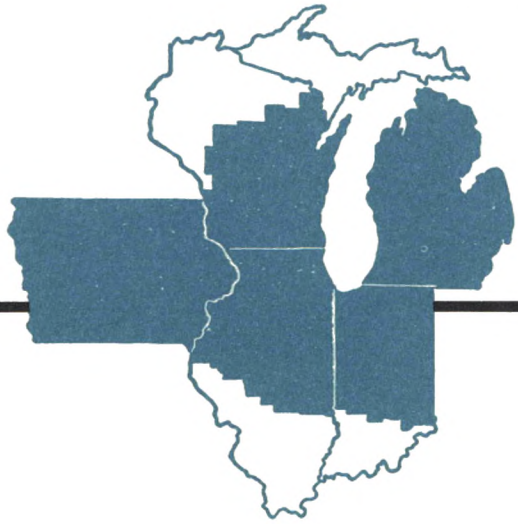
*A review by the* **Federal Reserve Bank of Chicago**

# Business Conditions



**August 1969**

**Contents**

# Strong rise in currency circulation

While the "cashless" society may be just around the corner, currency and coin in circulation[1] have been increasing faster in the last eight years than at any other time since the end of World War II. The amount of paper currency in circulation increased $59 per capita in this period and coin increased $16. Paper currency in circulation as of mid-1969 is estimated at $222 per capita, coin at $29—both far above their earlier levels.

These recent increases appear to be largely a response to increases in consumption and prices. The effects of these increases have become more visible with the declining importance of liquidation of currency from hoards built up during World War II.

Establishing the explicit causes of changes in currency circulation is often difficult. No information is available on individual holdings and surveys seem ineffective in obtaining this type of information. According to one study by the Federal Reserve, 85 percent of all currency was held by households, the remainder by businesses and governments. While this figure appears reasonable, the large average amount of currency per capita and the common knowledge that many households hold only nominal amounts suggests that some households hold very large amounts.

The Treasury's estimates of currency in circulation may be somewhat imprecise in that currency destroyed or irretrievably lost while in private hands cannot be measured directly. While their estimates of such losses may appear conservative, there is evidence to support the view that such losses have been relatively small. For example, of the $14 billion in old series National Bank Notes issued between 1864 and 1929, only 0.2 percent has not been redeemed.

[1]Estimated amounts outside the Treasury and Federal Reserve banks—based on amounts issued and redeemed and estimates of amounts lost and destroyed.

### Response to crises

Over many years, the public's holding of currency has been sensitive to crises, especially severe crises. It has increased sharply during every war since the federal government first started issuing notes in 1860. And during the great depression, currency increased sharply at a time when bank failures were numerous and national income was falling by 50 percent. After each crisis, the currency in circulation returned only part way to the preceding norm before the increase occurred. A closer look at the period since 1937 shows a general pattern very similar to the longer term picture. Holdings of currency increased substantially in World War II, the Korean War, and the Vietnam War. In the years immediately following the two earlier conflicts, the level of currency in circulation declined.

The recent rapid increase in coin seems more explainable than the increase in paper currency:

- Increases in the price of silver have made the metallic value of the old 90 percent silver-10 percent copper coins greater than their monetary value. Their disappearance from circulation is an example of the operation of Gresham's Law, namely that "cheap money drives out dear money." It appears that roughly 2.2 billion dollars in these coins have been lodged in private hoards and effectively removed from circulation as a

medium of exchange.

- The growing use of vending machines has greatly increased the demand for coins. Vending machine companies estimate that 77,000 coins a minute are fed into their machines.
- An increase in the number of coin collectors has removed from use as a medium of exchange an indeterminate amount of coins. In recent years, the production of pennies has increased as a proportion of total mint production. This apparently reflects their popularity with junior collectors and a tendency on the part of many individuals to let pennies accumulate because of the inconvenience of spending them.

### Currency has larger role

Despite the recent sharp increase in coin, the growth of paper currency outstanding accounts for nearly 80 percent of the total increase in value of currency and coin in circulation since 1961. Currency is held mainly for two reasons: to serve as a means of exchange and as a store of value. Consequently, any large changes in currency outstanding must be explained by changes in factors that affect its use for these purposes.

**Currency** in circulation rises faster than total production in periods of crisis


The demand for currency as a means of making payments would be expected to vary directly with sales of nondurable goods and services, especially small ticket items such as food, cigarettes, local transportation, haircuts, etc. The explicit cost of making a transaction with currency is the risk of loss or theft. The cost rises, therefore, with the size of the payment. The explicit cost of making a transfer by check is fixed, i.e., the service charge. Therefore, the cost of making transfers by check declines, per dollar transferred, as the size of transfer rises.

But factors other than explicit cost affect the means by which the public makes tranfers. If banking facilities are conveniently available, one is more likely to use checks. But if one is not known in the area or cannot easily establish his identity—travelers and city dwellers who deal extensively with strangers—he is more likely to use currency. Credit cards that allow many small purchases to be cumulated and paid with one large transfer tend to reduce the use of currency. Habits and knowledge also affect the relative use of currency, as for example, when segments of the population unfamiliar with checking accounts experience sharp gains in income or frequent changes in place of employment.

As a store of wealth, currency and demand deposits have much in common. Both are affected in the same degree by changes in the price level and interest is paid on neither. The holder of currency has greater exposure to the risk of physical loss or destruction, al-

though there have been certain times in the past when the fear of loss of demand deposits through bank failure was an important factor affecting holdings of currency. Currency has one clear advantage over other assets as a store of value in that the amount held and its transfer is very difficult to detect or trace. This is an important consideration for those who may be engaged in tax evasion or other illegal activities. And finally, some currency may be held by foreigners—to whom it represents (or has represented) the safest and most stable asset available in troubled times. The sharp rise in foreign travel by U. S. residents in recent years may also have contributed to foreigners' holdings of U. S. currency.

The larger denominations of currency are more convenient if a sizable amount of wealth is to be held in this form, since safe storage can be provided at lower cost. But the larger denominations may be exchanged less readily at such time as the hoard is to be used. Nevertheless, changes, especially rapid changes, in the average denomination of notes outstanding—aside from the normal seasonal changes—provide a clue to the hoarding or dishoarding of currency.

The relative rates of use of the various denominations of notes in making payments may be indicated by their average life, or time outstanding. The average life increases with the denomination, apparently because the smaller denomination notes are transferred more frequently. An increase in the life of notes of a particular denomination, therefore, may indicate increased hoarding.

### War boosts circulation

The growth of currency in circulation began to accelerate in 1938, more than two years before the United States entered World War II. This prewar growth apparently resulted largely from hoarding ($1,000 bills increased 24 percent during 1939). Much of it may have gone to foreigners seeking a safer haven for their wealth.

Many factors that could have affected currency in circulation were present during the war. Mobilization and the associated large movements of population undoubtedly increased private holdings of currency, especially since many of those moving about came from rural areas and lower income groups and were unfamiliar with checking accounts and banks or other financial institutions.

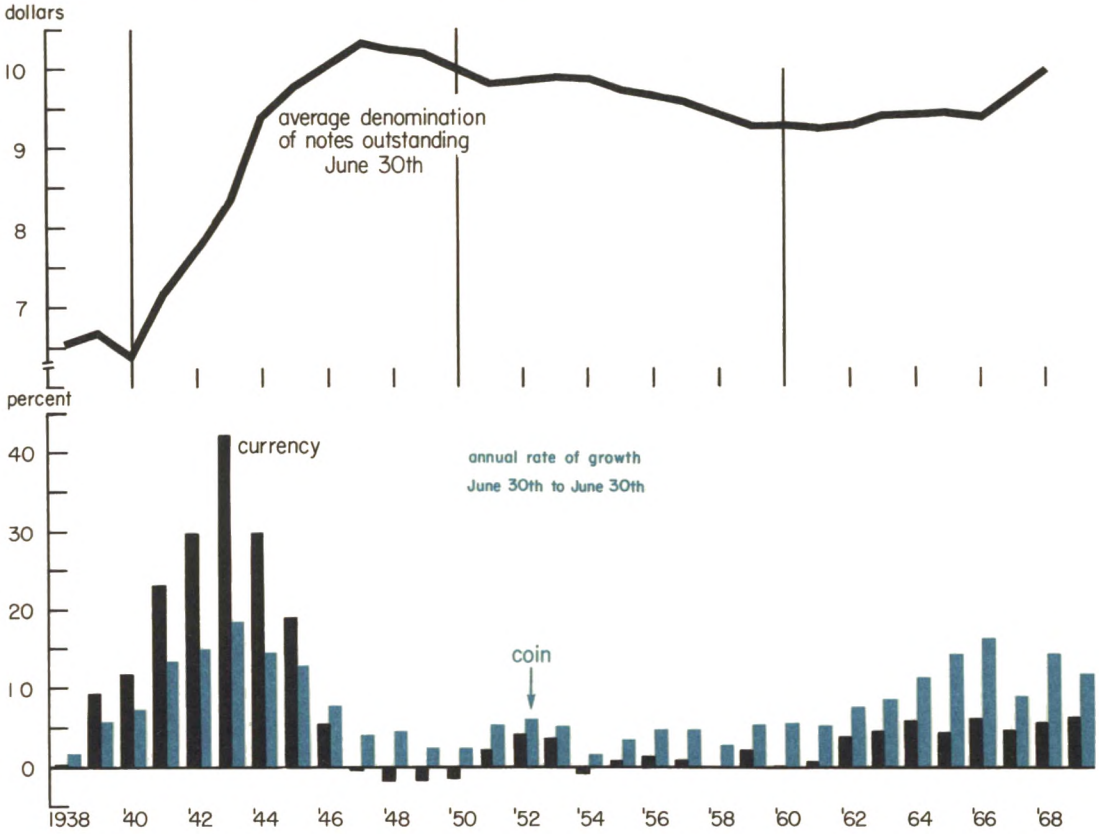
Income tax payments rose sharply—from 1.6 percent of personal income in 1940 to 11.8 percent in 1945. This increase raised the incentive to avoid taxes for those able to conceal income. Tax avoidance and black-market activities would tend to increase the use of currency for both exchange and hoarding and probably contributed heavily to the increase in the average denomination of notes outstanding over this period.

## World War II had large and long-lasting effects on currency circulation

| | 1938 | 1945 | 1950 | 1954 | 1961 | 1968 |
|---|---|---|---|---|---|---|
| Currency per capita in circulation (dollars) | 40.27 | 191.86 | 178.97 | 184.23 | 176.44 | 236.82 |
| Average denomination of notes in circulation (dollars) | 6.53 | 9.80 | 10.00 | 9.88 | 9.25 | 9.97 |
| Lifetime of a $20 note (years) | 2.96 | 4.99 | 4.51 | 4.34 | 4.26 | 3.92* |
| Ratio of annual consumption of non-durables and services to currency | 9.48 | 4.36 | 6.27 | 7.53 | 10.06 | 10.04 |

*Figure for 1966.

**Average denomination** of currency rises when growth of currency in circulation accelerates




Currency outstanding increased 260 percent from 1940 to 1945—a period in which the consumption of nondurable goods and services increased 77 percent. The average life of the $20 note increased from 2.63 years in 1940 to 4.99 years in 1945. While this increased life may have been caused in part by recirculation of notes that normally would have been withdrawn and destroyed, it undoubtedly also reflects a large increase in private hoards.

From the end of World War II to the beginning of the Korean War period—1945 to 1950—much of the currency previously hoarded apparently moved gradually into more active use. In this period tax rates declined, reducing the incentive to conceal income, and black-market activities ceased. Consumption of nondurable goods increased 46 percent while currency in circulation remained virtually unchanged. Over this period the average denomination of notes in circulation began to decline—after reaching a peak of $10.32 in 1947. This is especially notable

in a period when rapidly rising prices ordinarily would have been expected to cause the average denomination to increase.

During the Korean War period—1950 to 1954—currency outstanding increased and the decline in average denomination slowed. With the outbreak of the war, the tax rate increased sharply possibly causing some increased hoarding, but overall there appears to have been a further net liquidation of hoards.

From 1954 to 1961, currency in circulation grew less than 1 percent a year, while expenditures for consumption of nondurables increased 4.9 percent annually. The average denomination of notes in circulation declined further during this period, indicating that currency was on balance still being released from previously acquired hoards. The tax rate declined somewhat, though not nearly to the prewar level.

The growth in currency has accelerated sharply since 1961. In this period the average denomination of notes outstanding has increased for the first time since the end of World War II, though until recently at a very slow rate. The slow increase in the average denomination outstanding from 1961 to 1965 indicates that around 1960 the influence of the liquidation of World War II hoards had largely disappeared and other forces such as the continued gradual increase in the price level became dominant. The increased United States involvement in Vietnam beginning in 1965 and the increase in income tax rates in 1968 may account for some of the rapid increase in average denomination of currency in the last two years.

The evidence of World War II and subsequent years suggests that large and unusual additions to a nation's stock of currency are digested over very long periods following the crisis with which they were associated—15 years in the recent experience.

Whether coin and currency in circulation will continue to increase at about the rate of the last eight years depends on many factors. Since 1961 they have increased at an average annual rate of 6.9 percent, slightly higher than the rate in such earlier periods as 1881-1893 and 1900-1913—both periods of large sustained growth which appear to have been largely free of hoarding or dishoarding related to major crises. However, the current period is characterized by the growing use of checks, charge accounts, and credit cards which would tend to slow the growth of currency. Also, it has been a period of rapid economic growth, which would tend to increase demand for currency, and of relative stability, which would tend to avoid any unusual demands associated with the threat of economic crisis. Past experience indicates that currency in circulation will increase only slowly, if at all, for a short time following the end of the Vietnam War. The continuation of high taxes on personal income, on the other hand, will lend incentive to the use of currency in both exchange and store-of-wealth functions. The net effect on currency of changes in expectations concerning the rate of inflation during recent years is uncertain, as is the effect of moderate foreign crises in this period when U. S. currency is held as a store of value around the world. On balance, an average annual growth of currency in circulation in the range of 4 to 6 percent may be accepted as a norm in the 1970s, with the shift toward a "cashless" society affecting primarily demand deposits and checks.

# Pension funds and capital markets

*Assets of pension plans continue to grow rapidly as coverage is extended to more workers, benefits are increased, and accrued liabilities are funded. Common stocks, the major investment for trusteed plans in recent years, are also favored increasingly by managers of funds administered by life insurance companies and state and local governments. Capital markets in the 1960s have been strongly influenced by investment policies of pension funds and their influence may be even larger in the 1970s.*

More than 40 million workers and retirees are covered by pension plans other than the federally sponsored social security program. Since only a small portion of these people are retired and drawing benefits currently, annual payments into the funds substantially exceed disbursements and the funds' assets continue to increase rapidly.

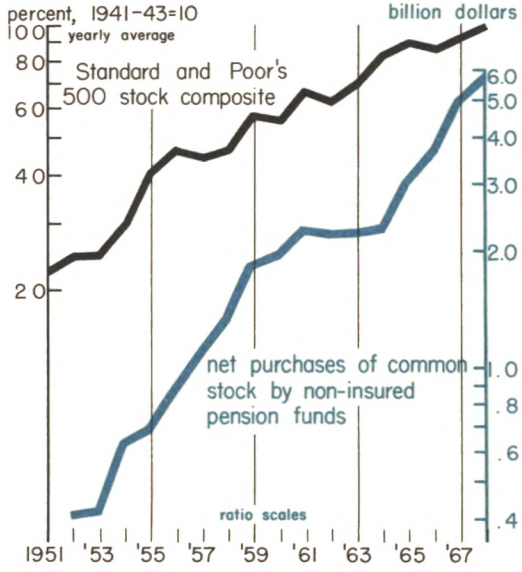
At the start of 1969, assets of these pension funds were valued at almost $200 billion. The funds have been growing about 12 percent annually and, next to holdings of corporate stock, are by far the largest type of financial assets owned by individuals.

About two-thirds of these pension fund assets provide future benefits for workers in private employment. Such funds are administered by insurance companies or other trustees, mainly banks. Almost one-fourth of the assets are for state and local government employes and are administered by these governments. About one-eighth of the assets are held for civil service and railroad employes and are administered by federal agencies.

Civil service and railroad retirement funds are invested exclusively in U. S. Treasury securities. State and local pension funds are invested in a variety of assets under increasingly broad authority but are still predominantly in fixed-income securities. Managers of private pension funds, especially trustees of noninsured funds, have wide discretion in making investments. In recent years they have placed the bulk of new investments in common stocks. The capital markets, both debt and equity, have been affected importantly by the investment decisions of the managers of the private pension funds. The long-time rise in stock prices can be attributed, in part, to sizable and persistent buying by the funds.

In late May and June, historically high

**Long uptrend** in stock prices aided by heavy purchases by pension funds




SOURCE: Standard and Poor's and Securities and Exchange Commission.

yields were available on fixed-income securities and stock prices declined. Some pension fund managers began to shift investment policies. Any significant shift in the policies of fund managers could have a substantial influence on the capital markets, particularly the relationship between prices and yields of debt and equity securities.

### Continued rapid growth

Pension fund assets have doubled since 1961 and are ten times their 1949 size when the U. S. Supreme Court declared that retirement benefits were an appropriate subject for collective bargaining. Pension funds now account for 33 percent of the total assets of all savings institutions (excluding commercial banks); up from 30 percent in 1961, and 19 percent in 1949.

Assets of the trusteed, or noninsured, private funds, including multi-employer funds, have increased most rapidly, rising from 23 percent of all pension fund assets in 1949 to 48 percent at the end of 1968.

As recently as 1949 assets of funds administered by insurance companies exceeded those of the noninsured funds. Today they are only about one-third as large. The proportion of all private pension funds administered by insurance companies has continued to decline, although at a slower rate.

Since 1959, funds of state and local government employes have risen almost as fast as noninsured funds, despite the fact that they have continued to invest primarily in debt securities. The rapid growth reflects the sharp rise in state-local employment and the increased funding of accrued liabilities.

Pension funds of federal employes and railroad workers have been increasing at a relatively slow pace. Since the late 1940s federal employment has risen much less than state-local employment, while railroad employment has declined about one-half. Moreover, the assets of the federally administered funds—entirely Treasury securities—have not appreciated in value as have assets of the funds that held common stocks.

**Assets of all private noninsured pension funds***

| | 1960 | | 1968 | | 1960-68 |
|---|---|---|---|---|---|
| | Billion dollars | Percent of total | Billion dollars | Percent of total | percent change |
| **Book value—year-end** | | | | | |
| Cash and deposits | $ 0.6 | 2% | $ 1.6 | 2% | +167% |
| U. S. Government securities | 2.7 | 8 | 2.6 | 3 | − 4 |
| Corporate bonds | 15.6 | 48 | 26.2 | 33 | + 68 |
| Preferred stocks | 0.8 | 2 | 1.3 | 2 | + 63 |
| Common stocks | 10.7 | 32 | 40.4 | 50 | +278 |
| Mortgages | 1.3 | 4 | 3.9 | 5 | +200 |
| Other assets | 1.4 | 4 | 4.5 | 6 | +221 |
| Total | 33.1 | 100 | 80.5 | 100 | +143 |
| **Market value—year-end** | | | | | |
| Cash and deposits | 0.6 | 1 | 1.6 | 2 | +167 |
| U. S. Government securities | 2.7 | 7 | 2.2 | 2 | − 19 |
| Corporate bonds | 14.6 | 40 | 22.0 | 23 | + 51 |
| Preferred stocks | 0.7 | 2 | 1.2 | 1 | + 71 |
| Common stocks | 15.8 | 43 | 59.0 | 63 | +273 |
| Mortgages | 1.3 | 3 | 3.9 | 4 | +200 |
| Other assets | 1.4 | 4 | 4.5 | 5 | +221 |
| Total | 37.1 | 100 | 94.4 | 100 | +154 |

| Market value to book value | 1960 (percent) | 1968 (percent) |
|---|---|---|
| Corporate bonds | 93% | 85% |
| Common stocks | 148 | 146 |
| Total assets | 112 | 117 |

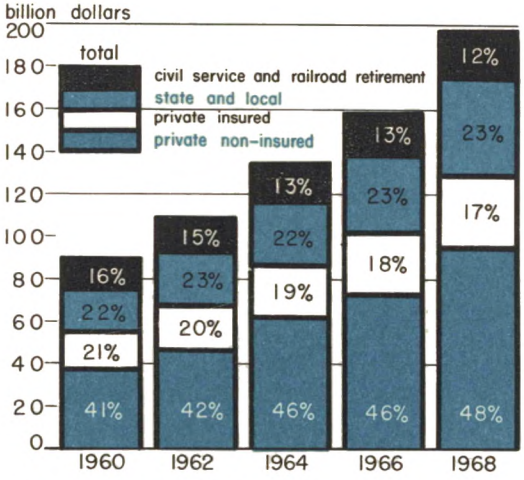
*Includes funds of nonprofit organizations and multi-employer plans.
SOURCE: Securities and Exchange Commission and Federal Reserve Bank of Chicago.

### Investments of trusteed plans

At the end of 1968, assets of the trusteed pension plans had a book value of $80.5 billion. The market value of these assets was about $95 billion. This differential was entirely the result of appreciation in prices of common stocks. The market value of common stocks in trusteed pension funds was almost 50 percent greater than the purchase prices reflected in their book value. All other assets combined had a market value 12 percent less than book value, because of the decline in prices of fixed-income securities that accompanied the rise in interest rates since they were purchased.

Common stock accounted for 50 percent of book value of assets of these funds at the end of 1968 and more than 63 percent of the market value. Market value of corporate bonds—by far the most important asset after common stock—was 23 percent of the total, down from 42 percent ten years earlier.

**Private noninsured** plans hold nearly half of total pension fund assets




SOURCE: Federal Reserve Board.

Only 4 percent of the assets of noninsured pension funds were in bank deposits and government securities combined, down from 10 percent a decade earlier. Mortgages also accounted for 4 percent of assets, slightly more than in 1958, but less than in 1966 when this proportion was at a peak.

Some pension funds, especially profit sharing plans that often buy the parent companies' stock, have placed the bulk of their new investments in common stocks for many years. But until the late 1950s, the more typical funds were invested wholly or largely in fixed-income securities, on the theory that pension benefits were predetermined liabilities. Assuming the plans were fully funded, increments in value resulting from appreciation of market prices would not increase retirement benefits while losses in market value could jeopardize them.

Increasingly, fund managers have turned to common stocks. Expecting the rise in stock prices to continue, they saw an opportunity to fund past service liabilities more rapidly and provide prescribed retirement benefits without increasing annual contributions of employers.

By the late 1950s about half of all the new investments of the noninsured funds were in stocks. In 1966 this proportion rose to 61 percent; in 1967 and 1968 it was 75 percent.

The rise in importance of common stocks in pension fund investments is even more striking in terms of the appreciation of market value of assets. In both 1967 and 1968, 90 percent of the rise in market value of assets of noninsured pension funds was accounted for by common stocks.

### Life insurance investments

Assets of life insurance companies were valued at $190 billion at the start of 1968. More than $34 billion were in reserves for

private pension plans. These reserves have been growing about 8 percent annually, somewhat faster than the rise in total assets.

Life insurance companies now administer pension and annuity funds covering almost 10 million people, double the number a decade ago. More than half are participants in group plans, many of them covering relatively small numbers of people.

Until the 1950s, most life insurance companies were prevented by state laws from purchasing common stocks, either for insurance or pension fund reserves. These restrictions were liberalized to a limited extent in 1951 and somewhat further in 1957. Beginning in 1962 the state of New York, whose laws and regulations apply to all life companies operating in that state, permitted the establishment of separate accounts for pension plan reserves. These funds were then permitted to be invested with the wide discretion allowed trustees under the "prudent man" rule, with investment policy determined by the contributing firm in consultation with the insurance company, similar to investment procedures of trusteed plans. Annuities purchased for separate accounts usually are conventional, supported by all the assets of the life company.

Pension reserves in separate accounts of life insurance companies have been growing rapidly lately and now exceed $2 billion, but still amount to only about 1 percent of total company assets. Industry executives expect that separate accounts will rise substantially further as a share of the industry's assets. These accounts are a factor increasing life company purchases of common stock.

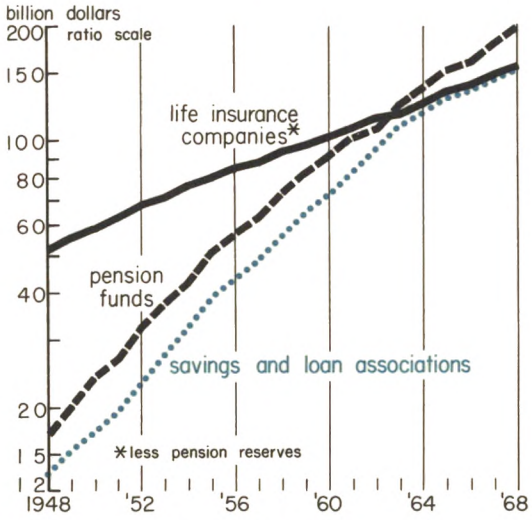
Net purchases of corporate stock by life insurance companies reached $1.2 billion in 1968, up from $1 billion in 1967 and an average of less than $500 million in the early 1960s. Corporate bond purchases last year were almost $4 billion—the largest class of investments acquired. Life companies have

## **Assets** of life insurance companies in the U. S.

| | 1960 | | 1968 | | 1960-68 |
|---|---|---|---|---|---|
| | Billion dollars | Percent of total | Billion dollars | Percent of total | percent change |
| **Book value—year-end** | | | | | |
| U. S. Government securities | $ 6.4 | 5% | $ 4.4 | 2% | − 31% |
| Municipal and foreign bonds | 5.0 | 4 | 6.1 | 3 | + 22 |
| Corporate bonds | 47.1 | 40 | 68.6 | 36 | + 46 |
| Corporate stocks | 5.0 | 4 | 12.8 | 7 | +156 |
| Mortgages | 41.8 | 35 | 70.1 | 37 | + 68 |
| Other assets | 14.3 | 12 | 27.7 | 15 | + 94 |
| Total | 119.6 | 100 | 189.7 | 100 | + 59 |

SOURCE: Institute of Life Insurance.

## **Pension funds** much larger than life insurance reserves or savings and loan shares




SOURCE: Federal Reserve Board.

continued to liquidate Treasury securities.

In recent years, life insurance companies have de-emphasized purchases of home and farm mortgages, and in 1967 and 1968, holdings of these assets declined slightly. Net acquisitions of commercial and industrial mortgages have continued large but were somewhat smaller in 1968 than in 1967. Increasingly, commercial mortgages have provided an equity interest to the companies, in addition to the usual debt features.

Since 1965 one of the fastest growing life insurance company assets has been policy loans, made at the initiative of policyholders, without maturity and at statutory contract rates that are well below yields available now on other assets. The growth in policy loans, coming largely in unpredictable spurts, has caused some life companies to adopt more conservative investment policies.

At the end of 1968, almost three-fourths of life insurance company assets were in corporate bonds and mortgages, about equally divided. Corporate stocks, including preferred stocks, and policy loans each accounted for 6 percent of total assets; stocks, about 7 percent; real estate holdings, 3 percent; Treasury securities, 2 percent; municipal securities, less than 2 percent.

### State and local funds

Pension funds of state and local governments have been growing rather steadily at an annual rate of more than 10 percent since the early 1960s. In prior years, the growth had been even faster. Benefits and withdrawals from these funds are only 40 percent of receipts, a proportion that has increased only slightly in recent years. Therefore, these funds are likely to continue to grow rapidly. (Disbursements are even smaller as a proportion of receipts of corporate pension funds—about 30 percent.) At the end of 1968, assets of these funds totaled almost $46 billion. The increase last year was more than $4 billion.

There are more than 2,000 state and local pension funds, but the 100 largest account for 90 percent or more of total assets. About 70 percent of the assets of these funds are administered by the states, the rest by other public agencies. Investment policies are closely circumscribed by state law, but these laws recently have been liberalized.

Until the 1960s, state and local funds were invested almost entirely in federal or municipal obligations and high-grade corporate bonds. Ten years ago 37 percent of the assets were in corporates, 35 percent in Treasuries, and 26 percent in municipals, with the remainder in mortgages, cash, and deposits.

Holdings of Treasury securities continued to rise until 1965—in contrast to the trend for other institutional investors—before starting to decline. Holdings of municipals started to decline after 1961. Holdings of corporate bonds have continued to increase each year.

## Assets of state-local pension funds

| | 1960 | | 1968 | | 1960-68 |
|---|---|---|---|---|---|
| | Billion dollars | Percent of total | Billion dollars | Percent of total | percent change |
| **Book value—midyear** | | | | | |
| Cash and deposits | $ 0.2 | 1% | $ 0.4 | 1% | +100% |
| Securities: | | | | | |
| U. S. Government | 6.0 | 32 | 5.8 | 13 | − 3 |
| State and local | 4.2 | 23 | 2.4 | 5 | − 43 |
| Corporate bonds | 6.1 | 33 | 25.4 | 56 | +316 |
| Corporate stocks | 0.4 | 2 | 3.9 | 8 | +875 |
| Mortgages | 1.2 | 7 | 5.7 | 12 | +375 |
| Other assets | 0.4 | 2 | 2.3 | 5 | +475 |
| Total | 18.5 | 100 | 45.9 | 100 | +148 |

SOURCE: Bureau of the Census.

State and local governments have been the largest purchasers of corporate bonds in recent years, surpassing the life insurance companies and trusteed pension funds.

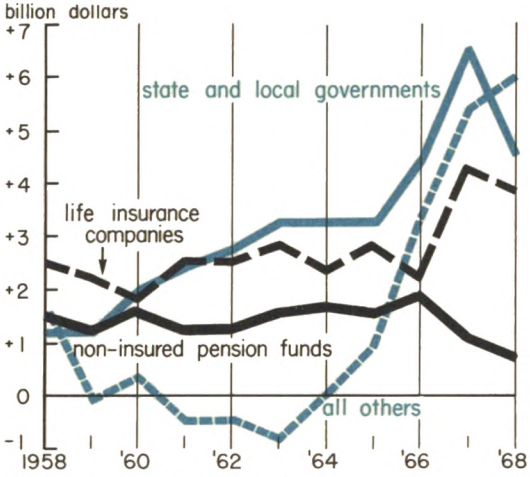
The most significant change in investment policies of state and local pension funds in the 1960s has been the trend to corporate stocks. Ten years ago these funds had less than $300 million, or 2 percent, of their assets in stock. By 1964 holdings of stocks passed the $1 billion mark and at the end of 1968 exceeded $3.5 billion. In the year ending March 31, 1969, the 100 largest state and local pension funds increased their holdings of stock by $1.2 billion.

Recently, California authorized up to 25 percent of public pension fund assets to be invested in common stock. The state of New York, which had allowed 35 percent of pension fund assets to be in stocks, raised the permissible proportion to 50 percent. Other states are expected to follow this pattern.

Net purchases of stock by state and local pension funds last year were as large as purchases by life insurance companies. Many state and local pension funds have aggressive new managements who hope to emulate the performance records of private funds in increasing market values of assets.

At the end of 1968, corporate bonds accounted for 56 percent of state and local pension funds. Mortgages accounted for 12 percent. (After a rise in the early 1960s, the proportion in mortgages has been fairly stable.) Corporate stocks had risen to more than 8 percent. Holdings of Treasuries and municipals had declined to 13 and 5 percent, respectively. Clearly, state and local pension funds, once thought to be ultra-conservative, have become a dynamic factor in the flow of funds in both the debt and equity markets.

**Pension funds' net purchases of corporate bonds decline**




SOURCE: Federal Reserve Board.

### The Keogh plans

Until 1962, self-employed people were not accorded privileges similar to those of employes of corporate businesses and the government in participating in tax-exempt pension plans. That year the Self-Employed Individuals Retirement Act—commonly termed the Keogh Act—was passed.

Under the Keogh Act self-employed workers, either proprietors or partners, can set aside 10 percent of their earned income up to a maximum of $2,500 ($1,250 until 1968) in a trust fund. These funds are exempt from federal income tax and earnings on the funds are not taxable until the money is withdrawn. Similar arrangements can be made for employes.

From 1962 through 1967, only 56,000 Keogh plans were started. Almost twice as many plans, covering 163,000 people, were started in 1968. Many of these were undertaken by professionals such as doctors, dentists, or lawyers. At present only about $300 million is being added to Keogh pension

reserves annually, but the amount could grow substantially if large numbers of new plans were established. More than 9 million people are estimated to be eligible for Keogh plans. Keogh plans must be approved in advance by the Internal Revenue Service and cannot be changed without obtaining permission. Plans may be operated as a pool for members of an association or group.

Investment plans may take one of four forms. Funds may be placed with a corporate trustee (usually a bank) with the individual exercising partial or full discretion in investment policies. Annuity contracts may be purchased from life insurance companies. Mutual funds may be purchased and held by the trustee. Special Treasury bonds, now yielding 4.15 percent, may be purchased.

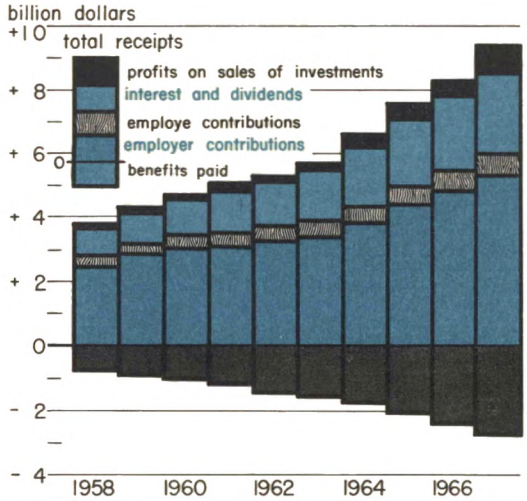
The great bulk of the people establishing Keogh funds appear to be selecting one of the alternatives that emphasize potential appreciation through stock purchases. In a small but growing way, therefore, pension funds of the self-employed, like the private and state-local pension funds, are increasing the demand for common stock.

### Pension funds and the stock market

In the 1960s, activity in the stock market has been dominated increasingly by purchases and sales of institutional investors. The most important of these institutions are the private trusteed pension funds and the mutual funds (open-end investment companies). Recently, stock transactions of life insurance companies and state and local pension funds have become significant.

Emphasis on stock investments by institutions has increased during a period when the net supply of new stock issues has been relatively small. In the seven years ending in 1961, net issues of stock by U. S. corporations totaled $16 billion—a large sum but

**Corporate** employers contribute bulk of pension fund receipts




SOURCE: Securities and Exchange Commission.

only a small portion of all funds raised by corporations. In the seven years ending in 1968, when total funds raised were much greater than in the previous period, net stock issues totaled only $5 billion. In 1963 and 1968, stock retired exceeded stock issued.

New common stock issues, especially utility issues, increased sharply in 1968 and in the first half of 1969. New issues for cash were almost $4 billion in 1968, as much as in the two previous years combined. But these amounts have been offset by retirements of outstanding stock, including exchanges of debt for equity in merger transactions.

Noninsured pension funds have purchased more than $24 billion of stock net since 1961, almost $6 billion in 1968 alone. Net stock purchases of mutual funds have totaled $8.3 billion since 1961 and $1.6 billion last year. Life insurance companies and state and local pension funds each purchased about $1.2 billion of stock last year, more than ever before. Property and casualty insurance com-

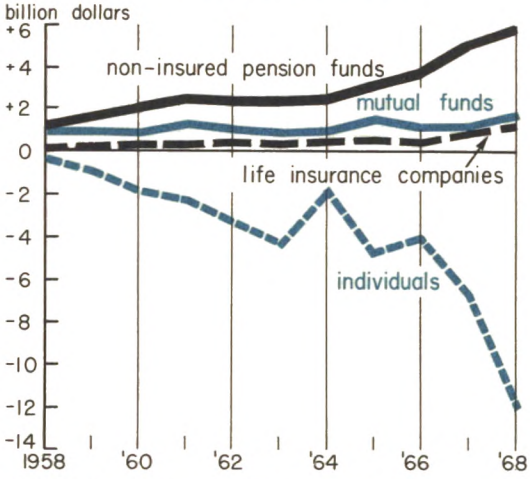
panies added almost a billion dollars of stock to their portfolios last year, a record amount.

While the institutions have been buying stock heavily in recent years, individuals (includes foundations and endowment funds) have been net sellers. In fact, this group of holders has sold stock on balance each year starting in 1958. However, the rise in stock prices in most years has increased the value of individuals' holdings, even though their sales exceeded their purchases.

At the end of 1968, individuals held stock valued at about $825 billion, or more than four-fifths of the total corporate stock outstanding. Private noninsured pension funds, the largest institutional holder, held about $60 billion of stock.

Stock market values, of course, are vulnerable to price declines. From the end of 1968 to mid-1969, average common stock prices declined by about 7 percent, indicating a drop in the value of individuals' holdings of more than $50 billion and in noninsured pension funds a decline of about $4 billion.

**Pension funds** major net purchasers of corporate stock




SOURCE: Securities and Exchange Commission.

### Emphasis on "performance"

About 60 percent of noninsured pension fund assets are administered by trust departments of commercial banks. Because of a common desire for standardized methods of comparing investment results of pension funds, the Bank Administration Institute (formerly the National Association of Bank Auditors and Comptrollers) in 1966 authorized the Center for Research in Security Prices at the University of Chicago to conduct a study and offer suggestions.

Working closely with officials of 15 of the largest banks, the Center recently published "Measuring the Investment Performance of Pension Funds." The report covers measurement of rates of return, estimates of risk, and classification of pension fund assets. It explains mathematical techniques for measurement of investment results to provide a uniform "report card." The Institute's study accepts changes in market value, with allowance for contributions and disbursements, as the only feasible way of comparing investment performance. Comparisons must also take into account the objectives and special requirements of individual funds.

The desire for comparability in judging pension fund performance points up the intense competition that has developed among fund managers in the 1960s. Most corporations that contribute to pension plans attempt to build up these funds to the point where current disbursements are met fully from current income, with assets equal to accumulated liabilities to workers and retirees.

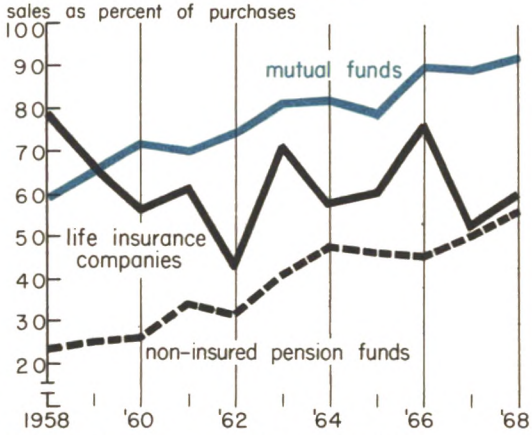
Since ability to satisfy claims at any given time is determined by market rather than book value, increases in market value can aid current contributions in funding these liabilities. Rate of return, therefore, is determined

by changes in market value plus interest and dividend earnings. One study indicates that a 1-percent increase in investment performance permits corporations to either reduce pension fund contributions or increase benefits by 20 percent, given certain assumptions. Another study generalizes that a 3-percent increase in performance can reduce the long-run costs of a pension plan by half.

Pension funds bid for common stocks from a strong position because their liquidity requirements are amply met in most cases by current contributions. Growth in assets is expected to continue indefinitely in most funds. Therefore, they need not sell stocks when the market is depressed. Mutual funds, on the other hand, may have to liquidate stocks to satisfy shareholder redemptions.

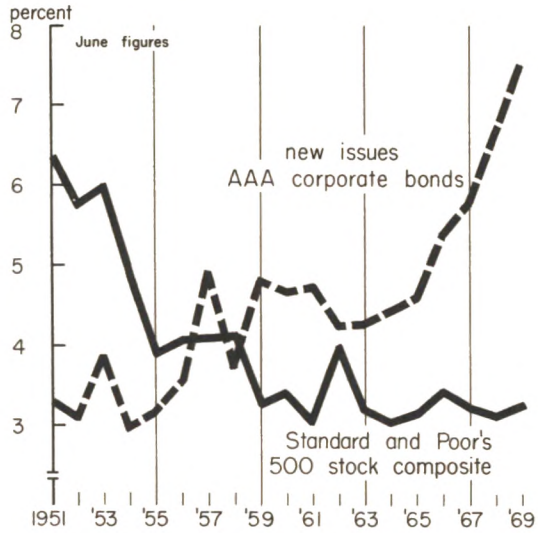
Because of the emphasis on performance, pension funds have begun to trade stocks more actively. Ten years ago their annual sales of stocks were only one-fourth as great as their purchases. By 1968, this ratio had increased to 56 percent.

**Pension funds** and mutual funds trade stocks more actively




SOURCE: Securities and Exchange Commission.

**Bond yield** has exceeded stock yield since 1958




SOURCE: Standard and Poor's and Federal Reserve Board.

Stock trading by pension funds still has not approached the activity of mutual funds. Ten years ago sales of stock by mutual funds amounted to 60 percent of their purchases. In each of the past three years sales have been 90 percent as large as purchases.

Institutions now account for about 50 percent of all stock trading on registered exchanges, up from 24 percent in 1960. The former chairman of the Securities and Exchange Commission (SEC) has said, "We know only in the vaguest way what this means and why," and that most pensioners "have only the dimmest idea of the extent to which their fortunes are tied to the vicissitudes . . . of the equity markets." A broad study of the impact of institutional investments on the capital markets, other investors, corporate managements, and security firms is now under way, sponsored by the SEC.

**Faster growth ahead?**

Pension fund assets appear certain to grow further in the years ahead. The combination of the prospective rapid increase in the labor force, broadened pension plan benefits, and pressure to fund liabilities suggest that pension fund assets may increase even more rapidly than in recent years.

Experience of pension funds with common stock investments has been favorable, by and large. But the extent of the uptrend in stock prices in the past decade has resulted in part from net purchases by these funds. It is a matter of conjecture as to what the level of stock prices would be today if the funds had channeled more of their resources to other types of investments.

Pension fund managers, striving for performance, may not always be net buyers of stock in falling markets as they have been in recent years. Along with mutual funds, they may attempt to build cash positions when market prospects appear unfavorable and thereby help to validate these prospects.

In June, yields of 7.5 percent and more were available on new high-grade corporate bonds. This compares with average dividend yields on stocks of about 3 percent and earnings yields of less than 6 percent. A retreat in interest rates from recent record levels, of course, would be accompanied by increased bond prices. Some pension fund managers may decide that prospects for capital gains on bonds are more favorable than on stocks—the reverse of recent experience.

A recent private study of pension funds found them "remarkably healthy" with 94 percent of the plans surveyed in a position to pay off employe benefits if liquidations were required. Continuance of this state of health is important to millions of pensioners, actual and prospective. It places a heavy responsibility on pension plan trustees, and their investment decisions may have even greater impact on capital markets in the 1970s than in the 1960s.

**BUSINESS CONDITIONS** is published monthly by the Federal Reserve Bank of Chicago. Robert D. Laurent was primarily responsible for the article "Strong rise in currency circulation" and George W. Cloos for "Pension funds and capital markets."

Subscriptions to **Business Conditions** are available to the public without charge. For information concerning bulk mailings, address inquiries to the Federal Reserve Bank of Chicago, Box 834, Chicago, Illinois 60690.