

**Do CRA-related Events Affect Shareholder Wealth?
The Case of Bank Mergers ***

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Abstract

This study examines the issue of whether CRA-related events impact the security prices of banking institutions involved in mergers. While previous research has established that bank shareholders experience a significant permanent loss of wealth upon the announcement of a CRA protest, the current research finds no such evidence for either CRA protests or the removal of CRA protests using a sample of banks involved in mergers between 1986 and 1998. We identify a key econometric issue associated with event studies – the choice of a reference point for determining a bank’s baseline security price dynamics – as the driving factor in the divergence of the results. We argue that the choice of a reference point should ideally cause the effects of other events that have an independent influence on security price movements to be excluded from the analysis, which is the method employed in the current research. Supplemental analyses using a cross-sectional model of cumulative abnormal returns provide evidence that the market responds to CRA-related events, although the evidence does not generally support the view that such events have had large and significant negative impacts on bank stock prices.

1. Introduction

The Community Reinvestment Act (CRA) was passed in 1977 to encourage financial institutions to help meet the financial needs of customers within their entire service areas. Passage of the CRA was motivated by assertions that lending institutions were not adequately serving the communities in which they were located. In particular, two charges were levied against lenders. First, it was widely asserted that lenders located in low-income communities were using deposits from these areas to lend in communities with higher incomes. The second allegation was that lenders were engaging in redlining - rationing credit based on the location of the property that was being acquired without regard to the credit worthiness of the borrower. Redlining was believed to be particularly prevalent in those communities that historically had been considered under-served. The CRA is enforced by various government regulatory agencies, who assess the performance of federally-regulated banking institutions (referred to as “banks”) in meeting CRA objectives. These assessments result in publicly-released CRA performance ratings.

CRA considerations can be important in shaping the relationship between lenders and the communities they serve. This is particularly true for those banks looking to expand, as a poor CRA performance rating can lead regulators to delay or deny applications for mergers or branch expansion. In many instances, heightened regulatory scrutiny of an application may result from protests initiated by community groups based on CRA grounds. Ultimately, very few of these CRA protests have led to the denial of an application for merger.¹ However, the delays and costs associated with responding to these protests may have a significant or detrimental effect on the market value of the participants in the merger.

Johnson and Sarkar (1996) offer an initial examination of this question using a sample of bank announcements that require regulatory approval and find support for this notion.² The current paper takes their analysis further by adding features that produce more refined tests. First, as an econometric exercise, we examine the importance of the choice of a reference point for determining a baseline market price reaction that serves as

¹ Johnson and Sarkar (1996) report that the Federal Reserve denied 1 out of 182 protested applications between 1977-1990. Comparable data were not available from the other supervisory agencies.

² Banks are required to receive regulatory approval prior to consummating a merger, branch closure, or branch expansion.

the benchmark for evaluating whether subsequent market reactions are abnormal. In addition, to obtain a clearer picture of how the market reacts to the CRA, we focus exclusively on a single event – bank mergers – that typically draws the greatest attention from community groups and often results in a CRA protest. Second, as the literature has found a divergence in the market reactions of bidder and target banks in a merger, we consider these two groups separately. We also explore the sensitivity of the results to expansions of the sample period and sample size, particularly regarding institutions traded on the NYSE and AMEX.

Finally, we conduct additional tests using a reduced form cross-sectional model that relates cumulative abnormal returns associated with CRA-related events and bank financial and regulatory characteristics. This model permits an evaluation of whether such returns vary with bank financial and regulatory characteristics in ways that suggest that CRA considerations affect market valuations in an important way.

The results suggest that shareholders in bidder and target banks do *not* experience a significant change in wealth associated with a CRA-related event. In none of the cases was a CRA protest found to be associated with a negative cumulative abnormal return that was statistically significant. We likewise find no statistically significant market reaction associated with the removal of a CRA protest. These results are robust and diverge from those in Johnson and Sarkar (1996). A critical point in our discussion is how one chooses the reference point used to determine baseline security price dynamics, and how event study analysis results are likely to be sensitive to this choice. We argue that the choice of a reference point should ideally cause the effects of other events that have an independent influence on security price movements to be excluded from the analysis; otherwise, results could be biased. This is an important and general econometric issue that has significant implications for future event study analyses.

Additional tests using a cross-sectional model provide additional insights into the relationship between CRA-related events and security price movements. Specifically, we find that bidder banks that are state-chartered are more likely to experience negative security price reactions to CRA protests than other groups of institutions. In addition, bidders with poor CRA ratings experience larger positive security price reactions when

CRA protests are removed. Finally, the effects of the removal of a CRA protest for both bidder and target banks decline over time.

The next section provides an overview of the CRA and discusses the factors that may influence the market's reaction to CRA-related events. Following this is a discussion of the data. Next, the empirical approach and results are discussed. Lastly, the paper is summarized in the conclusion.

2. The CRA, Mergers, and Market Reactions

The Community Reinvestment Act of 1977 (CRA) encourages banks to help meet the needs of their entire service area, with a particular focus on low- and moderate-income communities and individuals. The CRA impacts banks primarily in two ways. First, federal regulators periodically review the record of banks in meeting CRA objectives. These examinations assess an institution's performance in serving its entire service area, including a review of an institution's lending and bank branching patterns. This results in a CRA performance rating for the institution that is released to the public. Second, regulators are directed to consider an institution's CRA record when reviewing applications for merger, acquisition, branch expansion or closure.

Poor CRA performance can negatively impact banks. Institutions that receive poor CRA ratings may incur costs, such as negative publicity from the press and community groups that can potentially lead to reductions in deposits and lending opportunities, and the loss of goodwill within the community. In addition, these institutions can incur costs associated with responses banks take to shore up their CRA record and improve their performance rating.³

Poor CRA performance can also impose costs from a strategic perspective. First, because regulators consider an institution's CRA record during the review process for mergers and acquisitions, a poor CRA record increases the likelihood that a merger application will be denied or delayed. These concerns are particularly acute for acquisition-oriented banks.

³ Responses banks take to improve their CRA performance can also generate revenues. See Bostic and Robinson (2001).

In addition, banks with poor CRA records are likely to face challenges to their merger applications from community groups on CRA grounds.⁴ These CRA protests, which typically occur during the public comment period following the submission of an application, outline why the protesters feel the banks involved in the proposed merger (either the bidder, target, or both) have failed to meet CRA objectives and recommend that the merger application be denied or approved with conditions requiring improved CRA performance. Protests often require additional review by the regulatory agencies considering the application. Thus, CRA protests increase the likelihood that a delay in the merger process will occur, which increases the probability that the merger will be more costly or, in extreme cases, unsuccessful and that an additional bidder will enter the merger contest, which will also increase the merger's cost.

Banks facing protests may need to expend considerable resources to address the concerns raised by protesters. One response to CRA protests has been for banks to enter into agreements with community groups, in which they pledge to invest and lend specific dollar amounts to targeted groups and communities.⁵ Often such agreements, which we call "CRA agreements," result in the removal of a CRA protest. As they eliminate the need for heightened scrutiny of applications associated with CRA protests, the CRA protest removal increases the probability that the merger will receive regulatory approval.

This paper explores how the filing and removal of CRA protests (jointly referred to as "CRA-related events") affect the market valuation of banks involved in mergers. If CRA protests represent a real cost to financial institutions, then the security prices for merging banks that face such protests should decline. In addition, because target banks in a merger have the most to gain from a merger, they should experience larger declines in valuation than bidder banks. By contrast, because it signals that the merger is more likely to be consummated, the removal of a CRA protest should cause an increase in security prices for the merging banks. In this case, both bidder and target banks should experience an increase in the price of their securities, with the target's shareholders experiencing the largest security price increase.

⁴ It should be pointed out that CRA protests need not be linked to a poor CRA performance rating. Indeed, a number of banks with outstanding CRA performance ratings have received CRA protests associated with their merger applications.

⁵ Schwartz (1998a) provides a thorough review of the components of CRA agreements.

The foregoing discussion implicitly assumes that CRA-related events are unexpected events that impart new information on the likelihood that a merger will be successful. There are several alternative perspectives. One alternative is that the market views CRA-related events as part of the natural process in completing bank mergers and has already incorporated their associated costs into the security prices of the merging banks. In this case, the costs of CRA-related events would be incorporated into the stock price reaction at the time of the merger announcement. If true, one would expect little stock price reaction to the actual CRA-related events for either bidder or target banks. Another possibility that produces the same implication is that the market might view the costs associated with CRA-related events as relatively insignificant.

3. The Current Approach

3.1 A Market Model

We use a standard approach to determine the security price reaction to CRA-related events. For each institution, we use a single-factor market model to establish baseline market parameter estimates based on stock price movements during a period beginning 150-days prior and ending 30-days prior to a reference event. The daily abnormal return (AR_{it}) for bank i on day t is defined as:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}), \quad (1)$$

where,

R_{it} = the return for bank i on day t during the event period;

R_{mt} = the market return for the CRSP equal-weighted index on day t ; and

α_i, β_i = the estimated market model coefficients from the estimation period.

We use the Scholes and Williams (1977) correction technique for non-synchronous trading problems and calculate cumulative abnormal returns using three event window periods: 5 days prior to the event date, 5 days following the event date, and a 2-day window that includes the day prior and the event date. The pre-event window is used because some CRA-related events might be reported to the public with a lag of several days. Thus, the market might be aware of the event before the date it is actually reported. The post-event window is used to explore the possibility of a delayed market reaction to

the CRA-related event. In either case, a 5-day window could be too large, causing the calculation of abnormal returns to potentially be affected by non-CRA-related events. Thus, we also use the more traditional two-day event window as a robustness check. In all cases, cumulative abnormal returns are standardized using residuals from the market model.

Attention is restricted only to those CRA-related events associated with mergers and acquisitions, which are the primary impetus for most CRA protests. In addition, researchers have found that market reactions to merger announcements differ between bidders and targets. In particular, evidence suggests that target banks extract some of the merger benefits from bidder banks (see Wansley, Roenfeldt and Cooley (1983) and Carleton, Guilkey, Harris and Stewart (1983)). Consequently, we consider the market reactions of bidders and targets separately. This allows for an examination of the issue of whether, CRA-related events induce significant reactions, and if these reactions differ based on whether an institution is the bidder or target institution.

The data used in this study were obtained from four sources. Data on bank mergers between 1986 and 1998 that resulted in a CRA protest were obtained from the Board of Governors of the Federal Reserve System. Based on this primary sample of bidder and target banks, electronic databases like the Wall Street Journal Index and Lexis-Nexis were used to obtain the date for the first public release of information regarding the announcements of a merger, a CRA protest, and the removal of a CRA protest. Banks were included in the sample only if a merger announcement date and either a CRA protest announcement date or a CRA protest removal date could be determined. This rule could induce a selection bias in our sample towards larger banks, since activities associated with such banks are more likely to be reported upon in the major information sources. However, it is not clear ex ante how this bias, if it exists, might affect any observed relationships.^{6,7}

⁶ Community activists with limited resources are more likely to protest mergers between large banks, because these large banks have the ability to direct more resources to specific communities or groups that have been targeted by community groups. In other words, by protesting a merger between large banks, the community group is able to obtain a larger return for the resources expended.

⁷ An additional reason why our sample may have a large bank bias can be attributed to our requirement that the banks in our sample have equity that is publicly traded. This requirement virtually eliminates all banks except those that tend to be the largest in the industry.

The Center of Research in Security Prices database was used to obtain daily security price data for all bidder and target banks that were listed on the NYSE, AMEX or NASDAQ exchanges for 1986 to 1998. We identify the bidder and target institutions from a merger application using a taxonomy developed by the Division of Consumer and Community Affairs at the Board of Governors of the Federal Reserve System. The target sample consists of 48 merger announcements, 47 CRA protest announcements and 20 protest resolution announcements. The bidder sample consists of 68 merger announcements, 59 CRA protest announcements and 26 protest resolution announcements.

There are actually two null hypotheses that will be presented. The first null hypothesis relates to the security price reaction for both bidder and target banks that experience a CRA protest following their merger announcement. The first null hypothesis states that the expected market reaction for both bidder and target banks associated with a CRA protest should be negative and statistically different from zero. In other words, similar to the results found in Johnson and Sakar (1996), the initiation of a CRA protest represents a significant cost to the shareholders of the participating banks. The loss of shareholder wealth may represent a revaluation by the market regarding the probability of a successful consummation of the merger. The alternative hypothesis is that the expected costs to shareholders are equal to zero. In other words, an insignificant market reaction to a CRA protests could be attributed to the market's assessment that a CRA protest does not represent a significant cost to either the bidder or target when completing a merger.

The second null hypothesis states that the resolution of a CRA protest should lead to a positive market reaction that is statistically different from zero. The market revaluation following the removal of a CRA protest may represent the market's positive reassessment of the probability of the merger's success, causing the security price of both bidder and targets to increase. The alternative hypothesis is that the expected revaluation following the resolution of a CRA protest will be equal to zero. If the market considers a CRA protest as an insignificant event that incurs no real significant cost to shareholders, then the resolution of a CRA protest should not cause security prices to be impacted in a significant way.

In addition, we segment our sample of bidders and targets based on the exchange the banks' securities are traded. Johnson and Sakar (1996) show that small lending institutions tend to experience the strongest market reaction following the passage of the CRA. In order to explore their result, we sort bidders and targets by exchange in order to observe differential impacts based on exchange. In addition, segmenting the sample based on exchange should provide a proxy for size, because larger banking institutions tend to trade on the NYSE and AMEX exchanges.

Table 1 provides financial information for the final sample of bidder and target banks that were involved in a CRA-related announcement. As expected, bidder banks tend to be larger in asset size and more profitable when compared to target banks.

3.2 A cross-sectional model

While the market model provides one method for examining how CRA-related announcements impact the security price of merging banks, we also pursue an alternative course. We develop a reduced form model of cumulative abnormal returns to see if the magnitude of returns varies with bank financial and regulatory characteristics and other variables in ways that suggest that CRA considerations affect market valuations in an important way. Specifically, we estimate

$$\text{Cumulative abnormal return} \\ = f(\text{Bank financial and regulatory information, Time, Acquirer}) \quad (2),$$

where the two-day cumulative abnormal return is used as the dependent variable. Because of small sample sizes, we are forced to restrict our specification to include only a few regressors. Separate regressions are run for bidder and target banks.

We identify four key variables from which inferences between CRA-related events and changes in returns can be drawn. The first two are regulatory variables. Because a bank's CRA performance rating is required to be considered by regulators during a bank's merger application, one would expect CRA protests of mergers by banks with poor CRA performance ratings to have a higher probability of affecting the application process than protests of banks with satisfactory or higher CRA performance ratings. Thus, one would expect the abnormal returns associated with CRA protests of mergers involving banks with poor CRA ratings to be more negative than the returns associated

with other protests. By similar reasoning, the positive market reaction to the removal of a CRA protest should be larger the worse a bank's CRA performance rating, as the probability that the merger will meet regulatory approval will be significantly revised upward. LOW CRA is a variable representing the bank's lowest CRA composite rating, defined as the lowest CRA composite score for any of the banks within the holding company. This variable is constructed as a continuous variable from 1 (outstanding rating) to 4 (non-compliance).

The other regulatory variable is CHARTER, a dichotomous variable equaling 1 if the majority of a holding company's assets are located within nationally chartered banks and 0 otherwise. This variable provides some information regarding whom the market perceives as a more aggressive enforcer of CRA legislation, which is a signal of the extent to which a CRA protest is likely to be taken seriously. If, for example, the market perceives the Office of the Comptroller of the Currency to be more inclined to respond to CRA-related concerns than other regulatory agencies, then one would expect CHARTER to be negatively related to returns at the time of a CRA protest and positively associated with returns upon the removal of a protest.⁸

Two other variables in our specification allow for inferences between CRA-related events and changes in shareholder value. ACQUIRER is a dichotomous variable that represents whether the bidder is an active acquirer during the period 1980-1994 as documented by Rhoades (1996). Banks that are active acquirers may have developed some knowledge or expertise in successfully circumventing challenges posed by CRA protests associated with a bank merger. As such, one might expect to observe a less pronounced market reaction to CRA-related events (both protests and protest removals) for such banks.⁹ ACQUIRER equals 1 if the bank is considered an active acquirer and 0 otherwise.

Finally, we earlier argued that one difficulty faced by earlier studies of this issue is the uncertainty associated with how CRA-related events might influence merger

⁸ The regulators of state chartered banking institutions are the Federal Reserve System, the Federal Deposit Insurance Corporation and the state banking commissions.

⁹ We also considered whether market reactions differed for institutions that had repeated experiences with CRA-related events and, for such institutions, whether market reactions differed between their first and

applications. In the years immediately following the passage of the CRA, this uncertainty may have contributed to abnormally large market reactions. To explore this possibility, the specification includes TIME, a continuous variable reflecting the year when the merger announcement occurred. If uncertainty associated with CRA-related events declined over time and if such uncertainty contributed to the market's reaction, then holding all else equal, one would expect the magnitude of the market's reaction to decline over time. This is because, although CRA-related events may have delayed application processing times, it has been documented that in almost no cases have they caused an application to be denied.

In addition to these four variables, two other variables are included as a partial control for the recognition that market reactions may also be influenced by bank-specific characteristics. We focus on two factors that might influence the market's reaction to mergers. Amel and Rhoades (1989) and Rose (1991) both show that the efficiency of a target bank (ROA) is negatively associated with abnormal returns, as a merger can result in larger efficiency gains and hence larger increases in bank value. Similarly, one might expect market reactions to vary with the size of the institutions, as the market may perceive that the potential payoff of a merger is increasing in the size of the banks involved. The data on bank financial and regulatory characteristics are drawn from the annual Reports on Income and Condition (Call Reports). The financial data obtained for each bidder and target bank for the year prior to the merger announcement include return on assets, asset size, lowest CRA rating, and charter type.

3.3 Relation of the current work to the existing literature

To our knowledge only one paper, Johnson and Sarkar (1996), has focused on the relationship between changes in a bank's security price and the CRA. Their research explores how the passage of the CRA in 1977 impacted security prices for a sample of banks and thrifts by addressing the market's reaction to CRA-related events associated with applications for mergers, acquisitions, and branching changes. They use the standard market model described above with a 5-day window to determine the security

subsequent experiences. The results indicated no relationships for these variables, and they are therefore not discussed in the text.

price reaction to these events. Using a sample of 31 CRA-related protests, Johnson and Sarkar (1996) find that small depository institutions have a strong, negative market price reaction associated with the CRA. Their results also show that depository institutions that receive a CRA protest after an announcement of a branching change or merger experience a statistically significant negative stock reaction. Also, the resolution of a CRA protest results in an insignificant abnormal return. The authors conclude that CRA protests cause shareholders of lending institutions to experience a permanent loss of wealth.

Johnson and Sarkar (1996) note a significant negative response to the passage of CRA legislation for OTC-traded securities but not for NYSE- or AMEX-traded securities. They infer from this that the CRA disproportionately affected smaller institutions, which are more likely to have OTC securities.

The current research represents an extension of Johnson and Sarkar (1996) that offers a number of improvements on the methodology employed in the initial examination of Johnson and Sarkar (1996) and considers a number of potentially important issues raised by their work. A first, and potentially very important, issue is the sensitivity of results to the choice of the period used to determine an institution's normal pattern of market returns, $\alpha_i + \beta_i R_{mt}$. In standard event study analyses, the event of interest is the precipitating event for a market reaction. For example, a bank's announcement of unexpectedly large profits might be expected to cause a significant market reaction. In such a case, researchers typically consider the months preceding the announcement as characteristic of the bank's normal security price dynamics and study how security price movements diverge from this dynamic post-announcement. This is the approach taken in Johnson and Sarkar (1996), where the event of interest in this case is the CRA-related event (period A in figure 1).

However, CRA-related events are not like profit announcements in that they are always derivative events that occur only after another event takes place. In this case, the initial event, the merger or acquisition announcement, is a precipitating event in the context of event analyses. There is a large body of research demonstrating the existence of abnormal returns associated with merger announcements (Cornett and De, 1991; Trifts and Scanlon, 1987; Tehranian, 1992). Because of this, use of the standard event analysis

technique could result in a confounding of effects. As CRA-related events usually follow relatively closely after the merger announcement, the merger effect will be incorporated into the assessment of the bank's normal security price dynamics. As a result, estimates of both α_i and β_i will be affected, which could lead to the obscuring, overstating, or even elimination of any actual market reaction to the CRA-related event.¹⁰

Because of this concern, we conduct the analysis in two ways. We first use the standard event study approach and treat the CRA-related event as the reference event for determining a bank's normal security price dynamics. Next, we conduct an alternative analysis where we use the *merger announcement date* as the point of reference. We estimate the dynamic parameters using an examination period beginning 150 days prior to the merger announcement. By using this approach, estimates of a bank's normal price dynamics do not include the effects of the event on which the CRA-related activity is predicated (period B in figure 2). If the results of this alternative approach differ from those of the standard event study methodology, it raises questions about which method is more appropriate for the study of derivative events and argues for a reexamination of event study methodologies more generally. We will revisit this issue in the discussion.

A second issue regards the market's sensitivity to CRA-related events associated with different types of bank applications. In Johnson and Sarkar (1996), 19 of the 31 CRA protests in the sample were associated with merger applications, while the remainder followed an application for branch closure or expansion. This type of pooling of CRA-related events associated with different types of applications could mask potentially different market reactions for events related to each type of application. While CRA protests of merger applications are not unusual, applications for branch closures or expansions are typically challenged far less frequently. Thus, CRA-related events associated with applications involving branching activities might signal special circumstances that involve more serious problems for the applicant bank. As a consequence, one might expect differences in the impact of CRA protests associated with

¹⁰ In addition, the market's reaction to CRA-related events associated with bank mergers can only be observed if the parameters for the market model are held constant. If the parameters are recalculated preceding each event, it would be impossible to determine the size of the market's reaction to CRA-related events and the overall wealth impact to shareholders. In addition, it would be impossible to determine if

applications for changes in branch configuration and those associated with mergers and acquisitions. By focusing only on mergers, we avoid this issue and offer new information on the wealth impact associated with merger-related CRA protests.

A third issue involves the sensitivity of the relationships to the time frame analyzed. Our sample examines the period 1986 to 1998, which is a period more distant from the passage of the CRA than that previously examined. This allows for a consideration of the issue of whether the industry's experience with the CRA since 1977 has increased or reduced the wealth impact of CRA-related events on institutions. It would be expected that a reduction in this uncertainty should reduce the negative reaction associated with CRA-related events, independent of whether the CRA-related events truly had costs associated with them.

In addition, we expand the scope of the analysis in Johnson and Sarkar (1996). Aside from allowing a consideration of the effect of experience on market reactions, the 1986-1998 period offers another benefit in that it was a period during which the banking industry saw dramatic consolidation. Thus, we are able to consider the impact of CRA-related events on the market price of a larger number of bank mergers that previously examined.

An additional issue that emerges from the previous work is whether market reactions to CRA-related events vary with the exchange that the bank's security trades. Forty of the 66 CRA-related announcements included in the Johnson and Sarkar (1996) sample involved institutions whose securities were traded over-the-counter (OTC). Our expanded sample includes the experiences of a significant number of banks listed on the NYSE and AMEX, which allows for a reexamination of whether the market reaction to CRA-related events differs based on the exchange on which the banks' equity is trading.

4. Empirical Results

4.1 Results of the market model analysis

We first conduct the market model analysis using the standard event study approach, in which the CRA-related event is the reference event for establishing the baseline market

the market's reaction was a function of the CRA announcement or the adjustment in the parameters of the market model.

parameters for each institution. This is a replication of the procedure used by Johnson and Sarkar (1996). The results, shown in table 2, largely mirror those in Johnson and Sarkar (1996), as there is evidence that the market reaction to CRA protests is significantly negative. Moreover, consistent with other research on security price reactions to mergers, the relationship only holds for target banks. No significant relationships are observed between CRA protests and changes in security prices for bidder banks. Also, consistent with Johnson and Sarkar (1996), no significant offsetting relationships are observed between CRA protest resolutions and security price reactions.

However, as discussed earlier, using the CRA-related event announcement date as the reference event for establishing a bank's baseline market parameters is likely to negatively impact the results. We therefore repeat the exercise using the *merger announcement* date as the reference event. Results using this alternative approach are shown in table 3.

The top panel relates the current analysis to the previous literature on market reactions to mergers by showing how security prices for the banks in our sample responded to the merger announcements. For target banks, we observe large and significant positive abnormal returns associated with the announcement of a merger. The two-day event window shows that target banks experience an average return of 13.14 percent at the announcement of a merger. A statistically significant 83.33 percent of the target banks experienced a positive cumulative abnormal return.¹¹ These results are consistent with the literature on how the market reacts to mergers.

For bidder banks, the market reactions to merger announcements also conform to those found in the previous literature on market reactions to mergers. The cumulative abnormal returns associated with a merger announcement for bidder banks were negative, but statistically insignificant. In addition, the percentage of bidders that experience a positive abnormal return after a merger announcement is not statistically different from random assignment. Similarly, the data show no significant relationship between CRA protests and the security price reaction of bidder banks. Estimated cumulative abnormal

¹¹ The percentage of targets that experience a positive cumulative abnormal return for the $-5,0$ and $0,+5$ event windows was 83.33% and 66.67%, which is statistically significant at the .001 and .01 levels. In the remaining text of this paper, only the results from the two-day cumulative abnormal return will be discussed.

returns are not found to be statistically significant and no distributions of experiences were significantly different from random assignment.

The second panel of table 3 shows the security price reaction of target and bidder banks to CRA protests. Here, the results for target banks differ from those obtained when the standard event study methodology is used. While point estimates remain negative, the strong statistical significance of the relationship between CRA protests and target bank security prices observed earlier disappears. In addition, the point estimate of the effect is quite small when compared to the effects of a merger announcement on security prices. As additional evidence, over the two-day window, only slightly more than half of the banks (57.45 percent) experienced a negative cumulative abnormal return. While this percentage increases in the longer event windows, in only one case is the percentage statistically significant from 50 percent (random assignment) and this significance is only at the border of generally accepted thresholds (at the 10 percent level).

Consistent with the lack of a significant relationship between CRA protests and security price movements, no relationships are observed between the removal of a CRA protest and security price movements for bidders or targets (panel 3 of table 3). None of the estimated coefficients are significantly different from zero. Further, for neither bidders nor targets is the percentage of banks that experienced a positive or negative cumulative abnormal return significantly different from random assignment.

Contrary to the findings using the standard event study methodology, the results using our alternative approach indicate that CRA protests and the removal of CRA protests do not impose a significant cost on shareholders of merging banks.¹² This is a consistent finding, as none of these results varies substantially across event windows. The findings suggest that, if there is a misalignment between the public announcement of events and

¹² It is possible that the market views a CRA protest as a normal part of doing a merger, therefore capitalizing the anticipated CRA protest into the market's reaction when the merger is announced. Under this scenario, the market reaction to a CRA protest would not be statistically significant, even if the protest represented a statistically significant event. In an attempt to explore this possible scenario further, a difference-in means test was performed on the abnormal returns surrounding a CRA protest for both bidders and targets for a pre-period (1986-1990 and 1986-1993) and for a post-period (1991-1998 and 1994-1998). In neither case were the abnormal returns between the two periods statistically different from each other. In other words, the market reaction to a CRA protest does not appear to be less significant over time due to a potential capitalization of the market's reaction to the anticipated CRA protest in the merger announcement.

market knowledge of those events, such a misalignment does not influence relationships in significant ways.

Table 4 shows the results of an analysis using our alternative approach, where the sample of bidders and targets is further segmented based on the exchange a bank's stock is traded. Segmenting the sample in this manner indicates whether the exchange on which a bank's stock is listed is associated with the nature of the market's reaction to CRA-related events.

The top panel shows the abnormal returns for bidders and targets in our sample that are listed on the NYSE/AMEX exchanges, which tend to be similar to the results for the whole sample. The NYSE and AMEX reactions to merger announcements conform to those in the earlier literature on this topic: security prices for targets listed on the NYSE and AMEX exchanges experience a significant positive market reaction (12.56%) and those for bidders listed on those exchanges do not. Regarding CRA-related events, as before, the security prices for neither targets nor bidders listed on the NYSE and AMEX exchanges showed significant responses. In all of the cases, the percentage of banks that had a positive cumulative abnormal return was not significantly different from fifty percent.

The bottom panel of table 4 shows how the security prices of bidders and targets that have equity traded on the OTC responded to merger announcements and CRA-related events. Consistent with the NYSE and AMEX findings and with the prior literature, target banks had significant positive security price reactions (13.47%) and bidder banks had no security price response to merger announcements. Also, consistent with the NYSE and AMEX findings here but contrasting with the results found by Johnson and Sarkar (1996), security prices for OTC targets and bidders do not show significant responses to CRA-related announcements. As with the NYSE and AMEX banks, the percentage of bidders and targets with a positive cumulative abnormal return was not statistically significant.¹³

¹³ The standard event study approach was used for both bidder and target banks that trade their equity on the OTC exchange for the CRA protest date and the resolution date. The market reaction for bidders was found to be statistically insignificant for both dates. However, similar to the results found in Johnson and Sakar (1996), target banks experienced a negative market reaction that was statistically significant at the

Taken together, these results confirm the importance of the choice of reference date to establish a bank's normal stock price dynamics. The results are quite sensitive to whether the time around the merger announcement is included when determining an institution's dynamics. Using the standard event study approach, which defines the CRA announcement as the reference point, we observe a significant negative security price reaction to CRA-related events. This finding, using our expanded sample, conforms to the result in Johnson and Sarkar (1996). However, when we employ an alternative method that uses the *merger announcement* as the reference point, we do not observe any relationship between CRA-related events and security price movements. This highlights a potentially important econometric issue regarding event-study analyses that merits more attention.

4.2 Results of the cross-sectional analysis

Table 5 provides the results from equation (2), run separately for both bidders and targets. The first set of results for both bidders and targets examines the two-day cumulative abnormal return associated with CRA protests. For bidders, the only significant variable is CHARTER. The results here indicate that, relative to state-chartered bidders, bidders that are nationally chartered are more likely to receive a positive security price reaction when a CRA protest is announced. Interestingly, none of our variables has a significant relationship for target banks.

The other set of results uses the two-day cumulative abnormal return for the resolution of a CRA protest for both bidder and target banks. Here, there is some evidence consistent with the notion that markets react to CRA-related events, although not necessarily in the adverse way the theory predicts. For bidder banks, LOW CRA is positive and marginally statistically significant, which shows that bidders with lower CRA performance ratings tend to experience a larger market reaction when a CRA protest is removed. The removal of a CRA protest appears to benefit those banks that have the highest probability of having their merger application denied because of poor CRA performance. This suggests that the removal is a signal to the market that the merger is likely to be consummated, which boosts the bank's market valuation.

5% level on the date that the CRA protest was initiated. The market reaction to the CRA protest resolution date was statistically insignificant for the sample of OTC targets.

For both bidders and targets, the TIME variable is negative and statistically significant. This suggests that the removal of a CRA protest has had a less significant impact on market prices over time. This is somewhat surprising, given that we find little relationship between CRA protest resolution and market reactions above. However, it is consistent with the view that market reactions to CRA-related events have decreased in their significance as increasing numbers of merger applications were approved.

5. *Conclusion*

The role that the CRA plays in banking has been of interest to researchers for some time. One line of research has focused on the impact of CRA-related events on the market value of banking institutions and found that such events are associated with declines in market prices, particularly for smaller institutions. A reading of this research raises many questions, both regarding the nature of this relationship and the econometric techniques used to analyze this question. The current research revisits this issue with these questions in mind.

First, as an econometric exercise, we examine the importance of the choice of a reference point for determining a baseline market price reaction that serves as the benchmark for evaluating whether subsequent market reactions are abnormal. This is an important econometric issue that has significant implications for future event study analyses. In addition, to obtain a clearer picture of how the market reacts to the CRA, we focus exclusively on a single type of event – bank mergers – that draws the most attention from community groups and often results in a CRA protest. We also explore the sensitivity of the results to expansions of the sample period and sample size, particularly regarding institutions traded on the NYSE and AMEX. Finally, we conduct additional tests using a reduced form cross-sectional model of cumulative abnormal returns to see if such returns vary with bank financial and regulatory characteristics in ways that suggest that CRA considerations affect market valuations.

The event study analysis using a market model of security price dynamics finds that, in contrast to the findings of earlier research, CRA-related events do not appear to be associated with significant negative market reactions. Rather, the market does not seem to respond strongly to CRA-related events at all. This lack of significance is robust to

whether the sample consists of bidder or target institutions and to an institution's size, proxied by whether the bank's security is listed on the NYSE, AMEX, or OTC exchange.

The divergent market model results obtained here appear to stem from differences in the choice of a reference point for establishing an institution's baseline market price dynamics. Mirroring standard event-study techniques, earlier research used the CRA-related event as the reference point, while the current research uses the announcement of the merger that sparked the CRA-related event as the reference point. When we use the standard approach, our results match those obtained in prior research.

We believe that, regarding event study analyses involving CRA-related events, the methodology employed in this research is preferred to that of standard event studies. The CRA-related events of interest follow an event known to induce abnormal positive market returns – the announcement of a merger. The standard event study technique will incorporate these abnormal returns into the institution's normal security price dynamics, which will tend to bias assessments of the effect of CRA-related events in a negative direction. In order to obtain a “clean” assessment of how CRA-related events influence security price movements, these known factors should be controlled. By using the merger announcement date as the reference point, we explicitly do this.

We recognize that this type of critique is present for any examination period one might analyze. Significant events could take place during any examination period that one might choose that could have a strong influence on one's assessment of “normal” for an institution. In this instance, though, there is a systematic sequence of events. The CRA-related events in our sample *always* closely follow the merger announcement. To the extent possible, then, the effects of the merger announcement should be “integrated out.” If there were other systematic influential events, we would advocate also excluding them from the period during which an institution's normal security price dynamics were established.

This is a general issue that is relevant for conducting any event study analysis. To the extent that there are influential events other than the event of interest that have a *systematic* temporal relationship to the event of interest, these should be excluded from consideration in conducting event study analyses to avoid any biases their inclusion might induce. This is most important if the influential event occurs prior to the event of

interest, but could also be important if the event occurs during the period when the security price's reaction to the event of interest is being calculated.

On the other hand, if there are influential events that do not have a systematic temporal relationship to the event of interest, it is more difficult to establish a rule of thumb. One could argue that these are idiosyncratic events that are a part of an institution's normal course of business and should not be treated in a special fashion. Alternatively, one could remove these from consideration as we propose above. A difficulty with taking this course in this context is that the exclusion will have a differential effect across observations; some observations will be adjusted while others will not.

The results from the reduced form model of cumulative abnormal returns provide additional information on the nature of the market's response to CRA-related events. The strongest negative market reaction to CRA protests is observed for bidder institutions that are state-chartered. In addition, the removal of CRA protests tends to benefit bidders that receive poor CRA ratings. Moreover, the market response to CRA-related events appears to have declined in recent years. These results suggest that the costs associated with a CRA protest is fairly well directed to those banks that are perceived by the market to be poor CRA performers or monitored by regulators considered to be aggressive enforcers of CRA legislation. In any case, the cost to shareholders associated with a CRA-related event has become less significant over time.

Overall, the results show that CRA-related events do not significantly impact bank market values at the time of their announcement. This might imply that the market perceives the cost of CRA-related events in this context to be relatively small; if the costs were large, one would have expected a significant shareholder response. This result is surprising considering the amount of discussion that CRA legislation has received in the press and political sanctuaries.

Our results have implications for the public policy debate regarding the CRA. It has been argued by some that CRA protests are simply an attempt by community groups to extract resources from lending institutions. Although the current research does not focus on this directly, the results suggest that, even if such community group resource

extraction is taking place through CRA protests, it does not significantly harm stockholder wealth. Perhaps this is because few CRA protests ultimately end in the rejection of a merger application.¹⁵

The results of the current research do not necessarily mean that the CRA has no effect on bank security prices. The CRA, through its regulations, does require banking institutions to incur extra compliance and other costs. Because all banking institutions with approved charters are subject to them, CRA-related costs could be significant. However, although the costs associated with CRA compliance for banking institutions may be large, the costs associated with CRA that follows the announcement of a bank merger does not appear to represent a significant cost to the banking institutions involved.

¹⁵ In many instances, the resolution of a CRA protest often precedes the announcement of some type of financial support (CRA agreements) to a community or group at the direction of the protesting group. However, the size of the financial support within these CRA agreements is generally very small relative to the total financial resources available to the merging institutions.

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Table 1. Summary statistics for characteristics for bidders and targets.

		Assets				Return on Assets				Capital			
	N	Mean	Min.	Max.	St. Dev.	Mean	Min.	Max.	St. Dev.	Mean	Min.	Max.	St. Dev.
CRA protest lodged													
Bidders	59	53,461	5,027	264,562	51,160	0.98	-1.55	5.85	0.82	6.54	3.69	9.81	1.19
Targets	47	24,271	45	249,377	45,073	0.90	-0.18	1.79	0.44	6.83	4.34	9.17	1.02
CRA protest resolved													
Bidders	26	73,602	7,792	287,780	74,299	0.94	-0.40	1.79	0.48	7.01	5.18	8.85	0.94
Targets	20	46,035	245	249,347	63,095	.088	-0.40	1.67	0.58	7.04	5.13	1.66	12.65

Table 2. Cumulative excess returns (in percent) for intervals surrounding the announcement date ($t=0$) for bidder and target banks that faced CRA-related events between 1986 and 1998. Each bank's abnormal returns were established using the date *the CRA-related event* was announced as the reference. These results include the Scholes-Williams adjustments.

	Bidders CAR	% positive	Targets CAR	% positive
CRA Protest Announcement				
(-5,0)	0.07	47.46	-1.14**	29.79*
(-1,0)	-0.26	42.37	-0.89***	23.40***
(+5,0)	-0.08	45.76	-1.52**	34.04
CRA Protest Resolution Announcement				
(-5,0)	0.18	57.69	-0.23	47.06
(-1,0)	-0.26	57.69	0.03	58.82
(+5,0)	0.07	57.69	-1.42	35.29

***, **, * indicates significance at the .01, .05 and .1 levels.

Table 3. Cumulative excess returns (in percent) for intervals surrounding the announcement date (t=0) for bidder and target banks that faced CRA-related events between 1986 and 1998. Each bank's abnormal returns were established using the date *the merger* was announced as the reference. These results include the Scholes-Williams adjustments.

	Bidders	%Positive	Targets	%Positive
Merger Announcement				
(-5,0)	-0.09	45.59	15.11****	83.33****
(-1,0)	-0.04	39.71	13.14****	83.33****
(0,+5)	-0.26	51.47	10.06****	66.67***
CRA Protest Announcement				
(-5,0)	0.07	49.15	-0.79	38.30
(-1,0)	0.11	40.68	-0.29	42.55
(0,+5)	-0.23	47.46	-0.67	27.66*
CRA Protest Resolution Announcement				
(-5,0)	-0.46	30.77	-0.50	55.00
(-1,0)	-0.22	34.62	0.04	45.00
(0,+5)	-0.98	46.15	1.71	50.00

****, ***, **, * indicates significance at the .001, .01, .05 and .1 levels.

Table 4. Cumulative excess returns (in percent) for intervals surrounding the announcement date ($t=0$) for bidder and target banks that faced CRA-related events between 1986 and 1998. Bidders and targets are further separated based on the exchange the banks' equity is traded. Each bank's abnormal returns were established using the date *the merger* was announced as the reference. These results include the Scholes-Williams adjustments.

NYSE and AMEX traded banks

	Bidders	%Positive	Targets	%Positive
Merger Announcement				
(-5,0)	-0.21	43.40	14.39****	86.36****
(-1,0)	0.05	39.62	12.56****	77.27****
N	53		22	
CRA Protest Announcement				
(-5,0)	0.05	47.83	-0.74	52.38
(-1,0)	0.23	45.65	-0.15	42.86
N	46		21	
CRA Protest Resolution Announcement				
(-5,0)	-0.50	35.29	0.09	69.23*
(-1,0)	-0.09	34.78	0.40	53.85
N	23		13	

OTC traded banks

	Bidders	%Positive	Targets	%Positive
Merger Announcement				
(-5,0)	0.14	50.00	15.32****	77.78****
(-1,0)	-0.39	37.50	13.47****	85.19****
N	16		27	
CRA Protest Announcement				
(-5,0)	0.08	50.00	-0.56	29.17
(-1,0)	-0.31	25.00*	-0.34	41.67
N	13		26	
CRA Protest Resolution Announcement				
(-5,0)	-0.14	66.67	-2.06	16.67
(-1,0)	-1.21	33.33	-0.47	33.33
N	3		7	

****, ***, **, * indicates significance at the .001, .01, .05 and .1 levels.

Table 5. Cross-sectional regression results are shown for both bidder and target banks using the two-day cumulative abnormal return surrounding the CRA protest announcement and the CRA agreement announcement as dependent variables. Independent variables include return on assets (ROA), total assets (Assets), lowest CRA rating for the bank with an outstanding rating = 1 and substantial noncompliance rating = 4 (Low CRA), a dummy variable denotes charter type with nationally chartered banks = 1 (Charter), a dummy variable denotes an active acquirer with active acquirers = 1 (Acquirer) and the year the CRA protest was announced with 1986 = 0 and 1998 = 12 (Time).

Resolution Variables	Bidders		Targets	
	CRA Protest	Protest Resolution	CRA Protest	Protest
ROA	0.227 (0.463)	1.153 (1.104)	0.325 (0.983)	0.326 (1.444)
ASSETS	-0.001 (0.001)	0.001 (0.001)	0.325 (0.983)	0.001 (0.001)
LOW CRA	0.002 (0.007)	0.013* (0.007)		0.005 (0.012)
CHARTER	0.024** (0.010)		0.009 (0.008)	0.011 (0.014)
ACQUIRER	-0.003 (0.008)	0.031 (0.134)		
TIME	-0.001 (0.002)	-0.005** (0.002)	-0.001 (0.001)	-0.008* (0.004)
R ²	13.62	51.11	6.61	40.34
F-statistic	1.051	3.346	0.708	1.487
N	46	21	44	16

***, **, * indicates significance at the .01, .05 and .1 levels.

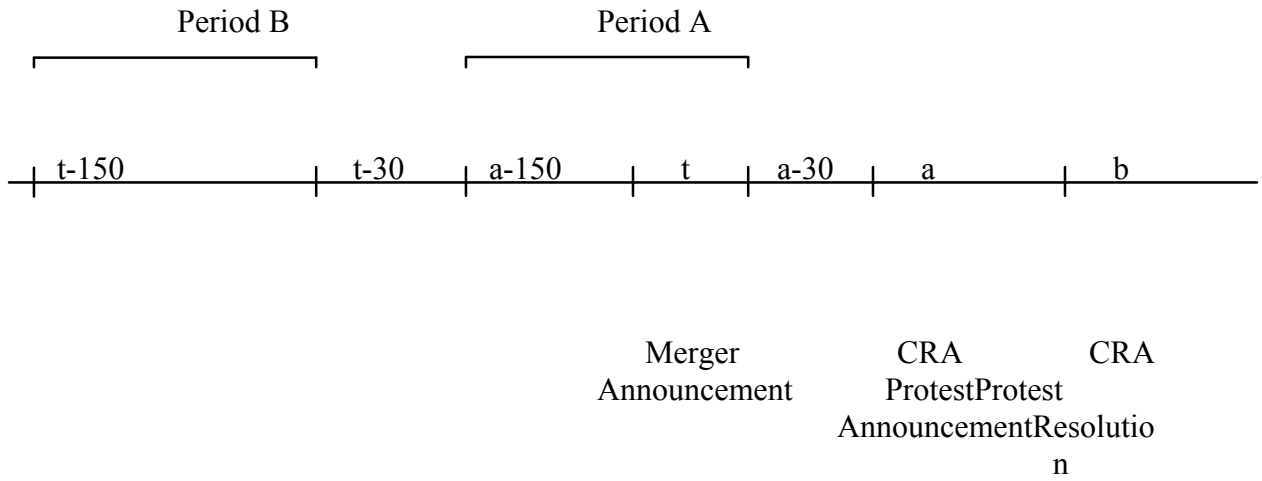


Figure 1. Scenario in which the Johnson and Sarkar (1996) methodology for determining the security price reaction to CRA-related events is likely to induce bias and an alternative approach