

# Changes in the Structure of Bank and Nonbank Competition in the United States<sup>(\*)</sup>

## Introduction

From the end of World War II until the beginning of the decade of the sixties, nonbank financial institutions in the United States experienced a far greater growth rate than did commercial banks. So rapid indeed was the growth of those industries generally referred to as nonbanks — namely, savings and loan associations, credit unions and mutual savings banks — that the commercial banking industry in the United States seemed to be well on the way of losing its primary status among financial intermediaries. But with the advent of the 1960's, the commercial banking industry in the United States began a competitive drive that raised its growth rate at home to such an extent that it came to be called a "banking revolution". And that same "revolution" was accompanied by a sharp rise in the competitiveness of U.S. banks in foreign countries as well. Indeed, the international expansion of U.S. bank financing, usually dated with the advent of sterling convertibility, may be better understood once the domestic background of competitive forces is exposed. The following study will attempt to explore this change in the competitive position of the U.S. banking industry.

Before the "banking revolution" began, however, academic discussion in the United States during the decade of the fifties was concerned about an apparent relationship between the slow growth of commercial banks and the revival of U.S. monetary policy in 1951, particularly as monetary policy tended to place occasional restraints on bank credit expansion. It was contended that the policy impact of restrictive open market operations (or other aspects of

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monetary policy) tended directly to impinge on the banking system, thereby thwarting its general capacity to expand. Aside from the inequity associated with this process, it was argued, this "discriminatory" impact of policy was on the way of becoming self-defeating as the relative importance of the banking system within the financial sector was being reduced, in part as a result of these same policy constraints (1).

By contrast, in the 1960's the growth rate of commercial banks sharply accelerated, while that of the nonbanks held rather stable. Most discussions of these changes attribute the banks' surge in competitive capacity to the more permissive administration of interest-rate ceilings on time deposits by the Federal Reserve System (called Regulation "Q"); the nonbanks' lesser ability to compete was associated typically with their relatively rigid rules of asset administration. This is part of the truth, but not nearly the whole truth. For increases in interest-rate ceilings will not, by themselves, induce a change in the competitive efficiency of banks. Witness, for example, the fact that original Regulation Q ceilings were set up in the 1930's, and were no bar to competition for time deposits in the early 1950's; the banks simply chose *not* to compete for time deposits (2). Accordingly, this study will attempt to document the banks' *willingness* and *ability* to compete hard for time liabilities. For it is that change in attitude which is of greatest significance for the future of financial competition in the U.S. and worldwide (3).

As a working assumption, the following accepts the Gurley-Shaw proposition, buttressed by Tong Hun Lee (4), that the liabilities of nonbanks (i.e., savings and loans, mutual savings banks, and credit unions) are reasonably close substitutes for some type of bank liabilities. The analysis will not be directly concerned with the money-near money substitution controversy, however. It will be

(1) The theoretical approach that came to grips with these problems has been generally identified with the work of Professors John G. Gurley and Edward S. Shaw. For an exposition, see their *Money in a Theory of Finance*, The Brookings Institution, 1960.

(2) Indeed, a study published in 1959 argued that bank competition for time deposits would be of "doubtful benefit" in view of the high break-even yield required on assets financed with new time deposits. See WARREN L. SMITH, "Financial Intermediaries and Monetary Controls", *Quarterly Journal of Economics*, November 1959, pp. 533-53.

(3) That notion has also been proposed by M. A. Rozen. See his "Competition for Funds Between Commercial Banks and Savings Institutions" in Pontecorvo, Shay, and Hart, eds., *Issues in Banking and Monetary Analysis*, New York, 1967, pp. 60-72.

(4) "Substitutability of Non-Bank Intermediary Liabilities for Money: The Empirical Evidence", *Journal of Finance*, September 1966, pp. 441-457.

argued, instead, that more aggressive competition by banks in the sixties necessarily reflected a revolutionary willingness to take the risk that higher and costlier time deposit rates would cut into the banks' own monopoly in providing demand deposits. The major theme of the paper will be that the banks' willingness to compete is directly quantifiable by reviewing their willingness to accept narrower profit margins. These narrower margins resulted from a faster rise in TD rates than in rates of return on bank credit; it was the banks' acceptance of the new set of cost/return functions that helped them to bid funds away from nonbanks. Finally, a rise in leveraging of capital accounts and faster asset growth by banks allowed them to maintain profit rates, while, under that same competitive pressure, nonbank profit rates receded.

## 1. Bank and Nonbank Performance

The results of the banks' changes in willingness to compete are shown by the growth rates of the relevant financial inputs (that is, claims, or deposits) as given in Table 1. The sluggish growth rate of the banks through the fifties is quite clearly illustrated, and the concern expressed by Gurley-Shaw is supported by the actual decline

TABLE I  
ANNUAL GROWTH RATES OF DEPOSITARY-TYPE ASSETS  
HELD BY PUBLIC, SELECTED, PERIODS, 1946-66  
(Compound Annual Rates of Change, in per cent)

Periods	Commercial Banks			Nonbanks				Total Deposit-type Holdings of Public
	Demand Deposits, Adj. *	Time Deposits **	Total Deposits	Mutual Savings Banks	Savings & Loan Assoc.	Credit Unions	Total Nonbank	
	1	2	3 (1+2)	4	5	6	7 (4+5+6)	
1946-50	2.2	1.9	2.2	4.4	13.3	15.8	7.7	3.3
1950-55	3.3	6.3	4.2	6.9	18.0	21.0	12.4	6.2
1955-60	0.9	8.0	3.3	5.2	14.1	15.8	10.6	5.6
1960-66	3.3	16.7	9.4	8.7	12.9	15.5	11.6	10.2

\* Demand deposits at all commercial banks, other than those due to domestic commercial banks and the U.S. Government, less cash items in process of collection and Federal Reserve float, and foreign demand balances at Federal Reserve Banks.

\*\* Time deposits at all commercial banks, other than those due to domestic commercial banks and the U.S. Government. Data are for December 31 call data where available.

Source: *Federal Reserve Bulletin*, Flow-of-Funds Accounts.

in bank growth between the first half and second half of that decade. Contrasted with that performance, the nonbanks appeared to be going from strength to strength through the fifties, experiencing rates of increase about triple those of the banks for each of the periods shown through 1960 (compare column 3 and 7).

In the decade of the sixties, however, that entire pattern was changed. By aggressively doubling the growth rate of time deposits (TD) between the second half of the fifties and the sixties, the banks nearly tripled their total growth rate even though DD growth did not exceed the rate of rise of the early fifties (5). And as a result of the competition for TD, the growth rate of savings and loan (S&L) liabilities in particular began to recede below the rates obtained in the fifties. By paying higher rates for time deposits on the financial input side, the banks could compete some household sector funds away from nonbanks, if monetary authorities permitted. But the banks went further. They became discriminating monopolists in their purchase of financial inputs. By offering a variable menu of certificate-of-deposit maturity/rate combinations that could be finely tuned to changes in the money market, capital notes, etc., the banks attracted funds into TD from *non*household sectors of the economy that otherwise could have moved into near-money assets such as Treasury bills, or to other liabilities of the banking system, notably DD, or "money". The banks' willingness to *take* that last risk, of having to experience a switch from interest-free DD to "costlier" TD, is more interesting from the point of view of the "banking revolution" than the fact that the growth of DD did *not* suffer in the last period shown.

## 2. Bank and Nonbank Competition

The essential difference in the character of bank/nonbank competition between the fifties and the sixties was that in the latter period banks were willing to enter rate competition, as indicated.

(5) The rapid growth of U.S. bank deposits at home was even exceeded by deposit growth abroad. Taking data for the United Kingdom alone, U.S. banks there experienced a truly phenomenal deposit growth rate of 40 per cent *per year* (compound annual rate of change, year-ends 1959-1966). In the same period, foreign and Commonwealth banks grew at about a 15 per cent rate per year, while the large London clearing banks expanded at less than 4 per cent. Indeed, at the end of 1966, the deposits of the American banks made them the second-largest group of financial institutions in the U.K., ranking behind the London Clearing Banks, and well ahead of Accepting Houses, Scottish banks, foreign banks, etc.

During most of the fifties, banks had used DD as their primary input to expand credit output; through 1957, for example, the volume of DD still was more than twice that of TD (6). As interest rates generally rose in the fifties, however, so rose relative attractiveness to the public of interest-bearing deposits, or other forms of "near money" as opposed to DD (that is, money proper). Put differently, the public's demand for holding non-interest bearing inputs of intermediaries as a share of its liquid assets declined, and as the public learned to make do with smaller transactions balances in relation to transactions volume (i.e., DD velocity rose) the rate of input flows to the *banks* increased less than to the nonbanks (7).

Why did the banks necessarily have an advantage over nonbanks in interest-rate competition? For nonbanks and banks, the interest rates paid to depositors (or in the case of DD, compensating services) are themselves a function of the rates of return earned on assets, leaving an appropriate spread for profit and risk taking. Now assume a period of rising rates. In such a period a competitive advantage would tend to accrue to the intermediary with the greatest adaptability built into its asset portfolio. For the more responsive the asset structure is to rising rates, the greater the capacity to pay for inputs and growth. And the greater the competitive edge for inputs, the higher the rate of intermediation, or what we shall call the rate of throughput of funds for the successful competitor.

### A. Markup and Throughput Concepts

Beyond the mere productivity change, or rate responsiveness of assets to changes in credit conditions, another factor that affects bank/nonbank ability to compete is the elasticity of compression of the spread between input rates and output rates (8). This proposition

(6) To be sure, some credit expansion could also occur at the cost of reduced liquidity. But this factor, likewise, has been used by both industries, although it is limited by supervisory authorities. See discussion below of Federal Home Loan Board policies in 1966.

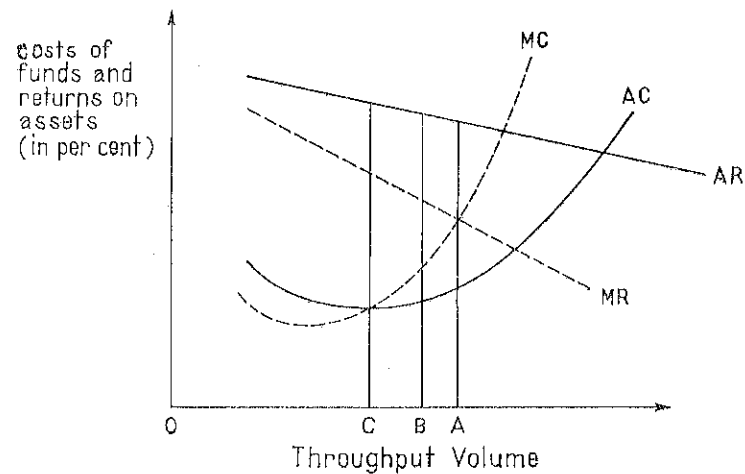
(7) This is just another way of putting the Gurley-Shaw phenomenon.

(8) It may be noted here that we are not so much concerned with intra-industry competition (bank against bank) or economies of scale, which are measures of the efficiency with which a given firm in the industry may perform its function. Our purpose here is to analyze inter-industry competition. Although many studies of bank costs have been made recently, none has been made to give a comparison of costs of banks with costs of savings and loans to this writer's knowledge. Our working assumption will be, therefore, that the efficiency of individual institutions *within* each of the major financial industries is distributed in a roughly equal way.

was first put by Tobin (9), and we will now proceed to illustrate this point. To do so we will consider a typical bank — called American Bank and Trust Company — from the point of view of competitive capacity. Figure 1 should look familiar to every student of economics since it applies the theory of the firm to the monopolistic competition for funds.

THE THEORY OF THE FIRM AS A BANK

FIGURE 1



Consider, first, American Bank and Trust's average revenue and marginal revenue functions. As department stores of finance, banks make many types of loans ranging from consumer credit through mortgage loans (both residential and corporate) to business loans of various types. As a result, the loan portfolio may be built up from various combinations of types of loans, each carrying a different rate of return. These rates of return have been arrayed in the figure in descending order (i.e., in declining interest costs to borrowers) to indicate the bank's conventionally sloped supply curve of credit (AR). Accordingly, the bank can increase the supply of credit (or throughput) from any one point only as it is willing to accept a reduced rate of income. Within this declining credit supply (or AR) curve, the average bank typically will have a substantial share of its loan port-

(9) In "Commercial Banks as Creators of 'Money'", D. Carson, ed., *Banking and Monetary Studies*, R. D. Irwin, 1963, pp. 408-19.

folio in short-term loans (10). Thus, at any one time, the average revenue from the bank's loan portfolio will reflect its ability to discriminate on rate as well as on nonrate terms, and on that account alone, the negative slope of the AR function is well established. (The lesser discrimination probably associated with the banks' investments portfolio — whose importance may be declining — should only slightly modify that slope). The MR function is derived from AR in the usual way.

On the other side of the ledger, the average cost (AC) function represents what it takes to acquire financial inputs from the public. And in order to attract the maximum volume, the AC curve (and the related MC curve) is shaped and sloped much like that of any other corporation. For the willingness to attract more inputs — either DD or TD — will involve a rise in costs. This cost increase may have considerable visibility, such as an advertised increase in interest rates paid for TD in the form of CD's. Likewise, a rise in costs may be associated with an increase in services provided, say, to business type holders of DD, such as payroll bookkeeping, bill collecting, etc. The intent of both measures is the same: to expand the scale for the bank or, in other words, attract more inputs to raise its rate of throughput.

Now consider the typical firm that lurks between the covers of any economics text. It will be recalled that its optimum point of doing business — at maximum profits — should lie at the point of intersection of MC and MR. But for a bank the equilibrium point lies elsewhere.

As Tobin pointed out, the law that requires banks to hold "legal reserves" against their deposit liabilities in non-interest bearing form necessarily cuts into the productivity, or yield, of their aggregate asset structure. To the extent, then, that banks hold required reserves with the central bank, or vault cash in excess of transactions needs, some assets at the margin earn nothing. And as a result, the bank acting as a profit maximizer cannot push throughput to the

(10) An important point occurs here with respect to monopolistic competition in finance that will occupy us further below. When it comes to the *maturity terms* on loans made, banks may be *maturity-makers* to a much greater extent than *maturity-takers*. On the other hand, since savings and loans are mortgage lenders almost exclusively, they tend to be *maturity-takers* in the main. As we shall note in more detail, the greater rigidity implicit in the mortgage portfolio of an S & L (as opposed to more flexible maturity pattern of a bank) carries a true "lock-in effect" with respect to earnings.

point where  $MC = MR$ . But now assume that the monetary authorities reduce reserve requirements of the banking system. A number of reductions in reserve requirements were made in the period 1958-1962 when actual reserve percentages behind DD were lowered, and when vault cash was recognized as "reserves"; in 1962, required reserves behind TD were lowered as well, so that required reserves then stood at  $16\frac{1}{2}\%$ - $12\%$  for DD and  $4\%$  for TD (11). It is clear that such reductions in reserve requirements allow banks in effect to push throughput closer to the point where  $MC = MR$  because banks can then carry a greater proportion of earning assets.

That this is so can be seen from the following example. In 1957, the banking system held the equivalent of 13 per cent of aggregate credit extended in the form of required reserve-type assets, contrasted to about 8 per cent in 1966. This reduction in effective reserves required was not solely the product of official action, however. For banks were able to cut total reserves behind total deposits as they shifted the deposit mix away from DD and toward TD. To be sure, this switch involved the acquiescence of monetary authorities. Nevertheless this also required an important decision by the banks to compete by cutting unit profits as AC could be expected to rise, and AR to drop (i.e., higher rates were paid on TD while the rise in throughput implied reductions in MR). The result of both sets of decisions was that as effective required-reserve ratio fell, the bank moved closer to the  $MR = MC$  position (12).

Going back to Figure 1, we can conceive of American Bank and Trust Company operating in the late fifties some distance to the left of the optimum profit position. Now the difference between AR and AC functions will give us the "markup" per dollar of throughput, and the maximum markup is clearly at point OC (when  $MC = AC$ ). At that point, inputs could include relatively high DD volume, and a correspondingly high volume of required reserves,

(11) Required reserves behind some classes of TD were raised again in late 1966, however.

(12) In most of the discussion to follow, the concept of "profit" will not be, strictly speaking, what is the usual concept, namely, rate of return on equity. Since a crucial element of the following involves a comparison of bank experience to nonbank, and since nonbanks are primarily mutual-type firms (while banks are equity-type firms), a difficult problem of comparison arises. As a result, the spread between cost of time-money to banks and nonbanks, and rate of return on assets, which can be more clearly stated and compared, will be our primary proxy for the profit concept. However, we shall have some things to say about rate of return to bank equity as compared with a profit-proxy for nonbanks below.

or non-earning assets. With relatively fewer *earning* assets, therefore, a higher markup may have been desired by the banks.

Recapitulating the foregoing, we note that to raise total profits from point OC banks will have to bid for higher-cost funds (a rise in AC), and the net increment of funds now available to bid for new financial assets was bound to raise asset prices, resulting in a drop in AR. But because the banks operate in a throughput area in which MR exceeds MC they can, in effect, choose to increase competitive pressure, quite unlike nonbanks, for reasons that will become clearer below. Thus banks will operate somewhere between OC and OB, depending on what compromise they make between maximum *average markup* (move closer to OC) or total profit (move to OB). In any event, a shift from OC toward OB will be shown by the bank's acceptance of a lower markup to expand throughput and total profit. And the implied reduction in required reserves as DD/TD ratio declines will tend to make MR drop less fast and make AR function more elastic as throughput expands. In the short run, then, the more competitive bank is willing to allow MC to rise and MR to decline as long as aggregate profits keep on rising. In a more dynamic sense, the more competitive bank would be accepting a lower markup to achieve faster growth while maintaining profits. This trade-off, during the 1960's, was made possible by a drop in the ratio of bank capital accounts to risk assets (13). In sum, a rise in leverage allowed the banks to maintain earnings per share (see below) in spite of a narrowing of AR/AC markup.

To the extent, therefore, that higher-cost inputs and lower markups are brought into play, throughput in that longer-run sense should mean a faster asset/liability growth than in prior periods. A brief look back to Table 1 will suffice to show that bank liability growth rates in the 1960's were better than twice those achieved in prior comparable periods. What remains to be shown is, first, empirical support to the proposition that bank AR-AC markups have narrowed and secondly, that this narrowing of markups was associated with improved performance on the asset side in competition with nonbanks.

(13) For all member banks, the ratio of total capital accounts to total assets less cash and government securities moved in the narrow range of  $14.2\%$ - $14.9\%$  in the period 1956-1961. From a level of  $14.5\%$  in 1961, however, that ratio fell continuously to reach  $11.4\%$  in 1966, a decline of more than 20 per cent. For New York City banks, the comparable decline came to better than 26 per cent.

### B. High Markup vs. High Throughput: Toward an Empirical Verification

As a proxy for the typical bank's (i.e., American Bank and Trust's) average revenue function (AR) we shall use Federal Reserve member bank data shown in Table 2 indicating annual ratios of total operating revenue (14) to total assets. (The use of member bank data as a proxy for the industry, as well as for the "average" bank, is appropriate since total member bank assets have tended to be about four-fifths of total commercial bank assets in the United States.) We can call the ratio of operating revenue/total assets "AR" because it obviously represents the average earnings on the *stock* of outstanding assets for any year. More important, from our point of view, that rate also reflects the average of all of the rates produced by a given year's throughput or assets of the industry. For banks to a significant extent are *maturity-makers* as well as rate makers since their loan portfolios, say, may contain variable proportions of short-term business loans, term loans, mortgage loans, etc., as their preferences may dictate. Moreover, even though bank loan maturities have tended to lengthen, on balance, they still hold a large proportion of assets at short term. As a result banks can make the *level* of their AR for any year respond fairly quickly to changes in interest rates and other market forces. Accordingly, in the 1952-1966 period, in which interest rates were generally on the rise, banks were able to raise their AR levels. Nevertheless, banks were subject to the discipline of the market on the *output* side, for in periods of slow credit demand, the year-to-year rise in AR slowed down; indeed, in one recession year (1961) the general upward shift in the AR function was slightly reversed, albeit only temporarily.

The banks' average interest *costs* (AC) likewise underwent year-by-year increases (see column 2, Table 2) (15). The empirical proxy used for average costs (AC) is the ratio of interest paid on time deposits (TD) to total TD outstanding, or what might be called the

(14) As shown in the footnote of Table 2 below, there was a slight change in data coverage that, however, does not significantly affect our results.

(15) These upward movements took place, particularly in the 1960's, under a more permissive regulation of interest-rate ceilings (Regulation Q of Federal Reserve Board). The first change in Regulation Q since 1936 was made in 1957; in the 1960's upward revisions came in 1962, 1963, 1964 and 1965.

ANALYSIS OF MEMBER BANK  
REVENUE, COST, AND "MARKUP" DATA 1952-1966

TABLE 2

(in per cent)

Year	Ratio of Total Operating Revenue * Total Assets	Ratio of Interest Paid on TD/TD	« Gross Markup »
	1	2	3 (1-2)
1952 . . . . .	2.71	1.13	1.58
1953 . . . . .	2.93	1.23	1.70
1954 . . . . .	2.96	1.30	1.66
1955 . . . . .	3.13	1.36	1.77
1956 . . . . .	3.47	1.58	1.89
1957 . . . . .	3.75	2.08	1.67
1958 . . . . .	3.76	2.20	1.56
1959 . . . . .	4.07	2.36	1.71
1960 . . . . .	4.37	2.61	1.76
1961 . . . . .	4.28	2.73	1.55
1962 . . . . .	4.38	3.23	1.15
1963 . . . . .	4.44	3.34	1.10
1964 . . . . .	4.56	3.47	1.09
1965 . . . . .	4.62	3.73	0.89
1966 . . . . .	4.97	4.11	0.86

\* For period 1952-56 ratio was total earnings/total assets; change in series probably is insignificant since for period of available overlap (1957-61) difference in ratios was 1-2 basis points for most years.

Source: *Federal Reserve Bulletin*, "Income Ratios by class of Bank", May 1967, pp. 867 ff, and earlier articles in that series.

"direct" cost of TD. By not including other banking costs, we are assuming that the manufacturing and overhead costs attributed to TD and/or to DD (demand deposits), as well as for savings accounts at savings and loans and other nonbanks, are roughly comparable. Further, these direct TD costs are quite directly related to the banks' decision to compete; the nonbanks' capacity to meet that competition will be highlighted in this manner. In any case, more precise attempts to specify production costs in bank and nonbank industries would necessarily require a heavy dose of judgment, for banks in particular and nonbanks to a lesser extent, are multi-product firms whose production outlays cover a wide variety of *assets* as well as

the liability costs (16). Finally, we are mainly concerned with the period of the "banking revolution" of the sixties, when competitive bidding for TD made them grow in importance to first equal, and then overshadow DD in magnitude. A comparison of direct TD costs thus appears appropriate.

Now to the proof of the pudding, namely, that the banks' markup between AR and AC was held rather high during the relatively slow throughput years of the 1950's, but that it was reduced in the 1960's as the banks opted for more volume and larger aggregate profits, albeit at the cost of cutting their unit profits (or markup). Consider the data in column 3 of Table 2 called "gross markup". In the 9 years 1952-60, we find but two in which markup was below 1.66 percentage points, while markup during the period averaged 1.70 percentage points. Following 1960, however, when the banks began aggressively to compete for TD with deposit-type nonbanks in order to raise throughput volume, their markup dropped sharply indeed: in 1962-64, markup fell to a 1.10-1.15 per cent range, and in 1965-66 to less than 90 basis points. In those last two years, in sum, the markup as defined had dropped to half its 1960 level!

From these data we may readily conclude that the average bank has, in fact, shifted the throughput rate in the 1960's much closer to the optimum profit position than it ever had been before. In other words, our American Bank and Trust Company, shown in Figure 1, moved much nearer to the point where  $MR = MC$ , and in the process it had become a much tougher competitor for other banks — who were compelled to follow suit — as well as for the nonbanks (17).

(16) For a useful summary of the problems of costing bank services see STUART I. GREENBAUM, "Costs and Production in Commercial Banking", *Monthly Review*, Federal Reserve Bank of Kansas City, March-April, 1966, pp. 11-20. For a treatment of some technical aspects of that problem see J. P. FURNISS and P. S. NADLER, "Should Banks Reprice Corporate Services", *Harvard Business Review*, May-June 1966, pp. 95-105, and H. C. CARR, "Pricing of Correspondent Banking Services", *Bankers Magazine*, Summer 1967, and J. M. GUTTENTAG and E. S. HERMAN, *Banking Structure and Performance*, *Bulletin*, N.Y.U. Institute of Finance, 1967, esp. Chapter 4 and appendixes.

(17) Other aspects of the attempts to raise throughput and aggregate profits (rather than high markups), albeit at a price, involved, among other techniques, the sale of capital notes, premium bids for Federal funds, as well as repatriation of Eurodollar balances, particularly in 1966. For further discussion see E. BLOCH, *Eurodollars: An Emerging International Money Market*, N.Y.U. Institute of Finance, 1966.

### 3. How Did the Competition Come Out?

In the preceding section we explored the extent to which the bidding for deposits, and particularly for interest-bearing deposits escalated as between the banks and the nonbanks. By concentrating our attention on the changes in markup that the banks were willing to accept we, in effect, examined the bank pricing decisions for inputs and outputs. The time has now come to examine the effects of these changes on bank vs. nonbank competition as measured by the rate of throughput. Or, in other words, we will now assess how "badly" the banks fared during the "high markup" days of the fifties contrasted to how well the nonbanks did then; we will then bring the story up to date by analyzing how these institutions are doing today.

In Table 3 we attempt to get the broadest possible perspective on the banking industry's throughput volume by using the Federal

TABLE 3  
RELATION OF INCREASES IN INTERMEDIARY LIABILITIES  
TO NET FUNDS RAISED BY NONFINANCIAL SECTORS, 1952-66  
(in per cent)

Years	Commercial Banks			Nonbanks			Banks and Nonbanks
	DD	TD	Total	S & L	MSB	Total *	
	1	2	3 (1+2)	4	5	6 (4+5)	
1952 . . . . .	9	9	19	9	5	16	35
1953 . . . . .	3	12	15	13	6	20	35
1954 . . . . .	17	15	32	18	8	27	59
1955 . . . . .	9	3	12	13	5	19	31
1956 . . . . .	5	7	13	17	6	25	38
1957 . . . . .	4	17	21	15	5	21	42
1958 . . . . .	12	19	31	14	5	21	52
1959 . . . . .	**	2	2	12	2	16	18
1960 . . . . .	- 1	16	15	21	4	27	42
1961 . . . . .	11	20	31	18	4	24	55
1962 . . . . .	3	26	29	17	5	23	52
1963 . . . . .	5	23	28	18	5	25	53
1964 . . . . .	6	22	28	16	6	24	52
1965 . . . . .	9	28	36	12	5	18	54
1966 . . . . .	**	19	20	5	4	10	29

\* Includes credit unions, which averaged between 1-2 per cent per year.

\*\* Less than 1 per cent.

Source: *Federal Reserve*, Flow of Funds Accounts.

Reserve's flow-of-funds data to relate: (a) intermediary *inputs* to (b) the use made of *outputs* by ultimate borrowers, namely, the *nonfinancial* sectors. In the process of attributing input/output shares to banks and to nonbanks we will be able as well to assess (c) the extent to which these two competing groups of institutions have been able to raise their "sales" of liabilities to the public in order to provide for the credit needs of the nonfinancial area of the economy as a whole.

To take the last point first, consider our analysis of the banks' and nonbanks' total throughput shown in column 7 of the table. In the period 1952-60, we note a rather variable pattern in annual share of credit supplied to nonfinancial sectors that is attributable to deposit expansion of deposit-type intermediaries. This type of intermediary throughput ranged between the lowest shown, of 18 per cent in 1959, and highs of 59 and 52 per cent, respectively, in 1954 and 1958. A quick glance at column 6 indicates that nonbank throughput during that period was rather stable, and that it was the extreme variations of commercial bank-type intermediation to which the wide variability of deposit-type institutions (shown in column 7) can be attributed. Indeed, during the two peak years of total throughput of 1954 and 1958, bank credit (column 3) constituted 32 and 31 per cent, whereas in all other years prior to 1961 it only reached about 2/3 of that figure at best, and was frequently below that. And as columns (1) and (2) indicated, TD were just as unstable as DD. Taking the entire 1952-60 period together, the volume of financing of "real" sectors attributable to intermediary throughput averaged 39 per cent per year, with the nonbanks contributing more than half that figure, or about 21 per cent, and leaving but 18 per cent to the banks.

In the 1961-66 period, on the other hand, just about everything in the pattern was reversed. To begin with column 7 again, we now find rather extraordinary stability in total throughput rate, and at the much higher rate through 1965 of 52 to 55 per cent. Further, this general pattern of stability is now more characteristic of bank throughput than of nonbank. Moreover, bank throughput now contributes the lion's share (averaging 29 per cent out of a total of 50 per cent) rather than nonbank; and finally, the banks' expanded role in financing throughput is shown to be almost exclusively a function of sharply rising TD.

To be sure, during the year of "credit crunch" in 1966, banks and nonbanks both had to restrict throughput. But as the data in the last line clearly suggest, a tight monetary policy that initially placed increasingly great pressure on the banks, paradoxically affected the throughput of the nonbanks far more than that of the banks! Nonbank throughput, at 10 per cent, fell to the lowest level for the entire period, whereas that of the banks shrank only to a level that in any year prior to 1961 would have been counted a good year. In sum, the improved competitiveness of the banks enabled them to hang on to a respectable share of the 1966 market shrunk by very tight monetary policy, even though the impact of that restrictive policy hit them first.

The explanation for the banks' improved ability to compete in the 1960's as well as in 1966, when money got very tight, has been attributed above to the ability to expand TD. Earlier on, we noted that the banks were willing to do this by buying more TD inputs at "prices", or rates, that were rising faster than revenues because they were willing to undergo a shrinkage in unit margins to raise total profits. Table 4 indicates how rates paid by banks on TD approached rates paid by S&L's ever more closely (see columns 1 and 2). Column 3 of the table, called "spread", reflects the competitive stimulus of the banks, and the response of the nonbanks, particularly as the banks began to raise rates in 1957 following a change in ceiling rates of TD.

Taking the competition in chronological order, the 1950-1956 period shows S&L rates drifting up slightly from 2.5 to 3.0 per cent, while deposit rates of other nonbanks such as, e.g., Mutual Savings Banks followed suit (18). In that period of "competitive quiet", 1950-1956, the nonbank-bank deposit spread held fairly steady in the neighborhood of 150 basis points. The table also indicates that

(18) Owing to wide interregional differences in interest rates, the country-wide averages used here can claim to be no more representative than any average. That there are wide differences by region on rates paid on even such homogeneous items as short-term business loans of \$10,000 to \$99,999 can be seen from the Federal Reserve's revised loan series (see May 1967 *Federal Reserve Bulletin*, p. 725); such loans carried a rate of 6.32% in the Southeast, while on the West Coast the rate was 6.90%. The range is even wider for mortgages, for at the end of 1965, conventional mortgage rates on new homes ranged from a low of 5.24 per cent in Boston to a high of 6.10 per cent in Houston. The range on rates paid on savings balances by associations in 1965 was similarly wide, with a low of 4.03 per cent paid in the Indianapolis Home Loan Bank District, and a high of 4.72 per cent in San Francisco District. At our level of abstraction, however, comparisons of country-wide averages are appropriate for institutions with country-wide coverage, such as banks and S & L's.



banks *could* have competed more aggressively under the Reg. Q ceiling of the early and mid 1950's, but they *chose* not to do so. Following the Regulation Q change effective in 1957, banks began more aggressive bidding since the spread fell to 1.2 basis points as bank rates rose faster than nonbank. And when the banks' rate ceilings again were raised successively in 1962, 63, 64 and 1965, the competition for funds began in earnest. Spreads sharply narrowed as a result, to reach the  $\frac{1}{2}$  percentage point in 1965 and a low of .3 percentage point in 1966. In sum, Table 4 indicates three competitive phases in bidding for TD by the banks against the nonbanks: the quiet period of high spreads ( $1\frac{1}{2}$  percentage points) prior to 1956; the acceleration in TD rate advances 1957-61, and finally the period of active competition as an aspect of the banking revolution of the 1960's. And the rapidly improving *rates* paid on TD help to explain the rapid growth of TD as inputs to feed the accelerating throughput of banks shown earlier in Table 3.

The question now arises, why did the S&L's not retaliate by raising *their* liability rates — as rates rose on assets — so as to maintain their competitive spread over banks at, say, 80 basis points or better? That spread, through 1963 at least, had allowed them to provide between 18 and 20 per cent of net funds raised by non-financial sectors (Table 3). The answer is simple: in the mid-sixties the character of, and returns earned on, their assets did not allow them to push up income rates — that is, their AR function could not rise as fast as that of banks. Recall that S&L's and MSB's, and other nonbanks as well, have a heavy stake in such long-term assets as residential mortgages; moreover, there is no ready secondary market for "turning over" a large portfolio of mortgages (19).

To be sure, most residential mortgages are refinanced prior to maturity, thereby permitting some upward rate (and nonrate) adjustments on a share of this portfolio, and some 15-20 per cent of the nation's housing stock has tended to turn over in the average postwar year. Given even the upper range of that rate of turnover, institutions specializing in mortgages could expect that about  $\frac{1}{5}$  of the AR of existing portfolio (which includes amortization of all mortgages) would be adjusted to reflect a rise in rates. Higher rates would, of course, also be placed on mortgages financing *new* con-

(19) By contrast, the municipal, U.S. Government, and corporate securities carried by banks in their investment portfolios all enjoy relatively liquid secondary markets.

TABLE 4  
COMPARISON OF SAVINGS RATES PAID BY SAVINGS  
AND LOAN ASSOCIATIONS AND COMMERCIAL BANKS, 1950-66  
(in per cent)

Years	S & L's %	Commercial Banks %	Spread %
	1	2	3 (1-2)
1950 . . . . .	2.5	0.9	1.6
1951 . . . . .	2.6	1.1	1.5
1952 . . . . .	2.7	1.1	1.6
1953 . . . . .	2.8	1.1	1.7
1954 . . . . .	2.9	1.3	1.6
1955 . . . . .	2.9	1.4	1.5
1956 . . . . .	3.0	1.6	1.4
1957 . . . . .	3.3	2.1	1.2
1958 . . . . .	3.4	2.2	1.2
1959 . . . . .	3.5	2.4	1.2
1960 . . . . .	3.9	2.6	1.3
1961 . . . . .	3.9	2.8	1.1
1962 . . . . .	4.1	3.1	0.9
1963 . . . . .	4.2	3.3	0.8
1964 . . . . .	4.2	3.5	0.7
1965 . . . . .	4.2	3.7	0.5
1966 e . . . . .	4.4	4.1	0.3

e: Partly estimated.

Source: *Savings and Loan Fact Book*, 1966, p. 17.

struction. As a result, it might be supposed that better returns on refinanced and new mortgages would substantially raise the ability of nonbank mortgage lenders (especially S&L's) to compete for financial inputs. But the ability to compete for inputs is a function of *average* revenue of mortgage portfolio, and some  $\frac{4}{5}$  of that revenue is fixed at earlier rate levels. In view of the fact that rates in the early 1960's were lower than in the mid 1960's, the upward adjustment of aggregate earnings on a mortgage portfolio is quite sluggish because the weight of the lower rates on mortgages made as long ago as 5 years and earlier pulled down the earning power of the portfolio.

The sluggishness of upward adjustment of average revenue (AR) can be illustrated by the data in Table 5. Here we show rates placed on *new conventional* mortgages (column 1) for each of the years for

which such data have become available. And we can see that while these rates fluctuated by fairly small amounts in the period 1961-65, they really jumped in 1966, rising to 6.40 per cent. But now consider the 5-year moving average (column 2) computed to indicate a rough proxy for AR of a mortgage portfolio. For the exercise it was assumed that 20 per cent of such a portfolio consisted of 1966 mortgages although this tends to overstate the improvement in AR owing to the sharp cut in 1966 S&L and mortgage throughput indicated in Table 3. Nevertheless, the AR of portfolio in the exercise is improved by less than 10 basis points, a rate that is consistent with data derived by U.S. Savings and Loan League (see below).

TABLE 5

COMPARISON OF RATES EARNED ON NEW CONVENTION MORTGAGES,  
SAVINGS RATES PAID TO PUBLIC, AND "SAVINGS SPREAD"  
(in per cent)

Year-end	Rates on <i>new</i> conventional mortgages *	Five-Year Moving Average **	S & L Savings Rates	« Savings Spread »
	1	2	3	4 (2-3)
1961 . . . . .	5.97		3.9	
1962 . . . . .	5.93		4.1	
1963 . . . . .	5.81		4.2	
1964 . . . . .	5.80		4.2	
1965 . . . . .	5.83	5.87	4.2	1.7
1966 . . . . .	6.40	5.95	4.4 e	1.6

e: Partly estimated.

\* FHA series for full period available. Mortgage rate for 1961 year-end is that for January 1962, the earliest date available.

\*\* Average for 5 years placed in *fifth* year.

Source: *Federal Reserve Bulletin*.

In effect, an aggressive campaign by S&L's to attract more savings capital in a period of rising rates would require a quick upward adjustment in rates paid on *inputs* (AC). Yet, as noted, the average revenue (AR) of a mortgage portfolio moves upward but sluggishly even if, in any one year, mortgage rates do zoom. Inevitably, then, the maintenance of a given throughput rate of financing on the capital markets would require the S&L's to sharply cut the difference between stable AR and rising AC. In other words, markups would

have to decline, for only a willingness or an ability to cut markups would allow S&L's to meet rate competition for inputs (20). To meet bank competition on more or less even terms, S&L markups probably should have contracted by as much as did bank markups, which, as noted, were halved between 1960 and 1966.

Were S&L's able to shave markups? Consider the fact that in 1965, when S&L's already experienced some difficulty in attracting and holding on to savings capital, their "savings spread" (as computed in column 4 of Table 5) was 1.7 percentage points. Using slightly different data that go back to the 1950's (provided by U.S. Savings and Loan League) we find that comparable savings spreads fell but little, from about 1.8 per cent in the 1950's to about 1.6 per cent in 1966. In 1966, indeed, savings and loans generally raised savings rates, but the Federal Home Loan Bank Board restrained rate increases as the "savings spread" was squeezed below the level that the Board deemed to be appropriate. An important factor in that decision was the decline in portfolio quality experienced by member associations. To begin with, in early 1966, the annual rate of nonfarm real estate foreclosures rose to about 5 per 1,000 mortgaged structures, a rate about twice that of 1960, and a record for the postwar period. Worse yet, the first line of defense of portfolio quality as a whole, namely, the growth of total reserves, fell very sharply in 1966 (21).

In point of fact, the basic constraint on competitive capacity of S&L's is the slow turnover of mortgage assets that, in periods of rapidly rising interest rates, necessarily places a ceiling on aggregate earnings, and by extension, on the capacity to hold, much less attract, new rate-sensitive savings capital. In addition, each of the recent periods of monetary tightening (e.g., 1959 and 1966) were accom-

(20) It should be emphasized that owing to a variety of technical reasons, this exercise is meant to be rather illustrative more than anything else. For example, it omits nonrate mortgage income, such as initial fees, etc., as well as offsetting higher *costs* of servicing a mortgage portfolio.

(21) The capital accounts of financial institutions represent, for the supervisory authorities, the first line of defense against declines in asset values. From the point of view of the FHLBB, the sum of reserves and retained earnings — or net worth — is the proxy for capital accounts of largely mutual member association. In the period 1950-1962, the net worth of associations grew, on average, by about 14 per cent per year. From that point on, however, annual increments to net worth fell, to reach a low of less than 7 per cent in 1966. In view of the rising 1966 foreclosure rate, the FHLBB apparently decided that a year of slowly rising reserve cushion was not the time to permit a further rise in AC, particularly in the face of very sluggish rise in AR.

panied by much faster increases in short-term rates than in long-term — that is to say, yield curves tended to flatten as they rose, thereby helping holders of short-dated assets, such as banks. It should be recalled, further, that during a good part of the mid-1960's Federal debt management policy, called "operation twist", was intended to press down on longer-term rates while shoring up short-term rates. As a result, a structural income problem was building up for non-bank holders of long-term assets, namely, a lower rate of AR for some time in the future. This set of problems can be illustrated by the much sharper reduction of S&L profit rates in 1966 than the decline in bank profits; for, while bank profits fell a bit between 1960 and 1966, the decline experienced by S&L's, particularly after 1962, was greater and much more abrupt (22).

Perhaps the most direct way of looking at this new effect of monetary policy (which is the reverse of that worried about by Gurley-Shaw) is to consider the extent to which the rising interest rates of the tight-money period of 1966 have influenced the throughput rate of the entire intermediation process. For if, as indicated by Gurley-Shaw, both bank and nonbank intermediation creates new credit, a monetary policy designed to restrain a rise in total credit must needs reduce the rate of intermediation. In an operational sense, there should be a decline in the dollar volume of funds supplied to credit markets by intermediaries (or throughput) and this decline might well be associated with a rise in direct investment by nonfinancial public — or in disintermediation. And we should find out whose throughput was most affected.

(22) The differential effect on banks and S & L's of financial policies, regulations, and other factors in the 1960's can be illustrated by a comparison of profit rates of the two groups. For member bank profits we use net income as a ratio to average bank capital accounts; for a "profit proxy" for the largely mutual S & L's we use the annual rise in reserves and retained profits to average net worth during the year. The results are, in per cent:

Year	Profit proxy, S & L's	Bank net income/ Capital accounts
1960 . . . . .	12.6	10.1
1961 . . . . .	13.6	9.6
1962 . . . . .	13.3	8.9
1963 . . . . .	10.0	9.0
1964 . . . . .	9.1	8.8
1965 . . . . .	10.9	8.7
1966 . . . . .	6.0	8.6

Source: *Federal Reserve Bulletin*, May 1967, p. 716, and Federal Home Loan Bank Board, *Annual Report 1966*, Washington, 1967, Appendix Table 13.

The development of substantial *disintermediation* in 1966 is clearly illustrated by Flow of Funds data presented in Table 6. In column 1, we show that transactors such as households and business (23), which provide most inputs of intermediaries, directly contributed in 1966 nearly one-third of the funds used by credit markets, contrasted to a share averaging about one-tenth in the preceding five years. It may be noted that in prior periods of relatively tight money (1957 and 1959) disintermediation also was relatively high. Now how were potential "depositors" induced to do their own investing? Column (5) of the table gives the answer in the form of sharply rising yields on Treasury bills. In the years 1957, 1959, and 1966, these bill rates (and other comparable yields) not only rose very rapidly, by between 2/3 to 1½ percentage points over the prior year, but

TABLE 6  
SHARE OF FUNDS SUPPLIED DIRECTLY TO CREDIT MARKETS  
BY SELECTED GROUPS, ANNUALLY, 1956-66  
(in per cent)

Years	Private Domestic Nonfinancial	Commercial Banks	Nonbanks *	Total	Memo Item: Market Rates on 90-day Treasury Bills **
	1	2	3	4 (1+2+3)	5
1956 . . . . .	16	17	57	90	2.62
1957 . . . . .	25	16	52	93	3.23
1958 . . . . .	8	37	45	90	1.78
1959 . . . . .	38	8	39	85	3.37
1960 . . . . .	1	24	62	87	2.87
1961 . . . . .	5	35	48	88	2.36
1962 . . . . .	8	34	45	87	2.77
1963 . . . . .	9	34	48	91	3.16
1964 . . . . .	13	32	43	88	3.54
1965 . . . . .	12	40	37	89	3.95
1966 . . . . .	30	26	30	86	4.85

\* Savings and loans, mutual savings banks, and credit unions.

\*\* Annual averages.

Source: *Federal Reserve Bulletin*, Flow-of-Funds Accounts; and tables on Money Market Rates.

(23) In the Flow-of-Funds accounts, and Table 6, these units are called "private domestic nonfinancial".

in each case their rates approached or exceeded rates available on time deposits or on the country-wide average for S&L shares (compare with Table 4).

If a tightening monetary policy does produce disintermediation, which intermediaries lose out, and by how much? Columns (2) and (3) of the table readily indicate how little the nonbanks were affected in the late fifties (in contrast to a drop to 8 per cent by the *banks* in 1959), whereas in the sixties the banks show up much better, and the nonbanks comparatively less well. Put slightly differently, a rise in open-market rates associated with greater restrictiveness of monetary authorities places a premium on capacity to meet the competition of these (higher) open-market rates. In the short run, financial intermediaries can raise rates on their liabilities and compete by accepting a (unit) profit squeeze. Such a squeeze becomes acceptable if upward adjustments can be made soon on rates carried by a significant proportion of assets. The shorter-term structure of bank assets allows the banks to do this far more readily than nonbanks, as noted. And further, as noted, the banks' longer-run decision to buy faster throughput, or growth, with the acceptance of lower unit markups improved their competitive position. By contrast, the nonbanks were locked into long-term assets (which have virtually no secondary market) and as the quality of their portfolios declined, supervisors were loath to allow the nonbanks aggressively to compete for funds that might have led to further deterioration in portfolio quality. For all of these reasons, the throughput rate of banks held up much better than that of nonbanks in 1966.

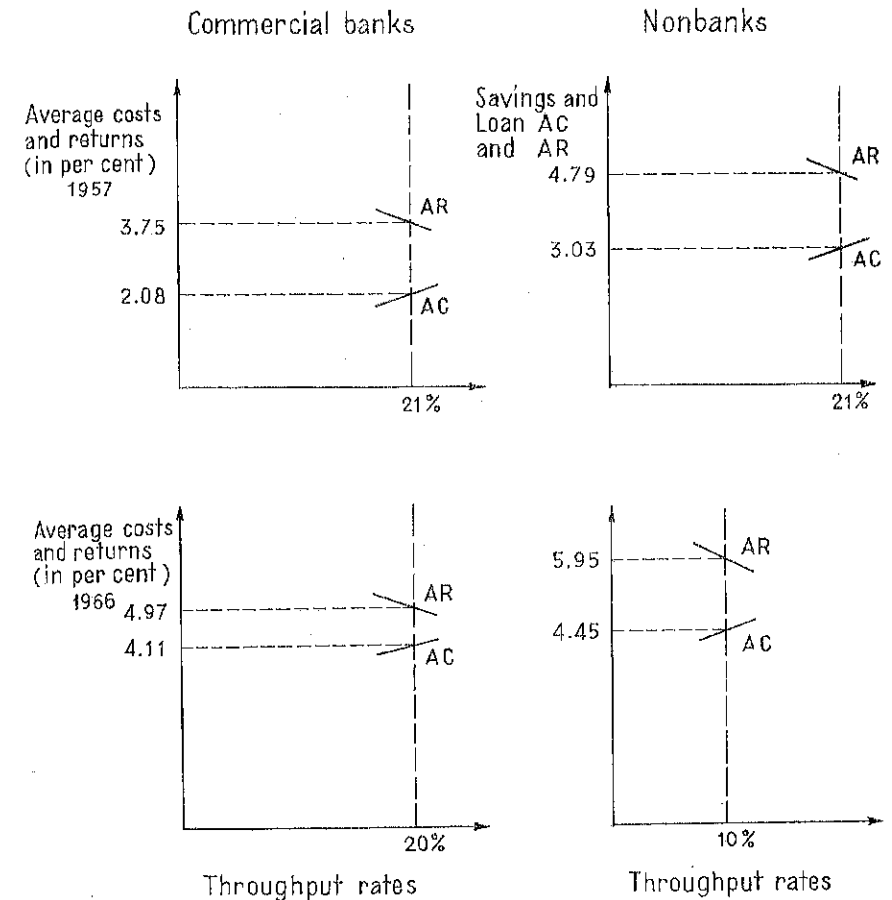
An overview of our analysis can be based on the approach presented in Figure 1 by using cost-return and throughput data together, as we have in Figure 2 (24). The comparisons made refer to throughput performance derived from Flow-of-Funds accounts in Table 3 for two representative years, 1957 and 1966, and for both banks and nonbanks (25). Taking the throughput performance of the *banks* first, Table 3 indicated virtually the same throughput rate for both years, at 21 and 20 per cent, respectively. It should be noted,

(24) The truncated bits of AR and AC curves in the Figure are provided for illustrative purposes only.

(25) The year 1957 was chosen because it was the first year during which a postwar Regulation Q *change* became effective. As a result, the banks had begun to compete for funds even in the period prior to the banking revolution of the 1960's. And for this reason banking throughput had already shifted to the right of minimum AC (see Figure 1), and no longer reflects a maximum cost/return spread.

FIGURE 2

COMPARISONS OF MARKUP AND THROUGHPUT RATES FOR BANKS  
AND NONBANKS, 1957 AND 1966  
(in per cent)



Note: Throughput volume, in dollars, was: \$33 billion in 1957 and \$71 billion in 1966.  
Sources: Table 2, 3, 4.

however, that the 1966 data refer to a dollar total of \$71 billion, or more than twice the dollar volume of \$33 billion in 1957. Interestingly enough, the throughput rate of the *nonbanks* in 1957 also was at 21 per cent rate (26). But in 1966, the nonbank rate of throughput

(26) That 21 per cent share also represents the throughput *average* for nonbanks in the period 1952-60.

was cut by more than half, to 10 per cent. A quick glance at the x-axes of Figure 2 shows that in 1966 tight money was tougher to live with for nonbanks than for banks.

This is only part of the story, however. For the banks held on to their throughput share only at a price: a halving of their average markup (compare y-axes of Figure 2). Whereas in 1957 bank AR exceeded AC by about 1.7 percentage points, that markup had fallen to .9 per cent in 1966. On the other hand, the markup of the nonbanks fell by no more than 20 basis points from 1.76 per cent (1957) to 1.55 per cent (1966). Finally, because the reduction in bank markups has come to a greater extent from higher rates paid by banks on *input* rates, which roughly doubled between 1957 and 1966, it is understandable that the banks could better hang on to their share of inflows of funds, thereby maintaining capital market throughput. In the short run, higher rates could be paid by banks because their greater asset flexibility had a shorter built-in time lag between raised costs and raised revenues. Even in the longer view, the banks were willing to accept lower markups for some time because, with faster growth, and by accepting a decline in capital/risk asset ratios, they were able to maintain earnings rates (27). But whatever their immediate reason, the acceptance by banks of lower markups in 1966 helped them to maintain throughput, thereby being hurt less by policy-induced disintermediation than the nonbanks were.

#### 4. Conclusions

The foregoing has tested the extent to which banks have a unique means of expanding what has been called throughput in this study because they operate to the left of the  $MC = MR$  position. It was argued that the extent to which the banks succeeded in expanding throughput by reducing unit profits, the "banking revolution" was only partly attributable to the more permissive administration of Reg. Q. The point that this study has attempted to make is that the sufficient condition behind the banking revolution was the *willingness* of the banks to bid for higher-price funds. This willingness did *not* exist through most of the fifties as the

(27) This process has raised some questions about "bank soundness" among bank supervisors. See speech by W. F. THURBER, "Some Current Banking and Economic Problems", Federal Reserve Bank of New York, *Monthly Review*, Sept. 1967, p. 170.

early data on operating revenue/TD spreads clearly indicated (Table 2). The shift in management decision to aggressively seek out TD was illustrated by the halving of AR/AC spreads in the sixties. As a result of that decision, the outstandings of TD are now some 20 per cent greater than DD. On another level of analysis, the narrowing of cost/return spreads has moved banks closer to the theoretical profit optimum (as suggested by Tobin). And the inability of S&L's to compete for inputs was related to their inability to cut their cost/return spreads, which was associated, in turn, with the long-term nature of their asset structure.

Looked at from the point of view of the S&L's, their less flexible asset structure and the absence of a large-scale secondary market for mortgages made it difficult to adjust to the increasing and cumulative pressures of governmental financial policies and bank competition. Thus, in retrospect, the extent to which "operation twist" was a success in the early sixties implied that sometime later S&L's would experience a lower rate of AR than would otherwise have occurred. When this was followed by a restrictive monetary policy associated with rising rates and a flattening yield curve, the competitive position of S&L's worsened further. In the words of the Federal Reserve's *Annual Report*, the "... impact of tighter credit conditions (fell) heavily on nonbank institutions and therefore on the mortgage markets..." (28) and in July 1966 the Board voted to provide for "emergency credit facilities... through Federal Reserve Banks... to nonmember depository-type institutions, including mutual savings banks and savings and loan associations" (29). Following the banking revolution, public policy concern has turned from the fate of the banks (Gurley-Shaw) to that of nonbanks — a turn of 180 degrees. For the competitive position of banks at home — as well as abroad — has probably changed for good.

New York

ERNEST BLOCH

(28) *Fifty-Third Annual Report*, Board of Governors of the Federal Reserve System, 1966, Washington, 1967, p. 28.

(29) *Ibid.*, pp. 29-30, p. 91.