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RISK IN FOREIGN AND DOMESTIC LENDING ACTIVITIES OF U.S. BANKS

by

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In 1972, when the banking community was concerned about potential losses on loans to foreign borrowers, loose lending practices by un-named banks were said to have caused a deterioration in credit standards. At the present time there is a similar concern but it is now coupled with a concern about domestic loan losses.

This paper summarizes what I found out about loan losses back in 1972 and reviews briefly what a recent follow-up survey indicates about losses during the last three years.

In brief, the dollar amount of foreign loan losses prior to 1972 had been very small compared with domestic losses.

Foreign losses were also a smaller proportion of foreign loans than domestic losses were of domestic loans. In other words, the foreign loan-loss ratios were generally smaller than the domestic-loan loss ratios.

The foreign loss ratios also were less erratic, varying less from year to year than the domestic ones.

Finally, I found that by diversifying internationally, the banks were able to reduce the variability in the loss ratios on their total loan portfolios by about 20 per cent compared with the variability in the loss ratios on the domestic component of their portfolios.

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On the basis of that evidence, I concluded that the foreign lending operations of the sampled banks did not add to the risk of failure of any individual bank or to the risk of a banking crisis in the United States during the ten years prior to 1972.

All the banks in the sample had more than \$1 billion in total worldwide assets in 1971. None were newcomers to international business. The head office of each bank had been lending to international customers prior to 1962, and several had foreign branches prior to 1962. For some banks in the sample, international operations are very large in dollar volume and are a substantial proportion of the total lending business of the bank. For others, foreign lending had been small both in dollar volume and in relation to domestic lending, although in the past several years these banks have expanded their foreign operations very rapidly. In general, the sample was stratified to include banks with large as well as small and intermediate international operations.

My analysis is divided into two parts. First, I discuss how loan losses reflected ordinary credit risk. Then I discuss how international diversification reduced total portfolio risk.

Under the heading of credit risk, I first asked how large in dollar amount were the sample banks' foreign loan losses. The average bank's loss on foreign loans was \$600 thousand per year. One bank reported no loan losses at all, and two had losses in only two of the ten years from 1962-71. In 1971 the average loss was nearly \$2.5 million, the combined loss being only \$24 million for the ten banks, which had total assets of approximately \$100 billion.

By way of comparison, in that same year the combined loss from domestic loans was \$110 million -- four times as much as the foreign loss. The large disparity between the absolute dollar value of the domestic and foreign loan losses was evident for all the reporting banks. Accordingly, domestic lending may be said to have presented a greater risk to bank solvency than foreign lending. But losses from neither type of lending had been a practical threat to the solvency of any bank in the sample.

The second question I asked was how large were foreign losses relative to foreign loans outstanding. What was the loss ratio on foreign loans? This ratio shows the amount of actual losses relative to the amount of actual loans. It is used as an ex post measure of the relative amount of foreign credit risk that was realized by each bank. For example, when the ratio is zero for a given year, there having been no losses, there was no risk realized. As shown in the left-hand column of numbers in Table 1, average foreign loan-loss ratios were very small, the smallest, for Bank G, being zero and the largest, for Bank J, being twenty-six thousandths, that is 1/4 of one per cent. The table also shows that the average foreign loss ratios are generally less than the average domestic loss ratios, which are shown in the middle column of numbers. Only the last three banks had a higher foreign ratio. A number greater than one in the right-hand column shows that. The relatively high average ratio for Banks H, I, and J for their foreign losses was the result of losses in one or two years that were large relative to very small foreign portfolios at

Table 1

Average foreign and domestic loan-loss ratios

[Losses \div Loans]

<u>Bank</u>	<u>Foreign ratio</u>	<u>Domestic ratio</u>	<u>Foreign ratio as fraction of domestic ratio</u>
A	.0009	.0026	1/3
B	.0006	.0025	1/4
C	.0001	.0014	1/14
D	.0001	.0014	1/14
E	.0011	.0029	3/8
F	.0020	.0024	5/6
G	0	.0004	0
H	.0025	.0017	1-3/7
I	.0020	.0012	1-2/3
J	.0026	.0013	2

(During the years for which Bank A supplied data, Bank A lost through default 9 cents of every \$100 lent to foreigners. The amount Bank A lost through default per \$100 lent to U.S. residents was 26 cents, on the average, which is 17 cents more than the amount it lost per \$100 lent to foreigners.)

the time. Banks H and I, combined, reported on 18 business years, during 13 of which they had no losses on foreign loans. The statistics in this table, therefore, show that foreign risks were realized generally at a substantially lower rate than domestic risks, when we abstract from the relative sizes of the portfolios and take into account the typically good experience of Banks H and I, which is masked in their ratios.

We can get another perspective on the size of loan losses by comparing them with the gross profit margin on loans. Several years ago U.S. banks earned on the average \$1.50 in pretax profit on every \$100 of loans. For the sample banks, the average loss per \$100 of domestic loans was about 20 cents. Thus even a tripling of the domestic loss rate would reduce the pretax profit margin less than half, in the example -- from \$1.50 to 90 cents.

The third question about credit risk concerns the variability of the banks' foreign loan-loss ratios from year to year. What, to use one measure of variability, was the standard deviation of the loan-loss ratio for each bank?

The standard deviation of the annual ratios is used as an ex ante measure of potential credit risk -- of credit uncertainty. On the one hand, a low standard deviation suggests to me a relatively stable loan-loss experience, which would allow a bank to predict with some accuracy how much of a premium to add to its interest charges on loans in order to compensate itself for its (relatively stable) losses. On the other hand, a high standard deviation suggests substantial uncertainty

about future loan-loss experience. And a high degree of credit uncertainty makes it difficult for a bank to set an interest premium that would compensate it for its (relatively unstable) losses and yet keep its interest charges competitive. If a bank is fairly certain what its loan-loss ratio will be, it can easily insure itself against credit risks, whether they are high or low. But a bank will have difficulty insuring itself against credit risks, high or low, if it is very uncertain about its future loan-loss ratio.

In the middle column of Table 2 we can see the standard deviations of the foreign loan-loss ratios. On the right are the domestic standard deviations. The variability of the foreign ratios for Banks F, H, I, and J was substantially greater than the variability of their domestic ratios. For the other six banks, either the domestic and foreign standard deviations of the loss ratios are approximately the same size, or the standard deviations of the foreign loss ratios are substantially smaller. As I pointed out earlier, the experiences of Banks H and I were markedly influenced by single losses in years during which they had very small portfolios. In other years their ratios were very stable, which suggests that the computed standard deviations substantially overstate the risk that the managements of the two banks perceived toward the end of the sample period.

Accordingly, I concluded that the foreign loan-loss ratios were generally less variable than the domestic. There was less credit uncertainty in the foreign lending business that the banks chose to conduct than in their domestic lending business. Presumably, then, setting interest

Table 2

Comparison of foreign and domestic standard deviations

<u>Bank</u>	<u>Foreign</u>	<u>Domestic</u>
A	.0006	.0015
B	.0004	.0003
C	.0002	.0038
D	.0002	.0012
E	.0013	.0011
F	.0035	.0010
G	0	.0018
H	.0060	.0019
I	.0043	.0013
J	.0034	.0023

(The standard deviation of Bank A's annual loss ratios on foreign loans is the equivalent of 6 cents per \$100 of loans to foreigners.)

rates to compensate for default losses should have been easier on loans to foreigners than on loans to U.S. residents, given the loans the banks chose to make.

The foreigners to whom the banks chose to lend are likely to have been exclusively foreign customers in whom the banks had high confidence, including foreign subsidiaries of U.S. corporations. In economic terms, the information that banks would have desired before lending to other foreigners could have been impossible to obtain. Or the information could have been too costly to obtain relative to the borrowing rates available to those borrowers at competing indigenous banks. If that's the case, the lower variability abroad is the result of the banks being generally unfamiliar with borrowers abroad. The lack of familiarity would increase their prudence in lending only to relatively reliable customers, whom they could charge competitive interest rates with reasonable assurance that they would be compensated for (small) loan losses.

Their prudence abroad is also commonly manifested by obtaining loan guarantees from foreign and U.S. governmental bodies, from parent companies, and from foreign banks. Such guarantees are much less common in domestic U.S. loan agreements. And they likely operated to keep loans that otherwise would have been in default from becoming actual losses.

The answers to the three questions on credit risk suggest clearly that foreign loans added less than domestic loans to the credit risks that the sample banks were exposed to and that they actually realized.

The second part of my study examined the benefit of diversifying loan portfolios with domestic and foreign loans.

Theoretically, for a given rate of overall earnings the loan portfolio of a bank can be less risky when it is diversified than when it is undiversified. Alternatively, for a given level of risk the loan portfolio of a bank can have a higher rate of return when it is diversified than when it is undiversified. Since U.S. banks with foreign loans have internationally diversified portfolios, any attempt to regulate, supervise, or control banking risks should explicitly take into account the benefits of international diversification on portfolio risk.

International diversification helps reduce risk in two ways.

First, the riskiness of foreign loans that the banks choose to make may be lower than the riskiness of domestic loans that they otherwise would have made. The measure of risk I used here was the ex ante one, the standard deviation of loan-loss ratios for each bank's portfolio. As is shown in Table 2, loans to foreigners were generally less risky than loans to domestic residents. Accordingly, they helped reduce the riskiness of the total portfolios.

Second, international diversification also helps reduce risk when foreign loan losses are less than completely correlated with domestic loan losses. When a bank's foreign and domestic loan-loss ratios are especially high in the same years and especially low in the same years, then the variability of the bank's overall loan-loss ratio will be large. When the variability is large,

then a bank should find it more difficult to decide how high to set interest rates, given other terms and conditions on loans, in order to compensate itself for loan losses and still remain competitive. Conversely, to the extent there is no pattern in the movement of the ratios from year to year (uncorrelated movement) or a fortiori to the extent the ratios move in opposite directions (negatively correlated movement), the variability of the bank's overall loan-loss ratio will be moderated; and the ratio will be somewhat stabilized from year to year. This should make it easier for a bank to set its interest rates at levels that are simultaneously loss-compensating and competitive.

Table 3 shows the correlation between the domestic and foreign loan-loss ratios for the ten banks. The correlation ratios show that the second effect of international diversification reduced the total portfolio risk for all banks, though more so for some, like Bank B, than for others, like banks A and D.

In general, I expect foreign and domestic loan-loss ratios to be uncorrelated for the most part, since cycles in industrial production in foreign countries appear generally uncorrelated with production cycles in the United States.

The simplest way to see the total beneficial effect of international diversification during the period covered by the survey is to look at the combined effect of the lower average risk on foreign loans and the correlation between the foreign and domestic loss ratios. In Table 4 the first column of numbers on the left is the standard deviation of the loss ratio for the total portfolio. The middle column of numbers is the corresponding ratio for the domestic portfolio. The right-hand

Table 3

Correlation of foreign and domestic loan-loss ratios

<u>Bank</u>	<u>Correlation ratio (r)</u>	<u>Bank</u>	<u>Correlation ratio (r)</u>
A	.71	F	.06
B	-.68	G	0
C	-.14	H	.33
D	.64	I	.14
E	-.17	J	.15

(A ratio of 1.0 indicates complete positive correlation, while a ratio of -1.0 indicates complete negative correlation, which is the most beneficial ratio for reducing risk. A ratio of 0 indicates no correlation.)

Table 4

Reduction in risk owing to diversification

<u>Bank</u>	<u>Standard deviation for total portfolio</u>	<u>Standard deviation for domestic portfolio</u>	<u>Per cent reduction (increase)</u>
A	.00108	.00148	27
B	.00018	.00028	36
C	.00278	.00379	27
D	.00091	.00121	25
E	.00084	.00109	23
F	.00099	.00095	(4)
G	.00140	.00177	21
H	.00230	.00186	(24)
I	.00129	.00130	1
J	.00203	.00229	11

(The standard deviation of the loss ratios for Bank A's total loan portfolio is 27 percent less than the standard deviation of Bank A's domestic loan portfolio.)

column shows in percentage terms how much lower -- or higher -- the total risk is than the domestic risk. For eight banks there was a reduction in risk. It averaged 20 per cent. Bank H whose total risk was high is one of those whose early experience included a relatively large loss in a very small portfolio and whose correlation ratio was third highest.

The clear impression I got from my research is that lending to foreign borrowers reduced realized credit risks and credit uncertainty for U.S. banks during the period of 1962-71.

My impression, however, is tempered by the small size of the sample. Also the results may be biased one way or the other by bank managements delaying recognition of losses near yearend in order to achieve an earnings objective. Finally, data on loan losses do not reflect reductions in interest income that result from renegotiation of loans that otherwise would have been in permanent default. During the process of renegotiation borrowers are often able to extract rates of interest on the loans that are substantially lower than the rates that the risk and maturity of the loans would justify. Thus, during the remaining term of renegotiated loans, banks often are earning substantially less interest than they should have been earning, given the level of risk to which the bank is exposed on that loan.

A recent follow-up survey covering 1972-74 indicated that foreign lending continued to reduce the total risk in the sample banks' loan portfolios relative to the risk on the domestic portion of the portfolios. Replies from six banks have so far been received. These six now report

total assets of \$175, which is double the figure for 1971.

In absolute amount foreign losses continued to be very small, in general, relative to domestic losses. The average loss on foreign loans rose from \$3 million per bank in 1971 to approximately \$10 million in 1974. The average domestic loan loss for the sample banks, however, rose from \$15 million to \$52 million.

The foreign loan losses also continued to be a smaller proportion of foreign loans than domestic losses were of domestic loans. The six banks had an average foreign loss ratio of 0.0006 during the initial sample period. It rose to 0.0009 during the 1972-74 period. Their domestic loss ratio, for comparison, was 0.0018 during the initial period and rose to 0.0025 during 1972-74.

The picture is clear. Foreign and domestic loan losses increased in absolute amount and in proportion to loans outstanding during the past three years. The loss experience, however, continues, in general, to be much superior abroad. Consequently, international diversification of the loan portfolios continued to reduce the risk exposure of the sample banks.