

A Disaggregated Approach to the Analysis of the Effects of Foreign Ownership on Bank Performance

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Abstract

This paper examines the financial characteristics of foreign-owned U.S. banks with respect to orientation, profitability, efficiency, liquidity and riskiness. A disaggregated approach is used in the paper. Foreign-owned banks are divided into groups according to the nationality of owners, and according to the individual or institutional nature of owners. Our results show that individually-owned banks are most problematic in terms of serving the needs of their local communities, and in terms of risk exposure. British style banks were found to be most similar, and Japanese banks least similar to domestic banks in terms of their orientation.

Introduction

The purpose of this paper is to evaluate the effect of foreign ownership upon bank performance in the United States by using a disaggregated approach. Foreign-owned banks are divided into groups according to the nationality of the owners and according to the individual or institutional nature of their owners. The performance of these groups is then compared to each other as well as to the performance of domestically-owned banks.

The rapid growth of foreign ownership in the United States banking industry during the last two decades has raised concern among legislators, bank regulators and banking scholars about the commitment of foreign bank owners to the needs of local communities as well as the possibility of sacrificing safety and liquidity in favor of greater and speedier return to foreign owners located outside of United States jurisdiction. These concerns have inspired a number of researchers to evaluate the performance of foreign-owned banks and to study the consequent effect on the structure of the American banking industry.

Goldberg (1981), Hodgkins and Goldberg (1981), and Haupt (1980) studied the performance of United States banks acquired by foreign concerns during the 1970's using conventional univariate analysis. The findings of these three studies were similar. Foreign owned banks were found to devote a smaller percentage of their loan portfolio to residential mortgages and consumer loans and to have lower earnings relative to their domestic counterparts. However, these differences were found to be a continuation of differences that existed prior to the

acquisitions. No significant new differences were found to develop after the acquisitions.

In a recent paper, by using a multivariate methodology, Leveen and Praveen (1992) compared the performance of foreign owned U.S. banks to the performance of domestically-owned banks in 1989. The result of this study showed the financial characteristics of foreign-owned banks to be significantly different from the financial characteristics of domestic banks. Foreign-owned banks were found to operate with greater risk exposure than their domestically-owned counterparts and to devote a greater proportion of their loan portfolio to the business sector. Foreign-owned banks were not found, however, to be neglecting the needs of their local communities in favor of long distance wholesale banking. There were no statistically significant differences between the two groups of banks with respect to the proportion of funds obtained from local sources and the proportion of funds allocated to local uses.

In all of the above studies, the approach used in the evaluation of the performance of foreign-owned banks was an aggregate approach. All foreign owned banks were combined together as a group and compared to a peer group of domestically-owned banks. In addition to these aggregate studies, there has also been some empirical research concentrating only on the performance of Japanese-owned banks. Most recently, Zimmerman (1989) compared the performance of Japanese-owned banks in California to the performance of domestically-owned banks in the same state and found

the orientation of Japanese banks to be toward long distance intermediation and wholesale banking. Japanese banks were found to have a greater reliance on wholesale money markets as a source of funds and to allocate a larger percentage of their assets to finance international trade.

The sharp differences in the results obtained from the aggregate studies and from Zimmerman's Japanese study indicate that much insight can be gained from analyzing the effects of foreign ownership on banking in a disaggregated manner.

This paper disaggregates foreign-owned banks into somewhat homogenous categories by using two different approaches. The first approach is based on the banking structure found in the home country of the owners. Recently, in a statement before the U.S. Senate Committee on Banking, E. Gerald Corrigan (1990) identified three operational models of banking structure in the industrialized world: (a) A German-style universal banking structure that is similar to the banking structure of most industrialized countries in Continental Europe; (b) A British-style banking structure that is quite similar to the banking structure found in countries with close historical ties to the U.K.; and (c) the fragmented style of banking that prevails in the U.S. and Japan.

In this study, following these three models, foreign-owned banks are grouped together according to the nationality of their foreign owners as either Continental European, British Style or Japanese. Those banks which could not readily fit into one of these categories are not included in the study.

The second approach to the disaggregation of foreign-owned banks is based upon the status of the owners as either foreign individuals or foreign banking concerns. The reason for this second type of classification is that the motive for owning and operating banks in the U.S. may be quite different for foreign individuals as opposed to foreign banking institutions.

Data and Methodology

The data used in this study was obtained from the FRS-FDIC tapes of the Report of Condition and Income of Commercial Banks for the period ending December 31, 1989. Included in this study are 24 Japanese, 29 Continental European¹, 33 British style² and 29 domestically owned banks. In the selection of the sample, the criteria of a 10% foreign ownership interest was used as an indication of intent to establish a banking presence in the U.S. and to exercise control over the policies and operations of acquired banks. Those cases where foreign ownership amounted to less than 10% were excluded from the sample. Also excluded from the sample were banks which were acquired by foreign

concerns since the end of 1987. We felt that less than two years under foreign control is not a sufficiently long period for any policy changes of the new owners to be reflected on the banks' balance sheets and income statements. Of the 86 foreign-owned banks in the sample, 12 were owned by foreign individuals and 74 by foreign banks or banking institutions.

The domestic banks included in the sample were selected from the same metropolitan statistical areas that hosted the foreign-owned banks in the sample. They were also selected by asset size, so that the domestically-owned banks were similar in asset size to the banks acquired by the foreign nationality group at the time of acquisition.

Nineteen financial ratios were calculated from the data contained in the Condition and Income Reports and used in the analysis as measures of the various financial characteristics of the banks in the sample. These ratios are grouped into six categories and presented in Table 1. The first two categories include ratios related to asset and liability structures. These balance sheet ratios will be used in assessing the orientation of the banks toward different economic sectors and their contribution to the local economy. They can also be used to measure liquidity and risk and thus supplement the ratios included in the next category. The third category consists of ratios related to liquidity and risk measures. Ratios that are crucial in the assessment of risk, such as "total equity capital /total assets" and "total equity capital/total loans", could not be included in this category due to the unavailability of data for all the banks in the sample on equity capital in the 1989 FRS-FDIC tapes. The fourth category consists of five ratios selected to measure the efficiency of banks' management and profitability. The fifth category includes two pricing measures related to service charges and interest on loans. The number of branches and total assets are the size variables that make up the sixth category.

The multivariate analysis of variance (MANOVA) method was employed to compare the performance of: (a) Japanese, Continental European, British style and domestically owned banks, and (b) banks owned by foreign individuals, banks owned by foreign banking institutions and domestically-owned banks.

Since financial ratios tend to be highly correlated, their use in multivariate analysis can cause multicollinearity. Furthermore, parametric multivariate analysis requires that the variables used be normally distributed. However, most financial ratios are not normally distributed. Therefore, to alleviate these two problems, the principal components analysis³ method was used to reduce the original set of correlated financial ratios to a smaller set of uncorrelated principal components. Principal components (PCs) have asymptotic normal

Table 1
VARIABLE LIST

VARIABLE NAME	VARIABLE DESCRIPTION
	RATIOS REPRESENTING ASSET STRUCTURE
V1	Total Loans / Total Assets
V2	Commercial & Industrial Loans / Total Loans
V3	Local Loans (1) / Total Loans
	RATIOS REPRESENTING LIABILITY STRUCTURE
V4	Demand Deposits / Total Deposits
V5	Purchased Funds (2) / Total Assets
V6	Core Deposits (3) / Total Assets
V7	Total Deposits / Total Assets
	RATIOS REPRESENTING LIQUIDITY & SAFETY
V8	Cash Assets / Total Assets
V9	Total Deposits / Total Loans
V10	Loan Loss Provisions / Total Loans
	RATIOS REPRESENTING EFFICIENCY & PROFITABILITY
V11	Net Operating Margin
V12	Return on Assets
V13	Total Assets / Number of Employees (4)
V14	Total Operating Expense / Total Operating Income
V15	Net Income / Number of Employees (4)
	PRICING MEASURE RATIOS
V16	Service Charges / Total Deposits
V17	Interest on Loans / Total Loans
	SIZE VARIABLES
V18	Number of Branches
V19	Total Assets (4)
<p>1. Local Loans: Residential Mortgage Loans 1-4 Family + Consumer Loans + Agricultural Loans;</p> <p>2. Purchased Funds: Federal Funds Purchased + Repurchase Agreements + Large CD's</p> <p>3. Core Deposits: Total Deposits - Large CD's</p> <p>4. In Logarithm to Avoid Distorted Effects of Large Value</p>	

distributions with the approximation to normality improving with the number of observations. The principal components obtained were used as inputs in MANOVA to compare the financial characteristics of various groups of banks in the sample.

Empirical Results

The variables in Table 1, representing various charac-

teristics of the 86 foreign-owned and 29 domestic banks in the control group, were used as input in principal component analysis. Using Kaiser's significance rule, five principal components with eigen values greater than one were retained. These five principal components account for 74.2% of the variation in the original data set consisting of nineteen variables. The final factor pattern / structure matrix was obtained by using varimax orthogonal rotation.

Table 2
ROTATED FACTOR PATTERN MATRIX

VARIABLE NUMBER	PC 1	PC 2	PC 3	PC 4	PC 5
V6	0.917	**	**	**	**
V7	0.845	**	**	**	**
V2	-0.808	**	**	**	**
V13	0.787	**	**	**	**
V3	0.767	**	**	**	**
V16	0.525	**	**	**	**
V5	-0.519	**	**	**	**
V11	**	0.917	**	**	**
V14	**	0.889	**	**	**
V12	**	0.846	**	**	**
V15	**	0.784	**	**	**
V8	**	**	0.777	**	**
V1	**	**	-0.691	**	**
V9	0.582	**	0.615	**	**
V10	**	**	**	0.873	**
V17	**	**	**	0.830	**
V18	**	**	**	**	-0.820
V19	**	**	**	**	0.689

NOTES: **LESS THAN 0.50

The factor loadings of the five principal components are presented in Table 2. The factor loadings show the correlation between the principal components and the 19 variables. Those variables which are highly correlated with a given principal component serve as definers of that principal component. We used variables with factor loadings of greater than 0.5 as the definers of the components and assigned names to each of the five principal components in accordance with their defining variables.

As can be seen from Table 2, out of the eight variables making significant contribution to the first princi-

pal component, five were measures of asset and liability structure that are customarily used in assessing the orientation of banks. This principal component can be interpreted to represent "the orientation factor". The second principal component is dominated by measures of efficiency and profitability and therefore can be used as the indicator of "the efficiency factor". Similarly, the third principal component represents "the liquidity factor" and the fifth component represents "the size factor". The "loan loss provisions/ total loans" and the "interest on loans/ total loans" ratios dominate the fourth principal component with positive signs. As the higher rates of interest charged on loans, as well as the

ratio of "loan loss provisions/ total loans", reflects the lending institution's assessment of the quality of its loans, this principal component is interpreted to represent "the loan quality factor".

Comparisons of the Nationality Groups

The five principal components were used as inputs in multivariate variance analysis to compare the characteristics of Japanese, Continental European, British type and domestically owned banks. The MANOVA statistics obtained are presented in Table 3. The multivariate test statistics indicate that the overall performance measures of the four groups of banks were significantly different at the less than 1% significance level. The univariate test statistics indicate that the performances of the four groups of banks were different in terms of the first principal component at the less than 1% significance level and in terms of the third and fifth principal component at the less than 10% significance level. These results indicate that the four groups of banks were significantly different with respect to orientation, liquidity and size factors.

The mean and standard deviations of the variables making significant contributions to the first, third and fifth principal components (orientation, liquidity and size factors) are computed for each nationality group and presented in Table 4 for the purpose of profiling group differences.

most wholesale-business oriented and domestic banks to be the most retail-consumer oriented. The liability structure ratios indicate heavy reliance on wholesale money markets for funds by Japanese banks. Purchased funds accounted for almost 30% of the total funds for Japanese banks, compared to about 20% for domestic banks. Core deposits, on the other hand, made up only about 35% of the total funds raised by Japanese banks, compared to 71% for domestic banks. The wholesale orientation of Japanese banks is also evident in the distribution of their assets. Japanese banks clearly favored the business sector by allocating 50% of their loan portfolio to commercial and industrial loans. Residential mortgages, consumer loans and agricultural loans combined constituted less than 10% of their total loans. On the other hand, about 29% of the loan portfolios of domestic banks were commercial and industrial loans and more than 36% were consumer oriented retail loans.

Of the four nationality groups studied in this paper, British style banks displayed the greatest similarity to domestic banks in respect to their orientation. The asset and liability structure of European banks places them between the domestic and the Japanese banks in their orientation. They were more wholesale oriented than the domestic banks, but not as great as the Japanese banks.

Any comparisons among the nationality groups in respect to the various liquidity, efficiency and pricing

Table 3
MANOVA STATISTICS WITH 5 PRINCIPAL COMPONENTS FOR THE NATIONALITY GROUPS

Multivariate Test of Significance (S = 3, M = 1/2, N = 42 1/2)					
Test Name	Value	Approximate F	Hypothesized DF	Error DF	Significance of F
Hotellings	0.992	5.665	15	257.00	0.00

Univariate F-Tests With (3, 91) D.F.						
Variable	Hypothesized SS	Error SS	Hypothesized MS	Error MS	F	Significance of F
PC1	39.206	54.794	13.069	0.602	21.704	0.000
PC2	2.747	91.253	0.916	1.003	0.913	0.438
PC3	7.613	86.387	2.538	0.949	2.673	0.052
PC4	3.006	90.994	1.002	1.000	1.002	0.396
PC5	6.820	87.180	2.273	0.958	2.373	0.075

A comparison of the asset and liability structure statistics in Table 4 reveals Japanese banks to be the

ratios contained in Table 5 must be made in light of these observed differences in orientation, as the financial

TABLE 4
MEAN & STANDARD DEVIATIONS OF VARIABLES DEFINING ORIENTATION,
LIQUIDITY AND SIZE FACTORS - BY NATIONALITY GROUPS

Principle Component Representing	Defining Variables	Domestic Banks		Japanese Owned Banks		Continental European Type Banks		British Type Banks	
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Orientation	V6	0.713	0.098	0.348	0.241	0.619	0.176	0.677	0.217
	V7	0.869	0.068	0.526	0.318	0.839	0.116	0.831	0.218
	V2	0.290	0.147	0.500	0.255	0.367	0.169	0.309	0.185
	V13	7.394	0.446	8.362	0.894	7.658	0.384	7.598	0.504
	V3	0.368	0.207	0.099	0.133	0.272	0.146	0.389	0.216
	V16	0.006	0.004	0.002	0.002	0.004	0.002	0.003	0.002
	V5	0.193	0.101	0.294	0.189	0.268	0.160	0.178	0.118
Liquidity	V8	0.094	0.052	0.060	0.041	0.107	0.088	0.083	0.050
	V1	0.570	0.160	0.665	0.177	0.597	0.163	0.695	0.129
	V9	1.678	0.609	0.820	0.505	1.520	0.467	1.267	0.472
Size	V18	1.300	0.360	0.840	0.445	2.700	0.267	1.700	0.360
	V19	12.152	1.511	13.568	1.630	13.023	1.516	12.562	1.645

ratios are profoundly affected by the wholesale or retail orientation of the institutions.

Compared to domestic banks, Japanese banks had less liquidity in their balance sheets, as was indicated by their lower "cash assets/ total assets" and "total deposits / total loans" ratios. These differences are consistent with the orientation of Japanese banks. Wholesale banking institutions typically rely more on the active management of their liquidity position, rather than on the liquidity stored in their balance sheets.

The higher level of total assets per employee observed for Japanese banks cannot necessarily be attributed to higher labor productivity in Japanese banks. Residential mortgage loans and consumer loans, the most labor intensive of banking products, were the least important in the loan portfolio of Japanese banks.

The differences in return on assets between the Japanese and the domestic banks is also in accord with the orientation differences. Japanese banks which rely more heavily on costlier purchased funds and concentrate more on lower yielding business loans are expected to have lower return on assets. Japanese banks were also larger in asset size and had the least extensive branch network, again reflecting their wholesale orientation.

British style banks, which were quite similar to domestic banks in their retail orientation, were considerably less liquid than the domestic banks. They were somewhat more efficient in the use of labor resources,

since they displayed a higher level of total assets per employee. They had a higher return on assets than domestic banks and possessed a more extensive branch network.

Continental European banks were slightly more liquid than the domestic banks, despite their wholesale orientation and considerably less profitable, even after making allowance for orientation differences. They had a more extensive branch network than either the domestic or the British style banks.

Of the four nationality groups, the domestically-owned banks had the highest charges on deposits, followed by the European, and then by the British style banks. Service charges in Japanese banks were considerably lower, even after making allowance for their wholesale orientation.

Comparisons by Ownership type

The five principal components were also used as inputs in multivariate analysis of variance to compare the characteristics of U.S. banks owned by foreign individuals, U.S. banks owned by foreign banking institutions, and domestically-owned banks. The MANOVA statistics obtained are presented in Table 5. The multivariate test statistics indicate that the overall performance measures of the four groups of banks were significantly different at the less than 1% significance level. The univariate test statistics indicate that the performance of the four groups of banks were different

Table 5
MANOVA STATISTICS WITH 5 PRINCIPAL COMPONENTS FOR TYPE OF OWNERSHIP

Multivariate Test of Significance (S = 2, M = 1, N = 43)					
Test Name	Value	Approximate F	Hypothesized DF	Error DF	Significance of F
Hotellings	0.599	5.208	10.000	174.000	.000

Univariate F-Tests With (2, 92) D.F.						
Variable	Hypothesized SS	Error SS	Hypothesized MS	Error MS	F	Significance of F
PC1	8.431	85.569	4.216	0.930	4.532	0.013
PC2	1.828	92.172	0.914	1.002	0.912	0.405
PC3	13.215	80.785	6.608	0.878	7.525	0.001
PC4	12.181	81.819	6.090	0.889	6.848	0.002
PC5	4.893	89.107	2.447	0.969	2.523	0.086

in terms of the first, third and fourth principal components at the less than 1% significance level and in terms of the fifth principal component at the less than 10% significance level. These statistics indicate considerable differences in respect to orientation, liquidity, loan quality and size factors.

The mean and standard deviations of the variables making significant contributions to the first, third, fourth and fifth principal components (orientation, liquidity, loan quality and size factors) are computed and presented in Table 6.

Comparison of the balance sheet structure ratios of banks owned by foreign banking institutions to those of domestic banks show that institutionally-owned foreign banks have a greater wholesale orientation than domestic banks. On average, they obtained a higher proportion of their funds through wholesale channels in money markets and they allocated a higher proportion of their assets to commercial and industrial loans. The share of local retail loans in the loan portfolio of institutionally-owned foreign banks was 27%, as opposed to over 36% for domestic banks.

Most of the other differences in the financial ratios of the institutionally owned foreign banks and the domestically-owned banks appear to be consistent with the different orientation of these two groups. Institutionally-owned foreign banks, which were more wholesale oriented, had less liquidity in their balance sheets, had higher assets per employee, were larger in asset size,

and charged a lower rate of interest on their loans. Foreign-owned banks also had a greater number of branches than their domestic counterparts, despite their orientation. This was most likely a reflection of the banking structure in their home countries.

Individually-owned foreign banks were similar to domestic banks in respect to liability structure ratios, but differed from domestic banks considerably in respect to asset structure ratios. Retail type core deposits provided about 70% of the total funds for both groups, with wholesale funds borrowed in money markets contributing less than 20% of total assets. However, individually owned foreign banks allocated a much smaller percentage of their total assets to local retail loans and a higher proportion to business loans.

Comparison of the liquidity and safety variables indicate individually-owned foreign banks to be similar to the domestic group in terms of their liquidity, but to differ significantly in terms of the quality and safety of their loans. Considerably higher "loan loss provisions / total loans" and "interest on loans / total loans" ratios point toward greater risk exposure in the loan portfolios of individually-owned foreign banks.

Individually-owned foreign banks appear to be the least efficient and the least profitable group in the sample. The relative inefficiencies in the management of individually-owned foreign banks is reflected in the lowest level of assets managed per employee, despite the smallest percentage of labor intensive consumer and

TABLE 6

MEAN & STANDARD DEVIATIONS OF VARIABLES DEFINING ORIENTATION,
LIQUIDITY AND LOAN QUALITY FACTORS - BY OWNERSHIP TYPE

Principle Component Representing	Defining Variables	Domestic Banks		Banks Owned by Foreign Individuals		Banks Owned by Foreign Banking Institutions	
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Orientation	V6	0.713	0.098	0.696	0.152	0.545	0.258
	V7	0.869	0.068	0.882	0.117	0.727	0.274
	V2	0.290	0.147	0.371	0.168	0.384	0.222
	V13	7.394	0.446	7.365	0.444	7.911	0.692
	V3	0.368	0.207	0.234	0.154	0.274	0.215
	V16	0.006	0.004	0.006	0.003	0.003	0.002
Liquidity	V5	0.193	0.101	0.196	0.086	0.248	0.169
	V8	0.094	0.052	0.094	0.040	0.083	0.069
	V1	0.570	0.160	0.546	0.176	0.668	0.153
Loan Quality	V9	1.678	0.609	1.719	0.554	1.148	0.508
	V10	0.006	0.021	0.032	0.034	0.007	0.027
Size	V17	0.114	0.015	0.140	0.058	0.107	0.024
	V18	1.300	0.360	1.600	0.392	1.600	0.371
	V19	12.152	1.511	11.990	1.699	13.162	1.572

residential loans in their asset composition. They were also the most expensive of all three groups in terms of service charges on deposits. On average, their ratio of "service charges / total deposits" was higher than the domestically-owned banks, despite the fact that retail type core deposits comprised the same percentage of total deposits for the both groups.

As a group, individually-owned foreign banks experienced negative returns in 1989. The overall financial characteristics of this group indicate that a great deal of this poor earning performance can be attributed to greater loan losses associated with riskier loan portfolios and to inefficiencies in the management of their resources.

Conclusion

The results of our study indicate that of all the groups included in this study, individually-owned foreign banks were the most problematic in terms of serving the needs of their local communities and in terms of exposure to greater risk. They invested a smaller proportion of the funds they generated from their local retail depositors back into their communities and charged significantly more for their deposit services. They were found to hold

more risky assets and to be less efficient in their management.

The performance of British style banks was found to be quite satisfactory in terms of the servicing of local communities. They made slightly more local loans than domestic banks and they charged lower fees to their depositors. However, they were significantly less liquid than the domestic banks, thus substantiating some of the concerns about the safety of foreign owned banks.

The wholesale orientation of continental European banks, and the even greater wholesale orientation of Japanese banks, offers justification for concern about the commitment of foreign owners to the needs of local communities. However, the performance of Japanese and European owned banks in respect to the liquidity, safety, efficiency and pricing

measures included in this study does not indicate reason for concern.

Suggestions for Future Research

In this paper, we examined the performance of different categories of foreign-owned banks and documented the differences among them. Further research is needed to explore empirically the reasons for these differences.

This research was supported by a grant from the SBR program of Montclair State College. The authors would like to express their deep appreciation to John Powell of the Computer Center of Montclair State College for valuable computer support provided at various stages of this project.

Footnotes

1. Continental European type include: W. Germany, France, Spain, Italy, Switzerland, Greece, Portugal, Norway, Belgium, Netherlands, Sweden, Denmark, Finland, and Yugoslavia.
2. British type include: England, Ireland, and Canada.
3. For an excellent discussion of the applications of principal component analysis as a preliminary

procedure to other multivariate methodologies, see Jolliffe (1986).

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