THE SHORT-TERM MARKET REACTION

TO U.S. BANK M&As

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ABSTRACT

This study examines the short-term shareholder wealth effects to U.S. bank mergers and acquisitions (M&As) that were announced and completed between 1989 and 2004. Using various event windows, the cumulative abnormal returns (CARs) to target firms are positive, bidder firm abnormal returns are negative, and the combined CARs are positive. This result is consistent with the *synergy and hubris* hypothesis wherein bank M&As are wealth-creating events as synergies exist; however, bidders may overpay to realize these gains.

The M&As are examined by the method with which they are financed, namely, cash, or a combination of cash, stock, and/or debt, versus stock only. The target, bidder and combined mean CARs for M&As that are financed by a cash or combination payment are higher than those that are financed by stock for the full sample period and the 1999 – 2003 sub-sample period. Furthermore, the results indicate a positive and statistically significant relationship between the bidder and combined CARs and cash or combination payments.

Further evidence presented suggests a positive and statistically significant relationship between the target CARs and whether the M&A is geographically focusing (intrastate), with no corresponding relationship existing for the bidder and combined firms. Results, however, do indicate that the mean combined CARs are higher for intrastate compared to interstate M&As. In addition, the target, bidder and combined CARs are driven in part by the relative size of the merger parties.

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To My Parents,
Glen and Sandra Butchko

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CHAPTER 1

INTRODUCTION

As a result of deregulation, the banking industry has experienced mass consolidation. For example, there has been a 215% increase in the number of bank mergers from the 1980s to the 1990s and the percentage of bank mergers relative to all public mergers has increased from 8% in the 1980s to 15% in the 1990s (Becher (2000)). This study examines the short-term shareholder wealth effects to 854 mergers and acquisitions that occurred in the U.S. banking industry during the 1989 – 2004 time period.

Previous studies on bank mergers have consisted of samples that are relatively small, cover a short time horizon, and/or do not contain mergers that occur in the 21st century. For example, Becher (2000) studies 554 bank mergers from 1980 – 1997, DeLong (2001) examines 280 mergers from 1988 – 1995, Esty, Narasimhan, and Tufano (1999) examine 477 mergers from 1980 – 1994, DeLong and DeYoung (2004) study 216 mergers from 1987 – 1999, and Anderson, Becher, and Campbell II (2004) study 97 bank mergers from 1990 – 1997. Therefore, the constructed sample used in this study allows one to use the previous literature as a benchmark for comparison and enables one to conduct broader tests.

Inclusion of the 21st century is of importance because it is during this time period that numerous corporate and accounting scandals occurred, as well as political unrest in the United States. As a result, investors were cautious regarding common stock valuations and it is therefore reasonable to believe that the short-term market reactions to bank M&As may have changed.

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1.1 MOTIVATION AND OBJECTIVES

Although U.S. bank mergers and acquisitions have been examined at length, an empirical study that uses a recent sample does not exist to the best of this author's knowledge. More specifically, the short-term valuation effects, as it relates to bank M&As in the 21st century, have not been studied to date. The 21st century is of importance as a number of key events took place which includes the September 11, 2001 terrorist attacks and numerous corporate and accounting scandals, such as Enron and WorldCom, that resulted in investors being wary of common stock valuations and the stock market in general.

The first objective of this study is to empirically examine the short-term shareholder wealth effects associated with bank M&As by analyzing the target, bidder and combined CARs. The analysis will also provide insight into the motivations behind the banking firms engaging in a merger or acquisition and whether the short-term market reaction has changed.

As presented by Becher (2000), three alternate hypotheses that will be tested in the analysis of the target, bidder and combined CARs. First, synergies may be available through consolidation and enhanced by deregulation, as the number of potential M&As has increased. The *synergy* hypothesis states that the CARs to target firms should be positive, bidder CARs should be non-negative, and the combined abnormal returns should be positive. On the other hand, M&As may be the result of hubris and empire building (Roll (1986)) wherein mergers are not wealth-creating events. Under this hypothesis bidder firms simply pay too much to acquire the target firm for which two alternative explanations are offered. First, overpayment may

exist due to management's belief that synergies exist when in fact they do not. Therefore, management overestimates their ability to create value. Second, the motivation for the bidder firm's management to engage in a merger or acquisition may be empire building rather than for any synergistic reason. Under this scenario, the bidder firm's management team seeks to build a large empire through active participation in the M&A market in order to entrench themselves through diversifying the common shareholder base. The *hubris* hypothesis predicts that the abnormal returns to the target firms are positive, the returns to bidder firms are negative, and the combined CARs are insignificant or negative. Alternatively, mergers may be a function of both the synergy and hubris hypotheses. If this is the case, the hypothesis predicts positive combined CARs, negative bidder firm returns, and positive target firm abnormal returns. The *combined synergy and hubris* hypothesis states that positive synergies are available, however, the bidder firm may overpay to acquire the synergies and in effect, may overestimate their ability to create value.

A merger or acquisition is financed using cash, stock, or a combination payment. Thus, the second objective of this study is to determine whether the capital market reaction to the M&As differs depending on the payment method utilized; that is cash only, or a combination of cash, stock and/or debt, versus stock only. This analysis will be carried out for the target, bidder, and combined firms in the bank M&A sample. In addition, the number of M&As financed by each method of payment will be considered in order to determine whether there have been any changes regarding how banking firms finance M&As.

Amihud, Lev, and Travlos (1990) describe two alternate hypotheses on why a firm finances their market for corporate control activities with cash or stock. First, cash acquisitions create an immediate tax liability for the shareholders of the target firm; whereas, stock payments are taxable only when they are sold. This results in the use of stock as the means of financing the merger or acquisition when the bid premium is large. Therefore, the *tax effects* hypothesis states that target shareholders prefer payment in stock. Second, the *information asymmetries* hypothesis states that if managers of bidder firms are better informed than outside investors with respect to the value of their firm, they will use stock to finance the acquisition of the target firm when they believe their stock is overvalued. Since investors realize this situation they tend to drive the price of the bidder's stock down upon announcement of the merger or acquisition. Therefore, mergers financed via cash or debt is preferred unless the costs are excessive to insiders. However, this hypothesis contains another aspect that reaches a different conclusion when the stockholders of the target firm, who are better informed with respect to the value of their firm than outsiders prior to the merger, know their stock is undervalued. The implication is that the stockholders of the target firm prefer payment in stock so they are able to retain an equity position in the merged firm and realize the gains from the post-merger revaluation.

A third hypothesis is put forth by Fishman (1989) which states that cash is preferred to stock as the means to finance a merger when there is competition for the target firm. The use of cash to finance the merger or acquisition signals high valuation and deters potential or existing competitors. This hypothesis is interesting

due to the fact that the U.S. banking industry experienced significant increases in M&A activity, which, when coupled with regulatory changes, have resulted in potential mergers that were otherwise unavailable in the past.

Deregulation has resulted in banks being permitted to acquire or merge with banks located in other states and countries. The third objective of this study is to determine whether the short-term wealth effects for the target, bidder and combined firms differ depending on whether the M&A is focusing (intrastate) versus diversifying (interstate) geographically. This will provide insight into the capital market effects of the Riegle-Neal Interstate Banking and Branching Efficiency Act (IBBEA).

Intrastate M&As may be rewarded by the capital markets for various reasons such as the replacement of inefficient management, increased market power, reduction of overinvestment, or economies of scale and scope. The IBBEA has also increased the potential pool of target firms and this raises the possibility that an increased number of unprofitable mergers have resulted. Diversified firms, by being able to create value in various states, offer the potential to lower the risk to their cash flow's.

The fourth objective of this study is to explore the drivers and pattern of the target, bidder, and combined cumulative abnormal returns. More specifically, the analysis will seek to determine factors that influence the CARs and whether there are certain years, or time periods, where the short-term valuation effects have increased or decreased. This, in turn, will lend support to possible reasons why changes to the capital market reactions occurred.

1.2 OUTCOMES OF THE STUDY

For the full 1989 – 2004 sample period, the CARs to target firms are positive and statistically significant, the returns to bidder firms are statistically negative and the combined CARs are positive and statistically significant. These results are consistent with the *synergy and hubris* hypothesis wherein bank M&As create shareholder wealth, however, bidder firms may overpay to realize the synergies and, in essence, overestimate their ability to create value.

Analysis indicates that the capital market reaction to a bank M&A differs depending on the method by which it is financed. For the target, bidder, and combined firms the mean CARs for those mergers that are financed by cash only, or a combination of cash, stock and/or debt are statistically greater than those that are financed by stock only. In addition, the regression analysis shows a positive and statistically significant relationship between the bidder and combined CARs and a cash or combination payment, however, no such relationship exists for target firms. Also, for this sample the percentage of M&As financed by cash or a combination payment increases from roughly 20% in 1995 – 1998 to over 36% in 1999 – 2003.

The effects of the IBBEA are analyzed by classifying the M&As as geographically focusing (intrastate) or geographically diversifying (interstate) based on the headquarters of the target and bidder firms. It is found that there is no statistical difference in the mean CARs to the target and bidder firms. However, the abnormal returns to the combined firm are statistically greater for intrastate mergers compared to interstate mergers. Although there is no difference in the mean CARs for target firms, the results of the regression analysis indicate a positive and

statistically significant relationship between the CARs and whether the M&A is intrastate.

The results of this thesis also suggest that the CARs are driven in part by the relative size of the M&A parties. There is a negative and significant relationship between the relative size of the target firm to the bidder firm and the abnormal return to the target and bidder firms, and consistent with DeLong (2001), there is a positive and statistically significant relationship between the target-to-bidder ratio and the combined CARs. Furthermore, it is found that the CARs to the target firms are increasing in the latter years of the sample studied and could be the result of the increased use of cash or combination payments over this time frame.

An outline of this study is as follows. Chapter 2 outlines the legislative history of the U.S. banking industry and provides a review of the pertinent literature. Chapter 3 describes the data collection and sample selection processes, as well as the methodology with respect to the event study, independent group t-test, and regression analysis. Chapter 4 presents the summary statistics of the bank merger sample, the event study analysis, the comparison of the mean CARs based on method of payment and geographic location, and the results of the regression analysis. Chapter 5 provides a conclusion to the study and summarizes the findings.

CHAPTER 2

BACKGROUND OF THE U.S. BANKING INDUSTRY

This chapter describes the evolution of and motivation behind the legislative changes that have had a direct impact on the structure of the U.S. banking industry. Furthermore, the pertinent literature on bank M&As will be reviewed.

2.1 HISTORY OF THE U.S. BANKING INDUSTRY

By 1933, the United States was in one of the worst depressions of its history. This affected the banking industry as over 11,000 banks (approximately 40%) had failed or were forced to merge. The President at the time, Theodore Roosevelt, closed all the banks in the country and conducted congressional hearings in order to deal with the economic and financial instability that the U.S. was experiencing.

The government responded with the Banking Act of 1933 that separated the activities of banks and securities firms. The Act prohibited commercial banks from owning brokerages and placed a wall between commercial and investment banking. This separation of activities was in response to the belief that commercial bank involvement with securities was detrimental to the Federal Reserve System because of unethical actions by corporate leaders thereby creating a climate that was responsible for bank failures.

Many felt that it was improper for banks to risk large losses from underwriting insurance. The Bank Holding Company Act of 1956 addressed this issue as it created a barrier between banking and insurance. In addition, this law was enacted to slow the growth and power of financial-service conglomerates.

However, the main weakness inherent in the banking industry was not addressed, specifically, unit banking within states and the prohibition of nationwide banking. It is argued that this structure was the principle reason behind bank failures that were common in the 1930's as the failed banks generally had low asset levels.

The McFadden Act of 1927 was at the heart of the problem as it gave power to the individual states to decide whether interstate M&A activity would be allowed,

but generally they did not. However, in order to avoid restrictions on interstate banking, financial firms formed bank holding companies in order to acquire banks in other states and then operate them under a single realm. To deal with this issue, the Douglas Amendment was applied to the Banking Holding Company Act that prohibited bank holding companies from acquiring banks outside the state where it was headquartered unless the target banks state permitted such acquisitions.

Restrictions on a banks ability to expand within and across state lines were imposed at the state level and therefore changes in regulatory restrictions on expansion occurred at different times. Although the majority of the states passed laws allowing unrestricted intrastate (38 states by 1994) and interstate (all states except for Hawaii by 1992) branching, it was not until September 29, 1994 that the deregulatory process was complete with the passage of the Interstate Banking and Branching Efficiency Act (IBBEA) under federal legislation.

The IBBEA made it possible for bank holding companies to acquire banks in any state after September 29, 1994 and M&As between banks located in different states commencing June 1, 1997. Although the IBBEA permitted states to opt out of interstate branching only Texas and Montana chose to do so. In effect, the IBBEA rescinds the Douglas Amendment by eliminating the state regulations that once restricted interstate mergers by allowing bank holding companies to acquire banks located in other states.

2.2 REVIEW OF THE PREVIOUS LITERATURE

Becher (2000) studies the short-term valuation effects of U.S. bank M&As. He finds that the target and combined CARs are positive and statistically significant, while bidder firm CARs are insignificant, or negative and statistically significant as the conclusions are not robust to the event window. Furthermore, there is evidence that the abnormal returns to the bidder and combined firms are greater in the 1990s than that of the 1980s. The mergers are classified by method of payment, that is, stock versus cash, or a combination of cash, stock and/or debt. Analysis reveals that the CARs to the target and bidder firms are higher for cash or combination financed M&As. However, it is concluded that the higher CARs in the 1990s are not attributable to the payment method as the number of mergers financed by stock increased in the 1990s. When examining the mergers based on geographic location, it is suggested that because the percentage of intrastate mergers increases in the 1990s that this might be the reason for the higher CARs.

Delong (2001) finds that the target firm returns are positive and statistically significant, bidder firm returns are negative and statistically significant, and combined returns are statistically insignificant. Using a regression framework, the combined CARs are significantly influenced by whether the merger is both geographically and activity focusing. These M&As generate higher short-term abnormal returns than those that are geographically focusing and activity diversifying, geographically diversifying and activity focusing, and geographically diversifying and activity diversifying. When analyzing the returns to M&As in the 1990s that focus solely on a geographical basis it is found that these types do not

generate a statistically significant CAR. The regression analysis also reveals no significant relationship between the combined CARs and the method of payment, but the CARs increase with the relative size of the target to the bidder firm.

Pilloff (1996) examines the combined CARs and finds that, in general, the CARs are statistically insignificant. There is evidence that the combined CARs are correlated with the difference between the bidder and target total expenses and target non-interest costs. This finding implies that abnormal returns are highest for those mergers that offer the opportunity for expense reduction; that is, mergers that provide the opportunity for increased efficiency. Furthermore, correlations between the abnormal returns and performance measures are insignificant and this means that market expectations are not related to future merger-related gains or losses.

DeLong and DeYoung (2004) find that the CARs to target firms are positive and statistically significant, the CARs to bidder firms are negative and statistically significant, and the CARs to the combined firm are statistically insignificant. The target, bidder, and combined firm CARs are regressed against an intercept and a linear time variable and the results suggest that the market reaction to the mergers has not changed over the sample period. Furthermore, a regression analysis reveals that the average bank merger did not result in increased post-merger financial performance and the capital markets were unable to accurately predict the subsequent performance. However, the short-run market reactions and long-run post-merger financial performance of the bank mergers are positively correlated with the quantity of bank mergers during the previous three years. The authors refer to this as learning-by-observing wherein both the managers and investors

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accumulate information about previous mergers in order to develop an understanding of which mergers perform well and conversely, which ones perform poorly.

Anderson, Becher, and Campbell II (2004) study the short-term market reaction to the announcement of bank M&As and find that, on average, the abnormal returns to bidder firms are negative and statistically significant, the target firm returns are positive and statistically significant, and the combined CARs are positive and statistically significant. Furthermore, the average CEO compensation increases significantly post-merger, but there is no relationship between post-merger CEO compensation and increases in asset size resulting from the merger. This implies that empire-building is not the primary motive for M&A activity. Rather, the results suggest that post-merger CEO compensation changes are related to the increase in the combined value of the bidder and target upon announcement of the merger. Hence, the observed CEO compensation changes are directly related to the potential gains of the mergers as assessed by the capital markets upon announcement.

Using a traditional event study methodology, Esty, Narasimhan, and Tufano (1999) find that the CARs to bidder firms are negative and statistically significant, while target firm abnormal returns are statistically significant and positive. The authors find that bank merger activity is negatively correlated with interest rates and interest rate changes and implies that the decision to acquire other banks is dependent on interest rates. Furthermore, there is limited evidence suggesting that the merger premium is related to the interest rate environment wherein bidder firms

pay a lower merger premium in a high interest rate environment and realize higher CARs upon merger announcement.

Houston, James, and Ryngaert (2001) examine a sample of large U.S. bank mergers from 1985 – 1996. The authors compute CARs for the combined firms, bidder firms, and target firms for the entire sample period as well as for the 1985 – 1990 and 1991 – 1996 sub-sample time periods. For the overall sample period, the CARs for bidder firms are negative and statistically significant, the CARs to target firms are positive and statistically significant, and the combined CARs are positive and statistically significant. When comparing the two sub-samples, the bidder firm cumulative abnormal returns are statistically equal, however the target and combined CARs increase in the 1991 – 1996 time period. Evidence presented suggests that target and bidder bank merger announcement CARs are positively related to managements estimated cost savings through the elimination of overlapping operations and the consolidation of backroom operations, however the market appears to discount the projections put forth by management. The authors also suggest that mergers in the 1990s are more likely to include detailed projections of cost savings and should generate higher CARs than the M&As that occur prior to 1990.

Hart and Apilado (2002) examine 22 interstate mergers that were announced between January 1, 1994 and June 1, 1997 in order to study the effects of the IBBEA on banks that were not active in the market for corporate control. The CARs to the target and combined firms are positive and statistically significant, whereas the abnormal returns to the bidder firms are negative and statistically insignificant.

Furthermore, the study illustrates that the market does not statistically distinguish between mergers that occurred pre-IBBEA versus post-IBBEA with regards to the CARs upon merger announcement. Evidence also suggests that improvements in the profitability of pre-IBBEA mergers are better than that of post-IBBEA mergers. This implies that because the IBBEA widened the pool of potential target banks, the IBBEA may have also increased the number of unprofitable merger combinations for inexperienced bidder banks in the market for corporate control. The authors also find that the market does not accurately predict how the merged bank will perform and that an attempt at such a prediction in the post-IBBEA time period comes with even greater uncertainty.

Houston and Ryngaert (1993) find that the target, bidder, and combined CARs are positive and statistically significant, negative and statistically significant, and statistically insignificant, respectively. Of the 153 mergers in the sample, 22 were not completed and for these 22 potential mergers, the CARs are lower than those that are completed. The authors suggest that the target management and/or shareholders may choose to back out of a merger when they believe that the merger premium is too small. It is found that the abnormal returns to the target firms are increasing, the CARs to the bidder firms are becoming less negative, and consequently the combined CARs are increasing over the sample period.

James and Weir (1987) examined a sample of 60 bank mergers that occurred between 1972 and 1983. In contrast to more recent studies, the CARs to bidder firms are positive and statistically significant. Using a regression framework, the authors find that the CARs to the bidder firms are positively related to the number of

alternative target firms and are negatively related to the number of potential bidder firms. This implies the existence of substitute target and bidder firms. Furthermore, the relative size of the target to the bidder firm is positively related to the bidder firm CAR.

Cybo-Ottone and Murgia (2000) examine 54 mergers in the European banking industry from 1988 – 1997. The target, bidder, and combined CARs are positive and statistically significant under various event windows, however, the results for the bidder firms are not robust to changes in the index used for estimating the market model. That is, if an industry index is used, the CARs to bidder firms are statistically insignificant because when a bank merger is announced, in general, bank stocks tend to rise. However, the positive and statistically significant CARs for bidder returns is interesting as this is contradictory to empirical results for bidder firms in the U.S. banking industry where the CARs are negative and statistically significant or insignificant. In addition, the combined CAR is statistically greater when the merger is domestic compared to cross-border.

Bhagat, Dong, Hirshleifer and Noah (2004) estimate value improvements from tender offers using the Probability Scaling and Intervention methods that address biases in conventional techniques. First, the conventional event study approach suffers from the truncation dilemma and arises when the announcement of an event does not ensure its eventual completion. The second problem is that returns related to an event may be contaminated with bidder revelation bias. Sometimes tender offers are announced concurrently with other disclosures and a bid may reveal information about the value of the bidder not arising from the combination.

The authors find that valuation improvements are larger than those indicated by the conventional method. Consequently, the conventional method indicates that bidders overpay, however when applying the Probability Scaling and Intervention methods the hypothesis that bidders on average pay fair prices for targets cannot be rejected. In addition, analysis indicates that the traditional method may lead to incorrect conclusions about economic forces in the M&A market.

The previous literature suggests that target firms earn a positive and statistically significant CAR, however for the bidder and combined firms, the results are inconsistent. The abnormal returns to bidder firms are statistically insignificant or negative and statistically significant, and the CARs to the combined firm are positive and statistically significant or insignificant. These differences could be the result of differing event windows used in the CAR calculation, and/or the time periods examined in the analysis. The market distinguishes between the method by which a merger is financed with the returns to cash or combination financed mergers generating higher abnormal returns than those financed solely by stock for target and bidder firms, however DeLong (2001) finds no such relationship for the combined firm. When looking at the wealth effects to M&As that are focusing versus diversifying, in general, the short-term market reactions do not differ. Furthermore, many authors find that the CARs were increasing in the 1990s.

This chapter presented an overview of the U.S. banking industry dating back to the 1930s and, in particular, the evolution of the banking legislation. The literature on bank M&As was reviewed and an overview of the results was

presented. Chapter 3 describes the data, selection of the sample, and the methodology for the empirical tests.

CHAPTER 3

DATA, SAMPLE SELECTION AND METHODOLOGY

This chapter describes the collection of the data, selection of the sample, and methodologies for the event study, independent group t-test and regression analysis. The empirical tests examine the short-term shareholder wealth effects of bank M&As that were announced and completed from 1989 – 2004.

3.1 DATA AND SAMPLE SELECTION

A comprehensive list of 1223 bank and thrift mergers and acquisitions of publicly traded firms from 1989 to 2004 was obtained from SNL Financial (www.snl.com). This list contained the bidder and target company names, ticker symbols, and the announcement and completion dates of the M&As. Next, all firms with a three-digit SIC code of 602 (commercial banks) and 671 (bank holding companies) were obtained from the Center for Research in Security Prices (CRSP) tapes. From this sample, all firms with a delist code in the 200's (merger) were obtained. Two samples of firms were gathered, one containing all banking firms and the second containing all target firms in the CRSP tapes for the 1988 – 2004 time period. The firms in the extracted CRSP tapes were then matched with those in the M&A list by ticker symbol and company name. For target firms, the delist dates were compared to the completion date of the M&A to ensure that the correct firm was being used. This process resulted in the loss of 48 target firms and 269 bidder firms.

The inclusion criteria for the bank M&A sample is that the bidder and target firms have at least 100 pre-announcement date return observations available in the CRSP tapes. With 100 bidder and 321 target banks not meeting this criteria the resulting sample consists of 854 bank M&As covering the 1989 – 2004 time period. For these banking firms the following variables were collected: stock price, shares outstanding, daily return, method of payment, and state headquarters.

To determine the state that the banking firm is headquartered, the CompuStat database was used. If not covered by CompuStat, an Internet search was conducted

to find press releases and/or company websites that included the headquarters of the firm in question. With respect to method of payment, delist codes in the CRSP tapes are only available up to 2003, thereby limiting the analysis to 795 bank M&As. In addition, daily return data for the CRSP equally-weighted index including distributions was obtained for the 1988 to 2004 time period.

Pilloff and Santomero (1997) point out that selection bias is prevalent in many studies examining bank M&As. Many researchers exclude M&As when a firm engages in multiple M&As in the same year, or over a given time period. It is suggested that omission of these M&As results in the most relevant M&As and firms not being included in the analysis and will lead to biased results. This sample does not exclude banks that engage in multiple M&As and therefore not subject to such biases.

3.2 METHODOLOGY

To examine the short-term wealth effects around the announcement of a bank merger or acquisition for bidder and target firms, an event study methodology is used as defined by Brown and Warner (1985). To compute risk-adjusted (OLS) abnormal returns, market model parameters are estimated in the pre-event estimation period in the form of:

$$\tilde{R}_{it} = \alpha_i + \beta_i \tilde{R}_{mt} + \varepsilon_{it} \tag{3.1}$$

where $\tilde{R}_{it}$ is the return on the stock of firm i at time t and $\tilde{R}_{mt}$ being the return on the CRSP equally-weighted index including distributions at time t. To calculate the risk-adjusted (OLS) returns in the event period the following equation is utilized:

$$A_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt} \tag{3.2}$$

where A_{it} is the abnormal return for firm i at time t, R_{it} is the return on the stock of firm i at time t, R_{mt} is the return on the CRSP equally-weighted index including distributions at time t, and $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the market model parameters estimated from the pre-event estimation period for firm i. The cumulative abnormal returns for bidder and target firms over the event period is then calculated as the sum of the arithmetic means of the cross-sectional abnormal returns over each event period day.

The CARs are measured using three event windows: 3-day (-1, +1), 11-day (-5, +5) and 36-day (-30, +5). These event windows were chosen in order to allow comparison to previous studies and to determine whether the results are robust to changes in the event window. The 36-day (-30, +5) event window was chosen because in calculating the CARs for the target firms, a longer event window may be needed to capture run-up that occurred prior to the merger announcement. The event study is carried out for the entire 1989 – 2004 sample period, the sub-sample time periods 1989 – 1994, 1995 – 1998 and 1999 – 2004, and each individual year. This is done to explore whether the return pattern has changed over the sample horizon.

To compute combined cumulative abnormal returns, the following methodology outlined by Houston and Ryngaert (1994) is followed:

$$\text{Combined Cumulative Abnormal Return} = \frac{(V_{ib}\text{CAR}_{ib}) + (V_{it}\text{CAR}_{it})}{(V_{ib} + V_{it})} \qquad (3.3)$$

where V_{ib} is the value of bidder firm i on the first day of the event window and V_{it} is the value of target firm i on the first day of the event window. Value is calculated as the market value of the firms equity multiplied by the number of shares outstanding. CAR_{ib} represents the CAR for bidder firm i over the event window and CAR_{it} the CAR for target firm i over the event window.

To calculate the variance of each bidder and target firm's abnormal return, the following equation is utilized:

$$\mathrm{VAR}(\mathrm{CAR}_i) = s_i^2 \left[n_i + n_i^2/N_i + \frac{\sum_{t=b_i}^{e_i}(R_{mt} - n_i R_m)^2}{\sum_{t=b_i}^{e_i}(R_{mt} - R_m)^2} \right] \tag{3.4}$$

where

s_i^2 = sample variance of market model error term for estimation period

n_i = number of days in estimation of market model

N_i = number of days in CAR estimation window

e_i, b_i = the beginning and end dates of the CAR estimation window

R_{mt} = return to the CRSP equally - weighted index including distributions on date t

R_m = average return to the CRSP equally - weighted index including distributions during the estimation period

The variance of each merger i's total abnormal return is computed as follows:

$$\begin{aligned}
\mathrm{VAR}(\mathrm{TCAR}_i) = &\; [V_{ti}/(V_{ti}+V_{bi})]^2 \mathrm{VAR}(\mathrm{CAR}_{ti}) \\
&+ [V_{bi}/(V_{ti}+V_{bi})]^2 \mathrm{VAR}(\mathrm{CAR}_{bi}) \\
&+ 2[V_{ti}/(V_{ti}+V_{bi})][V_{bi}/(V_{ti}+V_{bi})]\rho_{bt}(n_{bi}/n_{ti}) \\
&\times [\mathrm{VAR}(\mathrm{CAR}_{bi}) \times \mathrm{VAR}(\mathrm{CAR}_{ti})]^{.5}
\end{aligned} \tag{3.5}$$

where

TCAR_i = total cumulative abnormal return to merger i

V_{ti} = market value of the target in merger i at the beginning of the event window

V_{bi} = market value of the bidder in merger i at the beginning of the event window

ρ_{bt} = estimated correlation between bidder and target market model residual during the estimation period

n_{bi} = number of day's in bidder's abnormal return window

n_{ti} = number of day's in target's abnormal return window

To gauge the statistical significance of the target, bidder, and combined CARs three distinct test statistics are used: traditional standardized (Brown and Warner (1985)), standardized cross-sectional (Boehmer, Musumeci, and Poulsen (1991)), and mean rank (Corrado (1989)). The traditional and standardized test statistics are parametric tests, while the mean rank test statistic is non-parametric. The mean rank test statistic is used in the analysis because it is not influenced by the presence of outliers, whereas the traditional standardized and standardized cross-sectional test statistics are.

The three differing test statistics each have properties that results in it being more applicable under certain conditions as outlined by Cowan and Sergeant (1996) and Serra (2002). The main issues with respect to this study is the possibility that some of the target and bidder firms are thinly traded, and that event induced increases in variability of the returns around the event date may also exist. The traditional standardized test statistic is poorly specified for thinly traded samples, but can be used for actively traded samples where there are no event induced increases in variability of the returns. If the variance is unlikely to increase over the event window and the sample is thinly traded, the mean rank test is the most powerful and offers the best specification. When the return variance increases over the event window, the standardized cross-sectional test statistic is the most powerful and

specified the best, but suffers if the sample is thinly traded. However, if the variance does not increase over the event window the standardized cross-sectional test statistic runs a high risk of misspecification. Nonetheless, a consistent conclusion amongst the test statistics adds credibility to the conclusions drawn in this study. The traditional standardized test statistic is computed as follows:

$$t = \frac{\overline{A_t}}{S(\overline{A_t})} \tag{3.6}$$

where

$$\overline{A_t} = \frac{1}{N}\sum_{i=1}^{N} A_{i,t} \tag{3.7}$$

$$S(\overline{A_t}) = \sqrt{\frac{1}{T-1}\left(\sum_{t=\tau}^{T}\left(\overline{A_t} - \overline{\overline{A}}\right)^2\right)} \tag{3.8}$$

$$\overline{\overline{A}} = \frac{1}{T}\sum_{t=\tau}^{T}\overline{A_t} \tag{3.9}$$

$$df = T - 1$$

The standardized cross-sectional test statistic is computed as follows:

$$t = \frac{1}{\sqrt{N}}\sum_{i=1}^{N} A'_{i,t} \tag{3.10}$$

where

$$A'_{i,t} = \frac{A_{i,t}}{S(A_{i,t})} \tag{3.11}$$

$$S(A_{i,t}) = \sqrt{\left(\frac{1}{T-1}\sum_{t=\tau}^{T}\left(A_{i,t} - \overline{A_i}\right)^2\right)} \tag{3.12}$$

$$\overline{A_i} = \frac{1}{T}\sum_{t=\tau}^{T} A_{i,t}$$

(3.13)

$$df = N - 1$$

The mean rank test statistic is computed as follows:

$$z = \left(\sum_{i=1}^{N}\frac{K_{i,t}}{N} - \frac{Q+1}{2}\right) \Bigg/ \sqrt{\frac{1}{Q}\sum_{\tau=1}^{Q}\left(\sum_{i=1}^{N}\frac{K_{i,\tau}}{N} - \frac{Q+1}{2}\right)^2}$$

(3.14)

where

K = rank of the abnormal return

Q = number of time-series observations

N = number of firms

An independent group t-test is used to test for significance between the difference in the mean CARs for two types of mergers or acquisitions. In this case, the test is carried out to determine whether there are differences between the target, bidder, and combined mean CARs for M&As financed by cash only or a combination of cash, stock, and/or debt versus stock only, and also focusing (intrastate) versus diversifying (interstate) geographically. The tests are carried out for the entire sample period and three sub-sample periods.

When conducting the independent group t-test, an F-test is used to determine whether the variances of the groups are equal or unequal at the 5% level of significance. If the variances are deemed equal the pooled t-test is used, and if unequal the Satterthwaite t-test is utilized to test for statistical significance and draw the appropriate conclusions. The null hypothesis tests for no difference between the mean CARs for the two groups of M&As. If the null hypothesis is rejected, it is concluded that there is a statistical difference between the mean CARs.

The F-test test statistic is computed as follows:

$$F = \left(\frac{\max\left(s_1^2, s_2^2\right)}{\min\left(s_1^2, s_2^2\right)} \right) \qquad (3.15)$$

where

$$s_1^2 = \frac{\sum\limits_{i=1}^{n}\left(x_i - \overline{x_1}\right)^2}{n_1 - 1} \qquad (3.16)$$

$$s_2^2 = \frac{\sum\limits_{j=1}^{n}\left(x_j - \overline{x_2}\right)^2}{n_2 - 1} \qquad (3.17)$$

The pooled t-test test statistic is computed as follows:

$$t = \frac{\left(\overline{x_1} - \overline{x_2}\right)}{s_p^2 \sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}} \qquad (3.18)$$

where

$$s_p^2 = \frac{\sum\limits_{i=1}^{n}\left(x_i - \overline{x_1}\right)^2 + \sum\limits_{j=1}^{n}\left(x_j - \overline{x_2}\right)^2}{n_1 + n_2 - 2} \qquad (3.19)$$

$$df = n - 1$$

The Scatterthwaite t-test test statistic is computed as follows:

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{s_1^2 / n_1 + s_2^2 / n_2}} \qquad (3.20)$$

where

$\overline{x_1}$ = the mean CAR of sample 1

$\overline{x_2}$ = the mean CAR of sample 2

s_1^2 = the variance of sample 1

s_2^2 = the variance of sample 2

n_1 = the number of observations in sample 1

n_2 = the number of observations in sample 2

$$df = \frac{\left(\dfrac{s_1^2}{n_1} + \dfrac{s_2^2}{n_2}\right)^2}{\dfrac{\left(s_1^2 / n_1\right)^2}{n_1 - 1} + \dfrac{\left(s_2^2 / n_2\right)^2}{n_2 - 1}} \qquad (3.21)$$

A regression model is used to explore the drivers of the target, bidder, and combined CARs and determine whether the short-term capital market reaction to bank M&As has changed over the sample period. The dependent variable in the regression models are the target, bidder, and combined CARs as measured under the 3-day (-1, +1), 11-day (-5, +5), and 36-day (-30, +5) event windows.

The explanatory variables in the regression equation are the target-to-bidder ratio, a method of payment dummy variable, a geographic location dummy variable, and dummy variables for each year in the sample period. The target-to-bidder ratio is measured as the natural logarithm of the market value of the target firm divided by the market value of the bidder firm, where market value is computed as the market value of the firms equity multiplied by the number of shares outstanding at the beginning of the event window from which the CARs are calculated. The method of payment dummy variable is equal to 1 if the M&A is financed by cash only or a combination of cash, stock and/or debt, and 0 if financed by stock only. The geographic location dummy variable is equal to 1 if the M&A is intrastate, and 0 if interstate.

The regression model is expressed as follows:

$$CAR_i = \alpha_0 + \beta_1(\ln(TBR_i)) + \beta_2(MP_i) + \beta_3(GEOG_i) + \beta_4(1990_i) + \\ \beta_5(1991_i) + \beta_6(1992_i) + \beta_7(1993_i) + \beta_8(1994_i) + \beta_9(1995_i) + \\ \beta_{10}(1996_i) + \beta_{11}(1997_i) + \beta_{12}(1998_i) + \beta_{13}(1999_i) + \\ \beta_{14}(2000_i) + \beta_{15}(2001_i) + \beta_{16}(2002_i) + \beta_{17}(2003_i) + \varepsilon_i$$

where

$\ln(TBR_i)$ = the natural logarithm of the target-to-bidder ratio

MP_i = the method of payment dummy variable which equals 1 if the M&A is financed by cash or a combination of cash, stock and/or debt, and 0 if financed by stock only

$GEOG_i$ = the geographic location dummy variable which equals 1 if the M&A is intrastate, and 0 if interstate

1990_i - 2003_i = the dummy variables indicating the year that the M&A was announced

A standard t-test, regression coefficient divided by its standard error, is used to gauge the statistical significance of the regression coefficients with the null hypothesis being that the coefficient is equal to zero. Rejection of the null hypothesis implies that the variable has a statistically significant influence on the cumulative abnormal return.

CHAPTER 4

EMPIRICAL RESULTS

This chapter presents the empirical results of the tests that were carried out on the bank M&A sample. The chapter begins with summary statistics on the sample (section 4.1). The results of the event study to assess the short-term market reaction around the announcement of bank M&As are contained in section 4.2. Sections 4.3 and 4.4 examine the statistical differences between the mean CARs based on method of payment and geographic location, and section 4.4 presents the results of the regression analysis.

4.1 SUMMARY STATISTICS

Table 4.1 provides summary statistics for the bank M&A sample by year and includes the number of M&As, total and mean market values of the M&As, mean market values of the target and bidder firms, and the mean target-to-bidder ratio. The number of M&As in the sample increased throughout the 1990s and reached its highest level in 1998 at 100. The mean value of the M&As is increasing over the sample horizon, as are the mean values of the target and bidder banks. The increased value of the banks is expected because of deregulation and the mass consolidation that ensued. In addition, the relative size of the target to the bidder bank has increased over the sample horizon.

Table 4.1: Bank M&A Sample Summary Statistics

Year	M&As	Total value of M&As	Mean value of M&As	Mean value of targets	Mean value of bidders	Mean target-to-bidder ratio
1989	2	1,057.73	528.86	54.01	474.86	0.1208
1990	27	33,306.88	1,233.59	169.89	1,063.69	0.2247
1991	20	35,309.35	1,765.47	234.70	1,765.47	0.2366
1992	42	125,181.05	2,980.50	355.23	2,625.27	0.1767
1993	56	162,082.14	2,894.32	181.50	2,712.82	0.1177
1994	68	181,775.94	2,673.18	200.89	2,472.28	0.1682
1995	71	220,923.61	3,111.60	465.08	2,646.52	0.3296
1996	73	360,121.01	4,933.16	629.22	4,303.94	0.2150
1997	83	362,526.38	4,367.79	607.61	3,760.18	0.2337
1998	100	710,040.42	7,100.40	1,983.29	5,117.11	0.3666
1999	66	291,742.67	4,420.34	365.05	4,055.30	0.2120
2000	70	710,764.53	10,153.78	625.65	10,153.78	0.2708
2001	57	358,701.14	6,293.00	608.41	5,684.59	0.2388
2002	33	329,500.56	9,984.87	408.21	9,576.65	0.2865
2003	35	220,034.21	6,286.69	305.65	5,981.05	0.2013
2004	51	622,084.59	12,197.74	2,707.66	9,490.08	0.2762
All	854	4,773,640.44	5,589.74	750.21	4,839.54	0.2445

This table displays the summary statistics for the sample of 854 U.S. bank M&As that were announced and completed from 1989 – 2004. Value is determined by multiplying the stock price times the number of shares outstanding on the completion date of the M&A. Values are in U.S.$ millions.

4.2 EVENT STUDY

The following section contains the results of the event study conducted to assess the short-term capital market reaction to the 854 U.S. bank M&As. The event study is carried out for the overall 1989 – 2004 sample period, for the sub-sample periods 1989 – 1994, 1995 – 1998 and 1999 – 2004, and each individual year.

4.2.1 TARGET CARs

In tables 4.2, 4.3, and 4.4 the CARs are provided over a 3-day (-1, +1), an 11-day (-5, +5), and a 36-day (-30, +5) event window for target firms. For the 1989 – 2004 sample period the CARs are positive and statistically significant at the 1% level of significance under each event window and test statistic. The CAR values range from 16.78% to 21.63% for the 3-day (-1, +1) and 36-day (-30, +5) event windows respectively.

Turning attention to the sub-sample periods and individual years, the abnormal returns are positive and statistically significant with associated *p*-values of 0.00 under each test statistic. Furthermore, it appears that the CARs are increasing in the more recent years of the sample period and more specifically, beginning in 1999. Taken as a whole, the results are consistent with the prior literature as target banks gain significantly around the announcement of a merger or acquisition.

Table 4.2: Target CARs: 3-day (-1, +1) event window

Year	Number of M&As	CARs (%)	Traditional t-statistic	Standardized t-statistic	Mean rank t-statistic
1989	25	15.96	18.40 *	22.48 *	5.86 *
1990	18	27.35	23.09 *	36.94 *	7.87 *
1991	33	18.15	16.69 *	24.19 *	9.94 *
1992	51	20.46	20.83 *	30.60 *	11.52 *
1993	62	17.61	18.30 *	23.26 *	10.80 *
1994	70	11.61	17.18 *	21.07 *	9.61 *
1995	73	13.16	24.23 *	32.45 *	14.46 *
1996	66	12.82	24.15 *	31.53 *	12.15 *
1997	96	12.56	28.53 *	38.82 *	16.54 *
1998	75	11.83	23.23 *	29.51 *	12.60 *
1999	74	18.30	27.29 *	39.26 *	14.92 *
2000	61	21.68	29.17 *	43.58 *	14.46 *
2001	49	27.22	38.49 *	45.38 *	12.98 *
2002	31	25.98	38.88 *	48.70 *	10.95 *
2003	47	18.16	40.91 *	44.21 *	12.55 *
2004	23	14.42	26.13 *	25.95 *	10.30 *
1989 – 1994	259	17.12	39.40 *	61.21 *	22.84 *
1995 – 1998	310	12.59	44.84 *	66.41 *	28.02 *
1999 – 2004	285	21.05	63.02 *	100.38 *	31.32 *
1989 – 2004	854	16.78	68.66 *	131.74 *	47.55 *

This table displays the cumulative abnormal returns (CARs) for target firms around the announcement date of a bank merger or acquisition. *, **, *** denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 4.3: Target CARs: 11-day (-5, +5) event window

Year	Number of M&As	CARs (%)	Traditional t-statistic	Standardized t-statistic	Mean rank t-statistic
1989	25	15.60	9.31 *	11.74 *	10.49 *
1990	18	26.08	11.51 *	18.65 *	13.89 *
1991	33	21.00	10.33 *	13.90 *	20.56 *
1992	51	23.86	13.04 *	19.15 *	24.11 *
1993	62	18.33	9.95 *	13.83 *	17.50 *
1994	70	11.65	9.30 *	10.64 *	14.09 *
1995	73	14.29	13.73 *	19.39 *	23.81 *
1996	66	14.23	14.85 *	17.49 *	22.38 *
1997	96	13.42	16.58 *	22.30 *	29.44 *
1998	75	13.48	14.65 *	17.66 *	24.28 *
1999	74	20.56	16.79 *	22.56 *	27.84 *
2000	61	26.29	19.31 *	27. 33 *	32.92 *
2001	49	28.15	20.81 *	24.66 *	23.12 *
2002	31	26.01	20.38 *	25.36 *	14.72 *
2003	47	18.90	22.65 *	24.16 *	19.20 *
2004	23	16.36	15.93 *	16.05 *	17.59 *
1989 – 1994	259	18.21	22.88 *	34.32 *	40.86 *
1995 – 1998	310	13.82	29.19 *	38.57 *	50.20 *
1999 – 2004	285	23.07	38.74 *	57.10 *	56.62 *
1989 – 2004	854	18.23	45.42 *	75.12 *	85.45 *

This table displays the cumulative abnormal returns (CARs) for target firms around the announcement date of a bank merger or acquisition. *, **, *** denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 4.4: Target CARs: 36-day (-30, +5) event window

Year	Number of M&As	CARs (%)	Traditional t-statistic	Standardized t-statistic	Mean rank t-statistic
1989	25	19.79	6.83 *	9.28 *	57.44 *
1990	18	22.22	5.79 *	10.27 *	42.46 *
1991	33	28.96	7.65 *	11.19 *	75.72 *
1992	51	25.18	7.38 *	12.05 *	85.69 *
1993	62	20.05	6.02 *	8.00 *	76.36 *
1994	70	16.81	7.18 *	8.76 *	92.62 *
1995	73	17.01	9.45 *	12.08 *	96.64 *
1996	66	17.88	10.64 *	12.20 *	94.75 *
1997	96	18.19	13.26 *	17.05 *	119.24 *
1998	75	15.09	8.67 *	10.38 *	95.12 *
1999	74	26.42	12.54 *	15.59 *	103.51 *
2000	61	32.68	14.03 *	18.78 *	104.02 *
2001	49	29.98	11.99 *	14.29 *	82.24 *
2002	31	28.23	12.24 *	14.35 *	63.48 *
2003	47	20.32	13.09 *	14.02 *	73.99 *
2004	23	16.29	8.57 *	8.65 *	51.00 *
1989 – 1994	259	21.43	14.84 *	23.40 *	179.74 *
1995 – 1998	310	17.10	22.41 *	26.09 *	203.73 *
1999 – 2004	285	26.74	26.86 *	35.44 *	200.32 *
1989 – 2004	854	21.63	34.44 *	49.08 *	337.45 *

This table displays the cumulative abnormal returns (CARs) for target firms around the announcement date of a bank merger or acquisition. *, **, *** denote statistical significance at the 1%, 5%, and 10% level, respectively.

4.2.2 BIDDER CARs

The results of the event study under the 3-day (-1, +1), 11-day (-5, +5), and 36-day (-30, +5) event windows for bidder firms are displayed in tables 4.5, 4.6, and 4.7. For the full 1989 – 2004 sample period, the CARs to bidder firms are negative and statistically significant under each event window and test statistic. The CAR values are –1.42%, -1.65%, and –2.00% with associated p-value's of 0.00 under the 3-day, 11-day, and 36-day event windows.

The sub-sample time periods also exhibit negative and statistically significant cumulative abnormal returns. When looking at the individual years the CARs are generally negative, but the conclusions drawn depend on the test statistic that one considers.

These results are consistent with the previous literature as the abnormal returns to bidder firms are negative and statistically significant. However, comparing these results to those of Becher (2000) shows a discrepancy under the 11-day event window. This study shows a negative and statistically significant CAR, while Becher (2000) shows an insignificant CAR. The difference may be the result of this study utilizing a larger sample and more recent sample period. Nonetheless, the results indicate that bidder firms experience a loss in short-term shareholder wealth around the announcement of an M&A.

Table 4.5: Bidder CARs: 3-day (-1, +1) event window

Year	Number of M&As	CARs (%)	Traditional t-statistic	Standardized t-statistic	Mean rank t-statistic
1989	25	-1.60	-3.32 *	-4.59 *	-3.15 *
1990	18	-2.33	-3.01 *	-2.19 **	-0.70
1991	33	-0.36	-0.55	-0.79	-1.09
1992	51	-1.89	-3.68 *	-4.36 *	-5.19 *
1993	62	-1.40	-1.39	-4.37 *	-4.59 *
1994	70	-1.46	-4.69 *	-4.44 *	-5.15 *
1995	73	-1.12	-3.36 *	-3.89 *	-3.82 *
1996	66	-0.53	-1.61	-2.16 **	0.38
1997	96	-1.26	-4.20 *	-4.90 *	-3.88 *
1998	75	-1.93	-4.65 *	-5.71 *	-6.10 *
1999	74	-2.98	-5.92 *	-6.94 *	-6.14 *
2000	61	-1.31	-2.18 **	-2.49 **	-2.55 **
2001	49	-1.22	-2.14 **	-2.45 **	-3.36 *
2002	31	-0.59	-1.10	-1.18	-0.87
2003	47	-0.91	-2.68 *	-3.66 *	-3.75 *
2004	23	-1.36	-2.89 *	-2.31 **	-0.96
1989 – 1994	259	-1.47	-4.70 *	-8.67 *	-8.87 *
1995 – 1998	310	-1.23	-7.56 *	-8.42 *	-6.83 *
1999 – 2004	285	-1.59	-7.45 *	-8.24 *	-7.78 *
1989 – 2004	854	-1.42	-10.82 *	-14.60 *	-13.45*

This table displays the cumulative abnormal returns (CARs) for bidder firms around the announcement date of a bank merger or acquisition. *, **, *** denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 4.6: Bidder CARs: 11-day (-5, +5) event window

Year	Number of M&As	CARs (%)	Traditional t-statistic	Standardized t-statistic	Mean rank t-statistic
1989	25	-2.42	-2.54 **	-3.26 *	-1.36
1990	18	-1.20	-0.83	-1.12	3.99 *
1991	33	0.56	0.44	0.41	6.86 *
1992	51	-1.49	-1.51	-2.04 **	2.35 **
1993	62	-2.83	-1.46	-3.57	-1.26
1994	70	-2.21	-3.70 *	-3.56	-1.19
1995	73	-1.00	-1.56	-1.80 **	4.51 *
1996	66	0.03	0.05	0.24	11.63 *
1997	96	-1.11	-1.94 ***	-2.37 **	7.26 *
1998	75	-4.02	-5.12 *	-6.07 *	-8.98 *
1999	74	-3.90	-4.08 *	-4.78 *	-0.91
2000	61	-0.31	-0.27	0.16	9.06 *
2001	49	-0.44	-0.40	-0.54	6.95 *
2002	31	-1.85	-1.83 ***	-1.95 *	0.03
2003	47	-1.24	-1.88 ***	-2.19 *	0.88
2004	23	-0.68	-0.75	-0.67	6.25 *
1989 – 1994	259	-1.81	-3.02 *	-5.66 *	2.91 *
1995 – 1998	310	-1.54	-4.86 *	-5.07 *	7.21 *
1999 – 2004	285	-1.61	-4.00 *	-4.30 *	8.74 *
1989 – 2004	854	-1.65	-6.58 *	-8.66 *	10.99 *

This table displays the cumulative abnormal returns (CARs) for bidder firms around the announcement date of a bank merger or acquisition. *, **, *** denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 4.7: Bidder CARs: 36-day (-30, +5) event window

Year	Number of M&As	CARs (%)	Traditional t-statistic	Standardized t-statistic	Mean rank t-statistic
1989	25	-2.02	-1.15	-1.90 ***	35.74 *
1990	18	-3.08	-1.17	-1.15	37.20 *
1991	33	-0.94	-0.40	-0.41	49.58 *
1992	51	-2.76	-1.50	-1.86 ***	58.08 *
1993	62	-4.61	-1.31	-2.21 **	63.78 *
1994	70	-1.57	-1.30	-1.34	70.47 *
1995	73	-0.66	-0.56	-0.65	76.17 *
1996	66	-0.31	-0.27	0.21	77.60 *
1997	96	0.97	0.93	0.86	95.15 *
1998	75	-6.04	-4.19 *	-4.72 *	56.53 *
1999	74	-6.93	-4.01 *	-4.69 *	54.74 *
2000	61	2.03	0.96	0.96	75.21 *
2001	49	-2.99	-1.49	-1.71 ***	54.34 *
2002	31	-2.67	-1.51	-1.63	41.27 *
2003	47	-0.50	-0.40	0.30	65.85 *
2004	23	1.51	0.92	1.32	54.13 *
1989 – 1994	259	-2.60	-2.35 **	-3.64 *	132.25 *
1995 – 1998	310	-1.39	-2.36 **	-2.06 **	153.55 *
1999 – 2004	285	-2.13	-2.81 *	-2.70 *	140.93 *
1989 – 2004	854	-2.00	-4.28 *	-4.80	246.75 *

This table displays the cumulative abnormal returns (CARs) for bidder firms around the announcement date of a bank merger or acquisition. *, **, *** denote statistical significance at the 1%, 5%, and 10% level, respectively.

4.2.3 COMBINED CARs

Tables 4.8, 4.9, and 4.10 display the results of the event study for the combined firm under the 3-day (-1, +1), 11-day (-5, +5), and 36-day (-30, +5) event windows. For the 1989 – 2004 sample period, the CARs are positive and statistically significant with the exception being under the 36-day event window and when considering the traditional test statistic. The CAR values range from 0.45% under the 36-day event window to 0.70% under the 3-day event window.

The CARs appear to be increasing over the sub-sample time periods and individual years with the highest returns being in 2000 and 2001 and the 1999 – 2004 sub-sample time period. Furthermore, for the 1995 – 1998 and 1999 – 2004 time periods the CARs are positive and statistically significant under the standardized and mean rank test statistics. The overall results indicate that the combined firm experiences a positive revaluation around the announcement of a merger or acquisition and implies a transfer of wealth from the bidder to the target firms. This result is consistent with prior work by Becher (2000), Anderson, Becher, and Campbell II (2004) and Delong and DeYoung (2004).

Table 4.8: Combined CARs: 3-day (-1, +1) event window

Year	Number of M&As	CARs (%)	Traditional t-statistic	Standardized t-statistic	Mean rank t-statistic
1989	25	-0.23	-0.53	-1.06	0.90
1990	18	0.53	0.74	2.18 **	3.41 *
1991	33	1.78	3.16 *	5.19 *	1.89 **
1992	51	-0.21	-0.46	-1.22	0.83
1993	62	-0.08	-0.22	-1.98 **	1.44
1994	70	-0.38	-1.29	-1.98 **	-0.15
1995	73	0.74	2.51 **	5.64 *	2.75 *
1996	66	1.24	4.31 *	7.91 *	7.55 *
1997	96	0.82	3.00 *	5.51*	5.69 *
1998	75	0.29	0.82	1.27	0.24
1999	74	-0.55	-1.20	-1.97	0.87
2000	61	2.19	4.16 *	11.80 *	5.83 *
2001	49	2.40	4.61 *	10.24 *	4.48 *
2002	31	1.08	2.20 **	3.75 *	2.87 *
2003	47	1.47	5.17 *	7.33 *	2.94 *
2004	23	1.14	2.81 *	5.99 *	5.91 *
1989 – 1994	259	0.08	0.45	-0.44	2.85 *
1995 – 1998	310	0.76	5.17 *	10.08 *	8.10 *
1999 – 2004	285	1.19	6.23 *	14.28 *	8.81 *
1989 – 2004	854	0.70	7.10 *	14.08 *	11.54 *

This table displays the combined cumulative abnormal returns (CARs) around the announcement date of a bank merger or acquisition. *, **, *** denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 4.9: Combined CARs: 11-day (-5, +5) event window

Year	Number of M&As	CARs (%)	Traditional t-statistic	Standardized t-statistic	Mean rank t-statistic
1989	25	-1.09	-1.28	-4.38 *	3.16 *
1990	18	0.70	0.52	0.35	6.24 *
1991	33	2.79	2.57 **	8.52 *	10.69 *
1992	51	0.42	0.48	1.00	9.33 *
1993	62	-1.33	1.81 ***	5.69 *	5.96 *
1994	70	-1.08	-1.87 ***	-6.15 *	2.93 *
1995	73	0.84	1.47	6.21 *	11.21 *
1996	66	1.90	3.49 *	13.00 *	19.21 *
1997	96	1.00	1.93 ***	6.98 *	17.28 *
1998	75	-1.38	-2.05 **	-8.07 *	-0.54
1999	74	-1.27	-1.44	-4.71 *	8.52 *
2000	61	3.56	3.50 *	17.64 *	19.44 *
2001	49	2.93	2.86 *	11.73 *	14.28 *
2002	31	-0.12	-0.12	-1.02	3.44 *
2003	47	1.12	2.04 **	6.23 *	7.26 *
2004	23	1.90	2.43 **	9.20 *	13.85 *
1989 – 1994	259	-0.23	-0.67	-3.77 *	15.03 *
1995 – 1998	310	0.58	2.03 **	8.14 *	23.66 *
1999 – 2004	285	1.26	3.45 *	15.43 *	27.27 *
1989 – 2004	854	0.56	2.97 *	12.22 *	38.29 *

This table displays the combined cumulative abnormal returns (CARs) around the announcement date of a bank merger or acquisition. *, **, *** denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 4.10: Combined CARs: 36-day (-30, +5) event window

Year	Number of M&As	CARs (%)	Traditional t-statistic	Standardized t-statistic	Mean rank t-statistic
1989	25	-0.56	-0.36	-2.89 *	43.18 *
1990	18	-1.62	-0.66	-4.43 *	36.95 *
1991	33	1.59	0.78	5.48 *	54.19 *
1992	51	-0.83	-0.51	-3.60 *	64.43 *
1993	62	-3.10	-2.37 **	-8.34 *	68.02 *
1994	70	-0.11	-0.10	-0.09	78.68 *
1995	73	1.36	1.28	9.44 *	86.01 *
1996	66	1.72	1.78 ***	14.54 *	85.24 *
1997	96	3.45	3.76 *	24.88 *	106.20 *
1998	75	3.19	2.59 **	16.23 *	69.38 *
1999	74	-3.70	-2.42 **	-14.65 *	67.43 *
2000	61	6.26	3.33 *	25.15 *	85.67 *
2001	49	0.55	0.30	2.97 *	64.27 *
2002	31	-0.46	-0.28	-2.99 *	45.51 *
2003	47	2.12	1.99 **	16.39 *	72.24 *
2004	23	3.99	2.84 *	18.68 *	60.92 *
1989 – 1994	259	-0.90	-1.35	-5.83 *	145.29 *
1995 – 1998	310	0.98	1.91 ***	17.15 *	174.26 *
1999 – 2004	285	1.10	1.62	16.38 *	161.83 *
1989 – 2004	854	0.45	1.28	16.58 *	278.48 *

This table displays the combined cumulative abnormal returns (CARs) around the announcement date of a bank merger or acquisition. *, **, *** denote statistical significance at the 1%, 5%, and 10% level, respectively.

4.2.4 SUMMARY

Table 4.11 displays the testable hypotheses and the expected effects for bank M&As as described in section 1.1 Motivation and Objectives. Overall, the results indicate that target firms realize significant short-term gains, bidder firms realize a negative and statistically significant return, and the combined firm experiences a statistically significant and positive CAR around the announcement of a merger or acquisition. In addition, it appears that the CARs to the target firms are increasing in the 1999 - 2004 sub-sample time period and will be explored in section 4.5 Regression Analysis.

The overall results are consistent with the *hubris and synergy* hypothesis. Under the hypothesis bank M&As are wealth-creating event's as synergies exist; however, bidder firms overpay to realize these gains as they may overestimate their ability to create value once they gain control of the target firm's assets.

Table 4.11: Event Study Hypotheses

	Hubris hypothesis	Synergy hypothesis	Hubris and synergy hypothesis
Target	Positive	Positive	Positive
Bidder	Negative	Insignificant	Negative
Combined	Insignificant	Positive	Positive

This table presents a summary of the testable hypotheses and the expected results with respect to the target, bidder and combined CARs.

4.3 METHOD OF PAYMENT

The prior literature suggests that the abnormal returns to the target, bidder, and combined firms may be affected by the choice of payment method used to finance the M&A. Therefore, this analysis is important in order to determine whether the short-term capital market reaction to M&As differs based on the method of payment. The analysis is carried out for the overall 1989 – 2003 time period, as well as for 1989 – 1994, 1995 – 1998, and 1999 – 2003 sub-sample time periods.

4.3.1 SUMMARY STATISTICS

Table 4.12 displays the number and percentage of the M&As that are financed by only cash or a combination of cash, stock and/or debt (cash + mix), and stock only. It can be seen that stock has been the most prominent financing method for M&As in the sample. For the 1989 – 2003 sample period 73.33% of the M&As are financed solely through stock. However, it should be pointed out that the percentage of M&As in the sample financed by cash + mix increases from 20.13% in the 1995 – 1998 time period to 36.09% in the 1999 – 2003 time period.

Table 4.12: Bank Sample M&As by Method of Payment

Time Period	Cash + Mix	Stock	Cash + Mix (%)	Stock (%)
1989 – 1994	67	190	26.07%	73.93%
1995 – 1998	62	246	20.13%	79.87%
1999 – 2003	83	147	36.09%	63.91%
1989 – 2003	212	583	26.67%	73.33%

This table presents the number and percentage of M&As by method of payment. Cash + Mix is defined as a payment consisting of cash only, or a combination of cash, stock, and/or debt. Stock indicates that the M&A was financed by stock only.

4.3.2 TARGET FIRMS

Table 4.13 displays the results of the independent group t-test with respect to method of payment for target firms. The results under panels A, B, and C display a consistent result as the CARs to target firms are statistically greater for cash + mix financed M&As than those that are financed via stock for the 1989 – 2003 sample period. Turning attention to the sub-sample periods, it can be seen that the market does not distinguish between the payment options as reflected by the insignificance between the mean CARs for the 1989 – 1994 and 1995 – 1998 time periods, but rewards those M&As that are financed by cash or a combination payment for the 1999 – 2003 time period.

Therefore, the overall results may be driven by the most recent sub-sample time period where the previously shown statistics illustrated that the use of cash or combination payments for M&As increased in this time frame. The insignificant differences in the early sub-sample periods is not surprising as Becher (2000) finds that for the 1991 – 1997 time period there is no difference in the short-term capital market reactions.

Table 4.13: Statistical Difference in Target Mean CARs between Payment Methods

Time period	Cash + Mix (%)	Stock (%)	*p*-value of t-test: Cash + Mix vs. Stock
Panel A: Target CARs –1 days before to +1 days after the announcement date			
1989 – 1994	20.44%	16.08%	0.12
1995 – 1998	12.23%	12.64%	0.64
1999 – 2003	27.37%	19.78%	0.01 **
1989 – 2003	20.73%	15.56%	0.00 *

Time period	Cash + Mix (%)	Stock (%)	*p*-value of t-test: Cash + Mix vs. Stock
Panel B: Target CARs –5 days before to +5 days after the announcement date			
1989 – 1994	20.32%	17.69%	0.44
1995 – 1998	13.35%	13.87%	0.80
1999 – 2003	28.68%	22.58%	0.04 **
1989 – 2003	21.53%	17.31%	0.01 **

Time period	Cash + Mix (%)	Stock (%)	*p*-value of t-test: Cash + Mix vs. Stock
Panel C: Target CARs –30 days before to +5 days after the announcement date			
1989 – 1994	22.20%	21.41%	0.95
1995 – 1998	15.98%	17.30%	0.60
1999 – 2003	32.83%	27.02%	0.06 ***
1989 – 2003	24.52%	21.09%	0.07 ***

This table provides the cumulative abnormal returns (CARs) by method of payment around the announcement date of a bank merger or acquisition. The table also provides the results of the independent group t-test to compare the mean CARs by method of payment.

4.3.3 BIDDER FIRMS

As displayed in table 4.14, the abnormal returns to bidder firms are affected by the choice of cash or a combination payment versus stock to finance the M&A. For the full 1989 – 2003 sample period the CARs to the bidder firms are significantly greater when the M&A is financed by cash + mix compared to stock. When looking at the sub-sample time periods, analysis indicates that the market rewards cash + mix financed M&As in the 1999 – 2003 time period compared to those that are financed by stock.

As noted in the previous analysis for target firms, the difference in the CARs for the 1999 – 2003 time period may be attributed to the increase in the use of cash or a combination payment to finance the M&As and the increased valuations they receive. For the 1989 – 1994 and 1995 – 1998 time periods, the results are not robust to changes in the event window, but the results illustrated in panels A and B do show a greater CAR for cash + mix financed M&As. The results are consistent with Becher (2000) as it is found that the market distinguishes between the payment options for bidder firms and rewards those M&As financed by cash or a combination payment compared to those financed by stock.

Table 4.14: Statistical Difference in Bidder Mean CARs between Payment Methods

Time period	Cash + Mix (%)	Stock (%)	p-value of t-test: Cash + Mix vs. Stock
Panel A: Bidder CARs –1 days before to +1 days after the announcement date			
1989 – 1994	-0.77%	-1.80%	0.05 **
1995 – 1998	-0.35%	-1.43%	0.06 ***
1999 – 2003	-0.21%	-2.60%	0.00 *
1989 – 2003	-0.43%	-1.85%	0.00 *

Time period	Cash + Mix (%)	Stock (%)	p-value of t-test: Cash + Mix vs. Stock
Panel B: Bidder CARs –5 days before to +5 days after the announcement date			
1989 – 1994	-1.36%	-2.05%	0.37
1995 – 1998	-0.51%	-1.77%	0.07 ***
1999 – 2003	0.33%	-3.10%	0.00 *
1989 – 2003	-0.45%	-2.20%	0.00 *

Time period	Cash + Mix (%)	Stock (%)	p-value of t-test: Cash + Mix vs. Stock
Panel C: Bidder CARs –30 days before to +5 days after the announcement date			
1989 – 1994	-1.11%	-3.21%	0.14
1995 – 1998	-1.91%	-1.17%	0.52
1999 – 2003	1.38%	-5.33%	0.00 *
1989 – 2003	-0.37%	-2.89%	0.01 *

This table provides the cumulative abnormal returns (CARs) by method of payment around the announcement date of a bank merger or acquisition. The table also provides the results of the independent group t-test to compare the mean CARs by method of payment. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

4.3.4 COMBINED

The combined CARs are statistically greater for those M&As financed by a cash or combination payment compared to those that are financed by stock for the 1989 – 2003 time period as displayed in table 4.15. For the 1989 – 1994 and 1995 – 1998 sub-sample periods, the market does not distinguish between M&As that are financed via cash or combination payment versus stock. However, the capital markets reward those M&As that are financed by cash + mix in the 1999 – 2003 time period.

Furthermore, the CARs to M&As financed by a cash or combination payment appear to be increasing significantly in the 1999 – 2003 compared to the 1994 – 1998 time period. For example, under Panel C the CARs to the combined firm for the cash + mix payment option are 5.70%, while in the 1994 – 1998 time period they are 0.41%. Overall, the results indicate that the capital markets reward, in the short-term, those M&As that are financed by cash or a combination payment when analyzed for the combined firm.

Table 4.15: Statistical Difference in Combined Mean CARs between Payment Methods

Time period	Cash + Mix (%)	Stock (%)	*p*-value of t-test: Cash + Mix vs. Stock
Panel A: Combined CARs –1 days before to +1 days after the announcement date			
1989 – 1994	0.43%	-0.12%	0.24
1995 – 1998	1.27%	0.63%	0.27
1999 – 2003	3.82%	-0.31%	0.00 *
1989 – 2003	2.00%	0.15%	0.00 *

Time period	Cash + Mix (%)	Stock (%)	*p*-value of t-test: Cash + Mix vs. Stock
Panel B: Combined CARs –5 days before to +5 days after the announcement date			
1989 – 1994	0.00%	-0.37%	0.63
1995 – 1998	1.20%	0.42%	0.29
1999 – 2003	4.34%	-0.59%	0.00 *
1989 – 2003	2.05%	-0.09%	0.00 *

Time period	Cash + Mix (%)	Stock (%)	*p*-value of t-test: Cash + Mix vs. Stock
Panel C: Combined CARs –30 days before to +5 days after the announcement date			
1989 – 1994	0.23%	-1.38%	0.23
1995 – 1998	0.41%	1.17%	0.50
1999 – 2003	5.70%	-2.39%	0.00 *
1989 – 2003	2.44%	-0.56%	0.00 *

This table provides the cumulative abnormal returns (CARs) by method of payment around the announcement date of a bank merger or acquisition. The table also provides the results of the independent group t-test to compare the mean CARs by method of payment. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

4.3.5 SUMMARY

The results indicate that M&As financed by only cash or a combination of cash, stock and/or debt yield higher cumulative abnormal returns than those that are financed by only stock when measured for the target, bidder, and combined firm. Furthermore, only the abnormal returns to the target and combined firms in the 1999 – 2003 time period for M&As financed by a cash or combination payment are greater than those that are stock financed. So it appears that the overall results for these firms are driven by the most recent sub-sample period. For the 1989 – 1994 and 1995 – 1998 sub-sample time periods the conclusions drawn regarding bidder firms are not robust to changes in the event window. However, under each panel presented the mean CARs to bidder firms are greater for cash + mix financed M&As in the 1999 – 2003 sub-sample period, as well as the overall sample horizon.

The change in the pattern of the CARs and the statistical difference in the 1999 – 2003 time period raise the question as to why this is occurring. One plausible explanation is that put forth by Fishman (1989), he suggests that cash payment is preferred to stock when there is competition for the target firm. The use of cash signals high valuation and deters possible or existing competitors. This is reasonable because the IBBEA increased the pool of potential M&As and one would expect that competition to acquire the potential target firms increased. In addition, accounting scandals, such as Enron and WorldCom, may be the reason for the higher mean CARs to cash or combination financed M&As as it is reasonable to believe that these events resulted in investors being wary of the stock valuations and hence,

higher mean CARs to M&As financed by a cash or combination payment compared to a stock payment.

4.4 GEOGRAPHIC LOCATION

There exists the possibility that the abnormal returns to the target, bidder and combined firm are affected by whether the merger is geographically focusing (intrastate) versus geographically diversifying (interstate). Therefore, this analysis based on geographic location will test to see whether the capital markets differentiate between the focusing and diversifying M&A strategies as reflected by their short-term wealth effects. The analysis is carried out for the overall 1989 – 2004 time period, as well as for the 1989 – 1994, 1995 – 1998, and 1999 – 2004 sub-sample time periods. This allows one to directly explore the impact of the Riegle-Neal Interstate Banking and Branching Efficiency Act (IBBEA) of 1994 on the cumulative abnormal returns to the target, bidder, and combined firms.

4.4.1 SUMMARY STATISTICS

Table 4.16 displays the summary statistics for the bank merger sample based on geographic location. For the overall 1989 – 2004 time period 49.30% of the mergers are geographically focusing (intrastate) whereas 50.70% of the mergers are geographically diversifying (interstate). Comparing the three time periods, it can be seen that the number of intrastate mergers has increased above that of interstate M&As in the 1999 – 2004 time period. In summary, the number of interstate versus intrastate mergers are nearly the same throughout the sample period and therefore for this sample, the IBBEA legislation has not changed the pattern of the M&A activity as branching restrictions were relaxed.

Table 4.16: Bank Sample M&As by Geographic Location

Time Period	Intrastate	Interstate	Intrastate (%)	Interstate (%)
1989 – 1994	126	133	48.65%	51.35%
1995 – 1998	145	165	46.77%	53.23%
1999 – 2004	150	135	52.63%	47.37%
1989 – 2004	421	433	49.30%	50.70%

This table presents the number and percentage of M&As by geographic location. Intrastate is defined as those M&As where the bidder and target firms are headquartered in the same state. Interstate indicates that the bidder firm is not headquartered in the same state as the target firm.

4.4.2 TARGET FIRMS

Table 4.17 displays the results of the independent group t-test based on whether the merger is geographically focusing (intrastate) versus geographically diversifying (interstate) for target firms in the bank merger sample. The results under each panel for the 1989 – 2004 time period show no statistical difference in the mean CARs to focusing versus diversifying M&As with the returns ranging from 16.07% to 21.08% for interstate and 17.51% to 22.19% for intrastate M&As. For each sub-sample time period, the abnormal returns to geographically focusing and diversifying M&As are statistically equal and are robust to changes in the event window. The findings imply that the markets do not distinguish between intrastate and interstate M&As for target firms in the short-term.

It appears that the CARs to target firms for both types of M&As are increasing in the 1999 – 2004 time period. For example, under Panel C the abnormal returns to interstate and intrastate M&As are 24.94% and 28.35% respectively for the 1999 – 2004 time period, whereas in the 1994 – 1998 time period the abnormal returns are 16.33% for interstate and 17.99% for intrastate M&As.

Table 4.17: Statistical Difference in Target Mean CARs between Intrastate and Interstate M&As

Time period	Interstate (%)	Intrastate (%)	*p*-value of t-test: Interstate vs. Intrastate
Panel A: Target CARs – 1 days before to +1 days after the announcement date			
1989 – 1994	18.43%	15.73%	0.24
1995 – 1998	11.43%	13.91%	0.10
1999 – 2004	19.49%	22.44%	0.21
1989 – 2004	16.07%	17.51%	0.19
Time period	Interstate (%)	Intrastate (%)	*p*-value of t-test: Interstate vs. Intrastate
Panel B: Target CARs –5 days before to +5 days after the announcement date			
1989 – 1994	19.90%	16.42%	0.16
1995 – 1998	12.54%	15.28%	0.12
1999 – 2004	22.11%	23.91%	0.43
1989 – 2004	17.77%	18.71%	0.44
Time period	Interstate (%)	Intrastate (%)	*p*-value of t-test: Interstate vs. Intrastate
Panel C: Target CARs –30 days before to +5 days after the announcement date			
1989 – 1994	23.09%	19.67%	0.24
1995 – 1998	16.33%	17.99%	0.42
1999 – 2004	24.94%	28.35%	0.19
1989 – 2004	21.08%	22.19%	0.43

This table provides the cumulative abnormal returns (CARs) by geographic location around the announcement date of a bank merger or acquisition. The table also provides the results of the independent group t-test to compare the mean CARs by geographic location. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

4.4.3 BIDDER FIRMS

Table 4.18 illustrates the results of the study based on geographic location for bidder firms in the bank M&A sample. The results indicate that the mean abnormal returns to bidder firms are statistically equal for the 1989 – 2004 time period, and each sub-sample time period. For the 1989 – 2004 sample period the *p*-value of the differences range from 0.32 to 0.87. Furthermore, the results are robust to changes in the event window used to calculate the CARs.

As was the case with the target firms, the short-term market reactions to geographically focusing and diversifying M&As are not different. This can be interpreted as the capital markets not foreseeing any substantial benefits or otherwise to one type over the other as reflected by the mean CARs to bidder firms around the announcement of an interstate or intrastate M&A.

Table 4.18: Statistical Difference in Bidder Mean CARs between Intrastate and Interstate M&As

Time period	Interstate (%)	Intrastate (%)	*p*-value of t-test: Interstate vs. Intrastate
Panel A: Bidder CARs –1 days before to +1 days after the announcement date			
1989 – 1994	-1.05%	-1.90%	0.11
1995 – 1998	-1.33%	-1.12%	0.64
1999 – 2004	-1.42%	-1.74%	0.59
1989 – 2004	-1.27%	-1.57%	0.32
Time period	Interstate (%)	Intrastate (%)	*p*-value of t-test: Interstate vs. Intrastate
Panel B: Bidder CARs –5 days before to +5 days after the announcement date			
1989 – 1994	-1.31%	-2.34%	0.13
1995 – 1998	-2.00%	-1.03%	0.12
1999 – 2004	-1.66%	-1.57%	0.92
1989 – 2004	-1.68%	-1.61%	0.87
Time period	Interstate (%)	Intrastate (%)	*p*-value of t-test: Interstate vs. Intrastate
Panel C: Bidder CARs –30 days before to +5 days after the announcement date			
1989 – 1994	-1.66%	-3.59%	0.20
1995 – 1998	-1.60%	-1.13%	0.66
1999 – 2004	-3.34%	-1.04%	0.15
1989 – 2004	-2.16%	-1.84%	0.68

This table provides the cumulative abnormal returns (CARs) by geographic location around the announcement date of a bank merger or acquisition. The table also provides the results of the independent group t-test to compare the mean CARs by geographic location. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

4.4.4 COMBINED

The results of the independent group t-test for the combined firms in the bank M&A sample are illustrated in table 4.19. The combined mean CARs are statistically greater for intrastate M&As compared to those of interstate M&As for the 1989 – 2004 time period. However, there is no statistical difference in the returns for the 1989 – 1994 and 1995 – 1998 time periods, with the exception being under panel B for the 1995 – 1998 time period. Therefore, the statistical differences appear to be driven by the 1999 – 2004 time period where M&As are rewarded by the capital markets for focusing geographically. For example, the CAR values for the 1999 – 2004 time period range from –1.63% to 0.12% for interstate and from 2.15% to 3.55% for intrastate M&As and the accompanying p-values of the difference in the mean CARs are 0.00.

The finding that the capital markets reward intrastate M&As when analyzed for the combined firm is inconsistent with DeLong (2001). The differing results could be the result of the methodology used as the results presented above are based on a group t-test while DeLong (2001) uses a regression framework. This will be studied further in section 4.5 Regression Analysis.

Table 4.19: Statistical Difference in Combined Mean CARs between Intrastate and Interstate M&As

Time period	Interstate (%)	Intrastate (%)	*p*-value of t-test: Interstate vs. Intrastate
Panel A: Combined CARs –1 days before to +1 days after the announcement date			
1989 – 1994	0.22%	-0.07%	0.56
1995 – 1998	0.53%	1.02%	0.29
1999 – 2004	0.12%	2.15%	0.00 *
1989 – 2004	0.31%	1.10%	0.01 **
Time period	Interstate (%)	Intrastate (%)	*p*-value of t-test: Interstate vs. Intrastate
Panel B: Combined CARs –5 days before to +5 days after the announcement date			
1989 – 1994	0.00%	-0.47%	0.53
1995 – 1998	-0.06%	1.30%	0.02 **
1999 – 2004	0.04%	2.37%	0.00 *
1989 – 2004	-0.01%	1.15%	0.01 *
Time period	Interstate (%)	Intrastate (%)	*p*-value of t-test: Interstate vs. Intrastate
Panel C: Combined CARs –30 days before to +5 days after the announcement date			
1989 – 1994	-0.24%	-1.57%	0.36
1995 – 1998	0.56%	1.46%	0.38
1999 – 2004	-1.63%	3.55%	0.00 *
1989 – 2004	-0.37%	1.29%	0.03 **

This table provides the cumulative abnormal returns (CARs) by geographic location around the announcement date of a bank merger or acquisition. The table also provides the results of the independent group t-test to compare the mean CARs by geographic location. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

4.4.5 SUMMARY

The results indicate that the capital markets do not distinguish between geographically focusing and diversifying M&As when the CARs are measured for the target and bidder firms. However, when measuring the abnormal returns for the combined firm over the full sample period, it is found that the markets reward those M&As that are geographically focusing in the short-term. However, the results appear to be driven by the 1999 – 2004 sub-sample period as this is the only sub-sample period where the market distinguishes between intrastate and interstate M&As. Finally, the IBBEA has not had much of an effect on the number of intrastate compared to interstate M&As as branching restrictions were relaxed.

4.5 REGRESSION ANALYSIS

The following regression analysis is used to explore the drivers of the cumulative abnormal returns to the target, bidder, and combined firms and determine whether the market reaction has changed over the 1989 – 2003 sample period. The CARs under a 3-day (-1, +1), 11-day (-5, +5) and 36-day (-30, +5) event window are regressed against the natural logarithm of the target-to-bidder ratio, a method of payment dummy variable (1 if the merger is financed by cash only or a combination of cash, stock and/or debt and 0 if stock only), a geographic dummy variable (1 if the merger is intrastate and 0 if interstate), as well as dummy variables for each year in the sample.

4.5.1 TARGET FIRMS

The results of the regression analysis for target firms are contained in tables 4.20, 4.21 and 4.22. The coefficient on the target-to-bidder ratio is negative and statistically significant at the 1% level under each event window utilized in computing the CARs to the target firms. This indicates that the smaller is the size of the target firm to the bidder firm, the greater the CAR to the target firm.

The method of payment dummy variable is positive and significant at the 10% level in table 4.20, however insignificant in tables 4.21 and 4.22. Although sensitive to the event window used in computing the CARs, the conclusion that there is no difference between the short-term market reactions to cash versus stock financed M&As for the full sample period is expected. In section 4.3.1 the overall results appear to be driven by the 1999 – 2003 sub-sample time period and the evidence provided here supports this notion.

The results of the independent group t-test indicated no difference in the mean CARs to intrastate and interstate M&As for target firms. However, the coefficient on the geographic dummy variable is positive and statistically significant at the 5% level as seen in tables 4.20, 4.21 and 4.22. This implies that the capital markets react more favorably to target firms involved in intrastate M&As in the short-term as compared to those involved in interstate M&As.

Previous analysis indicated that the CARs to the target firms were higher in the latter years of the sample period and this notion is confirmed by the results of the regression. In tables 4.21 and 4.22 the 1992 (5% level), 2000 (1% level), 2001 (1% level, 1% in table 4.20), 2002 (10% level) and 2003 (10% level, insignificant in table 4.20) dummy variables are positive and statistically significant. The higher CARs in the latter years could be the result of the increased use of and favorable reactions to cash or combination payments in the 1999 – 2003 time period.

Table 4.20: Target CAR Regression: 3-Day (-1, +1) Event Window

Dependent variable: CAR –1 days before to +1 days after the announcement date

Independent variable	Estimate	*t*-statistic
Constant	0.4750	7.63 *
ln(market value of target/market value of bidder)	-0.4133	-6.37 *
Method of payment dummy variable	0.0256	1.79 ***
Geographic location dummy variable	0.0292	2.35 **
1990 dummy variable	0.0730	1.39
1991 dummy variable	0.0338	0.76
1992 dummy variable	0.0527	1.29
1993 dummy variable	0.0018	0.04
1994 dummy variable	-0.0579	-1.48
1995 dummy variable	-0.0296	-0.76
1996 dummy variable	-0.0328	-0.84
1997 dummy variable	-0.0225	-0.60
1998 dummy variable	-0.0238	-0.61
1999 dummy variable	0.0266	0.69
2000 dummy variable	0.0639	1.61
2001 dummy variable	0.1185	2.89 *
2002 dummy variable	0.0765	1.70 ***
2003 dummy variable	0.0763	1.40
Adjusted R^2	11.41%	
F-statistic	6.98 *	
Number of observations	795	

This table presents the results of the regression analysis of the cumulative abnormal return (CAR) for target firms. CAR is regressed against the natural logarithm of the target-to-bidder ratio, a method of payment dummy variable (1 if financed by cash only or a combination of cash, stock, and/or debt, and 0 if stock only), a geographic location dummy variable (1 if the M&A is intrastate, and 0 if interstate), and dummy variables for each year in the sample period. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

Table 4.21: Target CAR Regression: 11-Day (-5, +5) Event Window

Dependent variable: CAR –5 days before to +5 days after the announcement date

Independent variable	Estimate	*t*-statistic
Constant	0.5283	8.12 *
ln(market value of target/market value of bidder)	-0.4784	-7.06 *
Method of payment dummy variable	0.0162	1.08
Geographic location dummy variable	0.0290	2.22 **
1990 dummy variable	0.0753	1.38
1991 dummy variable	0.0635	1.36
1992 dummy variable	0.0874	2.03 **
1993 dummy variable	0.0111	0.27
1994 dummy variable	-0.0588	-1.43
1995 dummy variable	-0.0087	-0.21
1996 dummy variable	-0.0168	-0.41
1997 dummy variable	-0.0126	-0.32
1998 dummy variable	-0.0055	-0.13
1999 dummy variable	0.0494	1.21
2000 dummy variable	0.1133	2.72 *
2001 dummy variable	0.1330	3.08 *
2002 dummy variable	0.0796	1.68 ***
2003 dummy variable	0.0971	1.69 ***
Adjusted R^2	12.45%	
F-statistic	7.64 *	
Number of observations	795	

This table presents the results of the regression analysis of the cumulative abnormal return (CAR) for target firms. CAR is regressed against the natural logarithm of the target-to-bidder ratio, a method of payment dummy variable (1 if financed by cash only or a combination of cash, stock, and/or debt, and 0 if stock only), a geographic location dummy variable (1 if the M&A is intrastate, and 0 if interstate), and dummy variables for each year in the sample period. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

Table 4.22: Target CAR Regression: 36-Day (-30, +5) Event Window

Dependent variable: CAR –30 days before to +5 days after the announcement date		
Independent variable	Estimate	t-statistic
Constant	0.5064	7.82 *
ln(market value of target/market value of bidder)	-0.4505	-6.67 *
Method of payment dummy variable	0.0165	1.09
Geographic location dummy variable	0.0278	2.13 **
1990 dummy variable	0.0693	1.27
1991 dummy variable	0.0648	1.38
1992 dummy variable	0.0868	2.01 **
1993 dummy variable	0.0097	0.23
1994 dummy variable	-0.0564	-1.37
1995 dummy variable	-0.0092	0.22
1996 dummy variable	-0.0160	-0.39
1997 dummy variable	-0.0105	-0.26
1998 dummy variable	-0.0068	-0.17
1999 dummy variable	0.0494	1.21
2000 dummy variable	0.1185	2.84 *
2001 dummy variable	0.1324	3.06 *
2002 dummy variable	0.0839	1.77 ***
2003 dummy variable	0.1031	1.79 ***
Adjusted R^2	12.00%	
F-statistic	7.36 *	
Number of observations	795	

This table presents the results of the regression analysis of the cumulative abnormal return (CAR) for target firms. CAR is regressed against the natural logarithm of the target-to-bidder ratio, a method of payment dummy variable (1 if financed by cash only or a combination of cash, stock, and/or debt, and 0 if stock only), a geographic location dummy variable (1 if the M&A is intrastate, and 0 if interstate), and dummy variables for each year in the sample period. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

4.5.2 BIDDER FIRMS

Tables 4.23, 4.24 and 4.25 contain the results of the regression analysis for bidder firms in the bank M&A sample. As was the case with the target firms, the target-to-bidder ratio is negative and statistically significant at the 1% level. This contradicts the results of James and Weir (1987) who find a positive and statistically significant relationship. The differing conclusions could be the result of an expanded sample and/or a more recent sample period, or possibly because of the general increase in the size of the banks in the 1990's and 21st century compared to the 1980's.

The method of payment dummy variable is positive and statistically significant at the 1% level in each table presented. This supports the results of the independent group t-test where it was found that the capital markets react favorably, in the short-term, to M&As financed by a cash or combination payment compared to those financed by stock. One plausible explanation for this is that the capital markets view a cash or combination payment as a signal that the stock of the bank is fairly or undervalued. On the other hand, a stock offer may be seen as a signal that the stock is overvalued and hence the price is driven down upon announcement of the M&A.

Supporting the results of the test between the difference in the mean CARs to geographically focusing and diversifying M&As, the coefficient on the geographic dummy variable is insignificant. This adds credibility to the suggestion that the capital markets do not distinguish between intrastate and interstate M&As for bidder firms as measured by the short-term market reaction to the M&As.

The conclusions based on the individual year dummy variables are not robust to changes in the CAR estimation window. The dummy variables for the individual years are insignificant in table 4.23, however in tables 4.24 and 4.25 the 1991 and 1996 dummy variables are positive and significant. In addition, the 2000 dummy variable is significant in table 4.24.

Table 4.23: Bidder CAR Regression: 3-Day (-1, +1) Event Window

Dependent variable: CAR –1 days before to +1 days after the announcement date

Independent variable	Estimate	*t*-statistic
Constant	0.0296	1.88 ***
ln(market value of target/market value of bidder)	-0.0613	-3.74 *
Method of payment dummy variable	0.0148	4.10 *
Geographic location dummy variable	-0.0029	-0.92
1990 dummy variable	-0.0117	-0.88
1991 dummy variable	0.0181	1.61
1992 dummy variable	-0.0018	-0.17
1993 dummy variable	0.0007	0.07
1994 dummy variable	0.0021	0.21
1995 dummy variable	0.0071	0.73
1996 dummy variable	0.0117	1.19
1997 dummy variable	0.0079	0.83
1998 dummy variable	0.0039	0.40
1999 dummy variable	-0.0101	-1.04
2000 dummy variable	0.0057	0.57
2001 dummy variable	0.0054	0.52
2002 dummy variable	0.0034	0.30
2003 dummy variable	-0.0001	-0.01
Adjusted R^2	4.46 %	
F-statistic	3.17 *	
Number of observations	795	

This table presents the results of the regression analysis of the cumulative abnormal return (CAR) for bidder firms. CAR is regressed against the natural logarithm of the target-to-bidder ratio, a method of payment dummy variable (1 if financed by cash only or a combination of cash, stock, and/or debt, and 0 if stock only), a geographic location dummy variable (1 if the M&A is intrastate, and 0 if interstate), and dummy variables for each year in the sample period. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

Table 4.24: Bidder CAR Regression: 11-Day (-5, +5) Event Window

Independent variable	Estimate	*t*-statistic
Dependent variable: CAR –5 days before to +5 days after the announcement date		
Constant	0.0227	1.02
ln(market value of target/market value of bidder)	-0.0659	-2.84 *
Method of payment dummy variable	0.0162	3.15 *
Geographic location dummy variable	0.0013	0.29
1990 dummy variable	0.0070	0.37
1991 dummy variable	0.0356	2.23 **
1992 dummy variable	0.0109	0.74
1993 dummy variable	-0.0062	-0.43
1994 dummy variable	0.0025	0.18
1995 dummy variable	0.0169	1.21
1996 dummy variable	0.0253	1.80 **
1997 dummy variable	0.0185	1.37
1998 dummy variable	-0.0090	-0.64
1999 dummy variable	-0.0112	-0.80
2000 dummy variable	0.0235	1.65 ***
2001 dummy variable	0.0206	1.39
2002 dummy variable	-0.0016	-0.10
2003 dummy variable	-0.0075	-0.38
Adjusted R^2	5.37%	
F-statistic	3.65 *	
Number of observations	795	

This table presents the results of the regression analysis of the cumulative abnormal return (CAR) for bidder firms. CAR is regressed against the natural logarithm of the target-to-bidder ratio, a method of payment dummy variable (1 if financed by cash only or a combination of cash, stock, and/or debt, and 0 if stock only), a geographic location dummy variable (1 if the M&A is intrastate, and 0 if interstate), and dummy variables for each year in the sample period. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

Table 4.25: Bidder CAR Regression: 36-Day (-30, +5) Event Window

Dependent variable: CAR –30 days before to +5 days after the announcement date

Independent variable	Estimate	*t*-statistic
Constant	0.0202	0.92
ln(market value of target/market value of bidder)	-0.0620	-2.70 *
Method of payment dummy variable	0.0161	3.15 *
Geographic location dummy variable	0.0018	0.41
1990 dummy variable	0.0056	0.30
1991 dummy variable	0.0337	2.12 **
1992 dummy variable	0.0105	0.71
1993 dummy variable	-0.0066	-0.46
1994 dummy variable	0.0022	0.16
1995 dummy variable	0.0161	1.16
1996 dummy variable	0.0240	1.71 ***
1997 dummy variable	0.0186	1.37
1998 dummy variable	-0.0103	-0.74
1999 dummy variable	-0.0126	-0.91
2000 dummy variable	0.0229	1.61
2001 dummy variable	0.0201	1.36
2002 dummy variable	-0.0007	-0.04
2003 dummy variable	-0.0094	-0.48
Adjusted R^2	5.37%	
F-statistic	3.65 *	
Number of observations	795	

This table presents the results of the regression analysis of the cumulative abnormal return (CAR) for bidder firms. CAR is regressed against the natural logarithm of the target-to-bidder ratio, a method of payment dummy variable (1 if financed by cash only or a combination of cash, stock, and/or debt, and 0 if stock only), a geographic location dummy variable (1 if the M&A is intrastate, and 0 if interstate), and dummy variables for each year in the sample period. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

4.5.3 COMBINED

The results of the regression analysis for the combined firm are illustrated in tables 4.26, 4.27 and 4.28. Consistent with DeLong (2001), the coefficient on the target-to-bidder ratio is positive and statistically significant at the 1% level suggesting that the larger the target firm is relative to the bidder firm, the greater is the CAR to the combined firm. This is expected as previous analysis shows that target firms realize a higher CAR than bidder firms upon merger announcement and the combined CAR calculation utilizes a market value weighting of the target and bidder CARs. Furthermore, the method of payment dummy variable is positive and statistically significant at the 1% level indicating favorable short-term market reactions to M&As financed by cash or a combination payment.

Results from the group t-test indicated that geographically focusing M&As realize a higher mean combined CAR as compared to those that are diversifying. As pointed out, this finding was inconsistent with those presented by DeLong (2001) who used a regression to study the effects of geographic location on the combined CARs. In contrast to the group-test, the geographic dummy variable is statistically insignificant and implies that the capital markets do not distinguish between intrastate and interstate M&As in the short-run.

The annual dummy variables provide interesting insight into the short-term market reactions to bank M&As as this allows one to identify years where valuations are higher on a consolidated, rather than independent, basis. Of the dummy variables, only the 2000 dummy variable coefficient is significant in each table

presented. The 1991 and 2001 dummy variable coefficients are significant in tables

4.26 and 4.27, while 1997 is statistically significant in tables 4.27 and 4.28.

Table 4.26: Combined CAR Regression: 3-Day (-1, +1) Event Window

Dependent variable: CAR –1 days before to +1 days after the announcement date

Independent variable	Estimate	*t*-statistic
Constant	-0.0873	-5.37 *
ln(market value of target/market value of bidder)	0.0946	5.58 *
Method of payment dummy variable	0.0179	4.79 *
Geographic location dummy variable	0.0007	0.21
1990 dummy variable	0.0069	0.50
1991 dummy variable	0.0242	2.09 **
1992 dummy variable	0.0046	0.43
1993 dummy variable	0.0041	0.39
1994 dummy variable	0.0058	0.57
1995 dummy variable	0.0116	1.14
1996 dummy variable	0.0166	1.63
1997 dummy variable	0.0139	1.42
1998 dummy variable	0.0078	0.76
1999 dummy variable	0.0016	0.16
2000 dummy variable	0.0233	2.25 **
2001 dummy variable	0.0225	2.10 **
2002 dummy variable	0.0121	1.03
2003 dummy variable	0.0156	1.09
Adjusted R^2	8.76%	
F-statistic	5.46 *	
Number of observations	795	

This table presents the results of the regression analysis of the combined cumulative abnormal return (CAR). Combined CAR is regressed against the natural logarithm of the target-to-bidder ratio, a method of payment dummy variable (1 if financed by cash only or a combination of cash, stock, and/or debt, and 0 if stock only), a geographic location dummy variable (1 if the M&A is intrastate, and 0 if interstate), and dummy variables for each year in the sample period. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

Table 4.27: Combined CAR Regression: 11-Day (-5, +5) Event Window

Dependent variable: CAR –5 days before to +5 days after the announcement date

Independent variable	Estimate	t-statistic
Constant	-0.0940	-4.20 *
ln(market value of target/market value of bidder)	0.0893	3.83 *
Method of payment dummy variable	0.0197	3.80 *
Geographic location dummy variable	0.0048	1.08
1990 dummy variable	0.0158	0.85
1991 dummy variable	0.0433	2.69 *
1992 dummy variable	0.0205	1.38
1993 dummy variable	-0.0007	-0.05
1994 dummy variable	0.0075	0.53
1995 dummy variable	0.0216	1.54
1996 dummy variable	0.0319	2.25 **
1997 dummy variable	0.0256	1.87 ***
1998 dummy variable	-0.0001	-0.01
1999 dummy variable	0.0034	0.24
2000 dummy variable	0.0457	3.19 *
2001 dummy variable	0.0360	2.42 **
2002 dummy variable	0.0083	0.51
2003 dummy variable	0.0121	0.61
Adjusted R^2	8.89%	
F-statistic	5.55 *	
Number of observations	795	

This table presents the results of the regression analysis of the combined cumulative abnormal return (CAR). Combined CAR is regressed against the natural logarithm of the target-to-bidder ratio, a method of payment dummy variable (1 if financed by cash only or a combination of cash, stock, and/or debt, and 0 if stock only), a geographic location dummy variable (1 if the M&A is intrastate, and 0 if interstate), and dummy variables for each year in the sample period. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

Table 4.28: Combined CAR Regression: 36-Day (-30, +5) Event Window

Dependent variable: CAR –30 days before to +5 days after the announcement date

Independent variable	Estimate	*t*-statistic
Constant	-0.1498	-3.64 *
ln(market value of target/market value of bidder)	0.1581	3.68 *
Method of payment dummy variable	0.0296	3.09 *
Geographic location dummy variable	0.0083	1.00
1990 dummy variable	-0.0138	-0.40
1991 dummy variable	0.0282	0.95
1992 dummy variable	0.0056	0.20
1993 dummy variable	-0.0220	-0.83
1994 dummy variable	0.0162	0.62
1995 dummy variable	0.0223	0.86
1996 dummy variable	0.0256	0.98
1997 dummy variable	0.0477	1.89 ***
1998 dummy variable	-0.0234	-0.90
1999 dummy variable	-0.0234	-0.90
2000 dummy variable	0.0659	2.48 **
2001 dummy variable	0.0035	0.13
2002 dummy variable	-0.0007	-0.02
2003 dummy variable	-0.0056	-0.15
Adjusted R^2	7.39%	
F-statistic	4.72 *	
Number of observations	795	

This table presents the results of the regression analysis of the combined cumulative abnormal return (CAR). Combined CAR is regressed against the natural logarithm of the target-to-bidder ratio, a method of payment dummy variable (1 if financed by cash only or a combination of cash, stock, and/or debt, and 0 if stock only), a geographic location dummy variable (1 if the M&A is intrastate, and 0 if interstate), and dummy variables for each year in the sample period. *, **, *** denote statistical significance at the 1%, 5%, and 10 % level, respectively.

4.5.4 SUMMARY

The results of the regression analysis for the target, bidder, and combined firms in the bank merger sample provide for many interesting observations. The CARs appear to be driven in part by the relative size of the merger parties. For target and bidder firms the smaller the relative size of the target firm to the bidder firm, the greater the CAR. Consistent with DeLong (2001), the combined CARs are positively related to the target-to-bidder ratio. The results also suggest that the capital markets, in the short term, reward the bidder and combined firms of M&As financed by cash or combination payments versus stock payments and target CARs are higher when the M&A is intrastate versus interstate. Confirming previous notions, we also find that the CARs to target firms are higher in latter stages of the sample period.

CHAPTER 5

CONCLUSION

This study analyzed the short-term shareholder wealth effects to 854 U.S. bank M&As that occurred from 1989 – 2004. To the best of this author's knowledge no other study has analyzed the banking industry using this approach with a sample that contained bank M&As in the 21st century. The inclusion of the 21st century is important because of corporate and accounting scandals that resulted in investors being cautious regarding common stock valuations.

Using an event study methodology it is found that the CARs to target firms are positive and statistically significant, the returns to bidder firms are statistically significant and negative, and the combined CARs are positive and statistically significant. These results are consistent with the *synergy and hubris* hypothesis wherein bank M&As are wealth-creating events, however, bidders may overpay to realize these gains as their management team overestimates their ability to create value once they gain control of the target firm's assets.

Over the sample period, nearly 75% of the M&As were financed by stock. However, the results indicate that the mean CARs to the target, bidder, and combined firms are statistically greater for M&As that are financed via cash or a combination payment consisting of cash, stock and/or debt compared to those that are financed by stock only. The results, however, are driven by the 1999 – 2003 time period for target firms where it is found that the CARs are increasing. It is during this time period that the percentage of the M&As financed by cash or a combination payment increased substantially and where investors became wary of common stock

valuations due to accounting scandals that created an environment resulting in a preference for cash or combination payments versus stock. For the bidder and combined firms, there is a positive and statistically significant relationship between the magnitude of the CAR and cash or combination financing for the full sample period, however no such relationship exists for target firms.

To study the effects of the IBBEA, the M&As are analyzed based on geographic location. For the target and bidder firms there is no statistical difference in the mean abnormal returns based on whether the M&As are geographically focusing (intrastate) versus diversifying (interstate). However, the combined mean CARs are higher for intrastate M&As for the overall sample period and the 1999 – 2003 sub-sample period. Although there is no difference in the mean CARs for target firms, the regression analysis shows a positive and statistically significant relationship between the CAR and whether the M&A is intrastate.

The CARs are driven in part by the relative size of the merger parties as documented in the regression analysis. For target and bidder firms the smaller the relative size of the target to the bidder firm, the greater is the CAR. In contrast, the combined CAR is positively related to the target-to-bidder ratio.

Future studies should examine the Gramm-Leach-Bliley Act (GLBA) of 1999 and in particular, the short-term shareholder wealth effects using a sample that contains the 21st century. This would provide insight into whether the capital markets distinguish between M&As based on the activities that banking firms are engaged in, and also if investor preferences towards these M&As have changed.

REFERENCES

Allen, L., Jagtiani, J., Saunders, A., Working Paper 2000. The role of bank advisors in mergers and acquisitions.

Amihud, Y., Lev, B., Travlos, N., 1990. Corporate control and the choice of investment financing: the case of corporate acquisitions. The Journal of Finance 45, 603 – 616.

Anderson, C., Becher, D., Campbell II, T., 2004. Bank mergers, the market for bank CEOs, and managerial incentives. Journal of Financial Intermediation 13, 6 – 27.

Apilado, V., Hart, J., 2002. Inexperienced banks and interstate mergers. Journal of Economics and Business 54, 313 – 330.

Bhagat, S., Dong, M., Hirshleifer, D., Noah, R., Working Paper 2004. Do tender offers create value? New methods and evidence.

Becher, D., 2000. The valuation effects of bank mergers. Journal of Corporate Finance 6, 189 – 214.

Becher, D., Campbell II, T., Working Paper 2004. Corporate governance of bank mergers.

Boehmer, E., Musumeci, J., Poulsen, A., 1991. Event-study methodology under conditions of event-induced variance. Journal of Financial Economics 30, 253 – 272.

Brewer III, E., Jackson III, W., Jagtiani, J., Working Paper 2000. Impact of independent directors and the regulatory environment on bank merger prices: evidence from takeover activity in the 1990s.

Brook, Y., Hendershott, R., Lee, D., 1998. The gains from takeover deregulation: evidence from the end of interstate banking restrictions. The Journal of Finance 53, 2185 – 2204.

Brown, S., and Warner, B., 1980. Measuring security price performance. Journal of Financial Economics 8, 3 – 31.

Brown, S., and Warner, B., 1985. Using daily stock returns: the case of event studies. Journal of Financial Economics 14, 205 – 258.

Collins, C., Seung-Woog, K., Yildirim, S., Working Paper 2003. An examination of the equity market response to the Gramm-Leach-Bliley Act across commercial banking, investment banking, and insurance firms.

Corrado, C., 1989. A nonparametric test for abnormal security price performance in event studies. Journal of Financial Economics 23, 385 – 395.

Cowan, A., 1992. Nonparametric event study tests. Review of Quantitative Finance and Accounting 2, 343 – 358.

Cowan, A., Sergeant, A., Working Paper 1996. Trading frequency and event study test specification.

Cybo-Ottone, A., Murgia, M., Working Paper 1996. Mergers and acquisitions in the European banking markets.

DeLong, G., 2001. Stockholder gains from focusing versus diversifying bank mergers. Journal of Financial Economics 59, 221 – 252.

DeLong, G., DeYoung, R., Working Paper 2004. Learning by observing: information spillovers in the execution and valuation of commercial bank M&As.

DePrince, A., Working Paper 2004. Impact of the IBBEA on the structure of the U.S. bank system: 1993 – 2003.

Esty, B., Narasimhan, B., Tufano, P., 1999. Interest-rate exposure and bank mergers. Journal of Banking & Finance 23, 255 – 285.

Fishman, M., 1989. Preemptive bidding and the role of the medium of exchange in acquisitions. The Journal of Finance 44, 41 – 57.

Greene, H., 2000. Econometric Analysis. Fourth Edition, Prentice Hall.

Gujarati, D., 2003. Basic Econometrics. Fourth Edition, McGraw-Hill/Irwin.

Houston, J., Ryngaert, M., 1994. The overall gains from large bank mergers. Journal of Banking and Finance 18, 1155 – 1176.

Houston, J., James, C., Ryngaert, M., 2001. Where do merger gains come from? Bank mergers from the perspective of insiders and outsiders. Journal of Financial Economics 60, 285 – 331.

James, C., Weir, P., 1987. Returns to acquirers and competition in the acquisition market: the case of banking. Journal of Political Economy 95, 355 – 370.

Pilloff, S., 1996. Performance changes and shareholder wealth creation associated with merger of publicly traded banking institutions. Journal of Money, Credit and Banking 28, 294 – 310.

Pilloff, S., Santomero, A., Working Paper 1997. The value effects of bank mergers and acquisitions.

Roll, R., 1986. The hubris hypothesis of corporate takeovers. Journal of Business 59, 197 – 216.

Serra, A., Working Paper 2002. Event study tests: a brief survery.

Strahan, P., 2003. The real effects of U.S. banking deregulation. The Federal Reserve Bank of St. Louis.