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Official Credits to Developing Countries

Implicit Transfers to the Banks

Asli Demirgüç-Kunt
and
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The stock market expects virtually all additional resources provided to debtor countries to be used for debt service to commercial banks. The stock market capitalization of banks increased about $6 billion at the time of the 1983 U.S. proposal to increase its quota to the IMF by $8.5 billion, and by a low estimate of $22.4 billion at the time details of the Brady Plan were recorded.

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This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in PRE to understand commercial bank lending behavior. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sheilah King-Watson, room S8-025, extension 33730 (29 pages).

Two types of event have affected returns of banks that are heavily exposed to third world debt in the 1980s: actions by the debtor countries (such as declarations of moratorium) and official actions (such as changes in regulations and in the provision of official monies to the debtor countries).

The effect of the first type of event has been extensively investigated. There are fewer studies analyzing the effect of official actions on bank stock returns. Demirgüç-Kunt and Huizinga investigate to what extent official money available to debtor countries has devolved to the banks, as reflected in stock market prices.

They find that the stock market expects virtually all additional resources provided to debtor countries to be used for debt service to commercial banks. The stock market capitalization of banks increased about $6 billion at the time of the 1983 U.S. proposal to increase its quota to the IMF by $8.5 billion, and by a low estimate of $22.4 billion at the time details of the Brady Plan were recorded.

The estimate of the magnitude of these effects is informative, but the emphasis should be on the direction of these effects, as they are robust to overestimation problems.

Clearly official resources provided to debtor countries do devolve to creditor banks. But the debtor countries should at least gain insofar as the reduction of a debt overhang eliminates investment distortions.

The results here stem from the fact that some of the monies provided by the multilaterals are specifically earmarked for debt service or are in the form of general balance-of-payments support that the developing countries can use for private debt service. Official creditor resources that are specifically provided to finance development projects are less likely to be allocated to bank debt service.

Official Credits to Developing Countries: Implicit Transfers to the Banks*

by
Asli Demirgüç-Kunt
and
Harry Huizinga

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I. Introduction

Two types of events have affected returns of banks that are heavily exposed to third world debt during the 1980s: actions by the debtor countries, such as declaration of moratoriums, and official actions such as changes in regulations and in the provision of official monies to the debtor countries. The effect of first type of events has been extensively investigated. Among these studies Schroder and Vankudre (1986), Cornell and Shapiro (1986), Bruner and Simms (1987), and Smirlock and Kaufold (1987) study the effect of Mexico's 1982 default; Sachs and Huizinga (1987) and Musumeci and Sinkey (1987) study the effect of Brazil's 1987 debt moratorium, and Ozler (1990) investigates the effect of 1978-1983 international loan reschedulings on bank stock values.

There are fewer studies analyzing the effect of official actions on bank stock returns. Change in regulations, for instance, is analyzed by Eyssell, Fraser and Rangan (1989) who investigate the effect of amendments in regulations governing international banking operations. The effect of official monies, more specifically the effect of indirect provisions made available as increases in resources of international financial institutions, has been studied by Cornell, Landsman and Shapiro (1988) and Billingsley and Lamy (1988). They show that the 1983 increase in the U.S. quota to the IMF by $8.5 billion materially affected bank stock returns. However, official monies provided directly as loans to debtor nations are also important. For instance, earlier in 1982 and in 1983 the IMF provided a series of large balance of payments loans to Argentina, Brazil, Chile, and Mexico that

similarly can be expected to have affected bank stock returns. More recently, as part of the Brady Plan, the IMF and World Bank have made around $24 billion available for developing country debt reduction. This paper investigates to what extent these official monies made available to debtor countries have devolved to the banks, as reflected in stock market prices.

For several episodes, we calculate the increase in expected repayment by debtor nations reflected in stock market prices. Stock market prices are found to have responded strongly to the announcements of large IMF loans to Latin American debtors in late 1982 and to a lesser extent in early 1983. In the period from 1984 to 1988, we find no clear effects on bank stock prices of announcements of large commitments by the IMF, World Bank or national governments. Apparently, the stock market went through a learning process early in the debt crisis after which a pattern of large official balance of payments loans from the multilateral institutions that were partly used for private debt service was clearly established.

Of the $8.5 billion U.S. quota increase of the IMF, we estimate that about $6 billion indirectly accrued to private banks worldwide. The recent World Bank quota increase of $74.8 billion however, did not clearly affect bank stock return at its passage as the increase had been fully anticipated. The IMF quota increase of around $60 billion announced in May 1990 negatively affected bank stock returns. This is due to the fact that the market expected a greater increase whereas the United States was able to prevent the quota subscriptions from increasing by more than 50 percent.

In the case of the Brady Plan, the paper abstracts from the details of the menu by which debt reduction actually takes place that can be important to the banks as shown by Demirguc-Kunt and Diwan (1990). While the initial reaction to the debt reduction plan was unclear, during the period of March 16 to March 20 when the extensive IMF and World Bank involvement in debt reduction was secured, bank returns showed a significantly positive reaction. Interestingly, heavily exposed banks seem to have benefited less per dollar of LDC debt than the lowly exposed banks, although for both types of banks repayment prospects should have been affected equally. Heavily exposed banks may have benefited less, as their contingent claim on the FDIC was reduced while repayment prospects improved. Huizinga and Ozler (1990) have shown that the relationship between LDC exposure and bank valuation is nonlinear due to federal deposit insurance. Important news concerning the repayment prospects of LDC debt of course affects the value of the banks' contingent claim on the Federal Deposit Insurance Corporation (FDIC). Judging from the lowly exposed banks, the $24 billion made available for debt reduction appears to have increased the present value of debt payment by $22.4 billion. This result confirms Bulow and Rogoff (1988) who have shown that the Bolivian debt buyback of (1988) mainly benefited the banks. Comparing the experience of the lowly and highly exposed banks, we estimate that the U.S. banks contingent claim on the FDIC has been reduced by approximately $9 billion.

The remainder of this paper is as follows. Section 2 describes the empirical methodology and the data. Section 3 discusses the events and presents the main results. Section 4 concludes.

II. Methodology

The main aim is to infer from stock prices the transfer to the commercial banks implicit in the provision of official monies to the debtor nations. To start, let us consider the following bank valuation equation:

$$(1) \quad MV_i = LDC_i + NLDC_i + NB_i - LI_i$$

where MV_i is the bank value for bank i, LDC_i is the present value of the expected LDC debt repayment, $NLDC_i$ is the market value of the bank's non-LDC assets, LI_i is bank liabilities, and NB_i is the value of the bank's off balance sheet items, and in particular its contingent claim on the FDIC. MV_i is measured as the stock price times the number of shares outstanding.

Now let the official creditor make available resources L_j to country j. L_j can be a direct loan to country j or an indirect transfer of resources to a multilateral agency to be channeled to country j at a later point. For bank i, this affects expected repayment LDC_{ij} and claim NB_i. From (1) we can derive:

$$(2) \quad \frac{\Delta P_i}{P_i} = [\delta + \epsilon_i] \frac{E_{ij} dL_j}{MV_i \sum_I E_{Ij}}$$

where $\delta = \frac{d\sum_I LDC_{ij}}{dL_j}$ and $\epsilon = \frac{dNB_j}{dL_j} \frac{\sum_I E_{ij}}{E_{ij}}$, P is the stock price, and E_{ij} denotes exposure of bank i to country j.

The coefficient δ in (2) measures the proportion of the loans that is expected to be transfered to the banks. All banks are expected to be repaid in proportion to their exposure, i.e., $\frac{LDC_{ij}}{\sum_i LDC_{ij}} = \frac{E_{ij}}{\sum_i E_{ij}}$. The coefficient ϵ_i measures the indirect impact of official transfers to debtor nations on banks' claims on the FDIC. For a lowly exposed bank, ϵ_i is close to zero while for highly exposed banks ϵ_i may be substantially negative. As for each bank $\delta + \epsilon_i$ will be estimated jointly, values of ϵ_i can be inferred by comparing $\delta + \epsilon_i$ for highly and lowly exposed banks.

Our sample of banks consists of roughly 21 exposed and 9 non-exposed U.S. banks, depending on the particular event. A list of banks is given in Table 1. As shown, exposed banks are grouped as highly and lowly exposed banks based on their exposures. Data on daily bank and market returns, for the period January 1, 1983 to December 31, 1988, are obtained from the tapes constructed by Center for Research in Security Prices (CRSP) at the University of Chicago. The market return is dividend inclusive return on the S&P 500 index. Individual bank exposure data on individual countries is obtained from The Country Exposure Lending Surveys.

Following Smirlock and Kaufold (1987) and Eyssell, Fraser and Rangan (1989), the following set of n linear equations is estimated first.

$$(3) \qquad R_{1t} = \alpha_1 + \beta_1 R_{mt} + \gamma_{d1} D_t + e_{1t},$$

$$R_{2t} = \alpha_2 + \beta_2 R_{mt} + \gamma_{d2} D_t + e_{2t},$$

$$R_{nt} = \alpha_n + \beta_n R_{mt} + \gamma_{dn} D_t + e_{nt}$$

where R_{it} is the return on the stock of bank i on day t. R_{mt} is the market return, D_t is a dummy equal to 1 during the event period of three days including the day before and after the event, and zero otherwise.[1] The system is estimated for the complete year, with daily returns for each year in which events took place.

For the set of exposed banks only, the following alternative system is estimated:

$$(3) \qquad R_{1t} = \alpha_1 + \beta_1 R_{mt} + \gamma_{e1} D_t + e_{1t},$$

$$R_{2t} = \alpha_2 + \beta_2 R_{mt} + \gamma_{e2} D_t + e_{2t},$$

$$R_{nt} = \alpha_n + \beta_n R_{mt} + \gamma_{en} D_t + e_{nt}$$

where E_i is $\dfrac{E_{ij}\ dL_j}{MV_i \sum_i E_{ij}}$ given L_j. Now $\gamma_{en} = \delta + \epsilon_n$.

The systems are estimated using seemingly unrelated regressions (SUR)

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[1] Using the same dummy variable for multiple dates is to capture leakages and lags of information, and is common in event studies. See for instance, Eyssell, Fraser, and Rangan (1989), and Grammatikos and Saunders (1990).

technique, which allows for contemporaneously correlated disturbances.[2] This technique is most appropriate for estimation of a system of equations which have nonzero correlation across their residual terms due to implicit relationships. In the above systems implicit relationships exist since all banks are members of the same industry.

The hypotheses to be estimated are:

H_1: The event parameters are zero for a group of banks.

H_2: The event parameters are equal to each other for a group of banks.

The groups of banks we consider are the set of exposed banks, the set of non-exposed banks, and all banks together. Hypotheses are tested separately for all three groups of banks.

For system (3), we expect the event parameters γ_{di} as a group to be different from zero for the exposed banks and for all banks together while the parameters should be zero (and equal to each other) for the non-exposed banks. If the event parameters for the non-exposed banks are different from zero, this indicates investors can not correctly distinguish between exposed and nonexposed banks, which is a form of contagion. Also, if the event parameters for the exposed banks are equal to each other, this points at contagion as it indicates stock market investors can not distinguish between heavily and lowly

[2] See Zellner (1962) for a discussion of the technique. Using SUR in estimation of system (3) is not necessary since SUR estimator collapses to OLS estimator when all the independent variables are the same. However, using this technique leads to efficiency gains in estimation of system (4).

exposed banks.

For system (4), we expect again the event parameters $\gamma_{\bullet i}$ to be significantly different from zero for the group of heavily exposed banks. The event parameters should be equal to each other if $\epsilon_i=0$ for all banks, i.e. the FDIC insurance does not affect bank valuation. If the hypothesis of equal event parameters is rejected, this could point to (i) contagion or (ii) a significant relationship between the ϵ_i's and the E_i's. A negative correlation between the ϵ_i's and E_i's suggests the importance of the FDIC claim in bank valuation.

III. Events and Findings

a. IMF loans in 1982 and 1983. The announcement dates of the events that are examined are reported in Table 2. The first five dates represent news concerning large IMF loans to Latin debtor countries in late 1982 and early 1983. The first of these, in October 1982, was a $2 billion loan to Argentina. The loan came at a time that Argentina had $1.7 billion in arrears on $40 billion of debt, and just 2 months after Mexico declared it was unable to service its debt in August 1982. Upon hearing the news, a banker said, "This is much the best news we have had in one of the bleakest years I can remember.[3]

[3] WSJ, October 29, 1982.

Subsequently, the IMF reached agreements on large loans to Brazil, Mexico, and Chile in December 1982 and the first two months of 1983. The loan to Brazil was tentatively agreed in December 1982, and formally approved in February 1983. These large loans, unlike some smaller loans from the multilateral lending agencies, are not earmarked to finance specific projects, and thus the funds are generally available for debt service. Regulations that required banks to disclose their LDC exposures in the 10K and 10Q reports were not announced till October 1982. Thus during this period bank stock investors had very incomplete information about individual bank exposure, and we cannot estimate system (4). Estimation of system (3) for the loan to Argentina is reported in Table 3. Fourteen of the eighteen exposed banks are shown to have a positive return during the three day event period. The hypothesis that event parameters are zero is rejected for the exposed banks, and for all banks together, but only at 10 percent level for the non-exposed banks.

The hypothesis that the event parameters are equal is rejected for all the three groups of banks. The means for the event parameters of the heavily and lowly exposed banks are 0.88 and 0.52 percents respectively, indicating that some information about individual bank exposure was known to investors.

Bank investor response to the agreement between Brazil and the IMF in December 1982 was much less favorable. During the event period, 16 of the 18 banks experienced negative excess returns. The hypotheses of zero event parameters is rejected at the 5 percent level for all banks, but only at the

10 percent level for the exposed banks. Apparently, stock market investors had anticipated a s''ghtly more favorable loan. Also, for the announcement of the large IMF loan to Mexico, we find that the hypothesis of zero event parameters can not be rejected.

The final loan of this sequence to Chile was approved on January 10, 1983. According to a WSJ article of January 4, 1983, there was considerable doubt whether this loan would be approved. The results of Table 3 show that at the time of announcement 3 exposed banks had significantly positive excess returns. However, the hypothesis of zero event parameters is not rejected for all banks, and only at 10 percent level for exposed banks. The results suggest that the stock market, after the initial large IMF commitment to Argentina, anticipated that large commitments to other indebted countries would follow, which explains the absence of strong stock market effects at announcements of later commitments. For later announcements of large IMF and World Bank loans, such as the IMF commitment of $1.8 billion of loans to Argentina in January 1987, and the concommittant commitment by the World Bank of $2 billion to the same country, we similarly find insignificant stock market effects. These results are not reported.

b. Increase in U.S. quota to IMF in 1983. In 1983, the U.S. passed legislation to increase the U.S. quota to the IMF by $8.5 billion. If as suggested above, IMF resources to some extent are used to enable debtor nations to service their commercial banks costs, then an increase in U.S. funding to the IMF should positively affect shareholder wealth. Cornell, Landsman and Shapiro (1986) found that at the time of the passage of the bill

to increase the U.S. quota in the Senate on June 8, 1983, bank stocks were negatively affected. Billingsley and Lamy (1988) show, however, that bank stocks were positively affected when the bill was introduced in the Senate on March 7, 1983, and that cumulate excess returns were positively related to the ratio of bank exposure to LDCs to bank assets plus loan-loss reserves. This formulation does not allow one to measure the increase in shareholder wealth.

The results of estimating systems (3) and (4) are in Table 4, showing six of eighteen exposed banks experience positive excess returns at least at the 10 percent significance level. Estimates of the market model parameters α_i and β_i are the same as those reported in Table 3. The non-adjusted event parameters are significantly different from zero for all banks, and the hypothesis that they are the same is rejected. However, the event parameters for the non-exposed banks for themselves are also different from zero, and in fact 3 non-exposed banks have significantly positive individual returns. This points to contagion, where investors can not distinguish between exposed and non-exposed banks. However, this does not point to market inefficiency if stock holders did not yet have information about individual bank exposures. Bank annual reports for the year 1982, which were published around March and April of 1983 were the first to contain obligatory information on individual bank exposure. The exposure-adjusted event parameters are jointly different from zero, and the hypothesis that they are equal to each other can not be rejected. This is strong evidence that stock investors indeed are aware of bank exposures.

The means of the exposure adjusted event parameters are equal to 0.142 and 0.398 for the sets of highly and lowly exposed banks. This difference can be attributed to contagion which causes investors to bid up stock of lowly exposed banks too much relative to the stock of highly exposed banks, or it may reflect the role of deposit insurance. Heavily exposed banks have a relatively large claim on the deposit insurance agency. Thus as the repayment prospects of LDC debt improve, heavily exposed banks stand to see their claim on the FDIC go down in value more than lowly exposed banks. Hence, one expects the stock of heavily exposed banks to rise proportionally less, even if markets are fully rational.

The estimated values of the exposure-adjusted event parameters in Table 4 can be used to estimate the increase in shareholder wealth during the estimation period. The estimated mean value of the exposure-adjusted event parameter is 0.242. This means that, as there is a three day event window and as the quota was to be increased by $8.5 billion, that stockholders wealth was expected to increase by $6.2 billion. As U.S. banks hold roughly 24 percent of LDC debt, at the time, this means that U.S. bank stock rose by $1.5 billion while foreign bank stockwealth rose by $4.7 billion. Thus, the U.S. quota increase to the IMF appears to have significantly increased the value of non-U.S. banks.[4]

c. The Brady Plan. In March 1989, details of the Brady Plan were

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[4] The statements about the non-US banks are accurate to the extent they are affected similarly by these events. Since we use only US bank data, extending these results to other banks worldwide is at best an approximation.

announced. The IMF and the World Bank were to provide developing countries with funds for debt reduction. Debt Reduction could take the form of debt buybacks or the exchange of debt for exit bonds which were partly guaranteed by the multilateral institutions. As documented by Madura, Tucker and Zarruk (1990), and Ünal and Demirgüç-Kunt (1990), earlier announcements in December 1989 and January 1990 already suggested that official policy would be reformulated towards debt reduction, but the generous support from the multilaterals, as announced in March 1990, appears to have been largely unexpected. Although initially (March 10) there was no significant market reaction, when support from multilaterals was secured (March 17), bank stocks reacted positively. The results of Table 5 indicate that 11 exposed banks experienced significantly positive excess returns. Interestingly, the hypothesis that the non-adjusted event parameters are equal can be rejected. Indeed, the exposed banks appear to have very similar parameter estimates of around 0.02. Consequently, the hypothesis that exposure adjusted event parameters are equal is rejected. The lowly exposed banks appear to have benefited disproportionately to their exposure. This relationship is confirmed by a correlation coefficient between the estimated parameter and the exposure adjusted event parameter of -0.54 which is significant at the 3 percent level.

Again, the different experience of the highly and lowly exposed banks can be attributed to either contagion or to changes in the value of FDIC claims that differ systematically with exposure across banks. If there is no contagion, then the mean event parameter estimate of 2.158 for the lowly exposed banks, and the $24 billion amount used for L_j gives us the estimate

that expected bank repayment went up by $155 billion. As contagion is ruled out to arrive at this estimate, it must be an upper limit. The $155 billion roughly corresponds to 20 cents on the dollar of the amount of $622 billion of commercial bank debt to developing countries outstanding at the end of 1989, which corresponds to the initial debt reduction aim of the Brady Plan.[5] The mean event parameter of 0.38 for the highly exposed banks yield a lowest estimate of $27.4 billion in increased repayment to commercial banks worldwide. The estimate is a lower limit as it ignores possible changes in the banks' claim on the FDIC.

As U.S. commercial banks held around 14.5 percent of commercial bank debt to developing countries as of the first quarter of 1989, the low and high estimates of expected additional repayment to U.S. banks range from $3.97 to $22.4 billion.[6] The highly exposed banks own roughly half of U.S. LDC debt. Thus the estimate of the reduction in expected FDIC payments to U.S. banks as a result of the Brady Initiative is $9.2 billion. Again, this is a high estimate, as it rules out contagion.

d. Recent World Bank and IMF Quota Increases. In the last three years, both the World Bank and the IMF had recent announcements of considerable quota subscription increases. On February 19, 1988, the World Bank obtained a $74.8

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[4] Quarterly Review, June 1990, Table 5. Of course it is more than 20 percent of the debt of the Brady countries that were identified for debt reduction.

[6] The U.S. commercial bank lending to developing countries as a percentage of total commercial bank lending is obtained from Tables 5 and 7A, Quarterly Review, September 1989.

billion general capital increase to be subscribed by member countries before September 30, 1993. On May 7, 1990, the IMF similarly obtained an increase in its resources by 50 percent, from around $120 billion to roughly $180 billion. These increases, unlike the U.S. increase of its IMF quota in 1983, were the result of lengthy reviews within the multilaterals and of negotiations between principal member countries. Thus, bank stock response at the time of the fiscal agreements is only relative to previous market expectations. Table 6 shows the results of estimating (3) and (4) for a 3-day event period surrounding the announcement of the World Bank capital increase. One highly exposed bank experienced a significantly positive excess return, and one lowly exposed bank experiences a significantly negative excess return. The hypotheses that the event parameters for the exposed banks are zero or equal are both rejected. Moreover, no clear pattern is evident in the estimated event parameters. Evidently, the actual acceptance of the World Bank capital increase was not major unexpected news.

The IMF quota increase of 50 percent was passed officially on Monday, May 7, 1990. However, the day before the G-7 already released a communique endorsing the 50 percent increase. According to a later WSJ article this accord represented a victory of the U.S. which aimed to limit the increase in IMF capital.[7] France and the IMF itself had sought a 100 percent increase. Thus the passage of the accord can be expected to be negative news to the banks. This is confirmed by Table 7, which shows that excess returns on Friday, May 4 were negatively correlated to the ratio of total bank exposure

[7] Wednesday, May 29, 1990.

to market capitalization. Apparently, news of the limited increase in IMF resources leaked to the market on Friday. Using the estimate of -0.013 as an approximate figure for all banks, and taking the latest figure on commercial bank claims on developing countries for the fourth quarter of 1989, one can compute that bank industry market capitalization was reduced by around $8.2 billion worldwide on account of the limited increase in IMF resources.[8]

IV. Conclusion

This paper has investigated the impact on the wealth of bank share holders of the transfer of official resources to the debtor countries. The main aim has been to derive actual estimates of increases in shareholder wealth following important news concerning future transfers from the multilaterals to the debtor nations. The main result, consistant with Bulow and Rogoff (1988), is that the stock market expects virtually all additional resources provided to debtor countries to be used for debt service to commercial banks. Bank stock market capitalization increased around $6 billion at the time of the 1983 U.S. proposal to increase its quota to the IMF by $8.5 billion, and by a low estimate of $22.4 billion at the time details of the Brady Plan were recorded.

While the estimated magnitude of these effects are informative, the emphasis should be on the direction of these effects as they are robust to overestimation problems. Clearly, official resources provided to debtor

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[8] Quarterly Review, June 1990, Table 5.

countries do devolve to creditor banks. However, the debtor countries should at least gain in so far as the reduction of a debt overhang eliminates investment distortions. Our results stem from the fact that some of the monies provided by the multilaterals are specifically earmarked for debt service or are in the form of general balance-of-payments support that the developing countries can use for private debt service. Official creditor resources that are specifically provided to finance development projects are less likely to be allocated to bank debt service.

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Table 1. List of Exposed and Non-exposed Banks.

Highly Exposed Banks	EXP/MV	EXP/BV
(14) Manufacturers Hanover	418.8	212.7
(18) Chase Manhattan	239.7	145.4
(17) Chemical Banking	215.6	142.0
(15) BankAmerica Corp.	180.9	173.1
(16) Continental Bank Corp.	154.7	136.0
(19) Citicorp	101.7	101.5
(21) Bankers Trust NY	100.3	81.4
(22) First Chicago	87.7	83.1
(24) J.P. Morgan Co.	59.3	67.7
(20) First Pennsylvania Corp.	56.2	106.6
(23) Bank of New York	56.2	55.7
Lowly Exposed Banks	**EXP/MV**	**EXP/BV**
(26) Southeast Banking Corp.	30.0	33.2
(25) Republic NY Corp.	28.8	33.3
(29) Northern Trust Corp.	25.2	26.6
(27) Bank of Boston Corp.	18.2	15.9
(28) Manufactures National	15.3	17.9
(30) Security Pacific	12.8	14.7
(31) Wells Fargo & Co.	12.1	17.7
(10) NBD Bancorp	8.9	10.5
(12) Midatlantic Corp.	3.5	3.7
(13) NCNB Corp.	0.2	0.3
Non-Exposed Banks	**EXP/MV**	**EXP/BV**
(1) Dominion Bankshares	0.0	0.0
(2) First Alabama Bankshares Inc.	0.0	0.0
(3) Crestar Financial Corp.	0.0	0.0
(4) Baybanks Inc.	0.0	0.0
(5) U.S. Trust Corp.	0.0	0.0
(6) State Street Boston Corp.	0.0	0.0
(7) Citizens and Southern	0.0	0.0
(8) Barnett Banks Inc.	0.0	0.0
(9) First Virginia Banks, Inc.	0.0	0.0

Notes: EXP/MV and EXP/BV are LDC exposure as percentages of market and book value of bank's capital respectively. LDC exposure is taken as exposure to Argentina, Brazil, Mexico, and Venezuela. All data are as of December 30, 1988. Numbers in parantheses correspond to bank numbers in Tables 3-6.

Table 2. Dates and Events.

Date	Event
October 28, 1982	IMF tentatively arranges $2 billion in assistance for Argentina.
December 15, 1982	IMF reaches tentative agreement to provide about $4.9 billion in loans to Brazil.
December 23, 1982	IMF formally approves $3.96 billion loan to Mexico.
January 10, 1983	IMF approves $882.5 million in loans to Chile.
February 28, 1983	IMF approves $5.5 billion in loans to Brazil
March 7, 1983	Proposed to increase U.S. quota to IMF by $8.5 billion introduced in U.S. Senate.
June 8, 1983	Proposal to increase U.S. quota to IMF passes in Senate.
February 16, 1988	World Bank Executive Directors agreed on a $74.8 billion general capital increase.
December 15-20, 1988	World Bank proposes commercial banks with heavy exposure reduce debt. Mexico seeks debt restructuring.
March 10, 1990	Details of the Debt Reduction Plan were announced. Banks would be asked to forgive some of their debt. The percentage of debt to be forgiven was uncertain although rumors centered around 30 percent.
March 17, 1990	Additional details of the Debt Reduction announced. The Treasury proposed reduction of bank debt by convertion into bonds whose principal and interest would be guaranteed by the World Bank and the IMF.

Table 2 (continued).

Date	Event
May 6, 1990	G-7 endorse 50% increase in IMF funds.
May 7, 1990	IMF policy-making committee increase institutions resources 50% from about $120 billion to about $180 billion.

Table 3. **Large IMF Commitments to Latin Debtors in 1982 and 1983.**

BANK	MARKET MODEL PARAMETERS		821028	821215	821223
	α_i	β_i	γ_{di}	γ_{ei}	γ_{di}
14	0.0002	0.91	0.0040	0.001	
15	-0.0005	1.14	0.0080	-0.009	
16	0.0003	0.81	0.0020	-0.005	
17	0.0002	0.79	0.0060	-0.002	
18	-0.0006	1.02	0.0040	0.001	
19	0.0006	1.45	-0.0090	-0.006	
20	0.0010	0.56	0.0850*	-0.002	
21	0.0004	1.00	-0.0080	-0.024*	
22	-0.0001	1.03	0.0060	-0.021#	
23	0.0005	0.55	-0.0004	-0.003	
24	0.0007	0.89	0.0001	-0.008	
25	-0.0001	0.56	0.0010	-0.009	
26	0.0009	0.19	0.0010	-0.012	
27	0.0005	0.48	0.0280*	-0.007	
28	0.0010	0.87	0.0020	-0.026*	
29	0.0010	0.22	-0.0010	-0.000	
30	-0.0002	0.71	0.0020	-0.020*	
31	0.0001	0.80	0.0040	-0.014	
$HYP1_e$			1.59*	1.47#	0.91
$HYP2_e$			1.66*	1.25	0.93
1	-0.0003	0.27	0.0070	-0.0150*	
2	-0.0001	0.19	0.0001	0.0006	
3	0.0008	0.22	0.0010	0.0010	
4	0.0006	0.24	0.0080	0.0040	
5	0.0010	0.20	-0.0030	-0.0020	
6	0.0020	0.34	-0.0030	0.0060	
7	0.0010	0.08	-0.0050	0.0007	
8	0.0003	0.45	0.0280*	-0.0150	
9	0.0010	0.40	0.0110	0.0070	
$HYP1_{ne}$			1.72#	1.36	0.61
$HYP2_{ne}$			1.93*	1.53	0.69
$HYP1_a$			1.68*	1.48*	1.01
$HYP2_a$			1.73*	1.48*	1.05

Table 3 (continued).

BANK	MARKET MODEL PARAMETERS		830110		830228	
	α_i	β_i	γ_{di}	γ_{ei}	γ_{di}	γ_{ei}
14	-0.0009	0.99	0.0180*	0.1100*		
15	-0.0003	1.05	0.0180*	0.2700*		
16	-0.0008	1.02	-0.0080	-0.1300		
17	-0.0003	0.94	0.0006	0.0008		
18	-0.0008	1.11	-0.0010	0.0080		
19	-0.0004	1.50	0.0100	0.1600		
20	0.0010	1.08	-0.0110	-0.0900		
21	0.0004	1.17	0.0008	0.0100		
22	0.0005	1.48	-0.0110	-0.1800		
23	0.0010	0.48	-0.0040	-0.1000		
24	-0.0005	0.82	0.0050	0.1200		
25	-0.0003	0.49	-0.0010	-0.0200		
27	0.0001	0.76	0.0200*	0.7200*		
30	0.0010	0.74	-0.0060	-0.2000		
31	0.0010	0.87	-0.0070	-0.1100		
10	0.0010	0.42	-0.0100*	-1.2100*		
12	0.0020	0.14	0.0090	0.6500		
13	0.0010	0.48	-0.0003	-0 0500		
$HYP1_e$			1.48#	1.58*	0.91	0.91
$HYP2_e$			1.54#	1.60*	0.92	0.72
1	0.0010	0.41	-0.0030			
2	0.0010	0.31	-0.0010			
3	0.0010	0.10	-0.0080			
4	0.0010	0.04	-0.0030			
5	0.0005	0.18	-0.0009			
6	-0.0030	0.56	-0.0030			
7	0.0020	0.23	0.0010			
8	0.0010	0.34	0.0030			
9	0.0010	0.56	0.0040			
$HYP1_{ne}$			0.41		0.58	
$HYP2_{ne}$			0.38		0.59	
$HYP1_a$			1.15		0.93	
$HYP2_a$			1.19		0.96	

Notes: * and # indicate significance at 5 and 10 percent levels respectively. Significance levels for market parameters are not reported. Hypothesis 1 tests whether all coefficients are equal to zero and hypothesis 2 tests whether they are all equal. Subscripts e, ne, and a refer to tests for the groups of exposed,non-exposed, and all banks respectively. F values are reported.

Table 4. U.S. Quota Increase to the IMF in 1983.

BANK	830307	
	γ_{di}	γ_{ei}
14	0.0040	0.040
15	-0.0140#	-0.230#
16	0.0220*	0.386*
17	0.0190*	0.187*
18	0.0190*	0.186*
19	0.0100	0.178
20	0.0110	0.130
21	0.0050	0.105
22	0.0170#	0.291#
23	0.0009	0.024
24	0.0100#	0.271#
25	0.0220*	0.621*
27	0.0100	0.431
30	0.0110	0.404
31	0.0130	0.229
10	0.0090	0.696
12	-0.0010	-0.143
13	0.0040	0.553
$HYP1_e$	1.73*	1.73*
$HYP2_e$	1.44#	1.37
1	0.018*	
2	0.011#	
3	0.001	
4	0.023*	
5	0.005	
6	0.018*	
7	0.003	
8	-0.003	
9	0.015	
$HYP1_{ne}$	3.18*	
$HYP2_{ne}$	1.93*	
$HYP1_a$	2.17*	
$HYP2_a$	1.61*	

Notes as for Table 3.

Table 5. Brady Plan Announcement of March 1989.

BANK	MARKET MODEL PARAMETERS		890310		890317	
	α_i	β_i	γ_{di}	γ_{ei}	γ_{di}	γ_{ei}
14	-0.00040	1.16	0.0120	0.062	0.022*	0.122*
15	-0.00005	1.56	-0.0030	-0.073	0.022*	0.282*
16	-0.00080	0.92	-0.0003	-0.013	0.004	0.106
17	-0.00150	1.39	0.0003	-0.007	0.027*	0.268*
18	-0.00050	1.28	0.0130#	0.131#	0.015*	0.144#
19	-0.00100	2.12	0.0100	0.283	0.034*	0.776*
20	-0.00050	0.51	-0.0040	-0.193	0.003	0.017
21	-0.00080	1.41	0.0100	0.243	0.023*	0.525*
22	-0.00030	1.17	0.0040	0.080	0.022*	0.585*
23	-0.00030	0.96	-0.0027	-0.270	0.004	-0.025
24	-0.00050	1.23	0.0040	0.279	0.028*	1.330*
25	0.00030	0.40	0.0050	0.114	0.0006	0.590
27	-0.00100	1.05	0.0030	0.378	0.0130	1.860*
30	-0.00070	1.19	0.0070	1.490	0.0170*	3.330*
31	-0.00009	0.85	0.0070	1.500	0.0130*	2.840*
10	0.00010	1.09	-0.0030	-1.090	0.0060	2.170
$HYP1_e$			0.55	0.71	2.35*	2.96*
$HYP2_e$			0.55	0.75	1.50#	3.15*
1	0.00020	0.65	0.0030		-0.010	
2	0.00030	0.56	-0.0040		-0.006	
3	0.00070	0.42	-0.0060		-0.012*	
4	-0.00100	0.57	-0.0010		0.003	
5	-0.00005	0.16	-0.0020		0.001	
6	0.00090	0.70	-0.0003		-0.002	
8	-0.00080	1.15	-0.0006		0.005	
9	0.00070	0.46	-0.0040		-0.006	
$HYP1_{ne}$			0.24		1.00	
$HYP2_{ne}$			0.21		1.10	
$HYP1_a$			0.42		2.18*	
$HYP2_a$			0.44		1.94*	

Table 7. The IMF Quota Subscription Increase of May 1990.

Constant	EXP/MV		
0.016	-0.013	R=0.22	N=24
(2.48)	(-2.51)	R=0.19	

Note: The dependent variable is the bank stock return on May 4, 1990. EXP/MV is total LDC bank exposure to Argentina, Brazil, Mexico, and Venezuela divided by bank market value.

Table 6. World Bank Capital Increase of February 1988.

BANK	MARKET MODEL PARAMETERS		880219	
	α_i	β_i	γ_{di}	γ_{ei}
14	0.0003	1.03	0.0210*	0.031*
15	0.0030	1.06	-0.0130	-0.021
16	-0.0060	0.72	0.0030	0.007
17	0.0010	1.19	-0.0040	-0.010
18	0.0050	1.10	0.0010	0.002
19	0.0006	1.48	-0.0070	-0.040
21	0.0001	1.00	-0.0006	-0.004
22	0.0010	1.10	-0.0030	-0.020
23	0.0010	0.58	0.0040	0.020
24	-0.0006	1.19	0.0090	0.140
25	-0.0002	0.32	0.0090	0.270
27	-0.0003	1.19	-0.0030	-0.130
30	0.0015	0.80	-0.0170*	-0.770*
$HYP1_e$			1.90*	1.90*
$HYP2_e$			1.98*	1.83*
1	-0.00040	0.55	-0.0040	
2	0.00040	0.42	-0.0140*	
3	0.00030	0.40	-0.0060	
4	0.00050	0.36	-0.0080	
5	0.00003	0.16	0.0050	
6	0.00060	0.76	-0.0080	
8	0.00030	0.91	0.0007	
9	-0.00020	0.31	-0.0005	
$HYP1_{ne}$			0.84	
$HYP2_{ne}$			0.75	
$HYP1_a$			1.47#	
$HYP2_a$			1.54*	

Notes as for Table 3.

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