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INCREASE IN LOAN LOSS RESERVES FOR THIRD WORLD DEBT**

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ABSTRACT

Citicorp's announcement of a sizeable increase to its loan loss reserve account was a landmark public admission of possible loan default by Third World debtor nations. This paper analyzes the impact of the announcement on Citicorp, the banking industry, and the stock market. The results provide evidence of a positive response to Citicorp's action. There is additional evidence that the size of the market response is related to an individual bank's degree of international loan exposure.

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INTRODUCTION

On May 19, 1987, Citicorp's Chairman, John Reed, publicly announced that the bank was increasing (effective immediately) its loan loss reserves by \$3 billion in order to cushion the bank's loan exposure against possible default by financially unstable Third World countries. Total foreign debt owed by the Baker Plan countries was \$437 billion with \$62 billion of it owed to the United States financial community. The tradition in the banking industry had been to renegotiate, stretch-out payments, and lower interest rates. Reed's announcement not only broke this tradition but also was the first public admission that the loans were worth less than their face value.

The purpose of this paper is to determine whether there was a reaction in the market either to Citicorp or to the banking industry as a result of this announcement. A positive reaction might occur because the market approves the recognition of these problem loans; on the other hand, no significant reaction could be explained by the fact that additions to reserves are primarily accounting transactions. We also analyze the possible relationship between the size of investor response and the degree of international loan exposure. The paper is arranged as follows: Section II describes the background of the international loan problem and Reed's announcement; Section III includes a description of the data and methodology; Section IV contains the results; and Section V presents the conclusions.

BACKGROUND AND PREVIOUS STUDIES

The debt crisis was initiated in August, 1982, when Mexico declared a moratorium on its foreign debt payments and almost defaulted on loans worth \$82 billion. Since 1983, only Columbia and Venezuela have made any principal payments. In February, 1987, when Brazil announced that it would only pay interest to public creditors, such as the International Monetary Fund and World Bank, major banks retaliated by classifying the Brazilian loans as nonperforming [9]. Talks concerning debt rescheduling were planned for June.

On Tuesday, May 19, 1987, John Reed held a press conference at which he announced Citicorp's intention to immediately add \$3 billion to its loan loss reserves to cover possible international loan losses. This was the public announcement; however, because of the possible tremors that could result from the announcement, Reed had conferred with the Federal Reserve Board, the Securities and Exchange Commission, James Baker and the Treasury Department, and the rating agencies. Consequently, rumors of the pending announcement were circulating in the stock and bond markets several days before the actual date of the press conference. Despite leaking information, the bank's decision still appeared to have a stunning effect. The Dow Jones Industrial Average and the New York Index both declined the day of the announcement; however, the market stabilized and the indexes climbed back up. By the end of the week, the price of Citicorp's common stock had risen by five dollars.

Three studies (Cornell and Shapiro [5], Bruner and Simms [4] and Glascock et al. [10]) have attempted to analyze the market reaction to the debt crisis of 1982. Cornell and Shapiro [5], using cross-sectional regression analysis, concluded that, over the period from 1982 to 1983, foreign loan exposure did impact the prices of bank stocks but that this reaction was continually impounded in the stock prices rather than impacted on a few days.

Bruner and Simms [4] stated that Cornell and Shapiro [5] did not answer the question as to how rapidly the market reacted to the Mexican debt moratorium. They tested two hypotheses. First, any new information concerning deterioration "will be quickly impounded in the share prices of the affected banks." Second, the size of the response will be directly related to the size of each bank's foreign debt exposure. Since the authors were specifically interested in measuring the effect of the Mexican debt moratorium, they selected August 19, 1982, as the event date and utilized standard event study methodology. They found that the announcement did convey new information concerning the Mexican loans and that the news was impounded in the share price of banks with this exposure. Furthermore, they found that it took the market six days to impound the news whereas Cornell and Shapiro [5] concluded that the impounding took four months. In addition, they found that the size of the response was related to the size of exposure, but only after day +5. They concluded that it took investors several days to discover an individual bank's exposure.

Glascock, Karafiath and Strand [10] investigated whether international default affected the equity returns of all banks. They found multinational banks and regional wholesale banks had significant negative returns on the event day while regional consumer banks did not. Consequently, not all bank stock returns were affected.

DATA AND METHODOLOGY

The sample selected for this study includes Citicorp and five other banks, including Chemical New York Corporation, Bankers Trust New York Corporation, First Chicago Corporation, First Interstate Bancorporation, and Marine Midland Corporation. Because our intent was to measure the market's reaction to Citicorp's announcement, the additional banks chosen had to be those which did not immediately follow Citicorp's lead and add to their loan loss reserves. In addition, the banks needed to have substantial international loan exposure and be listed on the New York Stock Exchange. The sample period was from December 1, 1986, to June 10, 1987. We hand-collected daily security stock price data for calculating returns from individual issues of The Wall Street Journal and covered one hundred days prior to the test period and fifteen days on either side of the announcement date.

The following is an abbreviated discussion of our statistical procedure, as is often presented by others (see Davidson, et, al. [6]); for a more detailed description of event-time methodology, see the appendix to Dodd and Warner [7].

To test the market's reaction to the announcement of Citi-corp's increase in loan loss reserves, the single-index market model was used to predict returns:

$$R_{jt} = \alpha_j + \beta_j R_{mt} + e_{jt}, \quad (1)$$

where

R_{jt} = rate of return on security j for day t ,

R_{mt} = rate of return on the New York Stock Exchange Index on day t ,

α_j = ordinary least squares estimate of the intercept (constant term) from regression, and

β_j = ordinary least squares estimate of the slope from regression.

The parameter estimates are from pre-event data. The prediction error (PE_{jt}) (excess return) for security j and event day t is computed for the forecast period as follows:

$$PE_{jt} = R_{jt} - (\hat{\alpha}_j + \hat{\beta}_j R_{mt}) \quad (2)$$

Prediction errors are calculated for each security over the interval $t = -15$ to $t = 15$, relative to the event day. The Cumulative Prediction Error (CPE_j) over various intervals T_{1j} to T_{2j} is calculated as follows:

$$CPE_j = \sum_{t=T_{1j}}^{T_{2j}} PE_{jt}. \quad (3)$$

The mean cumulative prediction error, for a sample of N securities, is defined as follows:

$$\overline{CPE} = \frac{1}{N} \sum_{j=1}^N CPE_j. \quad (4)$$

In the absence of abnormal performance, the expected value of the $\overline{\text{CPE}}$ is zero. The test statistic (which is described by Dodd and Warner [7]) is based on an aggregation of mean standardized cumulative prediction errors. The PE_{jt} are standardized by their estimated standard deviations s_{jt} as follows:

$$\text{SPE}_{jt} = \text{PE}_{jt} / s_{jt} \quad (5)$$

The standard deviation s_{jt} is adjusted for each observation's distance away from the mean of the independent variable and is directly associated with the time series standard deviation for each firm. Due to the normal variation for different firms, the same size prediction error may have different levels of significance for different firms.

The standardized cumulative prediction error (SCPE_j) over the interval $t = T_{1j} \dots T_{2j}$ is:

$$\overline{\text{SCPE}}_j = \frac{\sum_{t=T_{1j}}^{T_{2j}} \text{SPE}_{jt}}{\sqrt{T_{2j} - T_{1j} + 1}} \quad (6)$$

The test statistic for a sample of N securities is:

$$Z(\text{CPE}) = \frac{\sum_{j=1}^N \overline{\text{SCPE}}_j}{\sqrt{N}} \quad (7)$$

In the absence of abnormal performance, each SPE_{jt} is assumed to be distributed unit normal; therefore, with this assumption, $Z(\text{CPE})$ is also unit normal.

The event date for this study is May 19, 1987, the day of the Citicorp press conference.

RESULTS

Table 1, Section A, shows the cumulative prediction errors and associated test statistics for several different intervals within the test period on a sample of all six banks. Several of the intervals are noteworthy. The entire test interval, day -15 to +15, has a CPE of .087 ($Z=2.715$), demonstrating an overall positive drift in residuals, or excess returns of 8.7 percent for the bank stocks over the length of the test period.

The interval -15 to -6 is statistically significant with a CPE of .049 ($Z=2.784$). A large amount of the reaction within this time period may be traced to an even stronger reaction in the interval -11 to -9 (CPE=0.032, $Z=3.311$). We attempted to identify the source of this particular market reaction and discovered two possible explanations. The Wall Street Journal (WSJ) carried an article on May 4th (day -11) announcing boosts in first quarter profits for big banks trading in currencies [17], with five of the six banks from this study being listed in the article. Two other WSJ articles indicated other possible explanations: one article (on May 5, day -10) reported the previous day's announcement of a reorganization of the World Bank in an attempt to broaden its role in managing Third World debt [15]; the second article (on May 6, day -9) reported an overall surge in stock prices on the previous day in reaction to a stronger bond market and a stronger dollar [13].

The short intervals leading up to and including the event day (May 19) are primarily negative and statistically insignificant.

A reversal of signs and a strong positive drift can be seen in the CPE's from day +2 through the end of the test period ($CPE=0.066$, $Z=3.036$). These findings indicate that the information was indeed a positive signal to the market. This positive drift appears to be fueled by a statistically significant reaction to two announcements on days +2 and +3 ($CPE=0.022$, $Z=2.576$). On day +2 (May 21) the WSJ carried an article predicting that other big U.S. banks would follow Citicorp's example and increase their loan reserves for Third World debt [19]. On day +3 (May 22) the WSJ reported Citicorp's plan to cut loans to debtor nations by approximately \$5 billion over the next three years. The report also outlined Citicorp's strategy for accomplishing the cuts through debt-for-equity swaps and sales [18]. It would appear that the market had previously taken a "wait and see" attitude following the original announcement by Reed. The additional information released on May 21-22 appears to be the confirmation the market needed to react with confidence.

In order to determine the impact of Citicorp on the results from the first sample, we ran a separate sample excluding Citicorp. Although the inclusion of Citicorp increased the magnitude of the test statistics in those intervals discussed above, there was only one statistically different interval (see Table 1, Section B). The statistically significant +2 to +3 interval from the complete sample ($CPE=0.022$, $Z=2.576$) appears to be predominantly influenced by Citicorp. The corresponding interval in the sample without Citicorp has a CPE of 0.006 ($Z=0.549$). It was, however, interest-

ing to note that the three banks in this study having the largest Latin American exposure each had a statistically significant PE on day +3 ($Z > 2.0$), while none of the banks with less than \$3 billion in loans showed a statistically significant reaction on this day (see Table 2). This appears to be consistent with Bruner's and Simms' [4] conclusion that the size of the investor response is related to the degree of exposure of each bank. Glascock et al. [10] also found that international defaults do not affect all bank stock returns.

CONCLUSIONS

For the single event date of May 19, 1987, we found no significant reaction in bank stock prices to the announcement that Citicorp had added \$3 billion to its reserves against losses on loans to Third World countries. However, as expected, there was an overall positive trend in residuals across the test period. It is likely that Reed's preparations prior to the announcement did not go unnoticed, making it probable that the information was impounded in the stock price of Citicorp long before the public announcement. This may help explain the statistically significant CPE's during the first week of the test period.

Furthermore, the market demonstrated a surge of confidence, as indicated by a strong positive drift, beginning two days after the event day. Our finding is similar to the delay found by Bruner and Simms [4], indicating that the market may need a few days to determine which banks will be affected by the new information. Also in agreement with Bruner's and Simms' study, we found some

evidence that the size of investor response is related to the degree of exposure of each bank.

Due to the single event date for all banks in this study, our findings may suffer from a clustering problem. The decline of both the Dow Jones Industrial Average and the New York Index on the announcement day could indicate a market-wide reaction, which could mask individual effects on the banks in this study. Further research should be done to test the results using a two-beta model to adjust for industry effects which may cause a bias in studies such as this one.

TABLE 2

AMOUNT OF LATIN AMERICAN LOAN EXPOSURE OF INDIVIDUAL
SAMPLE BANKS AND THE DEGREE OF INVESTOR RESPONSE

Bank	\$ Amount of Loans (in billions) ^a	PE (Daily t) (Day +3)
Citicorp	11.7	.048 (3.343) ^b
Chemical New York	5.3	.033 (2.625) ^c
Bankers Trust New York	3.2	.033 (2.065) ^c
First Chicago	2.6	.006 (.456)
Marine Midland	1.8	-.008 (-.684)
First Interstate Bancorp	1.5	.002 (.160)

^aSource: The Wall Street Journal, June 8, 1987, p. 6.

^bSignificant at the .01 level.

^cSignificant at the .05 level.

TABLE 1

CUMULATIVE PREDICTION ERROR RESULTS FOR ANNOUNCEMENT
EFFECT OF CITICORP'S INCREASE IN LOAN LOSS
RESERVES FOR THIRD WORLD DEBT ON MAY 19, 1987^c

Interval		(A) With Citicorp		(B) Without Citicorp	
		CPE	Z (CPE)	CPE	Z (CPE)
-15	15	.0866	2.7152 ^a	.0749	2.1547 ^b
-15	-6	.0491	2.7839 ^a	.0517	2.6960 ^a
-11	-9	.0324	3.3115 ^a	.0301	2.8284 ^a
-10	-1	-.0007	.0233	.0094	.5331
-5	-1	-.0202	-1.6143	-.0156	-1.1672
-1	0	-.0017	-.2010	-.0018	-.2110
0	0	-.0030	-.5817	-.0079	-1.3200
0	1	-.0087	-1.0138	-.0120	-1.2995
1	15	.0607	2.7126 ^a	.0467	1.9111
2	3	.0224	2.5756 ^a	.0065	.5485
2	15	.0664	3.0355 ^a	.0508	2.1165 ^b

^aSignificant at the .01 level.

^bSignificant at the .05 level.

^cWe have shown the cumulative prediction errors and associated test statistics for representative intervals across the forecast period, $t=-15$ to $t=15$, relative to the event date of May 19, 1987. Column A includes the results for all six banks in the study. In order to determine the impact of Citicorp itself on the results in Column A, we ran a second sample excluding Citicorp. The results of the second sample are presented in Column B. It would appear that the only major difference between results from the two samples involves the statistically significant reaction of Citicorp stock on days +2 and +3, a reaction obviously not felt, at least to the same extent, by the other five banks as a group.

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