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Size, Growth, and Transnationality among the World's Largest Banks*

This paper investigates six propositions relating to Gibrat's Law of Proportionate Growth. The growth referred to is that of book assets and total market value. The results have implications for concentration in international banking and for depositor safety and the social cost of insuring it, and provide evidence on economies of scale and on the transnational spread of the industry.

I. Introduction

This essay investigates the relationship between size and growth rate of large international banks and then relates these to the banks' degree of transnationality. We test two sets of three propositions each.

The first three propositions are (P1) that the growth rate of each bank over some period is independent of its size; (P2) that the variability of growth rates is independent of the banks' size; and (P3) that the banks' growth rates in two consecutive periods are independent of each other. The second three propositions are (P4) that there is no association between size and transnationality; (P5) that transnationality and growth are independent; and (P6) that there is no relationship between transnationality and the variability of growth rates.

The growth referred to is primarily that of assets as a measure of size. For the two propositions concerning the variability of growth rates we supplement this measure with one of the market value of the banks' equity. The results have implications for concentration in interna-

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tional banking and for depositor safety and the social cost of insuring it, and provide evidence on the question of economies of scale and on the transnational spread of the industry. The population considered consists of the world's 100 largest international banks, the banks that dominate both international banking and foreign direct investment in banking. The propositions then provide evidence on the context in which these firms interact with each other.

Section II discusses the propositions and their significance in greater detail and reviews some of the relevant literature. Section III describes the data and methodology used in this paper. Section IV presents the results. Section V is a summary and conclusion.

II. Discussion

Propositions P1–P3: Gibrat's Law

The first three propositions make up the strong form of Gibrat's Law of Proportionate Growth (Gibrat 1931). Together they constitute the hypothesis that the banks in the sample all draw their growth rates from the same distribution and that the growth rates follow a random walk.

Although Gibrat's Law is an extreme proposition, it may nevertheless not be too far off the mark (Ijiri and Simon 1977). It models the observed growth or decline of firms as the result of the chance product of a large number of factors acting independently of each other. To the degree that the environment in which organizations exist is turbulent, causal interconnections become hard to isolate (Emery and Trist 1965). Thus stochastic models are appropriate whenever growth appears to be governed largely by environmental factors (Padberg 1962).

The model is

$$S_{(i,t)} = S^{\beta}_{(i,t-1)} \cdot \exp[\mu_{(i,t)}], \tag{1}$$

where $S_{(i,t)}$ is the size of firm i at time t, β is the parameter of the size effect, and $\mu_{(i,t)}$ is firm i's draw from the common distribution of growth rates.[1] This last is hypothesized to be distributed $\mu_{(i,t)} \sim N(\alpha_t, \sigma^2)$, and hence $\mu_{(i,t)} = \alpha_t + \epsilon_{(i,t)}$.

One may restate the three propositions (the null hypothesis) as

$$\text{P1: } \beta = 1$$

$$\text{P2: } E(\epsilon_t^2) = \sigma_t^2$$

$$\text{P3: } \operatorname{cov}[\epsilon_{(i,t)}, \epsilon_{(i,t-1)}] = 0.$$

1. Walter N. Torous has suggested that one can think of β as the "memory" of the process. If $\beta > 1$, past history exerts a great influence. If $\beta < 1$, recent history exerts the greater influence.

Taking the log of equation (1) and rearranging, the null hypothesis yields

$$\ln S_{(i,t)} - \ln S_{(i,t-1)} = \alpha_t + \epsilon_{(i,t)}, \tag{2}$$

which is a random walk with drift.

If P1 holds, over time the distribution of firm sizes will become highly skewed and concentration will increase. This result is due strictly to the workings of chance and requires no assumptions about the behavior of firms or managers, economies of scale, or monopoly advantages. Obviously, concentration will increase even more rapidly if the larger firms grow more quickly than the smaller ($\beta > 1$).

The investigation of the propositions provides some information concerning economies of scale, although in an indirect, rough way. Obviously, if the larger banks grow more quickly than the smaller, this phenomenon would be consistent either with some general, overall economies of scale or with a growth orientation in the larger, presumably more managerially controlled organizations. Similarly, a faster growth rate in smaller banks than in larger ones is consistent with diseconomies of scale or political costs to growth. Finally, equiproportional growth is most consistent with constant costs, though more complex explanations are possible. Whatever our results, they are indicative of the situation at the level of the whole firm and do not necessarily apply either to any particular activity or to firms outside the range of sizes examined.

Propositions P2 and P6 have implications for public policy. When governments guarantee depositor safety, either explicitly via depositor insurance or implicitly by owning banks or standing ready to rescue any that fail, they in effect issue a put option. This option has a social cost which may or may not equal the insurance premiums, if any, that the banks must pay. Merton (1977) and Sharpe (1978) have developed models in which the cost to society of the put option depends, inter alia, on the risk and amount of the bank's assets and the amount of the guaranteed deposits. The risk is the variance rate per unit of time for the logarithmic changes in the value of the assets. One can easily argue that the variability in the growth rates of assets may be a poor proxy for risk. The changes in the volume of assets may be matched perfectly by corresponding changes in the volume of deposits. The propositions, therefore, are also tested on the variability in total market value.

Proposition P3 provides a test of the competitiveness of the international market. Consistent positively serially correlated growth implies that advantages acquired in one period carry over to the next. If these advantages represent monopolistic access to factors leading to faster growth, the absence of or a low degree of positive serial correlation

implies that such access erodes quickly (Ijiri and Simon 1977). Consistent negatively serially correlated growth would imply the existence of some process or mechanism that systematically reverses fortune. Such a process may be a statistical artifact. When one constructs growth rates for successive periods, the same number appears in the denominator of one ratio of sizes and in the numerator of the other (Little 1962).

One would expect to find only slight positively serially correlated growth in the banking industry. A major source of persistent above-average growth in firms in general is innovation, especially of a technological sort which lends itself to appropriation. Although physical technology is of growing importance in banking, it generally involves computers and systems built on them which are marketed by specialist firms operating internationally (Grubel 1977). We are inclined to attribute serially correlated growth to the quality, or lack of it, of management. There thus seem to be few sources of appropriable innovation.

Gibrat's Law has drawn considerable attention over the years. A bibliography (available from the author) lists some 40 works treating one or more of the propositions or commenting on aspects of this general area of inquiry with respect to firm sizes. (The approach has also been used to investigate income distribution among individuals and the size of cities.) For the most part, the authors have focused on all firms, the largest firms, or firms in a number of industries in a single country. The countries have included Australia, Austria, Germany, Mexico, Sweden, South Africa, the United Kingdom, and the United States.

In general, the evidence is contradictory with respect to the first proposition. Depending on the sample, country, period, measure of size, or statistical methodology, it is supported as often as it is rejected. When the proposition is rejected, the finding that smaller firms grew more quickly than larger ones is as likely as the reverse. Whenever the second and third propositions are tested, they are almost uniformly rejected. The variability of the growth rates of the larger firms is less than that of the smaller, and often there is positive serial correlation.

Only two articles have reported on the relation between size and growth in banking, and both were limited to U.S. banks. Alhadeff and Alhadeff (1964) compared the growth of the top 200 banks over the period 1930–60 to the growth of total banking system assets. Generally, the top group grew more slowly than did the total. Within the top 200, the bottom decile grew more rapidly than the top, but had greater variance. Rhoades and Yeats (1974) replicated the previous study for the period 1960–71. They too found that the large banks grew less than the system as a whole.

Like these two latter studies, this paper concentrates on the banking

industry. Unlike these and all the other single-country studies, however, it treats banking as a world industry.

Propositions P4–P6: Transnationality

We use the term *transnationality* in preference to multinationality because our measure is the number of countries, including its home, in which the bank in question had a branch or subsidiary in 1976. In contrast, the term *multinationality* has come to imply some degree of firm-level global optimization. While in general this may be related to the number of countries in which a bank operates, the two concepts are not identical.

We expect to be able to reject the first proposition in this set (i.e., P4). A number of studies have linked size and foreign direct investment. Horst (1972), for instance, found that once interindustry differences were washed out, the only factor of any separate significance in explaining the propensity to invest abroad was size.

Rejecting the proposition has implications for the mean growth rate of all the banks. If it is true that the larger the bank the more transnational it is, it follows that its environment will become increasingly similar to that of all other large banks. Presumably, then, their expected growth rates will also become more similar.

The fifth proposition posits a lack of relation between growth and transnationality. One might expect that the same advantages that would cause one bank to grow faster than another might also propel it to expand overseas. Alternatively, if there are increasing costs to growth so that firms will not expand instantaneously to take advantage of all opportunities, and the domestic market is growing rapidly, the firms may choose to concentrate their activities at home. However, if transnationality and size are related, but bank-specific growth and size are not, transnationality and bank-specific growth ought not to be. Buckley, Dunning, and Pearce (1978) found that transnationality was associated with growth in the case of U.S. firms but not for non-U.S. firms. At this point, the examination of the proposition can only hint at the answer to these questions as we do not have time-series data on transnationality. The cross-sectional approach, however, is indicative.

It is the sixth proposition that is the most interesting of those in this set. First, if banks reduce the variability of their growth rates by spreading transnationally, one would expect, as discussed in connection with P2, that this would reduce the social cost of deposit insurance, other things being equal. Theory suggests that the proposition should fail to hold as long as the various markets in which the banks operate are not perfectly correlated. Some authors have indeed found that operating in a number of countries does reduce the variance of earnings (Khoury 1978; Rugman 1979).

Second, if the evidence rejects the proposition, this, together with P4, implies that over time the variability of the largest banks' growth rates will shrink. This in turn makes it increasingly likely that the implications of the observed β of equation 1 will dominate the effect of the "noise" of ϵ.

III. Data and Methodology

Data

The population to be investigated is drawn from the *Banker*'s list of the 300 largest banks in the world every second year from 1969 to 1977. From these we take the 100 largest in each year which also had, in 1976, at least one office in a country other than their home. We use only the 100 largest banks since this provides us with a population that consists of the bulk of the banks that dominate the international arena, and includes a range of sizes that is roughly equivalent to one order of magnitude. The measure of size is assets less contra-accounts (acceptances, letters of credit, securities held on behalf of customers, etc.), which are excluded because they do not represent funds available for use. While assets are easier to define and pinpoint than deposits, and information on other measures is harder to find, the use of this measure poses some problems.

First, accounting practices differ among countries. Many countries permit banks to maintain hidden reserves and to use these reserves to smooth their operating results from year to year.[2] Second, results may differ, depending on the measure of size one uses (Smyth, Boyes, and Peseau 1975). Third, since all national currency balance sheets are converted to dollars, exchange rate movements play a very great role. In the longer term one can expect purchasing power parity to hold, with the result that exchange rate changes effectively compensate only for differing rates of inflation. In the shorter term, though, they may have a distorting effect.

For the propositions concerning the variability of growth rates (P2 and P6), the object of concern—changes in the market value of existing assets—is for all practical purposes unobservable. Instead, we use balance sheet values as a proxy. This is acceptable if, over time, book value tends to reflect market value, and if the relationship between the

2. This raises the possibility of "errors in variables" bias. The direction of the effect is probably to bias the estimates of the coefficient of the size variable toward unity. This is because the errors occur on both sides of the model and are probably highly correlated with each other. However, given the regression model used, the quantitative effect is almost certainly trivial. Even if we assume that the measurement error is as much as 10% on average, with a standard deviation of 10%, the bias, which is a function of the ratio of the variance of the errors to the variance of the true values, will be quite small.

two does not reverse itself as one goes from larger to smaller banks or from the more to the less transnational.

Growth in book assets combines two effects, changes in the value of existing assets and changes in the quantity of assets. We therefore also perform the tests on the total market value of the banks' equity.

We have market-value data for 67 of the banks in our sample for the years 1973, 1975, and 1977. Complete coverage of all the banks of interest is impossible: some are government owned, and the data for some others are simply not readily available. The remaining population differs subtly from that for the book value of assets because the equity in a number of cases is issued by holding companies for whom the bank may be the major but not the sole subsidiary. While we could not isolate changes in value from changes in quantity (in this case, of shares outstanding), we assume that the former dominate. In the case of book assets, it is likely that the latter effect is more important.

To the degree that changes in total market capitalization are not due to changes in the number of shares outstanding, the propositions then refer, in effect, to changes in the prices of individual shares. One would therefore expect P1 and P3 to hold. If growth of share price is not independent of initial price, management could create value through a stock split or consolidation, which would restore the independence. Significant serial correlation would similarly be surprising in view of the extensive literature on financial market efficiency.

We have taken as the measure of transnationality the number of countries, including its home, in which each bank had a subsidiary or branch in 1976 (*Banker's Almanac and Yearbook, 1977–78*). The sample thus only approximates the population of international banks, though the direction of any bias is unclear.

Methodology

Taking the log of equation (1) and incorporating the fact that the period between observations is 2 years yields the following regression model:

$$\ln S(i, t) = \alpha + \beta^* \ln S(i, t - 2) + \epsilon(i, t). \quad (3)$$

We modify this standard stochastic growth model to take into account the possibility of first-order serial correlation (Chesher 1979):

$$\ln S(i, t) = \alpha + \beta^* \ln S(i, t - 2) + \rho^* \epsilon(i, t - 2) + u(i, t), \quad (4)$$

where ρ is the correlation coefficient and $u(i, t)$ is the standard stochastic error term.[3]

3. Clifford A. Ball has pointed out that in Box-Jenkins terms, we are modeling $\ln S(i, t)$ as an ARMA (1, 1) process.

In the book-assets sample, 13 countries are represented by three or more banks and account for 111 of the 120 banks. In the market-value sample, the corresponding numbers are 10 countries and 63 out of 67 banks. For the countries represented by three or more banks, dummy variables are included to adjust the intercept for differences in national growth rates and the effect of exchange rate changes. They are given a value of one if the bank in question is from the relevant country, and zero otherwise. *F*-tests indicated that the dummy variables made a statistically significant contribution (at the 1% level) to the model.

Since $e(i, t-2)$ can be written in terms of $S(i, t-2)$ and $S(i, t-4)$, the model (model [1]) for the actual ordinary least squares estimation is:

$$s(i, t) = b0 + b1^{*}s(i, t-2) + b2^{*}s(i, t-4) + \Sigma jb(j)^{*}D(i, j) + u(i, t), \quad (5)$$

where $s(i, t) = \ln S(i, t)$, $b1 = \beta + \rho$, $b2 = -\beta\rho$, and the $D(i, j)$ are dummy variables for bank i belonging to nationality j, where $j = 3, \ldots, 16$.[4]

IV. Results

P1: The growth rate of each bank over some period is independent of its size. The estimate of β provides the test. The larger banks in the sample grew faster than, as fast as, or more slowly than the smaller ones when β is greater than, equal to, or less than one, respectively. In the discussion below, estimations will be referred to by the dates of $t-2$ and t (e.g., 1971/1973). Tables 1*A* and 1*B* present the results. The coefficients of the $D(i, j)$'s and the intercept are not reported.

The results support the proposition. In none of the 3 periods is the estimate of β very different from one, whether or not we include the dummy variables. The mean of the estimates for the book-assets regressions (using model [1]) is .998. Nonparametric tests based on the range of estimates of β do not indicate that either the high or the low estimate is an outlier.[5] While the estimates of β are unbiased, they are inefficient because of the heteroscedasticity reported below.[6]

4. We can estimate β and ρ by applying the quadratic formula to the relationship: $\rho^{**}2 - \rho^{*}b1 - b2 = 0$. The inclusion of the dummy variables resolves the identification problem. We have also estimated model (1) without the dummy variables (model [2]). In this case there is an identification problem, since we do not know which root of the quadratic equation represents β and which ρ. To resolve it we draw on the results of the full estimation.

5. Two tests were used. The first test statistic derives from a ratio of ranges when the observations are ranked by size. The second is the result of taking the ratio of the range to the sample standard deviation. The tests and the tables for the 5% critical level are as reported in Grubbs (1969).

6. One ad hoc but common solution would be to use estimated quartile standard deviations to normalize the variables. This would, we feel, be a case of using methods

TABLE 1 **Results of Models (1) and (2)**

A. Book Value of Assets Sample

	Model (1) (With National Dummy Variables)	Model (2) (Without National Dummy Variables)
t = 1973 and $t - 2$ = 1971:		
β	.991	.949
	(.146)	(.525)
ρ	−.094	.044
	(−1.946)	(.805)
$\bar{R}^2$	.938	.896
SER	.138	.176
t = 1975 and $t - 2$ = 1973:		
β	.983	.932
	(.179)	(.705)
ρ	−.392	−.240
	(−3.969)	(−.839)
$\bar{R}^2$	.947	.902
SER	.123	.167
t = 1977 and $t - 2$ = 1975:		
β	1.019	1.044
	(.331)	(.558)
ρ	.051	.274
	(.886)	(3.671)
$\bar{R}^2$	.984	.946
SER	.071	.131

B. Market Value of Equity Sample

	Model (1) (With National Dummy Variables)	Model (2) (Without National Dummy Variables)
β	.944	.926
	(.443)	(.578)
ρ	−.043	.070
	(−.303)	(.524)
$\bar{R}^2$	.942	.803
SER	.214	.395

NOTE.—The numbers in parentheses are t-statistics. Those beneath the estimates of β represent the difference of $b1$ from $1 + \rho$. Those beneath the estimates of ρ represent the difference of $b2/-\beta$ from zero.

P2: The variability of growth rates is independent of the banks' size. We use Glejser's (1969) test for heteroscedasticity.[7] This involves regressing the absolute value of the residuals from model (1) on

that are stronger than the quality of the data warrants. The estimated standard errors would shrink, increasing the t-statistics. However, it is incorrect practice to be extremely careful with respect to one problem without being as careful about all other potential sources of difficulty.

7. Homoscedasticity (i.e., the support of the proposition) requires both c and d to be insignificantly different from zero. When c is equal to zero but d is not, the residuals exhibit classic heteroscedasticity. Normally, if c is also not equal to zero, this indicates the presence of what Glejser (1969) calls "generalized" heteroscedasticity. In our case, if variability declines with size, the intercept term will be large, but this has no meaning.

TABLE 2 Size and Variability of Growth

	Book Value of Assets Sample			Market Value Sample (1975–77)
	1971–73	1973–75	1975–77	
Constant	.429	.298	.194	.341
	(2.892)	(2.378)	(2.544)	(1.434)
Log (size)	−.039	−.023	−.015	−.020
	(−2.321)	(−1.701)	(−1.888)	(−.798)
$\bar{R}^2$	.043	.019	.026	−.006
SER	.091	.073	.041	.106
F	5.388	2.893	3.564	.637

the natural logarithm of size in terms of book assets. The results (table 2) clearly imply the rejection of P2. The variability of growth rates declines with the size of the parent.

P3: The banks' growth rates in two consecutive periods are independent of each other. The estimates of ρ from the investigation of P1 above provide the test. To convincingly reject P3, the estimates must be significantly different from zero and consistent at least as to sign across the periods. As table 1 shows, in half the cases the estimates of ρ are significant but not stable over time.

Comparing the estimates of ρ from model (1) and (2), one can readily see that in the former case the coefficients are invariably smaller (i.e., more negative, negative rather than positive, or less positive). This would imply that there is some degree of positive serial correlation in the growth of the national samples. The estimates of ρ in model (1) probably still have something of a mix of upward and downward biases. The former are a consequence of the fact that we have not purged them of all the national growth effects (some countries, being represented by only one or two banks in the sample, did not receive a dummy variable). The latter, if they exist, are the result of the statistical artifact mentioned earlier.

There is certainly little evidence that bank-specific growth persists. Even if we assume, as is likely, that the negative correlations in the first 2 periods (model [1]) are atypical, being largely due to the effects of exchange rate changes and the consequences of the 1973 OPEC oil price increase, the one remaining estimate of ρ from the book-assets regressions, while perhaps understated, is small, positive, and not statistically significant. The estimate from the market-value regression for the same period is small, negative, and not significant, as one would expect.

P4: There is no association between size and transnationality. To test the proposition, we regress transnationality on book assets and expect a positive relation between the two measures. Because their home governments prohibit Swedish, Yugoslavian, and certain classes

of Japanese banks from opening branches abroad, we have excluded these from the estimation. The results are (with *t*-statistics in parentheses)

$$TN(1976) = \underset{(-1.716)}{-2.710} + \underset{(6.561)}{0.692}{}^{*}S(1975)$$

$$R^2 = .321; \text{ SER} = 10.390; F(1,97) = 43.054.$$

Clearly, there is a positive association between size and transnationality. The R^2 is quite high, given that the banks in the sample come from several different populations. Some of the banks established themselves abroad during their parent countries' colonial periods, with the result that their international expansion is quite great relative to their size. Other banks are central offices for associations of savings banks, and these tend to restrict themselves or are restricted, formally or practically, by their charters. Finally, a number of banks have chosen to expand internationally via minority positions in consortia.

P5: Transnationality and growth are independent. Here we regress the residuals from models (1) and (2) for the period 1975–77 (book-assets regression) on transnationality. When we factor out national growth rates (i.e., use the residuals from model [1]), the results support the proposition:

$$u_1(i,1975) = \underset{(-0.294)}{-0.002} + \underset{(0.508)}{0.000}{}^{*}TN(i,1976)$$

$$R^2 = .003; \text{ SER} = .066; F(1,97) = 0.258.$$

However, when we use the residuals from model (2), a stronger negative relation appears:

$$u_2(i,1975) = \underset{(1.044)}{0.017} - \underset{(-1.796)}{0.002}{}^{*}TN(i,1976)$$

$$R^2 = .022; \text{ SER} = 0.128; F(1,97) = 3.226.$$

These results raise the possibility that growth at home and growth abroad are primarily supplementary. That is, the firm can grow at a particular rate and will be more likely to extend its operations abroad when the growth of the home market, and perhaps the growth of its share, are less than this potential rate. This in turn is consistent with a view that operations abroad involve additional costs not present at home (Hymer 1976). Again, the results hint at this interpretation. Time-series research aimed directly at the question is necessary to support or disprove it.

P6: There is no relationship between transnationality and the variability of growth rates. For this proposition we regress the absolute value of the residuals from model (1) for the period 1975–77 on the

transnationality measure. We then augment the test with the log of the size variable and the country dummies.

As table 3 shows, for the book-assets residuals, once we take size and transnationality into account, the coefficient of the latter variable becomes positive, though it is very small and has almost no statistical significance. Because a bank's nationality and degree of transnationality seem to be related, the country dummies in effect act to some extent as proxies for the latter. While an *F*-test indicates that these contribute to the fit of the model (at the 10% significance level), if we drop them, *TN*'s coefficient is negative, though small and not statistically significant.

In the case of the market-value regression residuals, the coefficients for both the transnationality and the size variable are always negative, but not statistically significant. In this case, though, it is the latter which performs less well rather than the former. Given our prior beliefs, therefore, we are inclined to believe that geographic spread reduces variability.

V. Summary and Conclusion

The results support P1, while P2 and P4 are rejected. The results for P3, P5, and P6 are less clear-cut. In each of the 3 periods examined, growth is independent of size, though its variability declines with increases in the latter. Serial correlation of growth rates occurs but is inconsistent as to sign and statistically significant only when negative. Transnationality is clearly related to size: the larger the bank, the greater the number of countries in which it has a branch or subsidiary. Bank-specific growth and transnationality are positively related, but one could not reject the hypothesis of independence. Bank-specific growth plus country growth together are negatively related to transnationality. Finally, transnationality is negatively related to the variability of growth rates of both book assets and market value, but the relationship is not statistically significant. Certain conclusions follow from these results.

1. One cannot reject the hypothesis that bank growth, within the size range considered, is not influenced to any great degree by economies or diseconomies of scale. The argument that among these international competitors big is better, or that there is an optimal firm size, finds no support here.

2. One cannot reject the hypothesis that bank-specific growth, in terms of either book assets or market value, does not persist. There is no evidence for the presence of long-lived advantages. While superior or inferior management (defined as generating above-average or below-average growth) surely exists, it is as hard to identify statistically in the area of bank management as it is in the area of portfolio management.

TABLE 3 Transnationality and Variability of Growth Rates

	Book Value of Assets Sample (1975–77)			Market Value of Equity Sample (1975–77)		
Constant	−.058	.176	.155	.182	.209	.218
	(8.153)	(2.191)	(1.799)	(7.340)	(.799)	(.716)
U.S.	...	...	−.018	...	...	.020
			(−.829)			(.349)
U.K.	...	...	.023	...	...	.012
			(.890)			(.177)
Italy	...	...	−.004	...	...	.008
			(−.177)			(.098)
Canada	...	...	−.051	...	...	.043
			(−1.881)			(−.590)
Japan	...	...	−.022	...	...	−.070
			(−.971)			(−1.050)
Germany	...	...	−.016	...	...	−.010
			(−.586)			(−.135)
France	...	...	−.034	...	...	...
			(−1.180)			
Switzerland	...	...	−.032	...	...	.066
			(−.011)			(.811)
Netherlands	...	...	−.001	...	...	−.035
			(−.045)			(−.444)
Sweden	...	...	.027	...	...	...
			(.754)			
Belgium	...	...	−.049	...	...	−.009
			(−1.615)			(−.112)
Australia	...	...	−.046	...	...	...
			(−1.324)			
Spain	...	...	.016	...	...	−.021
			(.575)			(−.377)
Ln size	...	−.013	−.009	...	−.003	−.002
		(−1.479)	(−.977)		(−.101)	(−.047)
Transnationality	−.005	−.003	.000	−.017	−.016	−.021
	(−1.338)	(−.675)	(.005)	(−1.450)	(−1.200)	(−1.377)
$\bar{R}^2$	.008	.020	.101	.016	.001	.034
SER	.042	.042	.040	.105	.106	.104
F	1.789	2.000	1.732	2.102	1.040	1.193

3. If concentration in this population of international banks increases, this may simply be due to the workings of chance. It is hard to judge whether concentration will increase or decrease over the near term from its presently very low levels (Aliber 1975; Tschoegl 1982). There are indications that national growth, which still plays a very important though probably declining role in the growth of the banks in the sample, and which may, depending on the country, have either little or no effect, can itself be modeled by a stochastic process (McCulloch 1975; Anderson 1977).

The evidence that the smaller banks generally grew slightly and not statistically significantly more rapidly than the larger would argue for a tendency toward deconcentration. The ability of this tendency to dominate is likely to improve. As banks grow, the variability of their growth rates will decline as a result of both increasing size and transnationality effects, reducing the probability that the dispersion of outcomes will counteract the tendency.

4. The fact that the variability of the growth of book assets and market value declines with size and perhaps with transnationality has implications for prudential regulation. Where deposit schemes do exist (e.g., in the United States) or are being established (e.g., in the United Kingdom), a premium in fixed proportion to the amount covered would generally seem inappropriate. If larger or more transnational banks are less risky than smaller or more geographically concentrated ones, any insurance premium that is simply a fixed percentage of the deposits covered will tend to be inappropriate unless regulators permit leverage to vary with size also, or develop side "surcharges" or "rebates" (Buser, Chen, and Kane 1981). There is evidence that, in the United States, capitalization does indeed decrease with size (Mingo and Wolkowitz 1978). This decline may mean that on a bank-by-bank basis, depositor insurance is roughly correctly priced.

5. The decline of variability with size implies that a better model of firm growth than Gibrat's is one in which the firm consists of a portfolio of projects that correlate to varying degrees with each other. Beyond some minimum size, larger or smaller firms do not have preferential access to projects with a higher expected value. Larger firms, however, engage in more projects, thus diversifying away part of their total risk.

6. Finally, size alone explains a not insubstantial portion of the variation among banks in their degree of geographic spread. Perhaps the null hypothesis for future research into foreign direct investment in banking should be that banks grow, both in size and geographically. Then it is deviations from the "natural" growth, rather than the growth itself, that remain to be explained. Clearly, bank-specific and national factors are important. What these are, however, and how much of a role remains for pure management strategy, has still to be investigated.

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