

THE SIGNALLING EFFECTS OF BANK LOAN-LOSS RESERVE ADDITIONS

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Abstract

This study examines the market's reaction to announcements of additions to the Loan Loss Reserve (LLR) account resulting from diverse problems in a bank's loan portfolio which are unrelated to an international debt crisis. For the overall sample, with no division by type of loan, the reaction to an increase in LLRs is negative and statistically significant before the announcement; however, it turns positive and remains statistically significant for several days afterwards. Viewing each category individually, the results vary. The largest statistically significant results are for Lesser Developed Country Loans and Foreign and Domestic Loans (positive reaction) and combination Real Estate and Energy Loans (negative reaction). A division of the data into two sub-samples, before and after 1987, indicates that investors appear to be more discerning of individual BHCs' circumstances surrounding announcements after 1987.

INTRODUCTION

Banks maintain a contra-asset account (Loan-Loss Reserve account) to cover possible loan defaults. When the review of a bank's loan portfolio reveals unanticipated default risk, then additional reserves are added to the Loan-Loss Reserve (LLR) account to further cushion against the possibility of future loan default. The international debt crisis¹ brought increased public attention to banks' announcements of sizeable additional increases to the LLR account (despite the fact that banks routinely consider annual adjustments to their LLRs). As Wahlen (1994) states, "Commercial bank loan portfolios are typically 10 to 15 times larger than bank equity; therefore bank loan portfolio cash flows and default risks are likely to have an important impact on bank stock market values" (p. 455).

The majority of the research which has investigated additions to the LLR account has concentrated on analyzing increases to LLRs related to the international debt crisis in general,² and, more specifically, Citicorp's \$3 billion addition to LLRs on May 19, 1987, and the concomitant follow-the-leader LLR additions by major bank holding companies (BHCs). These studies have been concerned with the market's reaction to these sizeable additions to the LLR account, and the results have been mixed. Musumeci and Sinkey (1990b) provide a thorough analysis of LLR increases related to LDC debt problems for Citicorp and other major money center BHCs. As their findings indicated a positive market reaction to the LLR announcements of major BHCs around the Citicorp 1987 announcement, they concluded that these LLR additions signal economically positive corporate news. Grammatikos and Saunders (1990) found a positive reaction to the same announcement (Citicorp, 1987); however, the reaction for similar money center banks (contagion banks) was mixed. They found no reaction for any announcements of additions to LLRs which occurred after the Citicorp announcement date.

Other studies which have examined the international debt crisis have found negative reactions (Cornell and Shapiro, 1986; Bruner and Simms, 1987; Smirlock and Kaufold, 1987; Christensen, Fields, and Mais, 1989; Mansur, Cochran, and Seagers, 1990; and, Musumeci and Sinkey, 1990a). Christensen, Fields, and Mais (1989) examined BHC announcements of increases to LLRs before and after Citicorp's 1987 announcement and found negative abnormal returns prior to the Citicorp announcement and positive abnormal returns afterwards. They concluded that investors' perceptions of the increases to LLRs changed.

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The authors would like to thank the referee and participants at the annual Eastern Finance Association meeting. Hatfield recognizes the partial support of a Business School summer research grant. We assume responsibility for all errors.

Although the public spotlight and academic research have been directed to LLR increases which resulted from third world debt problems, BHCs make adjustments to LLRs for numerous and varied reasons such as an adverse economy and/or problem loans in such areas as commercial business, real estate, and energy. Lancaster, Hatfield, and Anderson (1993) (hereafter LHA) examined 45 announcements (from 18 banks) of LLR increases which were unrelated to the international debt crisis. The period 1980 through 1986 was selected to precede Citicorp's 1987 announcement and to exclude announcements of increases that were related to the debt crisis. They found a negative reaction in the market and concluded that the identification of unanticipated losses in the loan portfolio supplied a negative signal that dominated any positive aspects.

Liu and Ryan (1995) examined the composition of a bank's loan portfolio by distinguishing between loans which are large and frequently renegotiated (commercial, real estate, and foreign loans) and those which are small and renegotiated infrequently (consumer loans). These loan categories are those for which the COMPUSTAT bank tapes identify and provide data. The authors do not identify any specific announcement dates and use returns from the quarter in which the LLR announcement was made. They find a positive reaction for additions to loan loss reserves only for the banks with sizeable, frequently renegotiated loans.

Docking, Hirschey, and Jones (1997) (hereafter DHJ) analyze bank announcements of increases to the LLR account over a period from 1985-1990. Despite the fact that their study includes announcements related to third world debt problems, their focus was to determine if the positive market reaction to the Citicorp 1987 announcement was "typical or atypical." They note that Cornell and Shapiro (1986) conclude that news about problem loans is not revealed at one point in time but over time, and therefore, differing reactions are possible.

A major research question yet unanswered is the market's reaction to increases in the LLR account for reasons which are unrelated to the third world debt crisis. This study examines the market's reaction to announcements of additions to loan-loss reserves resulting from diverse problems in a bank's loan portfolio. Management of a BHC normally announces the specific reason for the LLR increase. An examination of these sundry reasons allows for analysis of the market's reaction to individual differing loan problems. We categorized the reasons according to the information given in the announcements into 7 groupings,³ as follows: 1) unspecified domestic loans, 2) adverse economy, 3) commercial loans, 4) LDC debt, 5) combination foreign and domestic loans, 6) combination real estate and energy loans, and 7) real estate loans. The sample period covers a 12 year period, 1980 through 1992, thus allowing for analysis of announcements made before and after Citicorp's 1987 announcement.

There are other facets to the overall question of how the market views additions to LLRs. As noted earlier, most of the research has investigated the market's reaction to additions to LLRs because of third world debt problems. While we are interested in reactions to all additions to LLRs, overall and by category of reason, we examine the data excluding additions to the LLR account for LDC debt. Another research issue is whether there has been a change in market perception since 1987. Accordingly, we subdivide the sample into two periods, one before 1987 and one after that date. An additional question is whether the amount of capital that a bank has affects the market's perception of LLR additions. Intuitively, the market should view favorably a bank with a large capital base. We include a test of this hypothesis.

This research extends that of DHJ (1997), LHA (1993), and Liu and Ryan (1995) and contributes to the LLR literature because it covers a much broader test period, analyzes LLR additions which have nothing to do with the international debt crisis, and analyzes the market's reaction both before and after 1987 (the year that the majority of extraordinarily large additions to LLRs because of third world debt loan problems were made). The LHA paper includes only LLR increases over a 6 year period (1980 through 1986) which were unrelated to the international debt crisis and analyzes all increases to LLRs collectively rather than analyzing each category separately.⁴ Liu and Ryan (1995) do not look at each category individually (i.e., commercial loans, real estate loans) but group the categories into their definition of "frequently renegotiated loans." In addition, they do not have specific announcement dates or management's reason for the addition. DHJ (1997) only consider LLR additions made between 1985-1990 and do not divide the additions by reason for the addition. They focus on the LLR increase announcement itself and possible contagion to regional banks.

The rest of this paper is arranged as follows: Section I reviews the accounting and capital effects of loan loss reserve adjustments; Section II presents the competing testable hypotheses; Section III includes a description of the data and methodology; Section IV describes the results; and Section V offers concluding remarks.

ACCOUNTING AND CAPITAL EFFECTS

The LLR account (also referred to as "allowance for loan losses") is a contra-asset account. The level of this account conveys information concerning the expectations of future losses in the bank's loan portfolio. If additional

loan losses appear likely, then per Financial Accounting Standard (FAS) #5, additional LLRs are recorded. Additions to LLRs are an accrued expense on the bank's income statement. The adjustment made to the LLR account is an accounting transaction that indicates a likely change in the bank's cash flow, because these adjustments signal that loan repayments (expected cash flows) will be less. In addition, the bank is allowed a tax deduction on a portion of the addition to LLRs. The total addition to reserves is deducted on the books; however, only the amount calculated according to tax law may be deducted from taxable income. Prior to the new tax law of 1986, there were two methods for determining a reasonable addition to LLRs. The percentage method allowed banks to maintain a reserve ceiling which was fixed as a defined percentage of eligible loans, and the experience method allowed an addition to reserves based on the ratio of net bad debts to total loans over a six-year period. Overall, the resulting effect of an addition to LLR is a positive cash flow.

In addition to accounting effects, an increase in LLRs affects a bank's capital ratios. Prior to the capital standards of 1988 as set forth in the Basle Accord, the LLR account was one component of primary capital;⁵ however, since 1988, the LLR account has been included as a component of Tier 2 capital (rather than Tier 1). As the LLR account remains a component of total capital, when the LLR account increases, *ceteris paribus*, the capital ratio (capital to assets) may improve. The LLR account is a bank's first "line of defense" against actual loan losses (loans which will not be repaid). When actual losses exceed loss reserves, earnings and equity capital are the next sources of funds to be utilized in covering losses. Consequently, bank regulators are very concerned about a bank's capital ratio. In the first quarter of 1985, when the nation's largest banks continued to increase the size of their LLRs, analysts gave two reasons for the increases: (1) non-performance in the loan portfolio, and (2) a "cheap way to build primary capital" (Forde, 1985). Wahlen (1994) points out that bank management can choose to time additions to LLRs. He finds that bank managers appear to make additions to LLRs when the bank's future cash flows appear to be recovering.

COMPETING TESTABLE HYPOTHESES

Banks make announcements of additions to LLRs at numerous times throughout the year, and these adjustments are for a myriad of reasons. Banks have cited a deteriorating economy⁶ and also poor performance of loans in areas such as real estate, commerce, and/or energy.⁷ The questions to be considered are whether these announcements of increases due to varied causes for problem loans provide any new information to the market and whether the market considers the additions to be a positive or negative value-enhancing corporate decision.

An addition to the LLR account is a signal of a future event because the BHC is indicating that it may have to accept less than the value of the loan.⁸ Musumeci and Sinkey (1989) point out that a sizeable increase to LLRs represents a "signal of impending asset write-downs." Beaver, et.al., (1989) note that "additions to LLRs are a 'postcontracting' adjustment" and should provide information. Thakor (1987) suggests that this signal of a future event will have a price effect. In a similar context, Wahlen (1994) notes that since bank management can increase LLRs according to its discretion, these discretionary additions may convey private information and "may be similar to the types of actions discussed in the signalling literature" (p. 458-9).

Musumeci and Sinkey (1989) (hereafter MS) consider four "new information" hypotheses to be considered in explaining the market's reaction to Citicorp's 1987 announcement which are as follows: (1) loan quality, (2) tax savings, (3) capital structure, and (4) strategic structuring. This study examines the market's reaction to additions to LLRs for a variety of reasons. Consideration of the MS hypotheses may shed light on investor reaction to additions to LLRs for reasons other than third world debt problems.

Loan Quality

Musumeci and Sinkey (1989) point out that the true quality of a BHC's loan portfolio may be unknown to the market but known to "insiders;" therefore, an announcement of a LLR increase would be providing additional information on loan quality. While third world debt levels of money center banks had been in the spotlight for a period of time, the same is not necessarily true for other problem loans. An individual BHC's exposure to real estate loans, for example, might not be known by the market until the bank's problems become critical.⁹

Tax Savings

As noted in Section I, a BHC is allowed a tax deduction (which is a benefit for the BHC) on a portion of the addition to LLRs; however, at the present time, the BHC cannot realize this benefit until the loan is actually written

off. No longer do taxes have to be paid on accounting profits, but the future possibility exists that the BHC could recover some paid taxes. MS hypothesize that Citicorp's announcement meant that a tax savings might be realized much sooner than the market expected, and that this would explain a positive market reaction. The logical reasoning behind this hypothesis can be extended to additions to LLRs for other types of problem loans. Problem real estate or agriculture loans that may be written off sooner than expected will suggest the same premature tax savings.

Capital Structure

The 1992 guidelines for capital structure for banks removed the LLR account from what was then (1985) termed "primary" capital to the current category, "Tier 2" capital (see footnote 3). MS point out that, prior to the 1992 guidelines, "bank regulators treated one dollar of loan-loss reserve as equal to one dollar of equity capital." Currently, LLRs are part of a bank's capital but not on a dollar-for-dollar basis with equity. Increasing the LLR account indicates additional risk in the loan portfolio; conversely, it can affect the capital ratio positively.

MS note a possible confounding effect. If investors expect a future equity issue in order to bolster the bank's capital, then a fear of dilution of earnings per share could counter any positive reaction. Another possible confounding effect could be caused by the market's fear of a reduction in the dividend that the bank has been paying to its stockholders. In the fall of 1990, several large BHCs considered reducing their dividend payout and some actually did so (Chase Manhattan, Midlantic, Southeast Bancorp, and Bank of Boston).

Corporate and Strategic Restructuring

MS posited that the increase to LLRs signaled that the problem loans would be written down or off and that, in the future, new equity would be issued; therefore, they expected a positive reaction in the market because the above restructuring efforts would be of future benefit to the BHC. The BHCs that made sizeable additions to LLRs for problem real estate and energy loans were also faced with the future possibility of issuing new equity. Further, many of these banks were signalling future asset writedowns and more stringent conditions for delinquent borrowers.

In summary, an announcement of an increase to the LLR account can indicate situational reasoning and heterogeneous signals. Management of the BHC can use the addition to LLRs as a signal to the market. The increase provides some tax savings and can also affect the BHC's capital ratio. Announcements of increases in LLRs indicate recognition of additional risk in the loan portfolio which may be followed by a change in policy towards the borrower. In addition, the increase for problem loans may be related to well-publicized negative macroeconomic factors. Last, management of the BHC can employ the addition to LLRs as a signal to the market. In an efficient market, all new information should be immediately impounded in the price of the stock, so theoretically, there should be no reaction.

The studies cited above which investigated market reactions to additions to LLR because of the international debt crisis all found a reaction, although the results were mixed between positive and negative abnormal returns. Two papers (Whalen (1994) and Liu and Ryan (1995)) which present the results of accounting research concerning LLRs (neither is concerned with international debt crisis research) report a positive reaction. Whalen (1994) found that additional provisions for loan losses were interpreted by investors as good news. Liu and Ryan (1995) discovered a positive reaction only for those banks with frequently renegotiated loans (foreign and commercial loans). A market reaction indicates that new information is provided to the market by the announcements. The important research question is whether announcements of additions to LLRs for problem loans, other than international debt problems, provide new information. The null hypothesis that we test is as follows: market reactions will not differ across different categories of problem loans.

DATA, AND METHODOLOGY

The sample selected for this study includes 121 announcements (made between 1980 and 1992) of additions to LLRs for 33 BHCs.¹⁰ Daily security return data were obtained from the Center for Research in Security Prices (CRSP) tapes.

Standard event study methodology (the single index market model) was used to test the market's reaction to the announcement.¹¹ The estimation period covered 100 days prior to the test period, and the event window was day -15 to day +15 on either side of the announcement date. The event date is the date that a BHC's announcement of an increase in its LLRs was published in either *The Wall Street Journal (WSJ)* or *American Banker*.

This study employs the following market model to calculate the excess return, or prediction error (PE_{jt}), for each firm j at event day t .

Equation 1

$$PE_{jt} = R_{jt} - (\alpha_j + \beta_j R_{mt})$$

R_{jt} is the rate of return on security j for day t , and R_{mt} is the return on the CRSP equal-weighted index on day t . The coefficients α_j and β_j are ordinary least squares estimates of the intercept and slope, respectively, from a prior-event market model regression for days -116 to -16. Prediction errors are estimated over the interval $t = -15$ days prior to the announcement of the addition to LLRs to $t = +15$ days after the announcement. Day zero ($t=0$) is defined as the publication date.

The cumulative prediction error (CPE) from day T_1 to day T_2 for each announcement j is:

Equation 2

$$CPE_j = \sum_{T_1}^{T_2} PE_{jt}$$

Cumulative prediction errors are estimated over various intervals. For a sample of N securities, the mean cumulative prediction error (MCPE) is defined as:

Equation 3

$$MCPE = (1/N) \sum_{j=1}^N CPE_j$$

The expected value of the CPE is zero in the absence of abnormal performance. The test statistic is based on an aggregation of mean standardized cumulative prediction errors (MSCPE) (see Appendix). The test statistic for a sample of N securities is:

Equation 4

$$Z = \sum_{j=1}^N MSCPE_j / \sqrt{N}$$

Each $MSCPE_{jt}$ is assumed to be distributed unit normal in the absence of abnormal performance. Under this assumption, Z is also unit normal.

The market reaction to an individual firm's announcement of an increase to the LLR account may be statistically significant; however, due to varying individual positive and negative reactions, the standardized excess return may not be statistically significant. To avoid this problem, we examine the excess returns for a change in variance according to the methodology enumerated in Johnson, Magee, Nagarajan, and Newman (1985). We incorporate three separate test statistics which are as follows: Miller's asymptotically distribution-free jackknife test, mean squared standardized excess return, and conventional cross-sectional standard deviation.

RESULTS

Empirical Findings: 1980 through 1992

The empirical findings for the total sample are provided in Table 1.

TABLE 1
Abnormal Returns Around the Announcement of Additions to Loan Loss Reserves:
Results for Full Sample and For Subsamples by Reason for Increase of LLRs

Interval ¹	General Domestic	Adverse Economy	Commercial Loans	LDC Loans	Domestic + Foreign	Real Estate + Energy	Real Estate	All
-15 +15	-.0207 ² (-1.49)	-0.0157 (-1.08)	.0064 (0.02)	.0623 (4.47)*	.0531 (1.36)	-.1706 (-4.46)*	-.0298 (1.87)^	-0.0035 (-0.37)
-15 -5	-.0003 (-0.06)	-0.0129 (-0.51)	.0004 (-0.34)	.0218 (2.57)+	.0318 (1.26)	-.0068 (-0.23)	-.0114 (-1.15)	0.0020 (0.54)
-5 -1	-.0128 (-2.01)+	0.0110 (1.31)	-.0390 (-2.77)*	.0193 (2.87)*	-.0045 (-0.28)	-.1000 (-6.15)*	-.0321 (-3.19)*	-0.0088 (-2.21)+
Day -1	-.0035 (-.036)	0.0091 (1.99)+	-0.0270 (-4.84)*	.0037 (1.74)^	.0105 (1.63)	-.0571 (-8.12)*	-.0091 (-1.66)^	-0.0043 (-2.00)+
Day 0	.0060 (1.36)	-0.0047 (-1.29)	-.0056 (-0.59)	.0099 (4.59)*	.0128 (1.88)^	-.0259 (-5.19)*	.0038 (-1.86)^	0.0006 (0.21)
0 +1	.0044 (0.53)	-0.0125 (-1.05)	.0018 (0.34)	.0192 (5.55)*	.0052 (0.64)	-.0092 (-2.16)+	-.0012 (-0.80)	0.0039 (1.91)^
Day +1	-.0016 (-0.60)	-0.0078 (-0.20)	.0074 (1.08)	.0092 (3.26)*	-.0076 (-0.97)	.0167 (2.13)+	.0026 (0.73)	0.0033 (2.49)+
+1 +5	-.0108 (-1.77)^	.0011 (0.73)	(.0102) (0.76)	.0192 (3.44)*	.0303 (2.23)+	.0261 (1.49)	.0051 (0.29)	0.0066 (2.30)+
+1 +15	-.0186 (-1.82)^	-.0090 (-1.48)	.0448 (1.79)^	.0160 (1.76)^	.0138 (0.57)	.0398 (-1.41)	.0144 (0.41)	0.0018 (0.01)
	n=26	n=18	n=12	n=28	n=6	n=5	n=22	n=121 ³

1. In days, relative to the announcement on day 0
2. MCPE (test statistic); significance level: * = .01; + = .05; ^ = .10.
3. Four of the 121 individual observations had combinations of reasons that did not fit into the given categories. Therefore, the first 7 columns total only 117 observations.

Results for the non-segregated overall sample and aggregated results categorized by reasons given by management for increasing LLRs are displayed. For the full sample of 121 announcements, the entire test interval, days -15 to +15, has a cumulative predication error (CPE) of -0.0035. The corresponding Z-score of -0.37 indicates that the CPE is not statistically different from zero; however, there are two periods of interest. The first, interval -5 to -1, indicates a statistically significant (at alpha=.05) negative reaction of -0.0088 ($Z = -2.21$) over the five days prior to the event date. Half of this reaction (-0.0043) (which is statistically significant ($Z = -2.00$) at alpha=.05) occurs on day -1. The second interval of interest is during days +1 through +5. During this time period, the sign of the CPE is positive and also statistically significant (CPE = 0.0066, $Z = 2.30$). The CPE for day +1 (0.0033) accounts for about one-half of the CPE for the interval +1 to +5 and is also statistically significant ($Z = 2.49$). The negative response appears to be short-lived as the price reaction is completed prior to the event date. It should be noted that there is no statistically significant response on the event date (day 0) itself, indicating that the pertinent information had been announced or leaked out a day or more before the date of the announcement in the *WSJ*.

Table 1 also provides CPEs by categories based on reasons given by management in its announcement of an increase to the LLR account. Despite the fact that some of the categories have very small sample sizes, we have provided as complete a picture of the different categories as the available data allowed. We fail to accept our null hypothesis as the market obviously does not react in similar ways to all announcements of increases in LLRs. In the case of additions for expressed problems with General Domestic Loans, the market reacts negatively in the period days -5 to -1 with a CPE = -0.0128 ($Z = -2.01$). In this one case, however, the negative reaction is not short-lived; a statistically significant (at alpha=.10) negative reaction continues after the event window (CPE = -0.0186, $Z = -1.82$) by day +15. Because these loans did not fit in any particular category, such as real estate or energy, but covered a

wide range of problem loans, it may be that investors were not able to assure themselves that the indicated banks had fully addressed all pertinent problems.

For the categories representing Commercial Loans, Real Estate and Energy Loans, and Real Estate Loans, the CPE is statistically significantly negative in the 5-day period just prior to the event date, and each of these categories has a significant CPE on day -1: for Commercial Loans, CPE = -0.0270 (Z = -4.84); for Real Estate and Energy Loans, CPE = -0.0571 (Z = -8.12); and for Real Estate Loans, CPE = -0.0091 (Z = -1.66) (significant at alpha=.10). In addition, increases to LLRs for Real Estate and Energy Loans and Real Estate Loans resulted in an additional statistically significant negative response on the event date (CPE = -0.0259 (Z = -5.19) and CPE = -0.0038 (Z = -1.86), respectively). The Real Estate and Energy category demonstrates a positive adjustment after the event window, in the same manner as the total sample, with a CPE on day +1 of 0.0167 (Z = 2.13). The initial negative response appears to be short-lived.

The reaction to LLR increases for LDC Loans is noticeably positive (with strong statistically significant positive CPEs in almost all intervals tested), as it was in previous studies by Madura and McDaniel (1989), Musumeci and Sinkey (1989), and Grammatikos and Saunders (1990). The market appears to interpret LDC additions as a positive signal concerning future corporate restructuring. The CPE for the two-day event window (days 0 to +1) is 0.0192 (Z = 5.55). The positive reaction in this case also continues through the 5-day period following the event window.

The category including both Domestic and Foreign Loans shows a pattern similar to that for the LDC loans. There is a weak positive market reaction on the event date (CPE = 0.0128, Z = 1.88) but a stronger positive reaction in the 5-day period following the event date (CPE = 0.0303, Z = 2.23). The category for LLR adjustments made in response to an overall Adverse Economy shows a resulting positive market reaction to stock prices on day -1, with a CPE = 0.0091 (Z = 1.99).

Table 1 provides an overview of the aggregate results of the study, but it is also possible, particularly given the small sample size in some categories, that the aggregate results could mask problems that might be present in the small subsamples. For this reason, we have provided the specific BHCs' announcements separated into the seven categories based on reasons given by management for increasing their LLRs. These results are shown in Table 2.

TABLE 2
Abnormal Returns Around Individual BHC Announcements
of Additions to Loan Loss Reserves By Reason for Addition¹

1. Non-Specific Domestic Loan Problems

BHC Name	Interval -5 to -1	Day -1	Day 0
Banc One Corp	-0.0185 (-0.64) ²	-0.0001 (-0.01)	-0.0104 (-0.81)
Banc One Corp	-0.0963 (-3.12)*	0.0057 (0.42)	0.0380 (2.77)*
Banc One Corp	0.0222 (1.04)	0.0233 (2.46)+	0.0047 (0.50)
Bank New York Inc.	-0.0107 (-0.23)	-0.0347 (1.69)^	0.0032 (0.16)
Bankamerica Corp	-0.0157 (-0.43)	-0.0249 (-1.51)	0.0116 (0.70)
Bankamerica Corp	0.0010 (0.03)	-0.0123 (-0.82)	-0.0137 (-0.91)
Bankamerica Corp	-0.0090 (-0.25)	0.0291 (1.77)^	-0.0077 (-0.47)
Bankamerica Corp	-0.1384 (-3.02)*	-0.0552 (-2.68)*	0.0659 (3.18)*
Bankers Trust NY Corp	0.0037 (0.13)	-0.0025 (-0.18)	0.0070 (0.52)
Bankers Trust NY Corp	-0.0004 (-0.01)	0.0170 (1.22)	0.0009 (0.07)
Bankers Trust NY Corp	0.0513 (1.68)^	0.0159 (1.16)	-0.0024 (-0.18)
Barnett Banks Inc.	-0.0289 (-0.64)	-0.0337 (-1.67)^	0.0193 (0.95)
Chase Manhattan Corp	-0.0025 (-0.09)	0.0052 (0.40)	-0.0007 (-0.05)
Chase Manhattan Corp	-0.0118 (-0.55)	0.0063 (0.66)	-0.0188 (-1.96)^
Citicorp	-0.0373 (-1.02)	-0.0234 (-1.43)	-0.0021 (-0.13)
First Chicago Corp	0.0905 (1.66)^	-0.0440 (-1.89)^	0.0246 (1.04)
Manufacturers Hanover Corp	0.0098 (0.31)	-0.0063 (-0.45)	0.0138 (0.97)
Manufacturers Hanover Corp	-0.0680 (-2.31)+	-0.0231 (-1.74)^	0.0155 (1.16)
Marine Midland Banks Inc.	-0.0292 (-0.89)	0.0165 (1.14)	0.0139 (0.96)
Marine Midland Banks Inc.	-0.0112 (-0.31)	0.0355 (2.26)+	-0.0114 (-0.72)
Mellon Bank Corp	-0.0178 (-0.59)	0.0010 (0.07)	0.0070 (0.52)

1. In days, relative to the announcement on day 0.

2. MCPE (test statistic); significance level: * = .01; + = .05; ^ = .10.

BHC Name	Interval -5 to -1	Day -1	Day 0
J P Morgan & Co. Inc.	-0.0051 (-0.12)	0.0085 (0.86)	-0.0327 (-3.28)*
J P Morgan & Co. Inc.	-0.0630 (-2.32)+	-0.0028 (-0.23)	-0.0010 (-0.08)
J P Morgan & Co. Inc.	0.0388 (1.24)	0.0317 (2.27)+	0.0061 (0.43)
J P Morgan & Co. Inc.	-0.0226 (-0.90)	-0.0385 (-3.42)*	-0.0013 (-0.11)
Wells Fargo & Co. New	0.0206 (0.91)	0.0129 (1.28)	-0.0031 (-0.31)

2. Adverse Economy

BHC Name	Interval -5 to -1	Day -1	Day 0
Bank of Boston Corp	0.1622 (4.27)*	0.0295 (1.72)^	-0.0461 (-2.72)*
Bankamerica Corp	0.0289 (0.84)	-0.0226 (-1.48)	-0.0193 (-1.26)
Bankamerica Corp	-0.0014 (-0.03)	0.0123 (0.70)	0.0013 (0.07)
Bankamerica Corp	0.0530 (1.04)	0.0061 (0.27)	-0.0119 (-0.52)
Bankamerica Corp	0.0300 (0.83)	0.0744 (4.63)*	0.0234 (1.46)
Citicorp	0.0004 (0.01)	0.0239 (1.23)	0.0246 (1.25)
Continental Bank Corp	0.0275 (0.89)	0.0167 (1.20)	0.0035 (0.25)
First Chicago Corp	-0.0543 (-1.33)	-0.0075 (-0.40)	0.0114 (0.60)
First Chicago Corp	0.0097 (0.25)	-0.0055 (-0.31)	-0.0249 (-1.43)
Fleet Financial Group Inc.	0.0031 (0.07)	-0.0101 (-0.53)	-0.0203 (-1.07)
Great Western Financial Corp	-0.0797 (-1.54)	-0.0219 (-0.95)	-0.0055 (-0.24)
Irving Bank Corp	0.0058 (0.19)	0.0227 (1.69)^	0.0131 (0.99)
Manufacturers Hanover Corp	0.0601 (0.84)	0.0506 (1.57)	-0.0227 (-0.71)
J P Morgan & Co. Inc.	-0.0099 (-0.39)	0.0037 (0.33)	0.0042 (0.37)
National Westminster Bank	-0.0071 (-0.18)	0.0059 (0.33)	-0.0152 (-0.86)
Norwest Corp	-0.0054 (-0.18)	-0.0158 (-1.18)	-0.0249 (-1.86)^
Security Pacific Corp	-0.0071 (-0.07)	0.0240 (0.50)	0.0344 (0.73)
Wells Fargo & Co. New	0.0089 (0.24)	-0.0102 (-0.63)	-0.0108 (-0.66)

3. Problem Commercial Loans

BHC Name	Interval -5 to -1	Day -1	Day 0
Bankamerica Corp	-0.0017 (-0.06)	-0.0029 (-0.12)	-0.0431 (-3.11)*
Chase Manhattan Corp	0.0098 (0.20)	0.0385 (1.67)^	0.0223 (0.97)
Chemical Banking Corp	-0.0225 (-0.40)	-0.0184 (-0.74)	-0.0044 (-0.18)
Citicorp	-0.0148 (-0.48)	0.0184 (1.33)	0.0408 (2.96)*
Citicorp	-0.0393 (-1.03)	-0.0617 (-3.63)*	-0.0164 (-0.97)
Continental Bank Corp	-0.0260 (-0.40)	-0.0471 (1.64)	-0.0453 (-1.59)
First Chicago Corp	-0.0013 (-0.03)	-0.0402 (-2.30)+	0.0351 (2.01)+
J P Morgan & Co. Inc.	0.0355 (1.09)	-0.0029 (-0.20)	0.0061 (0.42)
Norwest Corp	0.0214 (0.56)	-0.0138 (-0.77)	0.0152 (0.86)
Seafirst Corp	-0.2134 (-5.39)*	-0.1466 (-8.28)*	-0.0224 (-1.26)
Seafirst Corp	-0.0402 (-0.63)	0.0336 (1.15)	-0.0007 (-0.02)
Wells Fargo & Co. New	-0.1751 (-3.04)*	-0.0812 (-3.17)*	-0.0549 (-2.14)+

4. LDC Debt

BHC Name	Interval -5 to -1	Day -1	Day 0
American Express Co.	0.0046 (0.12)	-0.0063 (-0.37)	-0.0005 (-0.03)
Bank of Boston Corp	-0.0134 (-0.31)	-0.0058 (-0.30)	-0.0319 (-1.66)^
Bank New York Inc.	-0.0043 (-0.15)	0.0082 (0.63)	0.0104 (0.79)
Bankamerica Corp	0.0512 (1.33)	0.0542 (3.14)*	-0.0086 (-0.50)
Bankers Trust NY Corp	0.0491 (1.31)	-0.0118 (-0.71)	-0.0041 (-0.25)
Bankers Trust NY Corp	-0.0502 (-1.51)	-0.0051 (-0.45)	-0.0051 (-0.46)
Chase Manhattan Corp	0.0528 (1.45)	-0.0127 (-0.78)	0.0091 (0.56)
Chase Manhattan Corp	0.0353 (1.47)	0.0445 (4.13)*	0.0151 (1.40)
Chemical Banking Corp	0.0520 (2.02)+	0.0179 (1.56)	0.0036 (0.31)

BHC Name	Interval -5 to -1	Day -1	Day 0
Citicorp	-0.0357 (-1.11)	-0.0162 (-1.13)	0.0543 (3.88)*
Citicorp	0.0220 (0.55)	-0.0384 (-2.24)+	0.0336 (1.96)^
Continental Bank Corp	0.1247 (2.12)+	-0.0245 (-0.93)	-0.0655 (-2.48)+
First Bank Systems Inc.	-0.0052 (-0.12)	-0.0137 (-0.72)	0.0135 (0.70)
First Chicago Corp	0.0053 (0.16)	0.0014 (0.09)	0.0345 (2.39)+
Manufacturers Hanover Corp	0.0321 (1.19)	0.0122 (1.02)	-0.0137 (-1.15)
Manufacturers Hanover Corp	-0.0102 (-0.36)	0.0173 (1.39)	0.0533 (4.28)*
Marine Midland Banks Inc.	0.0282 (1.04)	0.0025 (0.21)	0.0932 (7.72)*
Mellon Bank Corp	-0.0051 (-0.01)	-0.0097 (-0.78)	-0.0001 (-0.01)
J P Morgan & Co. Inc.	-0.0188 (-0.53)	-0.0062 (-0.39)	0.0256 (1.61)
J P Morgan & Co. Inc.	0.0122 (0.50)	0.0058 (0.53)	0.0479 (4.37)*
National Westminster Bank	0.0742 (1.88)^	0.0762 (4.32)*	-0.0133 (-0.75)
National Westminster Bank	0.0834 (2.48)+	0.0232 (1.54)	0.0070 (0.47)
Norwest Corp	0.0034 (0.10)	-0.0248 (-1.50)	0.0243 (1.50)
Republic New York Corp	0.0469 (1.64)	-0.0054 (-0.42)	0.0063 (0.49)
Security Pacific Corp	-0.0064 (-0.25)	-0.0005 (-0.05)	0.0025 (0.22)
Security Pacific Corp	0.0240 (0.87)	0.0099 (0.80)	0.0086 (0.69)
Signet Banking Corp	-0.0250 (-0.86)	-0.0038 (-0.30)	-0.0294 (-2.27)+
Wells Fargo & Co. New	0.0125 (0.36)	0.0140 (0.90)	0.0081 (0.52)

5. Combination Foreign and Domestic Loans

BHC Name	Interval -5 to -1	Day -1	Day 0
Bankamerica Corp	-0.1376 (-3.83)*	-0.0170 (-1.07)	0.0062 (0.39)
Chemical Banking Corp	-0.0897 (-2.63)*	-0.0023 (-0.15)	0.0068 (0.44)
Chemical Banking Corp	0.1682 (4.43)*	0.0491 (2.89)*	-0.0057 (-0.33)
First Interstate Bancorp	0.0388 (1.63)	0.0133 (1.24)	0.0128 (1.20)
Mellon Bank Corp	0.0370 (0.82)	0.0107 (0.53)	0.0464 (2.30)+
Security Pacific Corp	-0.0436 (-1.12)	0.0093 (0.53)	0.0105 (0.60)

6. Combination Real Estate and Energy Loans

BHC Name	Interval -5 to -1	Day -1	Day 0
First Chicago Corp	-0.2206 (-5.14)*	-0.1299 (-6.77)*	0.0222 (1.16)
First Interstate Bancorp	-0.0638 (-2.48)+	-0.0635 (-5.54)*	-0.0572 (-4.99)*
Mellon Bank Corp	-0.0425 (-1.57)	-0.0142 (-1.15)	-0.0780 (-6.34)*
Texas Commerce Bancshares	-0.1246 (-3.79)*	-0.0601 (-4.06)*	-0.0257 (-1.76)^
Texas Commerce Bancshares	-0.0486 (-0.77)	-0.0175 (-0.62)	0.0093 (0.33)

7. Problem Real Estate Loans

BHC Name	Interval -5 to -1	Day -1	Day 0
Bank of Boston Corp	-0.0056 (-0.22)	-0.0236 (-2.10)+	-0.1112 (-9.82)*
Bank of Boston Corp	-0.0917 (-1.63)	-0.0272 (-1.08)	0.0859 (3.40)*
Barnett Banks Inc.	-0.1232 (-3.30)*	0.0020 (0.12)	0.0471 (2.87)*
Chase Manhattan Corp	-0.2231 (-5.60)*	-0.0680 (-3.81)*	-0.1062 (-5.83)*
Chemical Banking Corp	0.0674 (1.71)^	0.0039 (0.22)	0.0216 (1.23)
Citicorp	-0.0879 (-1.56)	-0.0198 (-0.78)	0.0417 (1.64)
Continental Bank Corp	-0.1837 (-3.88)*	-0.0661 (-3.13)*	0.0060 (0.28)
Continental Bank Corp	0.1794 (2.74)*	0.0512 (1.75)^	0.0313 (1.08)
First Chicago Corp	-0.0025 (-0.06)	0.0429 (2.37)+	-0.0268 (-1.47)
First Chicago Corp	-0.0336 (-0.72)	-0.0227 (-1.09)	-0.0134 (-0.64)
First Chicago Corp	0.0240 (0.56)	0.0614 (3.30)*	-0.0001 (-0.01)
First Interstate Bancorp	-0.0367 (-1.03)	-0.0049 (-0.32)	-0.0089 (-0.57)
First Union Corp	-0.0077 (-0.14)	-0.0093 (-0.38)	0.0086 (0.36)
M N C Financial Inc.	-0.1768 (-1.94)^	-0.1394 (-3.44)*	-0.0349 (-0.85)

BHC Name	Interval -5 to -1	Day -1	Day 0
Manufacturers Hanover Corp	-0.1022 (-1.95)^	-0.0303 (-1.30)	0.0090 (0.39)
Mellon Bank Corp	-0.1117 (-2.45)+	-0.0538 (-2.68)*	-0.0048 (-0.24)
Mellon Bank Corp	0.1061 (2.48)+	0.0879 (4.61)*	-0.0348 (-1.83)^
Nationsbank Corp	0.0312 (0.99)	-0.0356 (-2.57)+	0.0060 (0.43)
Security Pacific Corp	0.0090 (0.29)	0.0189 (1.37)	0.0113 (0.82)
Security Pacific Corp	0.0490 (0.47)	0.0097 (0.21)	-0.0244 (-0.52)
Security Pacific Corp	-0.0057 (-0.12)	-0.0239 (-0.98)	0.0213 (0.88)
Wells Fargo & Co. New	0.0208 (0.40)	0.0455 (1.95)^	-0.0073 (-0.32)

Also included are CPEs for each BHC for the announcement date (day 0), and day -1 and the interval -5 to -1, just prior to the announcement date.

One possible problem in a small subsample is that only one or two specific announcements (outliers) may be driving the results. There appears to be a fair representation of significant reactions to BHC announcements in all categories, with the possible exception of the category of Adverse Economy. In this category only two announcements, one for the Bank of Boston Corp. and one for Bankamerica Corp., have strong market reactions (significant at $\alpha = .05$), and these two reactions are both positive.

Table 2 also makes it quite clear that market reactions to similar announcements (within categories) are still specific to the particular BHC's situation and prospects at the time of the announcement. There are both statistically positive and negative CPEs (at $\alpha = .05$) in the same intervals in roughly 43 percent of instances in Table 2. The category of Combination Real Estate and Energy Loans is the only one in which all significant CPEs have the same sign (negative). However, this is also the smallest sample (five announcements). Generally speaking, the data tend to show that announcements of increasing LLRs for failing Commercial, Real Estate, and Real Estate and Energy Loans are met with negative responses in the market, while announcements of increasing LLRs for LDC loans are met with positive responses.

Variance Tests

Individual firm stock price reactions may be statistically significant; however, resulting positive and negative reactions may cancel out, thus producing a standardized excess return that is not statistically significant. As noted above, for the full sample, the market reaction was not statistically significant on the announcement date. Accordingly, the excess returns are analyzed for a variance change (see Johnson *et. al.*, 1985)(hereafter JMNN). Following JMNN, three separate statistics (Miller's asymptotically distribution-free jackknife test (Hollander and Wolfe, 1973), mean squared standardized excess return (Patell, 1976), and conventional cross-sectional standard deviation) were utilized to analyze the variance of the CPEs (for a complete description of these statistics, see JMNN).

Table 3 presents the dispersion of the standardized CPEs for the full sample for the announcement date (day 0) and 5 trading days prior to day 0.

TABLE 3
Variance Test: Dispersion of the CPEs for the Full Sample
(1980 – 1992)

Day	Jackknifed Test (Miller's t)	Mean Squared Return (Patell's Z)	Conventional Standard Deviation
-5	-0.16 (-1.21)	0.85 (-1.25)	0.92
-4	-0.24 (-1.66)	0.78 (-1.75)	0.88
-3	-0.24 (-2.06)*	0.78 (-1.75)	0.88
-2	-0.16 (-1.13)	0.84 (-1.30)	0.92
-1	0.50 (3.75)*	1.64 (4.83)*	1.28
0	0.27 (2.09)*	1.29 (2.15)*	1.14

* = Significance at the 0.01 level.

These results indicate that abnormal variance is present on day 0 and on the day before the announcement (day -1). For day 0, the jackknifed test is 0.27, $t = 2.09$ with a mean squared return of 1.29, $Z = 2.15$, while for day -1, the jackknife test is 0.50, $t = 3.79$ with a mean squared return of 1.64, $Z = 4.83$. Despite the fact that the abnormal return for the total sample was not statistically significant on the announcement day, the variance tests' results show that there was cross-sectional variance which indicates the presence of both positive and negative stock price movements. The variance results for day -1 support the statistically significant market reaction reported earlier.

LLR Sample Excluding LDC Loans

As noted earlier in this study, the majority of research has concentrated on additions to the LLR account because of the third world debt crisis. In order to study the problem of additions to LLRs outside of the international debt crisis, we removed all of the LDC additions from the sample and re-ran the 93 remaining observations. The results are reported in Table 4.

TABLE 4
Abnormal Returns Around the Announcement of
Additions to Loan Loss Reserves for a
Subsample Excluding LDC Loans

Interval ¹	All Except LDC Loans
-15 to +15	-0.0228 (-2.84)* ²
-15 to -5	-0.0037 (-0.75)
-5 to -1	-0.0170 (-4.06)*
Day -1	-0.0066 (-3.23)*
Day 0	-0.0018 (-2.04)+
0 to +1	-0.0002 (-0.66)
Day +1	0.0016 (1.10)
+1 to +5	0.0024 (0.62)
+1 to +15	-0.0029 (-1.01)
	n=93

1. In days, relative to the announcement on day 0.

2. MCPE (test statistic); significance level: * = .01; + = .05.

The CPE and Z-score (or t-statistic) for days -5 to -1, -1, and 0 are -0.0170 (-4.06), -0.0066 (-3.23), and -0.0018 (-2.04), respectively. This is in contrast to the LDCs' aggregate CPEs which are consistently positive and statistically significant (from day -15 to day +5). A comparison between this subsample and the full sample in Table 1 would indicate that the significant "adjustment" seen in the full sample in the period following the event window was largely an illusion caused by the inclusion of the LDC Loans. The subsample without the LDC loan sample indicates no statistical significance in the banks' stock prices following the event window.

The length of time the LDC debt problems existed (from August, 1982, when Mexico declared a moratorium on its debt payments) and the tremendous amount of publicity surrounding the international debt crisis made the market aware of much of the LDC loan detail. The same information may not have been available for other categories of loans or available only for banks in deep financial trouble, such as the Bank of New England, with its problem Real Estate Loans.

Prior and Post 1987 (Excluding all LDC announcements)

A large number of announcements of additions to LLRs for LDC debt occurred in 1987 (following John Reed's announcement of Citicorp's \$3 billion addition). Within a six week period, fifty additional BHCs had made similar announcements. Despite the fact that the market was well aware of the LDC debt problem of BHCs, Reed's announcement was the first public recognition of the problem. Until this date, no public announcement recognizing the extent of the problem and its effect on the BHCs had been made. This major announcement may have resulted in a change in investors' perceptions about these additional LLR increases. In order to see if the aggregate market

reactions to LLR additions remained consistent before and after this extraordinary period, we subdivided the sample into observations prior to 1987 (the period ending December 31, 1986) and post 1987 (the period beginning January 1, 1988). The results are shown in Table 5.

TABLE 5
Abnormal Returns Around the Announcement of Additions to
Loan Loss Reserves for Two Subsamples: Before and After 1987

Interval ¹	Before 1987	After 1987
-15 to +15	-0.0323 (-2.84)* ²	-0.0087 (-0.80)
-15 to -5	0.0040 (0.18)	-0.0103 (-1.02)
-5 to -1	-0.0314 (-5.40)*	-0.0058 (-0.64)
Day -1	-0.0106 (-3.44)*	-0.0031 (-0.93)
Day 0	-0.0007 (-0.91)	-0.0009 (-0.68)
0 to +1	0.0005 (-0.45)	-0.0002 (-0.35)
Day +1	0.0012 (0.28)	0.0007 (1.18)
+1 to +5	0.0063 (0.47)	-0.0007 (0.40)
+1 to +15	-0.0084 (-1.35)	0.0071 (0.12)
	n=39	n=60

1. In days, relative to the announcement on day 0.

2. MCPE (test statistic); significance level: * = .01.

Prior to 1987, there is a statistically significant negative reaction apparent in the aggregate results (CPE and test statistics of -0.0314 (-5.40) and -0.0106 (-3.44) on days -5 to -1 and day -1, respectively. The reaction of the market appears to be complete by day -1, with no statistically significant intervals beyond that day. The post 1987 period aggregate results indicate no statistically significant CPEs for any of the time intervals tested.

An explanation of these results is obvious when examining the individual BHC results from Table 2. Statistically significant (at alpha = .05) abnormal returns in the three intervals shown in Table 2 (Interval -5 to -1, day -1 and day 0) were divided into two groups according to the time periods defined for Table 5. The first group's announcements occurred before January, 1987, and the second group's announcements were made after December 31, 1987. All announcements occurring within 1987 were disregarded.

Of the 39 BHC announcements made before 1987, there were only 18 statistically significant (at alpha = .05) abnormal returns reported in the three intervals. Of these 18 announcements, 15 (or 83.3 percent) were negative and only 3 (16.7 percent) were positive. Although these numbers are small, the results are consistent with the aggregate results for the earlier period (see Table 5).

Of the 60 BHC announcements made after 1987, there were 43 statistically significant (at alpha = .05) abnormal returns reported in the three intervals studied. However, 19 of the 43 (or 44.2 percent) statistically significant abnormal returns were positive and 24 of the 43 (or 55.8 percent) were negative. The best explanation for the aggregate results in Table 5 for the period after 1987 may be that investors have become much better at discerning specific knowledge surrounding the reasons for additions to a bank's LLRs. It appears that instead of no reaction in the later period (as indicated in Table 5), reactions have actually increased; however, the number of positive and negative reactions offset each other.

Due to these offsetting factors, the excess returns are subdivided into the two time periods and analyzed for a variance change in the same fashion as described above for the total sample. The results are presented in Table 6.

Panel A shows the results for the sample prior to December 31, 1986. The only statistically significant day is day -4 with a jackknife of -0.53, $t = -2.31$. This reaction on day -4 may partially explain the large negative market reaction for days -5 to -1 ($Z = 5.4$). No other day or test was significant.

Panel B presents the results for the sample beginning January 1, 1988. Two days are statistically significant. These days and test results are as follows: 1) Day -1, with a jackknife test of 0.81, $t = 4.68$, mean squared return of 2.17, $Z = 6.14$; and 2) Day -3, with a jackknife test of -0.40, $t = -1.93$, mean squared return of 0.65, $Z = -1.92$. This supports the findings reported above. Of the 60 announcements, 44 percent of the statistically significant returns were positive and 56 percent were negative, thus canceling out. The variance tests indicate that there was cross-sectional dispersion.

TABLE 6
Variance Tests: Dispersion of the CPEs for Two Subsample
(Prior and Post 1987)

PANEL A: Before Dec. 31, 1986

DAY	Jackknified Test (Miller's t)	Mean Square Return (Patell's Z)	Conventional Standard Deviation
-5	-0.23 (-1.08)	0.82 (-0.87)	0.88
-4	-0.53 (-2.31)*	0.65 (-1.60)	0.76
-3	-0.16 (-1.09)	0.97 (-0.18)	0.92
-2	0.00 (-0.00)	0.96 (-0.22)	0.99
-1	0.34 (1.53)	1.44 (1.90)	1.17
0	0.24 (0.89)	1.20 (0.86)	1.11

PANEL B: After Dec. 31, 1986

DAY	Jackknified Test (Miller's t)	Mean Square Return (Patell's Z)	Conventional Standard Deviation
-5	-0.12 (-0.69)	0.86 (-0.92)	0.93
-4	-0.14 (-0.75)	0.85 (-1.01)	0.93
-3	-0.35 (-2.13)*	0.69 (-2.02)*	0.83
-2	-0.25 (-1.32)	0.78 (-1.44)	0.88
-1	0.56 (3.60)*	1.74 (4.58)*	1.33
0	0.31 (2.12)*	1.33 (2.03)*	1.16

* = Significance at the 0.01 level

Capital Adequacy Test

It can be hypothesized that BHCs with a strong capital position should be viewed more favorably by the market. In order to test this hypothesis, each BHC's capital ratio (defined as the market value of equity divided by total assets) is regressed against the MCPE for each BHC on day 0 (the announcement date). The results were not statistically significant (estimated slope coefficient of 0.0504 with a t-value of 0.72). Apparently, either investors are unaware of each BHC's capital levels or are indifferent to them in analyzing the impact of LLR additions. Our results support those of MS, who tested for capital adequacy and also found a weak positive relationship.

CONCLUSIONS

This study examines the market's reaction to announcements of additions to LLRs resulting from diverse problems in a bank's loan portfolio. For the sample as a whole, the results of this study found a statistically significant negative reaction before the LLR announcement and a statistically significant positive reaction after the announcement. In addition, the excess returns prior to and on the announcement day displayed cross-sectional dispersion, indicating both positive and negative reactions to the LLR increases. This was verified by an examination of the excess returns for each BHC.

We found that announcements of LLR increases for reasons other than increases for LDC debt do provide new information; however, the reaction varies by category. These results support previous research which found mixed results (both positive and negative abnormal returns). Overall, the differences in the level of public awareness of individual reasons for LLR additions must be considered when questioning the disparity of the market's reaction. As Cornell and Shapiro (1986) point out, news about problem loans is revealed over time, thus allowing for different reactions.

The market may view increases as negative due to the surprise factor, a situation where investors were previously unaware of problems in a bank's loan portfolio. If the extent of the problem loans is not known, then the announcement of a LLR addition might be viewed as only the beginning of the corrective process. The market may view the LDC additions as a concluding solution in one instance, while perceiving that announcements of problems in alternative categories of loans might indicate only the initial step to problem-solving and lack a definitive conclusion in another.

There are also numerous reasons that may explain why the market would view various signals as positive. The addition to LLRs has a positive cash flow effect accompanying a tax savings and can result in an increase in the capital/asset ratio. Increases in LLRs recognize additional risk in the loan portfolio and a possible change in policy towards the borrower. Also, additions to LLRs can provide a signal of future positive corporate restructuring.

Our results indicate that the market response is not the same for all categories of announcements. While all of the CPEs for each category, except that of LDC debt, were negative at some point before the announcement date (except in the case of General Domestic Loans) the negative reaction was short-lived, being completed by the announcement date. The positive reaction for the LDC loan additions supports prior research findings. On the day that the announcement is publicized, the largest reactions were found for increases to LDC loans (positive) and Real Estate/Energy loans (negative). After the announcement date, only the LDC, Foreign and Domestic, and Real Estate and Energy loans have a statistically significant positive reaction. These favorable responses may have obscured any negative response to the announcements for additions due to problems within a bank's commercial loan portfolio.

Our results do not support the findings of Liu and Ryan (1995); however, their test for a market reaction is structured differently from ours. They do not break out each category of loans but group them as frequently renegotiated and rarely renegotiated. Other studies have found differing market reactions in separate time periods (primarily negative reactions to LLR announcements prior to 1987 and positive reactions after 1987). We divided the data into these two sub-groupings - before and after 1987. Prior to 1987, reactions to LLR additions were predominantly negative, a finding similar to that of other research concerning the international loan crisis situations. However, by 1987, continuing publicity which concerned the international debt crisis brought increased public attention to banks' announcements of sizeable additional increases to the LLR accounts. Investors became aware of the percentage of exposure of specific banks to LDC debt. Results for the group of announcements made after 1987 support this argument, as reactions within each category were mixed. The almost equal statistically significant positive and negative reactions resulted in aggregate results that showed no reaction in any interval tested. This indicates that investors have differing levels of awareness concerning the heterogeneous categories of problem loans. It appears that when investors have knowledge of the problems, an increase to LLRs signals economically positive news; however, when an increase identifies previously unanticipated losses, the investor holds a negative view. It seems reasonable that investors will become equally adept at discerning specific information surrounding other reasons for additions to a specific bank's LLRs.

ENDNOTES

1. The international debt crisis dates from August, 1982 when Mexico declared a moratorium on its debt. The additions to the LLR account which were to cover possible loan defaults because of the international debt crisis were sizeably larger than a bank's routine annual adjustment. These considerable increases began on May 19, 1987 when John Reed, Chairman of Citicorp, announced a \$3 billion increase to his bank's LLR account to cover possible third world loan defaults. He made his announcement at a carefully orchestrated press conference which provided the first public signal that many of these Lesser Developed Country (LDC) loans were not going to be collected. Within a six week period, major U. S., British, German, and Japanese banks had followed suit.
2. See Cornell and Shapiro (1986), Bruner and Sims (1987), Smirlock and Kaufold (1987), Glascock, Karafiath, and Strand (1988), Madura and McDaniel (1989), Grammatikos and Saunders (1990), Hatfield and Lancaster (1990), Mansur, Cochran, and Seagers (1990), Musumeci and Sinkey (1990a), Musumeci and Sinkey (1990b), and Lancaster, Hatfield, and Anderson (1993).
3. Several announcements offered combination reasons and did not give the necessary information to segregate the loans by type.
4. LHA (1993) do tabulate the number of positive and negative CPEs by category but do not test individual market reactions.
5. The 1985 capital standards referred to primary and secondary capital. The 1988 standards changed the terminology to Tier 1 and Tier 2 capital.
6. Scheiner (1981) found that loan loss provisions have a strong correlation with regional business failures.

7. For example, Bank of Boston made a \$280 million addition to its LLR account. The President and CEO, Ira Stepanian, said “the moves reflect a response to the further deterioration of New England’s economy...” (*Wall Street Journal* 1/3/90). Chase Manhattan added \$650 million to its LLRs because of problem domestic loans, mostly real estate (*Wall Street Journal*, 9/24/90).
8. Since loans are accounted for at historical cost, the current market value can be substantially lower.
9. After the regulators discovered serious problems at the Bank of New England, the public became aware of the extent of the problem real estate loans.
10. The original sample included 128 announcements of additions to LLRs for 38 BHCs. Five of the BHCs (which accounted for 7 announcements) were not on the CRSP tapes or had incomplete returns; therefore, the final sample was 121 announcements (128 minus 7) for 33 BHCs (38 minus 5).
11. For a detailed description of the event-time methodology, see the appendix to Dodd and Warner (1983) and Glascock, Davidson, and Henderson (1987).

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APPENDIX

Standard event study methodology is used to estimate the excess returns (see Dodd and Warner (1983)). For intervals longer than one day, however, Karafiath and Spencer (1988) show that the Dodd-Warner test statistic is biased, and that the bias increases with the length of the interval examined. As a result, we use the test statistics suggested by Karafiath and Spencer (1988) and Mikkelsen and Partch (1988). These test statistics are smaller than would be obtained if the serial correlation in the prediction errors were ignored.

The formula for the test statistic is:

Equation 5

$$MSCPE_j = [I / (T_2 - T_1 + I)]^{1/2} \left[\sum_{t=T_1}^{T_2} PE_{jt} / (\text{var} \sum_{t=T_1}^{T_2} PE_{jt})^{1/2} \right]$$

where T_1 is the first day of the interval, T_2 is the last day of the interval, and the denominator is the square root of the variance of the cumulative prediction errors of firm j . The variance is defined to be:

Equation 6

$$\text{var} \left(\sum_{t=T_1}^{T_2} PE_{jt} \right) = V_j^2 \left[T + T^2 / ED + \left(\sum_{t=T_1}^{T_2} R_{mt} - T(\bar{R}_m) \right)^2 / \sum_{t=-116}^{-16} (R_{mt} - \bar{R}_m)^2 \right]$$

V is the residual variance of firm j 's market model regression, T is the number of days in the interval ($T_2 - T_1 + 1$), ED is the number of days in the estimation period for the market model, R_{mt} is the market return on day t , and \bar{R}_m is the mean market return during the estimation period. Because the weights used in calculating the MSCPE-statistic are a modified inverse of the standard deviation of the cumulative prediction errors, the Z-statistic can differ in sign from the average prediction error (since returns of securities with lower variance are given greater weight).