Mutual Funds, Part I: Reshaping the American Financial System

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Since the mid 1980s the mutual fund industry has enjoyed explosive growth in the number of funds, the types of funds available, and total assets under management. Much of this growth is the result of the increasing convenience offered to owners of long-term assets. Mutual funds offer portfolio diversification and financial research unavailable to the individual investor. They do this in an economical way through economies of scale. And they provide liquidity not available to the owner of individual shares or debt instruments: The mutual fund shareholder can buy long-term assets upon which checks can be written, can pick up a phone to redeem shares at the end-of-day net asset value, and can costlessly exchange shares of one fund for those of another in the same family. It should come as no surprise that the proportion of equity and debt instruments held through mutual funds has risen relative to outright ownership.

Some fear that the long-term advantages of the mutual fund as an important innovation in portfolio management might carry a short-term price. One reads of rising concerns that mutual funds are not simply reorganizing the way we achieve our financial objectives, they are an integral part of, and possibly a cause of, the recent explosion in common stock prices—an explosion that might threaten to end in a market collapse, perhaps endangering the long economic recovery we have enjoyed since 1990. To the contrary, others conclude, the surge in mutual fund investments arises from investors' increasing enthusiasm for long-term assets, particularly equities. To the extent that mutual funds provide a low-cost and efficient way of shifting portfolios between cash, bonds, and equity, they are a part of the process but not a cause of exuberant market performance. After all, they invest in what we, the investors, want. What we have to fear, if anything, is not mutual funds themselves. It is the emerging attitude among investors that they do not want to be left behind in the scramble for capital gains and their belief that the recent low volatility of stock returns offers a chance for high returns at low risk.

This article is the first in a two-part study of issues surrounding mutual funds. The goal of this part is to provide an overview of the mutual fund industry. The first section outlines the defining characteristics of mutual funds, their regulation, and their taxation. The second discusses the costs to shareholders, both direct and indirect. The third section examines the growth of the industry, the liquidity of fund portfolios, and shareholder redemption behavior. The fourth section addresses some questions about the fragility of mutual funds in periods of financial stress. The article ends with a brief summary.

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The second part of this study, scheduled for publication in a later issue of this *Review*, will focus on the question initiated in the third section of this article: What role might mutual funds play in the transmission of financial shocks? In particular, are they likely to be a stabilizing or a destabilizing force?

I. The Mutual Fund Industry

The Mutual Fund Concept

Mutual funds are investment companies organized to allow investors to participate in a portfolio of assets. Investment companies are organized into three broad groups: open-end investment companies, closed-end investment companies, and unit investment trusts. While closed-end investment companies are often called closed-end mutual funds, the term "mutual fund" is most commonly applied to the open-end company.

Closed-end investment companies, the modern remains of the British investment trust,[1] are structured like a standard corporation. They issue a fixed number of shares and invest the proceeds in an actively managed portfolio of financial assets. These shares are traded on registered exchanges or over the counter at prices determined by supply and demand, like any other corporation's shares. Closed-end fund shares are often priced at a discount or, less frequently, at a premium to the fund's net asset value per share (NAV). In contrast, open-end mutual funds, which also hold actively managed portfolios of financial assets, are obligated to buy or sell their shares at the fund's NAV. Any transactions in the open-end fund's shares are between the fund and its shareholders at prices linked firmly to the prices of the fund's underlying assets.[2]

A unit investment trust maintains its original portfolio, thereby forgoing the active management common to open-end and closed-end investment companies. Instead, asset changes are prompted primarily by maturity of financial instruments. In addition, unit trusts, like some closed-end funds, are designed to terminate at a specific time, at which time their assets are distributed among the shareholders. Like open-end funds, unit trusts must redeem shares at net asset value, but this redemption privilege need not extend to all outstanding shares. For example, shares in the S&P 500 Deposit Trust (called "Spiders"), traded on the American Stock Exchange (AMEX), can be redeemed only in large blocks of 50,000 shares; smaller blocks of shares are traded on the AMEX.

Each of these three organizations is managed by a board of trustees elected by the shareholders. The assets of each must be managed according to the policies and restrictions laid out in the organization's prospectus, and each is subject to regulation by the Securities and Exchange Commission (SEC). The different trading mechanisms for shares have important implications for the portfolio decisions at closed-end and open-end mutual funds. Closed-end funds and unit trusts require less liquidity because they are not faced with shareholder redemptions. But open-end funds stand ready to buy their shares back on demand, so they must be prepared to redeem shares at short notice. Funds typically honor redemption requests at the end-of-day net asset value and cut the checks the next day. Cash receipts from security sales, the ultimate source of funds to make redemption

[1] The first investment trust, the Foreign and Colonial Trust, was formed in London in 1868. The first investment trust designed to invest in U.S. securities was the First Scottish American Trust, formed in Scotland in 1873 to invest in U.S. railroad securities.

[2] The first open-end fund in the United States, the Massachusetts Investors Trust, was established in Boston in 1924. MIT has become one of over 50 mutual fund portfolios managed by MFS Investment Management, Inc.

payments, are delayed for several days because security sell orders might not be made immediately and because of settlement delays.[3] This leaves a potential gap between payment to shareholders and receipt of money from security sales.

Open-end funds can bridge that gap in several ways. The first is by holding "cash-equivalent" assets, like short-term Treasury securities, which can be sold for immediate delivery or used for reverse repurchases. The second is by drawing on lines of credit with commercial banks. These can be committed lines of credit, in which a bank obligates itself, in exchange for a fee, to make a loan subject to specified conditions, or they can be standby lines of credit, in which the bank indicates a willingness, but no obligation, to lend to the fund. A third option is interfund lending within a family of funds (intrafamily lending). This might be appropriate when, for example, shareholders are switching out of an equity fund and into a money market fund within the same family: Flows can be reversed by having the money market fund lend to the equity fund until security sales are settled. However, intrafamily credit facilities are rare. They must be approved both by shareholders and by the SEC, which has attached conditions designed to protect the shareholders of the lending fund from inappropriate loans with insufficient collateral or return. Thus, the barriers to use of these facilities are high and their benefits are limited to periods of severe liquidity crisis when banks might be reluctant to lend to mutual funds.[4]

Section 22(e) of the Investment Company Act of 1940 (1940 Act) prohibits registered investment companies from suspending redemptions and requires payment of redemptions within seven days except when trading on the New York Stock Exchange (NYSE) is halted or when the SEC issues an exemptive order. Suspension was allowed for some Pacific Rim funds during the 1987 Crash, when the Hong Kong stock exchange was closed for an extended period and securities traded there could not be sold.

The 1940 Act allows investment companies to pay redemptions either in cash or in kind through a distribution of securities. A fund redeeming in kind does so at the risk of its reputation and future business, and funds have sought to assure their shareholders that redemptions would be made in cash.[5] In 1971 the SEC adopted Rule 18f-1, which allows investment companies to waive their right to make in-kind redemptions subject to certain limits, thereby giving most shareholders assurance of cash redemptions.[6] A fund choosing to make an in-kind distribution has the sole authority to determine which securities are distributed; it need not distribute a portion of each security and, therefore, is not required to face the inconvenience and cost of distributing fractional shares in each security.

The typical open-end mutual fund has very limited internal resources, contracting out almost all of such activities as marketing, production, accounting, financing, and inventory management.

The typical corporation draws on internal resources to provide most of its services, such as marketing, production, accounting, financing, and inventory management. The typical open-end mutual fund has very limited internal resources, contracting out almost all of its activities. Thus, an open-end mutual fund can be seen as a set of contracts between the trustees and other organizations which provide specific services. Among the parties to a mutual fund are the *sponsor*, which organizes the fund at inception; the *distributor*, a registered broker-dealer serving the role of investment banker and responsible for issuing new shares; the a*dvisor*, responsible for the fund's portfolio decisions and for its borrowing and lending decisions; the *administrator*, responsible for accounting and monitoring of cash flows and transactions; the *custodian,*

[3] Under the current "T+3" standard, settlement of transactions in stocks and most bonds takes three business days. Government securities are settled on T+1, and futures contracts have same-day settlement. Some securities can be sold for immediate settlement, though at a sacrifice in price. These standards apply to domestic security transactions; foreign securities involve longer delays. Prior to June 7, 1995 the settlement period for U.S. stocks was five business days.

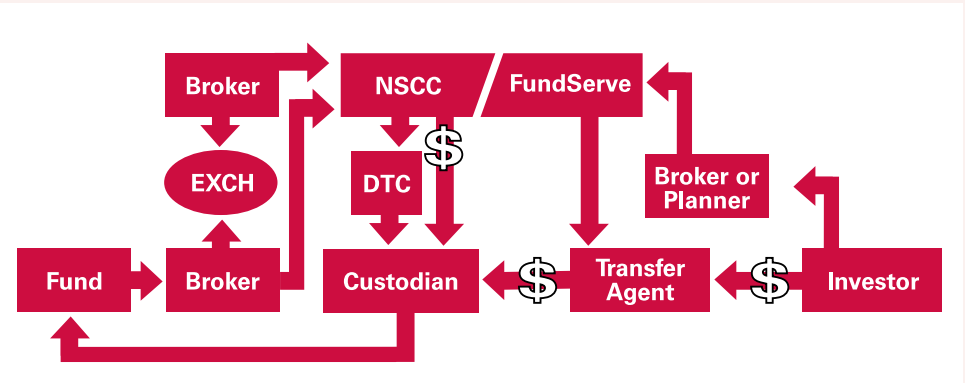
[4] Fidelity, Stein Roe, and Vanguard are the only fund families with SEC approval for intrafamily lending.

[5] In-kind redemptions also can be cumbersome because they often require distribution of fractional shares and because disputes might arise with the redeeming shareholder over the securities to be delivered.

[6] Under Rule 18f-1 a fund can commit itself to paying in cash the redemption requests of any shareholder that do not accumulate over 90 days to more than the lesser of $250,000 or 1 percent of net assets. Redemptions in kind remain a possibility for shareholders making larger requests.

Figure 1

Relationships in the Mutual Fund Industry



usually a bank,[7] responsible for holding the records of securities held and traded, for establishing the prices of those securities, and for general accounting; and the *transfer agent,* responsible for maintaining records of who owns the fund's shares, for receiving or paying cash from sales or redemptions of the fund's shares, and for distributing cash dividends or capital gain distributions. A number of independent corporations provide these services, but at large fund complexes these agents are often affiliates of the mutual fund's advisor.[8]

Figure 1 is a schematic of the relationships within the mutual fund industry. On the left side are those relationships associated with security transactions by a mutual fund. The fund's portfolio manager sends an order to a broker, who then executes the order on an exchange. Both the selling broker and the buying broker report the trade information to the clearing company; in the case of most equities and many bonds this is the National Security Clearing Corporation (NSCC), established in 1976. The NSCC compares the trade information from the selling and buying brokers, initiates any corrections, and, when the information is correct, guarantees settlement. On the settlement date, the NSCC determines the net cash to be paid or received by each member-broker as well as the net change at each member-broker of securities. The security information is reported to the Depository Trust Corporation (DTC), which keeps the security certificates. The DTC then transfers on its records the ownership of the securities. Net cash transfers are reported by the NSCC to the fund's custodian, which typically keeps the fund's cash balances.

Purchase or sale of mutual fund shares is shown on the right side of Figure 1. If the investor is trading directly, he calls the fund's transfer agent to initiate purchase or redemption of shares. The transfer agent records the change of share ownership on its records, and either makes or takes payment for the shares. If the investor trades through a third party, he calls the broker or financial planner, who sends the order to FundServe, a subsidiary of NSCC that acts as the clearing system for mutual fund shares. FundServe collects information from its broker-clients and routes it to the transfer agents, who then record the ownership and make or take payment.

The Financial Research Corporation's Access/FRC data base reports that at year end 1996 there were 10,009 mutual funds and 5,983 portfolios. At year end

[7] Section 17(f) of the Investment Company Act of 1940 limits the custodians of registered investment company assets to banks meeting certain qualifications, companies which are members of exchanges registered under the Securities and Exchange Act of 1934, or the investment company itself.

[8] The agent of record need not be the service provider. For example, DST Systems, Inc. provides transfer agent record-keeping services and front-office telephone services for over 41 million shareholder accounts, but it is the agent of record for only about 2 million accounts (DALBAR Inc. 1996).

Table 1
Mutual Fund Families with 1995 Assets over $20 Billion and 1995–96 Growth

12/31/95 Rank	Complex	12/31/95 Assets ($million)	12/31/95 Number of Funds	12/31/95 Number of Portfolios	12/31/96 Assets ($million)	12/31/96 Number of Funds	12/31/96 Number of Portfolios	1995–96 Asset Growth (Percent)
1	Fidelity Advisors/Distributors	353,245	246	207	427,071	302	225	20.90
2	The Vanguard Group	184,833	84	84	245,518	87	87	32.83
3	Merrill Lynch Asset Mgt.	141,987	316	102	159,769	323	103	12.52
4	American Fund Distributors	138,320	30	30	174,362	30	30	26.06
5	Franklin Distributor	114,026	171	117	135,499	185	118	18.83
6	Putnam Financial Services	78,372	180	61	111,531	179	67	42.31
7	Dreyfus Premier/Service Corp.	73,924	263	154	77,008	262	147	4.17
8	Smith Barney Advisors	65,796	179	72	75,372	184	83	14.55
9	Federated Securities	63,480	179	115	66,457	204	119	4.69
10	Dean Witter Reynolds	63,382	80	80	72,061	85	85	13.69
11	T. Rowe Price Investment Svcs	50,872	66	66	67,825	70	70	33.32
12	IDS Financial Services	48,141	94	32	58,142	113	47	20.77
13	Oppenheimer Investors Svcs	46,115	149	69	58,631	152	60	27.14
14	American Century Investments	44,323	58	58	50,893	61	61	14.82
15	Prudentiial Securities	43,768	154	76	46,547	164	72	6.35
16	Zurich Kemper Investments	40,844	117	48	37,618	132	53	−7.90
17	AIM Distributors	39,998	53	28	58,011	55	29	45.03
18	Charles Schwab	31,613	24	24	43,091	30	30	36.31
19	Alliance Fund Distributors	27,138	142	58	32,916	161	60	21.29
20	Massachusetts Financial Svcs	26,436	128	58	33,024	131	56	24.92
21	Paine Webber	26,224	94	48	28,247	89	44	7.71
22	Van Kampen American Capital	25,781	106	39	29,534	108	41	14.56
23	Janus Funds, Inc.	24,181	19	19	35,680	23	23	47.55
24	First Union Nat'l Bank of NC	23,829	203	80	26,119	195	70	9.61
25	Scudder Investor Services	21,618	46	46	23,257	48	48	7.58
26	PIMCO Advisors	21,008	87	41	25,503	88	41	21.40
27	PNC Inst'l Management Corp.	20,081	49	39	21,536	44	35	7.25
	Total	1,839,335	3,317	1,851	2,221,222	3,505	1,904	20.76
	Industry Totals (ICI)	2,777,357	5,728	n.a.	3,535,330	6,235	n.a.	27.29
	Percent of Industry	66.2%	57.9%	n.a.	62.8%	56.2%	n.a.	n.a.

n.a. = not available
Source: Financial Research Corporation, FRC/Access Database. The number of funds exceeds the number of portfolios when there are several classes of shares in the same portfolio.

1996 the Investment Company Institute reported a total of 6,235 mutual funds, of which 5,247 were non-money market funds. The bulk of assets under mutual fund management are held in funds formed into fund complexes, or families. The family structure provides a number of economies of both scale and scope. For example, a central research staff can serve funds with very different investment goals, and large capital outlays in information technology can be spread over more shareholders. The family structure also provides investors with an easy and low-cost method of transferring money between funds: Exchanges between funds within a family typically involve no charges and can be done overnight. This easy transfer is of particular importance to retirement fund holders, who can switch funds within a family with no tax consequences.

Table 1 lists the mutual fund families with year-end 1995 assets exceeding $20 billion, ranked by size. At year end 1996 these 27 families accounted for 63 percent of the industry's assets (as measured by the ICI), a decline from 66 percent at year-end 1995. The 27 families also managed 3,505 classes of shares in 1,904 different portfolios, an average of almost two classes

of shares per portfolio.[9] The concentration in the industry is quite high, with the top three families at year end 1996 accounting for $832 billion, or almost 25 percent of industry assets. The table also shows a 20.8 percent average growth in assets under management by the 27 fund families during 1996, a high growth rate but less than the 27.3 percent growth in industry assets.

The largest family of funds is under the aegis of Fidelity Investments. Formed in 1946, Fidelity was a sponsor of money market funds in the early 1970s and has grown to manage, at year end 1996, nearly $430 billion of assets in about 225 different portfolios with a total of over 300 classes of shares. Among Fidelity's funds is the largest single mutual fund, the Magellan Fund, with almost $55 billion of assets. Ninety percent of mutual funds sold by Fidelity Distributors Corporation are direct-marketed, and about 65 percent are no-load. The Fidelity Advisors Funds, consisting of 32 portfolios and 100 classes of shares with total assets of $32 billion, are sold primarily through third parties such as brokers, banks, and life insurance companies, and only 20 percent are no-load. Fidelity also manages about $20 billion in separate accounts for trusts and endowments.

Fidelity illustrates the structure of fund families. The parent company, FMR Corporation, owns several affiliates which provide services to each fund, subject to trustee and shareholder approval. For example, Magellan Fund's investment advisor is Fidelity Management & Research, its distributor is Fidelity Distributors Corporation, its transfer agent is Fidelity Service Company, and its custodian and accounting services are provided in-house by Fidelity Accounting and Custody Services. Most of the Fidelity funds have contracts with the same agents, and trustees often serve on the boards of many funds.[10]

Regulation of Mutual Funds

The Securities Act of 1933 (1933 Act) and the Securities Exchange Act of 1934 (1934 Act) are the fundamental regulatory acts affecting the securities industries. The 1933 Act required registration of publicly traded securities, specified that "material information" must be made available to investors in a prospectus, and prohibited deceit, misrepresentation, and other fraud in the sale of securities. The 1934 Act created the Securities and Exchange Commission to enforce federal security laws, required securities exchanges and broker-dealers to register with the SEC, required periodic reports to shareholders, and established standards of conduct for registrants and outsiders.

Two pieces of legislation enacted in 1940 have shaped regulation of the mutual fund industry. The Investment Advisors Act of 1940 establishes registration requirements for investment advisors. The Investment Company Act of 1940 (1940 Act) requires investment companies to register with the SEC. Its key features are that it limits the transactions between funds and affiliated parties, it limits the ability of funds to borrow, it establishes standards for the custody of mutual fund assets, and it requires shareholder approval of certain policies. It also specifies that mutual funds must mark to market daily. The 1940 Act applies to unit investment trusts, to open-end and closed-end mutual funds, and to insurance company variable annuity contracts.

The primary form of disclosure to shareholders specified by federal securities law is the prospectus. This document, supplemented by the more detailed Statement of Additional Information (SAI), describes the compensation and financial interests of directors and other officials, the agents with which the board of trustees has service contracts, and the fees paid by shareholders. It also lays out the fund's financial objectives and any restrictions on the fund's portfolio choices, the conditions under which the fund can borrow or lend, the fund's ability to use derivatives for hedging purposes, and other relevant information. The prospectus distinguishes between "fundamental policies," which can be changed only with shareholder approval, and other policies which are matters of the trustees' discretion.

The recently enacted National Securities Markets Improvement Act of 1996 substantially changes the regulatory structure for mutual funds. It redefines the boundaries between state and federal enforcement of securities laws, giving to the SEC full regulatory oversight for securities with national rather than local markets and eliminating state regulation of mutual funds. It also eliminates the 1940 Act's Section 12(d)(1)(B) prohibition of investments by mutual funds in shares of other mutual funds, thereby allow-

[9] As discussed later, funds often issue several classes of shares, each having a different fee structure. For example, a family might issue A shares, B shares, and C shares, each representing ownership of the same portfolio. In that event, there are three "mutual funds" for that portfolio.

[10] Sometimes these contracts are not direct. For example, the transfer agent for Fidelity's Municipal Bond Funds is United Missouri Bank of Kansas City, but UMB subcontracts with FSC for these services.

ing mutual funds to offer shares in a "fund of funds." In addition, it allows shares in unregistered private pools, such as hedge funds and venture capital funds, to be offered to an unlimited number of "qualified" shareholders.[11]

While many statutory and regulatory rules are "technical" in nature, dealing with accounting, auditing, reporting, and other aspects of the fund's activities, some are particularly noteworthy because they shape the fund's portfolio and liquidity decisions. Section 17(a) of the 1940 Act restricts transactions between an "affiliated person of a registered investment company" and that investment company. Section 17(a)(1) prohibits sales of securities by the affiliated person to the investment company, Section 17(a)(2) prohibits an affiliated person from buying securities from the investment company, and Section 17(a)(3) prohibits lending by an affiliated person to the investment company. Because each mutual fund within a family is an affiliated person of the registered investment company, this prohibits intrafamily lending of cash or securities as well as intrafamily security trades. However, under Section 17(b) the SEC can grant an exemptive order if certain conditions of fairness are met, and it has done so for both intrafamily lending and intrafamily security transactions, making each subject to limitations ensuring the protection of mutual fund shareholders. As noted above, few families have requested the exemption from the intrafamily lending prohibition; the exemption from security transactions is more widespread.

Section 18 of the 1940 Act addresses a mutual fund's capital structure. Its primary intent is to limit the ability of a mutual fund to take on leverage. Section 18(f)(1) of the 1940 Act prohibits open-end funds from issuing senior securities, allowing funds to borrow only from banks and limiting bank loans to no more than 33⅓ percent of the fund's total assets. There is no requirement that bank loans be collateralized, and loan agreements with banks are typically unsecured. If collateral is required it is typically less than the 3:1 asset coverage ratio specified in the 1940 Act.[12] If the fund's assets fall below three times the outstanding loans, the loans are immediately payable because they violate the 1940 Act's debt limit.

Section 18(g) defines a senior security as "any bond, debenture, note, or similar obligation constituting a security and evidencing indebtedness, and any stock of a class having priority over any other class in the distribution of assets or payment of dividends." Several common transactions are considered senior securities: Repurchase agreements, option writing, short futures positions, lending securities for short-selling by broker-dealer clients, and short sales are examples. In spite of the 1940 Act's Section 18(f)(1) restriction, the SEC has released interpretations allowing these transactions under certain circumstances: They must be explicitly allowed in the prospectus, they must be subject to the 300 percent asset coverage required for bank loans, and the fund must hold in a segregated account securities no less than equal in value to the liability created, marked to market daily.

The recently enacted National Securities Markets Improvement Act of 1996 substantially changes the regulatory structure for mutual funds, giving to the SEC full regulatory oversight for securities with national rather than local markets and eliminating state regulation of mutual funds.

As noted above, Section 22 of the 1940 Act covers redemption and repurchase of shares. Redemptions can be either in cash or in kind, with in-kind redemptions treated as a sale of securities under Section 22(d). Section 22(e) requires that redemption payments be made within seven days of the request. In-kind redemptions are subject to two important limitations. First, a fund must make cash redemptions to any shareholder redeeming 5 percent or more of outstand-

[11] Hedge funds, usually organized as limited partnerships, had previously been limited to 99 qualified shareholders to avoid definition as investment companies under the 1940 Act. A qualified shareholder is an individual with more than $5 million in assets, an institution with over $25 million in assets, or a trust established by a qualified investor.

[12] For example, Fidelity's Magellan Fund's annual report states that its most restrictive loan agreement requires collateral equal to 220 percent of the loan taken down.

ing shares.[13] Second, many funds have used SEC Rule 18f-1 to waive the right to make in-kind redemptions if the shareholder redeems less than $250,000 or 1 percent of net assets in any 90-day period. Thus, in-kind redemptions are not a significant alternative for shareholders with small to moderate or with very large holdings.

While the intent is to protect shareholders from holding shares in portfolios that cannot be readily liquidated, during market declines the SEC rule limiting illiquid purchases might reduce the demand for stocks of small-cap firms, for high-yield and municipal bonds, for certain mortgage-backed securities, and for foreign securities, when market down drafts occur.

While the 1940 Act is silent on the "quality" of securities that a fund can hold, the SEC's Guidelines require a mutual fund's prospectus to state that a security cannot be purchased if, by doing so, more than 15 percent of the fund's total assets would be illiquid.[14] The SEC defines a security as illiquid if it cannot be sold or disposed of in the ordinary course of business within seven days at approximately the price at which it is valued. While this is stated as a time-of-purchase rule, prohibiting *purchase* of an illiquid security by a fund already holding "too many" such securities, the SEC's interpretation of the rule requires a fund to correct its portfolio even if the 15 percent limit is exceeded because of a decline in market prices. While the intent is to protect shareholders from holding shares in portfolios that cannot be readily liquidated, during market declines this rule might reduce the demand for stocks of small-cap firms, for high-yield and municipal bonds, for certain mortgage-backed securities, and for foreign securities, when market down drafts occur. The effect of this rule on market dynamics has not been tested.

Taxation

Subchapter M of the Internal Revenue Code addresses taxation of investment companies registered with the SEC under the 1940 Act. Pass-through taxation, as defined below, is allowed if several tests are met. The first two are income tests: At least 90 percent of gross income must be from dividends, interest, gains from sale of securities, or other specified sources, including foreign currencies, options, and futures contracts; and no more than 30 percent of gross income can come from the sale of securities held less than three months (the "short 3s" test). The remaining tests are diversification tests applied at the end of each quarter: No more than 25 percent of assets can be held in securities of any one issuer or of any two or more issuers if they are substantially identical (government securities are excluded); and at least 50 percent of assets must be invested in cash-equivalents or in other securities, subject to limitations.[15]

A registered investment company that meets these tests is subject to the corporate income tax, but it pays no taxes on income or capital gains if it distributes at least 90 percent of its taxable income to shareholders. In order to avoid some other taxes, mutual funds typically distribute all of their income. The shareholder's share of ordinary dividends as well as his or her share of short-term and long-term capital gains is reported on a 1099-DIV form. Under the current personal income tax code, ordinary dividends and net short-term capital gains are reported by the shareholder as ordinary income and are taxed at the individual's marginal tax rate. Net short-term losses

[13] Section 17(a) prohibits sale of securities to any "affiliated person," and Section 2(a)(3) defines an affiliated person to include any shareholder with more than 5 percent of outstanding shares. Therefore, because an in-kind redemption is a sale of securities, the 1940 Act prohibits in-kind redemptions of more than 5 percent of shares. The SEC can grant an exemptive order, but this takes weeks to approve, eliminating in-kind redemptions as a response to redemptions by large shareholders.

[14] The security liquidity rule is stated in the Guidelines (Guide 4) to Form N1-A, the mutual fund's registration statement. First adopted in 1969 with a limit of 10 percent, it was revised on March 20, 1992 to 15 percent in order to encourage lending to small businesses. Individual funds can set tighter standards. For example, Fidelity's Magellan Fund continues to adhere to the original 10 percent limit on illiquid securities, perhaps because this is a fundamental policy requiring shareholder approval.

[15] In particular, securities whose value exceeds 5 percent of the fund's assets and securities whose value exceeds 10 percent of the issuer's outstanding voting securities are not counted toward the 50 percent test.

are deducted from long-term capital gains and the net long-term gains are taxed at the lesser of the shareholder's ordinary income rate or 28 percent.

II. Costs of Mutual Fund Ownership

The costs of mutual fund ownership include direct costs, in the form of fees charged to the shareholder, and indirect costs borne by the shareholder in other forms. Indirect costs include the sacrifice of tax options accruing to direct owners of equities and the costs of accounting for tax purposes. Tax option costs and accounting costs will be discussed below with the taxation of mutual fund income. The next section will focus on direct costs.

Direct Costs

Direct costs are in two forms.[16] The first is the fees and commissions paid to the agents responsible for mutual fund services—the advisor, distributor, custodian, and transfer agent. These fees include compensation to brokers for transaction services provided, but do not include the bid-ask spread paid to market makers. These fees differ widely according to the types of securities held and the fund's turnover. For example, index funds generally have lower fees and commissions than do managed equity funds because they have fewer transactions and because the portfolio trades are largely shaped by changes in the definition of the index used (new firms are added, firms are deleted, the weights of other firms in the index are recalculated), not by portfolio managers searching for high performance. High-yield bond funds tend to have greater expenses than do funds specializing in U.S. Treasury bonds. Municipal bond funds tend to have low fees because of low portfolio turnover.

A second form of direct cost is the cost of marketing the shares. The marketing cost is related to the sales channel, of which the ICI defines four: sales force, direct marketing, variable annuity,[17] and "not offering shares." The sales-force channel involves use of third parties such as banks, brokers, and financial planners, who recommend the mutual fund to their clients. The direct-market channel involves sales directly to customers at their initiative. The ICI reports that in 1995 the sales-force channel accounted for 53.6 percent of the value of shares sold while the direct-market channel accounted for 37.7 percent of the value of shares sold. This left 9.7 percent of sales to the variable annuity channel, and a minuscule proportion to funds not offering shares to new customers. Thus, the sales force channel dominates, with the direct-market channel a distant—but sizable—second avenue for selling mutual fund shares.

The sales channel differs considerably by type of fund, and the same fund may be distributed through more than one channel. Table 2 ranks the types of funds according to their reliance on the direct marketing channel. Direct marketing is extremely important in specialty funds, like precious metals and Ginnie Mae mortgage funds, which expose investors to risks that inhibit broker recommendations. It is less likely to be used in taxable and municipal bond funds, with which investors might not be familiar. Equity funds, with about 40 to 50 percent of sales through direct markets, occupy an intermediate area: Here both direct and sales-force methods are important.

The marketing channel affects shareholders not only through the costs incurred, but also through the timing of the charges to cover those costs. Third parties typically receive compensation from the fund at the time of sale, and they might also receive ongoing compensation for services to the client on behalf of the fund, such as handling client questions about whether the fund's shares should be held. The earliest form of sales-force fund, still common, is a "front load" fund for which the buyer is charged a premium at the time of purchase. This load is often in the 3 to 6 percent range but can be as high as 8.5 percent. Because the timing of the front-load charge matches the timing of the payment to third parties, the front load fund requires no continuing sales charges. Back-end load funds, once rare, charge fees at the time of redemption. For these, the gap between payment of sales commissions at time of sale and recoupment from charges at redemption requires the shareholders to cover the costs of financing the gap.[18]

In 1980 the SEC approved Rule 12b-1, allowing the use of continuing annual charges to cover the costs of sales commissions and other marketing expenses. Rule 12b-1 fees have allowed a proliferation of load structures, because they generate the cash required to bridge any gap between the compensation of sales

[16] An additional direct cost, hidden from view, is the bid-asked spread paid to the specialist or other market maker in stocks and bonds.

[17] Variable annuities are trusts created as part of an insurance contract. The trust is often invested in a mutual fund or in a separate pool of assets managed by a life insurance company.

[18] Loads are typically waived for mutual funds held in 401(k) plans.

agents and the receipt of back-end loads. A fund might have a straight back-end load, or redemption charge, or it might have a sliding back-end load, called a contingent deferred sales charge (CDSC), in which a redemption charge is levied at a rate that declines with the holding period. It might also choose to have no load and to levy a 12b-1 fee to pay for marketing costs.[19] As noted above, many funds have several classes of shares, each differing in the way marketing fees are paid. For example, Massachusetts Investors Trust, part of the MFS family, has three classes of shares. MIT's A shares pay a front-end load of up to 5.75 percent plus an annual 12b-1 fee of 0.315 percent. The B shares have no front load but have a CDSC, equal to 4 percent if shares are redeemed within one year of purchase, sliding down to zero if the shares are held more than six years. Class B shares also pay a 12b-1 fee of 1 percent of net assets. Class C shares have a CDSC of 1 percent only if the shares are redeemed within one year, plus a 1 percent 12b-1 fee. In each case, the underlying portfolio is identical.

Table 2
Mutual Fund Reliance on Direct-Market Sales, by Type of Fund, 1995
Percent of Total Sales

High		Moderate		Low	
Precious Metals	77.6	Aggressive Growth	48.7	Muni Bond-Nat'l	37.6
Flexible Portfolio	61.8	Growth	44.4	Corporate Bond	37.2
Income-Equity	60.6	Growth & Income	42.5	U.S. Govt.-Income	30.3
Balanced	58.3	International	42.2	Income-Mixed	27.5
Ginnie Mae	56.1	Income-Bond	40.3	Global Bond	25.5
				Muni Bond-State	25.1
		Very Low			
		High-Yield Bond	13.7		
		Global Equity	12.3		

Source: Investment Company Institute, *Mutual Fund Fact Book* (1996), p. 53.

The way in which marketing costs are charged to the shareholders affects the decision to redeem shares and influences the portfolio manager's decision about liquidity. No-load funds, front-load funds, and funds relying solely on 12b-1 fees levy no charges for redeeming shares and are, other things equal, more likely to be redeemed than are funds with a back-end load or CDSC. The advantages of lower turnover at back-load funds accrue to the remaining shareholders, who pay lower transaction fees and benefit from the fund's ability to stay more fully invested.

Table 3 summarizes some recent data on expenses for several types of both equity and bond funds, each distinguished by distribution channel. Most of the expenses are proportional to net assets, but one part of transfer agent fees is expressed in dollars per account and audit fees are expressed as a lump sum amount. The total expenses column reports all fund expenses as a percent of net assets. As expected, direct-marketed funds have lower total expense ratios than sales-force funds, primarily because of the use of 12b-1 fees on sales-force funds. Long-term bank proprietary funds tend to have lower total expense ratios than sales-force funds, but both have higher expenses than those associated with an equivalent direct-marketed fund. Among bond funds, municipal bond funds have the lowest expense ratios, in part because they have less redemption activity, hence smaller variable transfer agent fees. High-yield funds have the highest expense ratios of bond funds reported.

Indirect Costs

If mutual fund shares are not held in a tax-deferred form, such as an IRA or 401(k), the taxation of mutual fund shares imposes an indirect cost on shareholders in the form of "tax options" forgone. If the shareholder held the same amount in individual securities he or she would have wide latitude regarding the timing of capital gains realizations; they can be deferred indefinitely if the holder dies before redeeming, leaving the shares to his or her estate at a cost basis determined by the net asset value at the time of death. There are also ways to alter the timing of gains to take advantage of tax rate changes—advancing the gains when rates are scheduled to rise, postponing them when rates are scheduled to fall. These tax options are lost when the investor holds mutual fund shares because the timing of gains and losses is

[19] The National Association of Securities Dealers (NASD) has established an upper limit for 12b-1 charges of 0.75 percent of the fund's net assets plus an additional 0.25 percent if the brokers provide ongoing information and assistance to shareholders. In addition, the NASD has established a cap on total sales charges (loads) of 6.25 percent of sales for funds that pay an annual service fee to brokers and 7.25 percent at funds that do not pay an annual service fee.

Table 3
Mutual Fund Median Expense Ratios
Percent of net assets, except where noted

Fund Type		Advise/ Admin. (%)	Expense Type: Transfer Agent (%)	Transfer Agent ($/ACCT)	Custody/ Accting (%)	Audit ($000)	Other (%)	12b-1 (%)	Total Expenses (%)
Equity Funds (No. of Funds)									
				Direct-Market					
Cap Apprec.	(39)	.687	.184	$21.69	.021	$ 30.0	.021	.000	.964
Total Return	(21)	.501	.132	20.73	.014	44.0	.015	.004	.723
Int'l/Global	(13)	.767	.185	23.86	.081	62.0	.022	.000	.167
				Nonproprietary Sales Force					
Cap Apprec.	(58)	.683	.178	$21.09	.023	$100.5	.054	.360	1.246
Total Return	(31)	.491	.161	20.89	.016	85.0	.046	.216	.988
Int'l/Global	(25)	.860	.181	22.78	.103	129.0	.067	.419	1.670
				Bank Proprietary					
Cap Apprec.	(12)	.888	.064	$35.38	.017	$237.0	.024	.079	1.051
Total Return	(9)	.650	.045	35.61	.017	219.0	.018	.055	.827
Int'l/Global	(3)	.722	.017	78.52	.113	72.0	.049	.023	.901
Bond Funds									
				Direct-Market					
Corporate	(19)	.561	.112	$23.23	.023	$ 24.0	.030	.063	.806
Govt./GNMA	(28)	.454	.188	29.45	.026	25.0	.046	.003	.695
Muni-Long	(28)	.496	.087	33.76	.014	28.0	.018	.000	.607
High Yield	(7)	.514	.175	34.10	.014	25.5	.075	.055	.855
				Nonproprietary Sales Force					
Corporate	(26)	.503	.149	$20.21	.025	$ 35.0	.070	.290	1.069
Gov't/GNMA	(58)	.563	.154	26.70	.037	44.0	.073	.431	1.274
Muni-Long	(75)	.500	.080	25.77	.023	35.0	.060	.281	.982
High Yield	(36)	.600	.145	18.41	.027	39.0	.068	.405	1.287
				Bank Proprietary					
Corporate	(33)	.633	.043	$ n.a.	.034	$ 17.5	.060	.063	.811
Gov't/GNMA	(18)	.527	.083	38.22	.061	14.0	.074	.093	.860
Muni-Long	(16)	.461	.070	55.85	.026	14.5	.061	.124	.796

Source: For equity funds, Strategic Insight Mutual Fund Research and Consulting, Inc., "April 1996 Flow Watch," as amended. For bond funds, "May 1996 Flow Watch." Reproduced by permission.

determined by the fund's portfolio manager, who has no incentive to respond to tax considerations.

One example of the loss of a tax option is in the taxation of capital gains distributions. Shareholders must pay taxes on capital gains distributions if they hold the shares at the record date, regardless of how long they held the shares. Naive investors might buy mutual fund shares in, say, early December, just before the record date, then find that they owe taxes on the capital gains distributions even though they had already paid for them in the purchase price. This short-run tax liability is partially offset in the longer run, but, nonetheless, many shareholders find it painful.[20]

This tax can be minimized or avoided in several ways. The first is to delay purchase of mutual fund shares until after the record date for the capital gains distribution. In this way you buy the shares at the

[20] When the capital gains distribution is paid, it reduces the net asset value of the shares by that amount. Thus, the shareholder is getting a taxable capital gains distribution but he also has an unrealized capital loss in the same amount. If he realized that loss immediately, there would be a wash and no taxes would be due. However, because shares are bought to be held, the date of sale is in the future and the present value of the tax savings from the decline in NAV arising from the distribution is less than the current taxes due.

Figure 2

Seasonal Factors for Redemptions and Sales of Equity Funds[a]

1992 to 1996

[a] Calculated as the average of the ratios of each month's value to the annual value, over the five-year period.
Source: Investment Company Institute; author's calculations.

lower, post-distribution NAV. A second approach is to redeem shares held before the record date, then repurchase them afterward. This has the disadvantage of exposing the shareholder to capital gains taxes on the redeemed shares.[21]

Figure 2 shows the seasonal factors[22] for equity fund redemptions and new sales plus net exchanges in the 1992–96 period, a time with a strong bull market and with substantial capital gains distributions. Sales and exchanges into equity funds are at their highest in December and January, after the record dates for most capital gains distributions. Redemptions are high throughout the fall, perhaps in anticipation of capital gains distributions.

Another indirect cost to the mutual fund shareholder is that of computing the cost basis when reporting capital gains and losses on mutual fund shares. Most shareholders elect to automatically reinvest dividends and capital gains distributions in the fund, so the shares held can have many different costs. The cost basis of mutual fund shares sold requires a determination of which shares were sold, in turn requiring accurate records on the prices paid for each share and, in some cases, special steps to elect a specific valuation method.[23] One way to eliminate the burden of computing the basis is to elect not to automatically reinvest dividends, so that only discrete purchases of shares need be considered.

III. Growth, Liquidity and Redemptions

The primary source of data on the mutual fund industry is the Investment Company Institute (ICI), the trade association for open-end and closed-end investment companies as well as for unit investment trusts. This study uses the ICI's monthly data for open-end mutual funds beginning in January 1984 and ending in December 1996. The 22 fund types defined by the ICI are grouped into four broad classes of funds: *equity funds*, which invest primarily in common stocks; *mixed funds*, which hold a mixed portfolio of stocks and bonds designed to achieve a balance of growth and income; *bond funds*, investing primarily in bonds; and *money market funds.* Both bond and money market funds include tax-exempt as well as taxable securities. The box reports the types of funds, by ICI definition, included in each of these groups.

The Growth of Mutual Funds

Figures 3, 4, and 5 report the number, total assets, and average size of three of these open-end fund groups (mixed funds and equity funds are combined because they exhibit similar growth patterns). The total number of funds reporting to the ICI rose from 1,038 in January of 1984 to 6,235 in December 1996 (Figure 3). The numbers of equity/mixed and bond funds grew in rough lockstep until late 1994, when growth in the number of bond funds stagnated while

[21] If the mutual fund shares are redeemed at a loss, the wash sale rule prohibits repurchase within 30 days.

[22] These are calculated as the average ratio of each month's value to the annual value over the five-year period. Thus, for every year the ratio of January redemptions to annual redemptions is calculated. The average of this over the five years is the January seasonal factor for redemptions.

[23] The Internal Revenue Service allows several methods of computing the cost basis. Unless otherwise specified, the IRS assumes use of the first-in-first-out method. An average cost method can be used if the taxpayer notifies the IRS; in this case the holding period is computed using FIFO. The taxpayer can also elect to identify the specific shares being sold but he must do so in written instructions to the fund.

Types of Mutual Funds

The Investment Company Institute identifies 22 groups of open-end mutual funds, according to the objectives outlined in the prospectus. This box describes those groups and shows how they have been aggregated for this study into four groups: equity, bond and equity, bond, and money market. The ICI data exclude closed-end funds, unit investment trusts, variable annuities, and unregistered funds (such as hedge funds).

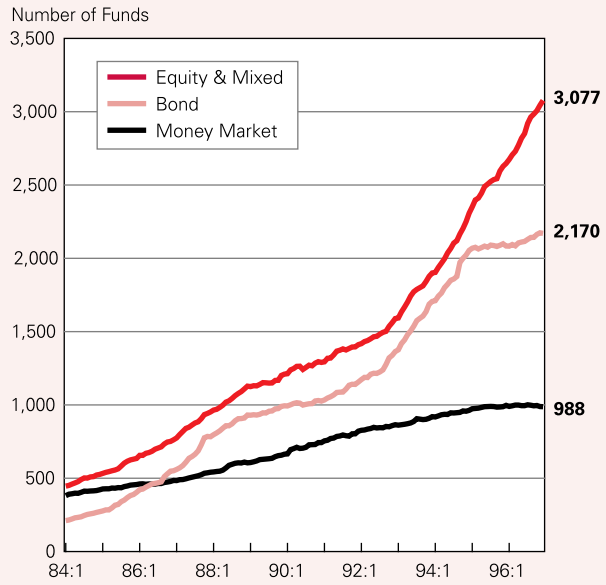
Equity Funds	Investing primarily in common stocks with the goal of long-term growth
Aggressive Growth	Maximum appreciation with no concern for current income
Growth	Capital appreciation with some concern for current income
Growth and Income	Capital appreciation and steady current income
Equity-International	Capital appreciation from non-U.S. common stocks
Equity-Global	Capital appreciation from both U.S. and non-U.S. stocks
Bond and Equity Funds	Investing in a mix of common stocks and long-term debt with the goal of achieving both long-term growth and income
Equity-Income	High income from common stocks with history of continuous dividends
Flexible Portfolio	Stocks, bonds, and liquid assets varying with market conditions
Balanced	Capital appreciation, current income, and stability of principal
Income-Mixed	High current income from both stocks and bonds
Bond Funds	Investing in long-term bonds with the primary goal of income
National Municipal	Municipal bonds issued by any or all states
State Municipal	Municipal bonds issued by specific states
Income-Bond	Mixture of corporate and government bonds
Government	U.S. Treasury securities
GNMA	Mortgage securities backed by Government National Mortgage Association
Global Bond	Bonds of both U.S. and non-U.S. issuers
Corporate Bond	Diversified portfolio of corporate bonds
High Yield Bond	Maintain at least 2/3 of assets in non-investment-grade corporate bonds
Money Market Funds	Investing in short-term, highly liquid securities
Tax-Exempt, National	Short-term obligations of state and local governments
Tax-Exempt, State	Short-term obligations of state and local governments within specific states
Taxable	Short-term obligations of U.S. government and corporations

Note: Precious metals funds are recorded by the ICI but are excluded from this study. Option/Income funds were recorded separately by the ICI but were folded into income-equity funds (in our bond and equity group) after December 1991.

equity/mixed funds continued to be formed at a high rate. The number of money market funds grew much more slowly throughout the period. The growth in bond funds through the 1980s was encouraged by high but declining interest rates which offered high current yields as well as capital gains, by the growth in relatively exotic types of bonds (structured notes, high-yield bonds) which required special expertise to value and to buy, and, in part, by the Tax Reform Act of 1986 which discouraged investment by commercial banks in tax-exempt debt and encouraged the holding of municipal bonds

Figure 3

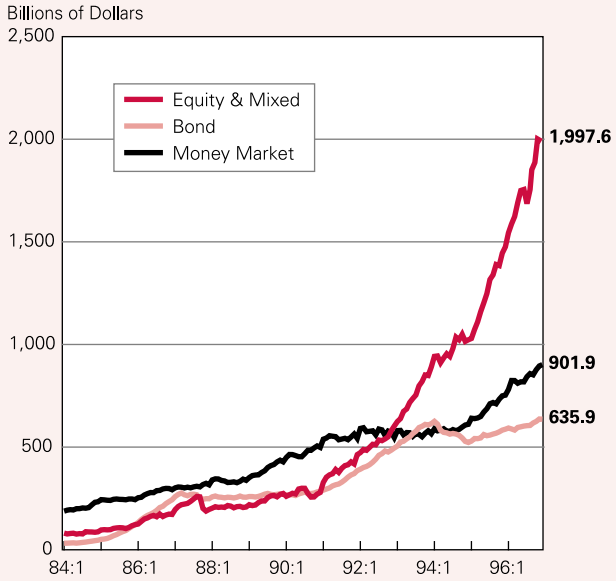
Number of Open-End Mutual Funds, by Type
January 1984 to December 1996



Source: Investment Company Institute.

Figure 4

Assets of Open-End Mutual Funds, by Type of Fund
January 1984 to December 1996



Source: Investment Company Institute.

by households through municipal bond mutual funds.[24] The stagnation in the number of bond funds after 1994 is attributable to sharp interest rate increases in that year, with consequent losses in capital value of bond funds. This led to several highly publicized problems at bond funds that held structured notes and to the financial debacle in Orange County, California.

Figure 4 shows the total assets under management for each of the three classes of funds. In December of 1996 open-end mutual funds reporting to the ICI managed $3.5 trillion. Bond and money market funds managed about $636 billion and $902 billion, respectively, together accounting for about 45 percent of mutual fund assets. Equity/mixed fund assets totaled $2 trillion in December 1996. Following a decade of net outflows during the 1970s, equity/mixed fund assets grew sharply with rare, but notable, pauses or declines in 1987, 1990–91, and 1994. The sharpest decline, in the fall of 1987, was largely a giving-up of the sharp price increases posted since mid 1986.

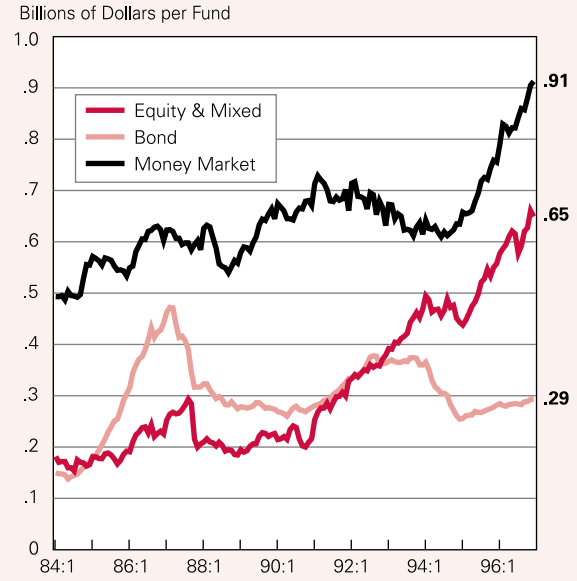
Bond fund assets showed two episodes of rapid growth, 1986–87 and 1991–93. The first episode was associated with an increase in the number and amounts managed by municipal bond funds, following legislation reducing the incentives of commercial banks to invest in tax-exempt bonds. The 1991–93 asset growth was also shown in the formation of new funds, and it ended, as noted above, with the increase in interest rates in 1994 and the consequent capital value declines in the bond market.

An impetus to the growth in equity funds has been the transfer of risk-bearing from traditional financial institutions to individual investors. Some of this transfer has been stimulated by statutory changes that reduced the role of traditional financial institutions. The introduction of Individual Retirement Accounts (IRAs) in 1981 stimulated growth in mutual funds, as did the shift of corporate and nonprofit

[24] Several tax acts in the first half of the 1980s reduced and finally eliminated the deductibility of interest paid by commercial banks for carrying municipal bonds. See Fortune (1991).

Figure 5

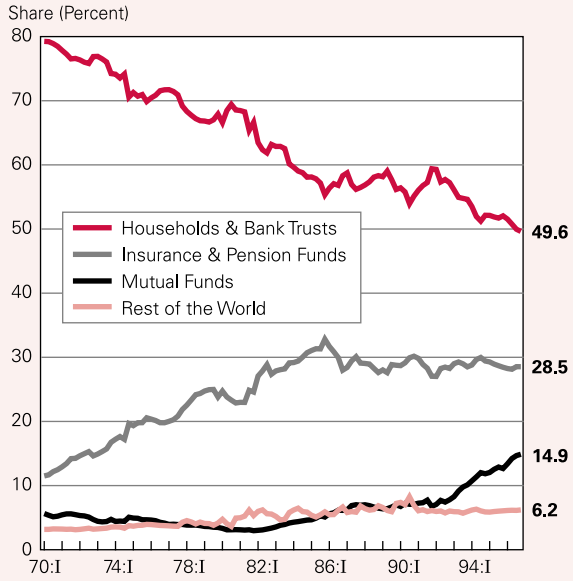
Average Size of Open-End Mutual Funds, by Type
January 1984 to December 1996



Source: Investment Company Institute.

Figure 6

Ownership of Corporate Equities
Quarterly, 1970 to 1996



Source: Board of Governors of the Federal Reserve System, *Flow of Funds;* author's calculations.

organization pension funds from defined benefit plans, typically managed by financial institutions with the risks borne by the employer, to defined contribution plans, primarily 401(k) and 403(b), in which employees made the financial choices and bore the investment risk. The Investment Company Institute (1996a) reports that at year end 1995, $1 trillion of the $2.8 trillion of mutual fund assets were held for retirement purposes. In 1995, $100.1 billion of new money flowed into mutual funds for retirement purposes, almost 60 percent of all non-money market fund inflows during the year.

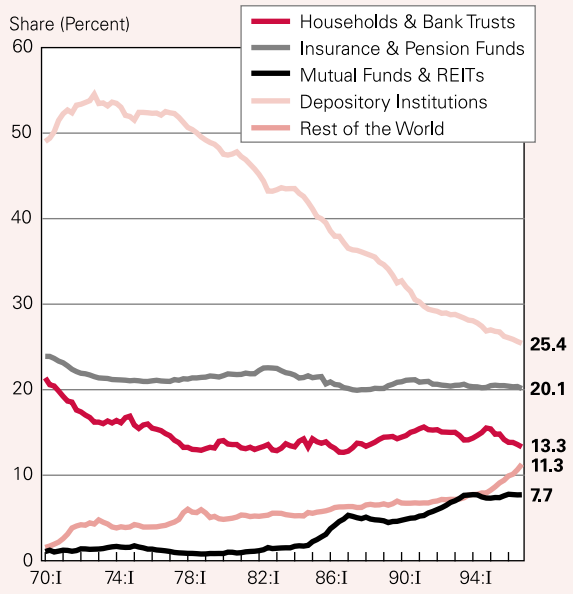
The average size of equity/mixed funds grew rapidly during the bull market following 1990 (Figure 5). Growth of money market funds, which have always had the largest mean size, also accelerated after 1990. The size of bond funds has trended downward, having peaked in 1987.

Just as mutual funds have grown both in number and average size, their shares of the outstanding quantities of debt and equity in the U.S. financial system have also grown. Based on the Federal Reserve System's Flow of Funds accounts, Figure 6 shows the proportion of corporate equities held by households (including bank-administered personal trusts), mutual funds, insurance and pension funds, and the rest-of-the-world. The household share of equities has declined steadily, from over 80 percent in 1970 to 50 percent in 1996. Equities held by the insurance and pension sectors, as well as the rest-of-the-world's share, have been stable since the mid 1980s, at about 28 percent and 6 percent, respectively. The share held by mutual funds has risen sharply, especially since the early 1980s, and is now almost 15 percent of the market value of corporate equities.

Figure 7 shows the ownership of long-term debt instruments (bonds, both taxable and tax-exempt, and mortgages). Depository institutions have declined dramatically in their importance to debt markets, while the household share has stabilized after a steady decline in ownership up to the early 1980s. The rest-of-the-world has had a slightly increasing share, with acceleration in the last two years, and the share held by mutual funds has stabilized after growing

Figure 7

Ownership of Bonds and Mortgages
Quarterly, 1970 to 1996



Source: Board of Governors of the Federal Reserve System, *Flow of Funds;* author's calculations.

through the early 1990s. While it is clear that, in terms of market share, open-end funds are not a major factor in the debt markets, their presence is much greater in selected bond markets, particularly in municipal bonds, high-yield bonds, and GNMA-backed mortgages.

New Entrants: Banks and Insurance Companies

A small but growing share of mutual funds is held in insurance products called variable annuities, variable life insurance, and variable universal life insurance. In order to avoid regulations on asset choices and reserves that affect insurance companies, each of these products is a separate account not commingled with the insurance company's general funds. Typically the primary asset held in the separate account is a mutual fund, although the account can also be managed by the insurance company's investment advisors. Holders of variable annuities purchase units in the product according to a fixed plan, and they can choose to convert the variable value at the time of retirement to a fixed annuity or to have the company distribute a fixed number of units of the account each month, the value to the annuitant varying with the value of the underlying mutual funds. Thus, the annuitant bears the risk, and earns the rewards, of investing in assets with an uncertain return. Income and realized capital gains reinvested in the separate account are not taxable to the variable annuity's owner until they are distributed, a great advantage over outright ownership of mutual funds. According to the American Council of Life Insurance (1996), at year end 1995 about $202.5 billion was held as reserves for variable annuities. The ICI reports that only $83.0 billion, roughly 40 percent of total variable annuity reserves, was actually held in mutual funds.

Mutual funds are also embedded in variable and variable-universal life insurance contracts. Variable life insurance was first introduced in the United States in 1968 in a form found in the Netherlands. In "Dutch" variable life insurance, the death benefit, cash value, and premium all vary with the performance of a separate account and none of the guarantees associated with conventional life insurance are provided. The modern form of variable life insurance has introduced a guaranteed minimum death benefit while maintaining a variable cash value, making variable life insurance equivalent to combining a mutual fund with a put option exercisable at death. Variable-universal life insurance allows the owner to vary the amount of premiums paid into a separate account, with death benefits and cash values related to the performance of that account.

A second sector not traditionally associated with mutual funds is commercial banking. Prohibited by the Glass-Steagall Act from underwriting or distributing securities and from being affiliated with or organizing companies primarily engaged in the issuance of securities, banks were excluded from any significant connection with mutual funds until a 1972 decision by the Federal Reserve Board allowed bank holding companies to be investment advisors for mutual funds, an authority extended to national banks by the Comptroller of the Currency in 1987. At present, banks are still prohibited from distributing mutual fund shares but they can act as investment advisors and as brokers for mutual funds.

Two links exist between banking and mutual funds. Banks act as brokers for *nonproprietary* mutual funds, providing a sales-force marketing channel for unrelated mutual funds. Banks and their affiliates also serve as investment advisors to *proprietary* mutual funds, funds organized and distributed by third par-

ties (to satisfy Glass-Steagall) but sold by the sponsoring bank's brokerage affiliate. Much of the money for proprietary bank mutual funds initially came from a conversion of trust funds managed by banks. The average size of bank mutual funds remains small and it has been difficult for banks to compete for outside money with the large fund families like Fidelity and Vanguard. Perhaps the most important bank proprietary fund family is Dreyfus Corporation, a subsidiary of Mellon Bank. Dreyfus manages about $77 billion of assets in 147 portfolios, largely money market and bond funds. At year end 1994, assets under management at all bank proprietary funds were $312.8 billion.

Where Does the Money Come From?

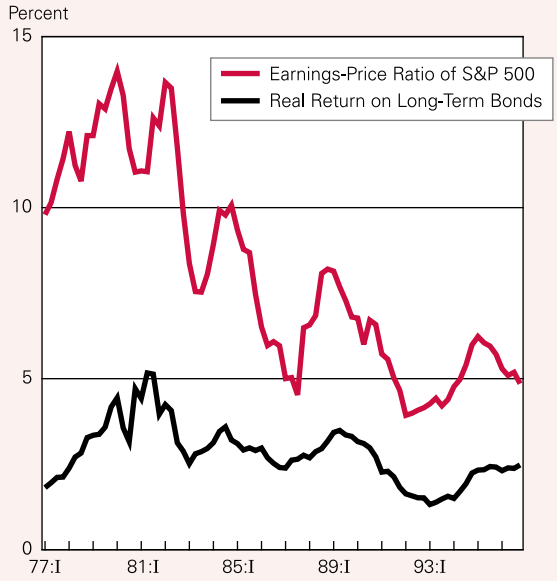
Discussions of mutual fund growth often raise the question "Where does the money come from?" The question has rhetorical power but not much depends upon the answer. In particular, it is not clear that it can be answered in a way that sheds light on the dynamics of security prices. The problem is that significant shifts in aggregate demand for equities and dramatic changes in equity prices can occur with no observable changes in the allocation of the aggregate portfolio. Suppose, for example, that some individual investors decide that the returns on common stock will be higher, and respond to this by shifting their portfolios from money market funds to equity funds, which bid for equities. The new equilibrium price of equities is that at which other investors decide to sell sufficient equities to match the amount demanded. The result is a rise in equity prices, an increase in new money at equity mutual funds, and a decrease in money market fund assets. One might say that the money for equity purchases came from money market funds. But suppose that those who sold equities decided to put the proceeds into money market funds. One would never see a change in the amount of money market funds, hence the data will not tell you where the money came from.

For each share bought one share is sold; for every buyer there is a seller. The question "Where does the money come from?" cannot be addressed without also asking "Where does the money go?" Somewhat paradoxically, the money might go back to the very place it came from, even though held by different individuals or institutions. In this section we use the Federal Reserve System's Flow of Funds accounts to see who has been buying equity and debt instruments. The flow-of-funds data report the amount of net purchases and sales of all financial instruments by a wide range

Figure 8

Real Returns on Stocks and Bonds

Quarterly, 1977 to 1996



Source: Real return on long-term bonds: Fuhrer and Moore (1995); earnings/price ratio: Standard & Poor's.

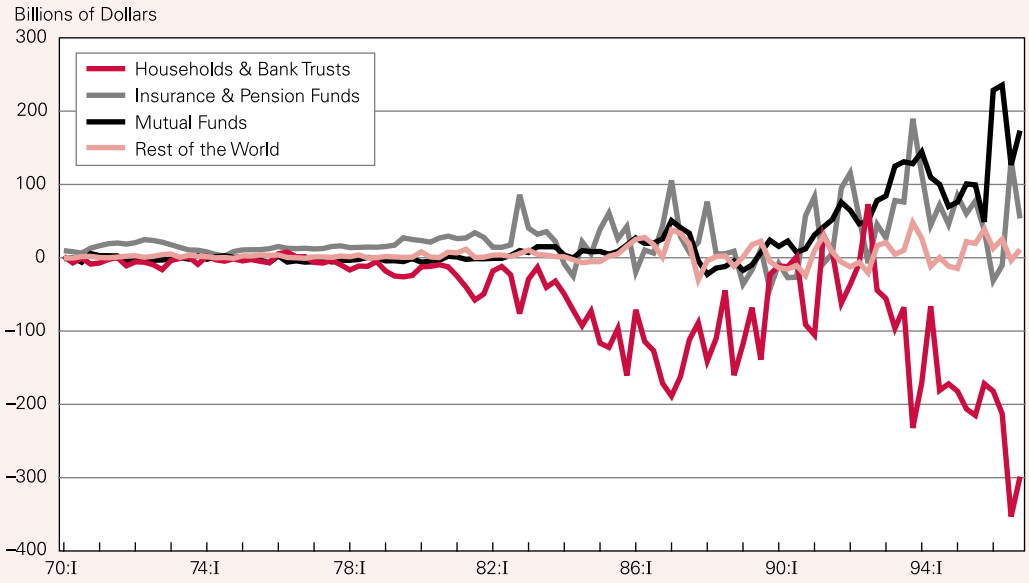
of investing agents in the U.S. economy. Thus, these data tell us which sector bought—and which sector sold—equity and debt.

The flows of funds are simultaneously determined along with the prices of equity and debt instruments, so one cannot tell stories about quantities without linking them to asset prices. Because our focus is on two types of securities—equity and debt—it is useful to have measures of the returns on each. Figure 8 shows measures of the real rates of return on long-term bonds (Fuhrer and Moore 1995) and on the S&P 500 portfolio of common stocks. The S&P 500 earnings-price ratio, which can be interpreted as the required return on common stocks less the anticipated growth rate of earnings, serves as a crude measure of the real return on common stocks.[25] Differences between these rates of return provide an

[25] The dividend-discount model of stock prices gives the following description of the ex ante real return on stocks: $r_s = \delta(E/P) + g$, where δ is the dividend-payout ratio and g is the anticipated growth rate of earnings per share. If δ and g are constant, E/P is an ordinal measure of the real return on common stocks. The constancy

Figure 9

Net Purchases of Equities
Quarterly, 1970 to 1996



Source: Board of Governors of the Federal Reserve System, *Flow of Funds*.

indicator of both the incentive to reallocate portfolios between the two instruments and the consequences of portfolio shifts. They are, therefore, useful pieces of the puzzle of financial flows.

The real returns on both stocks and bonds have shown a downward trend with a pronounced cyclical correlation. During the late 1970s the returns on both stocks and bonds were high, with a particularly high return on stocks setting the stage for the strong bull market in the 1980s. Thereafter the trend of real returns was downward, but in three episodes equities enjoyed a particularly high return, 1983–84, 1988–90, and 1994–95; each was followed by a bull stock market.

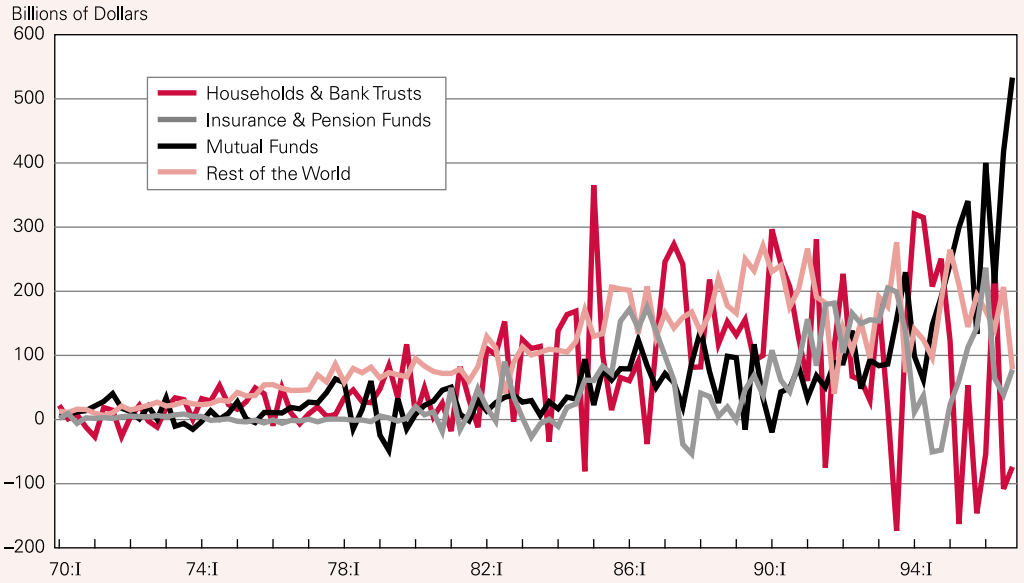
Until the late 1980s financial institutions (mutual funds, insurance companies, and pension funds) were net purchasers of equities, while households (including bank trusts) were net sellers (Figure 9). From 1988 through 1991 household net sales fell while institutional purchases increased, contributing to the rise in stock prices that brought down the return on stocks shown in Figure 8. During the 1992–96 period mutual fund and other institutional purchases of equity grew sharply while households returned to an historically high net sales position. During this interval a large part of mutual fund growth was due to a household shift from direct ownership of stocks to joint ownership through shares in equity mutual funds.

This has created an apparent paradox: If mutual fund purchases in recent years have been more than offset by household direct sales, why have equity prices risen so sharply? If households sell x shares and mutual funds buy those x shares, why should prices be rising? The answer is that ownership tells us little about the sources of shift in aggregate demand for stocks. One can tell stories in which a major redistribution in ownership occurs without consequences for prices as easily as one can find plausible stories for major changes in prices without observable changes in ownership. For example, one story explaining 1995–96

assumption is not valid. The dividend-payout ratio has fallen in recent years while anticipated earnings growth has risen.

Figure 10

Net Purchases of Bonds and Mortgages
Quarterly, 1970 to 1996



Source: Board of Governors of the Federal Reserve System, *Flow of Funds*.

is that a general enthusiasm for equities developed at the same time that mutual funds became a preferred form of ownership. The result would be a household switch from direct ownership to mutual fund ownership at the same time stock prices are rising.

One should not ignore the supply side of the market for common stocks. Newly issued shares normally play a small part in corporate external finance, so share price fluctuations typically are determined by shifts in demand for stocks. However, the 1990s have seen dramatic changes in the net supply of corporate equities. During the 1991–94 period, corporations were net sellers of equity, equal to $333 billion per year. In 1995 and 1996 this was reversed, with corporations returning to the 1980s practice of being net purchasers of common stocks and buying back an annual average of $80 billion. This $413 billion swing in net supply undoubtedly contributed to sharply rising prices even while households were strong net sellers of stock.

Figure 10 shows that throughout the 1980s purchases of bonds and mortgages by mutual funds and other traditional institutions were moderate, though above 1970s levels, and that households and, particularly, the rest-of-the-world were the primary purchasers of long-term debt instruments. These patterns changed during the 1990s: Mutual fund purchases rose sharply and, with the exception of the high net purchases in 1994, households played the role of net sellers. Unlike equities, where new issues are small or negative, the volume of newly issued bonds and mortgages is high and provides the supply absorbed by the agents in Figure 10.

The surge in net purchases of equities by mutual funds comes from four possible sources. The first two, associated with flows of money, are new saving and shifts in the composition of new saving, for example, from defined benefit premiums paid to pension funds to defined contribution plan payments into mutual funds. The second two sources arise from reallocation of portfolios: shifts by mutual fund portfolios into equities, and shifts in shareholder portfolios from securities held outside of mutual funds or from non-equity funds into equity funds. Savings flows clearly

do not account for the explosion in equity funds in the last several years; both the national and personal saving rates have remained low, and while savings flows have been redirected toward equity mutual funds, this accounts for only a portion of growth. Nor is the clear reduction in mutual fund liquidity, evident in recent years as shown in the next section, sufficient to account for the explosion in equities held by mutual funds. This leaves portfolio shifts by investors into mutual funds as the answer to "Where does the money come from?"

Mutual Fund Liquidity

Open-end funds are obligated to buy their shares back in any quantity offered, usually at the 4:00 p.m. net asset value on the day of the redemption request. Thus, their shares are similar to demand deposits at financial institutions, redeemable at short notice although at a variable price. Mutual funds hold a portion of assets in a highly liquid form in order to allow them to bridge the settlement period until liquidity is replenished by security sales. These assets, often called "cash-equivalent" assets, typically consist of cash and Treasury securities.

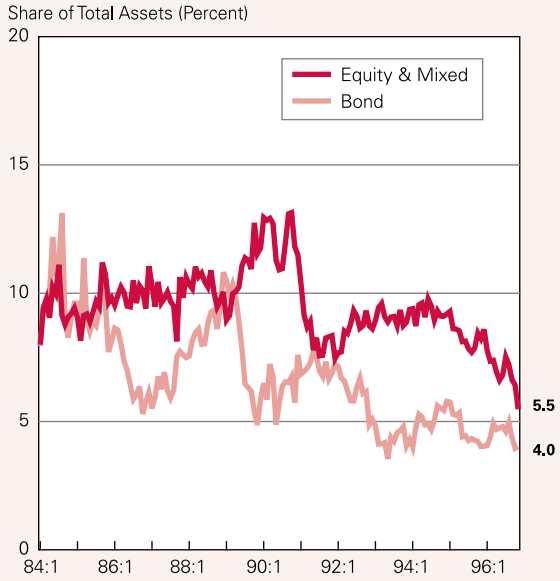
Figure 11 shows the liquidity ratios for equity/mixed and bond funds. Equity and mixed funds held about 10 percent of assets in highly liquid form until the early 1990s, when the liquidity ratio peaked at about 13 percent. In 1991 the liquidity ratio fell sharply to about 9 percent, and in 1995 it began a rapid decline to an historically low 5.5 percent at year end 1996. The liquidity positions for bond funds have been consistently lower than for equity funds, reflecting less sensitivity of redemptions to market conditions, but bond fund liquidity has also declined over the period, ending at 4 percent of assets at year end 1996.

The decline in liquidity can be attributed to several forces. In the early 1990s equity funds had high liquidity and bond funds had low liquidity. This was a time of low returns on stocks relative to the real return on bonds (see Figure 8). Equity fund managers found equities less tempting, while bond fund managers saw opportunities. The plunge in equity fund liquidity ratios after this time coincided with the developing bull market, and a further reduction in equity fund liquidity accompanied the strong bull market of 1995–96. Over the same periods the volatility of common stocks changed to reinforce incentives to buy equities. In the early 1990s volatility was relatively high and the recent history left impressions of even higher volatility, but through the early 1990s

Figure 11

Mutual Fund Liquidity, by Type of Fund

January 1984 to December 1996



Source: Investment Company Institute.

the volatility of common stocks fell relative to the volatility of bond returns. Thus, the liquidity decision is shaped, in part, by the portfolio manager's judgment about the returns on stocks and bonds. An additional factor in the recent decline in liquidity ratios at equity funds has been the 1995 reduction in settlement periods from five to three days, requiring less cash to bridge the gap between redemptions and receipts from security sales. Yet another factor allowing lower holdings of liquid assets is the growth in lines of credit with banks, rarely available prior to October 1987. This has allowed fund managers to shift their portfolios from low-yield liquid assets to higher-return but more volatile securities. Finally, declines in liquidity have also been encouraged by the increase in competitive pressures as the number of funds has grown and as investors became increasingly aware of, and sensitive to, rates of return, and by the increased average size of mutual funds, which has allowed economies of scale in cash balances.

Redemptions and the Shareholder Profile

Mutual funds have rarely experienced a significant threat from massive redemptions. During the 1970s, two severe recessions and dismal past returns on common stocks plagued financial markets. As Figure 8 shows, the ex ante return on common stocks was quite high in that decade, but that was the result of poor ex post returns. Mutual funds faced a chronic net outflow of money as shareholders responded to past performance rather than future prospects. But while this net outflow triggered general downsizing, it did not initiate significant signs of financial stress beyond those associated with the macroeconomic ambience. Even during the Crash of '87, as we shall see, industry net outflows were small relative to cash-equivalents on hand, and only a few funds showed signs of serious stress.

Even during the Crash of '87, mutual fund net outflows were small relative to cash-equivalents on hand, and only a few funds showed signs of serious stress.

This stability is often attributed to a benign shareholder profile. According to the Investment Company Institute (1996b), in 1995 the median shareholder had household income of $60,000 and held $50,000 in financial assets, of which $18,000 was in mutual funds. Almost 60 percent of shareholders had completed college and over 54 percent also held individual stocks, suggesting some degree of sophistication. The typical shareholding household reported a long-term view, with over 60 percent indicating that they invested for at least a six-year horizon and 35 percent indicating a horizon of more than 10 years.

Furthermore, mutual fund shareholders, like many retail investors, are reputedly unwilling to realize losses and therefore are likely to hold on in a declining market and to delay sales until prices have recovered.[26] Shareholder inertia is also attributed to the role third parties play in the sale of mutual funds: Brokers, investment advisors, and financial planners will, reportedly, inhibit redemptions by advising their clients to be patient and invest for the long term.[27]

In addition, the rise in mutual funds as a vehicle for achieving retirement objectives, through IRAs, 401(k) and 403(b) plans, Keogh plans, and other defined-contribution pension plans, is said to create a solid asset base with long-term objectives, money that is unlikely to move in response to short-run market fluctuations. It is often noted that only under exceptional circumstances can this money exit the retirement fund plan without significant penalties, an inducement to stability. A counterargument, however, is that money can be easily switched between money market, bond, and equity funds within the same plan without penalties or tax consequences, and this switching has become easier over time. At one time pension plans reported infrequently, usually quarterly, and employees were allowed to switch between different investment vehicles, if at all, only at infrequent intervals. Today's employee can get daily pricing information on his 401(k) plan and can switch between several funds, including a money market fund, at the drop of a phone call. Accordingly, one wonders why the mutual fund assets held by the retirement investor should be any less "hot" than the money held by the average investor.[28]

At year end 1995, retirement plans, including employer-sponsored and IRA-type accounts, accounted for almost 36 percent of all mutual fund assets. Does this provide a solid foundation under the $3.5 trillion of open-end mutual fund assets? Unfortunately, little public information is available on short-term transactions among funds held for retirement purposes. However, there is some suggestive evidence. In the summer of 1996 the S&P 500 declined by

[26] This behavior is consistent with prospect theory, the leading model of decision-making under uncertainty. Prospect theory predicts that investors are "loss averse" and that they will prefer a gamble (holding on to securities) to a sure loss (selling securities at a loss).

[27] As noted above, slightly over half of mutual fund sales are through third parties, such as broker-dealers, financial planners, banks, and life insurance companies. The third-party share of bond fund sales is quite high, but some equity funds are dominated by direct marketing (for example, aggressive growth funds and flexible portfolio funds are heavily direct-marketed).

[28] Some in the mutual fund industry hold the view that the move toward on-demand exchanges among funds in a retirement plan has actually inhibited exchanges by reducing shareholder anxiety about the ability to make an exchange. The idea seems to be that if one can reshape the portfolio only at infrequent intervals, there is a tendency to overreact to new information, making larger changes because finer adjustments cannot be made. While there is some logic to this view, it remains likely that allowing more frequent adjustments will encourage more frequent adjustments, though perhaps of smaller size.

3 percent from July 1 to July 10. It declined another 2.6 percent by July 19. The week of July 15 to 19 was particularly volatile. On one day, July 15, the S&P 500 fell to an intra-day low 3.8 percent below its previous close, then rapidly recovered to end almost unchanged. Hewitt Associates of Lincolnshire, Illinois, an investment management company managing over $20 billion of 401(k) money, examined the daily net transfers between eight different types of funds managed for 25 of its 401(k) clients during the period July 11 to 17. Equity funds lost 0.6 percent of initial assets, international funds lost 0.48 percent, and balanced funds lost 0.28 percent; almost all of these transfers occurred on July 15 and 16.[29] These reported net transfers are not small and are on a scale with redemptions and exchanges at mutual funds. At the same time, AMG Data Services, a firm reporting weekly fund flows for all funds, not just 401(k) funds, found that between July 11 and 17 net new money flowed out of all equity funds at a rate of 0.4 percent of assets. Outflows were 0.6 percent for aggressive growth funds and 0.9 percent at emerging market funds.[30] This suggests that 401(k) money is not impervious to market fluctuations and that changes in investor sentiment might be destabilizing even for retirement funds. This market episode was so brief, and recovery was so quick, that the results are likely to understate the outflows occurring in a more protracted or more violent decline.

Thus, the arguments that pension money at mutual funds is less volatile than non-pension money are not compelling. Indeed, after the transition to mutual funds as an investment vehicle has been fully completed, we might expect that any useful distinctions between shareholders might vanish. All investors will have almost instantaneous access to information about asset values and will be able to make switches out of bond and equity funds into money market funds.

IV. Mutual Funds and Financial Markets

The view that mutual funds expose the financial system to increased fragility has grown with the industry's assets. This concern is exacerbated by the recent sharp decline in the industry's liquidity ratios, with cash-equivalent securities dropping to about 5 percent of equity and mixed fund assets and to 4 percent of bond fund assets. The decline in liquidity ratios might not present problems under normal conditions, but it leaves mutual funds with less protection from major shocks to cash flows. Consider two hypothetical scenarios, the first benign, the second more problematic.

In the first scenario, a significant decline in stock prices, initiated, perhaps, by an international crisis, induces mutual fund redemptions as investors switch from equity and bond funds to money market funds. If liquidity ratios are sufficient, and if portfolio managers decide not to sell securities to restore liquid assets lost to redemptions, the primary effect is to reshuffle the ownership of cash-equivalent assets without transmitting the initial shocks back to the securities markets: As equity and bond funds redeem shares by selling cash-equivalents and paying cash to shareholders, the shareholders buy cash-equivalents either directly or through purchases of money market fund shares. The short-run result is simply that the ownership of cash-equivalents has shifted from equity and bond funds to individual investors or money market funds. In the long run, equity and bond fund managers might sell securities to restore at least part of their lost liquidity, hence transmitting redemptions to the security markets, but this occurs over time and softens the blow of the redemption requests on security prices. In this scenario, mutual funds with ample liquidity enhance financial market stability.

The view that mutual funds expose the financial system to increased fragility has grown with the industry's assets, exacerbated by the recent sharp decline in the industry's liquidity ratios, which leaves mutual funds with less protection from major shocks to cash flows.

A less comforting scenario can also be con-

[29] See *The Wall Street Journal*, "Market Bumps Rattle Nerves at 401(k)s," August 23, 1996, p. C1. The data in the text are from the original report, made available by Hewitt Associates.

[30] See *The Wall Street Journal*, "Mutual Fund Withdrawals Up Sharply," July 20, 1996. The weekly data are based on telephone surveys by AMG Data Services of Arctana, CA. These surveys include almost 9800 open-end mutual funds with over $3 trillion in assets.

structed. If mutual fund liquidity is not sufficient to meet the bulk of redemption requests, redemptions will be quickly transmitted to security sales and fund managers might even sell securities ahead of redemptions to firm up their liquidity, as some did in 1987. The redemptions arising from the initial shock will reverberate back to the financial system more quickly and more intensely than in the first scenario. Sailing between the Charybdis of low liquidity and the Scylla of security price declines, mutual funds will draw on lines of credit with banks. Thus, funds will become more highly leveraged and their net asset values will become more sensitive to security price fluctuations. If, as we suggest later, mutual fund shareholders behave like momentum traders, buying in rising markets and selling in declines, their behavior will exaggerate security price movements rather than stabilize them. The greater volatility of security prices might then encourage additional redemptions, and so on.

This adverse behavior may be compounded by a "first redeemer problem." As security prices fall and redemptions grow, the quality of the mutual fund might decline, for several reasons. First, as funds lose cash-equivalent assets and draw on lines of credit, the increased leverage makes the portfolio more risky. Second, a fund might sell its more liquid securities, leaving less marketable securities in its portfolio. Third, in a severe market decline the confidence interval attached to the fund's net asset value might widen, making the shareholders less certain of the fund's "true" value.[31] Early redeemers can avoid this by cashing in their shares at the afternoon net asset value (NAV) and exiting before the quality of the portfolio changes, leaving continuing shareholders to bear the heaviest burden of those early redemptions. The transfer from continuing shareholders to early redeemers is even greater if the NAV at which early redemptions are paid is higher than market conditions warrant, for example, if markets have been halted and NAV is computed on the basis of the last bid prices so that the "true" NAV at which the securities really could be traded is probably below the posted NAV. For example, if it is difficult to get broker-dealers to give quotes on securities, the fund might use a security's last bid price in calculating NAV. In a severe decline this might lead to an overstatement of the security's value. A similar effect is created when buy-limit orders are on broker-dealer books: A surge in sales will get matched with these orders, tending to keep quoted prices above their equilibrium levels.

The risks just cited are borne by mutual fund shareholders, whether they are early or late redeemers. But risks exist for the mutual fund agents as well. In the high volume of chaotic markets, misunderstandings will occur and normally synchronized transactions will become unlocked from each other. For example, transfer agents might fail to record and execute purchases and sales of mutual fund shares, brokerage firms might fail to record and execute purchases and sales of securities, and custodians might find that they deliver securities before they are paid or they pay for securities before they are delivered. These "fails" create liabilities that might take some time to unwind and that expose the parties to litigation and other expenses. These problems are not unique to mutual fund agents, they can arise for any broker-dealers or traders. However, even though the financial consequences might first stick to the agents themselves, mutual funds might be faced with the question of accepting responsibility for any residual losses due to failed transactions.

The damage could be long-lived. Not only could the reputation of the mutual fund vehicle be stained, discouraging its future use, but a potential exists for other unfortunate consequences. Commercial banks with under-collateralized loans to mutual funds might encounter problems of capital adequacy. Remaining mutual fund shareholders might litigate, claiming that the fund's portfolio or its response to a crisis violated its prospectus. Unlike broker-dealers, who have arbitration agreements with their clients, mutual funds will have to face these charges in the courts. This litigation, if successful, could lead to compensatory payments by fund advisors or other parties.

Doomsday scenarios, like conspiracy theories, are a dime a dozen. Whatever their true merits, they survive because they deal with very-low-probability events which, because of their rarity, do not allow the mustering of sufficient evidence to reject them. Even so, those responsible for maintaining a smoothly functioning financial system must seriously consider the potential for such a scenario to materialize. Some insights can be gained from the experience of October 1987.

[31] Kleidon and Whaley (1992) argue that buy-limit orders contributed to the 1987 Crash by keeping stock prices above their equilibrium levels. The result was that the S&P 500, as reported, was subject to a statistical illusion that prevented it from falling as much as the S&P 500 futures price fell. This, in turn, provided a signal for index arbitragers to sell stocks and buy futures, contributing to the crash.

Mutual Funds in the October '87 Crash

The largest market decline in the last 25 years occurred during October of 1987. The severity of that break has led to a plethora of studies. Among the most notable analyses by government agencies are the report of the Presidential Task Force on Market Mechanisms (the Brady Commission) and the Securities and Exchange Commission's report, both printed in 1988. A survey of the literature is provided in Fortune (1993).

The backdrop for the 1987 break was a decline in stock prices from an S&P 500 peak of 336.77 on August 25 to 282.70 on October 16, 1987. Over the same interval, 30-year Treasury bond yields rose by 130 basis points, to 10.24 percent. This followed a bullish year that, with hindsight, was a speculative bubble. In response to rising bond yields, and the consequent decline in bond prices, during September money market funds and bond funds experienced high net outflows of money, $7.8 billion and $8.8 billion, respectively, translating to 2.5 percent and 3.3 percent of the prior month's assets. Equity-oriented funds had small net inflows: $1 billion (0.45 percent of assets) at mixed funds and $0.6 billion (1.29 percent) at equity funds. Thus, during September there occurred a pronounced move out of funds focusing on short- and long-term debt and a small move toward equity funds.

On Monday, October 19 the stock market plunged—the Dow Jones Industrials falling by 580 points and the S&P 500 by 57.86 points, declines of more than 20 percent from Friday's close. While the long-term Treasury bond yield remained high, short-term interest rates fell sharply as investors shifted into more liquid securities. By the end of October the S&P 500 had recovered to 251.79 from its Black Monday closing value of 224.84, and both short-term and long-term interest rates had fallen sharply, to 5.41 percent for 3-month bills and 9.03 percent for 30-year Treasury bonds. During October money market funds showed small net inflows ($312 million) and all funds with long-term assets experienced large net outflows: Bond funds lost $8.2 billion (3.3 percent of assets), mixed funds lost $1.1 billion (2.4 percent of assets), and equity funds lost $6.8 billion (3.2 percent of assets). In November all non-money market funds returned to a slight net inflow, but equity-oriented funds continued to have outflows or small inflows for more than a year.

September liquidity ratios were about 6.23 percent for bond funds and 9.50 percent for equity and mixed funds. During October bond prices rose, long-term bond yields ended below the starting level, and the liquidity ratio at bond funds actually rose. However, the liquidity ratio at equity and mixed funds fell to 8.12 percent in spite of the large decline in asset values, reflecting significant redemptions. Thus, even during the worst months since the 1970s the mutual fund industry did not come close to exhausting its available liquid assets. However, during the brief episode surrounding Black Monday the signs of stress were greater, with some funds showing extreme stress.

According to the Brady Commission (Brady 1988, Study IV), on Friday, October 16—the trading day before Black Monday—the 30 largest equity fund groups held $13.5 billion of liquid assets, equal to 8.4 percent of their net assets. By the end of Friday, October 16, these 30 groups had redeemed shares valued at $1.5 billion (about 1 percent of assets) and had sold $313 million of individual stocks, yet their liquid asset ratio had actually risen to 8.8 percent of net assets, entirely by virtue of the sharp decline in net asset values. On Black Monday their redemptions exceeded $2.3 billion (1.6 percent of assets) but liquid assets fell only about $100 million, suggesting that most of Monday's $779 million sales of stock by the 30 families were to restore liquidity.[32] Sales of stocks were highly concentrated among the equity fund groups on October 19: Three fund families sold $913 million of equities, almost all attributable to one family. The remaining 27 companies were net buyers of $134 million of stock. The same three companies were reported to have drawn heavily on their lines of credit at commercial banks. The Brady Commission estimated that between October 16 and 19 about one-third of redemptions were financed by equity sales.

Redemption experience and mutual fund responses varied across firms. The three largest equity groups analyzed by the Brady Commission experienced one-day redemptions of 3.5 percent of net assets, compared to a normal redemption rate of 1 to 2 percent per month. One estimate placed Fidelity Magellan Fund's redemptions at almost 7 percent of assets during the decline through Black Monday.[33] Fidelity also experienced problems of insufficient telephone capacity, a common problem at the time. On Tuesday, October 20, Fidelity received almost 500,000 telephone calls, compared to a normal daily load of slightly over 100,000, and an estimated 20 percent of

[32] The normal settlement period at the time was five days. However, at least one large investment bank (Goldman Sachs) was offering to buy for same-day settlement, thus making security sales a more immediate source of funds to meet redemption requests.

[33] *The Wall Street Journal*, "Fidelity Investments Keeps It in Family During Crash," Friday, October 23, 1987, p. 6.

callers got a busy signal. While much of this was attributed to insufficient capacity at New England Telephone, the experience reflected a general epidemic of unanswered phone calls. This episode demonstrated the importance of sufficient peak load capacity to handle a surge in telephone redemption requests, a capacity that reportedly has expanded significantly since that event.

Another sign of considerable stress was that some large funds delayed payment of redemptions. Fidelity's Magellan Fund adopted a seven-day delay but suspended it within a few days. The T. Rowe Price International Fund delayed redemptions for some time, primarily because of problems in computing its NAV: Pricing of international securities can be difficult, and at least one exchange, Hong Kong, was closed for an extended period, making it difficult to price securities listed there. Other large fund families, like Merrill Lynch, Vanguard, and Dreyfus, adopted no redemption delays.

The picture that emerges is one of an industry that had sufficient shock absorption to fare well in a highly turbulent, though short-lived, period. Even so, some mutual funds faced particularly severe net outflows and drew heavily on all the backstops available. The rapid stock market recovery following the mid-October break undoubtedly prevented a worse experience, but 1987 does indicate that the industry was able to withstand a very severe security price shock.

The Problem of Momentum Trading

The Brady Commission concluded that an important contributor to the 1987 Crash was portfolio insurance, a strategy for shifting portfolios between bonds and stocks to create a synthetic put establishing a floor on a portfolio's value (see Fortune 1995). Portfolio insurance schemes mandated purchasing equities in a rising market and selling them in a declining market, thereby exacerbating stock market fluctuations. During the height of the October crash a large proportion of program trades were generated by portfolio insurance strategies, contributing to market instability.

The same potential for destabilizing trading activity exists if mutual fund shareholders and mutual fund managers engage in momentum trading. If shareholders direct funds from liquid assets to long-term instruments when asset prices are rising, and reverse these flows when prices are falling, their behavior will reduce market stability by exacerbating asset price changes. If, on the other hand, they are value investors—buying on declines and selling on increases—their behavior will be stabilizing.

Discussions of mutual fund exposure to shareholder withdrawals are usually framed in terms of redemptions. However, the liquidity needs of funds are shaped by net new money inflows. Redemptions are an important contributor to net new money, but they do not tell the entire story of financial stress because a fund can deal with a high redemption level without experiencing liquidity problems if it has sufficient new money flowing in from shares sold or exchanged. We define a fund's "net new money" as the sum of inflows from new shares sold *plus* net exchanges into the fund from other funds in the family *less* money lost to redemptions. Note that our definition of new money excludes cash income from securities that is reinvested in the fund, thereby understating actual net new money.[34]

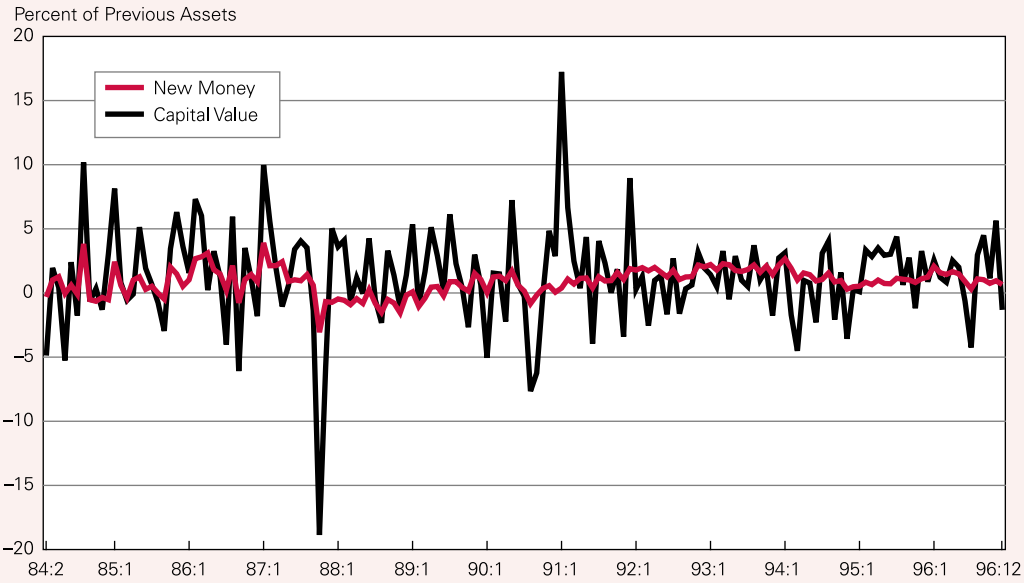
Potential for destabilizing trading activity exists if mutual fund shareholders and mutual fund managers engage in momentum trading.

The change in total assets not attributable to net new money is due either to a change in the capital value of the fund's portfolio or to reinvested dividends. The most volatile component, changes in capital value, arises because of changes in the level or structure of interest rates, changes in earnings anticipations, or, in the case of international and global fund portfolios, changes in exchange rates. Thus, a fund's assets can grow (decline) because of increases in either new shares or in asset prices. Figures 12 and 13, constructed from ICI data, show net new money and capital value changes for bond funds and for equity/

[34] The ICI's definition of "reinvested dividends" lumps together all dividends, coupons received, and capital gains distributions that are reinvested in the fund. Reinvested dividends and coupons should be included in new money, but reinvested capital gains distributions are from assets already in the fund, not from new money flowing into the fund. Thus, our "net new money" understates the correct amount because we exclude the dividends and coupons reinvested in the fund. This understatement is relatively small and, because coupons and dividends are stable, it does not dramatically affect the variability of monthly net new money flows.

Figure 12

Net New Money and Changes in Capital Value, Equity and Mixed Funds
February 1984 to December 1996



Source: Investment Company Institute.

mixed funds, respectively. Both net new money and capital value changes are expressed relative to the prior month's total net assets, hence they are, respectively, the percentage change in assets due to new money and to capital value changes. Both figures show a pattern of positive correlation between net new money and capital value changes, a marker of momentum trading. Capital value changes are much more variable for equity/mixed funds than for bond funds, but in both cases capital value decreases tend to be accompanied by lower inflows or by actual declines in net new money.

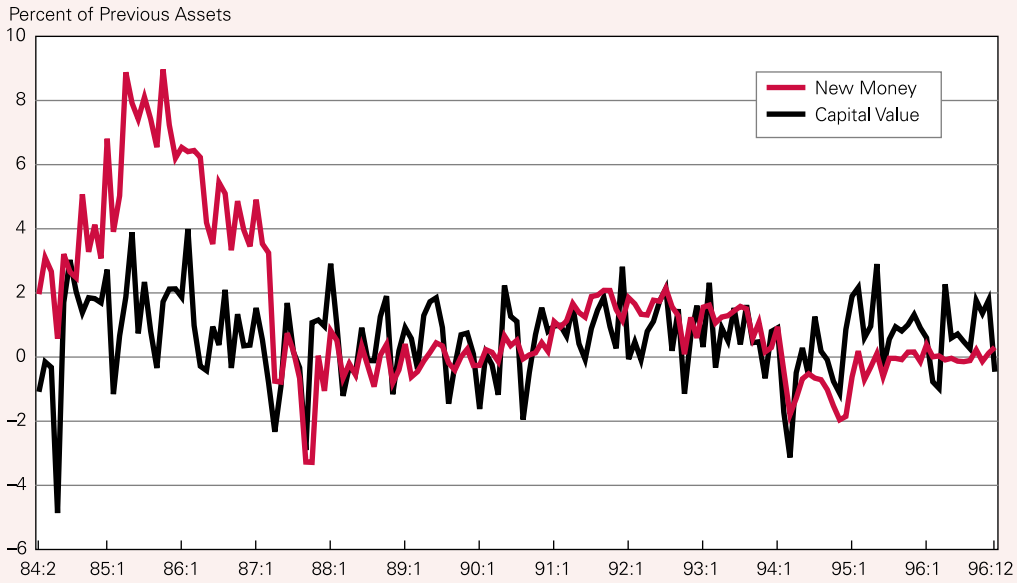
Table 4 reinforces this conclusion. It reports the correlation coefficients for net new money and capital value changes for several fund groups. Net new money for the fund group shown in each row is correlated with capital value changes for the fund group shown in each column; the correlation coefficient is reported in the appropriate cell. The boldfaced numbers represent the correlations of net new money in a group with that group's own capital value changes. New money flows at equity funds are highly correlated with capital value changes at all three fund groups: The same-group correlation coefficient between new money flows and capital value is 0.50 for equity fund capital values, 0.33 for bond funds and 0.17 for mixed funds. All three are statistically significant at the 5 percent level or better. There are also positive cross-correlation coefficients. For example, the 0.15 coefficient for new money at mixed funds with capital value at equity funds suggests that when mixed funds do better there is a higher flow into equity funds as well as to mixed funds.

Thus, momentum behavior appears across the board: New money at each group benefits from capital value increases at other groups as well as at the same group. Of course, correlation does not mean causation. It is not known whether increases in asset prices encourage mutual fund inflows, or whether mutual fund inflows encourage asset price increases. The second part of this study will address that question.

For equity/mixed funds, October 1987 is a standout month in terms of both net new money outflow and capital value declines. New money outflows con-

Figure 13

Net New Money and Changes in Capital Value, Bond Funds
February 1984 to December 1996



Source: Investment Company Institute.

tinued for almost two years. Since 1989 only one brief episode of new money loss has occurred, in August-September 1990. Thus, while a direct correlation appears to exist between new money and capital value changes, there are very few periods of actual loss of new money in declining markets, and no net money loss approached the liquidity ratios for these fund groups shown in Figure 10. At bond funds, net new money has been more variable than at equity funds, with more frequent and longer-lived intervals of new money loss. In 1987 net outflows from bond funds peaked at 3 percent of assets, and the net outflows during the rising interest rates of 1994 and 1995 were roughly 2 percent of assets.

Thus, it appears that despite prima facie evidence of momentum trading, the exposure of mutual funds to extreme stress has been small. Periods of net money outflows have been short and even in the most serious episodes net outflows have been small relative to liquid asset positions. This comforting conclusion is consistent with a longer-term analysis by Rea and Marcis (1996a & b), who examined the behavior of net flows into equity mutual funds during the 14 completed stock market cycles (defined by the S&P 500) from 1942 to 1990. Prior to 1970 equity funds experi-

Table 4
Correlation between Net New Money and Capital Value Changes by Fund Group
Monthly, 1984 to 1996

	Monthly Capital Value Changes (Billions) at		
New Money (Billions)	Bond Funds	Mixed Funds	Equity Funds
Money Market	.08	.17*	.14*
Bond Funds	**.33****	.15*	.09
Mixed Funds	.04	**.17***	.15*
Equity Funds	.25**	.49**	**.50****

* indicates significant at 5% based on the t-statistic of $r\%[(N-2)/(1-r^2)]$.
** indicates significant at 1%.
Source: Investment Company Institute data; author's calculations.

enced net inflows during both market expansions and contractions, with larger inflows during the expansions. Throughout the 1970s mutual funds experienced net outflows during both expansions and contractions, but the outflows were smaller during contractions, indicating stabilizing behavior. Since 1980 sharp growth has occurred in mutual funds during expansions, and either small growth or small declines during contractions. This suggests that over longer periods mutual fund flows have had sufficient liquidity to deal with redemption requests, but that (apart from the 1970s) a pattern of momentum investing in equity-oriented mutual funds has been present.

The issues raised in this section, particularly those of momentum trading, will be further investigated in the second part of this study.

V. Summary and Conclusions

The mutual fund industry has grown rapidly as a result of both new money flows and capital appreciation. This growth has been accompanied by concerns about the role that mutual funds might play in undermining financial stability.

The goal of this article has been to provide a broad overview of the mutual fund industry. The first section examined the mutual fund concept, mutual fund regulation, and taxation. The second discussed the direct and indirect costs of holding mutual fund shares. The third section examined the growth, liquidity, and redemption experiences of mutual funds. The fourth section looked at the relationship of mutual funds to financial market performance.

If one conclusion can be drawn from this study, it is that mutual funds have been remarkably resilient institutions. Even during the stresses of 1987, industry liquidity remained sufficient to allow share redemptions without threatening the security markets. While evidence shows that shareholders do behave in potentially destabilizing ways, particularly by a pattern of buying in rising markets and selling in falling markets, there is no long-term evidence that this has been a significant factor influencing financial market stability. Furthermore, equity funds appear to have very brief periods of net money outflows, certainly not of such a duration or magnitude as to indicate that they are likely to be part of the problem of financial fragility.

This article is the first in a two-part study of the mutual fund industry. The second part of the study will focus more on the questions raised in the fourth section of this paper, questions about financial stability and the link between asset prices and mutual fund flows.

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