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MULTIBANK HOLDING COMPANY ORGANIZATIONAL STRUCTURE AND PERFORMANCE

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Abstract

Over the past decade, several researchers have suggested that multibank holding company organizational structure will systematically influence the performance of subsidiary banks. Specifically, these researchers have hypothesized that the magnitude of affiliation benefits generated by a particular holding company will be positively related to the degree to which control over subsidiary bank decisions and operations is centralized in the hands of the parent corporation. To date, this possibility has been ignored in the empirical studies exploring holding company affiliation impacts, perhaps biasing their results. To obtain insight on this issue, quantitative measures of the organizational centralization of 62 multibank holding companies, derived from survey data, were related to summary measures of holding company profitability. A positive, significant relationship was discovered between these centralization indexes and holding company profitability.

I. Introduction

Multibank holding company (MBHC) growth has been rapid since the 1970 amendments to the Bank Holding Company Act of 1956. Recent actual and proposed legislative changes suggest that this growth will continue in the future. Accordingly, economists, bankers, regulators, and legislators have been and continue to be concerned with the impact of holding company growth on subsidiary banks, unaffiliated bank competitors, and the convenience and needs of the public.

Multibank holding company affiliation generally has been expected to alter subsidiary bank behavior relative to independent banks producing multiple impacts (see Dunn 1976 and Board of Governors 1978). Numerous researchers have suggested that the affiliation of an independent bank with a larger holding company organization should allow the subsidiary to realize various types of economies (technical and/or pecuniary economies and/or economies of organization) and so improve its efficiency relative to comparable nonaffiliate banks. Reduced costs may result in lower prices and/or higher deposit rates benefiting consumers. Access to the greater resources and expertise of the holding company may permit subsidiaries to offer a greater array of services than possible for independents, another public benefit. Further, since a holding company's sources and uses of funds are typically more diversified than those of independent banks, and because MBHCs can raise capital more easily and cheaply, an affiliate's

performance may improve post-acquisition because its management may be able to reduce liquid asset holdings safely, increase earning assets, and decrease capital relative to total assets. Again, the public may benefit if more credit flows into the local area. However, since holding company external expansion results in increased concentration and multi-market linkages and, possibily, a decline in competition, the performance changes described above may result in private rather than social benefits.

Accordingly, many empirical investigations of the impact of MBHC affiliation on bank performance have been undertaken over the past decade.[1] In general, although numerous hypothetical performance benefits have been identified, very few modest affiliation impacts have been discovered. Typically, affiliate asset structures have been found to reflect less liquidity and more risk, as expected. However, while affiliation appears to enhance revenues, subsidiary costs generally are higher than those of independents; thus, subsidiary profitability is not significantly different from independent banks

However, there is evidence suggesting that the methodological approach employed in the bulk of these studies has been responsible for the failure of researchers to discover appreciable affiliation-related performance impacts. Typically, researchers have assumed that holding company affiliation per se will alter subsidiary bank performance relative to independent banks. That is, in most empirical studies all holding companies and holding company affiliate

banks are assumed to be homogeneous elements of a single group. Several researchers have suggested that this approach is incorrect and biases the results of these performance studies.[3] These writers maintain that the operational policies or organizational structure of the particular multibank holding company influences the extent to which hypothetical affiliation impacts are actually manifest (see Lawrence 1977 and Weiss 1969). More specifically, these researchers hypothesize that the affiliation impact of any MBHC on its bank subsidiaries is contingent on the extent to which subsidiary bank decisions, policies, and operations are centralized in the hands of the parent corporation or lead bank. The contention that a linkage exists between MBHC structure and performance is important because several studies of MBHC operational policies have revealed that structural centralization varies widely among companies.[4] Further, several researchers have provided a limited amount of empirical evidence suggesting that affiliation impacts differ significantly across MBHCs, implying that MBHC structure and performance might be related (see Fraas 1974, Hoffman 1976, and Mayne 1976). One writer concludes that offsetting performance variations attributable to structural differences are largely responsible for blurring the impact of MBHC affiliation on bank performance (see Fraas 1974, p. 18).

In addition, researchers have suggested that MBHCs may attempt to maximize corporate rather than subsidiary bank level performance.

The implication is that the parent may attempt to "capture," totally or partially, affiliation benefits realized by bank subsidiaries through the use of intra-company revenue transfers (i.e., management fees). If this is the case, beneficial affiliation impacts, particularly lower costs resulting from scale economies, may not be detectable at the subsidiary bank level.[5]

Several implications follow from these arguments. First, in subsidiary performance studies, it may be necessary to control explicitly for differences in holding company centralization. Second, if MBHCs do attempt to maximize corporate profitability, it may only be possible to obtain indirect empirical evidence on the subsidiary level efficiency impacts of affiliation by analyzing the consolidated performance of MBHCs.

This study represents an attempt to determine empirically whether differences in MBHC organizational centralization are systematically related to differences in consolidated holding company performance. The sample is cross-sectional, consisting of 62 MBHCs located in 12 states whose management responded to a survey of their operational policies in November 1979.[6]

The design of the study reflects several underlying assumptions. The primary goal of MBHC senior management is assumed to be the maximization of corporate long-run profits. Organizational structure is assumed to be adjusted to facilitate goal attainment. Thus, corporate organizational structure is expected to be related

to corporate profitability. Corporate performance is assumed to be determined primarily by aggregate subsidiary bank performance.[7] Thus, it is assumed that MBHC organizational structure with respect to bank subsidiaries will significantly impact bank affiliate performance and, through this channel, corporate performance. MBHC operational policies with respect to non-bank affiliates are ignored. Since the performance impact of the centralization of any single decision or operation is likely to be complex, and contingent on the extent to which other decisions and operations are centralized, summary measures of MBHC centralization are related to summary measures of MBHC performance.

II. Theoretical Issues

Past research on MBHC operational policies has been motivated by the belief that centralization of certain decisions and operations in holding companies would enhance subsidiary revenues and/or reduce costs either directly or indirectly (see Lawrence 1971, for example). Centralization may allow expensive indivisible capital inputs to be fully utilized. For example, average computation costs tend to fall as the size and power of the computer employed rises. Thus, centralization of data processing ensures that a large computer system will be optimally utilized and so should permit some economies to be realized by the holding company. Centralization of functions such as asset and/or liability management should also generate economies by allowing specialization and

division of labor to be fully exploited. Efficient use can be made of parent company staff experts if operations such as securities portfolio management are centralized rather than decentralized. Subsidiary capital and materials costs may be reduced if the larger, more diversified holding company raises the bulk of external funds required by subsidiaries and centralizes purchasing. Further, centralization in the budgetary, accounting and auditing areas, in conjunction with the operation of a centralized incentive system, provides the parent company with the capabilities to monitor, evaluate, and stimulate the performance of subsidiary personnel. Suboptimization with respect to corporate goals can be detected and prevented. Conversely, in decentralized MBHCs, subsidiary banks essentially operate autonomously, and so there is no reason to expect their performance to differ appreciably from comparable independent banks.

Generally, previous researchers in this area have assumed that the net performance benefits generated by any MBHC will be positively, monotonically (though not necessarily linearly) related to the degree of parent-company organizational centralization. This view reflects the implicit assumption that gross structural benefits exceed structurally related "coordination costs" as organizational centralization is increased.[8] However, Lawrence and others exploring the question of structural variation among MBHCs have emphasized

that the net performance benefits generated by a particular structural alternative, and so observed structure itself, may vary with certain firm-specific characteristics and/or the nature of the particular holding company's operating environment (see Lawrence 1971). For example, some researchers have suggested that structurally related "coordination costs" may rise relative to gross structural benefits as corporate complexity (proxied by corporate size) increases, ceteris paribus (see Longbrake 1974, pp. 2-7). Researchers examining the relationship between the structure and performance of non-financial firms have even intimated that structure and performance might be simultaneous (see Armour and Teece 1978, pp. 112-113). Since it should take time for management to perceive the need for and to implement any structural change and then for that change to have an effect on firm performance, structure is viewed as an exogenous variable in the following analysis. But since it is assumed that structure is not adjusted rapidly in response to changes in the characteristics or performance of the corporation, and since structural net benefits may vary with firm characteristics such as size, a size-structure interaction variable is included in some of the estimated equations. The coefficient of this variable should be negative.

Successful empirical isolation of the relationship between MBHC organizational centralization and performance is possible only under certain conditions. Structurally related performance differentials can be detected only if the sample firms can sustain

a degree of operating inefficiency, at least temporarily. This should be the case of MBHCs whose bank subsidiaries operate in an environment in which competitive forces are somewhat constrained by regulation. The period of observation is also important. The beneficial impacts of centralization on performance may be obscured in periods in which the sample companies are actively centralizing operations and functions. Structural centralization is often costly, generating net benefits in the long run. In the short run, the performance impact of centralization (when performance is measured in terms of accounting rates of return) may be adverse. Centralization generally requires an outlay of money and manpower in the present, while gross and net structural benefits accrue with some lag (see Association of Bank Holding Companies 1978, pp. 28-29). Thus, the relationship between corporate structure and performance may be empirically detectable only in a period of relative structural equilibrium. Evidence provided in a recent survey of the Association of Bank Holding Companies (1978) suggests that the present is such a time period.

III. The Model

Several variants of the following simple model of firm performance are ultimately estimated below:

$$(1) \quad \underline{P}_{-1} = \underline{P}_{-1}(\underline{C}_{-1}, \underline{FC}, \underline{OE}),$$

where

$\underline{P}_{-1}$ = alternative measures of MBHC consolidated profitability,

$\underline{C}_j$ = alternative indexes of MBHC organizational centralization,

$\underline{FC}$ = a vector of firm-characteristic variables affecting profitability,

$\underline{OE}$ = a vector of operating-environment variables impacting profitability.

Dependent Variables

Variants of two basic types of dependent profitability measures were employed: the valuation ratio ($\underline{P}_1$, $\underline{P}_2$, $\underline{P}_3$) and the rate of return on average equity ($\underline{P}_4$).[9] It is felt that the valuation ratio measures better reflect structural impacts on performance, although both measures are highly correlated. The correlation between $\underline{P}_1$ and $\underline{P}_4$ is 0.69, for example.

The valuation ratio can be viewed as an expected rate of return.[10] The numerator of this measure (the market value of a share of corporate equity) is a proxy for expected corporate net income. This future net income estimate is determined in the securities markets by the interaction of a broad group of market participants. The higher the consensus estimate of a corporation's future net income stream, ceteris paribus, the higher the price that investors are willing to pay for a claim to this stream. While this net income proxy provides no insight as to the expected time distribution of this stream, it is reasonable to assume that it reflects investor expectations of corporate net income in the near future (the period over which the impacts of the structure in place should be realized).

Division of the market value of a share of equity by a per-share measure of the capital required to duplicate the firm produces an expected rate of return. Peltzman and others have suggested that the book value of a share of corporate equity is a reasonably good proxy for replacement value, particularly for depository institutions (see Peltzman 1965 and Wallich 1980).

It is true that book-value capital measures are distorted by changes in market interest rates over time. Rate changes cause the market value of fixed-rate earning assets held by depository institutions to diverge from their reported book value. Researchers disagree on the need for and difficulties involved in adjusting book-value capital measures for changes in interest rates.[11] MBHCs report sufficient data to allow at least one such adjustment to be made. Both the book value and market value of investment securities appear in published financial statements. Accordingly, the book-value of MBHC equity was adjusted to reflect this differential, and the adjusted book-value measure was used to construct an adjusted valuation ratio ($\underline{P}_3$).

Since the valuation ratio is an expected rate of return, this performance measure may best reflect the ultimate impact of current organizational structure on performance. As already noted, the short-run impact of centralization on accounting-statement performance may be adverse, with net benefits occurring with some lag. The valuation ratio may capture the incompletely realized longer-run beneficial impact of structure on performance.

A return on equity measure, highly correlated with the valuation ratios, also was employed as a dependent profitability measure (P_4). Armour and Teece (1978) have justified the appropriateness of using this type of accounting rate-of-return measure to reflect structural impacts on corporate performance. The exact definition of the performance and other variables used and their mean and standard deviations appear in Appendix 1.

Independent Variables

Structural Indexes. Quantitative non-dummy centralization indexes were constructed for the 62 sample companies from the November 1979 survey data. Following the basic methodology of Lawrence (1971), the survey questions were designed to elicit the degree of parent company involvment in and control over subsidiary bank decisions, or equivalently, MBHC organizational centralization in 11 different operational areas.[12] Questions were asked about holding company involvement in subsidiary bank management, budget policies, capital management, correspondent relationships, loan participations, federal-funds transactions, management of securities portfolios, loan portfolios, and liabilities, pricing, and miscellaneous areas, such as purchasing, data processing, incentive systems, trust accounting, and auditing. Several questions were asked about holding company policies in each of these areas. The number of questions asked varied over the policy areas. The greater the estimated performance impact of centralization of decisions in an area, the greater the number of

questions asked in that policy area. For example, many questions were asked concerning MBHC involvement in the management of subsidiary capital, securities portfolios, and loan portfolios. Fewer questions were asked about the parent company's role in subsidiary correspondent relationships. In general, each company received one "centralization point" in a particular area for each response suggesting parent-company involvement in subsidiary-bank decisions in that area. Thus, the greater the revealed degree of holding company involvement in any area, the higher the centralization score assigned. Using this procedure, structural scores were generated for each respondent in each of the 11 policy areas. Since more questions were asked, more centralization points potentially could be gained in the key policy areas.

These policy area scores were aggregated in several ways to form summary centralization indexes. Measures CTP and CT were formed by simply summing the first 10 and all 11 policy-area centralization scores, respectively. This procedure implicitly weighted centralization in the critical operational areas more heavily. Equally weighted counterparts to these centralization measures (CTPE and CTE) also were constructed. These two indexes were formed by summing the first 10 and all 11 deflated policy-area scores, respectively. The policy-area scores were deflated by the potential maximum centralization score obtainable in that area, so that all were constrained to vary between zero

and one. Finally, two summary indexes (FCTP and FCT) were formed by applying the technique of principal-components analysis to the first 10 and then all 11 policy-area scores. Both measures are simply the factor scores aenerated by the coefficients of the first principal component obtained in the factor analysis. For all of these indexes, the higher the index, the higher the estimated degree of MBHC organizational centralization. The correlation between any two of these measures was 0.88 or greater.

While the procedures used to derive these indexes are admittedly subjective, the summary structural measures should adequately reflect differences in the relative degree of organizational centralization between sample companies. Examination of the standard deviation of these measures and the standard deviation relative to the mean reveals considerable structural variation between companies (see appendix 1). This finding is consistent with the descriptive survey evidence concerning MBHC organizational structure published over the past decade. Quantitative structural indexes are considered superior to simple dummy structural classifications when empirically examining the impact of holding company structure on performance. Dummy structural classifications necessitate more subjective, dichotomous judgments on the part of the researcher and by nature are more crude and imprecise.

Firm-Characteristic Variables. It is recognized that other non-structural, firm-specific characteristics may affect MBHC performance. Since individual MBHCs vary greatly with respect to these characteristics, additional explanatory variables were included in various specifications of equation 1 to control for these factors. Because this study focuses on the relationship between MBHC organizational structure and performance, the discussion of the expanded influence of the firm-characteristic variables on MBHC performance will be rather cursory.

Holding company size (SIZE), measured in terms of consolidated total deposits, is included as an explanatory variable to control for the presence of economies of scale. Inclusion of a size variable reflects the traditional microeconomic assumption that minimum costs vary with size. However, the hypothesis that organizational structure affects performance implies that minimum costs may not be attained. Firms are presumed to operate at minimum costs only if organizational structure is chosen optimally. If organizational form is non-optimal, costs will be above minimum levels. Thus, size, in addition to structure, should affect costs and profitability and so merits inclusion as an independent variable. Since size may generate economies or diseconomies, the size coefficient sign is ambiguous *a priori*.

As already noted, several researchers have suggested that the net performance benefits generated by a particular type of

structure may vary with corporate complexity proxied by size. Accordingly, a size-structure interaction term (CTPSIZE) is included in some of the forms of equation 1 estimated below. Structurally related "coordination costs" are expected to rise, and structural net benefits to fall, as size increases, ceteris paribus. The implication is that the interaction term coefficient should be negative.

A holding company's profitability may be affected by its risk posture as well as its organizational structure. Firms may realize higher profitability by taking on greater risk. A financial leverage variable (LEVC) is used as a risk proxy in the valuation-ratio-dependent equations. The coefficient of variation of return on equity (CVROE) is the risk proxy in the return on equity equations. A positive relationship is expected between these risk proxies and MBHC profitability.

Several asset/liability composition measures were employed as control variables in the estimated equations in which the return on equity measure (P_4) was used as the dependent variable.[13] The ratios of tax-exempt securities to total assets (TESR), loans-to-deposits (LDRAT), and short-term debt to total deposits (STDR) were used as explanatory variables. The expected signs of these variables are positive, positive, and negative, respectively.

The ratio of total labor-related expenses (salaries and fringes) to total operating revenue (LABORCR) was also used as

an explanatory variable in the estimated equations. The ratio was included to control for differences in labor costs among firms. It is expected that this variable will be negatively related to profitability.

Growth in total deposits (GRTD) also was used as a control variable. Deposit growth was measured over the 1977-78 period to avoid interactions between profitability and growth. A priori, one would expect growth to raise average costs and depress profitability as capacity is strained. In a recent empirical study, however, Murray and White (1980) found deposit growth and unit costs to be negatively related. This finding can be rationalized in several ways. Rapidly growing firms may possess newer, more productive capital. Another possibility is that growth may proxy demand conditions not captured by other variables included in the model. Alternatively, growth may proxy management quality. Given the weight of existing empirical evidence, growth and profitability are expected to be positively related.

Operating-Environment Variables. Since MBHC subsidiary-bank operations are constrained to a single state, state-specific environmental factors may systematically affect MBHC performance. It is widely accepted that the extent to which banking resources are concentrated in the hands of relatively few organizations should impact the performance of depository institutions. Concentration and the likelihood of

collusive behavior are expected to be positively related. Thus, statewide concentration represented by the five-firm concentration ratio (CR5) and holding-company profitability are expected to be positively related.[14]

Bank branching regulation should affect the intensity of both actual and potential banking competition within each state. Two branching dummies are employed in the estimated equations to control for differences in branching regulations. Unit banking states form the reference group. The two branching dummies (BRDUM1, BRDUM2) take on values of one if limited area or statewide branching is permitted, respectively. The intensity of competition and branching freedom are assumed to be positively related. Accordingly, the coefficients of both dummies are expected to be negative, with the statewide dummy having a larger coefficient.

IV. Estimation Methods and Results

Various forms of equation 1 were estimated using the technique of multiple regression. This procedure is appropriate if the assumption of structural exogeneity is valid. The assumption homoscedasticity was tested and could not be rejected.[15] The estimated equations are listed in table 1. In both the unadjusted and adjusted valuation-ratio-dependent equations, the coefficient of the structural variable was consistently found to be positive and significant, regardless of the variant of the valuation ratio or structural index employed (see equations 1 through 6 and 9 through 14). The coefficients on the structural term also were

found to be consistently positive and significant when a size-structure interaction term was included in the estimated equation (see equations 7 and 8). In this specification, the interaction term exhibits the expected negative significant coefficient.

The coefficient signs of the other explanatory variables in the valuation ratio-dependent equations generally are reasonable and significant. The size coefficient typically is negative. However, the coefficient becomes positive and significant when a size-structure interaction term is included as an explanatory variable. This finding suggests that MBHC size and structure have a cornplex impact on performance. The leverage variable exhibits a negative, significant coefficient that is counter to a priori expectations. This may have occurred because consolidated short-term debt, a high-cost source of funds, is included in the numerator of this measure. Thus, this variable may reflect liability composition rather than proxy risk. The labor-cost variable has the expected negative, significant coefficient. The positive coefficient on the growth variable is in line with a priori expectations. The positive significant coefficient on the concentration variable suggests that statewide banking structure may affect MBHC performance. The negative branching dummy coefficients also were expected. The explanatory power of the estimated equations, as indicated by the $\bar{R}^2$ and F statistics, is considerable given that the analysis is cross-sectional. Several

estimated equations in which a return on equity measure was used as the dependent profitability variable also are reported in table 1. Since the results were similar regardless of the structural index employed, only equations in which the measures CTP, FCTP, and CTPE were used appear in the table.

The results obtained when return on equity was used as the dependent variable are consistent with the findings discussed above, although they are somewhat weaker. This was not unexpected. The coefficient on the structural variable is again positive and significant in all estimated equations.

The size variable was never found to be significant in preliminary analysis and so generally was dropped from the final form of the return-on-equity equations estimated. The other non-structural explanatory variables exhibit reasonable, typically significant coefficients. The coefficient of the risk proxy in these equations is positive and significant as expected. Again, the overall explanatory power of the estimated equations is adequate.

V. Summary and Conclusions

The empirical evidence presented in this study suggests that MBHC organizational structure, specifically internal structural

centralization, affects consolidated holding company performance. In particular, MBHC consolidated profitability and centralization are positively related. Presumably this linkage exists because MBHC centralization systematically enhances the efficiency of its affiliate banks.

Given that MBHC structures vary considerably, this analysis implies that it is inappropriate in empirical analysis to treat all holding companies and their subsidiaries as members of a single, homogeneous group. Public policy governing future intra- and inter-state and possibly inter-industry expansion by MBHCs should be guided by empirical evidence obtained from studies in which differences in MBHC organizational structure are explicitly taken into account.

Footnotes

1. An extensive listing of these studies appears in Drum (1976).

2. The findings of several such studies are summarized in Board of Governors of the Federal Reserve System (1978), pp. 74-83.

3. See, in particular, Lawrence (1971), Fraas (1974), and Graddy (1979).

4. See Weiss (1969), Lawrence (1971), Jesser (1973), Stodden (1975), and the Association of Bank Holding Companies (1978).

5. See the discussion in Drum (1976), p. 11, and Board of Governors (1978), p. 130,

6. The states and number of responding MBHCs in each are as follows: Alabama, 5; Colorado, 3; Florida, 7; Massachusetts, 2; Michigan, 2; Missouri, 3; New Jersey, 6; Ohio, 4; Tennessee, 3; Texas, 10; Virginia, 8; and Wisconsin, 9.

7. See Mayne (1980) for the justification for this assumption.

8. It is possible that centralization might produce negative net benefits if carried to extremes. MBHC executives responding to the 1978 Association of Bank Holding Company survey of their operational policies indicated they were acutely aware of this possibility (see pp. 24-25). Accordingly, these executives emphasized that centralization was simply not undertaken unless anticipated performance benefits were expected greatly to exceed any structurally related costs. Thus, nonmonotonic forms of the centralization-performance relationship might not be observed.

9. Generally, the valuation ratio is the market value of a share of equity divided by book value of equity per share.

10. This view is developed by Peltzman (1965), pp. 34-40, and Ornstein (1973), p. 90.

11. For example, McConnell (1980) notes that it is inappropriate to take into account rate impacts only on fixed-rate assets. The liability side of the balance sheet should be adjusted as well. Insufficient data do not permit this to be done. McConnell also suggests that adjustment is unnecessary, since the imbalance between fixed-rate assets and liabilities is typically slight. Further, if any imbalance exists, the book value of equity ultimately is affected by, and reflects the impact of, market-rate changes through changes in net interest income, net income, and retained earnings.

12. The survey questions and responses are summarized in Whalen (1981-82).

13. These variables were never significant in the valuation ratio-dependent equations and so were not included in the final form of these equations estimated.

14. For a discussion of the possible linkages between statewide banking structure and performance, see Rhoades (1976).

15. The Goldfeld-Quandt test was employed. The F-statistic obtained by running equation 1 in table 1 was 1.24 for 2 subsamples based on size.

Appendix 1 Variable Definitions

P_1 : Average fourth-quarter bid price of a share of MBHC stock, divided by book value of equity per share, averaged over 1978 and 1979.

P_2 : Average of P_1 and bid price of MBHC stock June 30, 1980, divided by book value of equity per share, year-end 1979.

P_3 . Numerator identical to P_1 . Denominator is the book value of equity per share plus the per-share difference between the market and book value of total investment securities.

P_4 : Average of 1978 and 1979 returns on equity, each formed by dividing year-end net income after taxes before securities transactions by average equity.

SIZE: MBHC consolidated total deposits, year-end 1978.

CTPSIZE: **SIZE** times the structural index CTP.

LEVC: MBHC consolidated short-term plus long-term debt divided by average equity,' averaged over 1978 and 1979.

LABORCR: Total labor-re1ated expenses, divided by total operating income, averaged over 1978 and 1979.

TESR: Book value of tax-exempt securities divided by average total assets, averaged over 1978 and 1979.

LDRAT: Consolidated net loans divided by total deposits, averaged over 1978 and 1979.

STDR: Consolidated short-term debt divided by total deposits, averaged over 1978 and 1979.

CVROE: Coefficient of variation of the return on equity, measured over the years 1974 to 1977.

GRTD: Percent change in MBHC total deposits, 1977-78.

CR5: Share of statewide deposits controlled by the five largest banking organizations.

BRDUM1: Equal to one if state permits limited branching; equal to zero otherwise.

BRDUM2: Equal to one if statewide branching is permitted; equal to zero otherwise.

Variable	Mean	Standard Deviation
P_1	0.789	0.205
P_2	0.782	0.208
P_3	0.962	0.237
P_4	0.138	0.025
CTP	46.6	8.7
CT	68.7	13.3
FCTP	-0.000 1	0.9993
FCT	-0.0001	0.9994
CTPE	6.6	1.2
CTE	7.3	1.3
CTPSIZE*	72054213.1	7043001.1
SIZE*	1491705.9	1513843.2
LEVC	1.89	1.15
LABORCR	0.176	0.032
TESR	0.118	0.037
LDRAT	0.677	0.097
STDR	0.110	0.029
CVROE	0.392	1.69
GRTD	0.101	0.059
CR5	0.401	0.096

Table 1 Structure-Performance Equations

P_j dependent

Variable												
coefficient	CTP 0.0062		SIZE1 -2.7×10^{-8}	LEVC -0.1146	LABORCR -3.811	GRTD 1.3774	CR5 0.4352	BRDUM1 -0.107	BRDUM2 -0.148	Constant 1.21	F 12.93***	$\bar{R}^2$ 0.62
t-statistic	2.86**		1.93**	5.93***	5.50***	4.45***	2.16**	2.21**	2.48***			
	CT											
Coefficient	0.0037		-2.6×10^{-8}	-0.1146	-3.963	1.3901	0.4464	-0.102	-0.134	1.26	12.44***	0.61
t-statistic	2.58***		1.84**	5.83**	5.58***	4.44***	2.18**	2.09**	2.25**			
	CTPE											
Coefficient	0.0371		-2.7×10^{-8}	-0.1125	-3.817	1.362	0.4325	-0.098	-0.134	1.25	12.21***	0.60
t-statistic	2.44***		1.92**	5.73***	5.40***	4.33***	2.10**	2.00**	2.22**			
	CTE											
Coefficient	0.0314		-2.5×10^{-8}	-0.1171	-3.941	1.427	0.4311	-0.085	-0.122	1.28	12.11***	0.60
t-statistic	2.37**		1.78**	5.80**	4.49***	5.50***	2.09**	1.77**	2.07**			
	FCTP											
Coefficient	0.0537		-2.7×10^{-8}	-0.1144	-3.8428	1.3527	0.4229	-0.103	-0.143	1.50	12.91***	0.62
t-statistic	2.85***		1.98**	5.93***	5.43***	4.38***	2.10**	2.15**	2.42***			
	FCT											
Coefficient	0.0539		-2.7×10^{-8}	-0.1151	-3.8428	1.3614	0.4300	-0.104	-0.142	1.51	12.92***	0.62
t-statistic	2.86***		1.97**	5.94***	5.54***	4.41***	2.13**	2.17**	2.41***			
	CTP	CTPSIZE										
Coefficient	0.0110	-4.9×10^{-9}	2.0×10^{-7}	-0.1184	-3.820	1.464	0.3591	-0.100	-0.133	1.03	12.60***	0.64
t-statistic	3.45	2.00**	1.73	6.27***	5.67**	4.82***	1.80**	2.11**	2.26**			
F-statistic	6.71***		4.19**									
	CT	CTSIZE										
Coefficient	0.0084	-3.0×10^{-9}	1.0×10^{-7}	-0.1174	-3.883	1.417	0.4026	-0.103	-0.136	1.10	12.01***	0.63
t-statistic	3.13	1.54*	1.26	6.07***	5.65***	4.63***	2.01**	2.16**	2.30**			
F-statistic	5.20**		3.60**									

Table 1 Structure-Performance Equations (cont.)

P_2 dependent

Variable	CTP	SIZE1	LEVC	LABORCR	GRTD	CR5	BRDUM1	BRDUM2	Constant	F	$\bar{R}^2$
coefficient	0.0071	-2.0×10^{-8}	-0.1134	-3.391	1.283	0.4066	-0.145	-0.184	1.13	11.06***	0.58
t-statistic	3.04***	1.32*	5.49***	5.48***	3.89***	1.89***	2.80***	2.87***			
	CTPE										
Coefficient	0.0415	-2.0×10^{-8}	-0.1109	-3.400	1.2650	0.4031	-0.134	-0.167	1.17	10.28***	0.51
t-statistic	2.54***	1.32*	5.26***	4.45***	3.75***	1.88**	2.55***	2.59***			
	FCTP										
Coefficient	0.0608	-2.0×10^{-8}	-0.1132	-3.335	1.2552	0.3926	-0.140	-0.178	1.45	11.04***	0.58
t-statistic	3.0 ***	1.38*	5.49***	4.51***	3.81***	1.82***	2.73***	2.81			

P_3 dependent

Variable	CTP										
coefficient	0.0096	-2.3×10^{-8}	-0.1321	-3.3503	1.6438	0.1485	-0.169	-0.215	1.31	16.65	0.69
t-statistic	4.24	1.62	6.42	4.52	5.08	0.67	3.31	3.40			
	CTPE										
Corfficient	0.0641	-2.5×10^{-8}	-0.1 304	-3.3688	1.6208	0.1419	-0.160	-0.201	1.33	16.16	0.68
t-statistic	4.06	1.70	6.29	4.50	4.96	0.63	3.13	3.19			
	FCTP										
Coefficient	0.0842	-2.4×10^{-8}	-0.1321	-3.2614	1.6035	0.1252	-0.165	-0.209	1.75	16.84	0.69
t-statistic	4.30	1.70	6.45	4.43	4.98	0.57	3.26	3.34			

P_4 dependent

Variable	CTP	TESR	LDRAT	STDR	GRTD	CVRCE	LABORCR	CR5	BRDUM1	BRDUM2	Constant	F	R^2
coefficient	0.00061	0.2204	0.0658	-0.1201	0.1269	0.0046	-0.2562	0.0559	-0.016	-0.023	0.08	4.34***	0.37
t-statistic	1.85**	2.55***	1.81**	2.64***	2.59***	1.98**	2.47***	1.85**	2.06**	2.20**			
	CTPE												
Coefficient	0.0031	0.2235	0.0668	-0.1161	0.1248	0.0046	-0.2555	0.0555	-0.015	-0.021	0.08	4.12***	0.35
t-statistic	1.48*	2.56***	1.82**	2.52***	2.52***	1.98**	2.43***	1.81**	1.92**	2.03**			
	FCTP												
Coefficient	0.0251	0.2166	0.0655	-0.121 2	0.1248	0.0044	-0.2495	0.0543	-0.015	-0.023	0.10	4.30***	0.36
t-statistic	1.79**	2.50***	1.79**	2.64***	2.55***	1.92**	2.39**	1.79**	2.01**	2.14**			

* Significant at the 10 percent level, one-tail test

** Significant at the 5 percent level, one-tail test.

*** Significant at the 1 percent level, one-tail test.

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