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Safety-Net Mechanisms:
The Case of International Lending

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Safety-Net Mechanisms:
The Case of International Lending

by

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INTRODUCTION

We have just emerged from the longest, and, by some measures, the severest post-war recession. It is not surprising, therefore, that financial-sector problems have emerged. In economic downturns, certain phenomena typically occur. Included among these are sharp adjustments in risk premiums and yield-curve configurations, increases in the number of problem loans and loan losses, a rise in the number of troubled financial institutions, and a higher failure rate among financial institutions. This list in fact encompasses a good deal of the financial difficulties experienced during the last recession. As the world economy continues its recovery, the current volume of problem credits will tend to be worked off, lessening the financial stress. Available evidence on credit exposure indicates, however, that, at least in the near term, the failure rate of U.S. banks will remain above the average prevailing during the pre-1975 period. This suggests that current financial-sector difficulties may reflect structural as well as cyclical problems, a prognosis that raises concerns about the long-run strength and stability of the U.S. financial system.

In this paper, we hypothesize that the incentive structure provided by financial safety-net mechanisms has altered the risk preferences of U.S. financial institutions. This change, in turn, has led them to accept an excessive amount of risk. In addition, the pricing and provision of deposit insurance all but eliminated the risk of depositor loss from bank failure. We will argue that this altered the pricing adjustment mechanism in the U.S. and international money markets. Similar changes may have occurred in other countries, making financial institutions in those countries more willing to undertake undue risk. An examination of

the latter issue is beyond the scope of this paper. We focus on the U.S. banking system. In addition, to further simplify the issue, we concentrate on one safety-net mechanism, the system of federal deposit insurance. Incentives provided by other financial safety-net mechanisms, including IMF lending and the lender-of-last-resort function of the Federal Reserve System, also have influenced bank decision making. In this paper, however, we only analyze the interaction of these other safety-net mechanisms with the existing federal deposit insurance system, and do not present a detailed overview of these other mechanisms.¹ Finally, no attempt is made to quantify the direct impact of deposit insurance on risk taking. As designed, the safety-net mechanisms established in the U.S. were intended to operate interdependently. It is thus difficult to determine quantitatively the independent impact of each of these mechanisms. Nor is any attempt made to measure the contribution of cyclical factors to current difficulties. Our intention is to analyze the impact of deposit safety-net mechanisms on bank risk decisions. Our analysis concludes that, by altering the manner in which risk is priced, deposit insurance heightened current financial difficulties both by encouraging U.S. banks to accept more credit risk and by reducing their ability to measure risk. Within this framework, the international debt crisis is but one of several severe financial-sector difficulties which have already developed from overexposure to risk.

AN OVERVIEW OF CURRENT FINANCIAL SECTOR WEAKNESS

A variety of financial-sector problems has emerged during the past few years, suggesting that the U.S. financial system has become more susceptible to stress. Two problems are especially noteworthy: losses in the thrift industry and the loan problems of key commercial banks. Weakness in the thrift industry was brought on by a prolonged period of high and volatile interest rates. This problem primarily resulted from regulations requiring thrifts to maintain a large proportion of their assets in long-term fixed-rate assets. These regulations prevented thrifts from adjusting to an inflationary environment. Even though recent changes in regulations have expanded their asset powers, thrifts still have a large proportion of their asset portfolios in long-term fixed-rate mortgages and mortgage-backed securities. Another sharp and protracted turnaround in interest rates would again have serious consequences for most firms in that industry. Despite the cyclical character of thrift-industry problems, they raise concerns about the long-term viability of that industry.

In addition, more attention is now being given to the new real estate lending practices of thrifts. Although fixed-rate home mortgage loans are vulnerable to large swings in interest rates, the credit risk of such loans is relatively low. In contrast, much of the loan growth at thrifts during the past two years has been in areas exposed to high credit risk, like construction and land-development projects. The shift toward assumption of greater credit risk has raised concerns about the ability of thrifts to absorb potentially large losses from exposure to both interest-rate and credit risk during any future cyclical downturn.

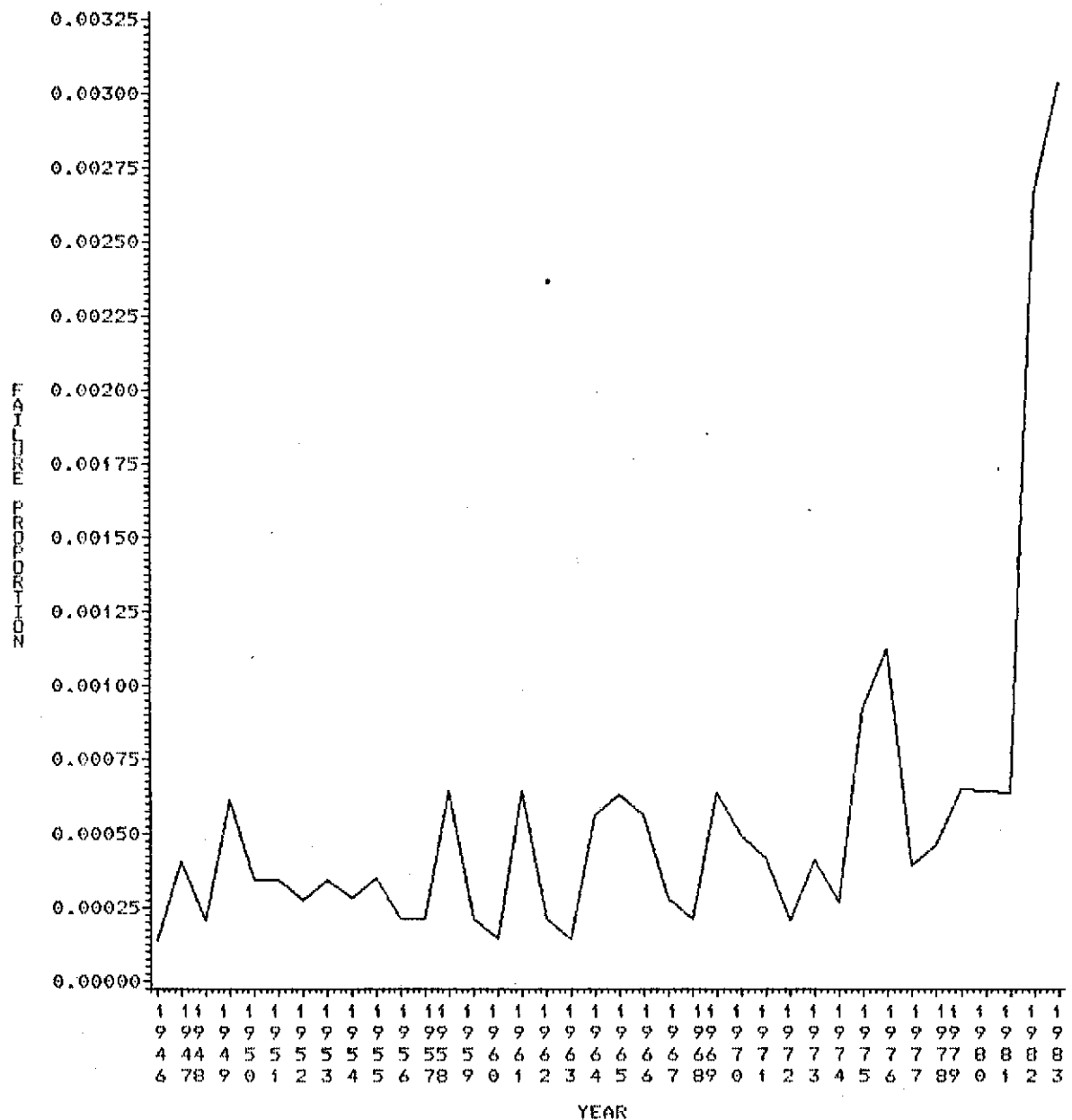
In their domestic portfolios, many commercial banks have experienced severe earnings pressures from an increase in nonperforming loans, particularly energy-related credits. Two large banks have already failed primarily in response to bad energy credits: the United Penn Square Bank in Oklahoma, and the First National Bank of Midland in Texas. In addition, severe earnings pressures at SeaFirst National Bank in Seattle necessitated a major regulatory policy change, whereby an out-of-state Bank Holding Company (Bank of America) acquired the troubled Washington institution.

Though these domestic difficulties have received much attention, loan problems in the international area are at least of equal importance. All of the nation's largest multinational banks are subject to potentially severe losses from defaults on international loans. The gains in income reported by many of the nation's largest banks for 1982-83 do not fully reflect temporary disruptions in interest and principal payments by international borrowers unable or unwilling to meet debt-servicing requirements. The magnitude of public-sector involvement, which already exceeds any previous post-depression intervention, underscores the severity of the foreign-debt problem. Moreover, many analysts predict that the debt burden of the major Latin American borrowers is sufficiently large to generate recurring debt servicing problems throughout this century and possibly into the next. Are these loan problems merely the result of cyclical factors, or have more permanent structural changes also occurred?

Econometric evidence corroborates the view that structural changes have occurred in banking. In 1975 and again in 1982, the failure rate

FIGURE 1

BANK FAILURES AS A PROPORTION OF NUMBER OF BANKS



SOURCE OF PRIMARY DATA: U.S. DEPARTMENT OF COMMERCE, BUREAU OF THE CENSUS

among commercial banks jumped dramatically. The series for the post-war period is presented in Figure 1.² Prior to 1975, the series had no trend. Though the failure rate tended to increase in cyclical downturns, it declined again during recovery. In 1975 it not only increased more than in earlier post-war cycles, but it did not revert to its old level. A statistically significant change in the failure rate occurred, with the rate apparently moving to a permanently higher level. Indeed, during the three years from 1979 to 1981, the annual rate of bank failures was higher than the failure rates which developed during the five cyclical downturns prior to the 1975 cycle. The failure rate in 1982 was more than double the 1976 rate, which had set a post-World War II record level. In 1983, the failure rate rose again. These data suggest that some factors other than ordinary cyclical ones have been operating on the U.S. banking structure.

THE INTERNATIONAL DEBT PROBLEM

Beginning in the mid-1970s, and up through the international debt crisis in the summer of 1982, the international lending activity of U.S. banks was marked by two parallel developments. First, there was a major expansion of the international assets and liabilities of U.S. banks held primarily at their foreign branch offices. As indicated in Table 1, total assets of the overseas branches of U.S. banks increased from roughly \$152 billion in 1974 to more than \$469 billion by the end of 1982 (Column 1). Much of this growth was the result of expanded interbank activity. This

TABLE 1

Bank Assets of the Foreign Branches of U.S. Banks
(Billions of Dollars)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<u>Total Assets</u>	<u>Claims on All Foreigners</u>	<u>Claims on Parent Bank</u>	<u>Claims on Other Foreign Branches of U.S. Parent</u>	<u>Claims On Non-related Foreign Banks</u>	<u>Claims on Non Bank Foreigners</u>	<u>Claims on Public Borrowers</u>
1974	151.9	138.7	4.5	27.6	60.3	46.8	4.1
1975	176.5	163.4	3.8	34.5	69.2	53.8	5.9
1976	219.4	204.5	4.3	46.0	83.8	64.2	10.6
1977	258.9	238.8	7.8	55.8	91.9	76.6	14.6
1978	306.8	278.1	12.8	70.3	103.1	80.9	23.7
1979	364.2	317.2	25.9	79.7	123.4	88.0	26.1
1980	401.1	355.0	20.2	77.0	146.4	103.5	28.0
1981	462.8	379.1	43.1	87.8	150.9	112.2	28.2
1982	469.4	358.3	61.6	91.1	133.6	109.4	24.1
Sept. 1983	460.2	340.4	65.5	89.3	120.1	106.0	25.0

Source: Federal Reserve Bulletins.

included placement of funds with the U.S. parent institution and other related foreign branches as well as with nonrelated banks. Claims on the U.S. parent bank and on other foreign branches of the U.S. parent increased from \$32 billion in 1974 to nearly \$153 billion in 1982 (Columns 3 & 4), while claims on other non-related foreign banks increased from \$60 billion to nearly \$134 billion. Hence, more than 60 percent of the growth in assets at the foreign branches of U.S. banks shown in Table 1 resulted from an increase in interbank activity. Claims on non-bank foreigners increased from \$47 billion in 1974 to more than \$109 billion by December 1982, and exposure to foreign public borrowers increased from \$4 billion to \$24 billion.³

A second major development in the Euromarkets, which also began in the mid-1970s was the gradual shift away from corporate loans to credits granted directly to public borrowers, or credits with public-sector guarantees. Prior to the 1982 credit crisis, loan-pricing terms in the Eurocredit markets indicated that lenders viewed credits extended to a country or public authority (or credits to a borrower with a public guarantor) as lower risks than private sector credits. Decisions to price public borrowers as high-quality credits were made despite the fact that adequate information to determine the creditworthiness of many of the foreign borrowers was not available [Schweizer and Mattle (1978), pp.18-22]. The inability to make both interest and principal payments on these public sector credits is now a key source of concern to U.S. banks.

To calculate the creditworthiness of a sovereign borrower information on economic, political, and socio-economic conditions is required. All of the major multinational banks allocated resources to

analyze country-risk exposure. But lending decisions frequently were made without attention being given to these analyses. Among the Eastern European and developing countries, in particular, timely data needed to calculate the financial status of these sovereign borrowers simply were not available, or they were merely rough estimates of data prepared by government agencies of countries involved in negotiating credit terms [Schweizer and Mahle (1978), pp. 18-22]. Data constraints made it difficult for lenders to determine the validity of the country-risk studies. The constraints did not, however, reduce a bank's need to measure its underlying exposure to credit risk. The inattention given to risk assessment suggests that other factors were also at work altering the decision-making process at U.S. banks with respect to risk taking.

The international lending crisis is generally traced back to the oil-price shock of 1973-74. The sharp adjustment in oil prices initially produced huge OPEC current-account surpluses and huge deficits in non-oil-producing countries, especially among non-oil-producing LDCs. Financial institutions, including U.S. banks, became intermediaries in the financial-adjustment process. As Robert Weintraub (1983a, pp. 4-5) aptly phrased it:

The match was obvious. In the mid-1970s, banks recycled OPEC's surpluses to non-OPEC developing nations. If banks had not matched the new petro deposits to the new credit demands of non-OPEC developing nations, if they had loaned the funds to other entities instead, some of these other entities or those to whom the funds were transferred to, further down the line, would have done the recycling.

By 1978, the economic situation began to change. OPEC surpluses had almost disappeared. While they developed again in 1979-80 as a result of the Iranian Revolution, they all but disappeared again by 1982.

Borrowing demands by non-OPEC developing countries did not ebb, however, with the receding OPEC surpluses. And, the banks continued to extend new credit lines to these borrowers at narrow spreads over funding costs [cf. Weintraub (1983a, p. 5)].

Prior to the 1973 oil price shock, U.S. banks had not engaged in substantial direct lending to foreign governments for which there were no third-party guarantees. The sheer magnitude of the oil-price increase together with strong preferences among surplus countries to keep their funds in short-term money-market instruments imposed new demands on the financial intermediation process. The lure of fee income, plus initially attractive interest-rate spreads, made bank participation in the recycling process appear profitable. The technique of syndicating or packaging loans facilitated aggressive U.S. bank lending of unprecedented magnitude to foreign borrowers.

The data in Table 2 provide an overview of the distribution of the foreign debt exposure of U.S. banks at the end of 1982. Certainly not all of this foreign debt, not even all the LDC debt, is of doubtful quality. If, for instance, we look at continents, most Asian debt is generally of high quality (trouble in the Phillipines notwithstanding). The major problems facing U.S. banks have been concentrated in their exposure to Eastern European borrowers and to developing countries in Latin America, the same areas where data constraints made credit assessments particularly difficult.

TABLE 2

Amounts Owed to U.S. Banks by Foreign
Borrowers as of December 1982 (In \$ Billions)
(After Adjustments for Guarantees and Indirect Borrowings)

G-10 Countries plus Switzerland		161.9
Other Developed Countries		38.0
Eastern Europe		5.9
OPEC Members		24.4
Non-OPEC Developing Countries-		107.3
Latin American & Caribbean	70.6	
Asia	32.7	
Africa	4.0	
Offshore Banking Centers		13.2
International and Regional Organizations		.9
Total		351.6

Source: Federal Financial Institutions Examination Council, (F.F.I.E.C.), Country Exposure Lending Survey, June 1, 1983.

Many of the loans extended by U.S. banks were used either directly or indirectly to support consumption. Credits were extended to support public-sector investment projects, many of which have turned out not to be cost effective. Brazil in particular is saddled with large, unmanageable state enterprises that are overmanned. While some of Brazil's investments are promising, others appear to be of dubious commercial value. In effect, some public-sector "investment" would be better labeled as consumption. Borrowing for these purposes supported unsustainable levels of current consumption instead of providing for net increases in future consumption. If the interest on these debts is to be paid, not to mention the principal,

real income and consumption in the overburdened borrowing nations must fall for some time.

The problems highlighted here differ among countries. Where private borrowers are involved, problems differ within countries. Despite important differences among countries, almost all of the credit problems are long term in nature. The international debt problem is not primarily a short-run liquidity problem. As Robert Weintraub (1983a, p. 4n) has pointed out, the short-term debt of non-OPEC LDCs in 1982 was almost matched by their short-term assets. There was a liquidity aspect to countries' debt-servicing difficulties, but this was caused by the inability of debtors to service medium- and long-term obligations. Economic recovery will ease these temporary liquidity difficulties, which are the part of the problem attributable to recessionary forces. Nevertheless, the foreign-debt situation is likely to be with us well into the 21st century. As the medium-term debt, which has been restructured and whose maturities have been extended, becomes due, liquidity problems will recur for some borrowers. It is this aspect of the dilemma that leads us to characterize it as a long-run concern for U.S. banks.

We have heard much of the fact that nations cannot go bankrupt. Nothing could be further from the truth. In fact, only comparatively recently have governmental obligations come to represent the highest-quality debt. Britain established this pattern only in the nineteenth century. Western democracies have generally (but not always) emulated her in the twentieth century. Adam Smith (1921, II: p. 471) had

a sounder view of sovereign debt, not only for his time but for ours:

When national debts have once been accumulated to a certain degree, there is scarce, I believe, a single instance of their having been fairly and completely paid. The liberation of the public revenue, if it has even been brought about at all, has always been brought about by a bankruptcy; sometimes by an avowed one, but always by a real one, through frequently by a pretended payment.

Countries make "pretended payment" by inflating, or, as Smith phrased it, by "raising the denomination of the coin." Inflationary finance can be even less desirable than overt bankruptcy, because of its deleterious effects on society generally [Smith (1921), II: p. 472]:

A pretended payment of this kind, therefore, instead of alleviating, aggravates in most cases the loss of the creditors to the public; and without any advantage to the public, extends the calamity to a great number of other innocent people.

Foreign governments cannot, of course, inflate away the real value of dollar-denominated assets. These governments can, however, erode the value of debts contracted in their respective domestic currencies. As is indicated in Table 3, this is still a common practice among Latin American countries.

Table 3

Percent Change in Consumer Prices
From 12 months Earlier

	<u>Dec. 1981</u>	<u>Dec. 1982</u>	<u>June 1983</u>
Argentina	131.3	209.7	340.1
Brazil	91.2	97.9	112.2
Chile	9.5	24.3	32.3
Ecuador	18.0	24.4	48.2
Mexico	28.7	98.9	112.5
Peru	72.7	72.9	107.7
Venezuela	<u>11.0</u>	<u>7.7</u>	<u>5.4</u>
Weighted average	50.9	82.6	105.8

Source: World Financial Markets, Morgan Guaranty Trust Company of New York (September, 1983).

Only some of the acceleration in inflation rates can be explained by the effects of devaluation. It appears that these governments are attempting to cope with the burden of foreign debt by reducing the burden of their domestic debt. This strategy will accomplish little in the long run, however, if it destroys the wealth of the domestic creditor class.

Much already has been written on possible explanations for why these countries managed to become so overburdened with debt and the expected impact that the debt burden will have on the LDCs. In this paper, however, we concentrate on why the banks were willing to extend these credits under terms that did not reflect their own risk exposure. Evidence that banks systematically underestimated risk is, of course, difficult to adduce. Nonetheless, Edwards (1983, pp. 4-5) found that "even though international banks have taken into account some of the borrowers' characteristics, they have tended to overlook others. In that sense, the results presented in this [Edward's] paper provide some basis to presume

that the present crisis is partially a result of banks' lending practices."⁴ Indeed, Edwards (1983, p.25) found more specifically that, as late as 1980 (the end point of his data), "the international financial market had not predicted in any important way the future payment difficulties faced by Argentina, Mexico, Uruguay, and Venezuela." We look to the incentive effects of deposit safety-net mechanisms, together with the impact which these mechanisms have had in altering interbank pricing constraints, as a partial explanation for this miscalculation.

Deposit Insurance and Bank Risk Taking

Federal deposit insurance was authorized by the Banking Act of 1933 to restore public confidence in the U.S. banking system. The primary objective of deposit insurance was to maintain financial stability by forestalling deposit runs on commercial banks. This was accomplished by allaying depositor fears of capital loss from bank failure. It also satisfied a related but secondary objective of protecting small depositors from incurring financial loss due to bank failure.⁵

The FDIC was created as part of financial legislation to constrain risk taking by banks. Besides establishing deposit insurance, the Banking Act of 1933 prohibited banks from, among other things, underwriting corporate securities, from paying interest on demand deposits, or from paying interest on savings and time deposits in excess of allowed limits. These asset and liability constraints, together with restrictive chartering policies and limits to geographic expansion imposed by the McFadden Act of 1926, were intended to ensure safe banking by restraining competition and thereby reducing incentives to undertake excessive risk. It is difficult

to determine whether these regulatory constraints, or sharply lowered risk preferences resulting from the dramatic increase in bank failures during the Great Depression, imposed effective constraints against excessive risk taking through at least the mid-1960s. Generally, however, banking historians view this era as a period of binding regulatory constraints. The period from the mid-1960s through 1980 was a period of partial, de facto deregulation. Inflation pressured banks into devising ways of circumventing regulatory restrictions, particularly those constraining the interest rate that banks could pay to attract deposits. At the same time, banks become more aggressive in exploiting their existing asset powers. Following the passage of the Monetary Control Act of 1980 the U.S. financial system entered a period of de jure deregulation.

Data on bank failures presented earlier in this paper indicate that changes in the U.S. banking structure had already developed by 1975. A statistically significant increase in bank failures emerged during the era of partial, de facto deregulation. The ability to incur more risk in a partially deregulated environment, coupled with continued subsidies to risk taking provided by deposit safety-net mechanisms, contributed to the increase in bank failures.

A brief discussion of some of the financial innovations that circumvented remaining regulatory constraints during the era of partial, de facto deregulation helps to develop a causal link between deposit insurance and excessive risk taking. We certainly do not believe that financial innovation per se generates excessive risk taking. To the contrary, financial innovation generally improves capital flows, thereby aiding efficient resource allocation. What we do argue is that the system of

deposit insurance in the U.S., together with the lender-of-last-resort function of the Federal Reserve System, altered the pricing mechanism in the interbank market in a manner that reduced constraints on risk taking.⁶ Since this paper examines the international banking crisis, the overview of financial innovation presented here concentrates on Euromarket developments.

On the asset side, the imposition of capital controls in the late 1960s, together with domestic branching restrictions, played an important role in the formation of the intricate network of overseas branches established by the major U.S. banks during the 1970s. These constraints together with tax laws, interest-rate restrictions and reserve requirements, were key factors behind the rapid growth of the Eurodollar market and the expansion of international lending by U.S. banks [Mills and Short (1979)]. On the liability side, inflation pressures induced banks to devise financial instruments paying market rates of interest in order to circumvent Regulation Q ceilings.

Domestic ceilings on interest rates on large certificates of deposit with maturities of 30 days or more were removed in two stages during the credit crunches of 1970 and 1973. But domestic interest-rate restrictions remained on demand deposits and on time and savings deposits of less than \$100,000, as well as on large time deposits with maturities less than 30 days. This induced large multinational banks to raise a growing proportion of their short-term funding needs in the Euromarkets, where interest rates and deposit maturities are determined by the interplay of supply and demand rather than by national rules or regulations.

The ability to raise funds at any maturity, for a price, sharply removed bankers' concerns about obtaining adequate funding sources to meet credit commitments. As the size and depth of the Eurodollar market increased, concerns about liquidity constraints were mitigated further. Moreover, by the mid-1970s, under the leadership of the European branches of U.S. banks, banks introduced the roll-over credit, a variable-rate instrument that made long-term loans subject to periodic interest-rate adjustments. The interest rates on these variable rate loans moved directly with market interest rates in the Eurodollar market. The roll-over credit became the primary source of business financing by commercial banks in the Euromarkets.

Prior to the mid-1970s, international borrowers had relied primarily on capital markets to satisfy their medium and longer-term borrowing requirements. Variable-rate pricing techniques, together with the development of the loan syndication process, provided the basis for active bank participation in financing medium- and long-term credits. By directly linking interest rates on assets and liabilities with different maturity structures, the development of the roll-over credit sharply reduced bankers' concerns about exposure to interest-rate risk. Belief in the safety of lending to sovereign borrowers convinced bankers that exposure to credit risk from sovereign borrowers was minimal.

The London Interbank Offered Rate (LIBOR) provided the underlying rate of interest on roll-over Eurocredits. LIBOR is the rate at which three- or six-month money is offered by the leading London banks to other banks. The actual borrowing rate on the credits exceeds LIBOR by a specified margin or spread. These spreads are determined by competitive pressures among participating banks.

The decision to participate in large Euro-syndicated credits depends critically on the assumption that an adequate interest-rate margin be preserved on each credit throughout the term established for the credit. The average cost of funds paid by the reference banks in a syndicated credit determines the base borrowing rate. The margin or spread over the base rate reflects the lenders' assessments of the borrower's credit risk. In determining whether to participate in a syndicated credit, each bank must judge whether the established margin adequately covers the credit risk. In addition, to preserve its margin on the credit, each participating bank must be able to continue to bid for funds throughout the term of the credit at a rate comparable to the average rate paid by the reference banks. Over time bankers gained confidence that, at each rollover date, they would be able to obtain adequate funding at an interest rate that would preserve the margin established on a credit. This increased confidence was a key motivating factor behind the sharp increase in the volume of syndicated loan commitments made in the international arena by banks of various sizes and origins. Competitive pressures frequently reduced spreads over funding costs to as low as three eighths of a percentage point on major syndicated credits. Such spreads would result in negative margins if differential pricing adjustments on deposits of as little as one-half of a percentage point developed among participating banks. Although risk premiums of such magnitudes are not uncommon among non-bank borrowers with different risk characteristics, such differentials have been rare in the interbank market.

Under normal conditions, the major U.S. banks have been able to raise funds at roughly uniform rates in both the domestic and international

money markets. Moreover, rate differentials between the large multinational banks and the major regionals have been as small as between one-eighth to one-quarter of a percentage point. This has enabled banks in different size classifications to participate in the same credits. Differential pricing adjustments on bank deposits do occur, but significant adjustments only develop after problems of crisis proportions have emerged. In other words, pricing adjustments in the interbank market tend to take place in an ex post rather than in the ex ante fashion that characterizes other financial markets.

During periods of financial crisis, when the probability of financial failure due to excessive exposure to risk is sharply heightened, interest-rate differentials on bank deposits widen. Banks deemed to have higher exposure to risk pay more for funds and, in some instances, deposit outflows from those banks have caused liquidity problems. It must be underscored, however, that the emergence of sharply graduated or "tiered" interest-rate structures are an unusual development in the interbank market. During the past decade, large interest-rate differentials developed after the Herstatt Bank failure in the summer of 1974. Similarly, concerns about excessive exposure to problem credits have created funding problems at several U.S. banks during the latest period of financial stress. These cases of interest-rate tiering occurred, however, after a problem of crisis proportions had been clearly identified.

The development of unquestioned confidence among depositors in the ability of financial-sector safety-net mechanisms to prevent unexpected losses from bank failure appears to have played a significant role in altering pricing in the interbank market. Specifically, the existence of

deposit insurance, and the manner in which the existing deposit insurance system operates, eliminates incentives for depositors to require risk-related premiums on bank deposits until information surfaces that a bank is in serious danger of failing. Accordingly, when choosing on the margin between risk and reward, banks do not face incremental funding costs that reflect the additional risk incurred. When placing funds in a bank, a depositor should be concerned with the risk-return combination relative to investment alternatives (bank and non-bank). The safety-net mechanisms provided for banks have, however, altered this decision-making process. Depositors believe that the probability of financial loss from the failure of large banking institutions is almost nil. This has removed an important day-to-day constraint on risk taking by banks.

Within the current framework, domestic deposits at FDIC-insured banks are legally protected up to \$100,000. To provide this coverage, the FDIC charges a fixed-rate premium of one-twelfth of one percent of all domestic deposits at each insured institution. Legally, then, domestic deposits held in excess of \$100,000 at a single institution are not covered by FDIC insurance, nor are the deposits held at the foreign branches of U.S. banks. In practice, however, the manner in which bank failures have been settled by the FDIC has provided de facto 100-percent coverage to all domestic depositors. Over time, uninsured depositors became increasingly confident that existing deposit safety-net mechanisms, including the availability of discount-window borrowing for banks facing funding constraints, would provide adequate time for them to remove their funds from troubled institutions before incurring financial loss. This perception also reduced concerns about the financial exposure of Eurocurrency depositors.

The deposits of the foreign branches of U.S. banks are not FDIC-insured, and the U.S. parent bank is not legally bound to cover losses incurred by the depositors of its foreign branches. By the late 1970's, risk premiums between the domestic and Eurocurrency deposits of U.S. banks virtually disappeared. Interest-rate differentials consistent with the existence of risk premiums again emerged after the 1982 debt crisis surfaced [Cf. Kreicher (1982)]. Again, however, it is only after problems of major proportions emerge that significant risk premiums are required by uninsured bank depositors.⁷

The belief among depositors, including large uninsured depositors, that the probability of financial loss from bank failure is minimal, delays the timing of interest-rate adjustments and dampens the magnitude of these adjustments that would normally occur in money markets. Similarly, the interplay between the system of deposit insurance and the lender-of-last-resort function has sharply reduced bankers' concerns about their ability to obtain adequate funding at profitable interest rates. In the event that deposit outflows from a bank generate liquidity problems, the constrained bank is able to meet its funding commitments by borrowing from the Federal Reserve's discount window. The net result of this process, which has evolved over time, is that day-to-day pricing adjustments in the domestic and international money markets have not imposed adequate constraints on bank risk taking. By reducing the market discipline that would normally be imposed by differential pricing on bank deposits, these safety-net mechanisms reduce the marginal cost of risk taking. This enables the banks to undertake more risk.

The cost reduction is only temporary. As long as financial institutions are subject to losses from their exposure to risk, the magnitude of this risk exposure will be revealed. The opportunity cost of assuming excessive risk is revealed when borrowers are no longer able to service their debts. Financial institutions manage their operations to maximize the expected value of their charter. With inappropriate pricing signals, however, the ability to measure the risk incurred is diminished. This diminished ability to measure risk reinforces the incentive effects of safety-net mechanisms to incur more risk.

Since the FDIC began operations, most bank failures and, until Penn Square, all large bank failures, were settled with a purchase and assumption (P&A) transaction. In a P&A transaction, the FDIC transfers all the liabilities of a failed bank to the assuming (acquiring) bank. If accomplished overnight, a P&A transaction avoids any interruption in availability of funds to a domestic depositor. Depositors were paid off only in the case of some smaller failed institutions. Only then were depositors with accounts in excess of \$100,000 at risk.⁸

By leaving large depositors partially at risk, the FDIC's handling of the Penn Square failure introduced some uncertainty into financial markets. For a time, however, it appeared that this case might be an anomaly. Penn Square presented a special problem to an acquiring bank, since it would confront potentially major litigation over past loans. Moreover, when First National Bank of Midland failed with over \$1 billion in assets, the FDIC reverted to its P&A policy. More recently, however, the FDIC has been settling failed banks by paying off insured depositors fully, but offering only partial payment on amounts over \$100,000 on

deposit. In several recent cases, the FDIC has paid between 40% and 60% of the face amount to large depositors. If proceeds from its sales of bank assets exceeds expectations, then the FDIC will increase the amount remitted to these large uninsured depositors, in accordance with the actual asset value. If the proceeds fall short of expectations, then the FDIC absorbs the losses. Since the failure of First National Bank of Midland, none of the recent failures involved large banks. Only time will tell if the FDIC will apply this new policy of partial payment to uninsured depositors to large bank failures. Such a change would have far reaching consequences. For the purpose of this paper, which analyzes reasons for banks' overexposure to credit risk on foreign loans, the policy of de facto 100% deposit insurance was the norm. Limited concern by large depositors about the potential of financial loss from bank failure reduced their incentives to monitor bank risk decisions on a day-to-day basis. As a result, relevant price signals about the risk preferences of depositors were not being sent to banks. This applied to the international as well as to the U.S. money (deposit) market.

In sharp contrast to other financial markets, the bank deposit market reacts after the fact to events that have altered the risk/return situation facing bank decision makers. Instead of risk being continually repriced to the accompaniment of deposit flows at the margin, there is a comparatively sudden and massive movement of uninsured funds from banks at which the probability of failure is high. By diminishing the incentives of depositors to monitor the performance of the banks in which they maintain their funds, deposit safety-net mechanisms, including deposit insurance, have encouraged banks to assume more risk than they otherwise would have

assumed. In so doing, banks generate a negative externality, one known in the economics literature as "moral hazard".

The moral hazard problem is not a necessary outcome of the provision of deposit insurance, but is generated by the manner in which the deposit insurance is priced and provided. By relying on the P&A transaction to settle failed banks, and by charging a fixed-rate premium for coverage without regard to the risk exposure of the covered institution, the existing system of deposit insurance contributes to current difficulties. Short and O'Driscoll (1983) have addressed the issue of deposit-insurance reform, and presented a transition proposal for moving toward a system of private deposit insurance. By removing the subsidies to risk taking currently provided by deposit insurance, this reform would also begin to address the difficulties resulting from previous overexposure to credit risk in the international arena.

A Transition Proposal for Competitive Deposit Insurance⁹

The specifics of our transition proposal to a system of competitive deposit insurance are presented in this section. Our commitment is to the goal of competitive pricing of deposit insurance, not to the specific transition proposal presented here. Nonetheless, this proposal has the advantage of not interrupting the present system of deposit insurance. The FDIC would continue to provide basic deposit insurance while private capital is attracted to the industry. Once the transition is completed, the FDIC would continue supplying deposit insurance as one among a number of competitors.

To reach a system of private deposit insurance, we suggest the following four policy changes be made:

1. Eliminate de facto coverage of deposits above statutory limits, reduce coverage limits and introduce some form of coinsurance;
2. Eliminate the statutory requirement that nationally chartered and state-chartered member banks, as well as banks associated with bank holding companies purchase deposit insurance from the FDIC;
3. Impose a requirement that the FDIC utilize the best available information to determine risk categories; and that these risk classifications be used to set premiums that minimize cross-subsidization among risk categories;
4. Impose a requirement that the FDIC cover costs plus earn a reasonable return on capital.

The first recommendation, which is perhaps the most important, is needed to attract private firms to the deposit-insurance business. The policy of providing de facto 100 percent coverage to all depositors has

lessened market discipline on banks by minimizing depositors' fears of loss. It has also effectively precluded a market for excess deposit insurance coverage over and above the limits of the basic policy. The market for excess coverage is the most likely place for private competitors to enter. The scope for competitive entry would be increased by lowering deposit limits. In offering excess coverage, private insurers would price insurance to reflect expected losses. In this manner, risk would be priced on the margin. In addition to lowering maximum coverage limits, basic FDIC coverage should also be altered to include some form of coinsurance.¹⁰ For example, coverage could be reduced to 80 percent of losses. This too would reduce moral hazard by encouraging risk to be priced more accurately at the margin.

After substantial experience with excess coverage, some companies might choose to compete with the FDIC in providing minimum or basic insurance for depositors. The second policy recommendation would have to be adopted to open the market for basic insurance coverage. While private deposit insurance is not prohibited by any federal or state statute, most banks are required to purchase FDIC insurance. If broad-based coverage by private insurers is desired, this requirement would have to be lifted. When coupled with the FDIC's de facto provision of 100-percent coverage, this requirement leaves banks with little reason to be interested in private insurance.

The third recommendation is motivated by the FDIC's reluctance to use available information gained in the examination process in setting insurance premiums. Some of the FDIC's concerns in this regard are meritorious, but robust information about risk characteristics is needed to

price risk accurately. As Short and O'Driscoll (1983, pp.18-20), argue, better information on risks is needed to reduce cross-subsidization across different risk classifications.¹¹

The fourth recommendation is intended to make competition feasible for both basic and excess deposit-insurance coverage. The experience of public utility regulation suggests that determining what is a "normal" or "necessary" return on capital presents severe problems. Nevertheless, some thought must be given to the rate of return required on FDIC insurance operations. If the rate of return is set too low, the FDIC's pricing would preclude entry. If the rate of return is set too high, the FDIC's rates would act as an "umbrella" protecting private competitors.

The suggested changes could be implemented by using the current system of pricing check-clearing services as a transition model. In the Monetary Control Act of 1980, Congress mandated that the Federal Reserve System price its services, including check clearing, with the aim of promoting competition with private firms. Federal Reserve Banks have had to identify costs directly attributable to clearing checks. And they are required to earn a reasonable rate of return on imputed capital. As Frodin (1984) demonstrated, vigorous competition has developed in the area.

Our proposal goes further than the FDIC's own program in implementing the goal of pricing risk. The FDIC is concerned about the inequities and misallocations that can be generated by inappropriately pricing risk. Their proposal does not, however, adequately address these problems. Without a profit-and-loss test, all that can be determined is if risk has been severely underpriced. And this can only be revealed after the fact and at great cost. If there is an institutional bias, it is

toward underpricing risk. For this reason and others, we recommend that a system of competitive deposit insurance be implemented.

Conclusion

Our main focus has been to explain how the incentive structure provided by financial safety-net mechanisms contributed to the world-debt crisis. While we presented some brief evidence on the dimensions of the problem, we were interested not in demonstrating its severity but in analyzing its causes. We are by no means suggesting that there is a unique cause, or that any one policy action or set of actions would preclude a similar crisis from occurring the the future. We believe, however, that financial safety-net mechanisms played an important role in the present crisis. In particular, the present system of deposit insurance provided institutions with strong incentives to undertake undue risk. In a system of binding regulation, these incentives can be offset. As deregulation proceeds, banks are increasingly able to respond to these incentives. The world-debt problem, along with problems from energy-related credits and the excess exposure of thrifts to interest-rate risk, are, in part, reflections of the incentive effects of public policy. If deposit insurance reform is not implemented, we can only speculate on what problem areas will be added to those that we have mentioned.

NOTES

¹For a detailed history of the lender-of-last-resort function, see Humphrey and Keleher (1984).

²Data are available upon request.

³It is certainly not the increased interbank activity in Eurocurrency markets per se that generated the world-debt crisis. Nonetheless, as we argue below, the current level of exposure to credit risk reflects reduced concerns about funding constraints. For the individual bank, an expanded pool of funds available in Eurocurrency markets contributed to the reduction in concerns over funding constraints. For the source of those funds, see the section in the text on Deposit Insurance and Bank Risk Taking.

⁴Edwards gives more scope than we would to the role of exogenous shocks. He nonetheless notes that: "Even though these external factors indeed have had a role in the present crisis, it is important not to minimize the role of domestic policies. In particular, the fact that in most cases a large proportion of the new indebtedness was used to finance consumption should be pointed out..."[Edwards (1983), pp. 25-27].

⁵As Kareken (1983, p. 199) observes, current FDIC policies make little sense if protection of the small depositor were the primary objective of deposit insurance. If, however, prevention of bank runs were the primary objective, then current policies make a great deal of sense.

⁶The current system of pricing deposit insurance transforms the role of the lender of last resort. By failing to price risk on the margin, FDIC insurance enables banks to undertake more risk. Banks that become overexposed to risk may be forced to rely on the discount window at the Federal Reserve to meet funding requirements. In turn, the ability to borrow from the discount window mitigates constraints that banks would otherwise fall from large deposit outflows. Thus the FDIC's pricing policy is a necessary condition for reducing constraints on risk taking, and this policy, together with current lender-of-last-resort policies, are together the sufficient conditions for a reduction in constraints on risk taking. In this sense, the current system of deposit insurance adds to rather than relieves pressure on the lender of last resort.

⁷The FDIC (1983, chap.I, P.1) itself observes that:

Since the FDIC began operations, some portion of failed bank situations have been handled in ways that have provided de facto 100 percent insurance coverage to all depositors and general creditors.... Especially in large banks, there probably is the perception among depositors of minimal risk of loss, and therefore there are few

⁸In the mid 1970s there was substantial interest rate tiering in the Interbank market following the major Heistatt Bank failure. Rate tiering again emerged during the international banking crisis in the summer

of 1982. In the recent period, however, rate differentials were less and persisted for a shorter period of time among the major money center banks. This again suggests that the market uses the risk of loss to large depositors (resulting from bank's overexposure to foreign debt) as negligible.

⁹This section draws heavily from Short and O'Driscoll (1983).

¹⁰Because of the growing importance of money brokers, it is not sufficient to lower coverage. As Short and O'Driscoll (1983, p. 18) note, these brokers can economically bundle accounts as low as \$1,000 into \$100,000 lots, thus earning both higher interest and FDIC insurance protection.

¹¹Cross-subsidization occurs if insurance premiums do not fully compensate the insurer for losses incurred within a given risk category.

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