

THE DETERMINANTS OF THE WEALTH EFFECTS OF BANKS' EXPANDED SECURITIES POWERS

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Abstract: After several unsuccessful attempts by Congress to repeal Glass-Steagall restrictions on banks, the Federal Reserve more than doubled the revenue that commercial banking organizations' securities subsidiaries may earn from certain securities activities. The wealth effects associated with this event for a sample of publicly traded banking organizations are examined. We find evidence that indicates the revenue limit resulted in a less-than-optimal mix of activities for securities subsidiaries. However, subsequent merger activity that could have been generated by the revenue increase was not viewed favorably by investors.

I. INTRODUCTION

In January 1995, several bills were introduced into Congress to reform the U.S. banking industry. Both Representative Jim Leach and Senator Al D'Amato put forth legislation that would have expanded the permissible activities of banks. The Leach bill was more narrow, arguing mostly for repeal of Glass-Steagall restrictions on banks. The D'Amato bill was more comprehensive, and would have ended the long-standing separation of banking and commerce. Hearings were held on the Leach proposal and several variations were introduced in Congress.

However, disputes over the extent of insurance powers for banks, along with the proper organizational structure in which to carry out expanded powers, led Leach to abandon his attempts at reform. Instead, in June 1996, Chairman Leach publicly urged the Federal Reserve to increase the revenue limitations that banking holding companies (BHCs) operate under regarding their securities activities. After requesting comment on this proposal, the Federal Reserve approved an increase that more than doubled the allowable revenue from certain "ineligible" securities activities. A recent analysis (Ely and Robinson, 1998) has shown that this event generated substantial positive wealth effects for publicly traded BHCs involved in ineligible securities activities.

In this paper, several hypotheses regarding the possible sources of these wealth effects are examined. Some previous work has shown that expanding the scope of nonbank activities may increase financial sector risk (Boyd and Graham, 1986, 1988). Others have found that expanding allowable securities activities might not improve bank efficiency (Wall, Reichert, and Mohanty, 1993). Tests for operating inefficiencies prior to the rule change are conducted. Additionally, we examine changes in operating strategies following the revenue-limit increase. This includes surveying the changes in the mix of activities conducted by BHC securities subsidiaries between

September 1996 and December 1998 and analyzing merger activity between commercial banks and securities companies during 1997.

Raising the revenue limit on securities activities might enable banking institutions to improve performance in at least two ways. First, a change in the mix of activities might lead to greater profitability for the security subsidiary. Since the revenue cap expresses the allowable amount of ineligible revenue that can be earned as a percentage of gross revenue, the subsidiary can expand its activity in ineligible securities by simultaneously generating a higher level of eligible revenue. However, this arrangement would have forced a subsidiary already operating close to the existing limit to expand both types of revenue even if the expanded activity in eligible securities was economically unprofitable. The Federal Reserve Board recognized that activity in eligible securities had become less profitable by noting that, "...increased competition in brokerage services has diminished revenue as a function of activity. Lower commissions have required companies to increase volume in order to maintain a given level of eligible revenue" (Federal Register, 1996, p. 68753).

The cap might also affect the choice between Tier I and Tier II ineligible securities. Tier I authority allows BHC securities subsidiaries to engage in the underwriting and trading of certain municipal revenue bonds, mortgage-related securities, commercial paper, and asset-back securities. Subsidiaries with Tier II authority may also underwrite and deal in corporate debt and equities. The revenue cap would lead to a sub-optimal mix of activities if an institution replaces trading and underwriting in Tier II securities with less profitable Tier I securities to avoid exceeding the cap. The Federal Reserve Board also noted this potential outcome when it announced its order to raise the cap . "Underwriting fees for tier-two securities are significantly

larger than fees for tier-one securities, particularly with respect to equity securities and non-investment-grade debt securities. Similarly, bid/offer spreads on many corporate bonds and other tier-two securities are significantly wider than the spreads on tier-one securities." (Federal Register, 1996, p. 68753).¹

A second way in which the rule change might generate wealth effects for BHCs is by providing greater freedom to pursue acquisitions of securities companies. Indeed, speculations of acquisitions were common in the business press by late 1996.² The Federal Reserve Board also reported that they had approved an increased number of proposals by banking organizations to acquire securities companies in 1997 (Board of Governors of the Federal Reserve System, 1997, pp 237-238).

We find some evidence consistent with the hypothesis that the positive wealth effects from increasing the revenue limit are associated with the mix of activities pursued by BHCs. Prior to the revenue-limit increase, profitability might have been adversely affected by possible attempts to expand the amount of less profitable eligible securities activities to avoid violating the revenue limit. We also note that in the aftermath of the revenue-limit increase, banking organizations

¹ Some industry analysts argued that the change in the revenue cap would lead to a restructuring of balance sheets. See Taylor and Frank (1996) and Dutta (1997). Charles Gabriel of Prudential Securities is quoted by *The Wall Street Journal* as stating: "Their [BHCs with securities subsidiaries] first response to having these thresholds raised is going to be to ease off a little bit, sell off Treasuries and increase their return on equity" (Taylor and Frank, 1996). Howard Curlett of First Union Capital Markets when asked what impact the changes to the revenue cap had on operations is quoted in *American Banker* as stating: "The biggest change in our business is that we've been able to decrease the size of our matchbook because we no longer have the need to generate eligible income from sources which are not strictly part of our day-to-day business" (Dutta, 1997).

² See for example, Rea, Spiro and Galuszka (1996).

significantly increased their Tier II assets. We find no evidence, however, that acquisitions announced in 1997 were rewarded by shareholders.

We proceed as follows. In the next section we offer some background on the nature of banks' securities activities. Next, we examine the excess returns generated by the expansion in BHCs allowable securities activities. Our empirical model is then presented, followed by an analysis of our results. The final section offers some conclusions.

II. BACKGROUND

Current restrictions on U.S. banks' securities activities date to the Glass-Steagall Act of 1933. Section 20 of the Glass-Steagall act prohibits Federal Reserve member banks from being affiliated with any entity "engaged principally" in issuing, underwriting, selling or distributing stocks or bonds.³ This act was passed as the result of a series of Congressional investigations in the aftermath of the stock market crash. Of particular concern was the possibility that banks' securities affiliates were involved in speculative and fraudulent activities at the expense of depositors or shareholders, and that banks' securities activities threatened financial safety and soundness (Kelly, 1985). While isolated instances of fraud and abuse were discovered, recent evidence does not support this view of commercial banks' involvement in securities (Ang and

³ The Glass-Steagall Act is actually four sections (16, 20, 21, and 32) of the Banking Act of 1933. Section 16 prohibits national banks from underwriting corporate securities. Section 21 forbids any person or organization engaged in the activities defined in section 20 to engage in the business of deposit banking. Section 32 prohibits officer, director, or employee interlocks between member banks and entitles "primarily engaged" in activities described in section 20. See Kelly (1985).

Richardson, (1994), Kroszner and Rajan (1994), White (1986), Benston (1990, 1996) and Puri (1994, 1996).

By the 1980s, commercial banks faced increasing competitive pressures from less regulated players in financial markets. As a result, they began to pursue more active involvement in the securities business. While they were able to underwrite and deal in U.S. government securities and municipal general obligation bonds, and to engage in private placements, banking organizations increasingly sought the ability to extend these operations. Beginning in 1987 the Federal Reserve Board issued a series of orders authorizing individual bank holding companies, on a case-by-case basis, to establish “section 20 subsidiaries,” named after section 20 of the Glass-Steagall Act. These subsidiaries would be able to pursue an expanded array of securities operations that were previously denied banking organizations.

In order to meet the “engaged principally” language of Glass-Steagall, the Board established a revenue test. In its 1987 order the Federal Reserve Board decided that no more than five percent of the gross revenue of the section 20 subsidiary could be earned from ineligible securities activities, or securities that member banks could not underwrite or deal in.⁴ In 1989, the Board approved an increase in the revenue limit to 10 percent.⁵ Finally, at the urging of

⁴ These ineligible securities include municipal revenue bonds, one-to-four-family mortgage-related securities, securities related to consumer receivables, certain types of commercial paper, and debt securities.

⁵ In 1989 the Board also authorized underwriting and dealing in all types of corporate debt and equity securities. The Board also included several firewalls to prevent the transfer of risk from section 20 affiliates to the insured commercial bank. See Mester (1996, 17-18).

Chairman Jim Leach of the House Banking Committee, the Federal Reserve approved an increase in the revenue limit to 25 percent, effective March 1997.⁶

Several studies have examined the stock market response to the Federal Reserve's approval of the various revenue-limit increases. Bhargava and Fraser (1998) investigate the wealth effects of the initial order approving section 20 subsidiaries, as well as the subsequent revenue-limit increases. These authors find a significant positive stock market response for banking organizations granted a section 20 subsidiary in 1987. However, when the Federal Reserve increased the revenue limit in 1989, these authors find negative wealth effects for banking organizations with section 20 subsidiaries and for a sample of investment banks. Bhargava and Fraser find no significant wealth effects associated with the proposal to increase the revenue limit to 25 percent for banking organizations with and without section 20 subsidiaries, and for a sample of investment banks.

Using a different event date, however, Ely and Robinson (1998) do find statistically significant and fairly large wealth effects for banking organizations with section 20 subsidiaries associated with the increase in the revenue limit to 25 percent.⁷ Moreover, when analyzing individual firm-level responses, there is some evidence of statistically significant wealth effects for investment banks and for bank holding companies that might be expected to petition for a

⁶ Chairman Leach's request to the Federal Reserve reflected frustrations at the lack of passage of financial reform legislation.

⁷ Bhargava and Fraser consider only the July 31, 1996 request for comment by the Federal Reserve as an event date. Ely and Robinson also consider as event dates when the Federal Reserve was urged by Chairman Leach to raise the revenue limit (June 11), and the date of the announcement of the approval of the revenue limit increase (December 20). This latter event is associated with significant wealth effects for banking organizations with section 20 subsidiaries.

securities subsidiary. The next section identifies the excess returns generated by the recent revenue-limit increase for banking organizations with securities operations. The data that are available to investigate what factors might be important in explaining the observed pattern of these excess returns are also identified.

III. WEALTH EFFECTS FROM EXPANDED SECURITIES ACTIVITIES

III.A. PRELIMINARY ANALYSIS

To investigate the general economic impact of the rule change on banking organizations, the following empirical model is estimated:

$$R_{\text{sec20},t} = \alpha_{\text{sec20}} + \beta_{\text{sec20}} * R_{\text{mt}} + \sum_{k=1}^K \gamma_{\text{sec20},k} * D_{k,t} + \epsilon_{\text{sec20},t} \quad (1)$$

where $R_{\text{sec20},t}$ is the return on an equally weighted portfolio of banking companies with section 20 subsidiaries on day t , R_{mt} is the equally weighted return on a market wide index of stocks, the D_k variables represent individual dummy variables that equal one during the event-window period and zero otherwise, and K equals the number of days in the event windows. This methodology is similar to that employed by Schipper and Thompson (1985), Binder (1985), Smith Bradley, and Jarrell (1986), and Millon-Cornett and Tehranian (1989, 1990). Our event date of interest is December 20, 1996, when the Federal Reserve announced its approval of the revenue limit increase to 25 percent.⁸ The portfolio is constructed using data for 26 banking organizations that

⁸ See Ely and Robinson (1998) for evidence that other events associated with the revenue limit increase did not generate significant wealth effects. Also, Ely and Robinson provide

were publicly traded and filed the FR Y-20 (*Financial Statements for a Bank Holding Company Subsidiary Engaged in Bank-Ineligible Securities Underwriting and Dealing*) in the third quarter of 1996. We use daily return data from the Center for Research in Security Prices (CRSP). The estimation period included -61 days to the event date +61 days. Table 1 reports the results of estimating this equation using both a two-day (t-1, t) and three-day (t-1, t, t+1) event window. The results in Table 1 indicate that using either event window produces statistically significant excess returns, as indicated by the Wald statistic employed to test that the sum of the excess returns across the event windows equals zero. For the two-day window, cumulative excess returns for the portfolio of banking organizations equal 3.25 percent and for the three-day window the returns equal 2.93 percent.

III.B. THE DETERMINANTS OF EXCESS RETURNS: ACTIVITIES AND ACQUISITIONS

We assume that the significant and positive excess returns around December 20 are associated with BHCs' greater ability to expand into ineligible securities. Our analysis focuses on whether the source of the excess returns can be attributed to a reduction in current operating inefficiencies and/or expected future inefficiencies.

Following the relaxation in the revenue ceiling, banks might have chosen to change their mix of activities by increasing the amount of ineligible securities and, perhaps also, by lowering their activity in eligible securities. These steps would have led to a change in the mix of activities and would have been expected for BHCs that had been under pressure to generate a sufficient level of eligible revenue in order to remain within the cap.

evidence that this event was unanticipated by financial market participants.

Not all subsidiaries' were equally successful in attracting ineligible underwriting and trading activity and in generating a steady stream of eligible revenue that consequently raised the level of allowable ineligible revenue. All banking organizations with securities subsidiaries were therefore not equally constrained by the revenue cap and thus the BHCs that stood to gain the most were those that were struggling to generate an adequate stream of eligible revenue to match their target level of ineligible securities activity. A BHC facing a potential shortfall in eligible revenue may have chosen to shift activity away from ineligible activity and toward eligible activity, to replace Tier II activity with less-profitable Tier I activity, or perhaps to reduce the level of ineligible activity altogether. This type of substitution, if it did exist, became less necessary after the revenue cap was raised. We refer to the notion that the change in the revenue cap generated wealth effects for BHCs because they could shift toward a more optimal mix of activities as the *activity mix hypothesis*.

Under the activity-mix hypothesis, securities affiliates constrained by the revenue cap should exhibit weaker performances than those that were relatively unconstrained. We employ several approaches to testing if BHCs' excess returns on the announcement of the increase in the revenue cap are related to performance measures of their section 20 subsidiaries. These include variables based on the closeness to the revenue limit, and overall profitability. We also use measures based on the subsidiaries' efficiency in producing ineligible and eligible revenue and the costs of producing these revenues. Under the activity-mix hypothesis, securities affiliates constrained by the cap should be characterized by lower profitability, lower asset utilization, and/or higher costs relative to their less constrained competitors.

An outcome contrary to the activity-mix hypothesis is that the revenue cap was not a binding constraint and so the stock price reactions were unrelated to any inefficiencies arising from operating under the constraint. The cap would not be binding if BHCs' profitable opportunities in ineligible securities activities were fully exploited before the cap was reached or if the cap could be costlessly circumvented by generating additional eligible revenue. One alternative hypothesis is that banks generally were not yet up against the revenue cap in December 1996, but were expected to be limited by the constraint in the near future. BHCs are not required to publicly disclose the amount of revenue generated from ineligible activities so it was not known which, if any, institutions were close to the cap. While rumors existed that some banks were up against the limit, executives at these institutions generally claimed that the revenue constraint was not yet binding at their institution.⁹ However, executives also expressed concern that the revenue limit could curb growth in the near future.¹⁰ In this situation, those institutions which would benefit most from the higher cap would have been those with the greatest potential to enhance profitability from ineligible activities — or those institutions with a strong track record. In this case, excess returns would be positively related to measures of profitability and asset utilization and negatively related to measures of costs. We refer to this as the *opportunity hypothesis*.

Banking organizations might also be expected to benefit from the higher revenue ceiling by expanding their scale of operations. In this case, those institutions with the highest excess

⁹ See Hays and Wilke (1996), Dunaief (1996), and Ring (1997).

¹⁰ Dave Johnson of BankAmerica Corp was quoted in *The Wall Street Journal* as stating: "We foresee it [the revenue ceiling] will be a problem within a year or so, though it isn't right now" (Hays and Wilke, 1996). Robert Cline of PNC Capital Markets told *The Bond Buyer* that PNC was close, but had not yet hit the ceiling in December 1996, and that the higher ceiling would give them "greater latitude" in the future (Ring, 1997).

returns would include those banking organizations who were viewed by investors as the most likely to acquire securities companies in the near future. The belief that the wealth effects associated with the revenue-limit increase are primarily due to an ability to acquire relatively large securities companies is referred to as the *acquisition hypothesis*.

To examine what factors might lie behind the stock market's response to the recent revenue limit increase, we make use of data from the FR Y-20 obtained from the Board of Governors.¹¹ The FR Y-20 contains balance sheet and income statement data for section 20 subsidiaries. In our attempts to explain the pattern of excess returns exhibited, we make use of third-quarter 1996 data, which are the closest available to our event date. To judge the robustness of the results, we use excess returns generated from several different empirical specifications regarding the size of the event window.

III.B.1. Data and Testing Procedure

Table 2 describes the data that we use to characterize these firms' securities activities. Our tests begin with an investigation of the relationship between excess returns and financial data that might reflect inefficiencies arising from a less-than-optimal mix of activities. The first variable we consider is overall profitability or ROE, which is defined as subsidiary net income divided by total subsidiary equity capital. If the revenue cap resulted in a sub-optimal mix of activities, then we would expect a negative sign on ROE. Those BHCs that recorded lower profitability might stand to gain the most from an easing of the revenue constraint, and would therefore record higher wealth effects. This result would support the activity-mix hypothesis.

¹¹ The Federal Reserve regards the individual data in the FR Y-20 as confidential. However, there is nothing forbidding an individual firm from releasing these data to its shareholders. Therefore, we assume that this information is available to market participants.

The opportunity hypothesis would be supported if the higher wealth effects are positively associated with ROE. Those with a demonstrated track record of high performance can best exploit the new opportunities.

UNDER is gross revenue from ineligible securities underwriting relative to the gross amount of ineligible securities underwritten, and, as such is a productivity or an asset utilization measure. Under the activity mix hypothesis, we expect the sign on this variable to be negative. Those BHCs with lower asset utilization from ineligible underwriting might be expected to benefit the most from an increase in the revenue limit for ineligible activities.

ELIGIBLE measures the gross revenue from eligible underwriting relative to the gross amount of eligible securities underwritten. We expect a negative sign for this variable as well for the same reasons that apply to UNDER. Some firms could have been attempting to increase eligible activity as a way to circumvent the revenue cap. As stated above, this could have led to a less-than-optimal mix of activities. If so, then those firms with lower asset productivity as measured by ELIGIBLE could be expected to exhibit greater excess returns under the activity mix hypothesis because of the expanded opportunities available due to the higher revenue limit.

Under the opportunity hypothesis, UNDER and ELIGIBLE are expected to be positively related to excess returns. This is because those institutions capable of generating relatively larger levels of revenue with a given stock of assets should be the most successful in expanding under the more liberal guidelines.

These asset utilization measures alone, however, would not be sufficient to provide evidence for the activity mix hypothesis. These measures could be high because either the gross revenue generated from the particular activity is relatively high, or because the level of

underwriting is relatively low. We also need to examine the cost structure of these BHCs. Under the activity mix hypothesis the revenue cap could have resulted in a more costly mix of activities. Therefore, we also consider EXPENSE and OPERATE in our empirical analysis. EXPENSE measures total expenses relative to total revenue for BHCs' securities subsidiaries, while OPERATE attempts to capture operating expenses relative to total revenue. A positive sign on these cost variables would be consistent with the activity mix hypothesis. Those BHCs with higher costs, possibly brought about by attempts to circumvent the revenue cap, would be expected to gain the most from an increase in the cap.

Those institutions which have been the most successful in controlling costs should be better able to expand and exploit the higher revenue cap. Thus, under the opportunity hypothesis, measures of costs are negatively related to excess returns.

We also employ several control variables. The revenue cap is more likely to be a binding constraint for those firms closest to the revenue limit. Thus, under the activities-mix hypothesis a BHC's excess returns should be positively related to the reported proportion of revenue from ineligible securities for its section 20 subsidiary, which we designate as LIMIT. An alternative measure, LIMIT1, attempts to capture the importance of how far away from the ten percent limit an individual firm might be. If the revenue limitation was constraining BHCs then we expect the sign on this variable to be negative, indicating that those firms farther away from the existing ten percent limit might not exhibit very strong excess returns to an announcement that raises the limit. Finally, we include SIZE, or the log of subsidiary assets.

Table 3 presents comparisons of our sample of 26 publicly traded banking organizations to the total of 39 organizations that filed the FR Y-20 as of the third quarter of 1996. Our sample of

banking organizations accounts for just about half of the total assets of section 20 subsidiaries, almost two-thirds of the ineligible securities held for trading and investment, and more than three-fourths of the gross amount of ineligible securities underwritten by section 20 subsidiaries. Gains on ineligible securities owned for our sample of firms does not capture much of the total, while profit from underwriting for the firms in our sample make up most of these profits earned by all section 20 subsidiaries.

III.B.2. EXCESS RETURNS BY FIRM

To investigate the pattern of excess returns across banking organizations, the following empirical model is estimated:

$$R_{n,t} = \alpha_n + \beta_n * R_{mt} + \sum_{k=1}^K \gamma_{n,k} * D_{k,t} + \epsilon_{n,t} \quad (2)$$

where $R_{n,t}$ is the stock return for individual company “n” on day “t” and the other variables are the same as those employed in equation (1)¹². Table 4 reports summary statistics on the individual excess returns from estimating equation (2) along with test statistics that indicate that these excess returns are, as a group, statistically different from zero.¹³ Median excess returns are 3.10 and 2.69 percent for the 2-day and the 3-day window, respectively. Both Wald tests that the excess returns are jointly equal to zero, and the binomial test that positive and negative excess returns have an equal probability of occurring, are rejected. We now use these excess returns as

¹² The system of 26 equations was estimated using Zellner’s seemingly-unrelated-regression technique.

¹³ The individual BHC excess returns are reported in Appendix I.

dependent variables, along with the data described in Table 2 as independent variables, in regressions that attempt to identify the possible factors behind these wealth effects generated by expanded securities activities.

III.B.3. DETERMINANTS OF WEALTH EFFECTS

We regress the individual excess returns on our different measures of subsidiary securities activity.¹⁴ A number of specifications are estimated to judge the robustness of the results. Estimates using excess returns generated from both a two-day and a three-day event window are reported in Tables 5 and 6.

Tables 5A and 5B show the results using measures of gross revenue as independent variables. ROE possesses a negative and significant sign in all of the models estimated. This result is consistent with the activity mix hypothesis and inconsistent with the opportunity hypothesis. Those BHCs with lower overall profitability are associated with higher excess returns, possibly reflecting a sub-optimal mix of current activities before the revenue-limit increase. The control variables SIZE, LIMIT, and LIMIT1 are insignificant in all of the models that were estimated.

UNDER is statistically insignificant in the models estimated. ELIGIBLE, however, is positive and significant in all specifications, as hypothesized under the opportunity hypothesis. Greater excess returns are associated with those BHCs that recorded greater revenue generation per unit of eligible securities underwritten. Stock market participants could have viewed a greater

¹⁴ These regressions employ a heteroscedasticity correction using a procedure described in Sefick and Thompson (1986) and Karafiath, Mynatt, and Smith (1991, Appendix A).

amount of revenue from eligible underwriting as reflecting greater potential to expand once the cap was raised leading to significant wealth effects when the revenue limit was increased.

Tables 6A and 6B consider the role of costs in affecting excess returns. EXPENSE is positive and significant in all of the models estimated. Those BHCs with relatively higher total expenses are associated with greater excess returns, which is consistent with the activity mix hypothesis and inconsistent with the opportunity hypothesis. Operating expenses, though, are statistically significant in explaining the pattern of BHCs excess returns in only one of the specifications estimated.

Overall, our results from both measures of profitability and costs tend to support the activity mix hypothesis. The pattern of excess returns exhibited by individual banking organizations in response to the revenue-limit increase is consistent with the possibility for a reallocation of securities activities toward a more optimal mix of operations.¹⁵ Our results also provide limited support for the opportunity hypothesis. Excess returns are greatest for those institutions demonstrating the best ability to generate eligible revenue, as evidenced by the positive sign on ELIGIBLE. This is consistent with the notion that investors expect these firms to be more capable at exploiting the new opportunities that arise from the higher revenue cap.

III.C. POST-ORDER EXPANSION ACTIVITY BY BANKING ORGANIZATION

Another explanation for the wealth effects generated by raising the revenue limit might be the greater opportunities to pursue acquisitions of securities firms. Table 7 lists recent expansion

¹⁵ We also estimated models that contain both the expense variables and the gross profitability variables. Using excess returns generated with the two-day window, the expense variables and ELIGIBLE are statistically significant when they both appear in the equation. Using a three-day window, however, only ELIGIBLE is significant when either expense variable is included in the estimating equation.

activity by banking organizations into securities activities. This information was obtained from Federal Reserve Board press releases. From January 1997 through October 1998, 15 banking organizations acquired securities companies. These include major acquisitions such as BankBoston Corp.'s acquisition of the Robertson Stephens Division from BancAmerica, Bankers Trust's acquisition of Alex. Brown, Fleet Financial Group's acquisition of Quick and Reilly Group, KeyCorp's acquisition of McDonald & Company, and U.S. Bancorp's acquisition of Piper Jaffray. Five of these acquisitions were the means used by the banks to establish a section 20 subsidiary. The other 10 acquisitions represent steps taken by banks to expand securities activities. Over this time period, 12 institutions, including 3 foreign institutions, were granted approval to operate a section 20 subsidiary. Finally, 7 proposals to expand from Tier I to Tier II authority were approved.

III.C.1 Acquisition Activity

If the acquisition of securities companies creates economic benefits to the acquiring banking organizations, then such value might be estimated by stock price reactions at the time the bank publically announces its expansion plans. We obtained CRSP stock price data for nine domestic banking organizations that announced the acquisition of securities companies in 1997. These organizations are listed in Table 8. Announcement dates were obtained through searches of the *Dow Jones News Service*. Cumulative average abnormal returns (CAAR) calculated around the initial announcement of the acquisition are presented in Table 9. Abnormal returns are defined as the difference between actual returns and predicted returns. Predicted returns are generated using a market model in which returns on the CRSP value-weighted index with dividends serves as the market index. Day 0 denotes the day the acquisition announcement was

reported in the *Dow Jones News Service*. The parameters of the model were estimated using ordinary least squares over the time period day -200 to day -60. The test statistics are based on the procedures described in Dodd and Warner (1983).

CAAR are calculated for windows (-1, +1), (-1, 0), and (-5, +5). Only CAAR(-1, +1) is significant, and then, only at the 10% level. The results, however, show average negative returns of 1.12% over day -1 to day +1. Supporting this is the finding that only about one half of the banks have positive cumulative abnormal returns over the event windows. These results therefore fail to support the acquisition hypothesis that a source of value arising from the revision in the revenue cap on section 20 subsidiaries was a greater ability to pursue acquisitions of securities companies.

III.D. TIER I AND TIER II ACTIVITIES AND ELIGIBLE AND INELIGIBLE REVENUE

The revenue limit may also have affected the asset mix of BHCs between Tier I and Tier II activities. As the Board of Governors pointed out, the revenue potential for Tier II activity exceeds that of Tier I activity (Federal Register, 1996, p. 68753). And, as stated earlier, the revenue limit may also have constrained BHCs' activity by forcing them to pursue more eligible revenue to remain under the cap (Federal Register, 1996, p. 68753). Therefore, the increase in the revenue limit, along with the increase in the number of BHCs granted Tier II authority, may result in a larger amount of Tier II activity relative to Tier I. The data from the FR Y-20 do not allow us to obtain definitive breakdowns of Tier I and Tier II activity. However, we can develop proxy measures that approximate the amount of each type of activity.¹⁶ We calculated the

¹⁶ Our Tier II measure was derived by summing the amount of non-asset-backed corporate debt securities, debt securities convertible into equity securities, and securities issued by a trust or other vehicle secured or representing interests in debt obligations, plus the amount of common

percentage increases in our proxies for Tier I and Tier II activity over the period from the third quarter of 1996 until the end of 1997. Tier I activity for the banks in our sample increased 57 percent, while Tier II activity increased by 70 percent.¹⁷ The differences in the growth of the two types of revenue were even more substantial. Eligible revenue grew 63 percent, while ineligible revenue 202 percent over this period. From these calculations, BHCs increased both Type I and Type II securities activity by substantial amounts after the revenue-limit increase was approved. However, the banks in our sample appeared to pursue Tier II activity at a significantly greater pace, possibly reflecting the constraints that existed under the previous revenue limit. And, growth in ineligible revenue was considerably greater than growth in eligible revenue, providing some support for the possibility that the previous revenue cap might have distorted BHC activity decisions.¹⁸

III.E ROBUSTNESS TESTS

During 1996 and 1997, the Federal Reserve proposed and eventually adopted changes in the firewalls between commercial banks and their section 20 affiliates. On July 31, 1996, in addition to requesting comments on raising the section 20 revenue limit, the Federal Reserve

stock, preferred stock, and other direct or indirect equity ownership interests in corporations and other entities. It is possible that this measure includes some bank-eligible activity. Our Tier I measure was obtained by subtracting our Tier II measure from the total amount of bank-ineligible securities.

¹⁷ For comparison, growth in the assets of our sample of Section 20 subsidiaries was 21.7 percent over this time period.

¹⁸ We also re-estimated the empirical models found in Tables 5 and 6 including a dummy variable to account for differences across banks in Tier I versus Tier II activity. This variable was not statistically significant in most of the models estimated.

Board formally requested comments on amending or eliminating three firewalls on the operations of section 20 subsidiaries. On October 30, 1996, the Federal Reserve acted on these proposals by announcing it would adopt changes to ease or eliminate restrictions on director, officer and employee interlocks, cross-marketing activities, and the purchase and sale of financial assets between a section 20 subsidiary and an affiliated bank. These changes became effective January 7, 1997.¹⁹ Further steps were taken on January 8, 1997, when the Federal Reserve proposed to rescind many of the firewalls and to consolidate the remainder in a series of operating standards. Some of the more notable proposed changes concerned the funding of a section 20 subsidiary by an affiliated bank, credit enhancements provided by a bank to issuers of securities underwritten by a section 20 affiliate, and loans provided by a bank to customers purchasing products of a section 20 affiliate.²⁰ On August 22, 1997, the Federal Reserve acted on these proposals by adopting many of the contemplated changes. The changes became effective October 31, 1997.

These changes might have motivated some of the merger activity and BHCs' requests for additional securities powers during 1997 and 1998. If so, then we should not attribute the actions by BHCs solely to the higher revenue cap. To explore this possibility, we estimate models over a longer time period and with additional binary variables to test for excess returns around a broad range of dates when the Federal Reserve proposed or approved these regulatory structural changes. To allow for a richer set of tests, the impact on banking organizations with no section 20 subsidiary is also considered. If these changes lead to greater operating efficiencies, then BHCs with the potential to form section 20 subsidiaries should benefit as well as those firms

¹⁹ See Federal Register, 1996, pp. 57679-57683.

²⁰ See Federal Register, 1997, pp. 45295-45307.

already operating such affiliates. The two-equation system shown in equation (3) is employed for this analysis.

$$R_{j,t} = \alpha_j + \beta_j R_{m,t} + \delta_j \Delta i_t + \sum_{k=1}^{16} \gamma_{j,k} D_{k,t} + \varepsilon_{j,t} \quad \text{for } j = \text{sec20, non20} \quad (3)$$

$R_{\text{sec20},t}$ ($R_{\text{non20},t}$) is the return on an equally weighted portfolio of banking companies with (without) a section 20 subsidiary on day t , $R_{m,t}$ is the equally weighted return on a market wide index of stocks, the D_k variables represent individual dummy variables that equal one during the event of interest and zero otherwise. Dummy variables on and around July 31, 1996, October 30, 1996, December 20, 1996, January 8, 1997, and August 22, 1997 are incorporated into the model. We generally use 3-day event windows centered around the announcement date of a proposal or adoption of a policy change. An exception is around the January 1997 event. The *American Banker* reported that the Federal Reserve was planning to propose changes to the section 20 firewalls two days prior to the official announcement.²¹ Thus, we use a 4-day window to capture this impact. Data over May 3, 1996 to November 18, 1997 are used to estimate the parameters in the model. This represents an estimation period that begins 60 days before the first event and 60 days after the last event. The change in the interest rate, Δi is added to this model since interest rates varied from 5.84 percent to 7.06 percent over the estimation period.

Table 10 presents results for this model. The equation for BHCs with no section 20 subsidiary was estimated using an equally-weighted portfolio of those BHCs with \$20 billion in

²¹ See Seiberg (1997).

assets, as of end-of-year 1996, that had not established a section 20 subsidiary. Twelve BHCs with stock return data available on the CRSP data files meet these criteria.

There is little evidence that BHCs experienced excess returns other than around December 20, 1996. BHCs with and without section 20 subsidiaries show positive excess returns on or around the announcement that the revenue cap would be lifted to 25 percent. Based on the t-statistics, excess returns for both portfolios on December 19 are statistically significant. Wald tests were also conducted to test the hypothesis that the sum of daily excess returns over each of the event windows equals zero. Excess returns over the 3-day windows are not statistically significant for any of the events. However, the sum of excess returns over December 19th and 20th (not shown in Table 10) is significant for both portfolios. The Wald statistic is 4.71 (significant at the 5 percent level) for BHCs with section 20 subsidiaries and 5.303 (significant at the 5 percent level) for BHCs without section 20 subsidiaries). We also find that excess returns for the non-section 20 BHCs were positive and significant on January 3, 1997.

This analysis was also conducted using a system of individual firm-level equations rather than the portfolios. A system of 26 equations was estimated for the group of BHCs with a section 20 subsidiary and a 12-equation system was estimated for the group of large BHCs that have no section 20 subsidiary. Wald tests were then conducted to test the hypothesis that aggregate excess returns over an event window equaled zero for all firms in the system. These results (not reported) support the conclusions reached using portfolios. We find that both groups experienced excess returns around December 20, 1996. Also, the hypothesis of zero excess returns in early January 1997, can be rejected for the BHCs with no section 20 subsidiary. However, this latter result appears to be driven by large excess returns from just two firms.

Median excess returns for the group equals -0.42 percent and eight of the twelve firms have negative estimated excess returns. In sum, the change in the revenue limit, rather than the elimination of any firewalls, appears to have had the most important impact on BHCs operating section 20 subsidiaries.

V. CONCLUSIONS

A recent decision by the Federal Reserve to expand the securities activities of U.S. banking organizations was greeted favorably by the stock market. Large, statistically significant excess returns were estimated when considering the date this approval was announced. We find some evidence that the previous revenue limit resulted in a less-than-optimal mix of activities for our sample of BHCs. The positive wealth effects likely reflected the possibility that the easing of the revenue limitation presented an improved range of opportunities for BHC security subsidiaries. Shareholders, however, did not seem to value the acquisitions that the increase in the revenue limit may have generated.

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Table 1		
Estimates of Portfolio Excess Returns		
$R_{sec20,t} = \alpha_{sec20} + \beta_{sec20} * R_{mt} + \sum_{k=1}^K \gamma_{sec20,k} * D_{k,t} + \varepsilon_{sec20,t}$		
Variables	Event Window	
	Two-Day Window	Three-Day Window
Intercept	0.0010 (0.0008)	0.0011 (0.0004)
R_{mt}	0.9918*** (0.2118)	0.9847*** (0.0997)
D_1	0.0256*** (0.0050)	0.0256*** (0.0042)
D_2	0.0069 (0.0093)	0.0068 (0.0094)
D_3		-0.0031 (0.0041)
Cumulative excess returns (χ^2)	3.25% (5.94**)	2.93% (3.22*)
adjR ²	0.20	0.40
SSE	0.01	0.01

Notes: The model estimated corresponds to equation (1) in the text. The dependent variable is the equally weighted return on a portfolio of BHCs with section 20 subsidiaries. R_{mt} is the equally weighted return on a market wide index of stocks. The D_1, D_2, D_3 are binary variables for December 19, 20, and 23, respectively that equal one during the event date in question and zero otherwise. χ^2 is the Wald test statistic that the sum of the excess returns ($\gamma_1 + \gamma_2 + \gamma_3$) equals zero. *** = significant at the 1-percent level. ** = significant at the 5-percent level. * = Significant at the 10-percent level.

Table 2 Description of Variables	
Variable Name	Description
EXCESS	Individual excess stock return associated with December 20 th event date.
UNDER	Gross profit (or loss) from the management of, or participation in, underwriting transactions for ineligible securities, as a proportion of the gross amount of ineligible securities underwritten.
ELIGIBLE	Gross profit (or loss) from the management of, or participation in, underwriting transactions for eligible securities, as a proportion of the gross amount of eligible securities underwritten.
EXPENSE	Total subsidiary expenses as a proportion of total gross subsidiary revenue.
OPERATE	The sum of salary and employee benefits, expenses on premises and fixed assets (net of rental income), communications and data processing, and other expenses, as a proportion of total gross subsidiary revenue.
LIMIT	Revenue limitation: Ratio of revenue derived from bank-ineligible securities underwriting and dealing activities to total gross revenue less neutral revenue. Based on prior years.
LIMIT1	$(10 - \text{LIMIT})^2$
SIZE	Log of subsidiary assets.
ROE	Subsidiary net income divided by total subsidiary equity capital.
<p>Data Sources: EXCESS is obtained using individual security returns from the CRSP tapes. The data on individual Section 20 subsidiaries is obtained from <i>Financial Statements for a Bank Holding Company Subsidiary engaged in Bank-Ineligible Securities Underwriting and Dealing — FR Y-20</i>, Board of Governors of the Federal Reserve System, third quarter 1996.</p>	

Table 3			
Comparison of Sample Section 20 Subsidiaries to all Section 20 Subsidiaries			
Third Quarter 1996			
Variable	Sample	Total	Sample as Percent of Total
ASSETS	\$186,150,172	\$379,157,852	49
INELIGIBLE SECURITIES	\$13,468,254	\$21,044,046	64
INELIGIBLE SECURITIES UNDERWRITTEN	\$71,910,610	\$92,506,129	78
INELIGIBLE REVENUE	\$648,950	\$1,086,641	60
GAINS ON SECURITIES OWNED (INELIGIBLE)	\$41,968	\$235,078	18
PROFIT FROM SECURITIES UNDERWRITING (INELIGIBLE)	\$337,656	\$422,662	80

Source: FR Y-20.

Table 4		
Individual BHC Excess Returns December 20 th Event Date		
$R_{n,t} = \alpha_n + \beta_n * R_{mt} + \sum_{k=1}^K \gamma_{n,k} * D_{k,t} + \varepsilon_{n,t}$		
	Two-day event window	Three-day event window
Mean	3.26	2.95
Median	3.10	2.69
χ^2	58.01***	45.03**
Binomial	(25/1)***	(25/1)***
<p>Notes: The results are the sum of the coefficients on D₁ and D₂ for the two-day window, and the sum of D₁, D₂ and D₃ from individual firm-level estimates on equation (2). χ^2 is the test statistic from a Wald test that tests the hypothesis that the individual excess returns are jointly equal to zero. Values for Binomial are the number of (positive/negative) excess returns, respectively. The binomial test is used to test the hypothesis that positive and negative excess returns have an equal probability of occurring. *** = significant at the one-percent level. ** = significant at the five-percent level.</p>		

TABLE 5A									
Determinants of BHCs' Excess Returns Using a Two-Day Event Window									
Independent Variables	BHC Profitability Measures								
	ROE			UNDER			ELIGIBLE		
Constant	0.0335*** (0.0090)	0.0392*** (0.0154)	0.0482** (0.0172)	0.0326*** (0.0093)	0.0401** (0.0153)	0.0529** (0.0169)	0.0314*** (0.0096)	0.0394** (0.0154)	0.0476** (0.0172)
BHC Measure	-0.0333** (0.0165)	-0.0304* (0.0166)	-0.0306* (0.0166)	-0.00001 (0.0001)	0.00008 (0.0001)	0.00009 (0.0001)	0.0009** (0.0004)	0.0009** (0.0004)	0.0009** (0.0004)
Size		-0.0008 (0.0010)	-0.0008 (0.0011)		-0.0010 (0.0010)	-0.0011 (0.0011)		-0.0009 (0.0010)	-0.0009 (0.0010)
Limit		0.0013 (0.0008)			0.0017 (0.0010)			0.0013 (0.0008)	
Limit1			-0.00009 (0.00007)			-0.0001 (0.00008)			-0.00008 (0.00007)
adjR ²	0.02	-0.04	-0.04	-0.04	-0.09	-0.09	0.07	0.01	0.01

Notes: The variables are identified in Table 1. Standard errors are in parentheses and are corrected for heteroscedasticity using a procedure suggested in Sefick and Thomson (1986) and Karafiath, Mynatt, and Smith (1991, Appendix A). *** = significant at the one-percent level. ** = significant at the five-percent level. * = significant at the ten-percent level.

TABLE 5B									
Determinants of BHCs' Excess Returns Using a Three-Day Event Window									
Independent Variables	BHC Profitability Measures								
	ROE			UNDER			ELIGIBLE		
Constant	0.0310*** (0.0091)	0.0239 (0.0154)	0.0311* (0.0172)	0.0297*** (0.0093)	0.0251 (0.0153)	0.0360** (0.0169)	0.0267** (0.0097)	0.0238 (0.0154)	0.0280 (0.0172)
BHC Measure	-0.0538*** (0.0164)	-0.0533*** (0.0166)	-0.0528*** (0.0166)	-0.00007 (0.0001)	-0.00003 (0.0001)	0.000003 (0.0001)	0.0022*** (0.0004)	0.0022*** (0.0004)	0.0021*** (0.0004)
Size		0.0003 (0.0010)	0.0002 (0.0010)		0.00004 (0.0010)	-0.0001 (0.0010)		0.00009 (0.0010)	0.00005 (0.0010)
Limit		0.0006 (0.0009)			0.0010 (0.0009)			0.0004 (0.0008)	
Limit1			-0.00007 (0.00007)			-0.0001 (0.00008)			-0.00004 (0.00007)
adjR ²	0.09	0.02	0.02	-0.04	-0.12	-0.11	0.41	0.36	0.36

Notes: The variables are identified in Table 1. Standard errors are in parentheses and are corrected for heteroscedasticity using a procedure suggested in Sefick and Thomson (1986) and Karafiath, Mynatt, and Smith (1991, Appendix A). *** = significant at the one-percent level. ** = significant at the five-percent level. * = significant at the ten-percent level.

TABLE 6A						
Determinants of BHCs' Excess Returns Using a Two-Day Event Window						
Independent Variables	BHC Expense Measures					
	EXPENSE			OPERATE		
Constant	0.0068 (0.0131)	0.0058 (0.0207)	0.0210 (0.0208)	0.0273*** (0.0091)	0.0129 (0.0245)	0.0219 (0.0259)
BHC Measure	0.0189** (0.0071)	0.0214** (0.0077)	0.0219** (0.0076)	0.0077** (0.0038)	0.0105 (0.0068)	0.0108 (0.0068)
Size		-0.0007 (0.0011)	-0.0008 (0.0011)		0.0005 (0.0016)	0.0006 (0.0017)
Limit		0.0020** (0.0009)			0.0013 (0.0008)	
Limit1			-0.0002** (0.00007)			-0.0001 (0.00007)
adjR ²	0.04	0.01	0.01	0.01	-0.04	-0.05

Notes: The variables are identified in Table 1. Standard errors are in parentheses and are corrected for heteroscedasticity using a procedure suggested in Sefick and Thomson (1986) and Karafiath, Mynatt, and Smith (1991, Appendix A). *** = significant at the one-percent level. ** = significant at the five-percent level. * = significant at the ten-percent level.

TABLE 6B						
Determinants of BHCs' Excess Returns Using a Three-Day Event Window						
Independent Variables	BHC Expense Measures					
	EXPENSE			OPERATE		
Constant	0.0073 (0.0132)	-0.0056 (0.0208)	0.0079 (0.0209)	0.0279 (0.0091)	0.0100 (0.0246)	0.0201 (0.0260)
BHC Measure	0.0162** (0.0071)	0.0193** (0.0077)	0.0205** (0.0076)	0.0022 (0.0038)	0.0059 (0.0068)	0.0059 (0.0068)
Size		0.0002 (0.0010)	0.00004 (0.0010)		0.0009 (0.0016)	0.0007 (0.0017)
Limit		0.0015 (0.0009)			0.0009 (0.0008)	
Limit1			-0.0002** (0.00007)			-0.0001 (0.00007)
adjR ²	0.01	-0.05	-0.04	-0.03	-0.10	-0.10

Notes: The variables are identified in Table 1. Standard errors are in parentheses and are corrected for heteroscedasticity using a procedure suggested in Sefick and Thomson (1986) and Karafiath, Mynatt, and Smith (1991, Appendix A). *** = significant at the one-percent level. ** = significant at the five-percent level. * = significant at the ten-percent level.

Table 7 Federal Reserve Board action on proposals affecting section 20 subsidiaries of banking organizations				
BHC Name (Section 20 subsidiary)	Acquisition target	Initial order	FR Press Release Date	Action taken
Allied Irish Banks, plc (Hopper Soliday & Co., Inc)	Dauphin Deposit Corporation (and its section 20 sub: Hopper Soliday & Co.)	Yes	5/19/97	approved acquisition of Dauphin Deposit Corp; granted Tier II authority
Banc One Corporation (Banc One Capital Corp)			3/24/97	increase from Tier I to Tier II authority
Banco Bilbao Vizcaya, S.A. (BBV LatInvest Securities Inc)		Yes	3/23/98	granted Tier II authority
Bank of New York Company (BNY Capital Markets, Inc)			2/12/97	increase from Tier I to Tier II authority
BankBoston Corporation (BancBoston Robertson Stephens, Inc)	Robertson Stephens Division of BancAmerica Robertson Stephens (Will merge Robertson Stephens Division with BancBoston Securities, Inc, a section 20 sub with Tier II authority. Will be renamed BancBoston Robertson Stephens, Inc.)		8/24/98	approved acquisition of Robertson Stephens Division
Bankers Trust NY Corp (BT Alex Brown Inc)	Alex. Brown, Inc (will be merged with BT Securities Corp, a section 20 sub with Tier II authority)		7/21/97	Tier II
BB&T Corporation (Craigie Inc)	Craigie Inc	Yes	9/17/97	approved acquisition of Craigie Inc; granted Tier II authority
BOK Financial Corporation (Alliance Securities Corporation)		Yes	4/28/97	granted Tier I authority

Table 7 Federal Reserve Board action on proposals affecting section 20 subsidiaries of banking organizations				
BHC Name (Section 20 subsidiary)	Acquisition target	Initial order	FR Press Release Date	Action taken
Canadian Imperial Bank of Commerce (CIBC Oppenheimer Corp)	Oppenheimer Holdings, Inc (will be merged with CIBC Wood Gundy Securities Corp, a section 20 sub)		10/27/97	approved acquisition of Oppenheimer Holdings
Commerce Bancorp, Inc (Commerce Capital Markets, Inc)	A.H. Williams & Co., Inc (renamed Commerce Capital Markets, Inc.)	Yes	3/23/98	approved acquisition and granted Tier I authority
CoreStates Financial Corporation (CoreStates Securities Corporation)		Yes	8/4/97	granted Tier I authority
Crestar Financial Corporation (Crestar Securities Corporation)		Yes	4/14/97	granted Tier I authority
Fifth Third Bancorp (Fifth Third Securities)	The Ohio Company (and its sub: Cardinal Management Corp)	Yes	6/1/98	approve acquisition of Ohio Company; granted Tier II authority
First Chicago NBD (First Chicago Capital Markets)			7/28/97	granted authority to underwrite and deal in equity securities
First Security Corporation (First Security Capital Markets, Inc.)		Yes	12/97	granted Tier I authority
First Union Corporation (Wheat First Securities, Inc)	Wheat First Butcher Singer (will be merged with First Union Capital Markets Corp., a section 20 sub with Tier II authority)		11/26/97	approved acquisition of What First

Table 7 Federal Reserve Board action on proposals affecting section 20 subsidiaries of banking organizations				
BHC Name (Section 20 subsidiary)	Acquisition target	Initial order	FR Press Release Date	Action taken
Fleet Financial Group, Inc. (Fleet Securities, Inc)	Quick & Reilly Group, Inc (Fleet subs: JJC Specialist, Nash Weiss, and U.S. Clearing Corp will be merged with Fleet subs: Fleet Securities, Inc. and Fleet Clearing Corporation. Fleet Securities is a section 20 sub with authority to underwrite and deal in certain municipal revenue bonds and commercial paper. Sub will be renamed Fleet Securities, Inc.)		1/14/98	approved acquisition; increase from Tier I to Tier II authority
KeyCorp (Key Capital Markets, Inc)			9/8/97	increase from Tier I to Tier II authority
KeyCorp (McDonald Key Investments, Inc)	McDonald & Company Investments, Inc (Will merge McDonald & Company with KCMI, a section 20 sub with Tier II authority. Sub will be renamed McDonald Key Investments, Inc)		10/21/98	approved acquisition of McDonald & Co
NationsBank (NationsBanc Montgomery Securities)	Montgomery Securities & The Pyramid Company (Will merge Montgomery and Pyramid with NCMI, a section 20 sub with Tier II authority. Sub will be renamed NationsBanc Montgomery Securities (NMSI)).		9/10/97	approved acquisitions of Montgomery Securities, Pyramid Company
Norwest Corporation (Norwest Investment Services, Inc)			5/26/98	Increase from Tier I authority to authority to underwrite and deal in all types of debt securities on a limited basis

Table 7 Federal Reserve Board action on proposals affecting section 20 subsidiaries of banking organizations				
BHC Name (Section 20 subsidiary)	Acquisition target	Initial order	FR Press Release Date	Action taken
Société Générale, (France) (SG Cowan Securities Corporation)	Cowen & Co. and Cowen Inc. (Will transfer business of Cowen to Société Générale Securities Corporation. Sub will be renamed SG Cowen Securities Corp.)	Yes	6/22/98	approve acquisition of Cowen; granted Tier II authority
SunTrust Banks, Inc (SunTrust Equitable Securities, Corp)	Equitable Securities Corp. (Equitable Securities will be merged with SunTrust Capital Markets, a section 20 sub with Tier I authority)		12/18/97	approved acquisition of Equitable Securities; increase from Tier I to Tier II authority
Swiss Bank Corporation (SBC Warburg Dillon Read Inc)	Dillon, Read Holding, Inc. (Dillon & Co will be merged with SBC Warburg, a section 20 sub with Tier II authority. Survivor sub renamed SBC Warburg Dillon Read Inc)		7/28/97	approved acquisition of Dillon & Co
U.S. Bancorp (U.S. Bancorp Investments, Inc)		Yes	11/26/97	granted Tier I authority
U.S. Bancorp (U.S. Bancorp Investments, Inc)	Piper Jaffray Companies, Inc (US Bancorp Investments will be merged into Piper Jaffray by March 31, 1999)		4/20/98	approved acquisition of Piper Jaffray; increase from Tier I to Tier II authority
Wachovia Corporation (Wachovia Capital Markets, Inc)		Yes	5/98	granted Tier I authority

Table 8. Acquisitions of Securities Companies by Bank Holding Companies Announced in 1997		
Acquirer	Target	Announcement date
Bankers Trust NY Corp	Alex. Brown, Inc	4/06/97
BB&T Corporation	Craigie Inc	5/01/97
Commerce Bancorp, Inc	A.H. Williams & Co., Inc	11/04/97
Fifth Third Bancorp	The Ohio Company	12/23/97
First Union Corporation	Wheat First Butcher Singer	8/20/97
Fleet Financial Group, Inc.	Quick & Reilly Group, Inc	9/17/97
NationsBank	Montgomery Securities & The Pyramid	6/26/97
SunTrust Banks, Inc	Company	9/26/97
U.S. Bancorp	Equitable Securities Corp.	12/15/97
	Piper Jaffray Companies, Inc	

Table 9. Cumulative average abnormal returns around the announcement of planned acquisitions of securities companies by banking organizations in 1997

Cumulative average abnormal returns (CAAR)			
Time Period	CAAR	Z-statistic	% Positive
-1 to +1	-1.12%	-1.88*	44
-1 to 0	-0.35%	-0.89	56
-5 to +5	-1.52%	-1.23	44

* = significant at the 10% level.

Table 10				
Estimates of Portfolio Excess Returns: May 3, 1996 - November 18, 1997				
$R_{j,t} = \alpha_j + \beta_j R_{m,t} + \delta_j \Delta i_t + \sum_{k=1}^{16} \gamma_{j,k} D_{k,t} + \varepsilon_{j,t} \quad \text{for } j = \text{sec20, non20}$				
Variable	BHCs with a Section 20 sub		BHCs without a Section 20 sub	
	Coefficient	Test that the sum of excess returns over event window equal zero (Wald Statistic)	Coefficient	Test that the sum of excess returns over event window equal zero (Wald Statistic)
Intercept	0.0004		0.0006	
R_{mt}	1.0154 ***		0.9059 ***	
Δi_t	-0.0838 ***		-0.0768 ***	
July 30, 1996 July 31, 1996 Aug 1, 1996	0.0049 -0.0124 -0.0052	0.816	0.0014 -0.0103 -0.0043	1.083
Oct 29, 1996 Oct 30, 1996 Oct 31, 1996	0.0056 0.0072 -0.0010	0.722	0.0011 0.0065 0.0002	0.377
Dec 19, 1996 Dec 20, 1996 Dec 21, 1996	0.0178 ** 0.0067 -0.0031	2.403	0.0142 ** 0.0094 -0.0060	1.970
Jan 3, 1997 Jan 6, 1997 Jan 7, 1997 Jan 8, 1997	-0.0011 -0.0077 -0.0025 0.0024	0.304	0.0151 ** -0.0068 -0.0047 0.0010	0.098
Aug 21, 1997 Aug 22, 1997 Aug 23, 1997	-0.0100 0.0038 -0.0037	0.512	-0.0093 0.0000 -0.0067	1.611
adjR ²	0.507		0.512	

Notes: The model estimated corresponds to equation (3) in the text. The dependent variables for this two-equation system are the equally weighted returns on a portfolio of BHCs with section 20 subsidiaries and on a portfolio of 12 large BHCs without section 20 subsidiaries. R_{mt} is the equally weighted return on a market wide index of stocks and Δi denotes the daily change in the rate on 10-year U.S. government bonds. The dates appearing in the table represent binary variables (D_k) and are set equal to one for that date and zero otherwise. The two equations were estimated using the seemingly unrelated regression method with data from May 3, 1996 to November 18, 1997. The Wald test statistic, which follows a χ^2 distribution, tests the hypothesis that the sum of the excess returns over the event window equals zero. *** = significant at the 1-percent level. ** = significant at the 5-percent level. * = Significant at the 10-percent level.

Appendix I		
Individual BHC Excess Returns December 20 th Event Date		
Firm	Event Window	
	Two-day	Three-day
1	0.0226	0.0030
2	0.0625***	0.0983***
3	-0.0198	-0.0138
4	0.0275*	0.0270
5	0.0421**	0.0293
6	0.0266	0.0214
7	0.0301	0.0265
8	0.0377*	0.0417*
9	0.0356	0.0231
10	0.0220	0.0267
11	0.0408*	0.0247
12	0.0720***	0.0431*
13	0.0260	0.0206
14	0.0202	0.0270
15	0.0511***	0.0410*
16	0.0408**	0.0383
17	0.0525***	0.0437*
18	0.0294*	0.0263
19	0.0318*	0.0246
20	0.0250	0.0284
21	0.0385*	0.0378
22	0.0059	0.0013
23	0.0498**	0.0417
24	0.0489**	0.0637**

Appendix I		
Individual BHC Excess Returns December 20 th Event Date		
Firm	Event Window	
	Two-day	Three-day
25	0.0238	0.0201
26	0.0029	0.0006
χ^2	58.01***	45.03**
Binomial	(25/1)***	(25/1)***

Notes: The results are the sum of the coefficients on D_1 and D_2 for the two-day window, and the sum of D_1 , D_2 and D_3 from individual firm-level estimates on equation (x). χ^2 is the test statistic from a Wald test that tests the hypothesis that the individual excess returns are jointly equal to zero. Values for Binomial are the number of (positive/negative) excess returns, respectively. The binomial test is used to test the hypothesis that positive and negative excess returns have an equal probability of occurring. *** = significant at the one-percent level. ** = significant at the five-percent level. * = significant at the ten-percent level.