

# PERSPECTIVE

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## Mutual Fund Industry Developments in 2001

by Brian Reid, Kimberlee Millar,  
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### SUMMARY

Mutual fund shareholders and other investors faced a challenging economic and financial environment in 2001. The deceleration of business and consumer spending that emerged in 2000 continued, and the economy slid into a recession. The bear market in stocks, which began in March 2000, dragged on as corporate profits weakened. The effects of the economic slowdown were also apparent in the fixed-income security markets, with higher default rates and growing numbers of downgrades. The stock market rallied in the spring, but as the year progressed, the expected rebound in the economy did not materialize. Stock prices drifted lower and, by late summer, returned to lows reached earlier in the year.

The terrorist attacks on September 11 not only stunned the world but also affected many financial service organizations by disrupting equity and bond markets. U.S. stock exchanges closed for the remainder of that week, and bond and money market trading suffered as bond dealers located at

or near the World Trade Center regrouped. When equity markets reopened on September 17, stock prices declined sharply, turning what had been an average bear market into one of the most severe since the end of World War II. Moreover, the after-effects of the attacks pushed the economy deeper into recession.

The net inflow to equity funds slowed during 2001 but remained positive. Moreover, shareholder reaction to the September attacks and the subsequent market downturn was muted. Indeed, stronger demand for bond, hybrid, and money market funds made up for the weaker equity fund flows, and the mutual fund industry received a record \$504 billion in net new cash during the year. This inflow offset the decline in stock prices, and net assets of mutual funds ended the year at \$6.970 trillion, virtually unchanged from a year earlier.

This issue of *Perspective* examines these and other mutual fund developments in 2001. Highlights of the review include the following:

### Equity Funds

- ▶ Equity fund assets and flows were affected by the worldwide bear market in stocks in 2001. Equity fund assets were at \$3.413 trillion at year-end, down from \$3.962 trillion a year earlier. Net new cash flow declined to \$32 billion in 2001 from \$309 billion in 2000.

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- ▶ Equity fund shareholder transaction activity resembled that observed during past bear markets. Monthly sales and redemptions moved lower over the course of 2000 and 2001. Sales declined more than redemptions, leading to weaker net new cash flow.
- ▶ The reaction of equity fund shareholders to September 11 was muted. The pace of outflows had picked up in late summer before the attacks and quickened somewhat in their wake.

### Bond and Hybrid Funds

- ▶ Net flows to bond and hybrid funds turned positive for the first time since 1998. Bond funds garnered \$87 billion in net new cash, the highest inflow since 1986. Bond fund assets rose to \$924 billion at year-end 2001. Hybrid funds posted a net flow of \$10 billion, and assets in these funds were relatively unchanged at \$346 billion.
- ▶ The stronger demand for bond funds reflected typical shareholder response to declining interest rates. Yields on medium-term U.S. Treasury and other highly rated debt instruments fell during most of the year, and returns on bond funds holding these securities rose, boosting demand for these funds.
- ▶ September 11 events had little effect on investor flows to bond funds. Inflows were strong in the late summer leading up to the event and

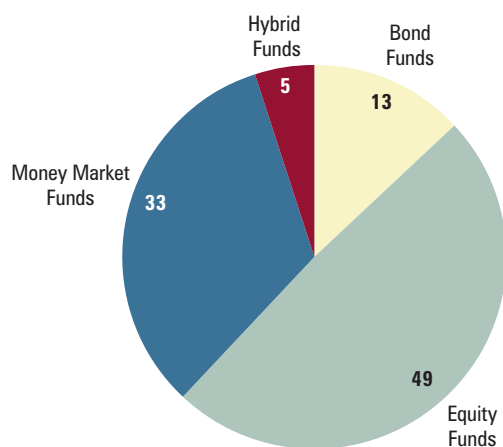
were concentrated in funds investing in U.S. Treasury and agency debt securities. Flows remained robust in the wake of the attacks and were largely directed toward the same types of bond funds.

### Money Market Funds

- ▶ Investors put a record \$375 billion in money funds in 2001, and assets reached an all-time high of \$2.286 trillion. Money fund assets accounted for one-third of all mutual fund assets by year-end (Figure 1), the highest level since 1992.
- ▶ Institutional money funds attracted most of the net new cash flow, totaling a record \$339 billion for the year, nearly three times greater than in 2000. Open market short-term interest rates were below money market yields intermittently throughout the year, and businesses and other institutional investors responded to the yield advantage on institutional money funds by shifting short-term assets into money funds.
- ▶ Inflows to retail money funds slowed to \$36 billion in 2001, as yields on these funds fell relative to savings deposit rates. Demand for retail money funds is sensitive to this spread and tends to decline as the spread narrows. Stronger inflows due to the weakness in the stock market did not offset the effect of the decline in the yield spread.

FIGURE 1

### Composition of Mutual Fund Industry Assets, 2001 (percent)



Source: Investment Company Institute

### Other Developments

- ▶ U.S. households increased their reliance on mutual funds as a means of investing in stocks and bonds in 2001, despite the growing popularity of alternative investment products. In 2001, households purchased an estimated \$120 billion of equities indirectly through mutual funds and sold an estimated \$261 billion of stocks held outside mutual funds. They also acquired an estimated \$130 billion of bonds through mutual funds while selling an estimated \$122 billion of bonds held outside mutual funds.

- ▶ The pace of net new fund formation slowed in 2001. On balance, fund sponsors created 165 new funds, down from 365 in 2000. Fewer new equity funds were created, and the contraction of bond, hybrid, and money market funds continued. Several fund complexes involved in mergers in recent years continued to streamline their product offerings by combining funds with overlapping investment objectives.
- ▶ The share of total industry assets held by the largest fund complexes was down slightly in 2001, reflecting the weak performance of the stock market relative to bond and money markets. Equity funds make up a greater share of the largest complexes' assets than in the industry as a whole.
- ▶ Mutual funds distributed an estimated \$72 billion in capital gains to shareholders in 2001, which was the lowest level since 1995 and compared with \$326 billion distributed in 2000. Most of the decline resulted from the weak stock market performance. As stock prices fell, the embedded gains of many funds were eliminated. In fact, by September 2001, unrealized losses in equity funds totaled an estimated \$200 billion or 7 percent of equity fund assets.
- ▶ Congress passed the "Economic Growth and Tax Relief Reconciliation Act of 2001" (EGTRRA), which includes provisions that increase contribution limits to IRAs and employer-sponsored retirement plans such as 401(k) plans. In addition, the legislation allows "catch-up" contributions to these tax-deferred accounts for individuals age 50 and older and enhances the ability of participants to roll over account balances among different types of retirement plans. At the end of 2000, approximately 42 million 401(k) plan participants held \$1.8 trillion in assets, 43 percent of which was invested in mutual funds.

IRA owners held \$2.7 trillion in assets at year-end 2000, with mutual funds accounting for 46 percent of these assets.

- ▶ Incentives for education savings aimed at Section 529 Plans and Coverdell Education Savings Accounts (formerly Education IRAs) are also included in the EGTRRA. Assets in Section 529 savings plans doubled to \$5.3 billion between the end of 2000 and September 2001. The number of accounts rose to nearly one million, placing the average account size at approximately \$6,000.

## **ECONOMIC AND STOCK MARKET DEVELOPMENTS IN 2001**

U.S. investors began the year facing a highly uncertain economic and financial environment. Optimistic forecasts for corporate profits early in the year pointed to a quick rebound in economic growth. The Federal Reserve, however, signaled its concern about the near-term prospects for the economy by unexpectedly reducing the federal funds rate by one-half percentage point on January 3 and by making four more half-point cuts through the winter and spring. As economic growth stalled, financial analysts sharply revised downward their expectations for corporate profits. These downward revisions weighed heavily on the stock market, and by early September broad stock market indexes were off about 30 percent from peak levels in 2000.

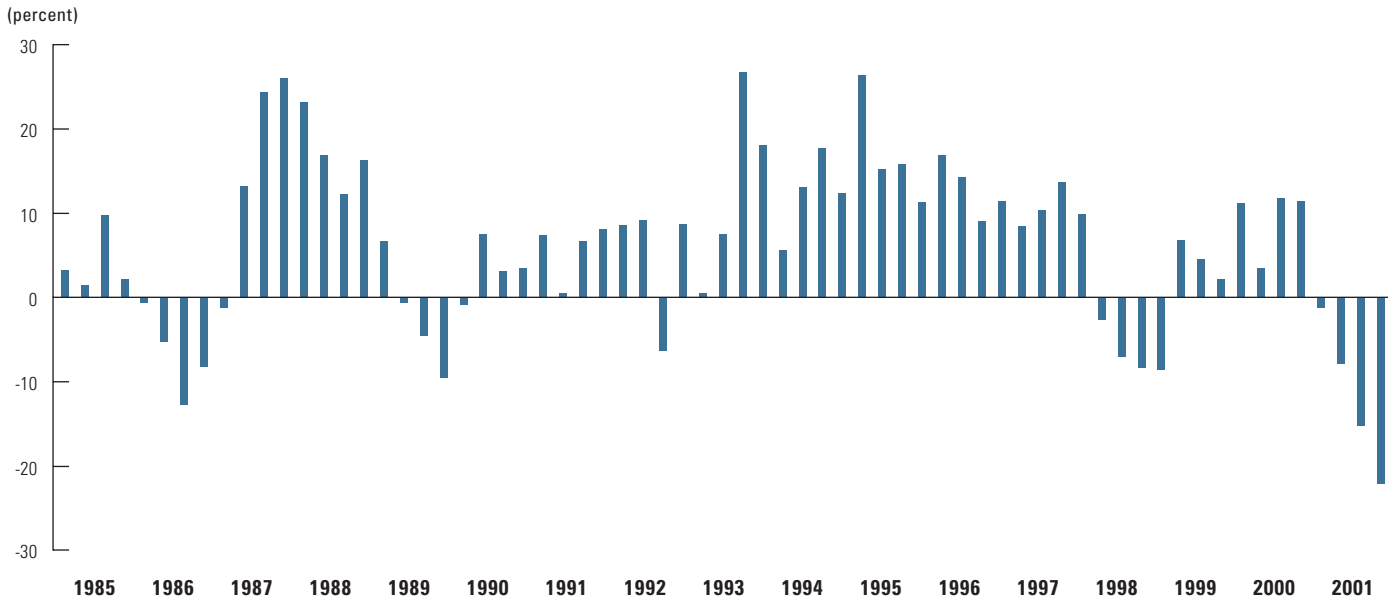
The bear market had dragged on for nearly 18 months when the September 11 attacks on the World Trade Center and the Pentagon rocked financial markets. Bond and equity trading were disrupted by the destruction in New York City. All major stock exchanges were closed for the remainder of the week, the longest closing since 1933.<sup>2</sup> Trading in the bond markets continued but was under severe strain as several bond dealers located in or near the World Trade Center regrouped from the devastating attacks. Mutual funds were not open on September 11, and equity, bond, and hybrid funds were closed for the remainder of the week. However, many money funds opened during the days following September 11.

When the stock exchanges reopened on September 17, equity prices sank on investor uncertainty about how the September attacks would affect corporate earnings. Major stock price indexes declined each day during the week, with losses for the week ranging from 12 to 16 percent. Stock prices rebounded from their September lows through the remainder of the year, but major indexes still posted decreases for the second year in

<sup>2</sup> President Roosevelt declared a banking holiday on March 4, 1933 that lasted through March 14, 1933. The banking holiday suspended all banking activities, including the trading of securities, and closed the stock exchanges.

FIGURE 2

**Growth Rate of Corporate Profits,<sup>1</sup> 1985:Q1–2001:Q3**



<sup>1</sup> Profits are measured as corporate profits with inventory valuation and capital consumption adjustments. The growth rate is computed as a year-over-year percentage change in corporate profits and is plotted at the quarterly frequency.

Source: National Income and Product Accounts, U.S. Department of Commerce

a row. The decline in stock prices during 2001 reflected the sharpest drop in corporate profits in more than 15 years (Figure 2).

The back-to-back decreases in the stock market in 2000 and 2001 were the first since the 1973–74 contraction. Moreover, the market decline from its peak in March 2000 to September 2001 was one of the most severe since the end of World War II (Figure 3).<sup>3</sup> On a month-average basis, stock prices fell 32 percent through September 2001,<sup>4</sup> compared with a 20 percent average decline during the preceding 14 contractions. Only the 43 percent decline of the 1973–74 downturn was deeper than the 2000–01 downturn. In terms of length, the 2000–01 bear market lasted 18 months through September, compared with an average length of 14 months. Only the 1973–74 and the 1946–49 downturns lasted longer.

Investors in foreign markets were not spared either. Stock markets around the world moved lower with U.S. equity prices after March 2000

(Figure 4), as economies around the world also suffered from a slowdown. In the immediate aftermath of the September attacks, stock prices fell 8 percent in Europe and were down about 5 percent in the Asia/Pacific region.<sup>5</sup> Stock prices generally rose afterward, less so in the Asia/Pacific region where the ongoing contraction in the Japanese stock market held down stock market indexes.

**EFFECTS OF STOCK MARKET DECLINE ON EQUITY FUNDS IN 2001**

The persistence of the 2000–01 bear market and the downturn in September 2001 eroded equity fund asset values, and investors held back on

<sup>3</sup> There is no standard definition of a bear market. The analysis in this paper draws on previous work by John Rea and Richard Marcis, “Mutual Fund Shareholder Activity During U.S. Stock Market Cycles, 1944–95,” *Perspective*, Vol. 2, No. 2, March 1996, Investment Company Institute for dating cycles between 1944 and 1980. In that paper, the authors use monthly averages of the daily S&P 500 index, which is the only broad-based index with daily values for the entire time period, to date cycles. Daily values for the Wilshire 5000 index are available since 1979. For contractions after 1979, the Wilshire 5000 index is used to measure the severity of the contractions. This index is a broader measure of stock prices than the S&P 500 index, capturing nearly 100 percent of the stock market capitalization compared with 80 percent for the S&P 500 index. The peaks and troughs of cycles using these two indexes match closely until the late 1990s, when the performance of large-capitalization stocks and small-capitalization stocks began to diverge considerably. In 2000, the monthly average of the Wilshire 5000 index peaked in March, whereas the S&P 500 peaked in August. March 2000 is used as the market peak in this report because the Wilshire 5000 is the broader measure, and it is also when the Nasdaq index peaked, marking the end of the bull run in large-capitalization growth stocks. All issues of *Perspective* are available on ICI’s website at [www.ici.org/economy/perspective.html](http://www.ici.org/economy/perspective.html).

<sup>4</sup> Stock prices are measured by the Wilshire 5000 index, the broadest measure of U.S. stock prices.

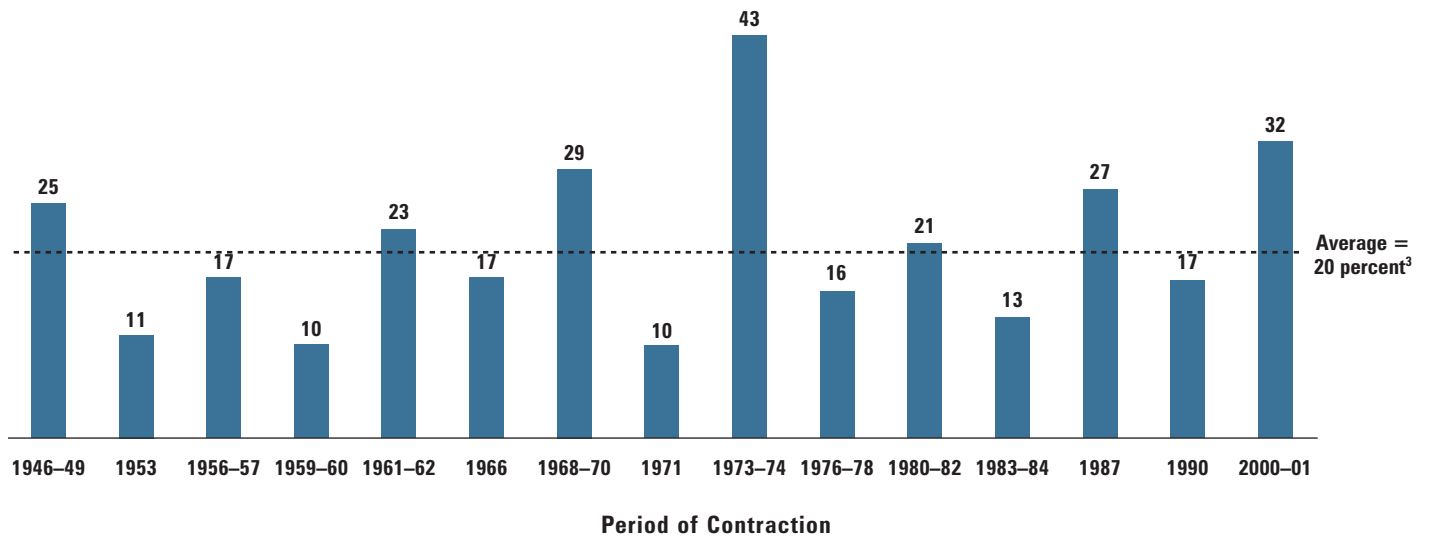
<sup>5</sup> Foreign stock price movements are measured by the Morgan Stanley Capital International index for each region. The indexes are measured in local currencies.

FIGURE 3

Measures of Stock Market Contraction Severity, 1946–2001<sup>1,2</sup>

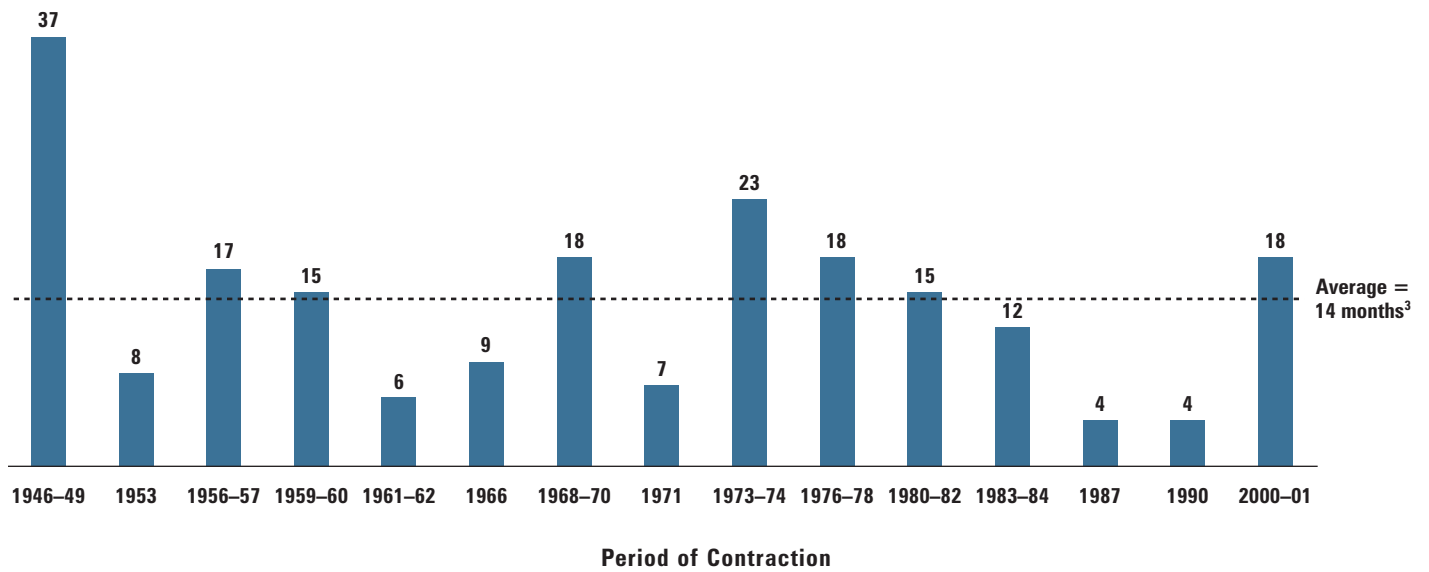
Percent Decline in Broad Market Index

(decline as a percent of month-average peak level)



Duration of Contraction

(months)



<sup>1</sup> See text footnote 3 for a discussion of the methodology used to date bear markets and measuring the percentage decline in prices.

<sup>2</sup> Duration and percent decline in stock market for the 2000–01 contraction is measured through September 2001.

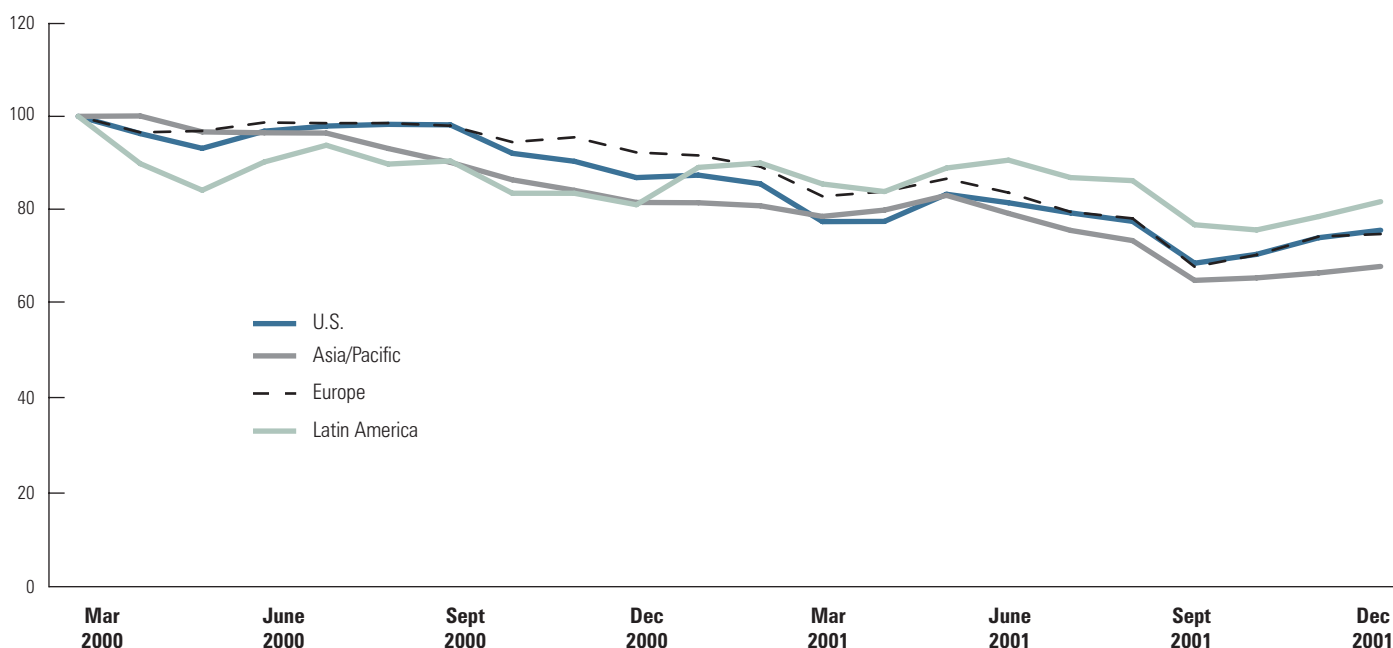
<sup>3</sup> Averages do not include the 2000–01 contraction.

Sources: Investment Company Institute, Standard and Poor's, and Wilshire Associates

FIGURE 4

### International Stock Market Indexes,<sup>1</sup> March 2000–December 2001

(month-average level)



<sup>1</sup> The U.S. stock market is represented by the Wilshire 5000 index. The Europe and Asia/Pacific stock markets are represented by the Morgan Stanley Capital International (MSCI) AC Europe and AC Asia/Pacific Free indexes, respectively. The Latin America stock market is represented by the MSCI EMF Latin America index. The foreign indexes are measured in local currencies.

Note: All indexes are set to 100 in March 2000.

Sources: Bloomberg, Morgan Stanley Capital International, and Wilshire Associates

purchases of equity fund shares. At the low point in September, equity fund assets fell to \$3.0 trillion, down 24 percent from the end of 2000 and off 32 percent from the stock market peak in March 2000. Equity fund assets rose with stock prices through the remainder of the year and by the end of December reached \$3.4 trillion. Net new cash flow slowed to \$32 billion in 2001, down from a record \$309 billion in 2000 (Figure 5).

**Domestic Equity Funds.** Net new cash flow to domestic equity funds totaled \$54 billion in 2001, down from \$260 billion in 2000. The weakness in 2001 reflects a pattern that began in early 2000 when net new cash flow to domestic equity funds first slowed (Figure 6). The reduced 2001 inflows were concentrated in funds with growth-oriented objectives.

The slowdown in net flow during the 2000–01 bear market was in line with how investors responded to market fluctuations during the 1990s. To gauge how shareholders on average reacted to stock market movements during this period, a statistical model is constructed to estimate equity

fund flows from 1990 through 1999.<sup>6</sup> Net new cash flow, measured as a percentage of prior month-end assets, is correlated with stock market movements and with inflows from prior months. The model is estimated based on these correlations to determine the level of net flows expected in 2000 and 2001, assuming that shareholders acted as they had during the previous 10 years. Actual net flows do not match perfectly with the flows forecasted from the model, but how closely they track provides evidence of whether current shareholder activity is consistent with past behavior.

On balance, investor net flows were close to those that would have been expected based on

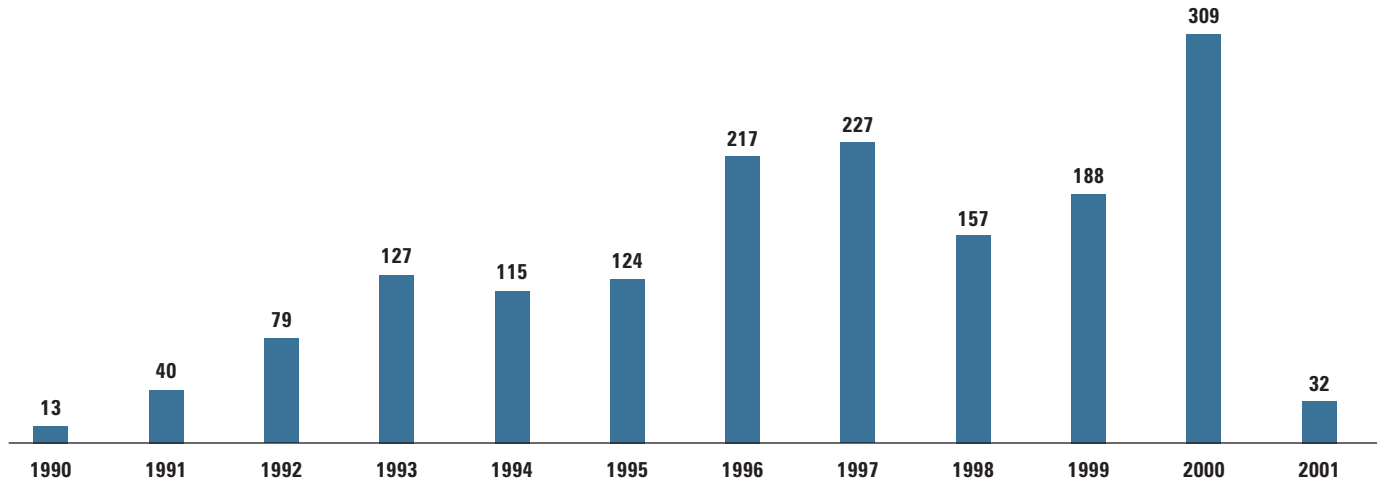
<sup>6</sup> Our analysis is similar to models found in Eric M. Engen and Andreas Lehnert, “Mutual Funds and the U.S. Equity Market,” *Federal Reserve Bulletin*, December 2000; and Vincent A. Warther, “Aggregate Mutual Fund Flows and Security Returns,” *Journal of Financial Economics*, Vol. 39, October 1995, pp. 209-35. See the Appendix for details on the modeling of domestic equity fund flows. Warther finds that mutual fund flows, when measured as a share of fund assets, were more volatile in the 1980s than during the 1990s. Engen and Lehnert find that the response of shareholders to stock market downturns moderated during the 1990s compared with the reaction in the 1980s. Because of the change in investor behavior, the models were estimated from 1990 through 1999.

FIGURE 5

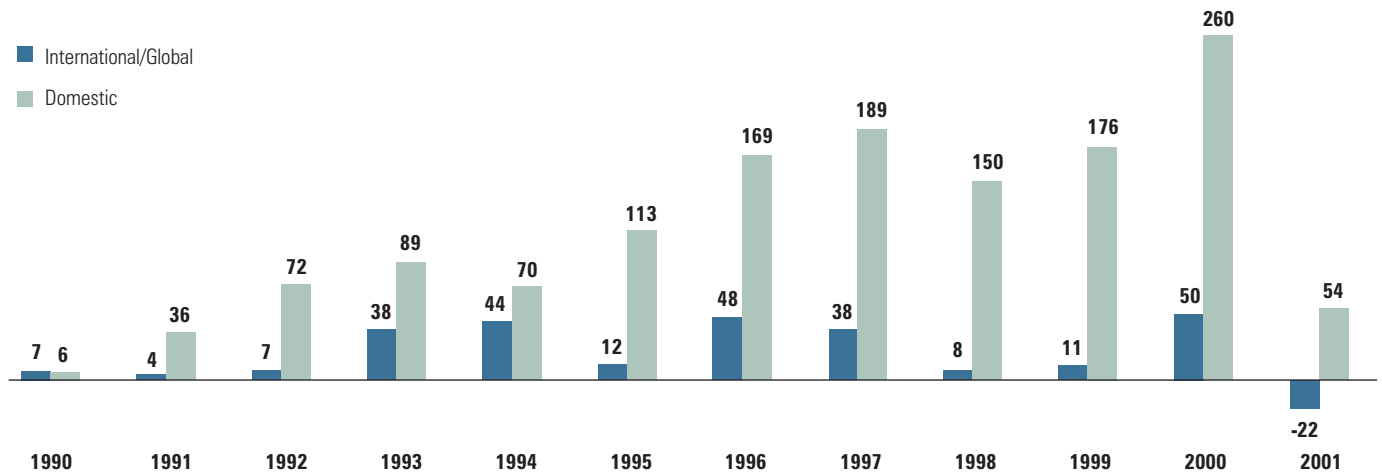
### Net New Cash Flow to Equity Mutual Funds, 1990–2001

(billions of dollars)

#### Total



#### Domestic and International/Global<sup>1</sup>



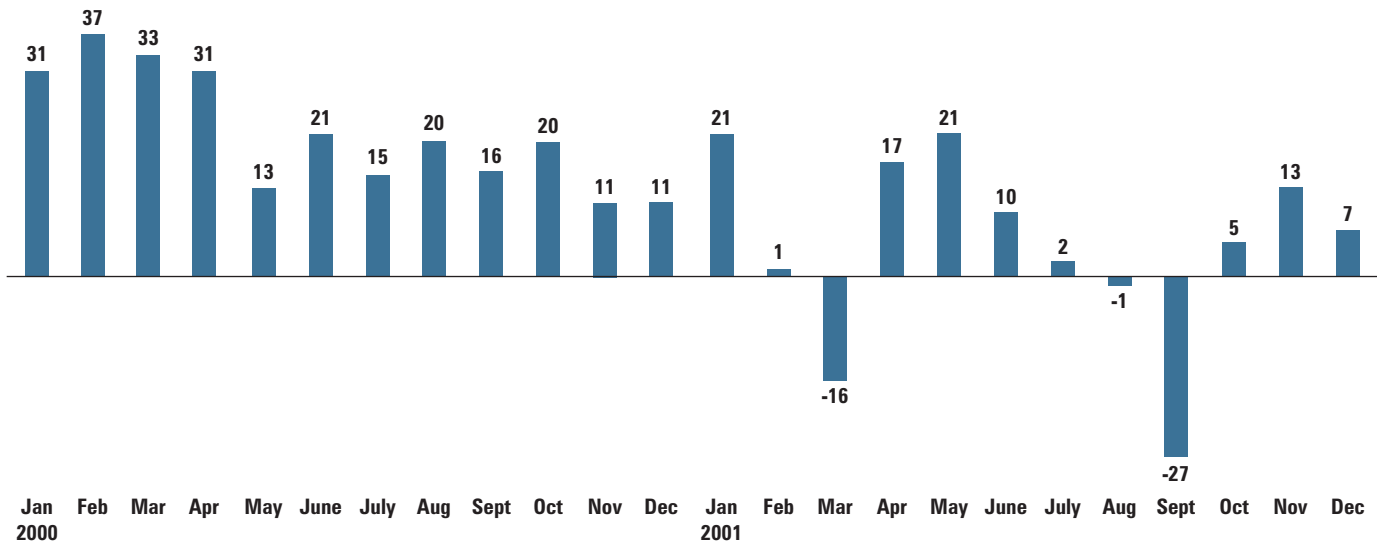
<sup>1</sup> Domestic and international/global flows may not sum to the total because of rounding.

Source: Investment Company Institute

FIGURE 6

**Net New Cash Flow to Domestic Equity Funds, January 2000–December 2001**

(billions of dollars)

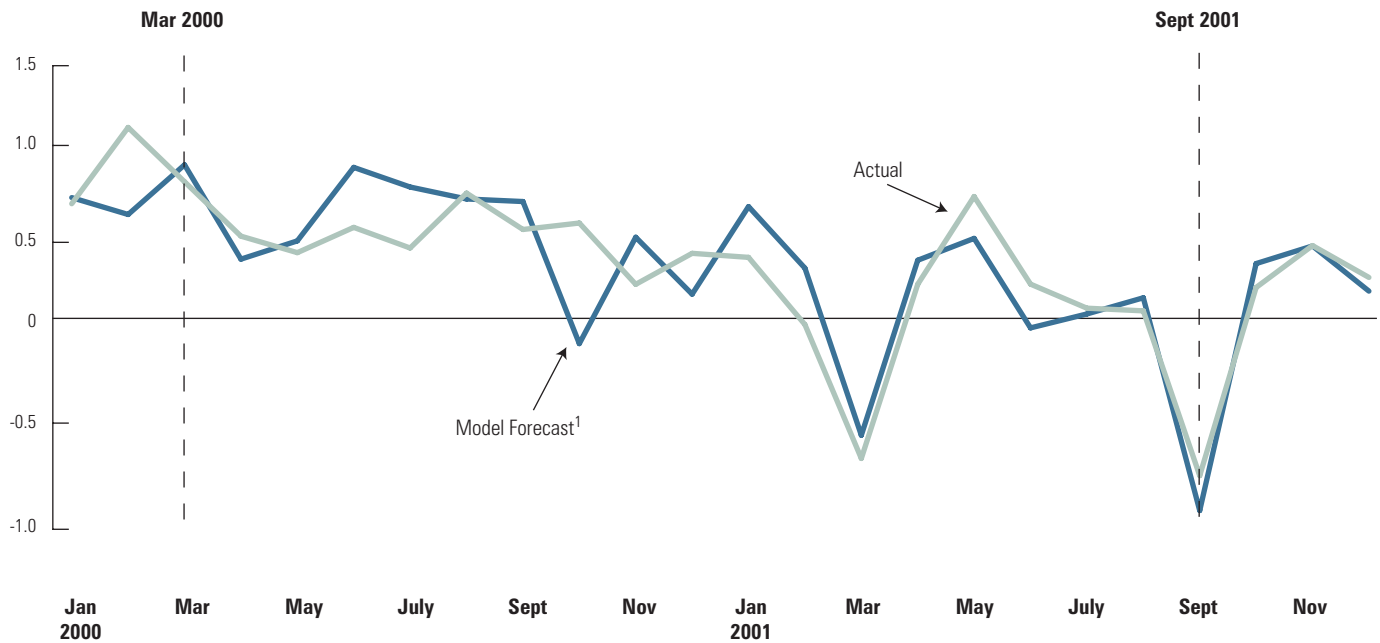


Source: Investment Company Institute

FIGURE 7

**Actual and Forecasted<sup>1</sup> Net New Cash Flow to Domestic Equity Funds, January 2000–December 2001**

(percent of previous month-end assets)



<sup>1</sup> See the text Appendix for a discussion of the net new cash flow model.

Source: Investment Company Institute

past behavior (Figure 7), indicating that investor reaction to the stock market downturn was not unusual. As the stock market declined between March 2000 and September 2001, the model forecasted net new cash flow to slow. Actual net cash flows declined over this period in accordance with the model forecast. In most months, actual flows were close to those expected by the model, including months when there were large downturns in the stock market such as March and September of 2001. On balance, actual flows were only \$5 billion greater than expected flows from April 2000 through September 2001.

Further insight into shareholder behavior is gained by examining the two components of net new cash flow: sales and redemptions.<sup>7</sup> As with net new cash flow, sales in any given month can be explained by the change in the stock market during that month and sales in prior months. A similar model can be constructed for redemptions. Both series were generally in line with what might have been expected based on past behavior (Figure 8). They trended down in the months after the market peak in March 2000, with sales showing a more pronounced decline. Sales and redemptions were stronger than expected before the market peak, and both were generally weaker than expected after the bear market began.

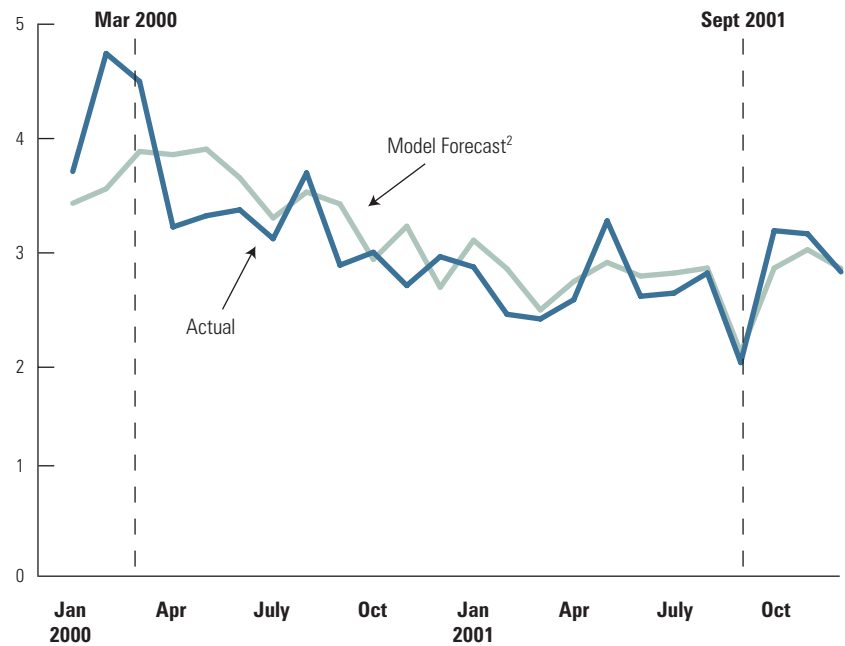
### Shareholder Reaction to September 11.

Shareholder reaction to September 11 was muted, as the pace of outflows from domestic equity funds after the attacks rose modestly relative to outflows occurring during the first 10 days of September. Leading up to September, net new cash flow to domestic equity funds had slowed as falling stock prices during the summer continued to reduce investor demand for additional shares. The July inflow was \$2 billion, and in August there was an outflow of \$1 billion. The outflow picked up over the first 10 days of September, and, had this pace continued, the September

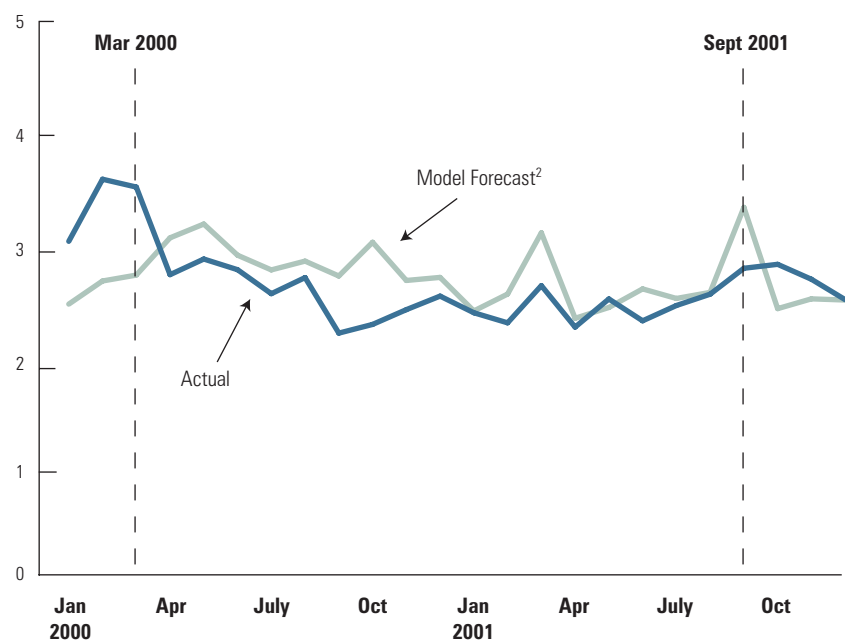
FIGURE 8

## Actual and Forecasted Sales and Redemptions of Domestic Equity Funds,<sup>1</sup> January 2000–December 2001 (percent of previous month-end assets)

### Sales



### Redemptions



<sup>1</sup> Sales are measured as new sales plus sales exchanges, and redemptions include redemption exchanges. Both series are scaled by previous month-end assets of domestic equity funds.

<sup>2</sup> See the text Appendix for a discussion of the models.

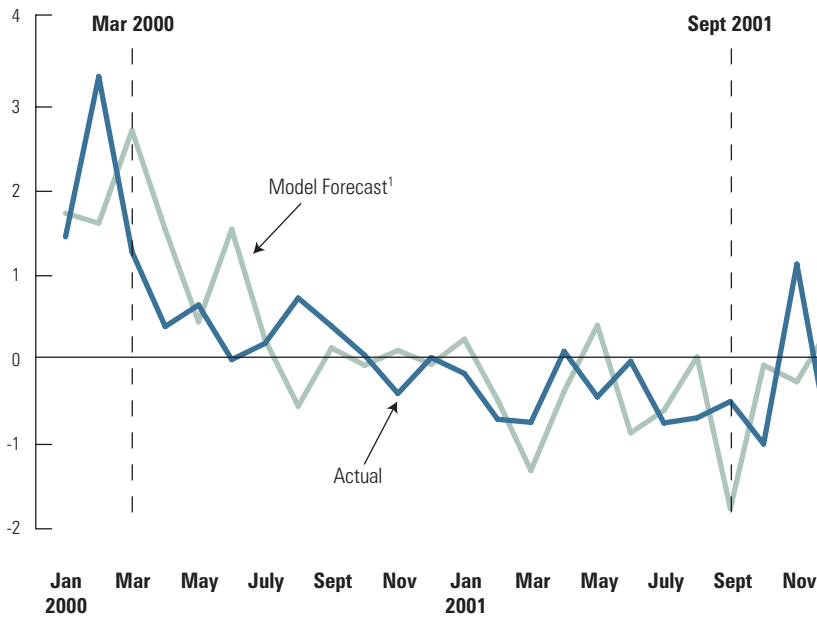
Source: Investment Company Institute

<sup>7</sup> See the Appendix for further details of the models used to estimate sales and redemptions. Sales equal new sales and sales exchanges. Redemptions equal regular redemptions and exchange redemptions.

FIGURE 9

**Actual and Forecasted Net New Cash Flow to Foreign Equity Funds, January 2000–December 2001**

(percent of previous month-end assets)



<sup>1</sup> See the text Appendix for a discussion of the model.

Source: Investment Company Institute

outflow would have totaled roughly \$15 billion. For the month as a whole, net outflow totaled \$27 billion, \$12 billion greater than what would have been expected had the pace of flows before September 11 continued. This outflow in September represented 0.9 percent of August month-end domestic equity fund assets. The September outflow was largely the result of a drop in sales, which fell in line with what would have been expected based on past shareholder behavior. Redemptions of domestic equity funds picked up a bit for the month, but less than suggested by the model forecast.

**Foreign Equity Funds.** Assets in U.S. mutual funds that primarily invest in companies outside the U.S. declined by 21 percent in 2001 to \$429 billion. These funds experienced outflows totaling \$22 billion in 2001. The weaker demand for these funds continued a pattern begun in 2000, when foreign equity markets moved lower with U.S. markets and when many foreign currencies declined relative to the U.S. dollar. Falling equity prices abroad and a further depreciation of foreign currencies in

2001 held down the performance of foreign equity funds.

Investors in foreign equity funds behave much the same as investors in domestic funds. Sales and redemptions are highly correlated and respond to changes in foreign stock prices. A model can be constructed for foreign equity fund flows that is similar to that used for domestic funds.<sup>8</sup> When actual flows and those computed by the model are compared, a pattern resembling the one for domestic equity funds emerges. Net new cash flow slowed after March 2000 as foreign equity prices declined (Figure 9). The cumulative difference between actual and expected flows through September 2001 was close to zero, indicating that investors in these funds did not react unusually during the current market downturn.

An examination of foreign equity fund flows leading up to September also suggests that the events of September 11 did not cause a significant increase in net outflows. In July and August, outflows from foreign equity funds had widened to a \$3.6 billion monthly pace. Outflows during the first 10 days of September are estimated to have totaled about \$2 billion, compared with the \$3 billion that actually flowed out of foreign equity funds during the month.

**BOND AND HYBRID FUNDS**

Following two years of weak investor demand, net new cash flow to bond and hybrid funds strengthened in 2001. Bond funds received a net inflow of \$87 billion, reversing a \$50 billion outflow in 2000 (Figure 10). The 2001 inflow was the largest since 1986, and helped boost bond fund assets to a record \$924 billion at year-end 2001. Net inflow to hybrid funds—funds investing in stocks and bonds—totaled \$10 billion, also a strong

<sup>8</sup> See the Appendix for further details on the model of foreign equity fund flows.

turnaround from the \$31 billion outflow in 2000. Assets stayed flat at \$346 billion, reflecting the weak performance of stocks during the year.

**Bond funds.** The increase in net new cash flow to bond funds during 2001 largely reflects the typical cyclical response to the increase in the return on bonds, as occurred in 2000 and 2001. During periods of falling interest rates, bond prices rise and lift the return on bonds and bond funds alike (Figure 11). Intermediate- and long-term interest rates had started to decline in the second half of 2000. As the Federal Reserve began to cut short-term rates in early 2001, yields on high-grade notes continued to decline. By mid-year, the yield on the five-year Treasury note had fallen to around 4.75 percent, more than a percentage point below its autumn-2000 level.

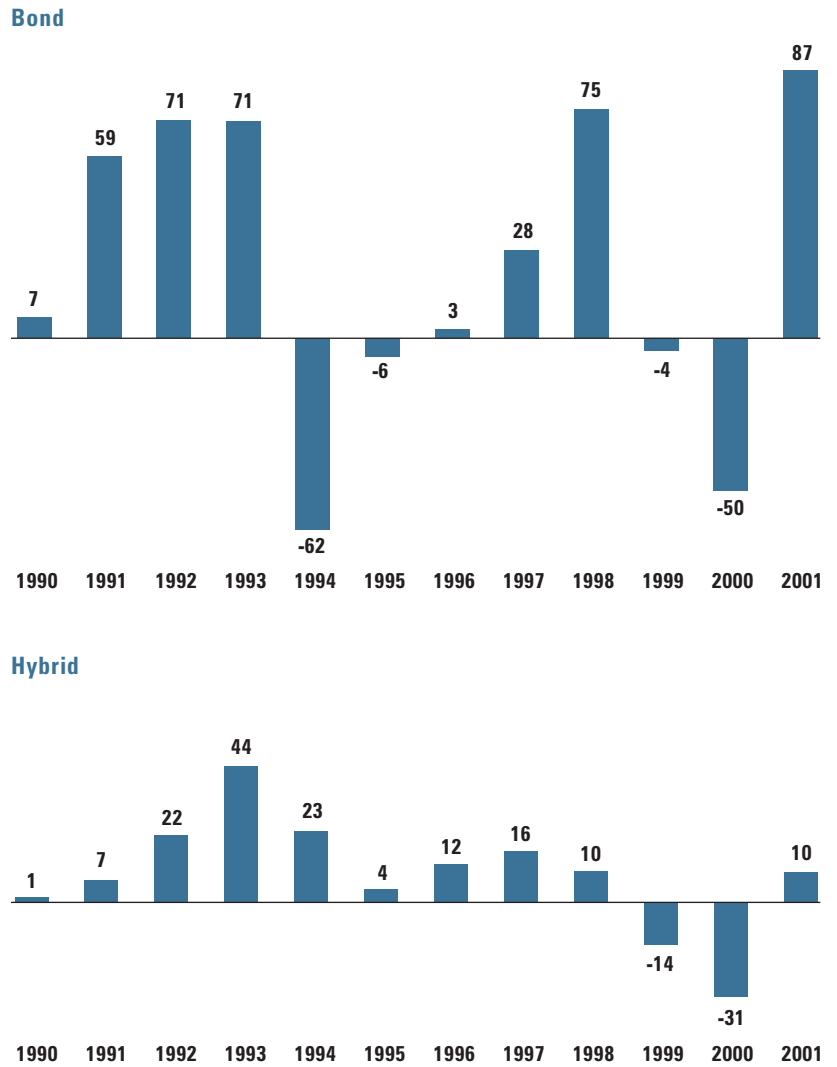
Net flow to bond funds totaled \$35 billion through the end of June 2001, with taxable funds receiving \$31 billion. The net flow was concentrated in government, mortgage-backed, and strategic-income funds, which collectively posted an inflow of \$21 billion. The heavy investment of these funds in U.S. Treasury and agency debt benefited their returns the most as interest rates fell. High-yield bond funds recorded a net inflow of \$5 billion through June. Most of this inflow, however, occurred in January and February. Thereafter, the inflow weakened as high-yield interest rates moved back up in the face of heightened credit concerns.

Interest rates on high-grade notes declined during the summer, as the economy slowed and the Federal Reserve continued to ease monetary policy. As interest rates fell, bond fund flows picked up. Net flow in July rose to \$9 billion, and in August bond funds received nearly \$17 billion of net new cash. During the first 10 days of

FIGURE 10

**Net New Cash Flow to Bond and Hybrid Funds, 1990–2001**

(billions of dollars)

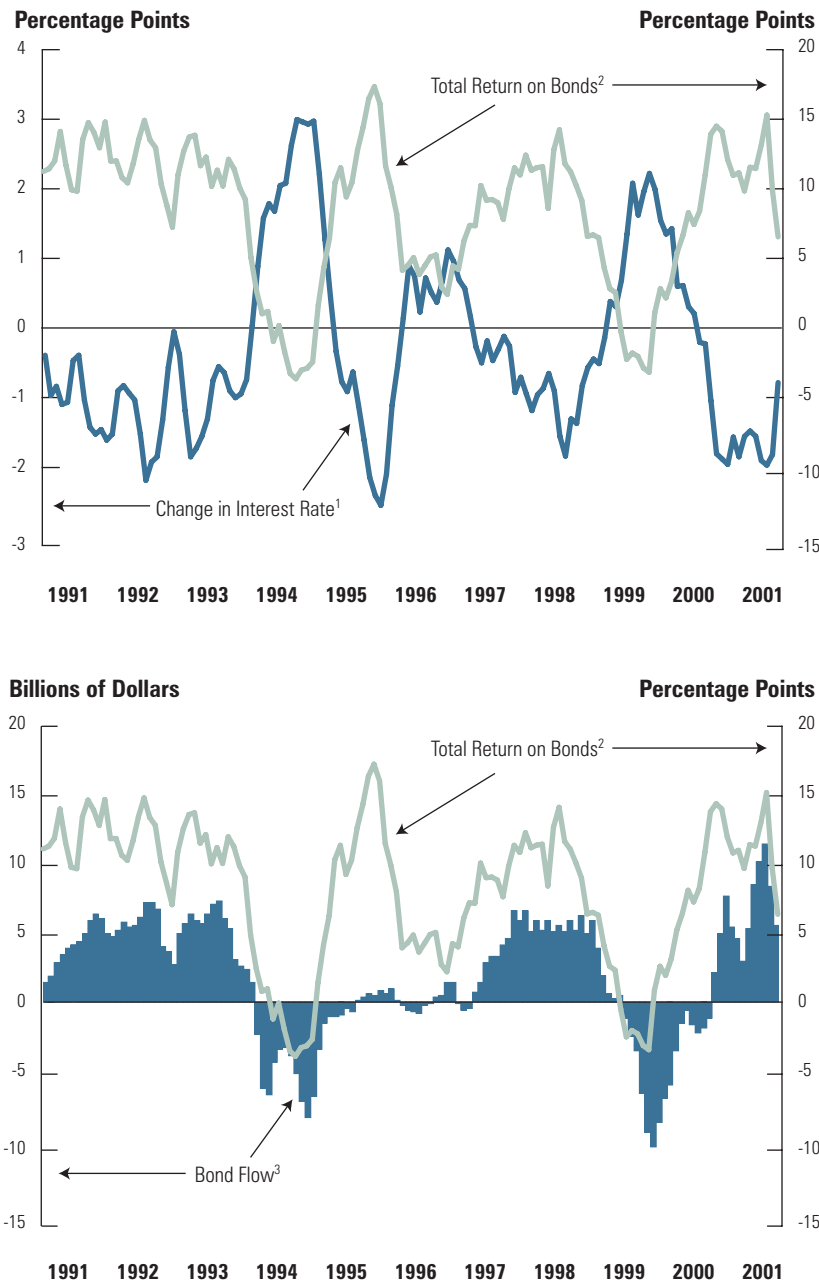


Source: Investment Company Institute

September, the inflow ran at a monthly pace of \$15 billion and was concentrated in funds investing in government and strategic-income funds. The inflow slowed a bit immediately after September 11 and totaled \$8 billion for the month. Inflows remained robust through the end of the year, and investors concentrated their purchases in funds investing in U.S. Treasury and agency debt.

FIGURE 11

**Changes in Interest Rate, Returns on Bonds, and Net New Cash Flow Into Bond Funds, 1991–2001**



<sup>1</sup> Year-over-year change in yield on five-year constant maturity Treasury note.  
<sup>2</sup> Year-over-year percentage change in JP Morgan Government Bond Index (U.S.).  
<sup>3</sup> Net new cash flow to bond funds is plotted as a three-month moving average.  
 Sources: Investment Company Institute, Federal Reserve Board, and Bloomberg

**Hybrid funds.** Inflows to hybrid funds occurred despite negative returns. Hybrid fund flows, like bond fund flows, are heavily influenced by interest rates. As interest rates declined in 2000 and 2001, outflows from hybrid funds turned to inflows. Balanced and income-mixed funds experienced the largest turnarounds. Balanced funds, which had an outflow of \$12 billion in 2000, had an inflow of \$10 billion in 2001. Net flows to income-mixed funds rose to nearly \$3 billion from an outflow of \$8 billion in 2001.

**MONEY FUND FLOWS**

Money fund assets rose almost 30 percent in 2001 to \$2.3 trillion, with most of the increase reflecting a record net new cash flow of \$375 billion (Figure 12). The larger inflow was entirely attributable to institutional funds, which are held by pension plans, businesses, state and local governments, and other investors with large balances. These funds received a record \$339 billion of net new cash in 2001, nearly three times the previous record set in 2000. Retail funds, which are largely held by individuals, had a net inflow of \$36 billion, the lowest annual flow since 1994.

**Institutional Flows.** Net flows to institutional funds have been rising steadily since the mid-1990s, but the substantial increase in 2001 largely reflects the increased demand for money funds by institutional investors seeking higher yields when short-term interest rates fall. The Federal Reserve's 11 interest rate cuts pushed down short-term interest rates at the most rapid pace since the early 1980s. During periods of falling interest rates, institutional money funds typically experience stronger inflows because their yields—which are based on earlier-acquired securities—tend to lag market interest rates.

The unusually large and rapid nature of the Federal Reserve's interest rate cuts resulted in institutional money fund yields often exceeding overnight interest rates during 2001. Institutional money fund yields averaged only six basis points less than overnight rates, and the yield spread was positive for 17 weeks intermittently throughout the year. Yields on these funds were, on average, 30 basis points less than overnight interest rates between 1995 and 2000, largely reflecting the cost of operating the fund.<sup>9</sup> Institutional investors, wanting liquidity, placed their balances in money funds rather than directly in the money market to pick up the interest-rate premium. The narrowing of the spread is estimated to have boosted institutional money fund flows by an estimated \$100 billion.<sup>10</sup>

Although much of the increase in net new cash was attributable to falling interest rates, the underlying growth in demand showed no signs of slowing. Annual inflows to institutional money funds have averaged 23 percent of assets since 1994, as businesses and other institutions increasingly have turned to money funds for cash management to benefit from the scale economies, liquidity, and diversification provided by mutual funds. State and local governments have also relied more heavily on money funds in recent years. One cause of this is that several large states—including Texas, Ohio, and New Jersey—relaxed regulations in the mid-1990s that had prohibited municipalities and state agencies from investing in money market funds.

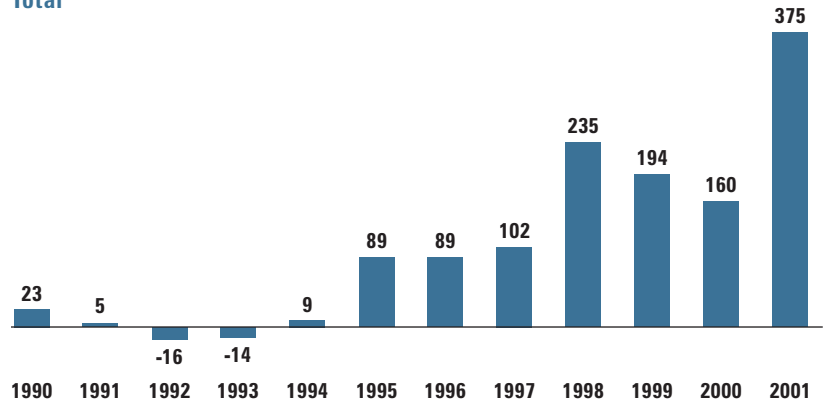
**Retail Flows.** Inflows to retail money funds totaled only 3 percent of assets in 2001, compared with an average annual pace equaling 9 percent of assets between 1995 and 2000. The slowdown in

FIGURE 12

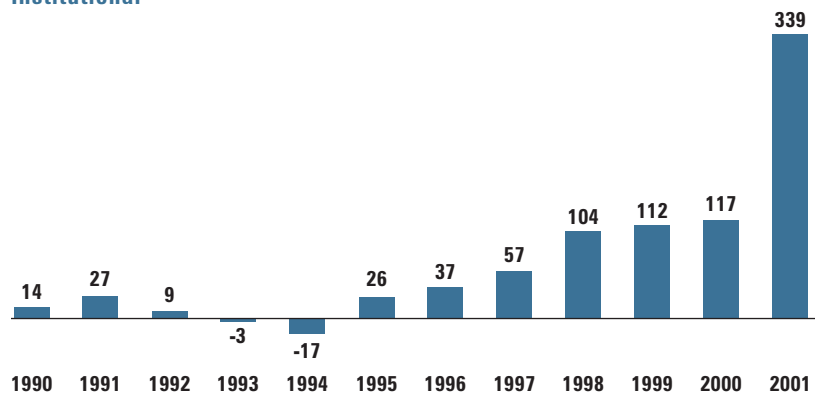
**Net New Cash Flow to Money Market Funds, 1990–2001**

(billions of dollars)

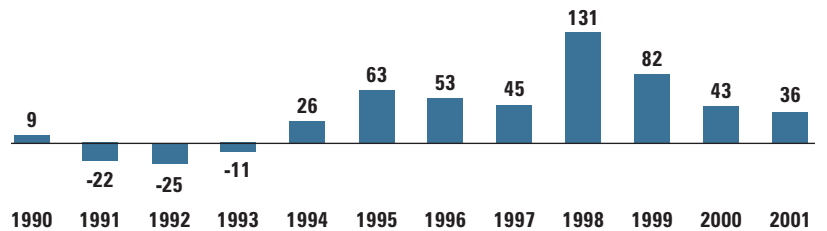
**Total**



**Institutional**



**Retail**



Note: Institutional and retail flows may not add to total because of rounding.

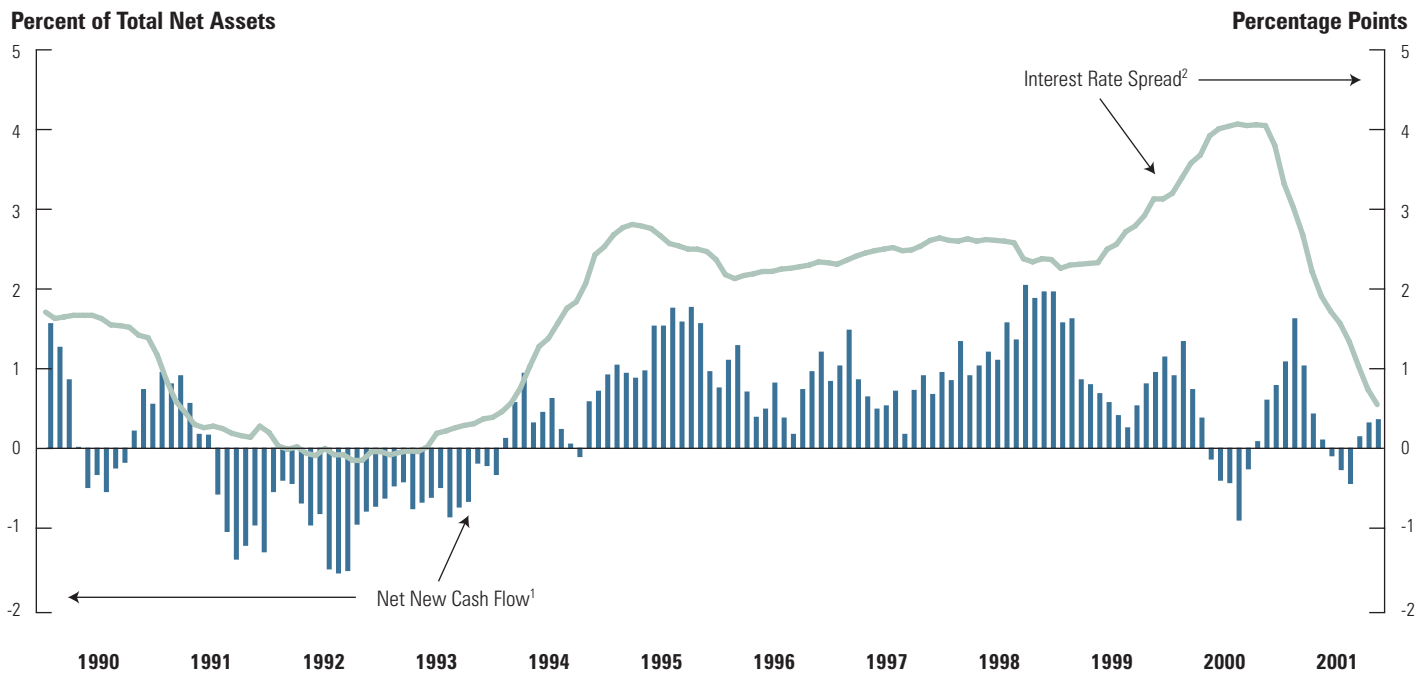
Source: Investment Company Institute

<sup>9</sup> Mutual funds invest in a variety of short-term money market instruments that earn returns somewhat greater than that on overnight repurchase agreements. The average maturity on institutional money funds was 46 days between 1995 through 2000. The return on 30-day high-grade commercial paper averaged about 37 basis points more than the average return on institutional money funds over this period, which is equal to the simple average operating expense ratio for these funds in 1997. See John Rea and Brian Reid, "Total Shareholder Cost of Bond and Money Market Mutual Funds," *Perspective*, Vol. 5, No. 3, March 1999, Investment Company Institute for a discussion of operating costs on money funds.

<sup>10</sup> See Appendix for a discussion of the model used to estimate institutional money fund flows.

FIGURE 13

Interest Rate Spread and Net New Cash Flow to Taxable Retail Money Market Funds, 1990–2001



<sup>1</sup> Net new cash flow is as a percent of taxable retail money market fund assets and is shown as a six-month moving average.

<sup>2</sup> The interest rate spread is the difference between the taxable retail money market fund yield and the average interest rate on money market deposit accounts.

Sources: Investment Company Institute, iMoneyNet, and Bank Rate Monitor

retail money fund flows was in part attributable to the narrowing of the spread between money fund yields and savings deposit interest rates (Figure 13).<sup>11</sup> Since the mid-1990s, investors in retail taxable money funds earned, on average, more than 2.5 percentage points above savings deposit rates. This wide yield difference encouraged retail investors to shift a larger portion of their short-term assets into money funds. However, the yield spread began to narrow early in 2001 when money fund yields fell more quickly than interest rates on savings deposits, and retail investors reduced their demand for money fund shares.

Another factor contributing to the slowdown in retail money fund flows was brokerages' increased use of bank deposits for retail sweep accounts in place of money funds. The practice began in 2000 and continued in 2001. This increased reliance on bank deposits for retail sweeps and the narrowing of the yield spread held down inflows by an estimated \$130 billion in 2001 from what they would have otherwise been.<sup>12</sup>

The weaker inflows associated with these two factors was only partly offset by stronger flows attributable to the downturn in the stock market. Historically, market downturns have been associated with modest inflows to money funds. For instance, a model of taxable retail money market flows suggests that a 10 percent decline in stock prices in any given month in 2001 would have led to an expected \$22 billion increase in taxable retail money fund flows for that month.<sup>13</sup> Because the same increase in stock prices does not lead to a significant outflow from money funds, money funds would normally receive stronger-than-usual flows during a year when there are several months when the market is down substantially. The stock

<sup>11</sup> Interest rates on money market deposit accounts are used as the measure of interest rates on savings deposit accounts.

<sup>12</sup> This estimate is based on a model of taxable retail money fund flows, which is discussed in the Appendix, and is relative to the flows that these funds would have received if the yield spread had remained near its 1995–2000 average.

<sup>13</sup> See the Appendix for the model used to estimate retail money fund flows.

market fell in six months during 2001, boosting taxable retail money fund flows by an estimated \$64 billion more than if stock prices had not declined.

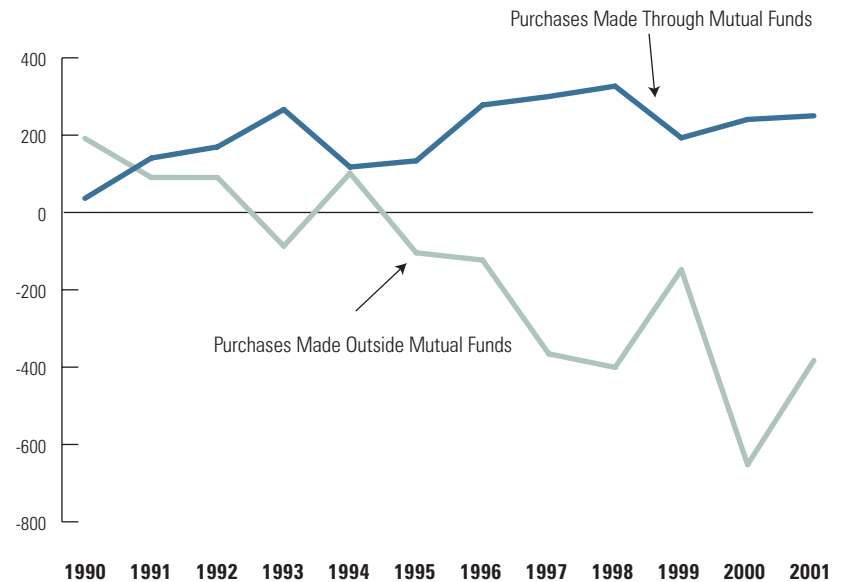
## ALTERNATIVE MANAGED INVESTMENT PRODUCTS

Despite the increased availability of alternatives to mutual funds such as exchange-traded funds (ETFs) and separately managed accounts (SMAs), these products thus far appear to have had a very modest effect on the demand for mutual funds. U.S. households continued to be net buyers of stocks and bonds through mutual funds in 2001 and net sellers of long-term securities held outside mutual funds (Figure 14). This activity continued a shift toward owning securities through mutual funds that has been in place for nearly a decade. In 2001, households acquired an estimated \$120 billion of equities through mutual funds while on net selling an estimated \$261 billion of stocks held outside mutual funds.<sup>14</sup> They also acquired an estimated \$130 billion of bonds through funds and on net sold an estimated \$122 billion of bonds held outside of mutual funds.

**Exchange-Traded Funds.** An ETF is either an open-end investment company or a unit investment trust whose shares have been authorized by the SEC to trade intra-day on stock exchanges at a market-determined price.<sup>15</sup> Unlike traditional mutual funds, ETFs have two distinct groups of investors—those that acquire ETF shares from the fund and those that acquire them in the secondary market. Institutional investors and brokerage firms may acquire the shares from the fund by depositing a basket of securities that replicates the fund's portfolio with the fund. In return, they receive ETF shares that may be traded on an

FIGURE 14

**Net Purchases of Long-Term Securities by Households, 1990–2001**  
(billions of dollars)



Sources: Federal Reserve Board and Investment Company Institute

exchange. This group of investors may also redeem shares in kind with the ETF. The other group of investors buy or sell ETF shares through a broker just as they would the shares of any publicly traded company.

Measured by net issuance of shares, the demand for ETFs eased in 2001. Net share issuance totaled \$31 billion for the year, down from \$42 billion in 2000. Year-end assets were \$83 billion, up from \$66 billion at the end of 2000, as net issuance offset weak equity prices. The number of funds rose to 102 during 2001, up from 80 at year-end 2000. All ETFs currently offered are equity index funds, tracking either a U.S. stock index or a foreign stock index.

Despite the growth in ETFs in recent years, assets held in these funds are less than those invested in traditional index funds, the mutual fund investment option most comparable to ETFs. Index mutual fund assets stood at \$366 billion at the end of 2001, nearly five times greater than ETF assets. However, net issuance of ETF shares outpaced net new cash flow to index funds in 2001, garnering \$5 billion more than index mutual funds.

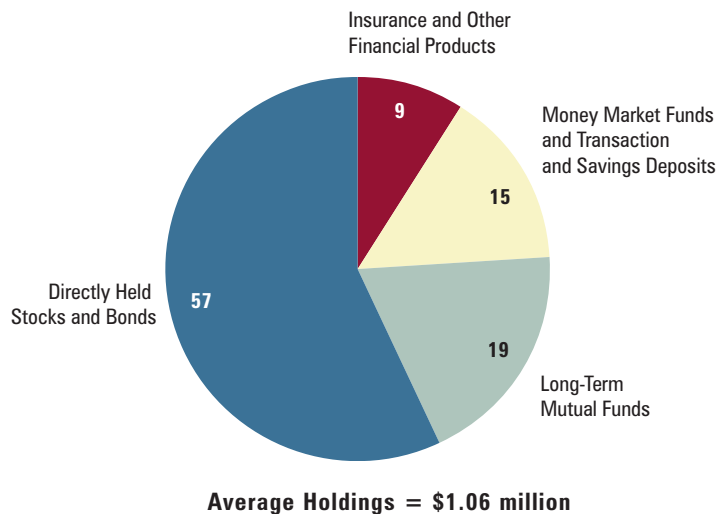
<sup>14</sup> Household purchases of directly held equities and bonds are Investment Company Institute estimates based on data in the *Flow of Funds Accounts of the United States: Flows and Outstandings Third Quarter 2001*, Board of Governors of the Federal Reserve System, Washington DC, December 7, 2001. The *Flow of Funds Accounts* has published data through September 2001. Annual flows were estimated from the flows during the first three quarters of the year.

<sup>15</sup> Trust-issued receipts, such as Holding Company Depository Receipts (HOLDRS), are not included in ETF data because they are not issued by registered investment companies.

FIGURE 15

**Average Household Nonretirement Financial Assets Among the Wealthiest 5 Percent of U.S. Households, 1998**

(percent of nonretirement financial assets)



Source: Federal Reserve Board

ETFs have attracted retail and institutional investors. As of September 2001, roughly 62 percent of ETF assets were held by individual investors,<sup>16</sup> who are using them both for short-term trading strategies and in long-term asset allocation programs. Institutional investors hold the remaining 38 percent of ETF assets, using them partly as a substitute for futures contracts. In addition, some institutional investors have taken advantage of the breadth of index offerings in asset allocation strategies.

**Separately Managed Accounts.** SMAs are investment products that have been available from brokerage firms since the mid-1970s. Money managers for SMAs select securities to achieve a particular investment objective for the individual investor. Through an asset-based fee, the investor pays for the management of the assets along with custody of the securities, financial reports, and trading costs. These products differ from mutual funds in that the investors in SMAs directly own the securities rather than owning a pro rata interest in a pool of securities as is the case with mutual fund shareholders.

Assets in these accounts totaled \$416 billion at the end of 2001, unchanged from the end of 2000 but up from \$161 billion at the end of 1996.<sup>17</sup> Based on the change in assets and the composition of holdings, the net flow to SMAs likely totaled about \$40 billion in 2001.<sup>18</sup> Flows totaled an estimated \$200 billion from 1996 through 2001.

SMAs typically require a large initial investment and thus are designed to manage assets of high-net-worth clients.<sup>19</sup> As a result, inflows to these accounts have, in large part, come from direct holdings of stocks and bonds and have had only a small effect on mutual fund flows. Wealthy investors have traditionally held a large portion of their assets directly in stocks and bonds rather than in mutual funds (Figure 15). For example, the wealthiest 5 percent of U.S. households held 57 percent of their nonretirement financial assets directly in stocks and bonds in 1998 compared with 19 percent held in long-term mutual funds.

**INDUSTRY STRUCTURE**

The number of mutual funds grew by just 165 in 2001 (Figure 16), the smallest increase since 1981. The slowdown in net fund formation reflects several forces. First, the bear market in stocks during 2000 and 2001 dampened the formation of new equity funds. In addition, fund complexes have been merging and liquidating municipal bond funds since the mid-1990s when inflows to these funds began to slacken from the pace set earlier in the decade.

Fund sponsors that were involved in mergers in the past few years have also streamlined their product offerings and combined funds with

<sup>16</sup> Data for the institutional ownership for the five largest ETFs, which accounted for 81 percent of all ETF assets in September 2001, was obtained from Lionshares, FactSet Research Systems Inc. ([www.lionshares.com](http://www.lionshares.com)), which collects the data from Form 13F and other filings with the SEC.

<sup>17</sup> Asset data for SMAs was obtained from the Money Management Institute, Washington, DC ([www.moneyinstitute.com](http://www.moneyinstitute.com)).

<sup>18</sup> Net flows to SMAs are estimated as follows: 80 percent of the assets in SMAs are assumed to be invested in equities with the remaining 20 percent invested in bonds. These asset allocations are based on data reported in "Asset Management: The State of Separate Account Consultant Programs," *The Cerulli Report*, Cerulli Associates, Inc., 2000, p. 112. Year-end equity assets are deflated by the total return on the Wilshire 5000 index for that year, less a 2 percent asset-based fee. Bond assets are adjusted by the return on the Merrill Lynch U.S. Corporate and Government Master Bond Index in each year, less a 2 percent annual asset-based fee. The annual change in the return-adjusted asset levels is equal to the flow for the year. Annual fee data were obtained from *The Cerulli Report*, p. 91.

<sup>19</sup> The average account size of asset managers in separately managed accounts was \$400,000 in 2000. See *The Cerulli Report*, p. 110.

overlapping investment objectives. In 2001, there were 365 mergers of mutual funds. Roughly half of these mergers were between two funds of formerly separate sponsors that had been involved in a merger or acquisition in the past decade.

The mergers and acquisitions of recent years have not increased the concentration of industry assets among the largest mutual fund complexes. Indeed, the concentration of assets among the five and 10 largest complexes has declined slightly in the past few years. The five largest sponsors managed one-third of the industry's assets in 2001, down from 35 percent in 1999 (Figure 17). Assets managed by the 10 largest firms fell to 46 percent of the industry's assets from 50 percent in 1999. Some of the drop is explained by the relative performance of different asset classes. The largest firms have a greater portion of the assets that they manage held in equity funds, which have underperformed bond and money market funds for the past two years. Assets of these fund sponsors have shrunk in size relative to those firms having a larger share of their business in money funds.

## CAPITAL GAIN DISTRIBUTIONS

Mutual funds distributed an estimated \$72 billion in capital gains to shareholders in 2001 (Figure 18), the lowest level since 1995. For comparison, distributions in 2000 were a record \$326 billion. The smaller capital gain distributions in 2001 occurred because falling equity prices reduced the unrealized appreciation that many funds built up in the late 1990s. Most gains are paid from equity funds, and unrealized gains in these funds had grown to an estimated \$1.5 trillion at the end of

FIGURE 16

### Change in Number of Mutual Funds, 1991–2001

	Equity	Taxable Bond	Municipal Bond	Hybrid	Money Market	All Funds
1991	92	74	60	19	79	324
1992	133	115	105	24	44	421
1993	262	178	168	48	56	712
1994	300	153	216	80	43	792
1995	253	63	-1	49	34	398
1996	432	77	-30	56	-9	526
1997	379	43	-48	31	25	430
1998	562	64	-33	24	13	630
1999	439	25	-13	7	19	477
2000	435	-36	-19	-9	-6	365
2001	343	-61	-55	-39	-23	165

Source: Investment Company Institute

1999, or nearly 40 percent of equity fund assets.<sup>20</sup> By September 2001, these gains had been paid out or eliminated by falling stock prices, and unrealized losses in equity funds totaled an estimated \$200 billion or 7 percent of equity fund assets. Should funds realize these losses, they could be used to offset future capital gains.

Equity and hybrid funds accounted for 96 percent of the capital gain distributions in 2001. Households often hold these funds in tax-deferred accounts, such as IRAs, defined contribution plans, and variable annuities.<sup>21</sup> Taxes on capital gain distributions and other earnings in these accounts are then deferred. In 2001, three-quarters of the capital gain distributions paid to households are estimated to have been paid to tax-deferred accounts, up from 66 percent in 2000. The increase was attributable to a larger-than-normal share of the gains paid to funds held by investors of variable annuities.

## RETIREMENT AND EDUCATION SAVINGS AND MUTUAL FUNDS

Mutual fund owners often cite saving for retirement and education as primary financial goals. More than 90 percent of households owning mutual funds surveyed in 2001 listed retirement as a motivation for investing, and one-third cited education as a financial goal.<sup>22</sup> Furthermore,

<sup>20</sup> Embedded capital gains are based on ICI estimates. Net change in assets of equity funds is separated into asset appreciation/depreciation, net new cash flow, and net new fund assets. Capital gain distributions are subtracted each year from the net appreciation to calculate the embedded capital gains.

<sup>21</sup> Distributions from Roth IRAs are not taxed, making these accounts nontaxable rather than tax-deferred.

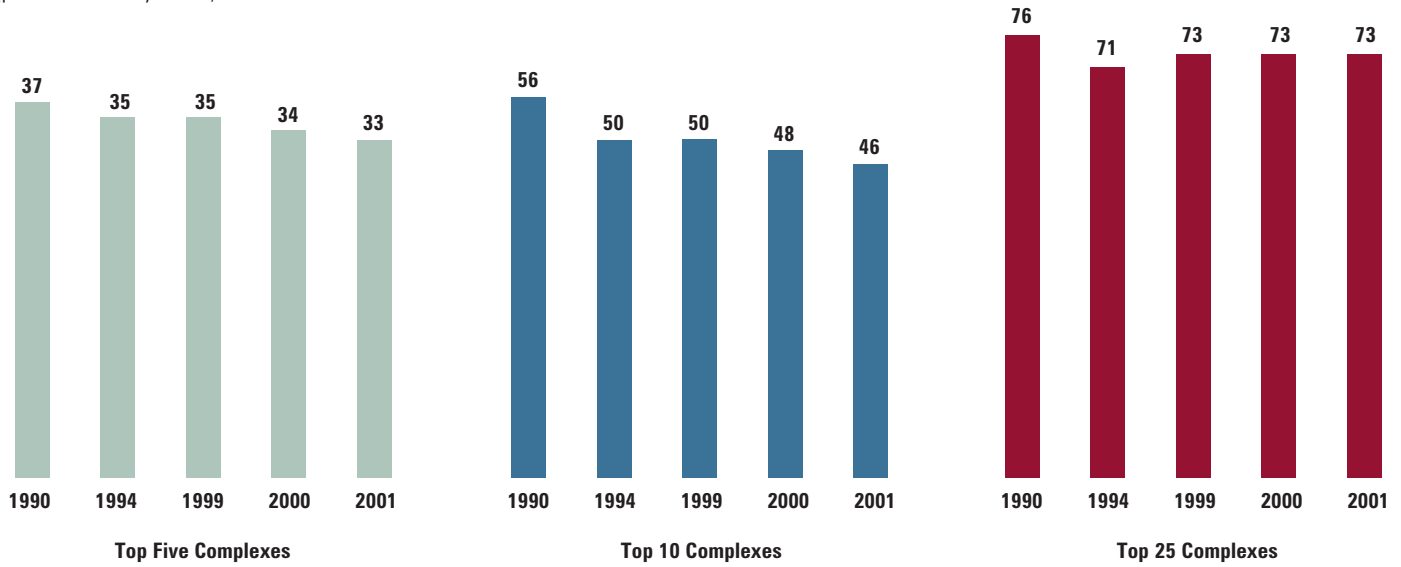
<sup>22</sup> 2001 Profile of Mutual Fund Shareholders, Investment Company Institute, Washington, DC, Fall 2001, p. 6 ([www.ici.org/pdf/rpt\\_profile01.pdf](http://www.ici.org/pdf/rpt_profile01.pdf)).

FIGURE 17

### Share of Assets at the Largest Mutual Fund Complexes, Selected Years

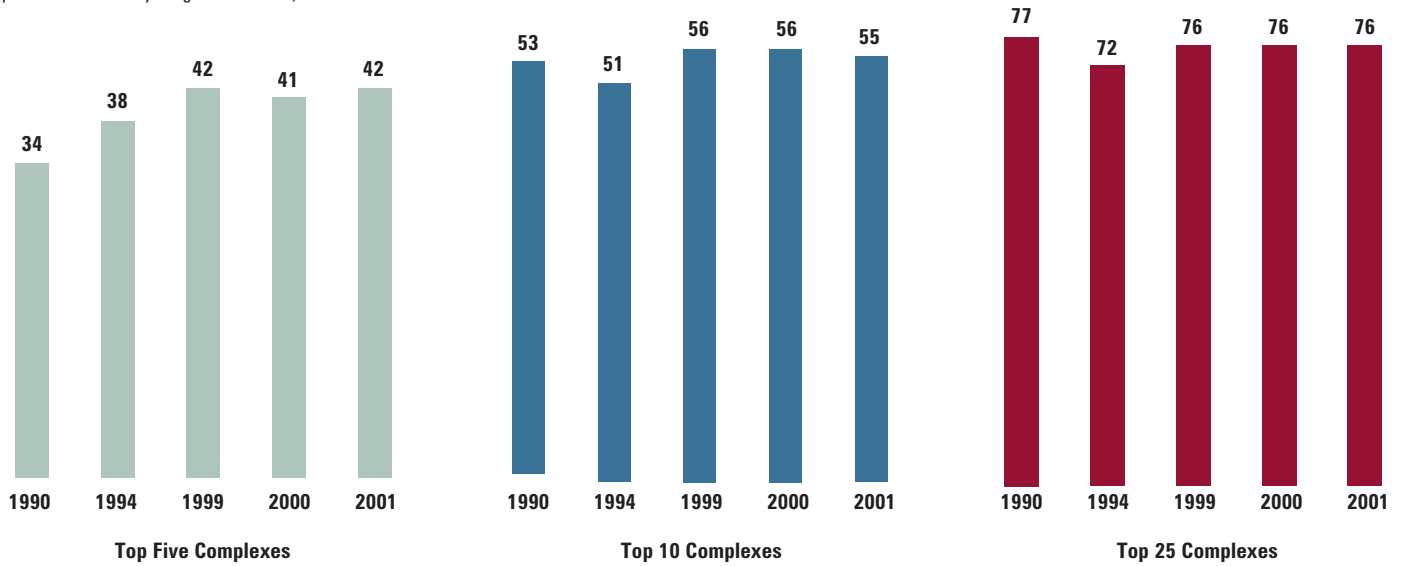
#### Total Assets<sup>1</sup>

(percent of industry assets)



#### Total Long-Term Assets<sup>1</sup>

(percent of industry long-term assets)



<sup>1</sup> Variable annuities are excluded from the calculation of concentration ratios.

Source: Investment Company Institute

other surveys indicate that retirement and education often rank as important motivations for saving among all U.S. households.<sup>23</sup>

**Retirement Savings.** To encourage Americans to increase their preparedness for retirement, Congress included several incentives in the “Economic Growth and Tax Relief Reconciliation Act of 2001” (EGTRRA) to boost retirement savings. EGTRRA contained provisions that increased contribution limits to IRAs and employer-sponsored retirement plans such as 401(k) plans. In addition, “catch-up” contributions to these tax-deferred accounts are now permitted for individuals age 50 and older. Furthermore, EGTRRA increased the ability of participants to roll over account balances among different types of retirement plans.

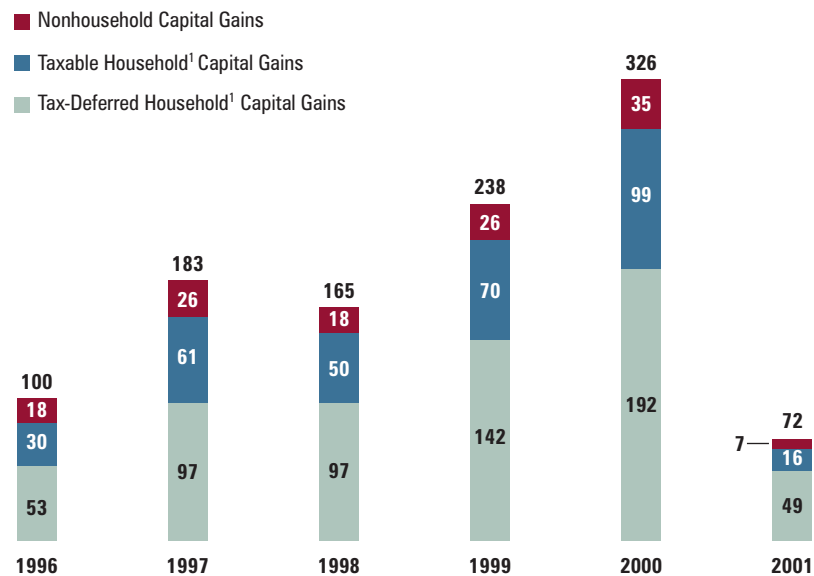
At the end of 2000, approximately 42 million 401(k) plan participants held \$1.8 trillion through their plans, of which \$766 billion, or 43 percent, was invested in mutual funds. Mutual funds are also an important component in other types of retirement plans, such as 403(b) and 457 plans. Mutual fund assets in these and other defined contribution plans totaled \$410 billion at year-end 2000. IRA owners held \$1.2 trillion, or 46 percent, of their \$2.7 trillion of IRA assets in mutual funds.

**Education Savings.** Congress also included several provisions in EGTRRA to encourage education saving among Americans by enhancing the attractiveness of Section 529 savings plans<sup>24</sup> and Coverdell Education Savings Accounts (formerly Education IRAs). The demand for these products had been modest since their introduction

FIGURE 18

**Capital Gain Distributions Paid by Mutual Funds, 1996–2001**

(billions of dollars)



<sup>1</sup> Household assets are assets of all mutual funds other than those due to business corporations, financial institutions, nonprofit organizations, other institutional investors, and fiduciaries.

Note: Amounts may not sum to total because of rounding.

Source: Investment Company Institute

in the 1990s, especially when compared with the annual flows into other tax-deferred accounts such as IRAs and 401(k) plans. The modest demand may have been partly attributable to a lack of familiarity with these products among households and their limited availability. Furthermore, some of the provisions that were originally part of these plans also limited their appeal as education savings vehicles.

Participants in 529 savings plans can make contributions, on an after-tax basis, for a designated beneficiary’s qualified higher education expenses. Some states allow a deduction under state tax law for contributions made to Section 529 plans. Prior to the enactment of EGTRRA, earnings in these accounts were subject to federal income tax at the student’s income tax rate upon withdrawal. However, EGTRRA excludes distributions used for qualified higher education expenses from federal income tax after January 1, 2002.

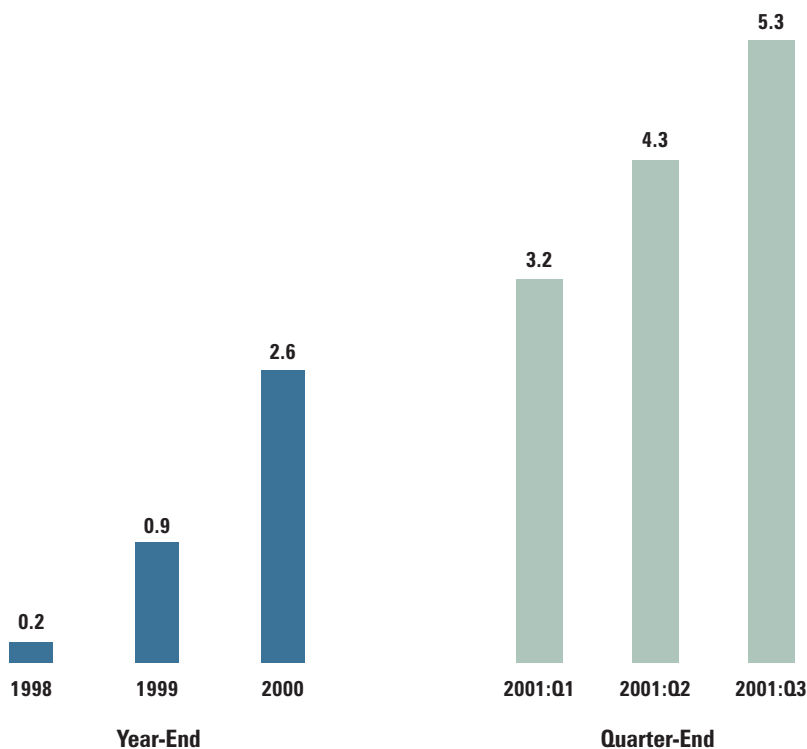
<sup>23</sup> The 1998 *Survey of Consumer Finance* found that 35 percent of households listed retirement as their most important motivation for saving and 12 percent listed education. See Arthur B. Kennickell, Martha Starr-McCluer, and Brian J. Surette, “Recent Changes in U.S. Family Finances: Results from the 1998 Survey of Consumer Finances,” *Federal Reserve Bulletin*, Vol. 86, No. 1, January 2000.

<sup>24</sup> Under Section 529 of the Internal Revenue Code, there are two types of “qualified tuition programs”: (1) 529 savings programs, and (2) 529 pre-paid tuition programs.

FIGURE 19

**Section 529 Savings Plan Assets, 1998–2001**

(billions of dollars)



Note: Data were estimated for a few individual state observations in order to construct a continuous time series.

Sources: Investment Company Institute tabulations of information collected from individual states, investment managers, the College Savings Plans Network, and SavingforCollege.com

Surveys of state plans conducted by the ICI indicate that assets held in Section 529 savings plans doubled from \$2.6 billion at year-end 2000 to \$5.3 billion at the end of September 2001 (Figure 19). The asset growth was mostly attributable to an increase in the number of accounts, which rose to nearly one million at the end of the third quarter. In addition, the average account size was approximately \$6,000.

Mutual funds are the most commonly used investment vehicle in Section 529 savings plans. At mid-year 2001, 98 percent of these savings plan assets were invested in mutual funds. Retail mutual funds held 51 percent of the assets, while institutional funds accounted for 47 percent.

Participants in Coverdell accounts may also make contributions on an after-tax basis on behalf of a designated beneficiary. Withdrawals from the account are excluded from taxable income so long as the withdrawals are used for qualified education expenses, including those for primary and secondary education. Demand for these accounts had been limited, in part because of the \$500 annual contribution limit per designated beneficiary in place since the accounts were first made available in 1998. Coverdell account assets invested in mutual funds totaled only \$1 billion by year-end 2000.

EGTRRA increased the annual contribution limit for Coverdell accounts to \$2,000 per designated beneficiary beginning January 1, 2002. EGTRRA also enhanced the savings incentives for Coverdell accounts in other ways, such as by removing an excise tax that was imposed when contributions were made to a 529 plan and a Coverdell account on behalf of the same beneficiary in the same tax year.

## APPENDIX

Several statistical models are used in this issue of *Perspective* to analyze mutual fund flows. One set of models measured how monthly equity fund flows during the 2000–01 bear market compared with what would have been expected based on past investor behavior. Another set of models is used to analyze money fund flows in 2001. This appendix provides an overview of the models used in these analyses.

### Models of Equity Fund Flows

The statistical models that are used to analyze investor flows in 2000 and 2001 were based on earlier studies of investor behavior.<sup>25</sup> Aggregate monthly net new cash flow, sales (including

exchange sales but not reinvested distributions), and redemptions (including exchange redemptions) for domestic equity funds are analyzed from January 1990 through December 1999. Aggregate net new cash flow for foreign funds for the same period is also examined.

All four of these series grew considerably during the 10-year period over which the models are estimated, in large part reflecting the growth of the mutual fund industry. Because of this upward trend, these series are adjusted to make the flows at the beginning of the period comparable with flows at the end. To do this, domestic equity fund sales, redemptions, and net new cash flow in each month are divided by the month-end domestic equity fund assets for the previous month. Monthly net new cash flows to foreign equity funds are deflated using previous month-end foreign equity fund assets. After deflating the flows, the four series no longer rise from 1990 to 1999, making flows at the beginning and the end of the period comparable.<sup>26</sup>

FIGURE 20

### Estimated Model Coefficients for Equity Fund Flows

Independent Variable	Dependent Variable			
	Net New Cash Flow to Domestic Equity Funds	Sales of Domestic Equity Funds	Redemptions of Domestic Equity Funds	Net New Cash Flow to Foreign Equity Funds
Constant	0.225**	0.687*	0.693***	0.213
Positive Percent Change in Stock Index	0.021	0.035***	0.012	0.111***
Negative Percent Change in Stock Index	0.116***	0.048**	-0.080***	0.135***
Flows <sub>t-1</sub>	0.146	0.210**	0.097	0.538***
Flows <sub>t-2</sub>	0.086	0.246***	0.056	0.262***
Flows <sub>t-3</sub>	0.282***	0.349***	0.227**	0.031
Flows <sub>t-4</sub>	0.085	-0.174*	0.007	0.200**
Flows <sub>t-5</sub>	0.108	0.102	0.136	-0.017
Flows <sub>t-6</sub>	0.089	0.061	0.176**	-0.180**
Number of Observations	120	120	120	120
R <sup>2</sup>	0.593	0.439	0.505	0.732

\* significant at 10 percent level

\*\* significant at 5 percent level

\*\*\* significant at 1 percent level

Note: The “positive percent change in the stock index” is the percentage change in the month-average Wilshire 5000 index for domestic funds and the percentage change in the month-average Morgan Stanley Capital International index excluding the U.S. for foreign funds when the change is positive. The “negative percent change in the stock index” is the percentage change in the month-average stock index when the change is negative. Each model includes six lags of the dependent variable. The models were estimated using ordinary least squares from January 1990 through December 1999.

Source: Investment Company Institute

<sup>25</sup> See Engen and Lehnert (2000) and Warther (1995).

<sup>26</sup> Warther (1995) and Engen and Lehnert (2000) only analyze net new cash flow and deflate this series with the total U.S. stock market capitalization. Deflating sales and redemptions by the stock market capitalization does not remove the upward trend in these two series, whereas deflating by lagged mutual fund assets does. Furthermore, their analyses examined whether stock fund flows affected stock prices. The question addressed in this paper is whether investors reacted differently to the market downturn in 2000–01 than they had to past market movements. Flows scaled by assets are a measure of the propensity of investors to withdraw balances in a market downturn. For these reasons, fund assets is the more appropriate scaling variable.

FIGURE 21

## Estimated Model Coefficients for Taxable Institutional Money Fund Flows

### Independent Variable

Yield Spread	-3.857***
January	5.429***
February	1.917***
March	-1.818***
April	0.391
May	2.322***
June	-0.504
July	2.445***
August	2.520***
September	-0.386
October	4.527***
November	4.032***
December	-0.140
Number of Observations	84
Q(12) Statistic	11.9
R <sup>2</sup>	0.655

\* significant at 10 percent level

\*\* significant at 5 percent level

\*\*\* significant at 1 percent level

Note: The dependent variable is net new cash flow to institutional money funds measured as a percentage of previous month-end assets. The "yield spread" is the monthly departure from its mean value of the spread between the overnight RP rate and the institutional money fund yield over the estimation period. The model is estimated without a constant term but with 12 monthly constant variables. The model is estimated using ordinary least squares from January 1995 to December 2001.

Source: Investment Company Institute

Sales, redemptions, and net new cash flow tend to be higher in certain months of the year than in other months. For example, sales and redemptions are typically the highest in January and the lowest in June. These effects are removed from sales and redemptions prior to the analysis using the U.S. Census Bureau's X-12 program for seasonal adjustment of data.<sup>27</sup>

Domestic equity fund net new cash flow for a given month is explained by the percentage change in the Wilshire 5000 index in that month and the flows during the previous six months. Earlier studies have assumed that the association between flows and upward movements in the stock market is the same as with downward movements. However, net new cash flow tends to be lower in months when the stock market is down but is

not appreciably higher in months when the market is up (Figure 20). The models for sales and redemptions also allow for this nonparallel relationship. Foreign equity funds are modeled similarly to domestic equity funds, but the Morgan Stanley Capital International Stock Market Index that excludes the U.S. is used as a measure of market performance.

These models are then used to determine the level of flows that might have been expected in 2000 and 2001 based on past behavior. The net new cash flow forecast uses actual stock market movements and lagged values of actual net new cash flow to produce an expected net flow for a month. The same technique is used to forecast sales and redemptions for domestic equity funds and net new cash flow for foreign funds.

### Models of Money Market Fund Flows

Separate models were used to examine monthly net new cash flows to taxable institutional and retail money funds.

Net new cash flows to taxable institutional money funds are estimated from January 1995 through 2001.<sup>28</sup> The dollar value of these flows is 12 times larger in 2001 than in 1995. To make flows at the beginning of the period comparable to those at the end, monthly net cash flows are deflated by previous month-end assets of taxable institutional money funds.

Net flows to taxable institutional money funds tend to have predictable fluctuations from month to month, which account for much of the fluctuations in flows. For instance, on average, inflows in January tend to be strong, whereas these funds typically have outflows in March. To account for this seasonal fluctuation, the model includes a

<sup>27</sup> Because net new cash flow can have negative values, the foreign and domestic equity fund net cash flows were adjusted using the additive method. Sales and redemptions were adjusted using the multiplicative method. See *X-12-ARIMA Reference Manual*, Version 0.2.7, U.S. Census Bureau, Washington DC, May 16, 2000, for a further discussion of the seasonal adjustment procedure.

<sup>28</sup> There is a clear structural break in the series after 1994, and the model is estimated from 1995 through 2001 to produce a more precise model analyzing net new cash flow in 2001.

monthly seasonal variable that captures the average flow for each month during the seven-year estimation period.

Net flows to institutional money funds are also affected by the difference between the rate on overnight repurchase agreements and the yield taxable institutional money funds, measured as a deviation from its mean value over the seven-year estimation period.<sup>29</sup> When the spread is above its mean value, institutional money fund flows fall relative to their average flow rate and flows rise when the spread is below its mean (Figure 21). The effect of the spread on fund flows is assumed to be the same whether the spread is above or below its mean.

The retail money fund model is estimated from 1990 through 2001. As with the other flow series modeled, retail money fund flows have tended to increase over time. To control for the trend growth, the flows are divided by previous month-end taxable retail money fund assets. There is also a seasonal fluctuation in retail money fund flows, and the model includes a set of monthly variables that capture the average seasonal effects of the taxable retail money fund flows (Figure 22). The model also includes the spread between the yield on taxable retail money funds and the average rate paid on savings deposits, measured by the average rate on money market deposit accounts. Money fund flows are also correlated with stock market movements. When the stock prices fall, inflows tend to increase to taxable retail money funds. However, there is not a parallel outflow when the market increases. The separate market effects are part of the model. The model also includes a variable to control for the effects of increased use of bank

**FIGURE 22**

**Estimated Model Coefficients for Taxable Retail Money Fund Flows**

**Independent Variable**

Yield Spread	0.473***
Yield Curve	-0.109
Positive Percent Change in S&P 500	0.055
Negative Percent Change in S&P 500	0.239***
Retail Sweeps	-2.162***
January	1.415***
February	0.541
March	-0.147
April	-2.219***
May	-0.986*
June	-1.480***
July	0.556
August	-0.041
September	-1.373***
October	-0.087
November	0.262
December	-1.833***
Number of Observations	144
Q(12) Statistic	18.5
R <sup>2</sup>	0.653

\* significant at 10 percent level

\*\* significant at 5 percent level

\*\*\* significant at 1 percent level

*Note: The dependent variable is the net new cash flow to taxable retail money funds measured as a percentage of previous month-end assets. The "yield spread" is the difference between the annualized yield on taxable retail money funds and the national average interest rate paid on money market deposit accounts. The "yield curve" is the spread between the interest rate on the five-year Treasury note and the yield on retail taxable money funds. The "positive percent change in the S&P 500" is the percentage change in the month-average S&P 500 index when the change is positive. The "negative percentage change in the S&P 500" is the absolute value of the percentage change in the index when the change is negative. "Retail sweeps" is the absolute value of the monthly net cash flow from money funds that had retail sweep accounts transferred to money market deposit accounts, measured as a percentage of previous month-end assets of all taxable retail money funds. The model is estimated without a constant but with 12 monthly constant terms using ordinary least squares from January 1990 to December 2001.*

*Source: Investment Company Institute*

deposits in retail sweep accounts, measured by the outflow from money funds which formerly held the retail sweep accounts as a percentage of previous month-end assets of all taxable retail money funds. The slope of the yield curve, measured by the difference between the five-year Treasury note and the yield on retail taxable money market funds, accounts for a potential substitution between money funds and longer maturity fixed-income investments.

<sup>29</sup> The rate on institutional money funds is the rate on taxable institutional money funds as reported in *Money Fund Report*, iMoneyNet, Inc., Westborough, MA.

