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The Demand for Corporate Stock in the Postwar Period

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1. INTRODUCTION

The demand for corporate equity is influenced by the preferences of households for investing their wealth, by the financial market structure through which intermediation occurs, and by the investment behavior of financial institutions. Financial institutions have assumed an ever increasing role in the market for corporate stock. The causes are twofold—a gradual shift in household preferences away from direct holdings of stocks in favor of indirect holdings through mutual fund shares and pension savings, and a change in the investment strategy of institutions in favor of stocks.

Household preferences for financial savings are discussed in section 2 below. Households may choose among a wide range of alternative means of holding financial assets, each with different attributes (expected return, variance of return, marketability, negotiability). Financial intermediation has grown increasingly specialized in the postwar period as particular types of institutions adapted to meet specific needs of different borrowers and lenders. While fund flows to financial intermediaries are dominated by rather strong trends, in the short run there are notable fluctuations in the flows of household savings to different types of financial intermediaries in response to changes in income, prices, interest rates, and stock prices. Both the trend and cyclic variations in savings flows to financial institutions influence these institutions' investment decisions.

The investment strategies of financial institutions differ widely. Historically, institutional considerations have been the most important determinant of investment portfolios. For example, there are statutory restrictions on the types of investments that some institutions may make.

Fiduciary trustees operate in a context established by statute, the courts, and traditions. This institutional environment has evolved very slowly, and hence investment portfolios of financial institutions in the postwar period are characterized by rather stable trends. Changing stock market prices or rates of return on other financial assets appear to exert a relatively minor influence on institutions' portfolio decisions. The most dramatic shift in the demand for corporate equities occurred only near the end of the period—since 1967—when life, fire, and casualty insurance companies, state and local retirement funds, and corporate pension funds all very sharply increased their share of new funds invested in corporate stock. The investment decisions by financial institutions, particularly their decisions regarding common stock, are discussed in sections 3 and 4, with special attention devoted to the period since 1967.

2. FINANCIAL SAVINGS BY THE HOUSEHOLD SECTOR

a. Issues in Model Specification and Estimation

Household financial saving shifted over several decades from real assets (residential housing, farms, unincorporated businesses, and so on) to financial assets. This trend has continued in the postwar period. Continued industrialization, a longer life span, and greater reliance on group over self-insurance have all been contributing causes.[1] In addition, the value of corporate stock increased much more than income as a result of the increase in price-earnings multiples during the 1950's. Thus, while saving as a percentage of income has been constant, household holdings of financial assets have grown more rapidly than income in the postwar period. As shown in Table 5-1, the ratio of household financial assets to income has risen from slightly less than 2 in 1950 to 2¾ in 1968.

The long-run trends in household choices among financial assets are evident in Table 5-1. Most notable is the huge rise in the value of corporate stock holdings, from $155 billion in 1951 to $873 billion in 1968. This accounts for most of the increase in household holdings of marketable securities. Households have only moderately increased their net purchases of bonds and other fixed-income securities. While the value of their corporate stock holdings has risen continuously, households have shifted from being net purchasers of corporate stock to being large net sellers over this time period. That household stockholdings have increased in recent years in spite of households' net sales is attributable to increases in equity prices.

[1] Raymond W. Goldsmith, *The Flow of Capital Funds in the Postwar Economy*, New York, National Bureau of Economic Research, 1965.

TABLE 5-1

Asset Holdings and Net Fund Flows of Households,[a] 1951–68

	Billions of Dollars				Percentage Distribution			
	1951 (1)	1960 (2)	1964 (3)	1968 (4)	1951 (5)	1960 (6)	1964 (7)	1968 (8)
Financial Asset Holdings								
1. Currency and demand deposits	58.3	65.0	80.6	109.7	12.1	6.8	6.1	5.9
2. Savings accounts	71.6	165.3	252.9	357.4	14.9	17.3	19.0	19.0
3. Life insurance reserves	57.8	85.2	101.1	120.0	12.0	8.9	7.6	6.4
4. Pension fund reserves	27.5	90.7	137.3	202.9	5.7	9.5	10.3	10.8
5. Bonds	82.1	110.5	120.2	149.8	17.1	11.6	9.0	8.0
6. Corporate stock	155.4	394.2	587.4	873.2	32.3	41.2	44.1	46.5
7. Other financial assets[b]	28.4	46.2	52.0	63.5	5.9	4.8	3.9	3.4
8. Total financial assets	481.0	957.1	1,331.4	1,876.4	100.0	100.0	100.0	100.0
Net Fund Flows[c]								
1. Currency and demand deposits		10.4	16.0	28.6		4.2	10.1	12.9
2. Savings accounts		97.9	87.7	105.7		39.6	55.7	47.6
3. Life insurance reserves		29.0	15.5	18.7		11.7	9.8	8.4
4. Pension fund reserves		61.1	38.5	55.9		24.7	24.4	25.2
5. Bonds		28.0	8.7	30.6		11.3	5.5	13.8
6. Corporate stock		11.1	4.5	15.5		4.5	2.9	7.0
7. Other financial assets[b]		19.3	5.7	11.5		7.8	3.6	5.2
8. Total financial assets		247.4	157.5	221.9		100.0	100.0	100.0

Conventional portfolio theory of asset management provides the conceptual framework for empirically analyzing the interrelationships between alternative forms of financial asset holdings and their changes. In conventional portfolio theory, desired financial asset holdings are assumed to be positively related to income and expected asset prices or rates of return.[2] Uncertainty is represented by including higher moments of the joint probability distribution for rates of return for the different types of assets. Most analysis has focused on the variance, with investors assumed to accept greater risk in exchange for a higher expected return. If there are positive covariances between rates of return of different types of assets, the investor trying to achieve the least risk associated with any target expected return will diversify his portfolio.

The simplest representation of the income effect is a positive relationship between desired asset holdings and current income (independent of other variables such as asset prices). Assuming changes in asset prices or other variables are independent of changes in income, observed savings flows would therefore also be positively related to changes in income. The common upward trends in income and in the accumulation of financial assets are such that this type of equation statistically accounts for a significant share of the total variance in financial flows. However, while taking full advantage of the common trends, this specification poorly represents the short-run variations in flows of funds. The above formulation implies that net additions to financial asset holdings would have the same sign as changes in income. Aggregate data for the accumulation of most financial assets do not substantiate this formulation. Typically, net accumulation of most types of assets continues even when income falls. More sophisticated versions would introduce lag structures in the formation of households' expectations regarding changes in income and asset prices, and in households' reactions to changes in these variables. Thus, for example, the relevant measure of income to which households

[2] Harry Markowitz, *Portfolio Selection*, New York, Wiley, 1959; Donald Farrar, *The Investment Decision Under Uncertainty*, Englewood Cliffs, N.J., Prentice-Hall, 1962; Donald H. Hester and James Tobin, eds., *Studies of Portfolio Behavior*, Cowles Foundation Monograph 20, New York, Wiley, 1967.

respond might be a weighted sum of current and previous years' incomes. This would explain the continued accumulation of virtually all types of financial assets in years when income declines—"permanent" income based on a lag structure over several years has continually risen though current income has occasionally declined for one year.

Unfortunately aggregate annual data for the postwar period are insufficient to provide empirical estimates of these more complex models of the formation of expectations and the associated lag structures. Variables describing income and the accumulation of financial assets are trend dominated. These trends make it virtually impossible to test alternative hypotheses about medium- or longer-term lag structures with a short annual time series.

However, after certain simplifying assumptions are made, the data do permit examination of the short-run responses to changes in income and asset prices. The model below assumes that actual asset holdings in any time period coincide with desired levels of such holdings. Dynamic stock-adjustment models in which there are lags in adjustment are popular in econometric estimation, especially for durable goods. There are several reasons why no attempt was made to specify lagged adjustment processes in the model below. The costs of entry into the capital markets are generally quite low, and "indivisibilities" would not appear to have large effects on transactions costs for most assets. Low transactions costs greatly reduce the likelihood that desired and actual asset holdings diverge. Also, for annual data aggregated for the entire household sector, there is likely to be little variation over time in the nature of adjustments of actual holdings to desired levels and certainly little or no prospect of specifying such differences econometrically with annual time-series data.

Because of data limitations the model does not attempt to choose among alternative lag structures between income and asset changes. Financial flows by asset type are linearly related to income, rather than to changes in income. The dependent variable was expressed in ratio form, the ratio of net purchases (or sales) of each asset type to income

$$(1) \qquad\qquad \frac{dA_{it}}{Y_t} = \alpha_i + \sum_j \beta_{ij} X_{jt}$$

where A_{it} equals assets of type i at time t, Y_t is income, and X_{jt} are independent variables. An equation was estimated independently for each asset type i. Since the marginal propensity to save varies from year to year, it is inappropriate to constrain the estimates of the individual

equations to a constant savings rate. However, decisions about several forms of saving are interrelated. Several equations are estimated below relating ratios of one asset type to another (or to the sum of several others) to changes in income and asset prices.

This model is based on income and individual asset prices, and excludes total wealth as an independent variable. Asset prices and wealth are, of course, related. Changes in interest rates or stock prices appear in most of the flow equations; these changes are highly correlated to the value of corporate stock or fixed-income security holdings. Thus, while market prices or yields are included in the flow equations rather than asset values, there is no statistical basis for determining whether the correlation of market prices with flows represents households' reaction to changes in rates of return or to changes in the market value of particular asset holdings.

This model formulation implies that the ratios of particular asset holdings or total wealth to income may assume different values, depending on initial conditions and the estimated flow equations. While this assumption is at variance with conventional portfolio theory, it is substantiated by the postwar experience. The biggest source of changes in total wealth arises from changing stock-market prices. Household reactions to rather large changes in stock prices or the value of their aggregate financial-wealth holdings, sometimes 20 percent in a year, have, in fact, been rather modest; no change in aggregate savings is evident, and flows of funds in and out of stocks in any year are usually less than one percent of total stockholdings. Thus, short-run changes in total wealth generally do not prove to be significant in explaining short-run changes in holdings. If the ratio of total wealth to income matters, the effects occur only over a long period of time, and are presumably one of the factors influencing the long trends underlying the data on financial-asset accumulation.

Finally, the equations assume that causation runs from income or capital market conditions, as represented by interest rates or stock prices, to household savings rather than vice versa. The implicit causal assumption in the analysis below is that monetary and fiscal policies interacting with private demands for goods and services determine income and interest rates. These in turn affect household saving flows. This is not to deny the important interdependencies between decisions regarding financial asset holdings and income or credit market conditions. However, the available evidence suggests that the lags are long. Changes in household saving decisions, in fiscal or monetary policies, or in private demand affect the level and composition of income and the credit markets only after a lag. Econometric models have made little progress to date in describing the

interrelationships between the processes of financial intermediation and real economic activity.

The following types of household financial assets are included in the model below:

DD = demand deposits (millions of dollars)
SD = savings deposits
LI = life insurance contracts
PF = pension fund reserves
F = fixed income securities (public and private bonds, mortgages)
S = corporate stock
MF = mutual fund holdings.

Annual data from *Flow of Funds Accounts 1952–1968* (Board of Governors of the Federal Reserve System) are used. The distinctions between the several types of assets in the class "fixed-income securities" are relatively insignificant in the context of a general model representing aggregate financial savings decisions. The one significant component of household savings and financial asset holdings not included is that of "unincorporated business investment."

In the analysis below, income and expected returns on assets, as reflected in current and lagged market yields, were employed as explanatory variables. The sample size was too small to yield significant estimates of the effects of change in the variance of returns on portfolio choices. Independent variables used in the equations included income, interest rates, and stock yields. Definitions and data sources are as follows:

Y = personal money income (billions of dollars) (Board of Governors of the Federal Reserve System, *Flow of Funds Accounts*)
RB = rate of return on three- to five-year government securities (*Economic Report of the President*)
RS = rate of return on equity; price appreciation plus dividends for NYSE 500 index (NYSE, *Fact Book*, 1969)
t = time trend (assumed values 1, 2, . . . , 17 for this sample)

Since the short-run variations in the several popular stock market indices are highly correlated, there is little or no advantage statistically in using a different equity price index. Nor has more than one of the several available interest rates series been included. While the yield curve does fluctuate in the short run, most interest rate variables are highly correlated over time. Thus, in the equations below, the bond rate variable is a proxy for

all interest rates; the variable denoting the annual change in interest rates on bonds serves as a proxy for changing credit market conditions generally.

b. Empirical Estimates of the Model

1. *Demand Deposits.* The concept of household preferences for money balances has been a cornerstone of macroeconomic theory and the subject of a considerable theoretical literature.[3] Several empirical formulations of such demand functions have been estimated.[4] The controversy revolves around the elasticity of interest rates.

Annual data for the period 1952–68 were used to test the competing hypotheses. The early postwar years were excluded for two reasons—households had acquired unusually large amounts of liquid assets during World War II, which affected their decisions concerning financial asset holdings, and the capital markets were substantially affected by the Federal Reserve System's policy of fixing the interest rate on long-term Treasury securities at a low level. This policy was abandoned with the Accord of 1952. The dependent variable in the equation is the share of income which households used to add to their demand deposits holdings.

$$(2) \qquad \frac{DD_t}{Y_t} = \underset{(1.33)}{-99.00} + \underset{(1.76)}{.4807t} - \underset{(1.91)}{43.63} \frac{RB_t}{RB_{t-1}} + \underset{(1.58)}{13.60} \frac{Y_t}{Y_{t-1}}$$

$$R^2 = .4970$$

$$D.W. = 2.15$$

where DD_t represents the change in demand deposits in year t (millions of dollars), Y_t is income (billions of dollars), and RB is the bond rate (three- to five-year government securities).

[3] Irving Fisher, *The Purchasing Power of Money*, New York, Macmillan, 1911; John M. Keynes, *The General Theory of Employment, Interest and Money*, London, Macmillan, 1936; W. J. Baumol, "The Transactions Demand for Cash: An Inventory Theoretic Approach," *Quarterly Journal of Economics*, November 1952, pp. 545–56; Milton Friedman, "The Quantity Theory of Money—A Restatement," in *The Optimum Quantity of Money and Other Essays*, Chicago, Aldric, 1969; James Tobin, "Liquidity Preferences as Behavior Toward Risk," *Review of Economic Studies*, February 1958, pp. 65–68; James Tobin, "The Interest Elasticity of the Transactions Demand for Cash," *Review of Economics and Statistics*, August 1956, pp. 241–47.

[4] Allan Meltzer, "Demand for Money: The Evidence from Time Series." *Journal of Political Economy*, June 1963, pp. 219–46; Milton Friedman, "The Demand for Money: Some Theoretical and Empirical Results," *Journal of Political Economy*, August 1959, pp. 327–51; Karl Bruner and Allan Meltzer, "Predicting Velocity," *Journal of Finance*, May 1963, pp. 319–34; Gregory Chow, "On the Long-Run and Short-Run Demand for Money," *Journal of Political Economy*, April 1966, pp. 111–31.

The explanatory variables include a time trend, the transactions demand for money, as evidenced by the significance of the change-in-income term, and short-run changes in interest rates. The negative co-efficient of RB_t/RB_{t-1} indicates that households economize on their holdings of demand deposits as interest rates rise in the short run. The positive coefficient of Y_t/Y_{t-1} implies that one of the responses in the short run to changes in income is a more than proportionate increase in demand deposits. As will be seen below, the sum of all financial savings increases more than proportionally in the short run as income rises. This is consistent with the econometric literature on consumption functions, which employ distributed lag functions on income as the explanatory variable.[5]

2. Savings Deposits. A similar equation fitted for additions to savings deposits includes both the level of interest rates and their short-run changes. Short-run changes in income did not prove statistically significant.

$$(3) \qquad \frac{SD_t}{Y_t} = \underset{(3.38)}{81.22} + \underset{(3.86)}{7.398\,RB_t} - \underset{(2.89)}{70.60}\,\frac{RB_t}{RB_{t-1}}$$

$$R^2 = .5574$$

$$D.W. = 1.67$$

The level of interest rates, RB_t, reflects a strong trend in the share of income devoted to savings. The negative coefficient on the interest rate change variable reflects the process of disintermediation, households switching from savings accounts to fixed-income securities when interest rates rise sharply. Interest rate regulation on commercial banks, mutual savings banks, and savings and loan associations, and other institutional

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[5] M. Friedman, *A Theory of the Consumption Function*, Princeton, Princeton University Press for NBER, 1957; A. Ando and F. Modigliani, "The Life Cycle Hypothesis of Savings: Aggregate Implications and Tests," *American Economic Review*, March 1953, pp. 55–84; H. S. Houthakker and L. D. Taylor, *Consumer Demand in the United States*, Cambridge, Harvard University Press, 1966; N. Leviatan, "Estimates of Distributed Lag Consumption Functions from Cross Section Data," *Review of Economics and Statistics*, February 1965, pp. 44–53; F. Modigliani and A. Ando, "The Permanent Income and the Life Cycle Hypothesis of Savings Behavior: Comparisons and Tests," in *Proceedings of the Conference on Consumption and Saving*, Vol. 2, Philadelphia, 1960; J. Simon and D. Aigner, "Cross Section and Time-Series Tests of the Permanent-Income Hypothesis," *American Economic Review*, June 1970, pp. 341–51.

considerations are such that interest rates on savings deposits rise less rapidly than bond rates during periods of tight credit. As a result, disintermediation occurs and households switch to bonds. For example, during the period 1963 through 1965 households added an average of $24.4 billion to their savings deposits each year and acquired an average of $4.2 billion of public and private bonds and mortgages. During the tight money period of 1966, households acquired $12.9 billion of these fixed-income securities while increasing their savings deposits by only $19.0 billion. In 1967, when market rates on bonds had fallen rapidly relative to savings deposits rates, the pattern was reversed; savings deposits were increased by $32.5 billion, fixed-income securities by $3.5 billion. This pattern occurred throughout the postwar period and is the fundamental source of the countercyclical pattern in mortgage lending and, hence, in residential construction.

3. Pension Fund Holdings. Pension programs have grown rapidly in the postwar period. The reasons for this growth have been extensively described elsewhere.[6] Since the Supreme Court ruled in 1948 that fringe benefits were a proper part of labor contract negotiations, coverage of pension programs has grown enormously, and both contributions and benefit payments have risen sharply. Public pension plans for state and municipal employees also grew rapidly during the 1950's, as did union and other multiemployer plans.[7] Pension retirement plans for self-employed individuals received tax free status in 1962 with the Smathers-Keough Act, which permitted individuals to contribute sums (limited to $2,500 annually) to a common trust to be managed on a pooled basis. Liberalization in 1968 resulted in many more such plans being initiated; 100,000 plans registered in 1968 as compared to about half that number over the previous four years.[8]

Net fund flows to pension programs are the stablest of all forms of household financial savings. The equation for pension fund flows, including a logarithmic trend and the short-run change in income, is quite

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[6] Daniel M. Holland, *Private Pension Funds: Projected Growth*, Occasional Paper 97, New York, NBER, 1966; Phillip Cagan, *The Effect of Pension Funds on Aggregate Savings: Evidence from a Sample Survey*, Occasional Paper 95, New York, NBER, 1965; and Roger F. Murray, *Economic Aspects of Pensions: A Summary Report*, New York, NBER, 1968.

[7] H. Robert Bartell, Jr., and Elizabeth T. Simpson, *Pension Funds of Multiemployer Industrial Groups, Unions, and Nonprofit Organizations*, Occasional Paper 105, New York, NBER, 1968.

[8] Wiesenberger Financial Services, Inc., *Investment Companies: Mutual Funds and Other Types*, 1969 edition, p. 90.

simple. Changes in interest rates or stock prices proved to be statistically insignificant.

$$(4) \qquad \ln\left(\frac{PF_t}{Y_t}\right) = \underset{(27.69)}{2.44} + \underset{(8.40)}{.0271t} + \underset{(1.76)}{.1610} \frac{Y_t}{Y_{t-1}}$$

$$R^2 = .8378$$

$$D.W. = 1.80$$

That short-run increases in income raise the share of income devoted to pension reserves may be attributed to several factors. Periods of prosperity extend the coverage of pension fund programs at a rate above the long-term trend by employing the marginal work force. More liberal pension agreements may be realized in times of prosperity and vice versa. Finally, there is a growing percentage of workers whose benefits are based on final compensation. This implies that short-run increases in income will lead to a higher share of income devoted to pension funds in the short run.

4. Life Insurance Reserves. Life insurance companies provide a guaranteed fixed-dollar payment to their customers, with premiums based on rather conservative investment assumptions. Life insurance was the first form of nonbank financial intermediation serving a wide market. Coverage has grown extensively throughout the twentieth century, so that, by 1965, 83 percent of all households had at least one member insured.[9] Currently about 15 percent of insurance company assets are held to cover the liabilities of insured pension funds. Historically, insured pension funds were the predominant form of pension savings, but insured pension plans have grown much less rapidly during the postwar period than uninsured plans.

A very small share of life insurance reserves is accounted for by variable annuity plans. Since 1963, some states have permitted life insurance companies to establish so-called "separate accounts" in which they invest pension reserves in equities. These are essentially equivalent to the common trust funds which commercial banks use to manage small pension accounts collectively. To date most variable-annuity offerings are oriented toward serving those who qualify under the Keough Act; there are few variable-annuity plans that are not sheltered.

The growth of life insurance reserves net of policy loans exhibits both a trend and short-run variations. While the trend in fund flows is positive,

[9] Institute of Life Insurance, *Life Insurance Fact Book,* 1966, p. 7.

the share of income that households devote to life insurance has steadily fallen.

$$(5) \quad \frac{LI_t}{Y_t} = \underset{(2.80)}{5.574} - \underset{(5.99)}{1.526} RB_t - \underset{(1.86)}{9.794} \frac{RB_t}{RB_{t-1}} + \underset{(1.98)}{19.16} \frac{Y_t}{Y_{t-1}} - \underset{(1.94)}{.0349} RS_t$$

$$R^2 = .7469$$

$$D.W. = 1.96$$

The cause for the downward trend in life insurance premiums as a share of income, as represented by the negative coefficient for RB_t, is the growth of alternative forms of savings yielding higher returns—corporate pension plans and mutual funds. Each yields higher returns by being more heavily invested in corporate equities. In addition, pension savings are tax free. It seems likely that life insurance contracts defined by current premiums and fixed payment obligations will continue to receive a lesser share of the consumer savings dollar. Insurance companies might enhance their product by offering variable-annuity plans as an inflation hedge or by reducing the premiums on straight life and term insurance, either policy requiring that insurance companies become more active in the equity market. Life insurance companies appear to have chosen another alternative, that of entering the mutual fund business. In 1968 and 1969, there was a large-scale merging and comingling of insurance companies and mutual fund management and equity. By the third quarter of 1969, 153 mutual funds were linked to 79 insurance companies or groups; $8 billion of mutual fund shares was involved—16 percent of the industry.[10] The economics of the mass marketing of both insurance and mutual fund shares are obvious. It would appear that life insurance premiums will continue to be based on fixed-income investments and that the trends in household choices for fixed obligation insurance described in equation (5) are likely to persist.

Short-term fluctuations in fund flows to life insurance have become significant since the middle 1950's. These variations are highly correlated with changes in money markets; in particular, life insurance flows are negatively correlated with short-run changes in interest rates. In each period of tight credit and rising interest rates since 1957, life insurance fund flows as a share of household income declined more than would be

[10] Wiesenberger Financial Services, Inc., *Mutual Affairs*, November 1969, p. 104.

indicated by the long-run downward trend in the share of household savings devoted to life insurance. There are several explanations. Life insurance companies are committed to lending to policy holders at fixed rates of interest; these lending terms inevitably become very attractive when market interest rates rise sharply and credit rationing occurs. While the 1966 credit crunch was the first in which this mechanism received much public attention, the negative coefficient on the term for changes in interest rates in equation (5) suggests that it has been operative and of empirical significance for some time. An additional explanation for the significance of the change-in-interest-rate variable is simply that rising market rates of interest are attracting household savings into fixed-income securities. This is discussed further below.

Stock prices also are significant in the equation, the negative coefficient implying that rising (stock) prices attract funds from life insurance. In the subsequent equations for household purchases of stock, stock prices appear to influence stock purchases with a one-year lag. Thus, the exact relationship between life insurance and net stock purchases, particularly the timing of such switches in asset holdings, remains unclear.

5. "Fixed Interest" Long-Term Claims: Bonds and Mortgages. No trend is evident in the share of income devoted to fixed-income securities, but there are very considerable cyclical variations. Additions to bond holdings are negatively correlated with short-run changes in income. The response of fixed-income security holdings to short-run changes in interest rates is very pronounced; households substitute bonds for savings deposits during periods of tight credit. This substitution is made largely by upper-income households. Holdings of marketable securities other than stock are more concentrated among wealthy households than any other form of investment assets. In 1963, the top tenth of the income distribution held 45 percent of total wealth, and 80 percent of total investment in marketable securities other than stock.[11] In recession years the actual share of income devoted to fixed-income securities falls. The equation below suggests that this negative income effect is more than offset by interest rate effects.

Stock prices are also significant in the equation for bond holdings, and are positively correlated when a one year lag is allowed. As will be seen below, households react to stock prices after a lag, switching out of stocks

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[11] Dorothy S. Projector and Gertrude S. Weiss, *Survey of Financial Characteristics of Consumers,* Board of Governors of the Federal Reserve System, 1966, pp. 14–15.

after the stockmarket declines; the equation below suggests that some of these funds are finding their way into bonds and mortgages.

(6) $$\frac{F_t}{Y_t} = 96.16 + 74.51\frac{RB_t}{RB_{t-1}} - 160.9\frac{Y_t}{Y_{t-1}} + .2129\,RS_{t-1}$$
$$\qquad\quad (1.56)\quad (3.29)\qquad\quad (2.38)\qquad\quad (2.48)$$

$$R^2 = .6068$$

$$D.W. = 1.66$$

where F equals additions to holdings of fixed income securities, and RS_{t-1} equals return on stock with a one year lag.

Data for 1969 have only recently become available. Extrapolation with the above equation provides an estimate of the impact of tight credit during 1969. Based on the 22.5 percent increase in interest rates during 1969, equation (6) predicts that households will devote 1.7 percent of their income to fixed-income securities, compared with a mean level of about one-half of 1 percent during the postwar period. The actual percentage was 2.5 percent. The $23.1 billion invested in bonds was nearly double the rate during the 1966 credit crunch; 1969 was clearly a year of extraordinary participation in the bond markets by the household sector.

The tradeoffs between fixed-income securities, savings deposits, and life insurance reserves, all sensitive to short-run changes in interest rates, deserve brief summary.

(7) $$\frac{F_t}{(F+SD)_t} = -.7255 + .9268\frac{RB_t}{RB_{t-1}}$$
$$\qquad\qquad\qquad\quad (2.082)$$

$$R^2 = .1857$$

$$D.W. = 1.32$$

(8) $$\frac{F_t}{(F+SD+LI)_t} = -.9885 - .0360\,RB_t + 1.276\frac{RB_t}{RB_{t-1}}$$
$$\qquad\qquad\qquad\quad (3.18)\quad (1.46)\qquad\quad (4.06)$$

$$R^2 = .5407$$

$$D.W. = 1.74$$

(9) $$\frac{SD_t}{(F+SD+LI)_t} = 1.689 + .0667\,RB_t - 1.257\frac{RB_t}{RB_{t-1}}$$
$$\qquad\qquad\qquad\quad (5.71)\quad (2.83)\qquad\quad (4.19)$$

$$R^2 = .5845$$

$$D.W. = 1.85$$

(10)
$$\frac{LI_t}{(LI + SD)_t} = \underset{(.96)}{.0891} - \underset{(6.47)}{.0476} RB_t + \underset{(3.05)}{.2859} \frac{RB_t}{RB_{t-1}}$$

$$R^2 = .7525$$

$$D.W. = 1.76$$

Equations (7) and (8) reveal the shift into fixed-income securities as interest rates rise in the short run. Equation (10) indicates that life insurance reserves fall less rapidly than do savings deposits when credit conditions are tightened and disintermediation occurs.

The sum of savings by fixed-income holdings, savings accounts, and life insurance as a percent of income is increasing over time, the increase in holdings of fixed-income securities and savings deposits having more than offset the decline in life insurance savings. This trend is reflected in a positive coefficient on interest rates in equations (11) and (12).

(11)
$$\frac{(F + SD)_t}{Y_t} = \underset{(1.39)}{-116.6} + \underset{(2.70)}{4.808} RB_t - \underset{(1.65)}{158.3} \frac{Y_t}{Y_{t-1}}$$

$$R^2 = .6060$$

$$D.W. = 1.38$$

(12)
$$\frac{(F + SD + LI)_t}{Y_t} = \underset{(1.29)}{-95.24} + \underset{(2.12)}{3.681} RB_t + \underset{(1.79)}{130.5} \frac{Y_t}{Y_{t-1}}$$

$$R^2 = .5385$$

$$D.W. = 1.12$$

While changes in income also appear in these equations, the significant autocorrelation reduces the statistical significance of the estimated co-efficients. Conspicuous by its absence in these equations is the short-run change in interest rates, which proves statistically insignificant.

This suggests that the reduced fund flows into life insurance and savings deposits associated with increasing market interest rates in the short run is essentially offset by higher flows into fixed-income holdings.

6. Corporate Stock and Mutual Fund Shares. Ownership of corporate stock is not nearly as widespread throughout the income distribution as pension

funds, life insurance, or savings deposits. In 1963 one person in six held stocks,[12] and the wealthiest 10 percent of the population held 62 percent of the equity in publicly traded stock.[13] A trend toward a more even distribution of corporate stock ownership has prevailed throughout the twentieth century. From 1952 to 1956 the median money income of stockholders actually declined from $7,100 to $6,200, or 15 percent; while for the populace as a whole, median income rose by about that same percentage. However, since the early 1960's this trend has been altered due to the growth in mutual funds. Mutual funds provide a relatively inexpensive means for the small investor to diversify. As a result, direct investment in corporate stock is being displaced by investment in mutual funds. Both the 1962 and 1965 *Census of Stockholders* revealed the same proportion of the population holding corporate stock directly. During this three year period, median household income of shareowners increased 16 percent, the same increase as for median household income generally.[14] At the same time, mutual fund growth has been rapid and ownership increasingly widespread. Mutual funds had 9.1 million accounts by 1968 year-end versus 300,000 in 1940.

Two other characteristics of mutual fund purchasers deserve mention. In very recent years, the median family income of mutual fund holders has accelerated, rising from $8,100 in 1963 to $11,350 in 1966, an increase well in excess of the rise in income for the population generally. Also, the average age of those in accumulation plans rose sharply, from 42.8 to 46.4 years. This suggests that mutual funds are becoming an increasingly important means of providing retirement savings for middle- and upper-income households.[15]

Second, household acquisitions of mutual funds have shifted in favor of those with greater risk. In 1958, the share of the investment in mutual funds to be found in funds classified as "diversified common stock" was 60 percent; a decade later that figure had risen to 80 percent. "Balanced" funds, with 20 to 50 percent of their assets invested in fixed dollar holdings, saw their share of the mutual fund market decline from 26 to 14 percent.[16] As will be seen below, mutual fund market performance approximated the

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[12] New York Stock Exchange, *Fact Book, 1968*, p. 40. The next survey was scheduled for 1970. There is no evidence on how the distribution of dollar amounts of stock held, by income class, is changing.

[13] Projector and Weiss, *op. cit.*, p. 15.

[14] NYSE, *Fact Book, 1968*, p. 40.

[15] Investment Company Institute, *Mutual Fund Fact Book*, 1969, p. 47.

[16] *Investment Companies: Mutual Funds and Other Types*, pp. 42–44.

return achieved by the market averages until 1965. Since 1965, the performance of the growth funds has improved substantially. By accepting higher risk, the growth funds were able to earn a significantly higher return, though it was accompanied by a higher variance. Whether households will continue to exhibit this preference for more risk remains to be seen.

Household annual acquisitions of corporate stock (both direct holdings and the sum of direct holdings and mutual fund shares) have turned from a marginal plus to a rather large negative amount during the postwar period. Households sold $12 billion in stocks (other than investment company shares) in 1968 and nearly $11 billion in 1969. One striking feature about this series is that its magnitude is very small, a tiny fraction of 1 percent of either total personal income or the total valuation on stock held. Moreover, it does not change much when stock prices change dramatically. A sizable portion of stockholdings is very inactive. A 1965 survey indicated that only one-half of all household stockholders acquired any stock that year, and that only one in eight made as many as five transactions. The average income of the small share who were more active in the market was very much higher than that for all shareholders generally.[17]

There are several explanations for the downward trend in net acquisitions. One is the long-run shift in relative prices in favor of fixed-income holdings. Bond rates have risen over these two decades, while returns on stock were lower in the 1960's than 1950's; for the period 1950–59 the compound rate of growth (price appreciation plus dividends) for the Standard and Poor's index of 500 stocks was 20.3 percent, versus 10.9 percent from 1958 to 1968.[18] Another explanation is the rise in pensions as an alternative means of savings. The declining share of income, or the share of financial savings, devoted to direct stock investment and mutual fund shares combined is represented by equation (13), revealing a negative correlation with the bond rate.

$$(13) \qquad \frac{(S + MF)_t}{Y_t} = 16.83 - \underset{(7.69)}{4.165} \, RB_t$$

$$R^2 = .7476$$

$$D.W. = 1.41$$

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[17] NYSE, *Public Transactions Survey*, 1965.
[18] NYSE, *Fact Book, 1969*.

The bond rate is essentially a trend proxy in this equation, reflecting the several sources of change discussed above. Neither short-run changes in interest rates or bond prices, nor a distributed lag or weighted average of current and past stock prices, proved statistically significant in this equation.

Disaggregation of direct and indirect stockholdings reveals more about household investment behavior. Both strong trends and short-run variations are apparent in household acquisitions of mutual funds. The rate of return in the stock market is correlated with net mutual fund sales (sales less redemptions) after allowing for a lag. The sharp stock market declines in 1962 and 1966 resulted in much lower mutual fund sales a year later. The following equation was fitted.

$$(14) \qquad \frac{MF_t}{Y_t} = .00053 + \underset{(8.76)}{.2537t} - \underset{(1.68)}{.0179} \, RS_{t-1}$$

$$R^2 = .8137$$

$$D.W. = 1.74$$

Short-run changes in income or interest rates did not prove statistically significant. The upward trend in mutual fund sales has been interrupted only by sharp variations in stock prices.

Direct corporate stock acquisitions and sales present a different picture. In addition to a downward trend, represented by a significant coefficient on the bond rate, short-run changes in income and interest rates are also statistically significant. Short-run increases in income coincide with a lower share of income devoted to stock purchases. The positive coefficient on changes in bond rates indicates that rate increases attract more money into stocks. This is not easily explained. As noted, fixed-income securities also attract funds during periods of rising interest rates. There have been several periods when stock prices fell as interest rates moved up. However, attempts to include stock prices in the equation, in either current or lagged terms, or by a weighted average, proved unsuccessful. The explanation for the positive correlation of net stock purchases with short-run changes in the interest rate remains unclear.

$$(15) \qquad \frac{S_t}{Y_t} = 20.52 - \underset{(13.95)}{6.301} \, RB_t - \underset{(1.57)}{26.17} \frac{Y_t}{Y_{t-1}} + \underset{(3.55)}{27.90} \frac{RB_t}{RB_{t-1}}$$

$$R^2 = .9210$$

$$D.W. = 2.14$$

Disaggregation of households' net stock purchases provides further insight. Odd-lot transactions are made largely by the small investor, primarily in the household sector. Net purchases of odd lots on the NYSE amount to about one-fifth of the total household sector's net flows. An equation for the ratio of odd-lot net purchases to income is

(16)

$$\frac{S_{1t}}{Y_t} = 7.555 - \underset{(4.98)}{.8987}\, RB_t - \underset{(1.66)}{10.79}\, \frac{Y_t}{Y_{t-1}} + \underset{(2.30)}{7.525}\, \frac{RB_t}{RB_{t-1}} + \underset{(2.03)}{.0220}\, RS_{t-1}$$

$$R^2 = .7035$$

$$D.W. = 1.21$$

where S_{1t} equals net odd-lot purchases on NYSE in year t. Stock prices enter with a one-year lag, while current stock prices are not statistically significant. Odd-lot purchases thus behave much like mutual fund net purchases. Households appear to react in belated fashion to stock prices, increasing their net selling of direct holdings *and* their redemption of mutual funds *after* stock prices decline. This is testimony to the familiar cliche that "the odd-lotters are always wrong." The most recent illustration is their actions during the 1966–67 market decline and recovery. Household mutual fund redemptions *and* net sales of direct stockholdings were much higher than usual in 1967, following the sharp market drop in 1966. The stock market was staging a huge recovery in 1967. While annual data is not suited to a determination of the precise timing of this phenomenon, the general outlines are clear.

The same equation for round lot net purchases (i.e., all household net purchases less those in odd lots) is similar, but stock prices in this case do not prove statistically significant.

(17) $\quad \dfrac{S_{2t}}{Y_t} = \underset{(2.10)}{54.65} - \underset{(8.85)}{4.8971}\, RB_t - \underset{(1.96)}{58.536}\, \dfrac{Y_t}{Y_{t-1}} + \underset{(2.68)}{21.967}\, \dfrac{RB_t}{RB_{t-1}}$

$$R^2 = .9043$$

$$D.W. = 2.34$$

The "household" sector in the flow of funds accounts is an agglomeration of several types of accounts, including personal trusts and estates, colleges and universities, and nonprofit foundations. At year-end 1968 colleges and nonprofit foundations held $25 billion in corporate stock,

while personal trusts held $95 billion. Together this was nearly one-eighth of the stock held by the "household" sector as defined in *Flow of Funds Accounts*. Trusts and foundations are likely to behave differently than households, but unfortunately no flow of funds data are available on their actions. By making explicit assumptions about the annual price apprecia-tion of stockholdings by each group, the flow of money into or out of corporate stocks can be estimated. Together with reported asset hold-ings at the beginning and end of the year, estimates of flows of new funds into stocks (or withdrawals) can be derived. That estimate will be only as reliable as the assumptions about portfolio appreciation. It was assumed that portfolio appreciation for personal trusts, colleges, and foundations equaled the rate of price appreciation plus dividends for the Dow-Jones industrial average (DJIA). While this assumption is a reasonable approxi-mation over the long run, the estimates for any given year are subject to some error. The error is probably largest when stock price changes are largest. Excluding estimated "fund flows" of personal trusts, colleges, and foundations from round lot net purchases, the relationship is

$$(18) \quad \frac{S_{3t}}{Y_t} = -27.68 - 8.048\, RB_t + 49.92\, \frac{RB_t}{RB_{t-1}} + .4050\, RS_t$$
$$\qquad\qquad\qquad (4.00) \qquad\quad (1.78) \qquad\qquad (3.50)$$

$$R^2 = .7864$$

$$D.W. = 2.59$$

where S_{3t} equals net purchases by "household" sector less odd-lots on the NYSE, and less estimated net purchases by personal trusts and estates, colleges and universities, and foundations. The significance of the stock price term is by no means unambiguous, since it may reflect misspecifica-tion in the net fund flows by personal trusts and estates.

Estimated net purchases by personal trusts and estates as a share of income reveal neither trend nor short-run responsiveness to income or interest rate changes. However, stock prices are negatively correlated with net flows.

$$(19) \qquad\qquad \frac{PT_t}{Y_t} = 2.715 - .2048\, RS_t$$
$$\qquad\qquad\qquad\qquad\qquad (2.41)$$

$$R^2 = .3097$$

$$D.W. = 2.71$$

where PT equals net purchases of stocks by personal trusts and estates. The coefficient on stock prices is subject to two different interpretations: stock price declines may attract funds of personal trusts into stocks or their past holdings of stocks may fluctuate less in value than the DJIA, the assumption used to derive net flows.

7. *Summary*. Short-run increases in income raise the share of income devoted to financial savings in the aggregate, indicating that the short-run marginal propensity to consume is below its long-run level. Higher interest rates in the short run also induce households to devote a higher share of income to financial savings and to shift from life insurance and savings deposits into direct bond holdings.

Over the long run households are reducing their direct participation in the equities markets, while at the same time increasing their indirect holdings, by investing in mutual funds and uninsured pension funds. Currently, the increase in pension fund holdings and mutual fund shares more than offsets the decline in household sales of stock. The short-run variations in stock prices affect household investment decisions; stock market declines hasten the liquidation of households' direct stockholdings and reduce their willingness to buy mutual funds, in each case the reaction occurring after a time lapse.

3. THE STOCK INVESTMENT POLICIES OF THE MANY TYPES OF FINANCIAL INSTITUTIONS

An overview of the trends in the holdings and net purchases and sales of corporate stock by financial institutions in the postwar period was given in section 5 of Chapter 3. Also in that section was a summary of the relationship of these holdings and transactions to total acquisition of financial assets by financial institutions, to total net issues of corporate stock, to total volume of trading in corporate stock on exchanges in the U.S., and to the velocity of turnover of the stock portfolio of financial institutions. The present section reviews, still very summarily, the policies followed by the main types of financial institutions and their relation to other uses of their funds, employing a standard table (e.g., Table 5-2), and summarizes the scarce available information on the structure of the stock portfolios of these institutions.[19]

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[19] It is expected that these matters will be analyzed in the Commission's own report in much greater detail for the last four years on the basis of new primary data specifically collected for this purpose.

TABLE 5-2

Structure of Assets and Transactions of Private Uninsured Pension Funds, 1951–69

(*percent*)

	1951 (1)	1955 (2)	1960 (3)	1965 (4)	1969 (5)
Distribution of financial assets					
1. Cash	3.8	2.2	1.3	1.2	1.7
2. U.S. govt. securities	26.9	15.8	7.1	4.6	3.2
3. State and local govt. securities	—	—	—	—	—
4. Mortgages	1.3	1.6	3.4	4.5	4.1
5. Loans	—	—	—	—	—
6. Corporate bonds	45.1	43.2	41.2	31.3	27.5
7. Corporate stocks	17.8	33.3	43.3	54.7	59.0
8. Miscellaneous assets	5.1	3.8	3.7	3.3	4.5
Total ($billion)	7.8	18.3	38.1	72.6	96.6
Distribution of net acquisition of financial assets[a]					
1. Cash		2.4	0.6	1.3	2.4
2. U.S. govt. securities		10.8	−1.9	3.5	−1.2
3. State and local govt. securities		—	—	—	—
4. Mortgages		1.2	5.6	8.7	2.7
5. Loans		—	—	—	—
6. Corporate bonds		53.0	48.4	30.3	15.7
7. Corporate stocks		28.9	43.5	51.9	73.7
8. Miscellaneous assets		3.6	3.8	4.3	6.7
Total ($billion)		8.3	16.1	23.1	25.5

SOURCES: *Flow of Funds Accounts 1945–1968* and *ibid., First Quarter, 1970.*

[a] Period ending with year indicated at top of column, derived from annual figures. Hence, occasional small differences may appear when compared with final differences between benchmark years.

a. Uninsured Pension Funds

Net fund flows into pension funds are growing rapidly, are unusually stable, and can be easily predicted on an actuarial basis, given assumptions about employee contributions, rates of retirement, and benefit payments. Pension funds do not face a liquidity problem arising from sudden changes in fund flows.

Originally, the investment objective of pension funds was that of achieving a return to meet a dollar target payment at some future date. Until about 1950, private pension funds were about equally divided between insured and uninsured plans. Insured pension funds were very conservatively invested, life insurance companies being severely limited in their opportunity to acquire corporate stock.

In the decade following World War II, corporate treasurers gradually adopted the investment strategy of maximizing returns subject to a risk limitation, rather than that of investing to minimize the risk associated with meeting a specified target based on particular conservative actuarial assumptions. In the years immediately following the war, the interest rates on long-term government bonds (pegged at $2\frac{1}{2}$ percent) kept interest rates on private bonds at similar low levels. The higher returns on common stock investments were strong inducement for bank trustees to invest an increasing share in stocks. Accordingly, uninsured pension funds quickly sold off the government securities which they had accumulated during World War II and invested primarily in corporate stocks and bonds, a process that can be followed in Table 5-2. This change was made possible by a revision in the New York State law allowing trustees to invest up to 35 percent of a fund in stocks.[20] The largest companies with established records were the obvious investment vehicle. A steadily rising trend is exhibited in the share of fund flows invested in corporate stock throughout the postwar period.

There is no statistical correlation between changes in the portfolio composition of pension funds shown in Table 5-2 and changes in rates of return on stocks or bonds. An important qualification must be made in interpreting this result. Aggregated data for all pension funds may conceal relationships that exist at the individual-firm level. If fund managers have different bases for forming price or interest rate expectations or if they respond at varying speeds to change in relative rates of return, aggregated data on portfolio composition will reflect the sum of these behavioral effects. For example, the gradual shift to stocks appearing in the aggregate

[20] Murray, *op. cit.*, pp. 72–80.

data may reflect a series of decisions, each made at a fairly discrete point in time by one of the various corporate treasurers (and their bank trust department advisers), that their funds should be more heavily invested in corporate stock. Many pension funds adopt a fixed percentage of fund flows as their target for corporate stock investment, which they do not change for many years. If the decisions by individual firms to change that target occur at different points through the sample period (for example, in response to changes in expected rates of return on stocks versus bonds, each fund employing very different lags in forming those expectations), aggregated data on portfolio composition may be trend dominated even though relative prices on stocks and bonds are important to the decision.

While aggregation in the data may conceal the role of relative prices in decisions regarding portfolio composition, it is likely that the real effects of changing interest rates or stock yields in portfolio decisions are not great. The predominant focus in most trust agreements is on long-term growth. As will be noted in section 4, bank trustees have tended to invest conservatively, essentially placing stock funds in medium and large companies with long-term growth potential. Turnover rates on pension funds are well below those of mutual funds (see Table 5-3). Short-run variations in business conditions and interest rates apparently have little effect on decisions regarding the share of portfolios devoted to stocks. In addition, trust departments manage a huge volume of assets, with large new fund flows. This makes it more difficult to pursue an aggressive invest-ment policy which is responsive to short-run changes in bond and equity markets.

The future course of pension fund investment has been the subject of considerable speculation. The direction of future fund flows will reflect rates of return on alternative credit instruments. A recent suggestion that the flow of funds into corporate stock might stabilize or peak at about 60 percent, and similarly the suggestion that pension funds would increase their involvement in mortgages, are contradicted by the 1967–68 experi-ence.[21] Corporate stock accounted for approximately 85 percent of fund flows in 1967 and 1968 and for 75 percent in 1969.

A limited number of pension accounts have adopted a riskier market strategy since 1967. Aggregate turnover rates for pension funds have in-creased significantly since that date. Some pension accounts have been switched from bank trust departments or self-management to private investment advisers or brokers managing special equity funds. These managers are generally offering a level of expected yield and associated

[21] *Ibid.*, pp. 92–97.

TABLE 5-3

Structure of Assets and Transactions of State and Local Government
Retirement Funds, 1951–69

(*percent*)

	1951 (1)	1955 (2)	1960 (3)	1965 (4)	1969 (5)
Distribution of financial assets					
1. Cash	1.8	1.9	1.0	0.9	0.9
2. U.S. govt. securities	51.8	43.9	30.3	23.6	15.5
3. State and local govt. securities	30.4	25.2	22.6	7.9	4.3
4. Mortgages	1.8	2.8	7.7	11.2	11.4
5. Loans	—	—	—	—	—
6. Corporate bonds	12.5	23.4	34.4	49.4	54.3
7. Corporate stocks	—	0.9	2.1	4.8	11.4
8. Miscellaneous assets	1.8	1.9	2.1	2.1	2.2
Total ($billion)	5.6	10.7	19.5	33.0	51.0
Distribution of net acquisition of financial assets[a]					
1. Cash					1.1
2. U.S. govt. securities		36.7	13.6	14.7	0.6
3. State and local govt. securities		20.4	19.3	−13.2	−2.2
4. Mortgages		4.1	13.6	16.9	11.7
5. Loans		—	—	—	—
6. Corporate bonds		36.7	48.9	69.9	62.8
7. Corporate stocks		—	4.5	9.6	23.9
8. Miscellaneous assets		2.0	—	2.2	2.2
Total ($billion)		4.9	8.8	13.6	18.0

SOURCES: Same as Table 5-2.
[a] Period ending with year indicated at top of column, derived from annual figures.
Hence, occasional small differences may appear when compared with final differences
between benchmark years.

risk that lies between the traditional conservative bank trust department philosophy and the high risk strategy represented by the smaller "performance"-oriented mutual funds. Bank trust departments have also responded in a limited way to their treasurers' interest in assuming more risk, by creating pooled equity funds within the bank that are oriented toward a higher turnover, high "performance" objective. A modest share of individual pension accounts are invested in such accounts, at the discretion of the corporate treasurer (often limited to 10 percent). In one instance, such a pooled equity fund constituted $800 million of the bank's total trust assets of $12 billion.[22] How much risk corporate treasurers will assume in managing their pension funds in the future is difficult to predict.

b. State and Local Retirement Funds

The characteristics of fund flows and investment objectives of state and local retirement funds are not unlike those of private pension funds. However, up until now political factors have resulted in a rather conservative investment strategy—a large share of funds invested in public securities and a very small share in corporate stock (Table 5-3). Public retirement funds have generally been managed by state or municipal treasurers. Funds have been gradually shifted from U.S. government and state and local securities into corporate bonds and, more recently, into mortgages. The share invested in stock has been quite small, less than 5 percent of new funds up until the middle 1960's. Throughout this period the performance on such portfolios has been disappointingly low.[23] A weak negative correlation exists between changes in interest rates and the share of funds devoted to corporate stock. For the period 1948–68, the share of funds devoted to stock by state and local retirement funds can be represented as follows:

$$(20) \qquad \left(\frac{S}{TA}\right)_t = \underset{(1.52)}{.1728} + \underset{(3.34)}{.0042}(t) - \underset{(1.48)}{.1651} \frac{RB_t}{RB_{t-1}}$$

$$R^2 = .3955$$

$$D.W. = 1.86$$

where S is net stock purchases, TA is the change in total assets, and RB is

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[22] Robert L. Donerstein, "Bankers Trustman Furnum Has Most of the Answers," *Finance*, February 1970, pp. 10–15.

[23] Murray, *op. cit.*, pp. 102–10.

the interest rate on three- to five-year government bonds. Stock prices were not statistically significant in the equation.

The investment policies of public retirement programs appear to be changing rather dramatically in very recent years. Since 1967, the share of funds devoted to corporate stock has been rising rapidly; in 1967 and 1968, 15 to 20 percent of net fund flows were allocated to corporate stock versus less than 5 percent in earlier years. While the process of liberalizing legal restrictions and political constraints on the investment of such funds is likely to progress in an uncertain fashion, there appears to be a potential for a further dramatic shift to corporate equities. In 1969, Oregon pioneered a new approach, that of allowing outside professional managers to handle a portion of equity funds with full discretion. Other states appear headed in the same direction.[24] It seems likely that state and local government retirement funds will devote a much larger share of their funds to corporate stocks, as corporate pension funds have already done.

c. Life Insurance Companies

Historically, life insurance companies have been very conservative investors, on the presumption that their fundamental objective should be safety of principal. As a result over three-fourths of all life insurance assets have been invested in corporate bonds and mortgages (Tables 5-3 and 5-4). A variety of statutory and institutional considerations reduced the investment alternatives in corporate stock that were available to life insurance companies; state laws provide very strict limitations.[25] Most life insurance company assets are held by companies licensed in New York. Originally, New York State law prohibited investment in corporate stock. Relaxation of this restriction in 1951 allowed life insurance companies to invest up to 3 percent of total assets in common stock; an amendment in 1957 raised the limit to 5 percent. The law also prescribes limits on the type of company whose stock is eligible. A company must have paid a dividend in each of the previous ten years, and dividends must not have exceeded earnings in any year. Obviously, these restrictions severely limit the choice of stocks open to life insurance companies.

The extent to which statutory limitations have reduced the share of fund flows that life insurance companies have devoted to equities is the subject of some dispute. Brimmer noted that in 1951 when the first significant

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[24] "Oregon Blazes the Pension Trail," *Institutional Investor*, February 1970, pp. 41–47.
[25] For a review of state laws and their effects, see Commission on Money and Credit, *Life Insurance Companies as Financial Institutions*, Englewood Cliffs, N.J., Prentice-Hall, 1962, pp. 75–159.

TABLE 5-4

Structure of Assets and Transactions of Life Insurance Companies, 1951–69

(*percent*)

	1951 (1)	1955 (2)	1960 (3)	1965 (4)	1969 (5)
Distribution of financial assets					
1. Cash	1.6	1.5	1.1	0.9	0.8
2. U.S. govt. securities	16.5	9.8	5.6	3.3	2.1
3. State and local govt. securities	1.8	2.3	3.1	2.3	1.7
4. Mortgages	28.9	33.6	41.6	39.7	37.9
5. Loans	3.9	3.9	4.3	5.9	7.8
6. Corporate bonds	41.2	42.1	36.1	39.0	38.5
7. Corporate stocks	3.3	4.1	4.7	5.2	6.9
8. Miscellaneous assets	2.7	2.8	3.4	3.7	4.2
Total ($billion)	66.7	87.9	115.8	154.0	190.0
Distribution of net acquisition of financial assets[a]					
1. Cash		1.0	—	0.5	—
2. U.S. govt. securities		−12.1	−8.1	−3.8	−3.6
3. State and local govt. securities		4.8	5.5	−0.3	−0.8
4. Mortgages		48.8	45.2	50.0	33.8
5. Loans		3.9	8.1	7.1	19.0
6. Corporate bonds		46.9	41.2	35.2	33.2
7. Corporate stocks		3.4	2.6	6.3	12.3
8. Miscellaneous assets		3.4	5.5	4.9	6.1
Total ($billion)		20.7	27.2	36.6	35.8

SOURCES: Same as Table 5-2.

[a] Period ending with year indicated at top of column, derived from annual figures. Hence, occasional small differences may appear when compared with final differences between benchmark years.

liberalization in the New York State law occurred, life insurance companies invested 40 percent less in stocks than in the year before.[26] A survey of the industry in 1959 revealed that an overwhelming majority opposed substitution of the prudent-man rule in place of statutory limitations. However, more than half the industry wanted the New York State law liberalized to allow 10 percent of a portfolio to be invested in stocks.[27] In general, the investment policy of life insurance companies through 1965 was quite conservative.[28] Annual acquisitions of common and preferred stock since 1958 are shown in Tables 5-5 and 5-6.

The rules for valuation of assets constitute the second major deterrent to stock investment by life insurance companies. Most life insurance companies are mutual companies and are required by law to return profits in excess of a stated level of net policy liabilities. Thus, determining asset values critically affects a company's cash flow and almost since its beginning has been the subject of dispute in the industry.[29] Valuation of stocks is required to be at market value, though in 1957 some modification was made for preferred stocks. This in turn is the basis for determining the reserves from which dividend payments are made. "Overvaluation" of assets due to temporary price increases leads to higher dividend payments, while "undervaluation," by using temporarily depressed security prices, produces huge paper losses. In actual practice, valuation rules are often changed and often suspended when large changes occur in securities prices. Fraine's study of the effect of valuation policy and practices suggests that the industry's valuation procedures may have reduced real solvency.[30] For present purposes, the most significant consequence is that the rules have discouraged investment in securities with above average risk, in both common and preferred stock.[31] The disincentives to investment in preferred stock have cost the industry a substantial amount, since their return in the long run has been well above corporate bonds.[32] The

[26] Andrew Brimmer, *Life Insurance Companies in the Capital Markets*, E. Lansing, Michigan State University Press, 1962, pp. 340–41.

[27] *Ibid.*, pp. 347–57.

[28] R. Hart, "Life Insurance Companies and the Equity Capital Market," *Journal of Finance*, 1965, pp. 362–67.

[29] For a good historical review, see *Life Insurance Companies as Financial Institutions* (note 25, above), pp. 166–73.

[30] Harold G. Fraine, *Valuation of Security Holdings of Life Insurance Companies*, Homewood, Ill., Richard D. Irwin, 1962, pp. 20–21.

[31] Lawrence D. Jones, *Investment Policies of Life Insurance Companies*, Boston, Graduate School of Business Administration, Harvard University, 1968, pp. 143–45.

[32] Alden C. Olson, *The Impact of Valuation Requirements on the Preferred Stock Investment Policies of Life Insurance Companies*, Occasional Paper No. 13, Graduate School of Business Administration, Michigan State University, 1964.

TABLE 5-5

Acquisition of Corporate Stock by Life Insurance Companies, 1958–68

(*$billion*)

	Total (1)	Preferred		Common	
		Total (2)	Public Utility[a] (3)	Total (4)	Public Utility[a] (5)
1958	0.37	.09	.07	0.28	.06
1959	0.51	.15	.10	0.36	.06
1960	0.66	.25	.21	0.41	.07
1961	0.92	.31	.21	0.61	.10
1962	0.77	.22	.12	0.55	.07
1963	0.79	.26	.16	0.53	.08
1964	1.07	.32	.23	0.75	.09
1965	1.46	.48	.31	0.98	.13
1966	1.32	.22	.12	1.10	.14
1967	2.07	.38	.21	1.69	.20
1968	3.32	.39	.18	1.93	.24

SOURCE: Institute of Life Insurance, *Life Insurance Fact Book*, 1969, p. 81.

[a] Includes very small amounts of railroad stock (for 1958–68, $35 million of preferred and $82 million of common).

opportunity cost of remaining largely out of the equity market in common stocks is even greater.

d. Non-Life-Insurance Companies

The growth of fire and casualty insurance companies has been much more sporadic than that of life insurance companies, and short-run changes in fund flows tend to be substantial. From 1946 through 1965, net fund flows fluctuated from $600 million to $1,800 million yearly, with little evidence of trend or business cycle effects. Since 1966, growth has been much more rapid. In both 1966 and 1967, fund inflows exceeded $2 billion, and in 1968 they were over $3 billion.

Instability in fund flows has induced non-life-insurance companies to invest significant amounts in government securities, which serve largely as a hedge against uncertainty. The observed short-run variation in

TABLE 5-6

Industrial Structure of Stockholdings of Life Insurance Companies, 1951–68

(percent of all stocks)

	Preferred Stock				Common Stock			
	Total (1)	Railroad (2)	Public Utility (3)	Other (4)	Total (5)	Railroad (6)	Public Utility (7)	Other (8)
1951	63.1	4.1	23.7	35.3	36.1	1.4	8.9	26.7
1952	60.6	4.3	24.3	32.0	39.4	1.6	10.1	27.8
1953	59.5	4.0	26.0	29.6	40.5	1.3	10.8	28.3
1954	53.0	3.0	26.4	23.6	47.0	2.0	11.8	33.2
1955	48.0	2.2	26.0	19.8	52.0	1.9	12.4	37.7
1956	44.3	1.8	24.8	17.7	55.7	1.6	12.8	41.4
1957	44.9	1.8	25.9	17.2	55.1	1.1	13.7	40.3
1958	38.0	1.5	22.7	13.8	62.0	1.4	15.0	45.6
1959	35.2	1.3	22.0	11.9	64.8	1.0	13.4	49.2
1960	36.1	1.2	23.6	11.4	63.9	0.8	16.4	46.8
1961	32.5	0.9	21.7	9.9	67.5	0.7	16.8	50.1
1962	34.6	1.0	23.0	10.7	65.4	0.7	16.6	48.1
1963	32.5	0.9	21.9	9.7	67.6	0.6	16.1	50.9
1964	31.7	0.9	21.7	9.1	68.3	0.6	16.4	51.2
1965	31.4	0.9	21.9	8.6	68.6	0.7	14.8	53.2
1966	32.0	0.7	23.0	8.3	68.0	0.6	13.8	53.6
1967	28.2	0.6	20.2	7.2	71.8	0.5	11.6	59.7
1968	24.5	0.4	17.6	5.6	75.6	0.5	10.4	64.7

SOURCE: Institute of Life Insurance, *Life Insurance Fact Book*, 1969.

TABLE 5-7

Structure of Assets and Transactions of Non-Life-Insurance Companies,
1951–69

(*percent*)

	1951 (1)	1955 (2)	1960 (3)	1965 (4)	1969 (5)
Distribution of financial assets					
1. Cash	8.7	6.2	4.6	3.3	2.8
2. U.S. govt. securities	39.9	28.9	19.9	15.2	8.4
3. State and local govt. securities	10.1	19.9	28.8	28.5	82.3
4. Mortgages	0.7	0.9	0.4	0.3	0.4
5. Corporate bonds	5.8	5.7	6.0	7.6	13.3
6. Corporate stocks	28.3	32.7	33.5	38.6	35.1
7. Miscellaneous assets	6.5	5.7	6.8	6.7	7.6
Total ($billion)	13.8	21.1	28.1	39.6	49.8
Distribution of net acquisition of financial assets[a]					
1. Cash		2.0	—	—	0.9
2. U.S. govt. securities		12.2	−7.0	4.6	−17.8
3. State and local govt. securities		55.1	68.4	50.8	43.9
4. Mortgages		—	—	—	—
5. Corporate bonds		6.1	8.8	18.5	33.6
6. Corporate stocks		16.3	15.8	13.8	29.0
7. Miscellaneous assets		8.6	14.3	12.3	10.3
Total ($billion)		4.9	5.7	6.5	10.7

SOURCES: Same as Table 5-2.
[a] Period ending with year indicated at top of column, derived from annual figures. Hence, occasional small differences may appear when compared with final differences between benchmark years.

government security holdings mainly reflects variation in claims (cf. Table 5-7). As with other financial institutions, government securities made up a large share of their assets after World War II. These were sold in the postwar period. Government securities have now been reduced to about one-tenth of the asset holdings of nonlife insurance companies.

Nonlife company investment portfolios exhibit several distinct trends and tradeoffs. First, a large share of funds is invested in state and local securities; unlike pension funds, nonlife companies are subject to corporate income tax and hence the tax-free status of municipal securities has proven attractive. However, their share in total funds has fallen over time while investments in corporate bonds and mortgages have risen, even though the after-tax yield on state and local government securities has been considerably higher. Relative rates of return are not statistically significant in explaining this tradeoff, nor are short-run changes in interest rates. However, during periods of declining fund flows the share of funds devoted to bonds falls, while conversely an increasing share is devoted to state and local securities. The following equations using annual data for the postwar period illustrate these tradeoffs. Net fund flows were defined exclusive of variation in government security holdings, which approximates the portion of assets that may be invested with a longer time horizon.

$$(21) \quad \frac{SLG_t}{(TA-G)_t} = \underset{(1.99)}{.9701} - \underset{(1.87)}{.0714} RB_t - \underset{(2.19)}{.1838} \frac{(TA-G)_t}{(TA-G)_{t-1}}$$

$$R^2 = .4008$$

$$D.W. = 1.54$$

$$(22) \quad \frac{B_t}{(TA-G)_t} = \underset{(2.29)}{.1120} + \underset{(2.08)}{.0797} RB_t + \underset{(2.22)}{.1874} \frac{(TA-G)_t}{(TA-G)_{t-1}}$$

$$R^2 = .4065$$

$$D.W. = 1.82$$

where B equals net purchases of bonds, SLG equals net purchases of state and local government securities, and $TA-G$ equals the change in total assets less government securities.

Finally, there is no statistical explanation for the share of funds devoted to stocks. Neither fund flows, relative rates of return, or short-run changes in the capital markets appear relevant. The most noticeable occurrence is the rise in the share of funds devoted to corporate stock since 1967. This may be the result of a change in investment strategy or it may simply reflect the more than doubling of net fund flows over this two-year period.

e. Mutual Funds[33]

Investment strategy varies among different types of mutual funds, though only those most interested in safety of principal or income hold any appreciable part of their funds outside of stocks. In the aggregate, the industry invests 85 percent of fund flows in corporate stock. The industry's "portfolio response" to changes in interest rates or stock prices in the aggregate is to alter marginally (by a few percent) its cash holdings.

The most significant change in investment strategy by mutual funds occurred very recently. Many funds have increased the risk they are willing to take, placing greater emphasis on short-run performance. A much larger share of assets has been invested in smaller companies and unlisted securities. Also, turnover rates have increased sharply, from their long-run norm of about 20 percent through 1965 to levels twice that high in 1968 (Table 5-8). A recent survey indicated that the funds expect their turnover rates to remain at these high levels in 1975.[34] These changes are discussed below.

An adequate analysis of the portfolio structure of investment companies and changes in portfolios for the entire postwar period would have gone far beyond the scope of this study. Moreover, such a study has been made for limited periods in the 1950's (the Wharton Study), and another, for recent years, is now being undertaken in the Securities and Exchange Commission's Institutional Investor Study. It may therefore suffice to indicate in Table 5-9 the industrial breakdown of stockholdings of open-end investment companies at a few benchmark dates between 1952 and 1968 and to compare it with a similar breakdown of all common stocks listed on the New York Stock Exchange. The comparison will indicate the industrial sectors favored or neglected by open-end investment companies. Thus, for instance, mutual funds have always held a considerably smaller proportion of their portfolio in stocks of public utilities, railroads, automobiles, and chemicals than would correspond to those industries' share in NYSE listings or total stock outstanding.[35] On the other hand, mutual

[33] Investment Company Institute, *Management Investment Companies*, Englewood Cliffs, N.J., Prentice-Hall, 1962; University of Pennsylvania, Wharton School of Finance and Commerce, *A Study of Mutual Funds*, House Report No. 2274, 87th Cong., 2nd sess., Philadelphia, 1962; Securities and Exchange Commission, *Public Policy Implications of Investment Company Growth*, House Report No. 2337, 89th Cong., 2nd sess., Washington, D.C., 1966.

[34] Daniel Nordhy and George DeVoe, "Secret Sales Tools for Researching Tomorrow's Institutional Buyer," *Finance*, December 1969, p. 26.

[35] The apparently high share of stock of financial companies in mutual fund portfolios reflects of course the fact that only relatively few companies in this sector are listed on the NYSE.

TABLE 5-8

Structure of Assets and Transactions of Open-End Investment
Companies, 1951–69

(*percent*)

	1951 (1)	1955 (2)	1960 (3)	1965 (4)	1969 (5)
Distribution of financial assets					
1. Cash[a]	2.9	21.5	2.4	1.8	6.0
2. U.S. govt. securities	2.9	3.8	3.5	3.0	1.2
3. Corporate bonds	8.8	6.3	7.1	7.8	7.0
4. Corporate stocks	85.4	87.4	87.0	87.4	85.8
Total ($billion)	3.4	7.9	17.0	27.1	52.6
Distribution of net acquisition of financial assets[b]					
1. Cash[a]		4.8	3.7	10.2	31.2
2. U.S. govt. securities		9.5	5.6	2.0	--2.8
3. Corporate bonds		9.5	13.0	18.4	12.8
4. Corporate stocks		76.2	77.7	69.4	58.8
Total ($billion)		2.1	5.4	4.9	10.9

SOURCES: Same as Table 5-2.
[a] Includes open market paper.
[b] Period ending with year indicated at top of column.

funds have invested more heavily in electronic,[36] drug, and building
material companies than would correspond to the relative supply of
shares of this type.

f. Personal Trusts and Common Trusts

Systematic data on the investment portfolios of personal and common
trusts are unfortunately unavailable. Common trust funds were initiated

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[36] The comparison should be made for the sum of lines 1 and 2 in Table 5-9 because of
apparent differences in industrial classification of identical companies (probably including
IBM) in the two sources used in the comparison.

TABLE 5-9

Industrial Structure of Common Stock Portfolios of Open-End Investment Companies and of Common Stock Listed on NYSE, 1952–68

(*percent*)

	Holdings of Open-End Investment Companies					Listings on New York Stock Exchange			
	Dec. 1952[a]	Sept. 1958[a]	Dec. 1958	Dec. 1965	Dec. 1968	Dec. 1952	Dec. 1958	Dec. 1965	Dec. 1968
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Selected Industries with Substantially Rising Shares[b]									
1. Office equipment	1.2	2.6	3.3	5.0	9.4	1.0	2.8	1.3	1.8
2. Electrical equipment	3.4	2.5	3.5[c]	6.1[c]	7.9[c]	3.2	4.0	9.4	12.1
3. Drugs	1.8	3.6	4.7[d]	4.1[d]	5.6[d]	n.a.	n.a.	n.a.	4.5
4. Building materials	2.0	2.2	3.7	1.3	4.0	1.2	1.6	1.0	1.4
5. Foods and beverages	2.6	1.8	1.6	2.5	3.5	3.8	3.1	4.0	4.5
Selected Industries Without Trend[b]									
1. Finance	9.0	9.2	10.5	10.5	8.4	2.6[c]	2.3[c]	2.4[c]	4.0[c]
2. Retail trade	4.1	2.4	2.2	2.5	4.0	4.7	4.1	4.6	4.7
3. Mining	3.0	3.2	4.5[f]	3.8[f]	3.1[f]	3.1	3.0	2.2	2.9

(*continued*)

TABLE 5-9 *(concluded)*

	Holdings of Open-End Investment Companies					Listings on New York Stock Exchange			
	Dec. 1952[a]	Sept. 1958[a]	Dec. 1958	Dec. 1965	Dec. 1968	Dec. 1952	Dec. 1958	Dec. 1965	Dec. 1968
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Selected Industries with Substantially Declining Shares[b]									
1. Utilities	17.0	12.7	13.6	10.5	6.3	16.1	17.3	18.5	14.3
2. Oil	14.8	14.1	15.8	10.0	12.8	18.6	16.7	13.7	14.6
3. Chemicals	8.7	7.3	7.0	6.5	7.0	14.2	14.5	15.0	9.3
4. Automobiles	3.3	2.9	2.3	4.6	2.2	8.1	7.0	7.9	5.5
5. Railroads	6.3	4.2	3.9	3.6	3.2	4.8	3.0	2.1	3.4
6. Rubber and tires	2.4	2.4	3.1	1.2	1.3	1.0	1.4	0.9	1.0
7. Steel	2.7	6.0	6.8	2.3	1.2	3.3	5.0	2.3	1.7

n.a. = not available.

SOURCES: Cols. 1, 2. *A Study of Mutual Funds*, 1962, p. 71; columns 3–5. *Mutual Fund Fact Book*, p. 22; columns 6–9. NYSE, Department of Research and Statistics.

[a] As a percentage of domestic stocks only; foreign stocks accounted for 2.4 percent in 1952 and 6.3 percent in 1958.

[b] Based on holdings of open-end investment companies.

[c] Includes electronics.

[d] Includes cosmetics.

[e] Includes real estate.

[f] Includes metals.

in the 1930's as a means by which banks could exercise fiduciary responsibility for small trusts at low cost. After the passage of the Keough Act in 1962, common trust fund assets grew from $3.6 billion in 1962 to $9.5 billion in 1968.[37] Generally a conservative investment strategy has been followed. Turnover rates have historically been well below those for other institutional investors. During the 1960–64 period, one study showed that over half of the equity common trust funds surveyed had turnovers ranging from 3 to 9 percent.[38] During this period only half of the funds outperformed the DJIA and only one-fourth exceeded the S&P 500 index.[39] More recent studies for the period 1961–68 indicate that common trust investment performance has been comparable to that of the S&P 500.[40] During this period a gradual evolution toward investing a higher percentage of funds in corporate stock occurred, as is evident in Table 5-10. Compared to other institutional investors, common trust funds have kept a relatively large part of their stock portfolio in conservative preferred and utility stocks (see Table 5-11).

Much less is known about the investment decisions of personal trusts. The share of total assets held in stock has risen over th postwar period, from 48 percent in 1951 to 70 percent in 1968 (see Table 5-12). As noted earlier, fund flows can only be derived from reported changes in asset holdings at year end and, hence, investment decisions regarding new commitments cannot be accurately determined. It appears that trustees have pursued very conservative policies. One survey indicated that turnover rates on private trusts during the week of October 21–25, 1963, were 2.5 percent, a level well below that of pension accounts.[41]

g. Commercial Banks and Thrift Institutions

Commercial banks and savings and loan associations are prohibited by law from holding corporate stock. Mutual savings banks are permitted to hold stock, but up until now have chosen to make little commitment in this area. Even in 1968, stocks represented less than 3 percent of their

[37] Edwin W. Hanczaryk, *Bank Trusts: Investments and Performance*, Office of the Comptroller of the Currency, 1970, p. 34.

[38] Frank L. Voorheir, "Bank Administered Pooled Equity Funds for Employee Benefit Plans," Graduate School of Business Administration, Michigan State University, 1967, p. 53.

[39] *Ibid.*, pp. 60–72.

[40] Edward Gill, "Equity Common Trust Funds," *Trusts and Estates*, February 1969, pp. 109–200; Hanczaryk, *op. cit.*, pp. 52–56.

[41] NYSE, *Institutional Shareownership*, 1965, p. 41.

TABLE 5-10

Structure of Assets and Transactions of Common Trust Funds, 1952–68

(*percent*)

	1952 (1)	1955 (2)	1960 (3)	1965 (4)	1968 (5)
Distribution of financial assets					
1. Cash	—	0.6	0.8	1.0	1.3
2. U.S. govt. securities	30.2	17.2	7.9	9.2	5.2
3. State and local govt. securities		1.7	1.6	14.9	16.3
4. Mortgages	75.6	1.1	1.6	2.4	2.4
5. Corporate and foreign bonds		19.2	28.8	25.0	23.9
6. Corporate stock preferred	12.5	11.5	7.6	2.9	2.6
7. Corporate stock common	40.1	48.7	51.7	44.2	47.7
8. Other assets	1.6	—	—	0.2	0.6
Total ($billion)	1.1	1.8	2.8	7.5	9.5
Distribution of net acquisition of financial assets[a]					
1. Cash		−314.3	−8.1	2.8	3.3
2. U.S. govt. securities			−37.2	28.9	−3.0
3. State and local govt. securities			47.6	6.5	17.6
4. Mortgages		566.6	−1.5	2.5	5.8
5. Corporate and foreign bonds			10.7	15.2	22.1
6. Corporate stock preferred		39.9	−5.0	2.8	5.4
7. Corporate stock common		−188.8	80.3	11.2	39.2
8. Other assets		−3.5	13.3	30.1	9.6
Total (percent)		100.0	100.0	100.0	100.0

SOURCES: 1952: R. W. Goldsmith, *Financial Intermediaries in the American Economy Since 1900*, Princeton, Princeton University Press for National Bureau, 1958; 1955–68: *ibid.*, Appendix I.

[a] Period ending with year indicated at top of column.

assets although net stock purchases in 1967–68 accounted for 5 percent of total fund uses (Table 5-13). Stock portfolios are concentrated on preferred shares and common stocks of banks and an investment company jointly owned by a number of savings banks (Table 5-14). It seems unlikely that banks will become active participants in the equities market.

TABLE 5-11

Industrial Structure of Stockholdings of Common Trust Funds, 1952–68

(*percent*)

	Preferred Stock (1)	Common Stock			
		Total (2)	Bank and Finance (3)	Utilities (4)	Other (5)
1952	24.1	75.9	n.a.	n.a.	n.a.
1953	22.9	77.1	n.a.	n.a.	n.a.
1954	20.2	79.8	9.2	16.8	53.7
1955	19.1	80.9	8.3	16.8	55.8
1956	17.5	82.5	7.6	16.9	58.0
1957	17.9	82.1	7.8	18.2	56.1
1958	14.6	85.4	8.4	19.0	58.0
1959	12.8	87.2	8.4	18.5	60.4
1960	12.8	87.2	8.6	21.3	57.3
1961	10.4	89.6	10.6	21.9	57.1
1962	12.0	88.0	10.0	22.8	55.1
1963	9.0	91.0	9.2	21.4	60.4
1964	7.3	92.7	8.3	20.9	63.5
1965	6.2	93.8	7.6	18.9	67.3
1966	5.4	94.6	8.1	19.2	67.3
1967	4.7	95.3	7.1	15.0	73.1
1968	5.2	4.8	3.0	14.3	72.6

n.a. = not available.

SOURCES: 1951–53: R. W. Goldsmith, R. E. Lipsey, and M. Mendelson, *Studies in the National Balance Sheet of the United States*, Princeton, Princeton University Press for NBER, 1963, Vol. II, p. 123; 1954–62: *Federal Reserve Bulletin*, various issues; 1963–68: Edwin W. Hanczaryk, *National Banking Review*, 1965, p. 365, and *ibid.*, 1967, p. 442.

h. Summary

The shift of institutions into stocks over the postwar period does not lend itself to any complex econometric explanation. Rates of return on equity have been much above bond rates throughout the period. The shift to stocks appears a belated and long process of adaptation to these circumstances.

TABLE 5-12

Structure of Assets and Transactions of Personal Trust Funds
Administered by Banks and Trust Companies,[a] 1951–68

(*percent*)

	1951 (1)	1955 (2)	1960 (3)	1965 (4)	1968 (5)
Distribution of financial assets					
1. Cash	2.2	2.4	1.0	1.0	1.0
2. U.S. govt. securities	23.8	12.2	5.9	7.2	5.7
3. State and local govt. securities	12.2	12.9	14.2	9.7	9.7
4. Mortgages	2.7	2.1	1.4	1.2	1.5
5. Corporate bonds	4.4	5.5	5.2	5.7	6.3
6. Corporate stock preferred	4.2	3.5	2.2	1.7	1.9
7. Corporate stock common	44.5	56.8	65.3	67.5	67.5
8. Other assets	6.6	4.6	4.8	6.6	6.4
Total ($billion)	39.1	55.0	71.9	115.0	138.4
Distribution of net acquisition of financial assets[b]					
1. Cash		3.5	0.0	1.7	3.3
2. U.S. govt. securities		−3.4	−16.3	12.7	−13.4
3. State and local govt. securities		10.3	2.1	29.1	29.6
4. Mortgages		6.5	4.0	3.7	3.3
5. Corporate bonds		59.3	74.0	29.0	27.2
6. Corporate stock preferred		24.5	−0.2	0.1	2.0
7. Corporate stock common		4.9	36.4	22.8	46.0
8. Other assets		−5.6	−0.0	0.8	1.8
Total (percent)		100.0	100.0	100.0	100.0

SOURCE: Appendix I.
[a] Includes common trust funds; separate figures for these are shown in Table 5-11.
[b] Period ending with year indicated at top of column.

TABLE 5-13

Structure of Assets and Transactions of Mutual Savings Banks, 1951–69

(*percent*)

	1951 (1)	1955 (2)	1960 (3)	1965 (4)	1969 (5)
Distribution of financial assets					
1. Cash	3.8	2.9	2.0	1.7	1.2
2. U.S. govt. securities	42.1	27.5	16.5	10.7	6.3
3. State and local govt. securities	0.4	1.9	1.7	0.5	0.3
4. Mortgages	42.1	55.9	66.7	76.9	75.3
5. Loans	0.9	0.6	1.0	1.4	2.6
6. Corporate bonds	9.4	8.3	9.4	5.0	9.3
7. Corporate stocks	0.9	2.2	2.0	2.4	3.1
8. Miscellaneous assets	0.4	0.6	0.7	1.4	2.0
Total ($billion)	23.5	31.3	40.5	58.1	74.4
Distribution of net acquisition of financial assets[a]					
1. Cash		1.2	−2.1	0.6	−0.6
2. U.S. govt. securities		−26.7	−19.8	−3.4	−10.1
3. State and local govt. securities		6.8	—	−2.3	−0.6
4. Mortgages		107.0	100.0	100.6	71.1
5. Loans		—	1.0	2.3	6.3
6. Corporate bonds		5.8	14.6	4.5	25.8
7. Corporate stocks		4.7	3.1	3.4	5.0
8. Miscellaneous assets		1.2	3.1	3.4	3.1
Total ($billion)		8.6	9.6	17.7	15.9

SOURCES: *Flow of Funds Accounts, 1945–1968. Ibid., First Quarter, 1970.*

[a] Period ending with year indicated at top of column, derived from annual figures. Hence, occasional small differences may appear when compared with final differences between benchmark years.

TABLE 5-14

Industrial Structure of Stockholdings of Mutual Savings Banks, 1953–68

(*percent*)

	Preferred Stock			Common Stock				
	Total (1)	Convertible (2)	Straight (3)	Total (4)	Banks (5)	Insurance (6)	Investment Companies (7)	Other (8)
1953	n.a.	n.a.	n.a.	n.a.	65.9[a]	n.a.	n.a.	34.1[b]
1954	n.a.	n.a.	n.a.	n.a.	56.2[a]	n.a.	n.a.	43.8[b]
1955	26.3	1.5	24.8	73.5	49.9	3.9	3.5	16.2
1956	28.7	1.6	27.0	71.4	47.5	4.1	3.8	16.0
1957	29.0	1.3	27.8	71.1	44.7	3.8	5.2	17.3
1958	30.8	1.4	29.4	69.1	41.3	3.8	5.5	18.5
1959	32.4	1.0	31.5	67.6	40.1	3.6	6.8	17.1

1960	32.7	0.7	32.1	67.2	39.4	3.7	8.1	16.0
1961	30.0	0.5	29.5	69.9	36.7	3.7	8.8	20.8
1962	30.6	0.8	29.8	69.4	33.3	3.9	9.8	22.5
1963	30.9	0.9	29.9	69.1	31.5	3.5	10.2	23.9
1964	29.8	0.8	29.0	70.3	32.0	3.5	9.8	24.9
1965	29.3	1.60	27.7	67.4	30.7	3.5	10.3	22.9
1966	31.2	n.a.	n.a.	68.8	29.9	3.2	10.3	25.3
1967	32.0	n.a.	n.a.	68.1	26.9	2.5	11.6	27.2
1968	30.1	2.00	28.1	69.9	25.0	1.2	13.1	30.5

n.a. = not available.
SOURCES: 1953–60: Unpublished data of the National Association of Mutual Savings Banks; 1961–68: *Savings Bank Journal*, various issues.
a Includes both common and preferred.
b Includes all stock, both common and preferred, not held by commercial banks.

4. THE RETURN ON EQUITY AND INSTITUTIONAL INVESTMENT SINCE 1967

The sharp shift to stock by all major institutional investors in 1967 and 1968 occurred at a time when returns on equity were less attractive relative to bonds than at any other time throughout the postwar period. Institutions appear to have changed their expectations regarding the future return on equity investment in response to the high return earned by a

TABLE 5-15

Price Appreciation Plus Dividend Yield: Selected Stock Market Indices, 1952–69

	DJIA	S&P 500	NYSE Composite	AMEX	Over the Counter[a]
1952	21.3	23.4			
1953	14.2	17.7			
1954	11.8	−1.2			
1955	50.2	51.2			
1956	7.0	6.4			
1957	−8.5	−10.5			
1958	38.6	42.4			
1959	20.0	11.8			
1960	−6.2	0.3			
1961	22.4	26.6			
1962	−7.6	−5.4			
1963	20.6	22.5			
1964	18.7	16.3			
1965	14.2	12.3	9.5	39.5	30.1
1966	−15.6	−10.0	−12.6	−6.6	−1.5
1967	18.9	23.7	23.1	76.5	54.0
1968	7.4	11.1	9.7	33.2	20.8
1969	−15.2	−11.4	−12.5	−19.7	

SOURCE: New York Stock Exchange, *Fact Book*.
[a] 35 industrials (National Quotation Bureau).

segment of the mutual fund industry. "Growth funds" have increased the proportion of their asset holdings in medium-sized and smaller companies and have assumed more risk, a strategy contrasting sharply with traditional practice, e.g., the policy of most bank trust departments. The publicity about growth funds' "performance" and their approach to investment since 1967 apparently induced some pension and other trusteed accounts to assume more risk, and inflated expectations regarding the return on equity for all types of institutional investors.

a. The Return on Equity

Several indices which measure the return (price appreciation plus dividends) on different groups of equity investments are shown in Table 5-15. Dividend yields have been falling relative to capital gains throughout the postwar period. Rising tax rates, the provision for lower capital gains taxation, and the advantages to corporations of internal financing seem to be the principal reasons for this change.

The explanations for the trends in stock prices and much of their short-run fluctuation lie in fundamental economic factors, which affect the expectations of all actual and potential corporate stockholders. The level of stock prices responds in turn to these changes in expectations. Price-earnings ratios are the best single measure of investors' expectations concerning the further return on equity investments. A doubling of price-earnings ratios occurred from the end of World War II to their peak in 1961 (see Table 5-16). The upward revision in these ratios during the 1950's suggests the increasing belief of investors that equity investments were undervalued relative to bonds in that decade. This increase in multiples accounted for over half of the growth in stock prices during this period (their annual rate of increase was about 20 percent). Since 1961, multiples have fluctuated in the 13–20 range. The 10 percent annual rate of increase in stock prices from 1960 through 1968 essentially mirrors the growth in after-tax corporate profits.

In addition to these changing trends, the composition of returns among companies has changed. While the indices of stock prices are highly correlated, the more broadly based averages, the Standard and Poor's 500 index or the New York Stock Exchange index of all stocks on the Exchange, have a higher long-term growth rate than the Dow-Jones industrial average, which is made up of thirty of the larger, more established companies. From 1950 through 1959 the compound rate of growth was 19.5 percent for the DJIA, versus 20.3 percent for the Standard and

TABLE 5-16

Stock-Bond Yield Differentials, 1952–68

	Common Stock Return			Bond Return Rate[c] (4)	Yield Gap		Price-Earnings Multiple (7)	Implicit Price Deflator for GNP (8)	Corporate Profits After Taxes (9)
	Dividend Yield[a] (1)	Capital Gains[b] (2)	Total Yield (3)		Current (1) – (4) (5)	Total (3) – (4) (6)			
1952	5.80%	9.4%	17.8%	2.96%	2.84%	14.8%	9.3%	87.5	$17.0
1953	5.80	-4.4	-1.2	3.20	2.60	-4.4	10.5	88.3	15.5
1954	4.95	4.0	57.2	2.90	2.05	48.3	9.7	89.6	16.0
1955	4.08	26.8	31.0	3.06	1.02	27.9	11.3	90.9	22.2
1956	4.09	2.6	6.4	3.36	0.73	3.0	14.1	94.0	22.1
1957	4.35	-11.3	-10.5	3.89	0.46	-14.4	12.9	97.5	20.9
1958	3.97	34.0	42.4	3.79	0.18	38.6	16.6	100.0	17.5
1959	3.23	7.3	11.8	4.38	-1.15	7.4	17.1	101.6	22.5

The Demand for Corporate Stock

Year									
1960	3.47	−0.5	0.3	4.41	−0.94	−4.3	17.1	103.3	20.6
1961	2.98	20.9	26.6	4.35	−1.37	22.2	21.1	104.6	20.5
1962	3.37	−9.4	−5.4	4.33	−0.96	−9.7	16.7	105.8	23.8
1963	3.17	17.5	22.5	4.26	−1.09	18.2	17.6	107.2	26.3
1964	3.01	12.9	16.3	4.40	−1.39	11.9	18.1	108.8	31.5
1965	3.00	8.8	12.3	4.49	−1.49	7.8	17.1	110.9	38.2
1966	3.40	−10.4	−10.0	5.13	−1.73	−15.1	14.9	113.9	41.1
1967	3.20	14.8	23.7	5.51	−2.31	18.2	17.5	117.6	38.1
1968	3.07	9.6	11.1	6.18	−3.11	4.9	17.2	122.3	40.0
1969	3.24	−13.0	−9.8	7.03	−3.79	−16.8		128.1	40.3

SOURCE: *Economic Report of the President, 1970.*
a 500 stocks, Standard and Poor's stock index.
b Year-end to year-end percentage in Standard and Poor's stock index.
c Moody, AAA corporate bonds.

Poor's 500 index. From 1959 through 1968, the rates of increase were 9.2 percent and 10.9 percent respectively. From 1967 through 1969 the differences between these two indices became even more pronounced, about 4 percent annually. The indices of American Stock Exchange stocks and of industrial stocks traded over the counter (Table 5-15), which are based primarily on the shares of smaller, younger companies, also illustrate this growing differential between large and small companies. From 1965 through 1968 the American Stock Exchange index rose 120 percent, and over-the-counter stocks rose 83 percent, against 24 percent for the S&P index.

The basis for this ever increasing gap between the DJIA and the broader-based averages reflects a long-run shift in the pattern of economic growth. A systematic examination of growth by corporations in the United States economy would go well beyond the scope of this study. However, a brief review of the experience of the *Fortune* 500 indicates that the smaller companies are growing the fastest. (The *Fortune* 500 are the 500 largest manufacturing firms, comprising 63.7 percent of all manufacturing sales in 1969. Statistics for the "Second 500" largest firms, first compiled by *Fortune* for 1969, revealed that this group accounted for 6.5 percent of sales.) The 50 largest manufacturing firms in the *Fortune* 500 have sustained a slower growth rate since the beginning of the economic expansion in 1961,[42] through periods of both rapid and slower growth. In 1969, sales by the 50 largest firms rose 6.5 percent over the previous year, while the sales growth of the entire 500 was 9.7 percent. Sales growth for the "Second 500" firms was 11.7 percent. In earnings, the top 50 registered a decline of 4 percent in 1969 compared to a rise for the 500 of 2 percent and a rise of 8.6 percent for the "Second 500."[43]

Much the same pattern appears in earnings per share, a critical determinant of stock prices in the long run. For the entire decade 1960–69, the 50 largest firms achieved an average growth rate in earnings per share of 5.94 percent; for the entire 500 the growth rate was 7.01 percent; for the "Second 500" it was 7.50 percent; and for the 50 smallest firms of the "Second 500" it was 10.21 percent.[44] In short, the highest growth in sales, earnings, and opportunities for equity investment has generally been outside the largest companies.

[42] *Fortune 500 Directory*, 1967, p. 1.

[43] *Fortune*, May 1970, pp. 182–83; *Fortune*, June 1970, pp. 982–99.

[44] *Fortune 500 Directory*, May 1970, pp. 182–83; *Fortune*, June 1970, pp. 98–116.

b. Bank Trust Department Equity Management

As noted earlier, there are two major money-management groups in the financial community, bank trust departments and the mutual fund organizations. In recent years the differences in management strategy of these two groups have become pronounced, as have the results. Examination of these differences is important in analyzing the current flow of institutional funds to the equity market and in predicting likely trends in the future.

A trust agreement is an arrangement by which the trustee assumes fiduciary responsibility for managing assets for the benefit of another.[45] The agreement typically defines that responsibility, the degree of discretion of the trustee, and the rules for distributing benefits of the trust. The definition of fiduciary discretion has many dimensions. Often it limits the extent of corporate stock and other types of investments; it may impose limits on the share of funds that may be invested in a single company; and it may lay out guidelines, indicating which companies are eligible. Also, state laws and state courts interpret the nature and limits of trustee discretion differently. In some cases the trustee is limited to selecting from a "legal list" of eligible investments maintained by many states. Within the agreed upon limits of fiduciary responsibility trustees typically are limited by the "prudent man" rule.[46]

Trust agreements and investment policies vary for different kinds of accounts. For example, the uncertainty associated with the liquidation date of many personal trusts forces the trustee to be more attentive to liquidity and short-run changes in portfolio values. Tax considerations also matter; for example, corporate pension funds are tax free and hence have not invested in state and local government securities. However, despite these differences the percentage of assets invested in stocks by these three groups in 1968 was nearly identical: 64.1 percent by employee benefit accounts, 63.8 percent by personal trusts and estates, and 59.6 percent for employee pension accounts.[47]

Historically the investment strategy for investing in stock on behalf of pension funds has been conservative, with most funds invested in large companies and with turnover rates on such holdings well below those of mutual funds. The first comprehensive survey of pension fund holdings was

[45] Cf. Austin W. Scott, *The Law of Trusts*, 3rd ed., Boston, Little Brown & Co., 1967. For application to pension funds, see Commerce Clearing House, Inc., *Pension Plan Guide*. Chicago, 1964.

[46] Harvard College versus Amory (1835).

[47] Hanczaryk, *op. cit.*, p. 21.

conducted in 1955 by the New York State Banking Department. The survey revealed that the stock portion of pension funds trusteed by New York banks were mainly concentrated in the largest stocks. As of December 31, 1954, almost 61 percent of pension fund investments were in stocks of companies whose capitalization had a market value in excess of $500 million, with 14 percent in stocks of companies with valuations under $200 million; the comparable figures for all outstanding common stock were 52.6 percent and 25 percent respectively.[48] The 1956 Fulbright Committee investigation of thirty large pension funds revealed the same concentration of stock investments in a few large, well-established companies. From 1953 to 1955, almost 25 percent of the equity investment of corporate pension funds was in 25 leading companies. In contrast, such companies attracted only 15 percent of mutual fund investment during that period.[49]

Trust departments gradually diversified their equity investment during the 1950's. The survey of the portfolios of ten large bank trust departments for 1958–59 bore this out: only 16.5 percent of purchases were in the above-mentioned group of 25 companies.[50] This process of diversification has continued into the 1960's. However, turnover rates have remained relatively stable, about 12 percent, in the decade through 1965—less than half the level of mutual funds.

The aggregate return on trusteed pension funds can be inferred from various sources. A questionnaire survey of the largest 200 firms among the *Fortune* 500 revealed that the common stock portfolios of these pension funds appreciated at a compound rate of 7.2 percent from January 1, 1957, to December 31, 1962.[51] During that same period the average annual increase (price appreciation plus dividends) of the DJIA was 9.1 percent; for the S&P 500 index, 10.9 percent. Dietz found similar results in his examination of the return on six large pension funds for 1953–62. The average annual appreciation for the funds was 12.0 percent over the period versus 13.1 percent for the DJIA and 13.6 percent for Standard and Poor's index of 425 industrials. There were no subperiods during which the

[48] George A. Mooney, *Pension and Other Employee Welfare Plans: A Survey of Funds Held by State and National Banks in New York State*, New York State Banking Department, 1955; and Norman C. Miller, "Concentration in Institutional Common Stocks Portfolios," *Journal of Finance*, March 1961, pp. 40–41.

[49] U.S. Senate, Committee on Banking and Currency, *Institutional Investors and the Stock Market, 1953–1955*, Washington, 1956.

[50] Murray, *op. cit.*, pp. 81–82.

[51] F. William Graham II and Richard D. Bower, "Corporate Responsibility in Pension Fund Management," Graduate School of Business Administration, Harvard University, unpublished monograph, Exhibits 13 and 14.

performance of the funds differed appreciably from the averages. He also found no evidence that these pension funds attempted to shift the share of funds devoted to equities in response to market conditions.[52]

The results are little different for more recent years. A recent survey of some 894 profit-sharing pension trusts' records of asset appreciation during the period 1959–66 reveals much the same result.[53] The asset size of these funds ranged from under $50,000 to over $25 million; taken together they had assets valued at $4.1 billion at year-end 1961, equal to 12 percent of all uninsured pension fund accounts. About one-half of these funds made their own investment decisions, while the other half relied on a trustee. Most of the trust agreements did not restrict the trustee to the "legal list." Generally bank and trust companies were the trustees, hence this sample should reflect the experience of a wide group of bank trustees.

For the 46 largest of these profit-sharing trusts, i.e., all those with assets in excess of $10 million, the average overall return for the period 1959–63 was 8.4 percent.[54] At the end of 1961 these profit-sharing trusts held 64 percent of their funds in common stock. Assuming a return on the nonequity portion of their investments of 3 to 4 percent implies that these funds have earned 10.9 to 11.5 percent on the equity portion of the portfolio. This return is slightly above the return on the DJIA, which rose 7.3 percent in price over this period and yielded slightly over 3 percent in dividends. Within this group of 46 profit-sharing trusts, there is a distinct correlation between rate of return and the share of funds held in equities.[55] As one might suppose, in the 1966 market decline the portfolios of these funds declined more than the aggregate of all pension funds, 7.9 percent versus 5.7 percent.[56]

Finally, the return on all uninsured pension funds for the period 1959–66 has been estimated to be 5.8 percent.[57] With roughly 50 percent of the portfolio in nonequity investments yielding from 3 to 4 percent, the implied return on the equity portion of the investment is 7.5 to 8.5 percent.

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[52] Peter O. Dietz, *Pension Funds: Measuring Investment Performance*, New York, Graduate School of Business Administration, Columbia University and Free Press of Glencoe, 1966, pp. 80–83.

[53] Bert L. Metzger, "Investment Practices, Performance, and Management of Profit Sharing Trust Funds," Profit Sharing Research Foundation, Evanston, Illinois, 1969.

[54] *Ibid.*, p. 360.

[55] *Ibid.*, pp. 372–75.

[56] *Ibid.*, pp. 427–28.

[57] *Ibid.*, p. 359.

During that period the rate of return on an unmanaged portfolio made up of the DJIA stocks was 8.6 percent.

In short, it appears that historically the average appreciation of equity investments of the bank trust departments is not significantly different from that realized by the more conservative stocks of companies with large capitalizations, as represented, e.g., in the DJIA. What appears to have occurred as a result of the diversification in trust department investments in the late 1950's and early 1960's is that average performance now is better approximated by the more comprehensive stock price indices. As noted above, concentrating stock investments in the stocks of the companies with the largest capitalization is likely to result in lower rates of return. This difference in growth rates has widened since 1966, as evidenced by the increasing gap between the DJIA and the more comprehensive stock market indices.

c. The Investment Record of Mutual Funds

The investment record of the mutual fund industry has been scrutinized several times.[58] In every case asset appreciation of the mutual funds was essentially the same as that of the relevant securities price averages.[59] In the Wharton School examination of the period 1953–58, it was concluded that the mutual funds had not outperformed the DJIA. The same conclusion could be reached in 1964. However, since 1965 the performance of the "growth funds" has been distinctly better than that of all the popular averages. In the most recent study, Friend examined forty-one growth stocks (those in existence at the beginning of 1964) from 1964 to mid-1968. The mean return exceeded the return on a weighted average of all NYSE issues—the weights proportionate to the dollar value of stock outstanding —and was comparable to an unweighted random selection of all NYSE stocks.[60] These weighted and unweighted averages exceeded the return on the DJIA. This is evident in Table 5-17. As a result, the cumulative appreciation of an investment in the growth funds over the ten-year period 1960–69 was well above that realized by the averages, about 145 percent versus 60 percent for the DJIA.

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[58] U.S. Securities and Exchange Commission, *Investment Trusts and Investment Companies*, 1939: Wharton Report (see note 33, above); SEC, *Public Policy Implications of Investment Company Growth*.

[59] This was first noted in the SEC study of the period 1927–37 (*Investment Trusts and Investment Companies*, Part II, Chapter VI and Appendix J).

[60] Irwin Friend, Marshall Blume, and John Crockett, *Mutual Funds and Other Institutional Investors*, New York, Twentieth Century Fund, 1970, pp. 150–52.

The higher rates of asset appreciation by the growth funds is the result of adopting a higher-risk strategy, diversifying to smaller companies and small-capitalization stocks. This strategy, of course, leaves the growth funds more susceptible to downside risk as well. These funds sustained sizable losses during the 1969–70 stock market decline. During 1969 the growth funds depreciated 15.8 percent, comparable to the decline in the DJIA but slightly more than that in the broader averages, e.g., the NYSE index. In 1970 the performance of the growth funds relative to the market worsened; during the first six months of 1970, they had fallen 31.0 percent, while the NYSE index declined about 23 percent. However, for the two and one-half year period January 1, 1968, to June 30, 1970, the growth funds' decline was just comparable to that of the NYSE index. Given their much superior performance relative to the market from 1965 to 1967, their cumulative appreciation since 1965 still greatly exceeds that of the market. The mutual funds' gains relative to the market when stock prices were rising more than offset their disproportionate losses in the market decline.

These comparisons were made as of June 30, 1970, the last date for which data were available. Because of the higher-risk strategy adopted by the growth funds, the low point of a "market cycle" provides the worst possible basis for comparing their performance to the averages. It seems unlikely that further stock market declines will be of sufficient size to invalidate the conclusion that the growth funds can significantly "outperform" the averages, though at the same time they raise the variance on returns.

Nor is this conclusion necessarily invalidated by the speculative market environment of 1967, which contributed to the very high rates of return of the smaller growth funds. The equities markets did provide unusually large rewards to speculative investment in small issues during 1967 and 1968. While the NYSE index increased by 23.1 percent in 1967 and 9.7 percent in 1968, the increases on the American Exchange were 76.5 percent and 33.2 percent, and those for the National Quotation Bureau's over-the-counter index were 54.0 percent and 20.8 percent. Also, the performance figures of many funds were inflated by the acquisition of "letter stock," unlisted stock (which the company would list at a subsequent registration or offering) purchased from a company at below the market price and valued by the fund each quarter at the current market price. Acquisition of letter stock was a source of large gains by the purchasing fund if the market price of the company's stock continued up and there was a market for its sale after public listing.

TABLE 5-17

Average Annual Return of Mutual Funds: Capital Gains Reinvested, Dividends in Cash, 1960–69

(percent change)

	Growth Funds					Balanced Funds	Income Funds
	Large (1969 year-end assets over $300 mill.)	Small: Maximum Capital Gain	Small: Long-Term Growth	Growth and Current Income	Growth and Current Income, with Relative Stability		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Annual change[a]							
1960	6.4	4.8	1.9	1.4	2.7	5.1	0.8
1961	27.2	28.8	26.1	24.7	23.6	19.5	19.0
1962	−18.1	−19.4	−15.3	−12.0	−8.1	−5.4	−3.6
1963	22.5	20.3	17.4	18.0	17.1	13.2	16.0
1964	15.0	11.6	12.5	15.1	14.3	12.2	14.4
1965	32.4	35.3	21.5	16.9	14.5	10.4	14.0

1966	−1.6	−2.4	−4.1	−6.7	−6.5	−5.5	−6.5
1967	39.1	58.3	31.7	25.3	24.2	19.7	23.9
1968	10.1	21.1	14.1	15.0	17.4	14.4	21.3
1969	−10.4	−16.3	−10.7	−11.4	−12.6	−11.3	−15.9
Cumulative percentage change							
1960–64[b]	48.0	37.0	48.0	49.0	54.0	47.0	50.0
1965–69[a]	78.3	91.4	53.4	37.0	35.7	25.7	33.0
1960–69[a]	148.0	144.3	112.4	97.0	99.4	80.0	90.9

NOTE: Cumulative percentage change, Dow-Jones industrial average: 1960–64, +46.6; 1965–69, +9.2; 1960–69, +60.1.

[a] Wiesenberger Financial Services, Inc., *Investment Companies: Mutual Funds and Other Types*, 1970 ed., New York, pp. 124–31.

[b] *Ibid.*, 1966 ed., pp. 118–23.

On the other hand, it is always hazardous to make too much of "extenuating circumstances" in the stock market. The opportunity for speculative investment in 1967 was by no means unprecedented. The downside risk associated with speculative investment, e.g., in "letter stock," may well be fully reflected in the losses sustained by the growth funds in 1969–70. In essence, the higher gains by the growth funds over the entire period since 1965 reflect their realization that market opportunities were shifting away from the largest companies. It is their wider diversification and their greater flexibility, enabling them to adjust their portfolios more rapidly, that have produced the very sharp contrast in rates of appreciation on equity investments compared to the bank trust departments.

These and subsequent comparisons of mean returns do not include specific measures of the risk element. It is clear that the growth funds have raised the variability of returns together with their expected value. Both the expected return and its variability need to be included in measuring portfolio performance.[61] The proper measure of risk remains the subject of some controversy.[62] Abstracting from an explicit risk measure in this discussion is not critical since the differences between the rates of return for the trust departments and many of the growth funds is very large; penalties for the variance which would offset these differences in expected returns would need to be very large, especially if one had a time horizon of several years.

One other important dimension to mutual fund performance since 1967 is the interrelationship between fund performance and fund size.[63] Neither the Wharton School study of the period 1953–58, the SEC study for 1956–65, nor Friend's recent study of the 1964–68 period have revealed any correlation of mutual fund performance with size, after stratifying funds by their different objectives.[64] However, year to year comparisons of the growth funds since 1967 reveal that size has been significantly

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[61] Jack Treynor, "How to Rate Management of Investment Funds," *Harvard Business Review*, January-February 1965, pp. 63–79; William F. Sharpe, "Market Fund Performance," *Journal of Business*, Supplement, June 1966, pp. 119–30; Ira Horowitz, "The Reward to Variability Rates and Mutual Fund Performance," *Journal of Business*, October 1966, pp. 485–88.

[62] Eugene Fama, "Risk and the Evaluation of Pension Fund Portfolio Performance," Bank Administration Institute, Park Ridge, Ill., 1969.

[63] For the period 1930–55 the correlation between size and performance was significant in only two of the years, and in those two the larger companies performed better than the smaller ones (*ibid.*, p. 474).

[64] Wharton Report, pp. 210–30; SEC Report, pp. 255–73; Friend, Blume, and Crockett, *op. cit.*, pp. 60, 156.

correlated with performance, the highest rates of appreciation being achieved by the smaller funds.

Table 5-18 presents yearly performance of all growth funds, classified by size of assets in each year, since 1964.[65] In 1965 the two funds with assets in excess of $1 billion had a significantly lower average gain than the rest, and in 1966 funds with less than $100 million in assets sustained below-average losses. Beginning in 1967, the size effects are rather pronounced. Average fund appreciation declined markedly with fund size, except for the Dreyfus Fund, the largest of all, with assets of over $2 billion. None of the ten funds with over $500 million in assets achieved an increase equal to the *mean* level of gains by all 37 funds with less than $300 million in assets at the year's end. In 1968, the same inverse correlation of average performance and fund size appears, again with the exception of the Dreyfus Fund *and* excluding one other entry—the Enterprise Fund—from the size class $500 million to $1 billion.[66] In the 1969–70 market decline, the smaller funds sustained the largest losses.[67]

Several reasons may explain why Friend's recent study did not reveal these size effects. First, his sample was confined to 44 firms, those in existence in 1964; this excludes many new smaller firms which tended to assume more risk. Second, data for the entire 1964–68 period may conceal the size effects which only appear since 1967. This tends to overstate the growth of larger funds; many funds classified as large in 1967 were much smaller when they achieved their highest growth. The typical experience in the mutual fund industry during this period was for smaller funds with the highest rates of asset appreciation to attract rather large fund inflows.

Several factors influence these relationships between assets appreciation and fund size. First, important economies can be realized by managing larger amounts. There are obvious administrative and management

[65] The same analysis was conducted on funds classified as having the objective of ''long-term growth and income.'' These funds represent a step toward a more conservative investment policy. The role of size in this class of funds would not be expected on *a priori* grounds to be so important, since the objective of a more stable return lends itself to investment in high-capitalization stocks and implies a lower premium for high turnover rates. There were no size effects.

[66] The Enterprise Fund's performance of +44.3 percent in 1968 is four times the average of funds of its size (whose performances range from +0.4 to +14.3 percent). The mean value of this 10-fund group is raised from 7.1 to 11.5 percent when Enterprise is included. Enterprise's performance has been exceptional; it grew from under $10 million in 1964, and has each year consistently outperformed its competitors of similar size. (In 1969, it fell by 26.4 percent; by contrast, other funds in its asset class fell 10.9 percent.)

[67] In the first 6 months of 1970, growth funds with assets from $25 million to $100 million declined 30.57 percent, versus −26.7 percent for those with assets over $500 million (Arthur Lipper Service, ''Mutual Fund Performance Analysis,'' June 30, 1970).

TABLE 5-18

Performance of Growth Funds by Asset Size: Average Percentage Gain, 1964–69

(number of firms in parentheses)

	Mean Level of Funds with Assets Over $300 Mill. on Dec. 31, 1968	Asset Size at Year End						
		$10 Mill. but Under $50 Mill.	$50 Mill. but Under $100 Mill.	$100 Mill. but Under $300 Mill.	$300 Mill. but Under $500 Mill.	$500 Mill. but Under $1 Bill.	$1 Bill. but Under $2 Bill.	$2 Bill. or More
1964	14.3	13.9 (1)	18.4 (10)	13.4 (3)	13.3 (4)	14.5	None	None
1965	34.6	38.2 (9)	39.8 (6)	34.1 (7)	31.2 (6)	34.9 (3)	22.2 (2)	None
1966	−1.1	−1.1 (12)	−0.1 (7)	−3.3 (6)	−2.9 (6)	−2.0 (4)	−2.2 (2)	None
1967	43.6	62.1 (9)	66.9 (13)	66.7 (7)	42.2 (8)	33.4 (6)	25.7 (3)	26.5 (1)
1968	8.3	19.1 (9)	18.1 (10)	20.5 (14)	7.3 (7)	7.1[a] (10)	4.7 (4)	11.6 (1)
1969	n.a.	−18.7 (9)	−24.0 (11)	−18.3 (14)	−22.1 (7)	−10.9 (10)	−11.0 (4)	−13.9 (1)
Cumulative return, 1967–69[b]		57.0	49.8	66.1	18.9	27.3	17.1	21.5

economies in employing specialized personnel to perform the diverse tasks of marketing, trading, research, and portfolio management. Also many cost items akin to overhead can be spread as fund size increases; e.g., visits to companies being considered as potential investments, an important part of the institutional investors' research which those managing small funds are generally unable to afford. These economies have been well documented. One study of mutual funds revealed that those funds with assets over $400 million achieved a per unit cost 50 percent lower than that of funds with assets below $5 million.[68]

There are other potential gains. For example, larger companies have greater leverage in buying research or other market information from brokerage houses because they generate large commissions. The absence of sufficient taper in commission rates for large transactions provides an obvious opportunity for those making large-block trades to receive this sort of nonprice transfer in exchange for their commission business. As in any regulated market where prices and costs diverge, the competitive response is that of service or product competition and various nonprice transfers.

On the other hand, large funds have little or no size advantage in dealing in low-capitalization stocks. The "size of the market" in any stock will limit the amount of money any given investor can place in a stock without reducing his own liquidity or the flexibility to sell his position. The capitalization of the company and how closely the stock is held help determine the size of the market in a stock. A large fund may have to diversify its portfolio very widely when investing in small companies. Large funds apparently enjoy no scale economies in investing small amounts in many issues.

The potential economies and market advantage for large funds have not been realized in practice, as has become evident from this review of their investment record. Invariably those with large amounts to manage (both mutual funds and bank trust departments) have conceded some degree of

[68] SEC Report, p. 253.

market flexibility by reason of their size. One common tendency is to deal in the larger companies, which reduces average expected returns. The largest accumulations of funds have also tended to be less active in the market. The much lower turnover of trust accounts relative to mutual funds was noted earlier. Among mutual funds, there is an inverse correlation of turnover rates with fund size.[69] This is not to suggest high turnover as an end in itself, but rather to indicate that the larger fund accumulations are pursuing a different market strategy.

d. Summary and Concluding Observations

The contrast between investment practices and results of the bank trust departments and those of the smaller, capital-appreciation oriented mutual funds is striking. The trust departments are essentially investing with limited risk and achieving results reflecting the rate of equity price appreciation of the more established companies. The investment return in the largest companies has steadily fallen below equity returns in the corporate sector generally, a difference which has increased markedly since 1966.

In sharp contrast, some of the mutual funds have assumed more risk and have achieved records of price appreciation—even discounting "special circumstances"—which are well above the broadly based averages. Moreover, these above-average rates of asset appreciation are *not* being achieved by the largest funds, e.g., those with assets in excess of $1 billion, which perform essentially as the broader-based market averages or at best very marginally above that level.[70] Large fund size need not *preclude* asset appreciation above the "averages," though this has been the result to date. Given this experience among the mutual funds, it is hardly surprising that the huge agglomerations of funds managed by the bank trust departments, in some cases as much as $10 billion in a single bank, perform essentially as "the market".

The long-term implications for institutional investment of these very different investment strategies, a contrast which has been clearly drawn only since 1967, remain to be seen. Risk preferences of institutional investors vary widely and appear to be changing fairly rapidly over time. In addition, prices in the capital markets have changed dramatically in recent years. Price inflation resulted in long-term bond rates of over 8

[69] Wharton Report, pp. 210–28; SEC Report, pp. 254–55.

[70] These observations are based on "expectations" in the statistical sense; individual large funds may perform better.

percent for a period, a rate which compares favorably with returns in the stock market in recent years, certainly during 1969–70. Moreover, the losses sustained by the performance funds during the recent stock market decline will surely be a reminder of the expected yield-risk tradeoff, and have undoubtedly temporarily undermined the appeal of a riskier market strategy.

However, reductions in the rate of inflation and the long-term bond rate, and resumption of economic growth are likely to reward equity holders once again, raising returns on equity above that of bonds. And unlike households, institutional investors' preferences for stocks and their portfolio choices have not been much influenced by previous stock market declines. This suggests that the long-run shift of financial institutions in favor of equity investments is likely to continue.

How much risk institutional investors will assume in their equity investments is more difficult to predict. A return on equity comparable to the broad market averages will surely continue to be quite acceptable to many corporate treasurers and other endowment and private trust accounts. Nevertheless, if professional money managers are able to show that they can again achieve rates of equity appreciation better than "the market," as they did in the 1965–70 period, this will very likely entice the owners of some pension fund and trust accounts. Private investment advisers and brokers managing special equity funds now offer a range of options to institutional accounts, allowing them to choose a level of expected yield and associated risk premium from a continuum ranging between the two extremes: a very conservative strategy or a high-risk one dealing in the stocks of the smallest companies. The most attractive policy for significant amounts of pension and private trust money may well lie somewhere between these two end points.