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FEDERAL RESERVE BANK OF CLEVELAND

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Federal Reserve Bank of Cleveland
Cleveland, Ohio

ERRATA

ECONOMIC REVIEW, April 1965

Page 8

The word casual in the second line should be causal.

As corrected, the first three lines should read:

“It would thus seem likely that an observable,
and perhaps causal, relationship exists be-
tween values of the managed cash-total asset. . .”

BANK MANAGEMENT

OF CASH ASSETS

It is generally accepted that cash assets¹, which account for a substantial proportion of total bank assets, constitute one of the least productive uses of bank funds. Unlike loans and investments, cash assets yield no money income. By holding sizable amounts of cash a bank incurs a cost equal to income that could have been earned had such cash been used to acquire earning assets.

Because cash assets yield no return, it is not surprising that bank management over the long run has tried to reduce the importance of cash relative to total bank assets. This article discusses some of the factors associated with the attempt by banks to reduce the proportion of total assets committed to cash, with particular emphasis on the managed

cash² component over which bankers can exert direct influence. The data used in this article are for 1954 through the first half of 1963.³

COMPOSITION OF CASH ASSETS

The volume and composition of cash assets held by member banks of the Federal Reserve

² For reasons discussed later in the article, the definition of "managed cash assets" for the subperiod 1954 through mid-1960 differs from that for the subperiod from mid-1960 through mid-1963. For the first subperiod, managed cash assets are defined as vault cash plus correspondent balances with commercial banks in the U. S. plus the difference between balances maintained at the regional Federal Reserve banks and the volume of required reserves (that is, excess reserves). For the second subperiod, managed cash assets include correspondent balances and excess reserves, which are redefined as the difference between the total of balances maintained at Reserve banks plus vault cash and the volume of required reserves.

¹ In this article, "cash assets" are defined as the sum of vault cash (sometimes referred to as currency and coin), reserves maintained with regional Federal Reserve banks, balances with other commercial banks in the U. S., and cash items in process of collection.

³ Analysis of the period since mid-1963 is not included because comparable quarterly data are not available.

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System are influenced by both legal and practical considerations. Regarding legal considerations, member banks are required by law to maintain specified cash reserves against their deposit liabilities. While reserve requirements were originally intended to protect depositors, this function is no longer the overriding one. Rather, as it became obvious that required reserves gave little additional liquidity to bankers, required reserves (or reserve requirements) became primarily an instrument used by the central bank in the implementation of monetary policy.

Until December 1959, the total of legally required reserves had to be kept on deposit at the regional Federal Reserve banks. Because of the compulsory nature of these reserves and the possibility of adverse clearing balances at the Federal Reserve, deposits at the Reserve banks were commonly maintained in excess of amounts legally necessary, particularly by smaller banks. Since 1959, member banks have been able to count vault cash as part of their legal required reserves, obviating the need to maintain the whole of such balances with the Federal Reserve banks.⁴

Aside from statutory requirements, and as a practical consideration, operating needs also make it necessary for bank management to hold some portion of total assets in various forms of cash. As with most individuals and businesses, a part of these balances must be kept on hand as currency and coin (vault cash). Such funds are necessary for the daily conduct of banking business — cashing depositors' checks, making change, meeting savings

⁴ The ability to count vault cash as part of required reserves came in several stages, beginning in December 1959 and continuing into November 1960.

deposit withdrawals, and satisfying unforeseen loan demands. Because vault cash may now be counted as part of required reserves, this also affects the total volume of cash kept as vault cash.

Nearly all rural and suburban banks maintain demand balances with city correspondents; city banks, in turn, also maintain correspondent relationships with similar institutions located throughout the country. Essentially, the practice of correspondent banking rests upon the uniquely American system of unit banking. Many relatively small country banks look to city correspondents to provide a host of services — ranging from investment advice to help in designing a new banking office — that they themselves could not economically furnish. Among other things, smaller banks hope to participate with larger correspondents in the making of sizable loans for which their own resources are inadequate. Also, even though all member banks are free to use the Federal Reserve's check clearing facilities, some banks may, for one reason or another, prefer to do some or all of their clearing through correspondents.⁵ This applies not only to smaller banks, but also to large institutions. By providing these and other services, correspondent banks incur costs that are passed on to the recipient. To provide compensation, the user often maintains a cash balance — in the form of a demand deposit — with each of his correspondents; the latter can

⁵ For example, check clearing is sometimes faster by using the facilities of a correspondent. Also, before checks can be cleared through the Federal Reserve System a certain amount of preliminary work must be performed by the sending bank. Often the city correspondent will perform this for a country bank not having either sufficient personnel or facilities.

then earn an interest income through profitably investing deposited funds.

Finally, because of the time required for a bank to collect funds on checks drawn on other institutions, some of its assets are always tied up in cash items that are in the process of collection. Though large in volume, these items are not a very important source of liquidity; a banker must assume, in the absence of knowledge to the contrary, that as checks are collected, they will be replaced by a roughly similar amount of other such items, so that the bank will always have some funds tied up in the process of collection.

NATURE OF CASH ASSETS

Cash assets yield no income to their owner. In fact, with the exception of correspondent balances compensating for services received, an opportunity cost is incurred through the holding of idle cash. That is to say, by not acquiring interest-earning debt obligations or not making appropriate business and other loans, a bank foregoes earnings. Thus, bankers generally attempt to keep cash assets to a minimum.

Bank management can exert no control over some items, such as required reserves and cash items in process of collection. But over other types of cash assets—excess reserves (as defined in each of the subperiods), vault cash prior to mid-1960, and correspon-

dent balances—the banker is able to exercise discretion regarding both amount and composition.⁶ The latter group of items comprise managed cash assets. Such assets will be held at minimum levels if maximization of profits, consistent with prudence, is the banker's prime objective.

BEHAVIOR OF CASH IN RELATION TO TOTAL BANK ASSETS: 1954-1963

For the years under consideration (1954 through the middle of 1963), the ratio of cash assets to total assets of all member banks in the United States declined by about 22 percent, or at an average annual rate of 2.46 percent. This secular decline is evident in panel A of Chart 1. As the data for various periods show, however, there was not a consistent pattern in the rate of decline. For example, the average annual rate of decline in the cash asset-total ratio after the first half of 1960 substantially exceeded that in the 1954 through mid-1960 subperiod. Thus, the average annual rate of decline expanded in the later period to nearly three times the rate of decrease in the earlier period.

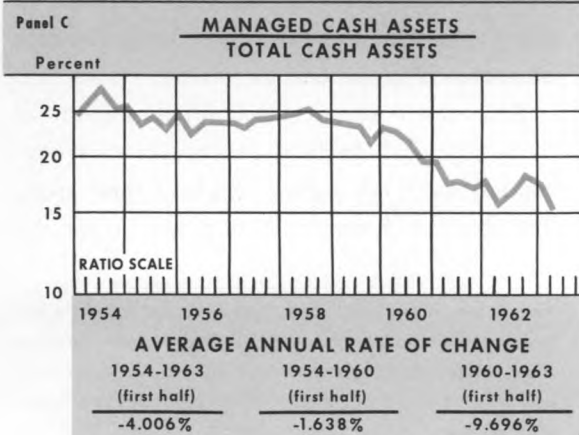
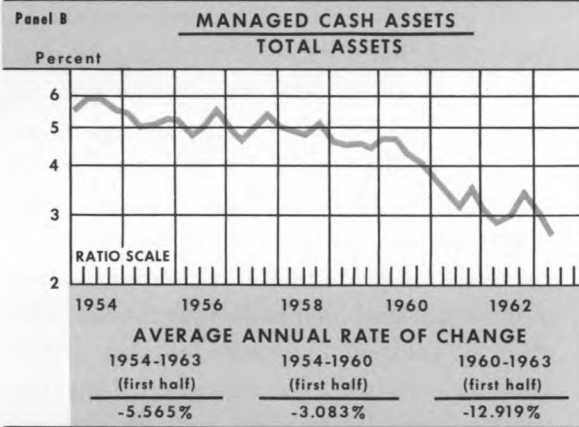
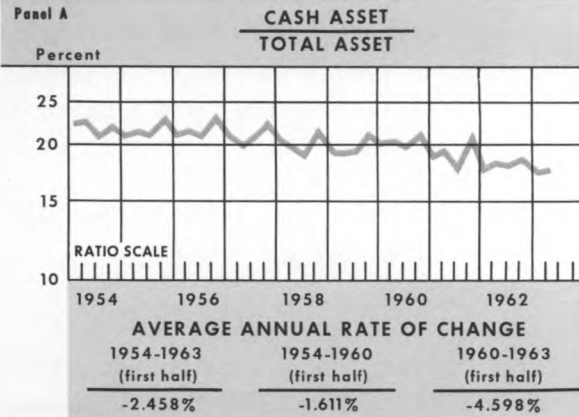
As panel B shows, the component ratio of managed cash to total assets likewise contracted over the entire 1954-63 time span. The decline, however, was much larger (by

⁶ Some qualification is necessary at this point. To a limited extent, management can affect the amounts of cash items in process of collection and held as required reserves. In the case of the latter, for example, it may be possible to effect a change by altering the composition of deposit liabilities. But opportunities for the exercise of such discretion are distinctly limited. On the other hand, practical considerations preclude bankers from

exercising unqualified discretion over the amounts and relative distribution of managed cash assets. To illustrate, some vault cash obviously must be kept on hand and at least a part of correspondent balances is a necessary payment for services received. For analytical purposes such a classification is both meaningful and useful if the limitations are in mind.

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1. BEHAVIOR OF SELECTED BANK ASSET RATIOS
ALL MEMBER BANKS - U.S.



Source of data: Board of Governors of the Federal Reserve System

about 2¼ times) than that registered by the cash asset-total asset ratio. Also, beginning with the second half of 1960, there was a pronounced increase in the average annual rate at which the managed cash-total asset ratio declined. From the first half of 1960 through the first half of 1963, the ratio fell, on average, by nearly 13 percent a year against only 3 percent in the earlier subperiod (1954-60).

With the ratio of cash assets to total assets contracting more slowly than the component ratio, the proportion of managed cash to total cash assets also declined (see panel C of Chart 1). The increase in the rate of decline of managed cash relative to total cash beginning in 1960 is, of course, the result of differing rates of change between the total of cash assets and the managed cash element.

It is important to recognize that the pronounced declines in the ratio of managed cash to total assets carry primary responsibility for pulling down the proportion of total cash to total assets. As Table I demonstrates, the ratio of nonmanaged cash (cash assets not subject to the bank's own control—required reserves and cash items in process of collection) to total assets declined at a much lower average annual rate than the ratio of managed cash to total assets, and even considerably less than the decline in the cash asset-total asset ratio. Moreover, because of the relatively low proportion of weight of managed cash in the total of cash assets,⁷ the long-term decline in the ratio of cash assets to total assets was due largely to the sizable reduction in the

⁷ From panel C of Chart 1 it can be seen that the managed cash component accounted for approximately 20 percent of total cash assets.

TABLE I
Changes in Selected Bank Asset Ratios
 (Average Annual Rates)

All Member Banks—U.S.	Managed Cash Assets	Cash Assets	Nonmanaged Cash Assets
	Total Assets	Total Assets	Total Assets
1954-1963	— 5.57%	—2.46%	—1.39%
1954-1960	— 3.08	—1.61	—1.11
1960-1963	—12.92	—4.60	—2.10

Note: In all cases, measurement is from first half of the year beginning the period to the first half of the closing year.

Source: Board of Governors of the Federal Reserve System

component managed cash-total asset ratio.

The increased pace at which the cash asset-total asset ratio declined in the 1960 through mid-1963 subperiod also should be attributed largely to the behavior of the managed cash-total asset ratio. While there was some increase in the average annual rate at which the ratio of nonmanaged cash to total assets declined, it was not comparable to the increase in the rate of decline of the managed cash-total asset ratio.⁸

It appears evident from the foregoing that bankers have been successful in reducing the proportion of total bank assets committed to discretionary cash holdings. Such success is even more marked when it is recognized that a portion (whose size is statistically unknown) of managed cash assets lies outside of the banker's span of control (see footnote 6). The magnitude of the long-term decline and increase in the rate of decline of the managed cash-total asset ratio stands out in sharp contrast to the more moderate rates of decrease registered by the nonmanaged cash-total

⁸ In any case, the increase probably just compensated for the sharp decline in the weight assigned to managed cash in the total of cash assets (see panel C of Chart 1). As the dynamic factor, any loss of weight not compensated for elsewhere would have retarded the rate at which the cash asset-total asset ratio declined.

asset ratio.

Thus, the following conclusions emerge: (1) the ratio of cash assets to total assets declined over the 1954-63 period; (2) after the first half of 1960, the rate of decline increased; (3) long-term reductions in the proportion of cash to total assets are primarily due to sizable declines in the component managed cash-total asset ratio; and (4) the increased rate of decline in the ratio of cash assets to total assets is explained basically by the more pronounced decline in the component managed cash ratio.

From these conclusions two questions emerge. First, what factors accounted for the long-term decline in the managed cash-total asset ratio? Second, what factors explain the increased pace of decline since the first half of 1960?

FACTORS DETERMINING THE BEHAVIOR OF THE RATIO OF MANAGED CASH TO TOTAL ASSETS

As opportunity costs of holding discretionary cash rise and actual dollar outlays increase relative to revenues, bank management will seek to further minimize cash balances and to employ existing funds profitably.

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It would thus seem likely that an observable, and perhaps casual, relationship exists between values of the managed cash-total asset ratio and the following factors (variables): levels of short-term interest rates, the proportion of time to demand deposits, and the ratio of total expenses to revenues. A reasonable hypothesis is that declines in the ratio of managed cash to total assets are associated with increases in (1) the level of short-term interest rates, (2) the proportion of time to demand deposits, and (3) the ratio of total expenses to total revenues. Before turning to data to verify or reject this hypothesis, a discussion of the associations that are involved would be helpful inasmuch as what are being looked for are relationships expressing causality — not simply observable associations.

Increases in short-term interest rates make the cost of keeping idle cash balances more expensive; that is to say the holder of such balances forfeits the opportunity of gaining additional revenue by not acquiring interest-earning assets. Thus, when short-term rates increase, bankers can be expected to further reduce managed cash balances. At the same time, when expenses increase relative to revenues, thereby reducing profits, bankers are additionally motivated to seek out new ways of cutting costs and raising earnings, with the investment of formerly idle cash representing one alternative.

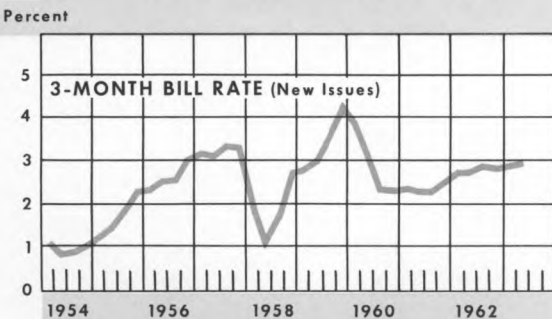
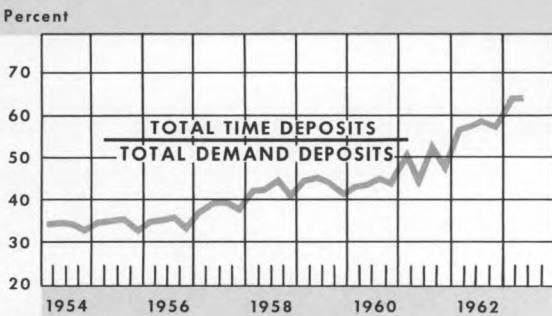
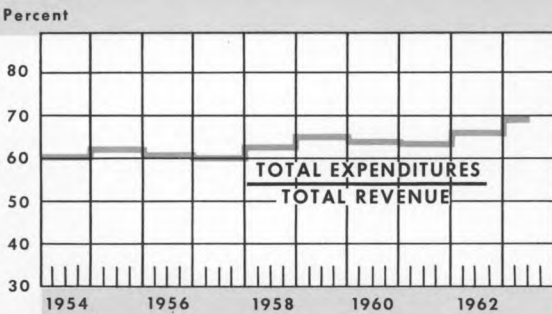
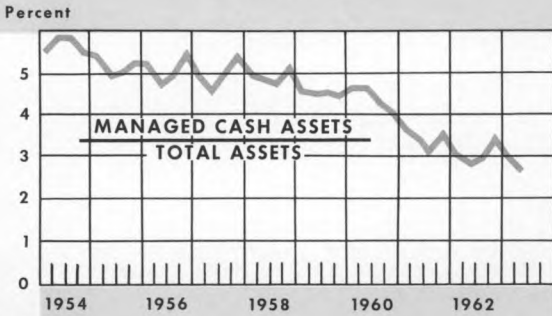
More attention must be devoted to the relationship between the managed cash-total asset ratio and the proportion of time to demand deposits. Banks, of course, pay interest on time deposits while they do not pay interest on demand deposits. And with all things equal, this would make time deposits more

costly and less profitable than demand deposits. The evidence available, however, is not conclusive as to the relative cost and profitability of the two types of deposits.⁹ This is not totally unexpected for things are not always equal; a number of other considerations related to time deposits, such as lower reserve requirements and smaller handling costs, must be taken into account and these may offset increases in costs due to interest payments. Regardless of which point of view is closer to being correct, there are at least two reasons for expecting a rising proportion of time to demand deposits to result in declines in the managed cash-total asset ratio. First, on the basis of casual thought and in the absence of detailed cost studies, bankers generally believe time deposits to be more costly than demand deposits, and consequently will strive to have more of their assets in earning form. Second, time deposits have traditionally been considered as behaving in a less volatile and more predictable manner in contrast to the behavior of demand deposits; this view has justified maintaining lesser amounts of immediate liquidity (cash).

Against this background, consideration can be given to the association between the factors discussed above (short-term interest rates, the ratio of time to demand deposits, and the proportion of total expenses to total revenues) and the behavior of the managed cash-total asset ratio.

⁹ See Crosse, H. D., *Management Policies for Commercial Banks*, (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1962), Chapter V and "The Cost of Demand Deposits," *New England Business Review*, Federal Reserve Bank of Boston, October 1961, for two divergent views concerning relative profitability. Interestingly, neither source takes a particularly rigid position in the matter.

2. SELECTED BANKING AND ECONOMIC VARIABLES
ALL MEMBER BANKS - U.S.



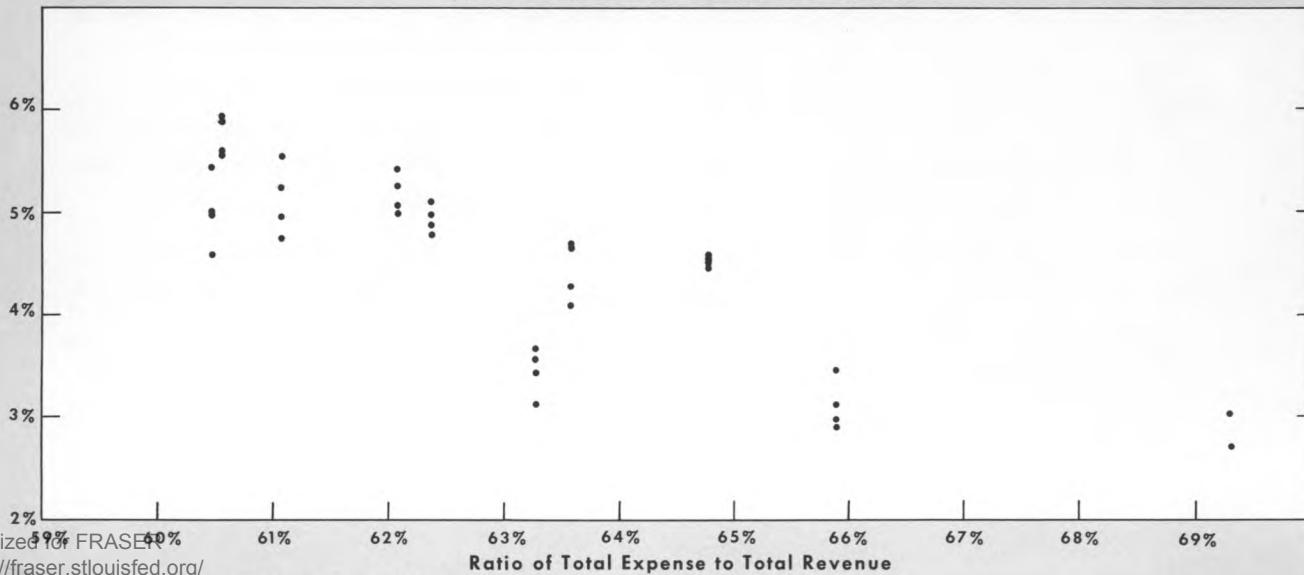
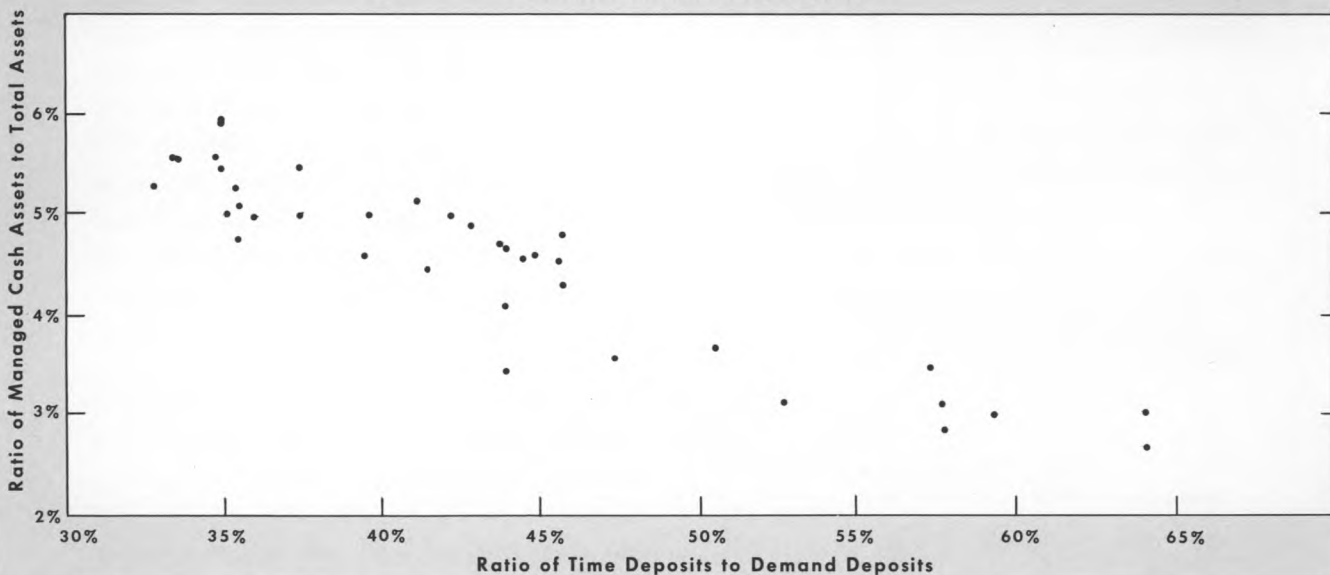
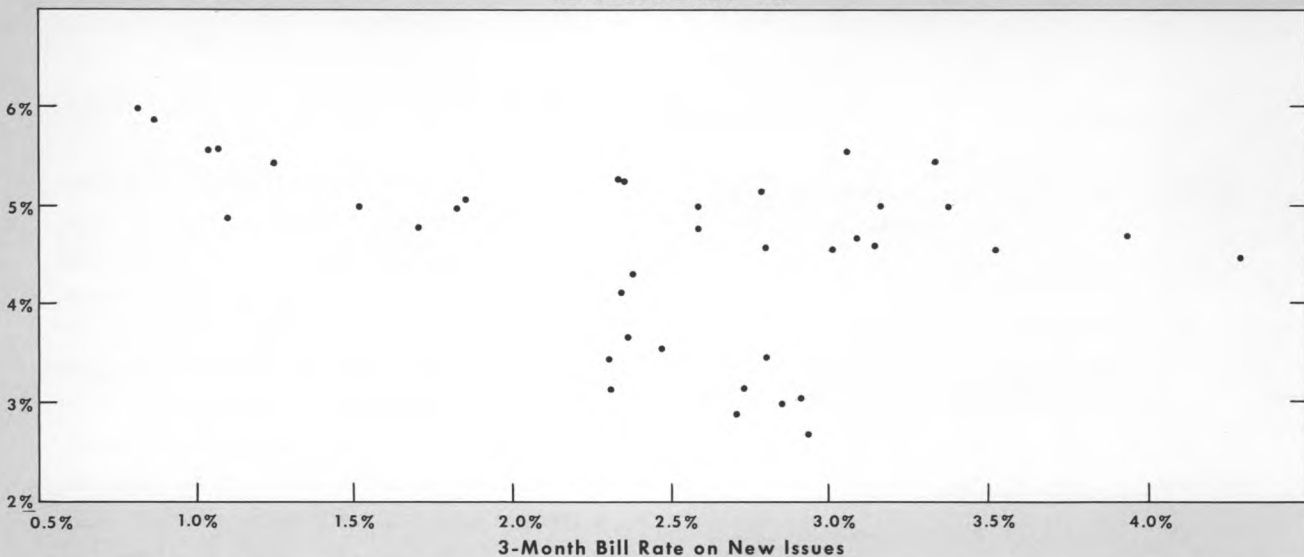
Source of data: Board of Governors of the Federal Reserve System

As shown in Chart 2, the ratios of both time to demand deposits and total expenses to total revenues¹⁰ rose steadily but unevenly over the 1954-63 period. On the other hand, short-term interest rates fluctuated in a generally cyclical manner, and the ratio of managed cash to total assets declined secularly.

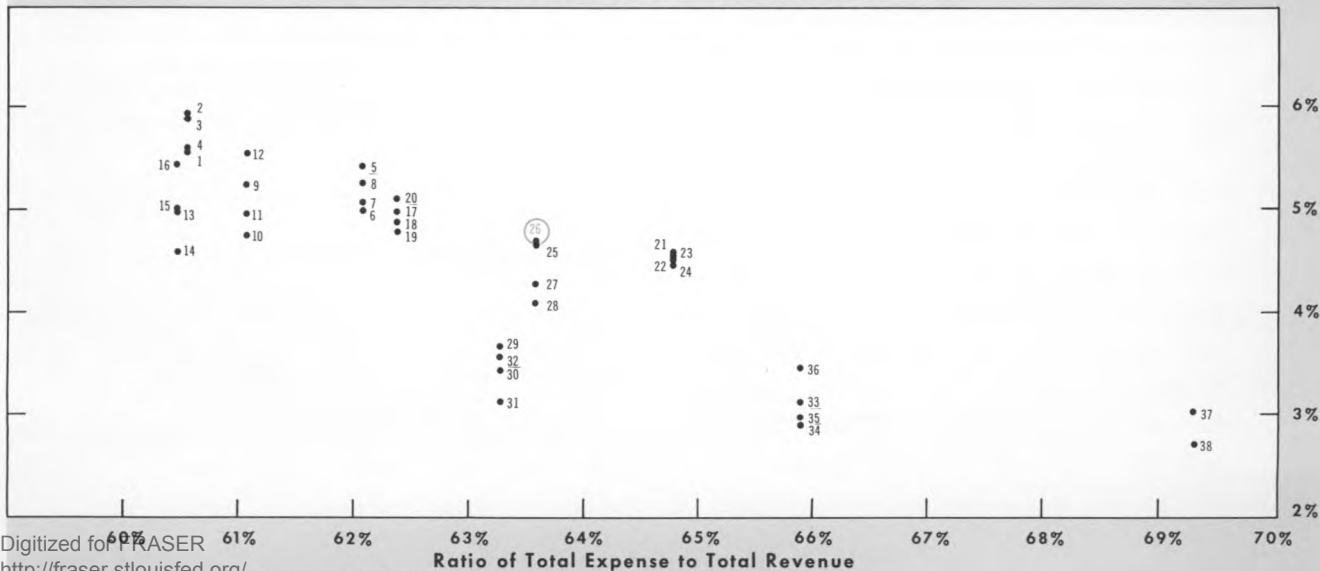
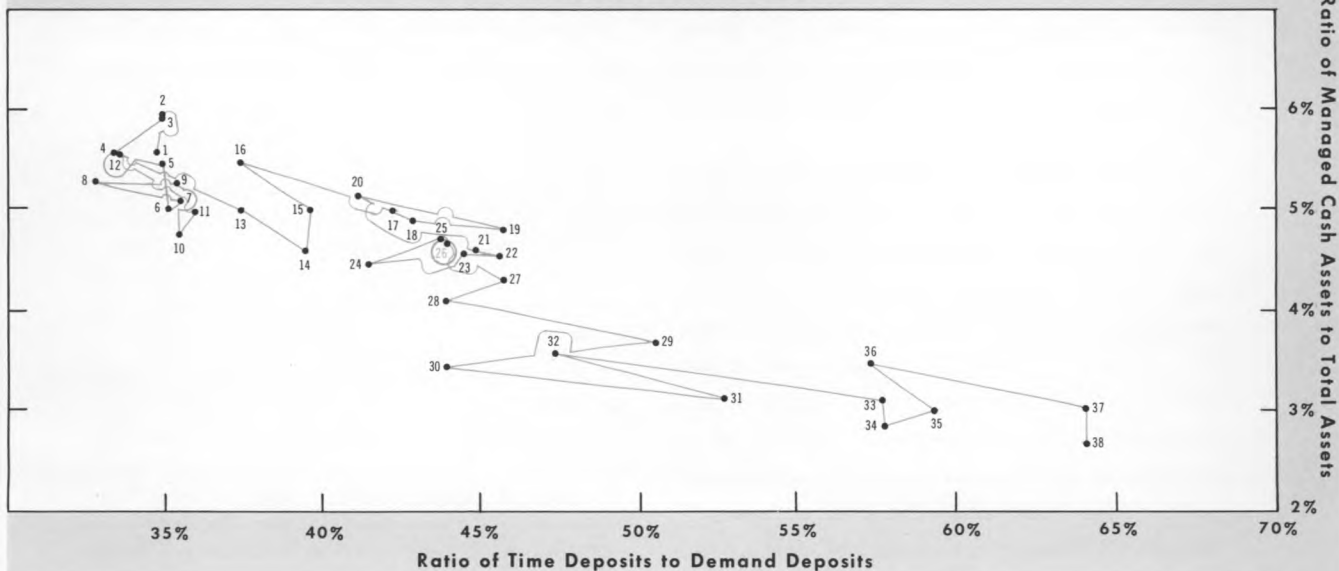
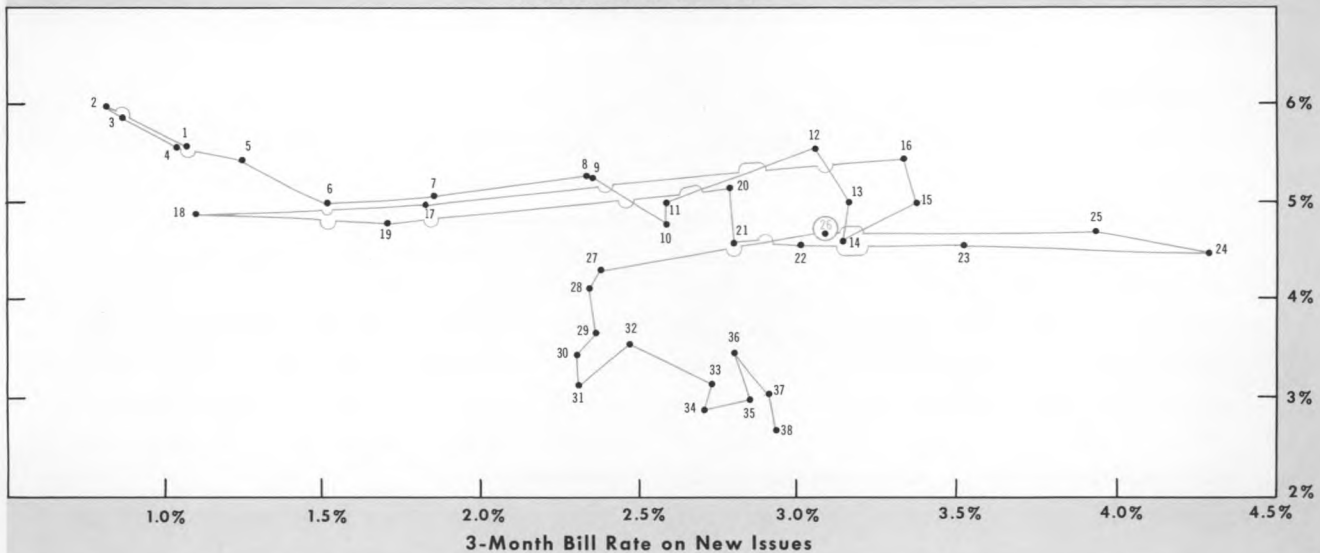
It is to be expected that relatively low values of the ratio of managed cash to total assets, as a general matter, will be associated with relatively high rates of interest and high proportions of time to demand deposits and expenses to revenues. Conversely, relatively high values of the managed cash to total assets ratio may be associated with relatively low interest rates and low proportions of time to demand deposits and expenses to revenues. These expectations are to some extent supported by the data plotted in Chart 2. Stronger support, however, is found in Chart 3 where, in a scatter diagram, the various factors under consideration are plotted against the managed cash asset-total asset ratio. In each case, an inverse relationship is indicated (downward sloping to the right); relatively high values of the managed cash-total asset ratio are generally associated with relatively low values of the explanatory variables. As Chart 3 shows, these negative relationships are particularly evident with respect to the ratio of time to demand deposits and the proportion of expenses to revenues.

¹⁰ For purposes of this study, the value of the total expense-total revenue ratio attributed to a given year is actually that of the previous year. To illustrate, for 1960 the value of the ratio in 1959 is used. The reason for this is that in the course of a year bank management may only be aware of the prior year's expense-revenue relationship. It is this relationship that influences cash management policies in the current year.

RELATIONSHIP of SELECTED VARIABLES to MANAGED CASH ASSETS - TOTAL ASSET RATIO
ALL MEMBER BANKS - U.S.



RELATIONSHIP of SELECTED VARIABLES to MANAGED CASH ASSETS - TOTAL ASSET RATIO
ALL MEMBER BANKS - U.S.



When the various scatter points in Chart 3 are connected and labeled in a time sequence (this is done in Chart 4), it becomes evident that a permanent downward shift occurred in the magnitudes of the managed cash-total asset ratio between the second and third quarters of 1960. (The time period is identified by a circle on the chart.) The second quarter of 1960 thus marks a break in the data; in succeeding periods given values of the explanatory factor are associated with substantially lower values of the managed cash-total asset ratio. The nature of the break in the data is perhaps most clear in the panel showing the relationship between the 3-month bill rate and the managed cash-total asset ratio.

Because of the downward shift, the degree of decline in each of the subperiods (1954 through the first half of 1960 and the second half of 1960 through mid-1963) is actually less than indicated in Chart 3. As an illustration, Chart 3 reveals a rather pronounced negative relationship between values of the managed cash-total asset ratio and those of the ratio of time to demand deposits (declines in the former are associated with increases in the latter). However, turning to Chart 4, and centering attention on the two subperiods, the negative association is not nearly so pronounced. This observation also holds, more or less, for the other two sets of relationships.

Considering the two subperiods individually, it is evident that declines in the ratio of managed cash to total assets are associated with increases in short-term interest rates, the proportions of time to demand deposits, and total expenses to total revenues. Furthermore, it seems reasonable to conclude that long-term declines in the managed cash-total asset ratio are in part explained by increases in the

above-mentioned factors.¹¹

Having accounted for the declines in the ratio of managed cash to total assets in each of the subperiods, the next step is to explain the sharp increase in the average annual rate of decline since mid-1960. The observed increase can be explained in part by the same factors discussed earlier (that is, short-term interest rates, the ratio of time to demand deposits, and the proportion of expenses to revenues).¹²

The data in Table II present supporting evidence. The statistics measure the percent decline in the ratio of managed cash to total assets associated with a one-percent increase in the values of each of the explanatory factors.¹³ Thus, for example, for the 1954 to mid-

¹¹ On the basis of statistical analysis, approximately 68 percent and 57 percent of the variation in the behavior of the managed cash-total asset ratio, for the 1954 to mid-1960 and mid-1960 to mid-1963 subperiods, respectively, is explained by the three factors cited herein.

¹² It should also be pointed out that a number of important institutional changes have taken place in the 1960's, which, according to some observers, have "revolutionized" banking. Such developments as greater use of certificates of deposit, a more active Federal funds market, and, as a more general matter, the tendency of many bankers to look upon their liabilities as a source of liquidity have been associated to some extent with the increased rate of decline exhibited by the ratio of managed cash to total assets since mid-1960. However, it is not certain whether these developments have been causal influences or merely institutional responses to the factors discussed in the text.

¹³ The statistics in Table II have been estimated from the following equations:

- (a) (Managed Cash-Total Asset Ratio) = $a_1 + B_1$ (Short-Term Interest Rates)
- (b) (Managed Cash-Total Asset Ratio) = $a_2 + B_2$ (Demand-Time Deposit Ratio)
- (c) (Managed Cash-Total Asset Ratio) = $a_3 + B_3$ (Expense-Revenue Ratio)

For each subperiod, estimates have been made on the basis of data pertinent to the period in question.

TABLE II
Percent Decline in the Ratio of
Managed Cash Assets to Total Assets
Associated With a 1% Increase in:

	First Quarter 1954 through Second Quarter 1960	Third Quarter 1960 through Second Quarter 1963
(a) Short-Term Interest Rates	0.129%	1.055%
(b) Demand-Time Deposit Ratio	0.546	0.864
(c) Expense-Revenue Ratio	2.393	2.845

Source: Estimated by the Federal Reserve Bank of Cleveland

1960 subperiod, a one-percent increase in short-term interest rates (e.g., from 3.00 percent to 3.03 percent) resulted, on average, in a 0.129 percent decline in the managed cash-total asset ratio. The data thus indicate the responsiveness of bankers—as measured by the percentage decline in the ratio of managed cash to total assets—to changes (increases) in the factors that are important in the maximization of bank profits. For the period since mid-1960, Table II clearly reveals a marked improvement in management's responsiveness to advances in short-term interest rates and to increasing proportions of time to demand deposits and expenses to revenues. Whereas for the earlier subperiod, a one-percent increase in short-term interest rates was associated with a decline of only 0.129 percent in the value of the managed cash ratio, a similar increase in the later subperiod was associated with a 1.055 percent decline.

Improved responsiveness, however, only partially explains the marked increase in the average annual rate of decline exhibited by the ratio of managed cash to total assets since mid-1960. Complementing and possibly influencing responsiveness was the sharp break, or downward shift, in values of the managed cash-total asset ratio that took place between the second and third quarters of 1960. In this

connection, it should be noted that this rather sudden and sustained shift resulted from permission granted member banks by the Board of Governors of the Federal Reserve System in December 1959 to count vault cash as part of their legally required reserves. Until then, legal reserve requirements could be satisfied only by maintaining deposit balances at regional Federal Reserve banks. At the same time, operating needs made it necessary for management to keep on hand sizable amounts of vault cash.

Prior to permission to count vault cash, excess reserves were the difference between the volume of reserves maintained with the regional Federal Reserve banks and the volume of required reserves. In succeeding periods, however, it was no longer necessary that all of required reserves be kept on deposit with the Reserve banks; vault cash, either in part or in total, could be substituted for Federal Reserve balances. Excess reserves, therefore, became the difference between the sum of cash balances maintained with the Federal Reserve plus vault cash and the amount of legally required reserves. To the extent that bankers chose to keep required reserves in the form of vault cash, instead of as deposits at the regional Reserve banks, the former ceased being a managed cash asset (that is, an asset whose behavior is subject to management's discretion). Thus, a modification in the form in which reserve requirements were satisfied caused a reduction in the volume of managed cash assets.

This is seen in Table III. In the 1954-60 subperiod, excess reserves averaged about \$577 million, while the vault cash component of managed cash assets averaged about \$2,151 million. In the succeeding subperiod, excess reserves rose to \$619 million. However, as

TABLE III

Managed Cash Assets

(Average Quarterly Dollar Volume)

	(1)		(2)		(3)		(4)
	Managed Cash Assets	=	Vault Cash	+	Balances With Other Commercial Banks in U.S.	+	Excess Reserves
First Quarter 1954 through Second Quarter 1960	9,586	=	2,151	+	6,858	+	577
Third Quarter 1960 through Second Quarter 1963	8,001	=	—	+	7,382	+	619
Net Change*	-1,585	=	-2,151	+	524	+	41

*Not additive because of rounding.

Source: Board of Governors of the Federal Reserve System

management effected sizable reductions in balances at the Reserve banks, all of vault cash came to be counted towards required reserves in addition to serving its traditional function as an operating asset. Once bankers choose to satisfy reserve requirements in this fashion, vault cash ceased being an asset subject to managerial control. The decline in managed cash assets resulting from the vault cash provision was partially offset by increases of \$524 million in balances with other commercial banks and \$41 million in excess reserves. The former probably reflected the additional use of correspondent services as the volume of check clearings rose with overall economic activity. In any event, as cash which no longer needed to be maintained at the regional Reserve banks found more profitable investment, managed cash assets declined by slightly more than \$1,585 million.

CONCLUDING COMMENTS

It would be extremely difficult to document precisely the influence of the vault cash pro-

vision on increased managerial responsiveness to increases in short-term interest rates and the proportions of time to demand deposits and expenses to revenues. While evidence pointing to increased responsiveness was presented earlier, no attempt was made to explain why. The primary reason for not attempting to account for management's increased responsiveness is that the causes are not sufficiently apparent or easily validated. However, by being able to count vault cash as part of required reserves it does seem that bankers were provided with additional flexibility, which in turn enabled them to be more responsive to factors tending to constrict profits. Before the provision, values of the managed cash-total asset ratio had already been reduced to relatively low levels; additional declines would have been difficult to bring about. The vault cash provision apparently altered the nature of the environment within which cash management had previously operated and provided management with a new set of opportunities to further curtail unprofitable managed cash assets.

MAJOR SOCIAL INSURANCE

TRUST FUNDS--

“Trust funds are created when Congress designates certain receipts to be set aside—in trust—for specified payments on programs . . . Trust funds may be used only to finance the activities for which they are designated . . . Most of the major trust funds finance insurance-type activities such as social security (old-age, survivors, and disability insurance), un-

employment insurance, Federal employees’ retirement, and veterans’ life insurance . . . Receipts of the trust funds come from sources related to their activity . . . In many cases, trust fund receipts exceed expenditures. The excess is accumulated in reserves to meet future payments and is usually invested in U. S. securities to earn interest for the fund.”¹

-- A SURVEY

The foregoing is a highly simplified summary of a vast area of Federal Government finance that is often overlooked in discussions of fiscal policy, debt management, financial flows in credit and capital markets, private spending and saving decisions, and the like.

There are more than 60 U. S. Government trust funds and investment accounts, with assets totaling in excess of \$60 billion as of June 30, 1964. In asset size alone, the combined funds are larger than the three largest life insurance companies or the eight largest manufacturing corporations in the U. S. Reflecting their asset size as well as their investment policies, the trust funds hold nearly one-fifth of the total Federal debt, or almost three times as much as that held by all nonfinancial corporations and about the same as commer-

cial banks.

A further indication of some of the financial magnitudes—or the inflows and outflows of funds—involved in trust fund operations is suggested by the fact that expenditures of all trust funds combined accounted for nearly one-fourth of the Federal Government’s cash payments to the public during fiscal year 1964 (\$28.9 billion compared with \$120.3 billion). The corresponding ratio of trust fund receipts to total Federal receipts was slightly higher (\$30.3 billion compared with \$115.5 billion). These relationships give some idea of the significance of trust fund operations within the fiscal policy complex of the Federal

¹ *The Budget in Brief*, Fiscal Year 1966, Executive Office of the President, Bureau of the Budget, Washington, D. C., p. 52.

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Government. Furthermore, receipts of some \$30 billion in fiscal year 1964 meant that trust fund inflows approximated the sales revenues of the eighteen largest merchandising firms in the U. S.

Against this background, it is the purpose of this article to survey the operations of selected Federal trust funds and to discuss some of the implications of their programs. Attention is confined to the seven largest social insurance trust funds, which account for approximately 85 percent of total assets of all trust funds combined. In addition to forming the major part of the total trust fund complex, these seven funds also share a common socio-economic tie of carrying out the functions of national social insurance programs.

BACKGROUND

Background information on the seven trust funds is presented in summary form in Table I in the Appendix. In addition to the financing provisions of the respective programs, information is included on the statutory authority under which each operates. It should be noted that the financing provisions of the various social insurance programs are changed frequently. (See Tables II through V in the Appendix.) Further changes are expected to be made during the current session of the Congress. For example, the President has requested that changes be made this year in the Old-Age and Survivors' Insurance program, involving increases in benefit payments, tax contributions and the taxable earnings base (effective in 1966), and the incorporation of a medical care for the aged program.

The *Old-Age and Survivors' Insurance* program is probably the most important of the various Government social insurance programs, particularly because it affects more people than any other program. The OASI program usually is considered together with the *Disability Insurance* program, since they are financed with combined employment taxes and cover the same workers. In fact, the two programs together (OASDI) are often referred to as the social security program. At the end of 1964, more than 90 percent of all U. S. workers in paid employment (including self-employment) were covered by the social security program.² Those excluded were Federal employees, certain employees of state and local governments, and medical doctors in private practice. Many of those excluded from social security are covered by other Federal or state and local government retirement and disability plans.

For example, the *Civil Service Retirement and Disability* program provides retirement and disability benefits for employees of the Federal Government. The Vice President, Members of Congress, and congressional employees may come under the program at their own discretion and are referred to as Members. The *Railroad Retirement Account*, set up before railroad workers were affiliated with the social security program, makes monthly benefit payments to retired and disabled railroad employees and their dependents and also provides lump-sum death benefits.

² Including railroad employees. Although more than 90 percent of workers were covered, a slightly smaller proportion was actually in the program. Coverage for some workers is voluntary.

The *unemployment insurance* program was established by the states under the aegis of the Federal Government. The program is also financed by an employment tax, but one that applies to employers only. Tax receipts are collected by state agencies, and then the reserves of the various state programs are transferred to the national Unemployment Trust Fund. Unlike the social security program, there is variation in coverage and benefits within the unemployment program, reflecting the diversified nature of that program.³

The other two trust funds discussed here involve still another kind of insurance. The veterans' life insurance programs provide life insurance with a maximum value of \$10,000 to qualified veterans. Both the *United States Government Life Insurance* and the *National Service Life Insurance* programs, which issued policies to veterans of World War I and World War II, respectively, were closed to new entries after 1951.⁴ The volume of benefits, dividends, and refunds by these trust funds has been declining as fewer policies are in force.

SOURCES OF FUNDS

The receipts and expenditures of the trust funds both reflect and influence the behavior of the economy. That is to say, since revenues of the trust funds represent a drain upon current income and expenditures represent a

³ The various states have different rules and criteria regarding coverage, duration and size of benefit payments, and financing.

⁴ Congress recently passed legislation reopening the NSLI program for one year beginning May 1, 1965 to World War II and Korean War veterans.

supplement to current income, the interaction of both sides of the accounts can have major economic effects. Particularly because the same people who make payments to social insurance programs are not necessarily those who receive payments, a number of economic cross-effects are possible. These are discussed in a later section.

Revenues of the seven trust funds are derived from a variety of sources: employment taxes, policy premiums, interest and profits on investments, "financial interchange", and miscellaneous sources. Employment taxes and investment earnings are clearly the major ones, as can be seen from Table I.

Employment Taxes. Five of the seven major social insurance programs are primarily financed through employment taxes paid by employees, employers, or both.⁵ Tax receipts are taken here to include deposits received by the states and transferred to the Federal trust funds. These five funds derived \$22.3 billion, or 89 percent, of their total income during fiscal year 1964 from such taxes. With the exception of the Railroad Retirement Account, each of the tax-supported funds currently derives 80 percent or more of its revenues from employment taxes. It might be noted that the Railroad Retirement Account was also primarily tax-supported prior to the development of the financial interchange program, discussed on page 18.

Growing demand for liberalization and expansion of benefits has made it necessary to increase social insurance tax contributions

⁵ Technically, employee and employing agency payments to the Civil Service Retirement and Disability Fund are not taxes; they are contributions. However, they are considered as taxes for the purpose of this article.

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from time to time. Thus, for example, in order to establish adequate reserves for current operations and reserves that were also sufficient to provide for substantially increased claims during periods of economic decline, unemployment tax rates were raised in 1961 and 1962. The history of financing the five tax-supported funds since their inception is shown in Appendix Tables II through V; the tables also include financing projections according to the provisions of current laws.

Policy Premiums. In contrast to the retirement and unemployment plans, the two veterans' life insurance funds derive important support from premiums paid by policyholders. During fiscal year 1964, the two veterans' life insurance funds combined derived \$497 million, or 70 percent of their revenues from policy premiums. However, the USGLI fund depended upon premiums for only about one-third of its revenue, while the NSLI fund, which insures younger veterans, received a larger proportion of premiums. In fact, there has been a shift over time from policy premiums to earnings on investments as the major source of revenue for the USGLI fund.

Interest and Profits on Investments. As a source of funds, earnings on investments accounted for only \$1.6 billion, or 6.1 percent, of total revenue for the seven trust funds during fiscal year 1964. Such earnings are a secondary source of income for the larger trust funds, fluctuating narrowly according to the volume of security holdings. While relatively small, earnings on investments do represent a proportionately large source of revenue for the life insurance funds. Generally speaking, earnings on investments for the seven

funds combined comprise a smaller percentage of total revenues than they did in the past.

Financial Interchange. In general, financial interchange represents annual net transfers of funds between the OASDI program and the Railroad Retirement Account. The arrangement is intended to place the social security trust funds in the financial position they would have been in if railroad employees were, and always had been, covered under social security. When the financial interchange program was originated in the early 1950's, the net adjustment was in favor of the social security funds. However, since 1957, annual financial flows have been heavily in favor of the Railroad Retirement Account, with the reimbursements equivalent to the difference between benefits that would have been available on the basis of combined credits under both retirement programs and benefits actually paid on the basis of OASDI credits alone. In fiscal 1964, financial interchange totaled \$422 million and made up approximately 35 percent of the Railroad Account's revenue.

Other Sources. All other receipts of the major social insurance trust funds accounted for about \$309 million, or slightly more than 1 percent of total revenues, during the 1964 fiscal year. Other sources include advances from the general revenues of the U. S. Treasury and interfund transactions.

USES OF FUNDS

Generally, revenues of the trust funds are used to make benefit payments, to pay administrative expenses and miscellaneous expenditures, and, if funds are left over, to build up the reserves of the funds.

TABLE I
Receipts and Expenditures of Major Social Insurance Trust Funds
 Fiscal Year 1964
 (millions of dollars)

<u>Receipts</u>	Old-Age and Survivors' Insurance	Disability Insurance	Railroad Retirement Account	Unemployment	Civil Service Retirement and Disability	United States Government Life Insurance	National Service Life Insurance	Total, Seven Trust Funds
Employment Taxes	\$14,335	\$1,057	\$ 593	\$ 842	\$1,974	—	—	\$18,802
Deposits by States	1,167	86	—	3,042	—	—	—	4,295
Earnings on Investments	539	68	130	213	420	\$ 34	\$176	1,580
Financial Interchange	—	—	422	—	—	—	—	422
Policy Premiums	—	—	—	—	—	16	482	498
Other	3	—	47	191	62	—	6	309
TOTAL	\$16,043	\$1,211	\$1,192	\$4,288	\$2,456	\$ 51	\$664	\$25,906
<u>Expenditures</u>								
Benefit Payments	\$14,579	\$1,251	\$1,092	\$ 134	\$1,318	\$ 73	\$588	\$19,036
Withdrawals by States	—	—	—	2,703	—	—	—	2,703
Administrative Expenses	300	70	11	22	—	—	—	404
Financial Interchange	403	19	—	—	—	—	—	422
Other	3	—	35	848	—	—	—	885
TOTAL	\$15,285	\$1,341	\$1,138	\$3,707	\$1,318	\$ 73	\$588	\$23,450
Additions to Reserves (+)	+ 759	— 130	+ 54	+ 582	+1,138	— 22	+ 76	+ 2,455

Figures may not add to totals due to rounding.

Source: U. S. Treasury Department

TABLE II
Assets of Major Social Insurance Trust Funds
 June 30, 1964
 (millions of dollars)

<u>Trust Fund</u>	Total Assets	Cash	Total Government Securities	Public Issues of Government Securities	Special Issues of Government Securities	Special Issues as a Percentage of Total Government Securities
Old-Age and Survivors' Insurance	\$19,726	\$1,421	\$18,305	\$3,506	\$14,799	80.8%
Disability Insurance	2,264	126	2,138	361	1,777	83.1
Unemployment	6,858	40	6,818	1,888	4,931	72.3
Civil Service Retirement and Disability†	14,386	107	14,279	788	13,491	94.5
Railroad Retirement Account	3,859	92	3,766	798	2,968	78.8
National Service Life Insurance*	6,303	13	5,783	—	5,783	100.0
United States Government Life Insurance*	1,075	1	956	—	956	100.0
TOTAL	\$54,471	\$1,799	\$52,046	\$7,341	\$44,706	85.9%

Figures may not add to totals due to rounding.

†Partially estimated.

*Other assets, including policy loans, liens, and receivables, totaled \$508 million for NSLI and \$118 million for USGLI.

Sources: U. S. Treasury Department, Veterans' Administration, U. S. Department of Health, Education, and Welfare

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Benefit Payments. The primary use of funds is to make benefit payments to persons covered by the respective programs. Such payments are made to retired and disabled workers (or their survivors), unemployed workers, and policyholders (or their beneficiaries) under the veterans' life insurance programs. The \$21.7 billion of benefit payments, including withdrawals by states, accounted for 93 percent of the total expenditures of the seven large trust funds during fiscal year 1964. (See Table I.)

Benefit payments under OASDI accounted for two-thirds of all expenditures of the seven funds during the 1964 fiscal year. Approximately two-thirds of OASI's \$14.6 billion in benefit payments made during fiscal year 1964 accrued to retired workers. The remaining payments were made monthly to dependents of retired or deceased workers or took the form of lump-sum death benefits. The disability insurance portion of the OASDI program makes benefit payments to disabled workers *under* age 65 (and their dependents) who are covered by the program. About 80 percent of this program's \$1.3 billion of benefit payments in fiscal 1964 was received by working-age people who were permanently and totally disabled.

A number of observations may be made about the volume of benefit payments under individual programs in fiscal 1964. In the case of both the disability insurance portion of the OASDI program and the USGLI programs, benefit payments exceeded total receipts in fiscal 1964. The NSLI program paid out \$588 million in benefits, dividends, and refunds, as compared with \$73 million distributed by USGLI—a relationship reflecting

the differing age groups of veterans insured under the two programs. Benefit payments of the unemployment program were relatively low by historical standards in 1964, reflecting the high level of economic activity in the nation.

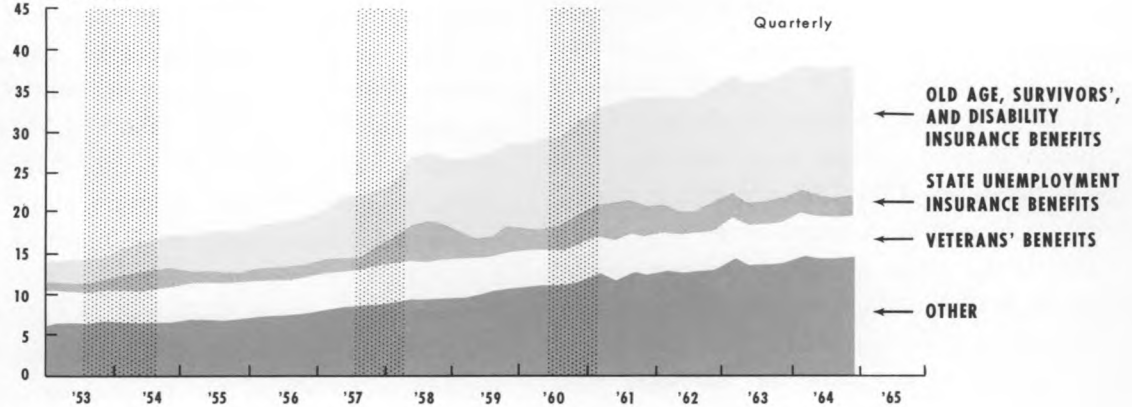
Administrative Expenses. Four of the seven large trust funds must pay their own administrative costs; the other three are financed from general revenues of the Treasury. Administrative expenses totaled \$404 million in fiscal 1964, or 1.7 percent of total expenditures. The percentage relationship for that year was generally similar to that which has prevailed over time, reflecting the relatively low administrative costs associated with the various programs.

Other Expenditures. All other expenditures, including the financial interchange program discussed earlier, accounted for 5 percent of total uses of funds in the 1964 fiscal year. Although financial interchange accounted for a substantial proportion of the Railroad Retirement Account's revenue, it was not a correspondingly large percentage of the expenditures of the OASDI trust funds because of the larger volume of spending under the social security program.

Addition to Reserves. Receipts of the trust funds not used in the current accounting period are added to reserves of the funds and invested in public debt securities. Two of the seven large funds (Disability Insurance and USGLI) experienced declines in their reserves in fiscal year 1964 because expenditures exceeded receipts. The other funds added approximately \$2.5 billion, or 9.5 percent of total revenues, to reserves during the year.

1. **TRANSFER PAYMENTS and SELECTED COMPONENTS**

Seasonally Adjusted Annual Rates
Billions of dollars



Source of data: U.S. Department of Commerce

Accumulation of reserves helps to fulfill program or trust fund objectives. Reserves at the least must be adequate to supplement receipts in order to ensure current payments and provide a basis for making expanded payments in periods of economic decline when benefits usually rise. While the accumulation of trust fund reserves would seem to be contrary to the view that argues for "deficit spending" at the national level to help stimulate the economy, proponents of continually increasing reserves argue that a decline in the reserve base would harm the actuarial soundness of the trust programs. It is generally accepted that total reserves need not be large enough to cover total liabilities, but should be sufficient to meet current payments, at least for a while. The seemingly appropriate test for financial soundness is that future income should support the volume of anticipated disbursements.

Accumulation of trust fund reserves results in a net withdrawal of funds from the current income stream of the economy. In contrast,

deficits and drains on reserves provide additions to the current income stream. The OASI trust fund has had deficits during five of the last seven fiscal years, while the disability trust fund has run a deficit in the last two years. In fact, the Civil Service fund is the only one of the seven funds that has not had a deficit in recent years.

INVESTMENT POLICIES

The assets of the seven major trust funds are summarized in Table II. As indicated earlier, the \$54.5 billion of assets of the seven funds represented about 85 percent of total assets of all U. S. Government trust funds as of June 30, 1964. Of the seven, the OASI trust fund is the largest, with the Civil Service Retirement and Disability fund ranking second. These two, combined, account for well over half of the total assets of the seven trust funds shown in the table.

In all cases, holdings of U. S. Government securities constitute nearly all of the assets held by these funds; cash balances and other

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assets represent only about four percent of total assets. About 86 percent of the Government securities held by the trust funds are special issues, that is, nonmarketable securities sold exclusively to the trust funds. As Table II shows, the seven funds held \$44.7 billion in special issues as of June 30, 1964. The Secretary of the Treasury, who is managing trustee of each of the seven trust funds, invests the funds' assets primarily in special issues to protect the funds from price fluctuations of regular, marketable Treasury issues. According to law, each of the funds must purchase special issues based on prescribed interest rate formulas; the formulas have been revised in the past few years in order to obtain higher rates of interest.

Some trust funds also are authorized to purchase other securities that are fully guaranteed by the Government, and some funds are even permitted broader investment practices. For example, the USGLI Trust Fund may purchase nonguaranteed securities issued under authorization of the Federal Farm Loan Act of 1916, and both veterans' life insurance funds invest a small proportion of their resources in policy loans.⁶

⁶ As of June 30, 1964, the USGLI fund held 9.7 percent and the NSLI fund 8.8 percent of assets in policy loans. The USGLI is the only major trust fund that has ever held any securities other than public debt obligations. From 1925 through 1944, this fund held varying amounts of Federal farm loan bonds. Such bonds made up a major portion of the fund's investment portfolio during the 1930's. When in April 1964 the fund purchased a \$25 million Federal Land Bank bond (a nonguaranteed security) bearing interest at 4 percent, it represented the first time since 1944 that the fund had held any securities other than special issues of public debt obligations.

SOME ECONOMIC EFFECTS

Benefit payments by the seven social insurance programs form a significant part of the transfer payments component of personal income. The seven programs accounted for approximately 60 percent of the \$38.4 billion of total transfer payments in calendar year 1964, with the OASDI program alone accounting for more than 40 percent of the total. Chart 1 shows the dollar volume of total transfer payments and selected components from 1953 through 1964. The chart indicates continuous growth in total transfer payments as well as a shifting pattern among the different types of payments. Although total transfer payments were approximately two and a half times as great in 1964 as in 1953, benefits under the OASDI program were more than four times as great, whereas veterans' benefits were only about one-third larger.⁷

Transfer payments comprise a relatively small share of total personal income, but the proportion has increased in recent years. For example, in 1953—a year that saw the beginning of a recession when payments would tend to be larger—transfer payments accounted for only 5 percent of personal income. In 1964, they amounted to 8 percent of personal income. A considerable part of the increase in transfer payments relative to personal income reflects the rise in the number of people under the social security program.

Although it is difficult to separate cyclical movements from trend, a major importance of transfer payments in the income stream is based on their contracyclical movements

⁷ The disability insurance program was not in effect until 1957.

relative to personal income. Thus, while transfer payments have continued to increase regardless of the stage of the business cycle, the rate of increase has accelerated during recession periods. During the 1953-1964 period, transfer payments increased by an average of 4.1 percent during each recession quarter but averaged only a 1.5 percent quarterly increase during the expansion phases of the business cycle (see Table III). Within total transfer payments, the unemployment insurance benefits component reveals the most apparent contracyclical movements (see Chart 1).

TABLE III
Average Quarterly Rate of Growth
in Personal Income and Selected Components
1953-1964
 (percent)

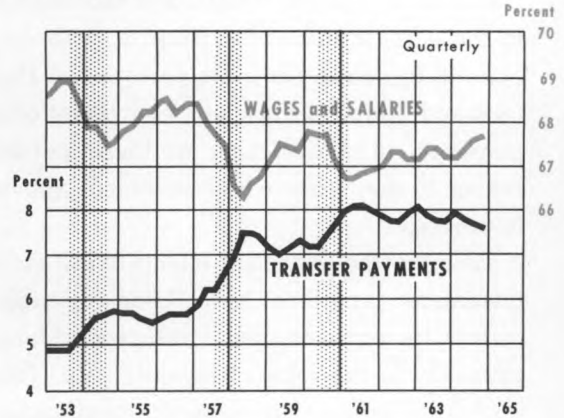
	Personal Income	Transfer Payments	Wages & Salaries
Recession	+0.7	+4.1	+0.5
Recovery and Expansion	+1.5	+1.5	+1.6

Source: U. S. Department of Commerce

The increased proportion of personal income accounted for by transfer payments and the contracyclical activity of the social insurance programs does not completely depend upon discretionary Government action; some of it is "automatic" or "built-in". Thus, the ebb and flow of payments under various programs reflect in part changes in economic activity, particularly changes in the level of income. This relationship is illustrated by the behavior of transfer payments and wages and salaries. Transfer payments and wages and salaries are plotted as a percent of total personal income in Chart 2. Both components are more responsive to cyclical movements

2.
TRANSFER PAYMENTS and WAGES and SALARIES as a
PERCENT of PERSONAL INCOME

Seasonally Adjusted Annual Rates



Source of data: U.S. Department of Commerce

than are other personal income components, but *in combination*, the two components fluctuated by no more than 0.5 percentage points a quarter during the 1953-1964 period. This reflects the fact that cyclical declines in wages and salaries have tended to be offset by increases in transfer payments. In contrast, during the recovery phases of the business cycle, transfer payments have leveled off and wages and salaries increased in response to the improvement in economic activity.

The social security and other retirement programs act as automatic stabilizers when more persons choose early retirement during recession periods, thus causing an increase in transfer payments. Continually broader coverage and liberalization of benefits under these retirement programs, however, obscure the portion of total payments that is a response to the state of economic conditions. In contrast, the contracyclical effects of the social insurance programs are readily apparent in the patterns of unemployment insurance

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benefits, as shown in Chart 3. Peaks in the volume of these benefits usually have occurred either at the trough of a recession or in the early months of expansion, with such benefits increasing as more persons lose their jobs and begin to draw unemployment compensation, and declining as these persons return to their jobs when economic activity improves.

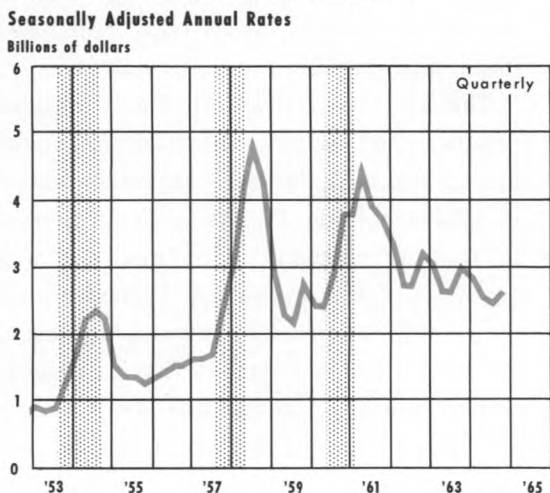
Thus far, the economic effects of the social insurance programs have been discussed mainly in terms of trust fund expenditures, primarily in the form of benefits paid. Trust fund receipts also have economic significance, as is indicated by Chart 4, which shows the dollar total of personal contributions for all social insurance programs during the 1953-1964 period. Rather than moving contracyclically, personal contributions have been characterized more by a steady upward trend. Some of the growth in total receipts has been due to expanded coverage of work-

ers under the social security program, but the rising level may be traced even more directly to legislative increases in the amount of tax contributions (indicated by the arrows on the chart).

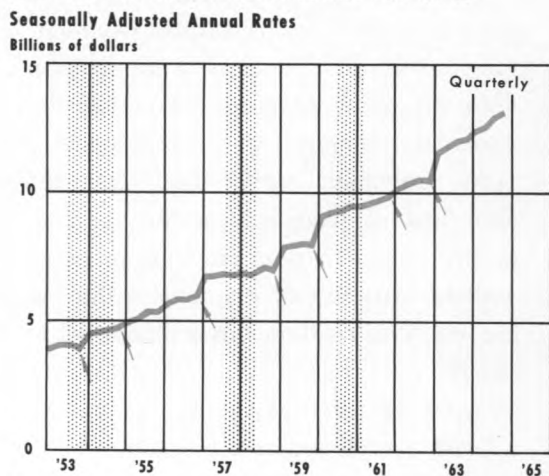
Increases in either OASDI tax rates or the taxable earnings base have been passed by Congress primarily to help maintain actuarial balance of the trust funds. Somewhat coincidentally, such legislative increases have often occurred during or only a few months preceding the three most recent recessions. As a result, these legislative actions, perhaps inadvertently, have tended to dampen the contracyclical effects of the social insurance programs.

Finally, the social insurance programs have an economic impact in that they bring about some redistribution of income. The effect of such redistribution is to shift potential purchasing power from employed workers (who pay the taxes) to persons who are unem-

3. STATE UNEMPLOYMENT INSURANCE BENEFITS
Seasonally Adjusted Annual Rates



4. PERSONAL CONTRIBUTIONS for SOCIAL INSURANCE
Seasonally Adjusted Annual Rates



NOTE: Legislative increases in taxes indicated by arrows.

ployed, retired, or disabled (who receive the benefit payments). Generally speaking, recipients of transfer payments are likely to spend more of their total income than are the employed people who are contributors to social insurance programs. To the extent that income is redistributed in this way, total consumer spending is increased and economic activity is stimulated.

However, one additional factor to be considered in evaluating the effects of income redistribution is the fact that social insurance taxes are regressive in nature. That is, by setting a maximum income subject to the tax, persons whose incomes rise above the tax-

able earnings base pay a smaller percentage of their total income in social insurance taxes than do those whose incomes fall below the tax base. To give an example, an employee with an annual gross income of \$4800 pays $3\frac{5}{8}$ percent of his salary, or \$174, in OASDI taxes. In contrast, a person with an annual income of \$48,000 also pays \$174, or less than 0.4 percent of his income to the social security program. Thus, any possible increases in purchasing power evolving from the redistribution of income is partially blunted by the regressivity of the tax burden and as a result, may not have as great an economic impact as otherwise.



APPENDIX TABLE I
Background Information on Major Social Insurance Trust Funds

<u>Name of Trust Fund</u>	<u>Statutory Authority</u>	<u>Major Source of Revenue</u>	<u>Paid by</u>	<u>Rate</u>	<u>Taxable Earnings Base</u>
Old-Age and Survivors' ^{1,2} Insurance	Social Security Act Amendments of 1939	Employment tax	Employees	3 3/8 %	\$4,800 per year
			Employers	3 3/8	
			Self-employed	5.025	
Disability Insurance ²	Social Security Act Amendments of 1956	Employment tax	Employees	1/4	4,800 per year
			Employers	1/4	
			Self-employed	3/8	
Unemployment ³	Social Security Act of 1935	Employment tax	Employers of 4 or more	3.1	3,000 per year
Civil Service Retirement ⁴ and Disability	Civil Service Retirement Act of 1920	Employment tax	Employees	6 1/2	10,000 per year
			"Members"	7 1/2	
Railroad Retirement Account ⁵	Railroad Retirement Act of 1937	Employment tax	Employing agencies	6 1/2 or 7 1/2	450 per month
			Employees	8 1/8	
			Employers	8 1/8	
National Service Life Insurance	National Service Life Insurance Act of 1940	Policy premiums	Policyholders	n.a.	n.a.
United States Government ⁶ Life Insurance	World War Veterans Act of 1924	Interest Policy premiums	Debtors Policyholders	n.a.	n.a.

n.a.—not applicable.

¹ The OASI trust fund superseded the Old-Age Reserve Account as of January 1, 1940. The Old-Age Reserve Account was established by the Social Security Act of 1935.

² The OASI and DI trust funds are jointly financed with the tax rate equivalent to 3 5/8 percent for employees and employers and 5.4 percent for the self-employed.

³ A 2.7 percent tax credit is allowed for moneys paid into a state unemployment insurance program.

⁴ "Members" refers to the Vice President, Members of Congress, and congressional employees. The employing agencies match contributions by employees or "Members".

⁵ A Railroad Retirement Account was originally established in 1934 by an act that was declared unconstitutional in 1935. Litigation also prevented a 1935 Act from becoming effective.

⁶ This fund was established in 1919 by an amendment to the War Risk Insurance Act of 1914. The 1924 statute effectually replaced the prior legislation. Recently the major source of revenue for this fund has been interest on investments in U. S. Government securities, policy loans, liens, and premiums paid in arrears.

Sources: Social Security Act, Civil Service Retirement Act, Railroad Retirement Act, Veterans' Administration, U. S. Treasury Department

APPENDIX TABLE II
Financing Provisions of the Old-Age and Survivors' and Disability Insurance Trust Funds

Time Period	Taxable Earnings Base	Employees-Employers Tax Rate (Percent)		Self-Employed Tax Rate (Percent)	
		OASI	DI	OASI	DI
1937-1949	\$3,000	1	—	—	—
1950	3,000	1½	—	—	—
1951-1953	3,600	1½	—	2¼	—
1954	3,600	2	—	3	—
1955-1956	4,200	2	—	3	—
1957-1958	4,200	2	¼	3	¾
1959	4,800	2¼	¼	3¾	¾
1960-1961	4,800	2¾	¼	4½	¾
1962	4,800	2¾	¼	4.325	¾
1963-1965	4,800	3¾	¼	5.025	¾
1966-1967	4,800	3¾	¼	5.825	¾
1968 and after	4,800	4¾	¼	6.525	¾

Source: U. S. Department of Health, Education, and Welfare

APPENDIX TABLE III
Financing Provisions of the Unemployment Trust Fund

Time Period	Paid By	Taxable Earnings Base	Tax Rate (Percent)
1935-1955	Employers of 8 or more	\$3,000 per employee	3.0
1956-1960	Employers of 4 or more	3,000 per employee	3.0
1961	Employers of 4 or more	3,000 per employee	3.1
1962*	Employers of 4 or more	3,000 per employee	3.5
1963*	Employers of 4 or more	3,000 per employee	3.35
1964 and after	Employers of 4 or more	3,000 per employee	3.1

*Tax rates for 1962 and 1963 were increased by the Temporary Extended Unemployment Compensation Act of 1961.

Source: U. S. Treasury Department

APPENDIX TABLE IV
Financing Provisions of the Civil Service Retirement and Disability Fund

Time Period	Taxable Earnings Base	Tax Rate (Percent)	
		Employees	Members
August 1920-June 1926	Basic Salary	2½	2½
July 1926-June 1942	Basic Salary	3½	3½
July 1942-June 1948	Basic Salary	5	5
July 1948-October 1956	Basic Salary	6	6
November 1956-present*	Basic Salary	6½	7½

*Beginning July 1957 contributions by employees and members have been matched by employing agencies.

Source: U. S. Civil Service Commission

APPENDIX TABLE V
Financing Provisions of the Railroad Retirement Account

Time Period	Monthly Taxable Earnings Base	Tax Rate (Percent)	
		Employees-Employers	Employees' Representatives
1937-1939	\$300	2¾	5½
1940-1942	300	3	6
1943-1945	300	3¼	6½
1946	300	3½	7
1947-1948	300	5¾	11½
1949-1951	300	6	12
1952-June 1954	300	6¼	12½
July 1954-May 1959	350	6¼	12½
June 1959-1961	400	6¾	13½
1962-October 1963	400	7¼	14½
November 1963-1964	450	7¼	14½
1965	450	8½	16¼
1966-1967	450	8¾	17¼
1968 and after	450	9½	18¼

Source: U. S. Railroad Retirement Board

