FOREIGN BANKS, PROFITS AND COMMERICAL CREDIT EXTENSION IN THE UNITED STATES

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by

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Abstract

This paper simultaneously models the determinants of foreign bank profitability and commercial credit extension in the United States between 1987 and 1991. Overall the results indicate that supply-side factors; such as capital strength, commercial and industrial loan growth and assets composition were important factors in determining foreign banks' return-on-assets in the period under study. Capital strength stands out as being the most important factor influencing foreign bank return on shareholders equity. US demand also appeared to be important in determining foreign bank performance but it had no significant impact on growth in commercial lending. There is also little evidence to suggest that the largest foreign banks are significantly more profitable than their smaller counterparts. In general, it appears that capital strength will be one of the most important factors determining foreign bank performance in the United States over the coming years. As a consequence, we tentatively suggest that capital considerations may well outweigh other factors when foreign bank expansion plans are considered in the United States prior to the 1997 nationwide branch banking watershed.

1. Introduction

On 13 September, 1994 the interstate banking bill was finally approved by the US Senate. The bill, which revamps the 1927 McFadden Act and the 1956 Bank Holding Company Act, will permit both domestic and foreign banks to operate interstate branch networks in 1997. Foreign banks would then have the same legal rights to open new branches as US banks, whether they operate in the United States through a separate subsidiary or through a direct branch from their home country. It is far from clear, however, how foreign banks will respond to this easing of regulation.

This paper aims to shed light on these issues by simultaneously modelling the determinants of foreign bank profitability and commercial credit extension. The literature on foreign bank performance and growth in the United States has been evaluated by two broad strands of literature. One literature investigates the relative performance of foreign bank's compared to domestic US banks. The second group examines the determinants of foreign bank growth (however measured). This paper brings the two literatures together by using a two-stage least squares (2SLS) procedure to simultaneously model the determinants of foreign bank commercial loan growth and profitability in the United States between 1987 and 1991. Overall, the results indicate that supply-side factors such as capital strength, loan growth and assets composition were important factors in determining foreign banks' return-on-assets. Capital strength stands out as being the most important factor influencing foreign bank return on shareholders equity. US demand also appeared to be important in determining foreign bank performance but it had no significant impact on the growth in commercial lending. There is also little evidence to indicate that the largest foreign banks are significantly more profitable than their smaller counterparts. In general, it appears that capital strength will be one of the most critical factors driving foreign bank performance in the United States over the coming years. We tentatively conclude that capital consideration may well outweigh other factors when foreign bank expansion plans are considered prior to the 1997 nationwide branch banking watershed.

The remainder of this paper is organised as follows. Section 2 outlines previous studies; Section 3 presents the model specification and data; Section 4 examines the results and a conclusion is provided in Section 5.

2. Previous Studies

Studies on foreign banks' operations in the United States have typically either focused on the determinants of the relate size (or growth) of their business, or alternatively, have evaluated their performance relative to domestic banks. Grosse and Goldberg (1991), for example, update and extend earlier research undertaken by Goldberg and Saunders (1981a, 1981b) and Hultman and McGee (1989), and find that foreign direct investment in the United States; foreign trade with the United States; and the size of the banking sector in the foreign country are positively correlated with that country's bank presence in the United States. They also find that the greater the country risk of the source country, the more foreign banking appears to be allocated to the (relatively low-risk) US market, and geographic distance is 'somewhat' positively correlated with bank presence. More recent studies undertaken by McCauley and Seth (1992) and Seth (1993a and 1993b) have examined the growth of foreign bank credit to domestic corporations. McCauley and Seth (1992) show that in the second-half of the 1980s, US reserve requirements interacted with money market interest rates to give foreign banks an incentive to book loans offshore. Because the rapid growth in this offshore component of foreign loans was in part missed by the US reporting system, foreign penetration of the US market for commercial and industrial loans was more extensive than generally recognised. Seth (1993a and 1993b) examines the contribution of foreign bank entry towards excess capacity and models foreign credit expansion in the US market, respectively. These studies find that foreign banks' strong presence and increased acceptance by US customers probably resulted in significant excess capacity in the market for corporate loans. Supply-side factors were not generally found to be important determinants of foreign bank commercial lending although US demand was seen to be significant but in an unexpected way - in recessionary circumstances foreign banks actually increased their lending to US corporations[1].

The above studies focus on the determinants of increased foreign bank presence in the US. A separate literature examines the relative performance of foreign banks compared to their domestic US bank counterparts. Goldberg (1981), Hodgkins and Goldberg (1981) and Houpt (1980) studied the performance of US banks acquired by foreign institutions in the 1970s. These studies generally

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[1]See Damanpour (1991), Gruson (1992), Goldberg (1993), Lee (1993) and Misback (1993) for additional interpretations of foreign bank activity in the US. Also see Houpt (1983 and 1988) for a history of foreign bank entry into the US.

arrive at the same conclusions. Foreign owned banks, were found to direct a smaller percentage of their loans to residential mortgages and consumer loans and were found to be less profitable compared with domestic banks. These differences, however, were found to be a continuation of features that existed prior to the acquisitions. Zimmerman (1989) compared the performance of Japanese-owned banks to domestically-owned banks in the state of California and found that the former tended to do relatively more long distance intermediation and wholesale banking. Japanese banks were also found to have a greater reliance on wholesale money markets as a source of funds and to dedicate a larger percentage of their assets to fund international trade. Seth (1992) examined the relative performance of foreign bank subsidiaries and branches and agencies that were operating in the US between 1980 and 1991. Profitability at both these groups of banks, whether measured by return-on-assets or return-on-equity, was found on average to be a third of that at domestic banks over the period. The under performance of these banks was, 'especially evident when their true equity commitment is estimated' (p.7). Following on from this approach, Leveen and Praveen (1992 and 1994) use multivariate methodologies to compare the performance of foreign-owned versus domestic US banks. Both studies find that foreign banks operate with greater risk exposures than their domestically-owned counterparts. The latter study also finds that continental European banks and Japanese banks have a greater wholesale orientation than domestic or 'British style' banks[2]. Foreign banks are also found to be significantly less profitable than domestic institutions. De Young and Nolle (1994) arrive at the rather different conclusion that subsidiaries of foreign banks were significantly more profit efficient than US owned banks. The variable profit model that they use, however, does not incorporate all of the activities that their sample banks engage in.

The literature on foreign bank activity in the US focuses on two distinct areas, either on the size or growth of business or on bank performance. It is the aim of the following analysis to bring together these two literature's by adopting a systems approach to simultaneously model the determinants of foreign bank performance and commercial credit extension in the US market.

3. Model Specification and Data

Following a similar procedure to Clark (1986), bank profitability is estimated using a model which

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[2]Leveen and Praveen (1994) classify the 'British' style according to English, Irish and Canadian banks.

allows for simultaneity between foreign banks' profitability and growth in their commercial and industrial loan business. We use a two-stage least squares procedure to estimate the following model:

$$\begin{aligned} ROA_{ij}(ROE_{ij}) = {} & a_0 + a_1 CIGROW_{ij} + a_2 CAPRTIO_{ij} + \\ & a_3 USGDP_j + a_4 DIFFINT^j + a_5 LARATIO_{ij} + a_6 INTCOST_{ij} + \\ & a_7 NONINTCOST_{ij} + a_8 QIDUM_{ij} + a_9 Q2DUM_{ij} + \\ & a_{10} Q3DUM_{ij} + a_{11} Q4DUM_{ij} + e_1 \end{aligned} \tag{1}$$

$$\begin{aligned} CIGROW_{ij} = {} & b_0 + a_1 ROA_{ij}(ROE_{ij}) + b_2 CAPRTIO_{ij} + \\ & b_3 USGDP_j + b_4 DIFFINT^j + b_5 BADPROP_{ij} + b_6 MARKCAP^j + \\ & b_7 PIERATIO^j + b_8 FDIFLOW^j + b_9 FORGDP^j + b_{10} EXCHANGE^j + \\ & b_{11} BISFLOW^j + b_{12} OLDCIGROW_{ij} + e_2 \end{aligned} \tag{2}$$

Variable definitions are provided in Table 1. The profit equation (1) is drawn-up along similar lines to those presented by Bourke (1989) and Molyneux and Thornton (1992). Variables include both market-specific and firm-specific variables. We include the change in commercial and industrial loans made by foreign banks as a determinant of profitability because business growth would be expected to be related to foreign bank performance as measured by ROA or ROE. It is uncertain, however, as to whether one would expect a positive or negative sign on this coefficient. If, for example, foreign banks were rapidly increasing their loan books they may have a higher cost for their funding requirements and this could have a negative impact on profitability.

Since the profits measures are not risk-adjusted we employ two variables to account for bank-specific risk: the risk-adjusted capital-to-assets ratio (CAPRATIO) and ratio of loans to assets (LARATIO). As lower capital-to-assets ratios suggest a relatively higher risk position one would expect a negative coefficient on this variable although it could be the case that high levels of capital

suggest that the cost of capital is relatively cheap and therefore this may have a positive impact on profitability. We treat the capital ratio as indeterminate prior to estimation. The loans-to-assets ratio provides a measure of risk since loans are riskier and generally have a greater expected return than other bank earning assets. Thus, we may expect a positive relationship between this variable and profitability. We include two demand factors in our model; growth in real gross domestic product in the US (USGDP) and in the foreign bank's home country (FORGDP). The former is included in the profitability equation because demand conditions have also been shown to be important in determining bank profitability[3]. By the same token, the growth in real GDP of the home country of the foreign bank could be an important demand factor in determining commercial and industrial loan growth. All things being equal the slower the growth in real GDP in the foreign bank's home country, FORGDP, the more rapid the banks expansion of credit abroad[4].

Differences in lending rates between the home country of the foreign bank and the United States, adjusted for expected movement in the exchange rate, are also likely to affect foreign bank profitability and growth. We therefore include in both equations a variable, DIFFINT, which is the difference between the US prime rate and the base rate of the country from which the foreign banks originate. In equation (2) we also include an exchange rate variable, EXCHANGE, to control for rate differences between the US and the foreign bank country of origin. (It should be noted, however, that we do not restrict the coefficients to be identical for the interest rate differential and exchange rate changes).

Finally, the profits equation (1) includes two firm-specific variables to account for cost differences between banks; INTCOST and NONINTCOST; and binary variables that distinguish between four different size categories of foreign banks. These divide the sample of foreign banks into quartile size groupings according to commercial and industrial loan business.

Equation (2) is of a similar composition to the models outlined in Grosse and Goldberg (1991) and Hultman and McGee (1989). In addition to capital strength as mentioned above, we

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[3]See Gilbert (1984) for a review of the Structure-Conduct Performance literature in US banking where demand conditions are included in models of bad performance.

[4]We assume that, at least over the period of analysis, foreign banks face an inelastic supply of capital.

examine the role played by credit quality. Poor asset quality has largely resulted from a combination of bank exposure to real estate loans and rapidly declining real estate values. In our model we use the percentage of loans not accruing or past due ninety days or more, BADPROP, to proxy for the extent of bad loans in each bank's portfolio. We expect a negative sign for the coefficient of BADPROP because the more numerous the bad loans, the poorer the asset quality and the slower we expect loans to grow the literature on foreign bank activity in the US has frequently tied the growth of foreign banks to the servicing of home country clients[5]. This servicing of home clientele would suggest a positive sign on the coefficient of foreign direct investment capital flows, FDIFLOW, to the United States from the home of the foreign bank. It has also been argued elsewhere that the willingness of foreign investors to accept lower returns than do US investors has probably been the most important determinant of foreign bank growth in the United States[6]. To examine the effect of differences in cost of equity on the growth of foreign banks, we include the price-earnings ratio of the stock market, PERATIO, in the home country of the foreign bank. The lower the price-earnings ratio, the lower the cost of equity, and the greater we can expect the foreign bank expansion to be. Thus we expect the sign on this coefficient to be negative. Wealth effects may also affect foreign bank activity. For home country investors, more wealth should create greater demand for all instruments, assuming the investor's portfolio is appropriately diversified, and should lead to greater direct foreign investment, including investment in foreign banking. It has been pointed out that 'greater fund availability' by foreign banks could account for their growing presence[7]. It is possible that wealth effects underline this argument. These wealth effects would suggest a positive coefficient on market capitalisation or MARKCAP.

Foreign banks lend to US corporations both by booking loans onshore and offshore. In examining the factors determining growth in loans booked by foreign banks onshore, we would have to control for the loans they booked offshore. The two types of loans could conceivably be substitutes or complements. If the loans are substitutes, foreign banks would book fewer onshore

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[5]At least as early as 1979, a study by the General Accounting Office suggested that among the reasons for the influx of foreign banks into the United States was the 'following by foreign banks of foreign business to the United States'. See Comptroller General of the United States, General Accounting Office (1979). Also see Ball and Tschoegl (1982).

[6]See McCauley and Seth (1992) and Zimmer and McCauley (1991).

[7]Zimmerman (1989)

loans if their offshore book was increasing rapidly. This situation would arise if, say, it was more cost-effective to borrow abroad and lend offshore. If the loans are complements, these banks would be increasing their onshore book at the same time that their offshore book was increasing. Since bank-specific data are not available for offshore loans, we include in our model all bank flows to nonbanks in the United States from the home country of the bank in question-BISLOW. Finally, to capture a possible adjustment factor, we include the past period's growth in commercial and industrial loans by the foreign bank-OLDCIGRO. This variable incorporates the idea that foreign banks are seeking a 'target' market share. The faster the growth in previous periods, the slower the current growth has to be to adjust to this desired share level.

The sample was partially dictated by data availability. Subsidiaries of foreign banks file both balance sheet and income statement reports, while the branches and agencies of foreign banks file only balance sheet information. The information contained in reported capital ratios is unclear for the latter group as this group is not separately capitalised from its foreign parent. As a consequence our sample consists of data on US subsidiaries of foreign banks obtained from the Federal Financial Institutions Examinations Council, Reports of Condition. The model was estimated annually over the period end 1987 to 1991 (4th quarter). The exact number of subsidiaries varied yearly in the range 115 to 135. Moreover, since subsidiaries are incorporated in the United States, they face the same legal and regulatory requirements as US owned banks. Because various variables used in the model were only available for certain countries the estimation only included foreign bank subsidiaries from Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Norway, Spain, Sweden, Switzerland and the United Kingdom.

4. Results

Table 2 contains the estimated parameters and t-statistics obtained from the application of the two-stage least squares (2SLS) approach to the model outlined in the previous section[8]. Equations (1) and (2) report the models which use return-on-assets (ROA) as the profits measure and (3) and (4) where we use return-on-equity (ROE). The ROA equations appear to perform better than the latter

[8]We prefer to use the 2SLS approach on the grounds that the 3SLS method would only provide greater efficiency if none of the equations were misspecified. 3SLS will result in inconsistent estimates of all model parameters if any of the quations are misspecified while 2SLS will result in consistent estimates of all parameters except those appearing in misspecified equations.

in terms of explanatory power although only 14 per cent of the variance is explained[9]. Equation (1) shows that foreign bank profitability in the United States was significantly and positively related to: the growth in individual bank's commercial and industrial loan books; capital levels and the growth in US GDP. Profitability also appears to be inversely related to banks loans-to-assets ratios which implies that foreign banks which dedicate a larger proportion of their business to securities have relatively higher returns. The only other variable which is statistically significant is the Q2DUM variable indicating that the second smallest quartile of foreign banks appear to be significantly more profitable than other size categories. In fact, market share, as indicated by Q3DUM and Q4DUM, is positively but insignificantly related to bank profitability[10]. For equation (2), parameter signs are generally accordance with expectations although they are all statistically insignificant apart from the lagged commercial and industrial loans (OLDCIGROW) variable. We previously postulated that this variable incorporated the idea that foreign banks seek a 'target' market share and the faster they grew in the previous period, the slower the current growth had to be to adjust to this desired share level. We in fact find the opposite. Growth of foreign banks commercial and industrial loans in one quarter is significantly positively correlated with growth in the following period.

Equations (3) and (4) show the 2SLS estimates using return-on-equity as the profits measure. Parameter signs are similar to equations (1) and (2) but the explanatory power of these are much lower with less than 2 per cent of variance being explained in either model. Equation (3) gives the profits equation and indicates that only foreign banks' capital levels are positively and significantly related to ROE. The smallest foreign banks (Q1DUM) appear to have significantly lower ROEs than their larger counterparts. Equation (4) again confirms the importance of last-quarter loan growth to current period commercial and industrial loan growth. Two previous studies, Chang, Hasan and Hunter (1993) and Nolle (1994) have shown that foreign-owned subsidiaries were less cost efficient than a cohort group of US banks. Our results suggest that within the group of foreign-owned subsidiaries, the interest cost and non-interest cost ratios at least, cannot explain profit rates.

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[9]As they in fact do in the single-equation profits equations estimated by Molyneux and Thornton (1992) and Bourke (1989).

[10]When we introduced a single C and I loan market share variable we found a positive but insignificant relationship with return-on assets and return-on-equity. We divided the foreign banks into the four-size categories to distinguish between the groups.

5. Conclusion

This paper simultaneously models the determinants of foreign bank profitability and commercial credit extension in the United States between 1987 and 1991. Overall the results indicate that supply-side factors; such as capital strength, commercial and industrial loan growth and assets composition were important factors in determining foreign banks' return-on-assets in the period under study. Capital strength stands out as being the most important factor influencing foreign bank return on shareholders equity. US demand also appeared to be important in determining foreign bank performance but it had no significant impact on growth in commercial lending. There is also little evidence to suggest that the largest foreign banks are significantly more profitable than their smaller counterparts. In general, it appears that capital strength will be one of the most important factors determining foreign bank performance in the US over the coming years. As a consequence, we tentatively suggest that capital considerations may well outweigh other factors when foreign bank expansion plans are considered in the United States prior to the 1997 nationwide branch banking watershed.

Table 1 Variable Definitions

Endogenous Variables	
ROA_{ij}	Bank i's profit measured as return-on-assets (net income/total assets).
ROE_{ij}	Bank i's profit measured as return-on-equity (net income/total equity).
$CIGROW_{ij}$	Log change in commercial and industrial loan growth for bank i's.
Exogenous Variables	
$CAPRATIO_{ij}$	Risk-adjusted capital ratio for bank i's.
$USGDP_j$	Log change in real US GDP.
$DIFFINT^j$	US prime minus foreign (country of origin of bank) lending rate.
$LARATIO_{ij}$	Loans to Assets Ratio for bank i's.
$INTCOST_{ij}$	Interest Cost Ratio for bank i's.
$NONINTCOST_{ij}$	Non-interest Cost Ratio for bank i's.
$BADPROP_{ij}$	Per cent of total loans 90 days past due and not accruing for bank i's.
$MARKCAP^j$	Total stock market capitalisation of home country of bank i.
$P/E\ RATIO^j$	Price-to-Earnings Ratio of the home country of bank i's stock market.
$FDIFLOW^j$	Foreign direct investment capital flows to the United States from the home country of bank i's.
$FORGDP^j$	Log change in real GDP in the home country of bank i's.
$EXCHANGE^j$	Exchange rate (foreign currency per US dollar).
$BISFLOW^j$	Cross-Border bank flows to nonbanks in the United States from the home country of bank i's.
$OLDCIGROW_{ij}$	One-quarter lagged log change in commercial and industrial loans.
Q_nDUM_{ij}	Binary variables accounting for market share of commercial and industrial loans. Q1DUM is a dummy for banks that lie in the smallest quartile; Q2DUM second quartile; Q3DUM third quartile; Q4DUM highest quartile.

Note: - Subscript i's represents foreign banks subsidiaries operating in the US market, denoted by subscript j. - Superscript j represent the home country market of the foreign bank i's.

Table 2 Two-stage least-square estimation of foreign bank profitability and commercial and industrial credit extension

Explanatory Variables	ROA (1)	CIGROW (2)	ROE (3)	CIGROW (4)
CONSTANT	-	-0.0078 (-0.237)	-	-0.0046 (-0.141)
ROA	-	0.0011 (0.010)	-	-
ROE	-	-	-	0.0009 (0.294)
CIGROW	1.7781** (1.793)	-	41.8107 (1.436)	-
CAPRATIO	0.0111* (3.584)	0.0009 (0.482)	0.3110* (2.260)	0.0006 (0.390)
USGDP	3.1853* (2.512)	0.4332 (0.557)	44.1694 (0.786)	0.4060 (0.548)
DIFFINT	-0.0074 (-1.331)	0.0029 (0.607)	-0.2819 (-1.147)	0.0035 (0.679)
LARATIO	-0.4149* (-2.923)	-	-10.3593 (-1.646)	-
INTCOST	0.0007 (1.060)	-	0.0143 (0.467)	-
NONINTCOST	-0.0005 (-0.906)	-	-0.004 (-0.146)	-
BADPROP	-	0.0001 (0.021)	-	0.0005 (0.153)
MARKCAP	-	0.00002 (0.18)	-	-0.00002 (-0.017)
P/E RATIO	-	-0.0003 (-0.427)	-	-0.0003 (-0.344)
FDIFLOW	-	0.00001 (0.823)	-	0.00001 (0.738)
FORGDP	-	-0.4384 (-0.820)	-	-0.4499 (-0.893)
EXCHANGE	-	0.1065 (0.563)	-	0.0986 (0.546)
BISFLOW	-	-0.0000004 (-1.012)	-	-0.000004 (-1.051)
OLDCIGROW	-	0.1287* (2.950)	-	0.1240* (2.805)
Q_1DUM	-0.0307 (-0.456)	-	-6.1477* (-2.057)	-
Q_2DUM	0.1412* (2.279)	-	0.3440 (0.125)	-
Q_3DUM	0.0719 (1.018)	-	-0.7452 (-0.238)	-
Q_4DUM	0.0385 (0.613)	-	-0.2962 (-0.106)	-
R^2	0.1475	0.006	0.020	0.006

Note: Values appearing in parentheses are the relevant t-statistics
*Coefficient significant at the 5 per cent level
** Coefficient significant at the 10 per cent level

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