activities.

However, U.S. banking organizations have long been permitted to engage in securities

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<sup>7</sup>For example, see the study by Wall, Reichert and Mohanty, op.cit..

<sup>8</sup>See Boyd, Hanweck and Pithyachariyakul (1980) and Kwast (1989).

<sup>9</sup>See Boyd and Graham (1986) and Boyd, Graham and Hewitt (1993).

<sup>10</sup>Kwast, op.cit.

underwriting, as well as other domestically proscribed activities, overseas through separate foreign subsidiaries that file financial reports with the Federal Reserve. In addition, they face fewer constraints on how they may structure these operations. For example, in many cases, they may organize the foreign entity as a direct bank subsidiary, a holding company subsidiary, or the subsidiary of an Edge or Agreement corporation which, in turn, may be either a direct bank or holding company subsidiary. Virtually no current research focusing on any aspect of the performance of the foreign subsidiaries of U.S. banking organizations has been done to date.<sup>11</sup>

Examination of the performance of the foreign securities subsidiaries of U.S. banking companies may suggest the likely effects of greater bank involvement in this activity domestically. This data set allows the construction of both industry-level and firm-level estimates of securities risks and returns overseas using information for bank-operated securities affiliates. While these estimates can be expected to differ from corresponding domestic magnitudes, they should at least serve as a rough approximation to them for several reasons. First, larger overseas securities subsidiaries, which account for a high proportion of overseas securities activities, tend to be headquartered in nations with reasonably well-developed securities markets.<sup>12</sup> Second, they are owned by the same set of large banking organizations likely to be the major players in domestic

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<sup>11</sup>The one study that focused exclusively on foreign subsidiaries is Houpt and Martinson (1982). The somewhat more recent Houpt (1988) deals in part with foreign subsidiaries but also examines other modes of foreign operations of U.S. banks including foreign branches and Edge Act corporations.

<sup>12</sup>In 1996, the top six (in terms of assets) nations in which foreign securities subsidiaries were headquartered were the United Kingdom, the United States, Australia, France, Hong Kong, and Singapore. Together the total assets of the securities subsidiaries in these countries were roughly \$206 billion, about 93 percent of the total assets in all foreign securities subsidiaries in that year.

U.S. markets. These data permit the calculation of estimates of risk and return for individual banking organizations from actually engaging in securities operations, albeit in foreign markets. The structural variety also permits investigation of any systematic differences in performance associated with alternative organizational structures.

The primary focus of this study is the performance of the foreign securities subsidiaries of U.S. banking organizations over the 1987 - 1996 interval. The 1987 starting point and 1996 ending points purely reflect the availability of data on the operations of the foreign subsidiaries of U.S. banks. The subsidiary-level data are used to generate both industry aggregate and firm-level measures of the returns and risks associated with U.S. bank securities activities overseas, and these estimates are compared to similar measures for domestic bank and nonbank activities. In addition, the returns and risks of direct and indirect securities subsidiaries of banks and subsidiaries of bank holding companies are compared to reveal any differences in performance. Such an inquiry should provide some empirical evidence on the relative merits of the two competing organizational models for banks with expanded powers. Such evidence has heretofore been lacking.

This study provides new evidence of the risks and returns associated with bank involvement in securities activities. The results are somewhat sensitive to the aggregation method employed and the time period examined. In general, when industry-level data are used, mean securities returns are roughly the same as those earned in domestic banking, while measures of securities risk are modestly higher than those of domestic banking. When firm-level data are used, mean securities returns typically exceed those of domestic banking by a considerable margin, but the estimates of securities risk are higher, both absolutely and relative to comparable

estimates for domestic banking. Both sets of data, as well as a more detailed examination of the performance of individual holding companies, indicate that banking companies can lower their risk by engaging in overseas securities activities.

Comparison of the securities returns and risks of direct and indirect bank securities subsidiaries with those of holding company affiliates using industry aggregation revealed some differences in performance. The mean returns on securities activities of the combined bank subsidiary group were slightly above those of the holding company affiliates over some time intervals, and their measured risk was lower in all periods examined. That is, the evidence suggests that permitting U.S. banking organizations to engage in securities activities overseas through direct and indirect bank subsidiaries has not had a significant, deleterious impact on their performance. Although additional research is necessary to establish the definitiveness of these findings, these results are the only tangible empirical evidence on the domestic structural issue currently available.

## II. Data Issues

The main data source used in the paper are the financial reports U.S. banking organizations with foreign subsidiaries file for each individual subsidiary with the Federal Reserve Board.<sup>13</sup> Although these reports are filed quarterly, this study uses annual year-end data. The level of reporting detail varies with the asset size of the individual subsidiary. As of December 31, 1996, subsidiaries with more than \$1 million but less than \$50 million in total assets file cursory reports that contain only four financial items -- total assets, total equity, total off-balance sheet

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<sup>13</sup>These reports are designated FR2314.

items and total net income. Subsidiaries with assets between \$50 million and \$250 million file much more comprehensive reports of income and condition. Those with total assets of \$250 million or more report even more detailed financials.<sup>14</sup>

Each reporting foreign subsidiary is assigned a single primary activity code and this code is the basis for the activity classifications used in this study. This procedure inevitably results in some imprecision in measuring bank involvement and analyzing performance in particular activities because subsidiaries may engage in a number of different activities in addition to their primary one and the extent to which they do so is not explicitly revealed. In 1996, foreign subsidiaries collectively fell into more than 20 primary activity classifications.<sup>15</sup> The rather broad “securities” activity classification used in this paper is an amalgam of several different primary activity codes. It includes foreign subsidiaries that have either merchant banking, investment banking, securities underwriting, or broker/dealer primary activity codes. This classification scheme is admittedly gross and may influence some of the reported findings because the risks and returns of the different types of firms that comprise the securities group may differ significantly. This method of classification was chosen to simplify the analysis, and the effects of this kind of

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<sup>14</sup>These size thresholds became effective in the first quarter of 1996. Previously the lower bound of the largest size class was \$100 million. The set of items reported also changed slightly at this time.

<sup>15</sup>The primary activity code classifications evident in 1996 included “close to banking”, commercial finance, consumer finance, nonbank credit agencies, data processing, export trading, factoring, futures commission merchant, foreign bank, insurance agency/brokerage, insurance underwriting, investment advice, investment banking, leasing, management consulting, nonfinancial services, other holding companies, real estate, securities underwriting and broker/dealers, trust, and several others.



aggregation will be explored in future work.<sup>16</sup>

The available subsidiary-level data can be analyzed in several different ways, each of which may provide different insights on the likely risks and returns associated with particular activities. One possible approach is to aggregate the subsidiary-level data by activity to produce a time series of “industry” financials. The industry financials resulting from this method of aggregation weight the performance of larger subsidiaries in each activity more heavily. This approach has been used in a number of previous studies where only industry-level data were available to the authors. Some have argued that there are advantages associated with using industry data to form estimates of the expected future distribution of returns for an activity.<sup>17</sup> This sort of aggregation may yield superior estimates of the future distribution of returns to a particular activity by weighting the experience of possible outlier firms - those with a low level of involvement in the activities of interest - less heavily. But according to several authors, risk and return measures generated in this way may mask company-specific performance differentials and may yield estimates of activity mean returns, variance of returns, and return correlations across activities that differ substantially from those resulting from activity financials derived using firm-level data.<sup>18</sup>

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<sup>16</sup>Even this classification fails to capture the securities activities of some foreign subsidiaries. For example, at year-end 1995, seven subsidiaries with non-securities primary activity codes reported positive underwriting income on their financial reports. Sixty-eight subsidiaries with non-securities primary activity classifications held some amount of equity securities of unrelated companies in their investment accounts.

<sup>17</sup>In Wall, Reichert and Mohanty, *op.cit.*, p.6, the authors state that this is the case if within-industry differences primarily arise from regional economic conditions and if firms within the industry are combining across regions. It also reduces the likelihood of spurious results in the formation of portfolios to investigate diversification effects.

<sup>18</sup>See, for example, the discussion of this issue in Boyd, Hanweck, and Pithychariyakul, *op.cit.*. They found activity mean returns changed considerably and even differed in sign when

In particular, measures of activity risks tend to be considerably higher when firm-level data are employed. To illustrate the sensitivity of the results to the method of data aggregation, results are presented below using both industry-level and firm-level data.

It should also be noted that all of the analysis in this paper is based on accounting numbers reported by the foreign subsidiaries on their financial reports. Much of the focus is on accounting measures of subsidiary net income. This is problematic for several reasons. One is that financial firms may choose to influence accounting net income in several ways. For example, they may prefer to smooth reported net income over time. Most of the foreign subsidiaries are part of large holding company organizations, and do some, possibly much of their business with related entities and intra-company transactions give the parent company the ability to influence where net income is booked within the corporation. Accounting measures of total assets and equity also can be poor proxies for their economic counterparts. In short, the reported profitability of individual foreign subsidiaries may be an imperfect measure of the true returns earned in the reported primary activity. Accounting data are used here, as they have been in most of the related studies, because there is no better alternative.

### III. Industry Aggregate Time Series Information on Securities and Other Major Primary Activities of Foreign Subsidiaries

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firm-level rather than industry-level data were used to construct comparable measures. They also found that the average of the firm-level activity return standard deviations were many times larger than comparable industry-level standard deviation of returns and that the absolute value of return correlations decreased appreciably if firm-level rather than industry-level data are used. See also Kwast, *op.cit.*, pp. 118-121 for evidence on this issue.

Selected industry aggregate time series data for securities and six other of the largest (in total assets) foreign subsidiary activity categories are included in tables 1 and 2. An eighth activity, insurance underwriting, is included in the table because it is an important financial activity that is not generally permissible for U.S. banks domestically.

Table 1 contains selected financial data aggregated by primary activity for all foreign subsidiaries with total assets of \$1 million or more in each year between 1987 and 1996. That is, the total assets and net income figures in the table are simply the totals for all foreign subs reporting a particular primary activity. The table contains data on the aggregate number, total assets, net income, return on total assets, and the percent of foreign subsidiaries reporting profits in eight selected primary activities each year from 1987 to 1996. The final row for each year shows the totals for all foreign subsidiaries, not just those engaged in the eight activities above. In every year, the share of the total assets in all foreign subsidiaries accounted for by subsidiaries in the eight highlighted activities is very high.<sup>19</sup>

Table 2 (containing annual aggregate data for subsidiaries with total assets of \$50 million or more) illustrates the degree to which the assets and net income of each activity are concentrated in the hands of fairly large foreign subsidiaries. For example, in 1987, the 309 subsidiaries larger than \$50 million in total assets accounted for more than 97 percent of the total assets in all foreign subsidiaries. In 1996, the comparable figures were 378 subsidiaries with close to 99 percent of total assets. The percentages are roughly the same for securities subsidiaries. So the aggregate financial numbers basically reflect the performance of a modest number of larger subsidiaries .

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<sup>19</sup>In 1987 it is 93.1 percent. In 1996 is 97.8 percent.

Returning to table 1, the total assets of all foreign subsidiaries in December, 1987, were \$159.2 billion, approximately 12 percent of the consolidated total assets of all holding companies that had foreign subsidiaries at this time.<sup>20</sup> At this time, securities was the second largest activity, accounting for \$33.2 billion, or about 20 percent, of all of the assets in foreign subsidiaries. This amounted to roughly 2.5 percent of the consolidated total assets of the holding companies that operated foreign subsidiaries. The average annual percentage change in the total assets of all foreign subsidiaries was approximately 14.1 percent over the ten years, pushing the ratio of total foreign subsidiary assets to the consolidated holding company assets of companies with such subsidiaries to over 19 percent by the end of that time interval. Growth in the total assets of securities subsidiaries over this same period was even faster -- an average annual rate of more than 25 percent. By December 1996, securities ranked as the number 1 activity in terms of aggregate assets, accounting for about 45 percent of the total assets in all foreign subsidiaries and 9 percent of the aggregate consolidated assets of holding companies with foreign subsidiaries.<sup>21</sup>

Cursory examination of the aggregate activity ROAs in table 1 suggests that the major

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<sup>20</sup>The total assets figures in the table overstate the level of involvement of the foreign subsidiaries of U.S. banking companies in these activities to some extent, particularly when the totals are compared to the consolidated total assets of the participating companies. The total asset figures reported in the tables reflect intra-corporate transactions to some degree while the consolidated figures do not. Examination of asset data reported by foreign subsidiaries larger than \$50 million in total assets allow some insight on the extent to which this is the case. For example, in 1987, the total assets of all foreign subsidiaries of \$50 million or more were roughly \$155 billion. About \$112 billion of this amount, or about 72 percent, represented claims on non-related entities. In 1996, comparable figures were \$486 billion, \$288 billion, and 59 percent.

<sup>21</sup>It could be argued that it is preferable, or at least informative, to measure activity levels using a metric other than total assets since total assets may not be the best “output” measure for all activities, including securities. (For example, off-balance sheet assets are not reflected in these totals.) Total income is one candidate. Admittedly casual analysis (not reported) suggests that switching to total income does not significantly change the share analysis discussed above.

activities in which foreign subsidiaries engage have generally been profitable over time, particularly over the last five years of the time period examined. However, aggregate losses are apparent for some activities in some years. But this sort of outcome is rare, evident just seven times over this period. Typically, a high percentage of the individual subsidiaries in each activity classification were profitable in each year over the interval examined. Even in years when a particular activity had an aggregate loss, typically two-thirds of the individual subsidiaries engaged in that activity reported profits.

The aggregate industry ROA data suggest that securities activities have not been among the most profitable activities of foreign subsidiaries. Aggregate losses are evident in each of the first three years of the period examined. To some extent, losses over this interval may reflect unique events (such as England's Big Bang) and so may provide a biased estimate of the likely returns attainable in securities activities over periods in which major structural change has not occurred.<sup>22</sup> Unfortunately, the lack of data precludes extending the period of observation backward through time. In any event, the magnitudes of these losses are not markedly different from those evident in leasing and commercial finance, which are permissible banking activities in the U.S. With one exception (1990), two-thirds or more of the individual securities subsidiaries were profitable in each year over the period.

To gain further insight on the profitability and the risk of securities and other activities, descriptive statistics were calculated for the time series of the aggregate ROA figures included in table 1. Table 3 includes these statistics, as well as the same set of statistics for the aggregate

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<sup>22</sup>The Big Bang refers to the deregulation of English securities markets that occurred in late 1986. Competition in U.K. financial markets intensified in the wake of these changes, partly as a result of entry and expansion by foreign firms, including American banking organizations.

profitability of two other benchmark activities of the holding companies that owned foreign subsidiaries in each year over the period. One of these profitability measures is for “domestic nonbank” activities and is calculated by dividing estimated aggregate net income for the “domestic” nonbank subsidiaries of the holding companies that owned foreign subs in each year by the aggregate total assets of such subsidiaries. These numbers are drawn from the Y-9LP parent-company-only financial reports filed by each holding company with the Federal Reserve. The numerator of this measure is the sum of dividends paid to the parent company by nonbank subsidiaries plus the parent’s equity in the undistributed net income of such subsidiaries.<sup>23</sup> The denominator is aggregate total assets in all nonbank subsidiaries that are not direct subsidiaries of affiliate banks or Edge Act companies. (This aggregate is reported as a memo item on the Y-9LPs.) This ROA measure is a decent proxy for the aggregate profitability of domestic nonbank affiliates because most foreign subsidiaries of U.S. banking organizations (see below) are not holding company subsidiaries, and so their net income and assets comprise a relatively modest portion of both its numerator and denominator.

The other activity of the holding companies with foreign subsidiaries whose aggregate profitability is measured in table 3 is “domestic banking.” Both the numerator and denominator of this measure are simply aggregates of net income and total assets reported by all the bank subsidiaries of the holding companies with foreign subsidiaries on their reports of income and condition in each year. This profitability measure is only a rough indicator of consolidated (in the accounting sense) domestic bank-only profitability because its components reflect transactions

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<sup>23</sup>A possible problem associated with using this sort of measure of aggregate domestic nonbank net income, noted in Wall (1987), is distortions related to nonbank companies acquired using the purchase method of accounting.

with nonbank holding company affiliates and any direct bank subsidiaries. In addition, since most of the foreign subsidiaries of U.S. banking organizations are organized as direct or indirect bank subsidiaries, this domestic bank profitability reflects the operations of foreign subsidiaries to some degree. The numbers also reflect any international business that banks do through their foreign branches.

Four sets of statistics for the aggregate ROAs for each activity classification are reported in table 3: the mean, the median, the standard deviation, and the coefficient of variation. The first two provide some indication of the expected returns available in each activity. The standard deviation of each aggregate ROA is an indicator of the expected volatility of the returns, or risk inherent in that activity. The coefficient of variation of aggregate activity ROA (CVROA in table 3) is a relative risk measure, formed by dividing the standard deviation of aggregate ROA for each activity over a given time period by the comparable mean value. This sort of statistic is useful because it compares a measure of an activity's return volatility to a measure of expected returns. The higher the volatility relative to expected returns, the greater the coefficient of variation of the ROA of an activity and the greater its estimated relative risk.

As noted above, the returns earned by securities subsidiaries in the first several years of the time interval examined may reflect the unique circumstances associated with the Big Bang. There is some evidence that this is the case.<sup>24</sup> Because extreme values of aggregate returns in one or two years over the relatively short period examined can have a large impact on the statistics of

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<sup>24</sup>For example, in 1987, seven of the ten securities subs with the largest losses were headquartered in England and together accounted for 51 percent of the aggregate loss of the 33 securities subsidiaries reporting losses in that year. In 1988, five of the ten securities subs with the largest losses were located in the U.K. and accounted for more than 70 percent of the aggregate loss of the 34 securities subsidiaries with losses.

interest, table 3 also contains sets of descriptive statistics calculated for 1988-1996 and 1989-1996, in addition to the complete period.

Focusing first on the complete 1987-1996 period, the means and medians for returns on securities activities were 43 and 54 basis points, respectively -- the lowest of all of the major activities of foreign subsidiaries examined. However, the mean and median ROA for domestic nonbank activities, and to a lesser extent domestic bank activities, also do not compare favorably to figures for most of the non-securities activities of foreign subsidiaries.

Omitting the first year and then the first two years of the complete time period produce progressively higher mean and median aggregate ROA values for securities activities. For 1989-1996, the mean return for securities activities of 86 basis points exceeds that of domestic nonbank subsidiaries, bank subsidiaries, and foreign subsidiaries engaging primarily in commercial finance. However, the median ROA for securities activities of 68 basis points remains the lowest of all activity categories examined.

Still in table 3, the standard deviations of the aggregate ROAs for securities and most of the foreign subsidiary activity classifications exceed those for the two domestic activities. Not surprisingly, the exception is foreign banking. The standard deviation of securities returns is the third lowest of the eight foreign subsidiary activities examined for 1987-1996, and the second lowest in the two shorter time intervals considered. But in each of the three time intervals, the standard deviation of securities returns exceeds comparable figures for domestic bank and nonbank subsidiaries.

The coefficient of variation risk measures in table 3 indicate that securities was the riskiest of all of the activity classifications examined for 1987-1996, with a coefficient of variation of



2.53.<sup>25</sup> The results for 1988-1996 are similar, but the securities CVROA ranks second highest after commercial finance. For 1989-1996, the coefficient of variation of securities activities is roughly equal to or less than that of three of the eight foreign subsidiary activity classifications (commercial finance, consumer finance and leasing), as well as that of domestic nonbanking activities.

Engaging in securities activities through foreign subsidiaries might allow banking companies to lower their risk even though securities activities appear to be relatively risky when viewed in isolation. Contributing to this likelihood is the manner in which the returns attainable in securities are correlated with those in domestic banking or other activities in which a banking company may engage.<sup>26</sup> Diversification potential exists when the returns of a specific activity are less than perfectly, positively correlated with the returns available in traditional banking activities. Activities whose returns are either uncorrelated, or negatively correlated with traditional banking returns have a higher likelihood of producing diversification benefits. For 1987-1996, the correlation between aggregate securities returns and domestic banking returns is roughly 0.35, not significantly different from zero at the 10 percent level. The aggregate returns of five of the other foreign subsidiary activity categories exhibit larger positive correlations with domestic bank returns over this period (consumer finance, 0.42; foreign bank, 0.80; leasing, 0.72; nonbank credit agency, 0.47 and other holding company, 0.59). The correlation coefficient for one activity

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<sup>25</sup>Incidentally, the figures also indicate that several foreign subsidiary activities (consumer finance, foreign bank, insurance underwriting, nonbank credit agency, and other holding company) as well as the aggregate for all foreign subsidiaries, were less risky than domestic nonbanking and domestic banking subsidiaries.

<sup>26</sup>It also depends upon the variability of the returns attainable in the activities under consideration, and the level of involvement of the banking company in each.

(commercial finance, 0.02) is positive and smaller than that of securities, and the correlation for another is negative (insurance underwriting, -0.56). In fact, the correlation coefficient of domestic banking returns and securities returns is much smaller than that of domestic bank and domestic nonbank activities (0.84, significant at the 1 percent level). The correlation coefficient of securities returns and domestic nonbank returns is roughly 0.10 over this period.

Although the estimated correlation coefficients are somewhat sensitive to the time period examined because few observations are involved, the basic tenor of the key results does not change. For example, for 1988-1996, the correlation coefficient of securities returns and domestic bank returns is only 0.01. The correlation coefficients of returns for six of the other activities of foreign subsidiaries and domestic banking are all positive and considerably larger, ranging from 0.33 to 0.75. Again, returns from insurance underwriting are negatively correlated with domestic bank returns over the period (correlation coefficient of -0.11). The correlation coefficient of securities returns and domestic nonbank returns is -0.16 over this interval. Once again, the correlation coefficient of domestic bank and nonbank returns is 0.81 and is significantly different from zero. Thus, the correlation results using aggregate activity returns suggest that involvement in securities activities through foreign subsidiaries potentially offers diversification benefits for U.S. banking companies.<sup>27</sup>

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<sup>27</sup>To be more concrete, if the sample estimates from 1988-1996 are assumed to characterize the expected return distributions for securities and domestic banking, a portfolio comprised of 10 percent securities activities and 90 percent domestic banking activities would have a standard deviation of ROA of 34 basis points, 2 basis points below that of domestic banking alone. The return for such a portfolio would be 78 basis points, 2 basis points below that of domestic banking alone. If data for 1989-1996 are used instead, a portfolio consisting of 25 percent securities and 75 percent domestic banking would have an expected return of 80 basis points and a return standard deviation of 36 basis points vs. 78 basis points and 38 basis points for domestic banking alone. Increasing the proportion of securities activities to 35 percent produces

#### IV. Activity Returns and Risks Using Firm-Level Data

Using activity ROA data that has been aggregated by holding company or firm, rather than the industry aggregates yields a slightly different view of the risks and returns associated with overseas securities. In this approach an annual rate of return for a particular activity in each year is generated for each holding company by summing the net income earned by all of its subsidiaries in a particular activity class in that year and then dividing this sum by the corresponding average total asset figure.<sup>28</sup> Then estimates of activity risks and returns can be obtained from this firm-level data in several different ways. This type of analysis can reveal company-specific variations that are masked by a purely industry level analysis.

Table 4 contains descriptive statistics on the level of involvement of the individual parent holding companies in aggregate foreign subsidiary and securities subsidiary activities and is a useful background to the discussion of activity risks and returns that follow. The first two columns of the table show that relatively few holding companies operated any type of foreign subsidiary over the 1987-1996 period and fewer still had a foreign subsidiary engaged in securities activities. The number of such companies fell from just 22 in 1987 to 12 by the end of the period. The small number of companies involved in securities activities in each year over the period examined indicates the potential for even a single company with either very high or low returns to

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an expected portfolio return of 81 basis points and a standard deviation of 38 basis points or higher return with the same risk as a 100 percent domestic banking portfolio.

<sup>28</sup>Since the data series starts in 1987, total assets rather than average total assets is used in the denominator to calculate each company's activity ROA measures in that year. In all other years, the denominator is the average of total assets in the current year and the previous year.

strongly influence measures of activity risks and returns that weight firms equally.

The rise in the mean value of the ratio of total foreign subsidiary assets to consolidated holding company assets (column 3) over time suggests that foreign subsidiary activities have become an increasingly important part of the operations of the companies that operate them. But in every time period the median is below the mean by an amount that has risen over time and the standard deviation of this ratio is relatively large, indicating that the level of involvement varies considerably for the cross section of companies in each year.

The mean proportion of total foreign subsidiary assets accounted for by securities subs (column 6) has been relatively stable over the period at approximately 30 percent. But again, considerable cross-sectional variation in this ratio is evident in every time period.

The final set of descriptive statistics in the table for the ratio of securities assets to consolidated total assets (the last three columns) show the increasing importance of securities activities to the typical participating company. Like the other ratios, however, there is divergence between the mean and median value and the standard deviation is large.

These figures suggest the possibility that all foreign subsidiary activities and the activities of securities subsidiaries may be concentrated in the hands of a relatively small number of firms and that concentration may have increased over time. This is the case. In 1987, the three holding companies with the largest shares of securities assets accounted for 62.3 percent of total securities assets and 57.9 percent of the total assets in all foreign subsidiaries. In 1996, these percentages were 94.9 percent and 72.8 percent, respectively.

The time series' of each holding company's annual ROA values can be used in several ways to estimate the returns, risks and return correlations of activities. One such way is to

estimate the activity mean and standard deviation of returns for each activity using data pooled across firms over time.<sup>29</sup> This approach yields more precise estimates, given the small number of holding companies with overseas security subs in the sample, at the cost of possible bias due to differences in the underlying activity return distributions across firms. But this approach does not facilitate comparison of differences in activity risks and returns at individual firms. An alternative is to first calculate activity ROA means, standard deviations, and correlation measures separately for each holding company using time series data and then use cross-sectional averages of these measures to characterize the return distribution of the activity.<sup>30</sup> Although this approach sacrifices many degrees of freedom, it permits the analysis of differences in activity risks and returns at individual firms.

Table 5 contains descriptive statistics for return and risk estimates for overseas securities, domestic bank and domestic nonbank activities calculated using the pooled time series data for all holding companies that operated foreign securities subsidiaries in four or more years over the same three time intervals examined above -- 1987-1996, 1988-1996, and 1989-1996. Companies with fewer than four years of overseas securities experience were excluded to minimize any biases associated with start-ups and also to ensure that at least this minimal number of time series observations were available to calculate the company-specific activity mean returns, return volatility and return correlations used in the alternative approach described above.<sup>31</sup>

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<sup>29</sup>This approach is used in Kwast, *op.cit.*, and Kwan, *op.cit.*

<sup>30</sup>This is the approach used in Boyd, Hanweck, and Pithyachariyakul, *op.cit.*, and Wall, *op.cit.*

<sup>31</sup>The choice of the four year cutoff was somewhat arbitrary but was similar to the cutoff used in previous studies.

Mean securities returns calculated using the pooled firm-level data are considerably higher (on the order of 30 basis points higher) than comparable values obtained using industry data, for all three time periods. In addition, using the firm-level data in this way produces securities mean returns above (from 16 to 46 basis points higher depending on the time period) domestic bank mean returns for all three periods. Another difference relative to the industry return case is the substantially higher estimates of mean returns to domestic nonbanking activities. In table 5, mean domestic nonbank returns are higher than both of the other activity categories.

Comparison of the activity return standard deviations and coefficients of variation for the three activities in table 5 again indicates that overseas securities activities are generally riskier than the two domestic activities. But comparison of the results in table 5 with those in table 3 clearly shows that using the pooled firm-level data instead of industry return data results in much larger return volatility measures for overseas securities activities. For example, the return standard deviation for securities activities is roughly 5 percent for 1987-1996 vs. about 1 percent using industry data for that period. To some extent this same volatility-inflating effect is also evident for the other two activities as well. As in table 3, the coefficient of variation of securities returns is above that of the two domestic activity categories. But the coefficient of variation of returns for securities activities in table 5 is proportionately much higher than that of domestic banking when pooled firm-level data rather than industry returns are used, suggesting considerable more relative risk. For example, for 1987-1996, the CVROA for securities activities is 2.53 when industry data are used, vs. 0.78 for domestic banking. For the same period, the numbers are 6.55 vs. 1.26, respectively based on the pooled firm-level data.

Even though the volatility numbers for securities activities are higher when pooled firm-

level data are used, it is still possible to find evidence of possible diversification benefits because correlations of activity returns play a key role and might differ as well. The pooled firm-level data does produce return correlation estimates that differ considerably from those obtained using industry data. Specifically, the correlations between securities returns and domestic bank returns are 0.096, 0.036, and 0.053 for 1987-1996, 1988-1996, and 1989-1996, respectively.<sup>32</sup> These correlations are much smaller than those found in the case of industry returns. As a result, the activity return means, standard deviations, and correlations obtained using the pooled firm-level data are consistent with the existence of modest diversification benefits associated with overseas securities activities.<sup>33</sup>

The alternative approach to calculating returns using pooled firm-level data is to calculate activity ROA means, standard deviations and correlation measures separately for each holding company using time series data and then to use cross-sectional averages of these measures to characterize the return distribution of the activity. Restricting the analysis to holding companies that operated overseas securities subsidiaries for four or more years reduces the sample size to just 20. But this approach recognizes that differences in risk preferences and the ability to manage nonbanking subsidiaries may exist across holding companies and so the usefulness of examining performance differences across firms when such a track record is available.

The descriptive statistics for company-specific activity ROAs, ROA standard deviations,

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<sup>32</sup>The respective correlations (0.218, 0.146, 0.138) between domestic bank and domestic nonbank returns are also positive and larger than those between domestic banking and overseas securities activities.

<sup>33</sup>Depending on the time period, diversification benefits exist when securities activities constitute roughly 3-4 percent of a combined domestic bank-securities portfolio.

and a likelihood-of-failure risk measure (Z) appear in table 6 for securities and the two domestic activities. Specifically, table 6 contains descriptive statistics calculated using unweighted, company-specific values of the respective column heading for each of the 20 holding companies that had securities subsidiaries in four or more of the years over the 1987-1996 interval. So the 0.71 percent mean figure in the first position in table 6 is the average of the mean securities return values for the 20 companies, where each company's mean return value reflects annual returns over all the years in the 1987 - 1996 period that it had a securities operation. Similarly, 3.15 percent is the average SDROA value for these 20 companies, calculated using the company-specific SDROA values, each reflecting return variability over all of the years over the interval that it had a securities operation.

The findings with respect to average activity returns in table 6 are similar to those reported in table 5. The average of the company-specific mean securities returns (71 basis points) is above the comparable figure for domestic bank returns (59 basis points) but lower than the comparable figure for domestic nonbanking (134 basis points). The median of the mean securities returns at 95 basis points is considerably higher than the average value. This fact, plus the relatively large standard deviation of average securities returns (2.05), indicates that mean securities returns vary considerably across companies. This suggests that further examination of the frequency distributions of the mean activity returns might be informative.

Table 7, which contains the frequency distributions for the mean securities, domestic banking, and domestic nonbanking return values of the 20 sample holding companies paints a much clearer picture of the impact of securities activities on individual companies and shows the danger associated with using the mean of this distribution or a competing one to characterize the



expected returns to this activity. Thirteen, or almost two thirds of the sample companies, had mean securities returns of 75 basis points or higher, while only four of the 20 had negative mean returns. Comparison of the securities and domestic bank return frequency distributions suggests that a number of companies earned higher returns on securities operations than they did in domestic banking. In fact, this was true for 12 of the 20 companies in the sample.

Returning to table 6, the mean value of the company-specific securities SDROAs of 3.15 percent indicates greater return volatility relative to the both of the domestic activities. However, while this figure is also considerably higher than the value obtained using industry returns (1.09 percent), it is only about sixty percent of the figure obtained using the pooled data (5.11 percent) over the same time period. But the standard deviation of securities SDROA values for the 20 sample companies indicates that return volatility differs substantially across companies.

The final three columns of table 6 report descriptive statistics for the Z value risk-of-failure measures for the same set of activities, calculated using company-specific values for the 20 holding companies with securities subs.<sup>34</sup> The general form of the equation for  $Z_{j,k}$ , the insolvency risk indicator for holding company j for activity k, is given in equation 1 below:

$$Z_{j,k} = [ E(ROA_{j,k}) + CAPAR_{j,k} ] / SDROA_{j,k} \quad (1)$$

where:

$E(ROA_{j,k})$  = the mean ROA for holding company j in activity k over a particular time period,

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<sup>34</sup>This sort of measure has been used in a number of previous studies. For a discussion of its derivation and use, see Boyd and Graham (1986).

$CAPAR_{j,k}$  = the mean equity capital to total asset ratio for company j in activity k over a particular time period,

$SDROA_{j,k}$  = the standard deviation of the ROA for company j in activity k over a particular time period.

The rationale for this expression is that if  $ROA_{j,k}$  is assumed to be normally distributed,  $Z_{j,k}$  is an estimate of the number of standard deviations below the mean that activity profits would have to fall before the equity of the firm devoted to that activity became negative.<sup>35</sup> This sort of indicator is an informative measure of risk because it reflects not only the expected returns and the variability of returns of an activity, but also the level of equity capital employed, which can serve to mitigate low or variable profitability. Higher mean ROA, higher capital ratios, or lower standard deviations of an activity's ROA result in higher Z values. Higher Z values, in turn, reflect a lower estimated risk of insolvency.

Despite having the highest return volatility, the mean Z value for securities activities in table 6 is only slightly below that of domestic banking and slightly above that of domestic nonbanking activities. Neither of these differences is significantly different from zero. The minimal differences in activities risks suggested by the comparison of mean Z values basically reflects higher capital levels and to a lesser extent higher returns, at securities subsidiaries offsetting greater return variability.<sup>36</sup> It also reflects the fact that the securities operations of some companies are much less risky than others. In fact, the Z values for the securities activities of

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<sup>35</sup>Boyd, Graham and Hewitt (1993) show that Z can be viewed as an upper bound on the probability of insolvency even if ROA is not normally distributed.

<sup>36</sup>The averages of the mean capital to assets values for the three activity classifications for the 20 holding companies in the sample are 20.5 percent for securities, 6.1 percent for domestic banking, and 13.7 percent for domestic nonbanking activities.

eight of the 20 holding companies exceed those of their domestic banking operations; at 10 of the 20, securities Z values are higher than the Z value associated with domestic nonbanking activities. This suggests that securities activities moderated the risk of these banking organizations.

Correlation coefficients of securities returns and domestic banking returns are also calculated for each of the 20 holding companies in the sample. In general, these correlations are consistent with the findings reported above when activity aggregate returns are used. The mean value of the securities-domestic bank correlations is roughly 0.26; the median value is 0.22. The correlation coefficients of five of the sample companies are negative.

Using the values of the averages of mean returns, standard deviation of returns and return correlations reported in table 6 to calculate the expected returns and risks of a domestic banking-securities portfolio suggest some very modest diversification benefits associated with the latter.<sup>37</sup> These results, in conjunction with the finding of lower risk of failure associated with securities activities at a number of companies, suggest that holding companies can realize diversification benefits from engaging in securities activities.

## V. Activity Returns, Risks and Organizational Form

In the debate about permitting greater bank involvement in securities and other nontraditional activities domestically, the issue of how such operations should be structured has received a great deal of attention. Most agree that these activities should be conducted in a

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<sup>37</sup>This exercise reveals that securities activities raise the standard deviation of the return of the portfolio beyond that of domestic banking alone once securities activities exceed 2.5 percent of the total portfolio.

subsidiary.<sup>38</sup> But opinion is sharply divided about whether the direct parent of this subsidiary should be a bank or a bank holding company.

A number of assertions about the relative merits of the two alternative organizational forms have been made by their respective proponents. Proponents of bank subsidiaries allege greater efficiency. Proponents of the holding company subsidiary assert that this organizational form better insulates insured bank affiliates from the likely greater risks of securities activities. They also maintain that the holding company model reduces the likelihood that the securities subsidiary receives any competitive advantage stemming from safety net subsidies enjoyed by affiliate banks. Indirect safety net access could facilitate greater risk-taking by securities subsidiaries, and so result in greater risk to bank affiliates. There is virtually no empirical evidence supporting either position because current laws and regulations basically neither allow banks to choose how they organize important nontraditional activities domestically nor require them to report unconsolidated financial information on their direct subsidiaries.

But U.S. banks may engage in securities underwriting and other activities overseas through foreign direct or indirect bank subsidiaries, as well as through holding company affiliates, an option they do not have at home. And these separate subsidiaries are required to file FR2314 financial reports. So it is possible to use the data on overseas securities subsidiaries to examine differences in the performance of the two main types of organizational form. To simplify the analysis, the operations of direct bank subsidiaries and Edge Act subsidiaries

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<sup>38</sup>Support for the universal bank alternative is relatively weak in the United States.

(which are exclusively indirect bank subsidiaries) are aggregated in the analysis below.<sup>39</sup>

Trends in the organization of foreign subsidiaries over time, as well as the aggregate profitability of the different organizational types, are illustrated in table 8. The table contains aggregate total asset and ROA data for all foreign subsidiaries and securities subsidiaries for each year between 1987 and 1996. These data are reported separately for the combined Edge plus direct bank subsidiary group and for bank holding company subsidiaries.

The numbers clearly show that direct and indirect bank subsidiaries account for a large share of the number and total assets of both all subsidiaries and securities subsidiaries. These shares have risen over time and in 1996, direct and indirect bank subs accounted for 96.6 percent of the total assets of all foreign subsidiaries and 98.1 percent of the total assets of securities subsidiaries. The asset shares accounted for by holding company subsidiaries declined considerably since the outset of the period to less than 5 percent in 1996. The precise reason for the decline is not clear. More specifically, the split between declines resulting from inter-firm consolidation and intrafirm shifts in structure has not been explored. In any event, most activity in 1996 was concentrated in direct and indirect bank subsidiaries.

Table 9 contains descriptive statistics for activity returns, calculated using the ROA information appearing in table 8. The numbers in table 9 are activity aggregates comparable with the industry data appearing in table 3. Once again, descriptive statistics are presented for three

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<sup>39</sup>In 1996, 80.6 percent of the total assets in all direct bank subsidiaries were in the foreign bank activity classification. At that time, Edge subsidiaries accounted for 85.6 percent of the number of combined direct bank and Edge subsidiaries and 85.4 percent of the combined assets of these two organizational types. For securities subs, the comparable numbers are 92.9 percent and 98.8 percent, respectively. The large proportion of the number and total assets accounted for by Edge subsidiaries characterized the other years over this period.

time periods: 1987-1996, 1988-1996, and 1989-1996.

Table 9 shows that mean securities returns for direct and indirect bank subs are higher than those of bank holding company subsidiaries in 1987-1996 and 1988-1996. Median securities returns are also higher. For the shortest time period, securities returns are roughly the same for both types of subsidiaries, although the mean and median returns for all holding company foreign subsidiaries are higher than those of the direct and indirect bank subs. But none of the differences in mean returns are statistically significant. In table 9, the holding company subsidiaries' return standard deviations, as well as their return coefficient of variation measures are considerably higher than those of the combined bank subsidiary category for both securities activities and all foreign subsidiary activities.

Some differences are evident when returns for all types of foreign subsidiaries are examined. In this case, the mean and median returns for direct and indirect bank subsidiaries are typically smaller than those of holding company subsidiaries in all of the time periods examined. Again the differences in mean returns are not statistically different. But, as was the case for securities activities, the volatility of returns for all holding company subsidiaries is greater than that of direct and indirect bank subsidiaries when all activities are considered as a group.

The analysis reveals that when banking organizations have a choice, they show a marked preference for conducting activities, including securities activities, in direct or indirect bank subsidiaries. The data also suggest that differences in organizational form are associated with differences in the level and variability of securities and total activity returns in some periods. For the two longer sub-periods, direct and indirect bank subsidiaries had higher securities returns than holding company subsidiaries, although they had lower returns when all foreign activities are

viewed together. The analysis does indicate that bank holding company subsidiaries have tended to be somewhat more risky than direct and indirect bank subsidiaries. There are a number of possible explanations for this finding but exploration of this issue is beyond the scope of this paper.<sup>40</sup>

In sum, the simple analysis performed here suggests that permitting U.S. banking organizations to engage in securities activities overseas through direct and indirect bank subsidiaries has not had a significant, deleterious impact on their performance. One can reasonably assume that these results are generalizable and relevant to the debate about how securities and other nontraditional activities should be organized domestically. But the results are sensitive to the method of return measurement and reflect a simple univariate analysis. So they should be viewed as tentative until confirmed by additional empirical work.

## VI. Summary and Conclusions

This study provides new evidence of the risks and returns associated with bank involvement in securities activities. This empirical evidence is drawn from an extensive analysis of the performance of the foreign securities subsidiaries of U.S. banking companies from 1987 through 1996. Both industry-level and firm-level estimates of securities risks and returns from overseas securities activities are constructed using the available data to obtain insight on the

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<sup>40</sup>Possible reasons why banks choose to operate overseas through separate subsidiaries as opposed to branches are listed in Houpt, *op.cit.*, p.3 and p.10. Houpt minimizes the importance of a desire to take advantage of limited liability or, alternatively, to insulate the bank from the risks of overseas activities.

robustness of the findings. Systematic differences in performance associated with alternative organizational structures are also investigated because regulations permit structural variety overseas.

The results are somewhat sensitive to the aggregation method employed and the precise time period examined. In general, when industry-level data are used, mean securities returns are roughly the same as those earned in domestic banking, while measures of the risk of overseas securities activities are modestly higher than those of domestic banking. When firm-level data are used, mean securities returns typically exceed those of domestic banking by a considerable margin, but the estimates of securities risk are higher, both absolutely and relative to comparable estimates for domestic banking. Both sets of data, as well as a more detailed examination of the performance of individual holding companies, indicate that banking companies can lower their risk by engaging in overseas securities activities.

Comparison of the securities returns and risks of direct and indirect bank securities subsidiaries with those of holding company affiliates using industry aggregation revealed some differences in performance. The mean securities returns of the combined bank subsidiary group were slightly higher than those of the holding company subsidiaries over some time intervals, and their measured risk was lower in all periods examined. That is, the evidence suggests that permitting U.S. banking organizations to engage in securities activities overseas through direct and indirect bank subsidiaries has not had a significant, deleterious impact on their performance. Given the difficulties involved in doing empirical research on the structural issue domestically, evidence based on the analysis of foreign subsidiary data, like that presented here, may be the most relevant evidence on the structural question that can be produced.





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