

# PERSPECTIVE

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## Mutual Fund Industry Developments in 2002

by Brian Reid and Stefan Kimball<sup>1</sup>

### SUMMARY

**U.S.** investors faced the harshest financial environment in 2002 that most had ever experienced. The U.S. stock market, weighed down by revelations of corporate accounting scandals and downward revisions to profit forecasts, slipped for a third year in a row, posting its steepest three-year decline since the Great Depression. Furthermore, sluggish economic activity and an accommodative monetary policy from the Federal Reserve contributed to interest rates falling to their lowest levels in more than 40 years. Low interest rates and the bear market in stocks left many investors with investment returns that were below even the modest pace of inflation that prevailed during the year.

Even so, equity fund shareholders' response to the unusual financial conditions and slow economic growth was measured and in line with the well-established pattern of weak net new cash flow during periods of low stock market returns. Equity fund investors sold a small percentage of their equity fund holdings amidst the stock market sell off. The outflow generally conformed to

investor behavior during the brief market downturns that occurred during the 1990s bull market and, when measured as a percentage of assets, was far smaller than the outflows that occurred during the bear markets of the 1970s and 1980s.

Like equity fund shareholders, investors in bond and money market funds reacted to fund returns in 2002 much as they had in the past. Bond funds received a record net inflow of new cash from shareholders as the drop in interest rates boosted bond prices and lifted bond fund returns for the third consecutive year. This correlation between bond fund returns and flows extends back to the 1970s when these funds first began to grow in popularity. In the case of money market funds, the yield advantage of these funds over bank deposits narrowed, as is typically the case when interest rates decline. As a result, households shifted some of their short-term investments away from money market funds to bank deposits.

This issue of *Perspective* examines these and other mutual fund developments in 2002. Other highlights of the review include the following:

### Equity Funds

- ▶ The severity of the bear market in stocks depressed equity fund assets, which declined to \$2.667 trillion from \$3.418 trillion in 2001. By the end of 2002, equity fund assets were down 42 percent from their peak in 2000, mirroring the overall equity market decline.

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- ▶ Net new cash flow turned negative for the first time since 1988, with the outflow for the year totaling \$27 billion, or 0.9 percent of equity fund assets. Although the outflow was the first in 14 years, it was a smaller percentage of equity fund assets than the outflows that occurred during the bear markets of the 1970s and 1980s.
- ▶ Equity fund investors responded to the slide in the stock market in 2002 much as they did during market downturns in the 1990s, when during periods of weak market performance, net flow into equity funds tended to slow.
- ▶ Furthermore, as during past market downturns, the outflow was caused by the dollar volume of sales falling more than redemptions. Sales, including exchange sales, of equity funds declined by 8 percent in 2002 whereas redemptions, including exchanges, fell by 4 percent.
- ▶ Fund assets fell by a greater percentage than redemptions, so that equity fund redemptions rose when measured as a percentage of assets. However, this rise in the redemption rate does not imply that the typical shareholder was turning over his or her account more frequently. In fact, new survey evidence continued to indicate that the typical equity fund shareholder trades shares infrequently.
- ▶ There was a wide variation in flows among funds. The funds most affected by the market decline in 2002 were those with the best performance since the beginning of the bear market. These funds received sizable inflows during the first part of the year but only small inflows after May.

### **Bond and Hybrid Funds**

- ▶ Bond fund investors reacted to the decline in intermediate and long-term interest rates and the concurrent increase in bond prices by increasing their purchases of bond fund shares in 2002. Investors contributed a record \$140 billion in net new investments to these funds. Bond fund assets reached a record \$1.125 trillion by year-end, lifted largely by new investments.
- ▶ The bond market rally was concentrated in the securities of high-quality issuers such as the U.S. government, federal agencies, and highly rated corporations. Bond funds investing in these securities experienced the highest returns and inflows.
- ▶ Hybrid funds posted a net inflow of \$9 billion, but assets in these funds declined to \$327 billion, reflecting the negative returns of the stock in their holdings.

### **Money Market Funds**

- ▶ Investors on net sold \$47 billion of money market shares in 2002, and assets declined 0.6 percent to \$2.272 trillion because of these outflows.
- ▶ Inflows to retail money market funds turned negative in 2002 for the first time since 1993. As was the case nearly a decade earlier, money market funds' yields were near those paid on bank deposits. In this rate environment, individuals tend to rely more heavily on time and savings deposits as a short-term investment. Outflows would have been somewhat greater had not the stock market downturn boosted individuals' demand for money market funds.
- ▶ Institutional money market funds had an inflow of \$32 billion, the smallest inflow since the mid-1990s. Net flow slowed in 2002 as some institutional investors that had moved assets into money market funds in 2001—when money market funds held a yield advantage over direct money market investments—shifted their short-term assets back into direct money market investments.

## **FINANCIAL MARKETS AND MUTUAL FUND FLOWS**

U.S. stock prices declined for the third consecutive year in 2002,<sup>2</sup> marking the first three-year run of losses since 1941. Stock market indexes for large corporations fell by more than 20 percent, bringing the cumulative drop for the three years ending in 2002 to 40 percent, the largest since 1930–1932 (Figure 1).<sup>3</sup> Stock prices of smaller firms fared somewhat better but still were down 24 percent between 1999 and 2002.<sup>4</sup>

<sup>2</sup> The Wilshire 5000 fell 22 percent in 2002, while the Russell 3000 and the S&P 500 declined 23 percent.

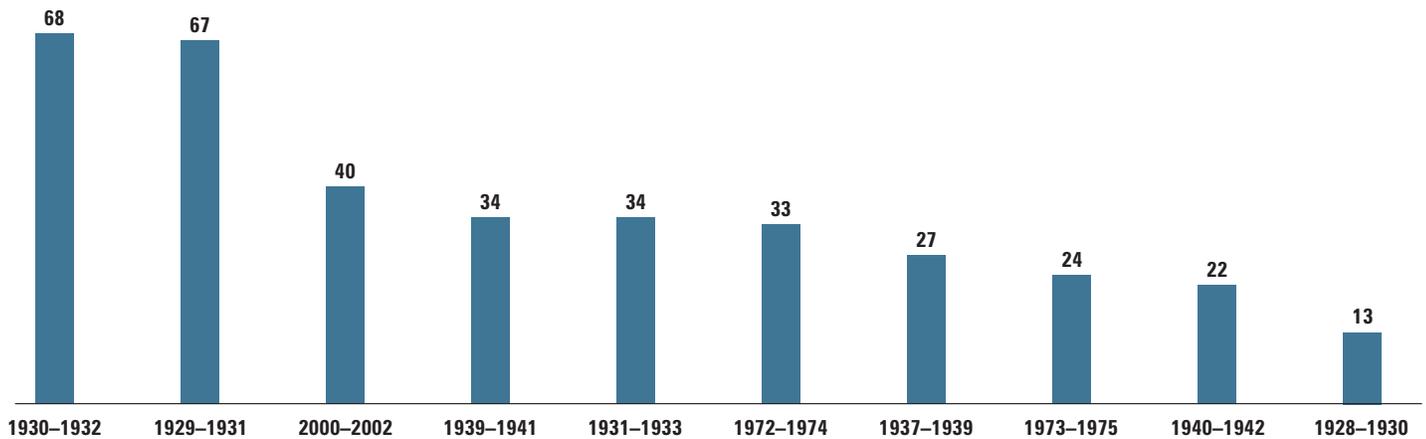
<sup>3</sup> Three-year cumulative losses for large-capitalization stocks from 1926 through 2001 were computed using capital appreciation returns for large company stocks from *S&P 500 (Stocks, Bonds, Bills, and Inflation) 2002 Yearbook: Market Results for 1926–2001*, Ibbotson Associates, Chicago, IL. The three-year loss for 2002 used capital appreciation from Ibbotson for 2000 and 2001 and the return on the S&P 500 for 2002.

<sup>4</sup> The percentage decline in the Russell 2000 between December 31, 1999 and December 31, 2002. The entire U.S. stock market, as measured by the Wilshire 5000, declined 39.6 percent during this period.

FIGURE 1

## Ten Largest Three-Year Losses for Large-Capitalization U.S. Stocks, 1926–2002

(percent decline)



Sources: Ibbotson Associates and Standard and Poor's Corporation

Investors had few investment choices to achieve a return that exceeded the inflation rate, which was 2.4 percent in 2002.<sup>5</sup> Many foreign stock markets were off as much as the U.S. equity markets and some were off more. However, losses of investors in foreign stock were offset somewhat by the depreciation of the U.S. dollar. Interest rates on short-term investments fell to levels not observed since the 1950s. Likewise, average yields on taxable money market funds fell to 0.88 percent<sup>6</sup> by the end of 2002, their lowest level since they were first offered in the 1970s.

In contrast, returns on U.S. government and agency securities and highly rated corporate debt

easily outpaced the rate of inflation. Government and high-grade corporate bonds, along with the bond funds investing in them, outperformed equity funds for the third year in a row. Investor demand for bond funds was strong, leading a number of bond fund managers to caution that further interest rate declines were becoming less likely and that the current performance levels of these funds could not be sustained.<sup>7</sup>

The bear market in U.S. stocks eliminated \$8.3 trillion in household wealth.<sup>8</sup> Rising housing prices offset some of the decline in equity wealth, leaving household net worth down nearly 12 percent.<sup>9</sup> Owing to the decline in household wealth in the past few years, households slowed their pace of consumption and increased their rate of saving. Households used the additional savings to increase their net purchases of financial assets to an estimated record \$633 billion in 2002.<sup>10</sup>

<sup>5</sup> The percentage change in the Consumer Price Index for All Urban Consumers (CPI-U) from December 2001 to December 2002 as reported by the Bureau of Labor Statistics of the U.S. Department of Labor.

<sup>6</sup> *Money Fund Report*, iMoneyNet, Westborough, MA (January 3, 2003).

<sup>7</sup> For example see David Rynecki, "A Little Late to The Party," *Fortune*, January 20, 2003.

<sup>8</sup> The capital loss from the decline in the equity prices is calculated from the end of the first quarter 2000 when the market value of household corporate equity holdings peaked to the end of the third quarter 2002, which is the latest date that data are available. The calculation is based on data reported in Table R.100 of the *Flow of Funds Accounts of the United States: Flows and Outstandings, Third Quarter 2002*, Board of Governors of the Federal Reserve System, Washington, DC (December 5, 2002). Household equity holdings include those of nonprofit organizations as well as households. Holdings include direct and indirect through mutual funds, pension funds, personal trusts and estates, and life insurance companies.

<sup>9</sup> The change in household net worth is based on the change from the end of the first quarter 2000 to the end of the third quarter 2002. Household net worth was obtained from Table B.100 in the *Flow of Funds Accounts* (December 5, 2002).

<sup>10</sup> Annualized net acquisition of financial assets based on purchases through the first three quarters of the year. Household net acquisition of financial assets was obtained from Table F.100 in the *Flow of Funds Accounts* (December 5, 2002).

Even though households acquired a record amount of financial assets, their purchases of mutual funds, including reinvested dividends, slipped to \$110 billion, the lowest amount since 1990. Some of the decline reflected the slowdown in net purchases of equity fund shares, but households' net acquisition of money market fund shares also turned negative. Instead of buying equity and money market funds, individuals increased their purchases of time and savings deposits as well as bond funds and direct holdings of municipal and U.S. government bonds.

The slowdown in growth of investor demand for mutual funds largely reflected the normal cyclical fluctuation in flows associated with low returns on equity and money market funds. The slower growth in investor demand was also reflected in a decrease in the number of households owning mutual funds in 2002, the first decline in more than two decades. An estimated 54 million U.S. households, or 50 percent, owned mutual funds in 2002, down from 56 million, or 52 percent, in 2001.<sup>11</sup>

A slowdown in household purchases of mutual funds and declining equity prices caused the mutual fund portion of household financial assets to decline about 1 percentage point in 2002 to just under 18 percent (Figure 2).<sup>12</sup> Households continued to hold the largest portion of their financial assets (23 percent) in direct holdings of securities. These securities are typically held in accounts managed by private money managers, brokerage firms, and bank trust departments. Pension funds also manage a large portion of household financial assets, totaling 19 percent. Deposits at banks and savings associations account for another 13 percent, and life insurance companies manage 6 percent.<sup>13</sup>

Mutual funds are predominantly owned by individuals, but institutional investors such as corporations and state and local governments also invest in funds. Institutional holdings of fund shares is concentrated in money market funds. These institutions slowed their purchases in 2002, as is typically the case in the wake of a period of declining short-term interest rates, and relied more heavily on direct investments in money market securities for their short-term cash management.

## EQUITY FUND DEVELOPMENTS

Equity funds had a net outflow totaling \$27 billion, or 0.9 percent of average annual assets, in 2002. This was the first annual outflow since

1988 and in dollar terms the largest annual outflow. Nevertheless, it was the smallest outflow on record measured as a percentage of assets (Figure 3). By comparison, in 1988 shareholders on balance sold 8 percent of their equity fund assets. During the 1970s, a decade of low stock returns, annual net outflows from equity funds ranged between 1.2 and 11.9 percent of assets.

The combination of declining stock prices and the net outflow left equity fund assets at \$2.667 trillion at the end of 2002, the lowest level in five years and down 42 percent from the peak in August 2000. Equity funds' portion of all mutual fund assets declined to 42 percent, the smallest share since 1994.

***Domestic Equity Funds.*** Shareholders, on balance, sold \$24 billion of domestic equity fund shares in 2002, totaling 0.9 percent of average domestic fund assets. The net outflow reflected the weak performance of the stock market. Typically, when stock prices fall, investors reduce their net contributions to equity funds, and when stock prices rise, investors increase their purchases. The outflow in 2002 was attributable to the dollar volume of sales falling more than redemptions. Sales, including exchange sales, fell by 8 percent while redemptions, including exchanges, fell by 1 percent. As a percent of assets, however, both sales and redemptions rose. The increased rates of sales and redemptions to assets resulted from the 23 percent drop in assets of domestic equity funds in 2002 that offset the dollar decline in sales and redemptions.<sup>14</sup>

Domestic equity funds' flows began the year on a strong note as major stock market indexes rebounded from lows reached in September 2001.

<sup>11</sup> "U.S. Household Ownership of Mutual Funds in 2002," *Fundamentals*, Vol. 11, No. 5, October 2002, Investment Company Institute, p. 1 ([www.ici.org/pdf/fm-v11n5.pdf](http://www.ici.org/pdf/fm-v11n5.pdf)).

<sup>12</sup> Household ownership of mutual funds includes those funds held through employer-sponsored retirement plans, variable annuities, and trusts. Data for the third quarter of 2002 were obtained from the *Flow of Funds Accounts* (December 5, 2002).

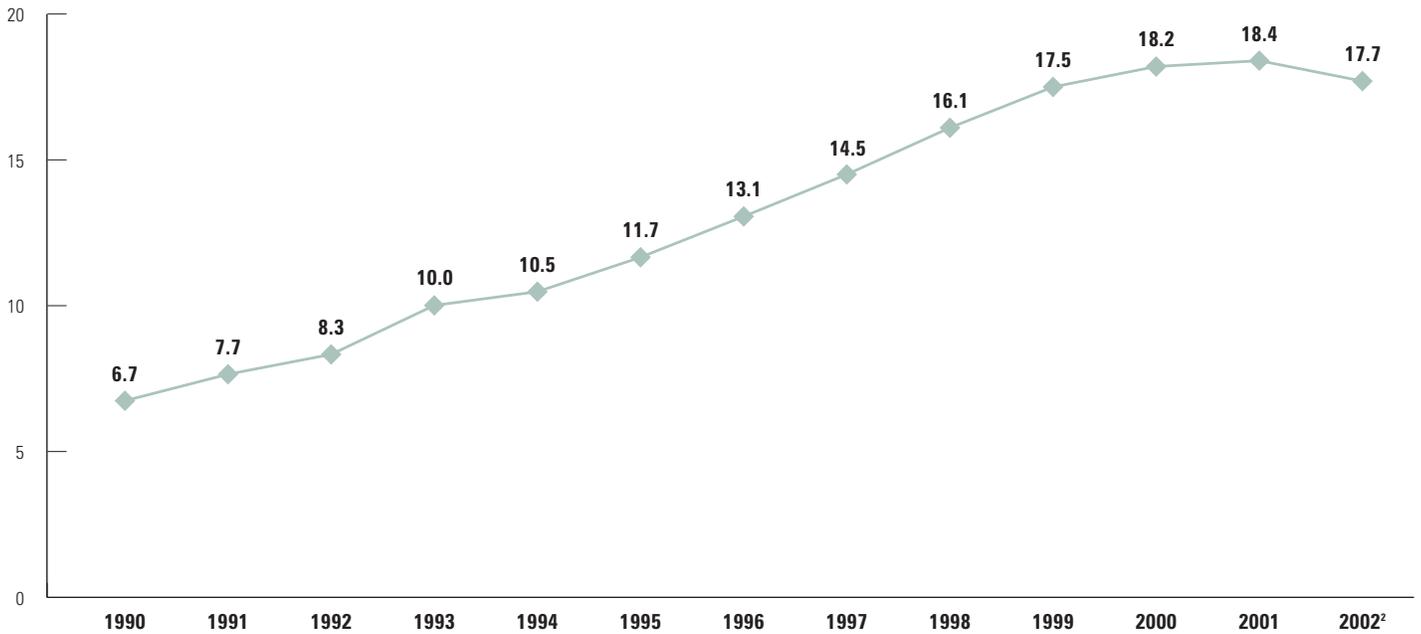
<sup>13</sup> Households held most of their remaining financial assets in equity interest in private partnerships and other noncorporate businesses.

<sup>14</sup> For a discussion of investor behavior during past bear markets, see John Rea and Richard Marcis, "Mutual Fund Shareholder Activity During U.S. Stock Market Cycles, 1944–1995," *Perspective*, Vol. 2, No. 2, March 1996, Investment Company Institute ([www.ici.org/pdf/per02-02.pdf](http://www.ici.org/pdf/per02-02.pdf)).

FIGURE 2

**Mutual Funds as a Percentage of Total Household Financial Assets,<sup>1</sup> 1990–2002**

(percent)



<sup>1</sup> Household ownership of mutual funds includes those funds held through employer-sponsored pension plans, trusts, and variable annuities.

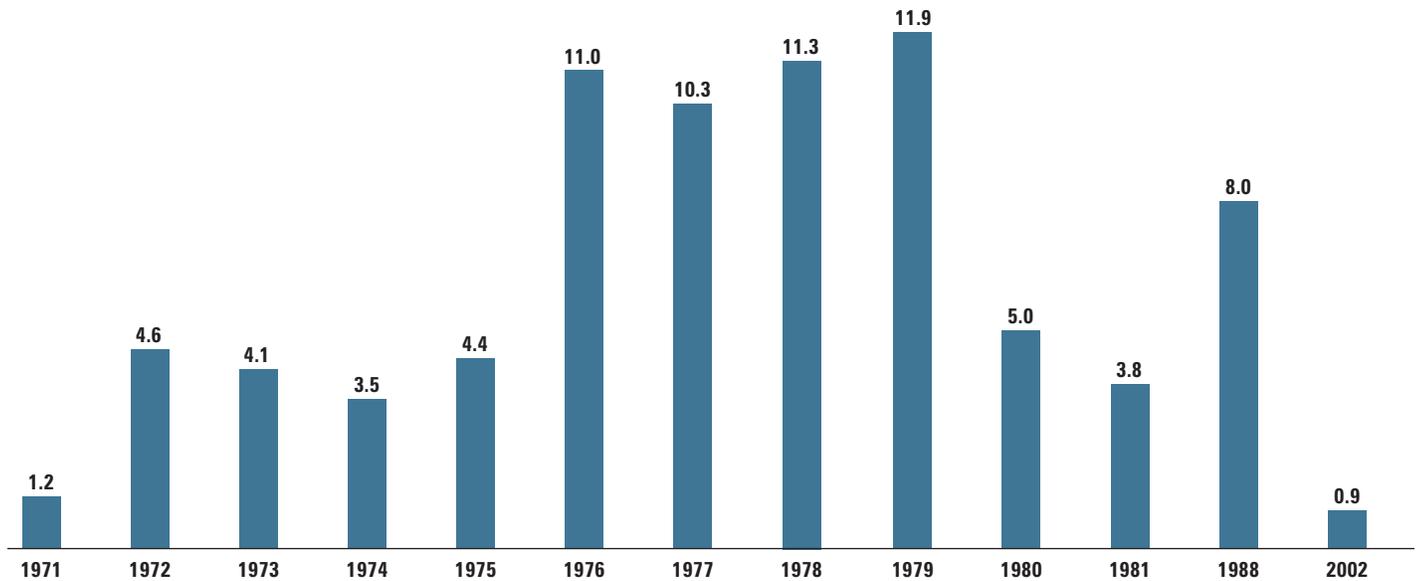
<sup>2</sup> The 2002 observation is calculated through the third quarter.

Sources: Federal Reserve Board and Investment Company Institute

FIGURE 3

**Annual Outflows from Equity Mutual Funds,<sup>1</sup> 1971–2002<sup>2</sup>**

(percent of average annual total net assets)



<sup>1</sup> Outflows are calculated by summing the net outflows during the year. These outflows are divided by the average month-end assets, beginning with the assets of the previous year-end and ending with the assets at the end of the year plotted.

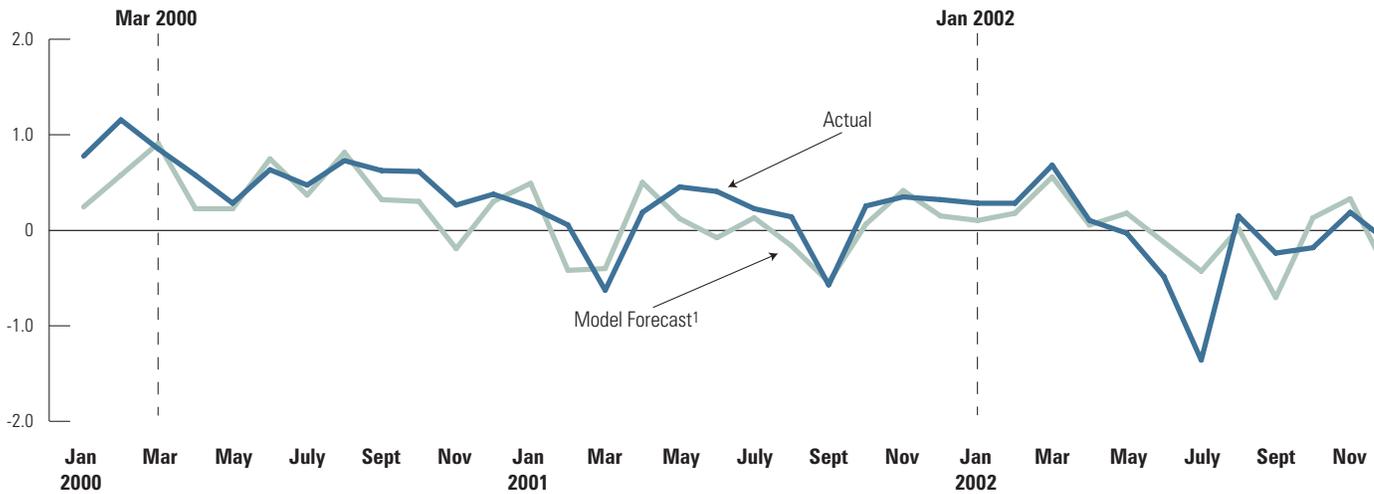
<sup>2</sup> There were no annual outflows from equity funds prior to 1971.

Source: Investment Company Institute

FIGURE 4

**Actual and Forecasted Net New Cash Flow to Domestic Equity Funds, January 2000–December 2002**

(percent of assets)



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

Source: Investment Company Institute

Investors added \$50 billion in new cash to domestic equity funds during the first three months of the year, the largest three-month inflow since the fall of 2000.

The stock market’s ascent ended in mid-March, and stock prices declined modestly until early June. Inflows to domestic equity funds slowed, but remained positive through May, totaling \$65 billion for the first five months of 2002. However, new information about corporate accounting scandals and downward revisions to profit forecasts were a drag on the market, and the S&P 500 lost 16 percent of its value during June and July.<sup>15</sup> In July alone, the index dropped nearly 11 percent from its average level in June. Share prices continued to decline, and by October major market indexes had fallen to their lowest levels in five years. As stock prices slipped, so did domestic equity fund flows, which turned negative in June and remained so through the end of the year, except for the month of November. Over the last seven months, the cumulative net outflow was \$90 billion.

The outflow from domestic equity funds in 2002 appears to be a normal response on the part of shareholders to the downturn in the stock market. Indeed, the evidence continues to indicate that domestic equity fund shareholders reacted to the stock market in 2002 much as they had

to market fluctuations since 1990. During the 1990s, net new cash flow, measured as a percentage of prior month-end assets, was correlated with stock market movements and with net flows from previous months. A statistical model based on these correlations can be constructed to capture the typical response of equity fund shareholders to market fluctuations during the 1990s.<sup>16</sup>

Monthly net flows forecasted from the model, on balance, track actual movements in net flow in 2002. The model picks up the positive net flow through May and the outflow in the remainder of the year, suggesting that the outflows were driven by typical shareholder reaction to stock market fluctuations (Figure 4). Nonetheless, the net inflows in the early part of the year were a bit stronger than expected while the outflow in July was three times as large as what would have been expected. The July outflow was associated with a pick-up in shareholder redemptions (Figure 5).

<sup>15</sup> Measured on a month-average basis.

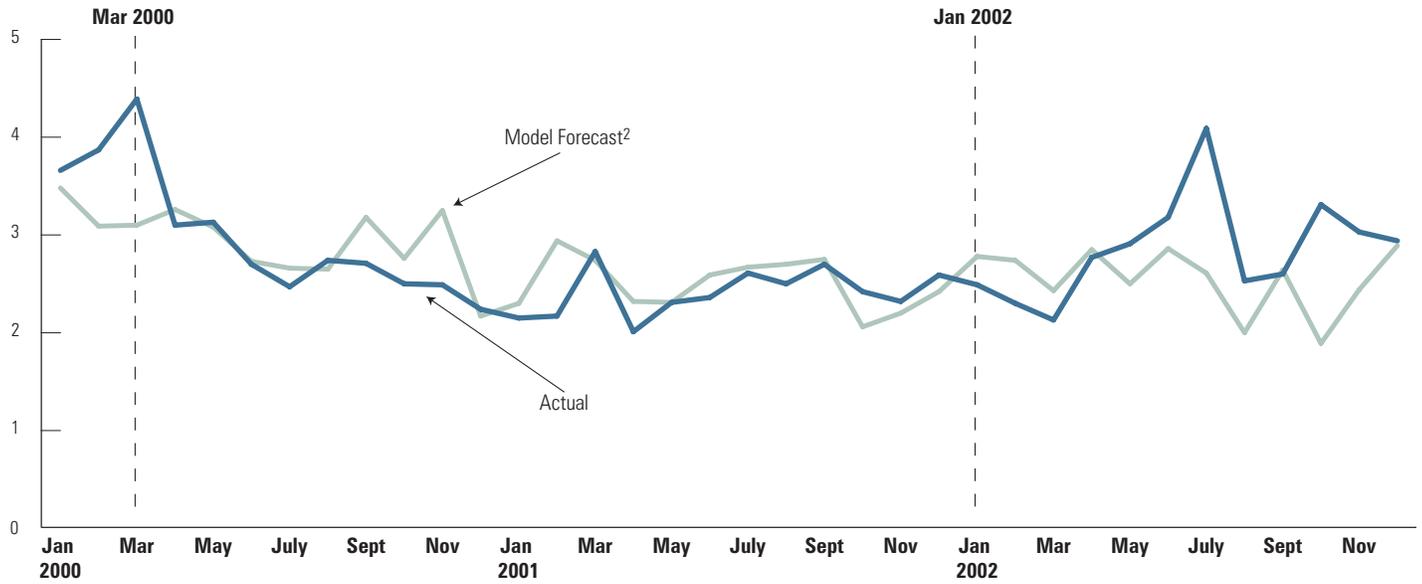
<sup>16</sup> See the Appendix for further details of the models used to estimate net new cash flow, sales, and redemptions. Forecasts used in this paper are dynamic forecasts using model predictions for lagged flows for 2000–2002.

FIGURE 5

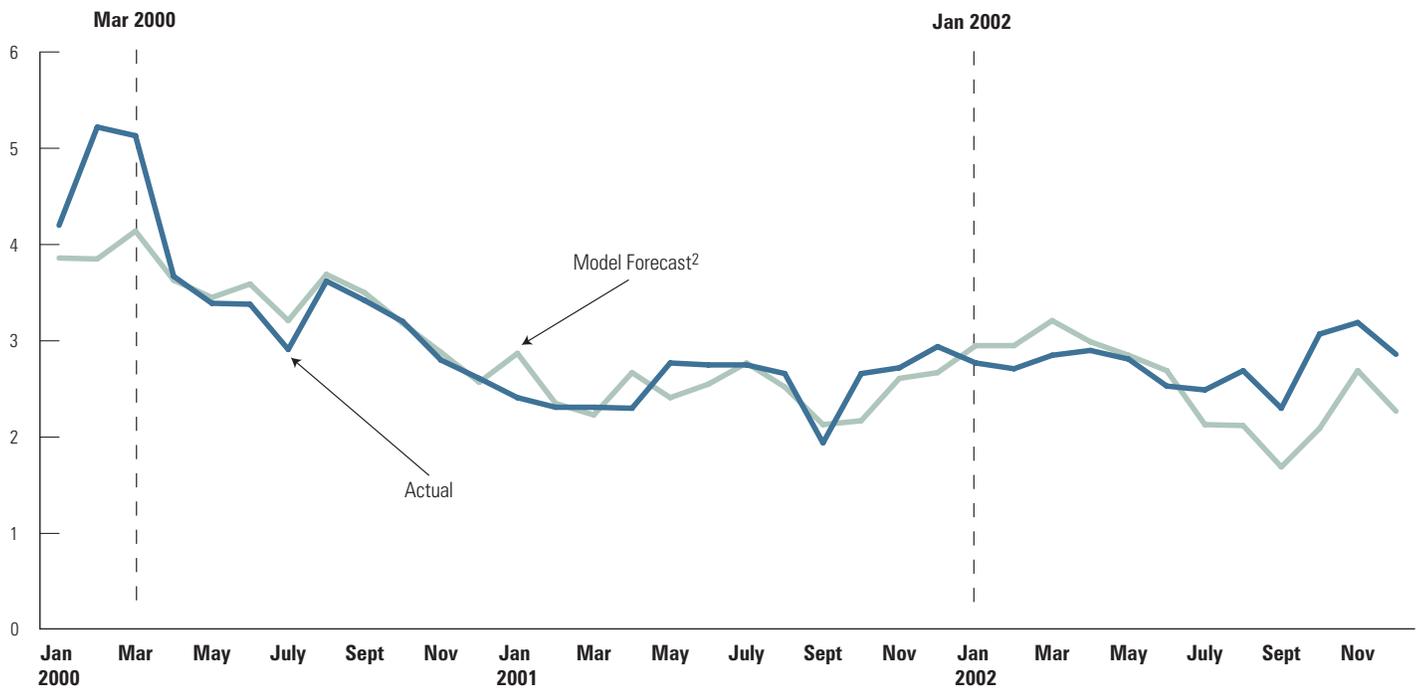
**Actual and Forecasted Redemptions and Sales of Domestic Equity Funds,<sup>1</sup> January 2000–2002**

(percent of assets)

**Redemptions**



**Sales**



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

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

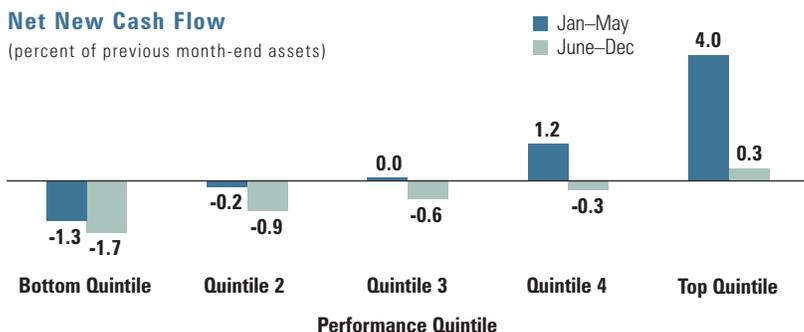
Source: Investment Company Institute

FIGURE 6

## Flows to Domestic Equity Funds, by Fund Performance Quintile,<sup>1</sup> 2002

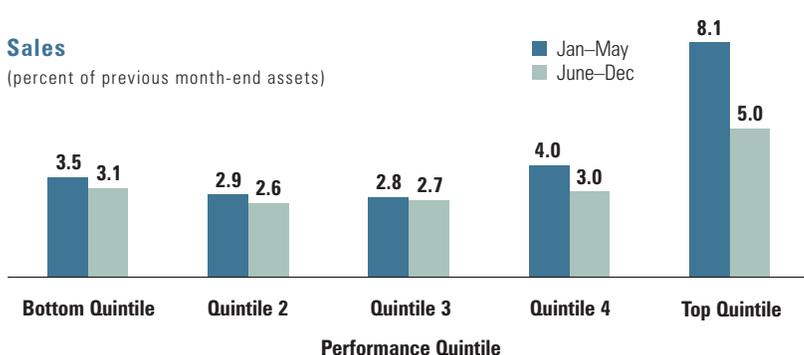
### Net New Cash Flow

(percent of previous month-end assets)



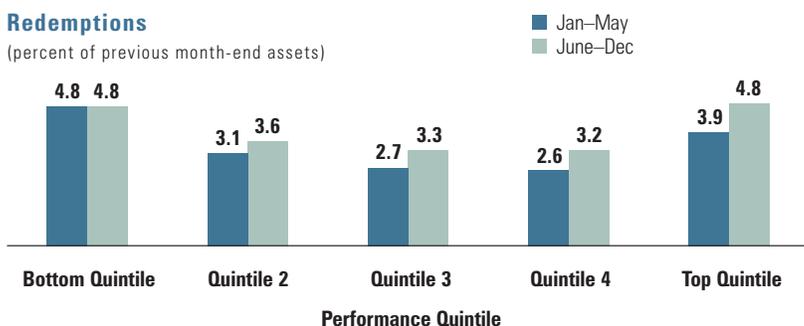
### Sales

(percent of previous month-end assets)



### Redemptions

(percent of previous month-end assets)



<sup>1</sup> See text footnote 18 for an explanation of performance calculation.

Sources: Investment Company Institute and ©CRSP University of Chicago, used with permission, all rights reserved (773.702.7467/www.crsp.com)

As with net new cash flow, redemptions in any given month can be explained by the change in the stock market during that month and redemptions in prior months. Since the beginning of the bear market, equity fund investors generally redeemed shares at a pace that was near what would have been expected. This pattern changed in July 2002, when redemptions picked up to nearly 5 percent of domestic equity fund assets. The net outflow in July rose somewhat less than the increase in redemptions because investors also increased their purchases of domestic equity funds slightly.

Investors are sensitive to fund performance, favoring funds with the best performance.<sup>17</sup> However, even the best performers experienced slower inflows during the second half of the year (Figure 6). The 20 percent of funds with the strongest performance during the bear market<sup>18</sup> had inflows averaging 4 percent of previous month-end assets through May, but these funds' flows slowed to just 0.3 percent of assets after May. The weakest performers had outflows in both periods, but the outflows picked up only a bit after May. During the first part of the year, outflows from the weaker performing funds were more than offset by inflows from the strongest performers, leading to the inflow to equity funds as a whole. But as the new cash to the best performing funds slowed, the aggregate inflow to equity funds turned negative after May.

The slowdown in average net flow among the best performing equity funds occurred because these funds on average had the largest drop in new sales and the biggest increase in

<sup>17</sup> For examples of research documenting this performance-flow relationship across funds, see Erik R. Sirri and Peter Tufano, "Costly Search and Mutual Fund Flows," *Journal of Finance* 53 (1998), pp. 1589–1622; Judith Chevalier and Glenn Ellison, "Risk Taking by Mutual Funds as a Response to Incentives," *Journal of Political Economy* 105 (1997), pp. 1167–1200; and Diane Del Guercio and Paula Tkac, "Star Power: The Effect of Morningstar Ratings on Mutual Fund Flows," *Federal Reserve Bank of Atlanta Working Paper* 2001-15, August 2001.

<sup>18</sup> Fund performance is measured for each equity fund from March 2000 through May 2002, the period that corresponds to the bear market up to the outflow during the second half of 2002. Funds are then ranked by performance and divided in quintiles, with the lowest performers in the first quintile and the highest in the fifth quintile. The top 20 percent of the funds had a simple average performance of 40 percent during this period compared with a simple average of -59 percent of the bottom performing funds. Fund performance was calculated from data obtained from ©CRSP University of Chicago (773.702.7467/www.crsp.com). The CRSP data include monthly fund performance through September, the latest date that data were available at the time of publication of this article. From June through September, the simple average performance for the first quintile was -27 percent and the simple average performance for the fifth quintile was -19 percent.

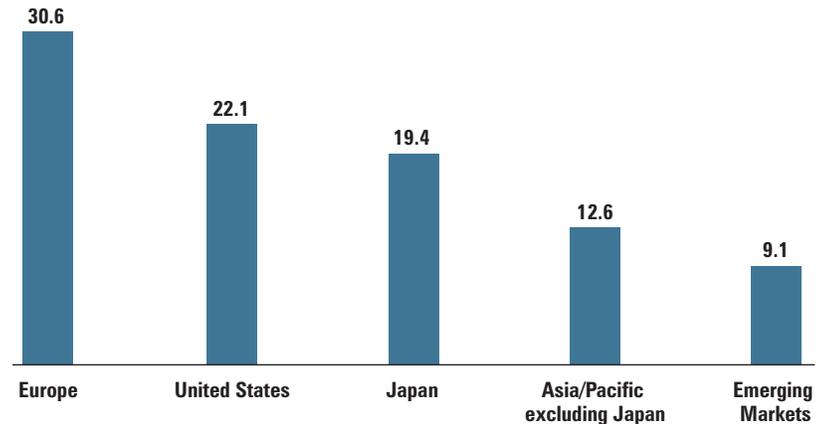
redemptions among the five performance categories. The average monthly pace of sales, including sales exchanges, for the best performers declined from just over 8 percent of previous month-end assets during the first part of 2002 to 5 percent after May. The rate of redemptions, including exchange redemptions, for these funds rose a full percentage point. The other performance quintiles had smaller changes in sales and redemptions.

**Foreign Equity Funds.** Investors on balance, sold \$3 billion of foreign equity fund shares during 2002, amounting to 0.7 percent of average foreign equity fund assets. Total assets in these funds declined to \$358 billion in December from \$429 billion at the end of 2001. Virtually all of the decline was attributable to declining foreign stock prices.

Many foreign equity markets suffered losses in 2002 (Figure 7). European stock indexes were down nearly 31 percent on average, and the Japanese market posted a decline of more than 19 percent. Other markets in Asia and the Pacific were off less than the Japanese stock market, while emerging markets fared better than most other world stock markets. A decline in the U.S. dollar offset some of these losses because the foreign-currency denominated assets appreciate in value relative to the dollar when the dollar declines.<sup>19</sup>

FIGURE 7

**Declines in World Stock Market Indexes,<sup>1</sup> 2002<sup>2</sup>**  
(percent change)



<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 ex Japan Indexes, respectively. Emerging markets are represented by the MSCI EMF Emerging Markets Index. The Japanese stock market is represented by the MSCI Japan Index. The foreign indexes are measured in local currencies.

<sup>2</sup> The index changes are calculated from December 31, 2001 to December 31, 2002.

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

The small outflow from foreign equity funds was consistent with past transaction activity of investors in foreign equity funds. These shareholders behave much the same as investors in domestic stock funds. Sales and redemptions are correlated and respond to changes in foreign stock prices. A model also can be constructed for foreign equity fund flows that is similar to that used for domestic funds.<sup>20</sup> Actual flows in 2002 were in line with those forecasted by the model. For the year as a whole, the model projected a net inflow of \$1 billion compared with the actual outflow of \$3 billion.

<sup>19</sup> Shareholders in foreign equity funds may not have had their returns boosted by a decline in the dollar if their fund hedged the currency risk. Many foreign equity funds include in their prospectuses the option to use currency hedges to reduce or eliminate currency risk, and fund managers typically have the option to decide whether or not to hedge.

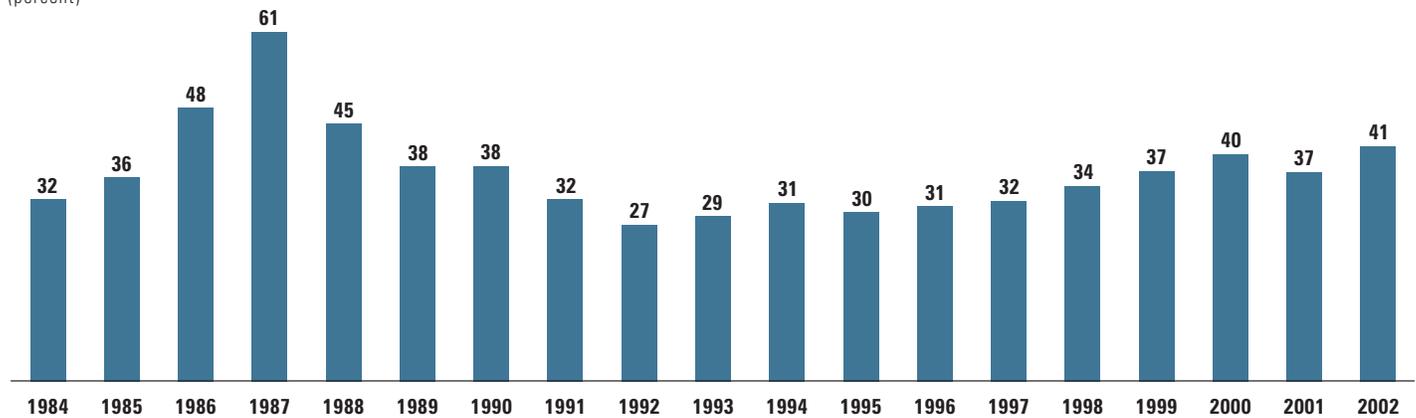
<sup>20</sup> See Brian Reid, Kimberlee Millar, and Steven Sevigny, "Mutual Fund Industry Developments in 2001," *Perspective*, Vol. 8, No. 1, February 2002, Investment Company Institute, pp. 21–22 ([www.ici.org/pdf/per08-01.pdf](http://www.ici.org/pdf/per08-01.pdf)) for a description of the model used. The 2002 forecast was a dynamic forecast using model predictions for lagged flows.

FIGURE 8

**Average Redemption Rates<sup>1</sup> for Equity Funds and Domestic Equity Funds Excluding Variable Annuities, 1984–2002**

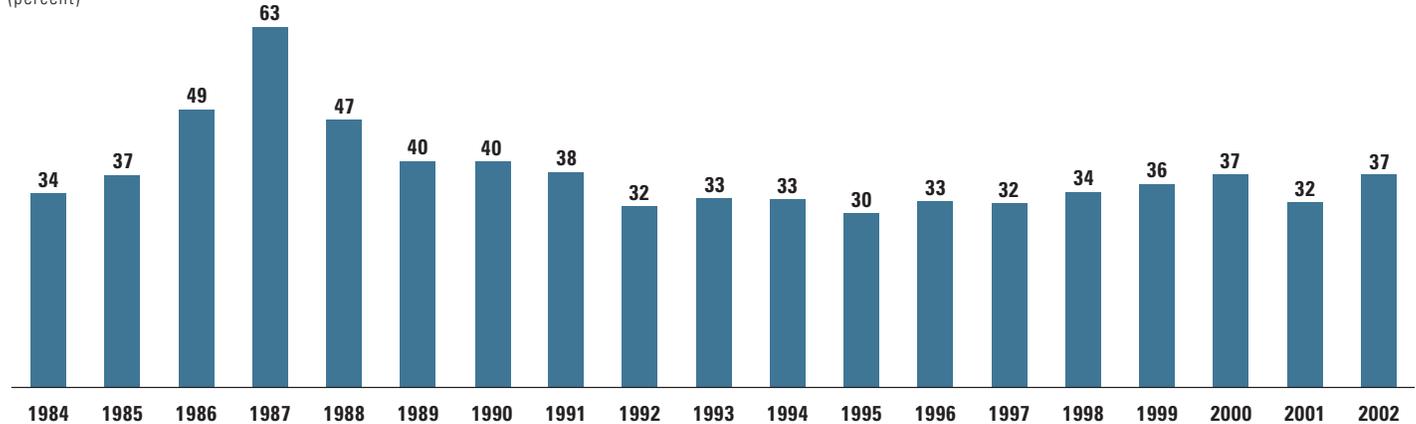
**Equity Funds**

(percent)



**Domestic Equity Funds Excluding Variable Annuities**

(percent)



<sup>1</sup> The average redemption rate is the ratio of the annual redemptions and redemption exchanges to average total net assets.

Source: Investment Company Institute

**Equity Fund Redemptions and Shareholder Turnover.** The redemption rate for all equity funds, measured as redemptions and redemption exchanges divided by average assets, rose to 41 percent in 2002, its highest level since 1988 (Figure 8). Despite the increase, there is little evidence to suggest that the transaction activity of the typical shareholder has changed materially during the past decade. Recent survey evidence continues to show that the majority of investors redeem shares

infrequently. For example, a recent survey by the Investment Company Institute and Securities Industry Association found that 84 percent of all stock mutual fund shareholders made no redemptions during 2001.<sup>21</sup> A similar survey found that 82 percent made no redemptions in 1998.<sup>22</sup> Surveys conducted since the early 1990s find similar

<sup>21</sup> *Equity Ownership in America, 2002*, Investment Company Institute and the Securities Industry Association, Washington, DC, 2002 ([www.ici.org/pdf/rpt\\_02\\_equity\\_owners.pdf](http://www.ici.org/pdf/rpt_02_equity_owners.pdf)).

<sup>22</sup> Unpublished data from *Equity Ownership in America*, Investment Company Institute and the Securities Industry Association, Washington, DC, Fall 1999 ([www.ici.org/pdf/rpt\\_equity\\_owners.pdf](http://www.ici.org/pdf/rpt_equity_owners.pdf)).

results.<sup>23</sup> Furthermore, 7 percent of the equity fund shareholders surveyed in 2002 made one sale of equity fund shares, whereas 2 percent made six or more redemptions. Thus, high-frequency trading activity of a small number of shareholders lies behind the high redemption rate.

The upward trend in the redemption rate since 1993 is largely associated with higher redemption rates in foreign equity funds and equity funds held in variable annuities. The redemption rate for domestic equity funds held outside variable annuities, which account for 72 percent of all equity fund assets, rose only 5 percentage points between 1992 and 2002. And, on balance, the level of redemption activity in these funds is little changed from its level prior to the run-up in the late 1980s.<sup>24</sup> The more modest increase in the redemption rate among these funds along with the survey evidence suggests that transaction behavior on the part of most equity fund investors has not changed significantly in the past decade.

**Capital Gain Distributions.** Equity mutual funds distributed an estimated \$10 billion in capital gains to shareholders in 2002, the lowest level since 1990 and down from \$61 billion in 2001 and a record \$309 billion in 2000 (Figure 9). Only 12 percent of all equity fund share classes made a capital gain distribution in 2002, and these share classes made an average distribution of 2.7 percent of their assets. In comparison, 57 percent of the equity fund share classes distributed a capital gain in 2000, with the average distribution amounting to nearly 10 percent of assets.

FIGURE 9

**Undistributed Equity Fund Capital Gain as a Percentage of Equity Fund Assets<sup>1</sup> and Equity Fund Capital Gain Distributions, 1990–2002**

	Distributions (billions of dollars)	Undistributed Capital Gain (percent of assets)
1990	7	1
1991	12	19
1992	17	16
1993	28	23
1994	26	17
1995	50	23
1996	88	25
1997	162	30
1998	139	25
1999	220	33
2000	309	30
2001	61	-7
2002	10	-28

<sup>1</sup> The undistributed capital gain is measured as the cumulative realized and unrealized change in the value of portfolio securities that has not been distributed to shareholders. The undistributed gain is measured as a percent of equity fund assets as of October 31 of each year.

Source: Investment Company Institute

The smaller capital gain distribution reflects falling equity prices during the past two years that eliminated unrealized appreciation that many equity funds had built up in the late 1990s. The bull market of the 1990s created a significant amount of undistributed capital gains that reached as high as 33 percent of assets in 1999. As funds sold assets and realized these gains, they were required to distribute them.<sup>25</sup> The bear market in stocks eliminated the embedded capital gains of most equity funds, and, in fact, left many funds with stocks that were valued less than their original purchase price. Through October 2002, equity funds had accumulated losses equal to 28 percent of their assets. These losses will offset gains that funds earn once the stock market begins to recover and reduce equity fund capital gain distributions in the future.

<sup>23</sup> See “Redemption Activity of Mutual Fund Owners,” *Fundamentals*, Vol. 10, No. 1, March 2001, Investment Company Institute ([www.ici.org/pdf/fm-v10n1.pdf](http://www.ici.org/pdf/fm-v10n1.pdf)).

<sup>24</sup> The pace of redemptions at foreign equity funds in 2002 was 75 percent compared with 29 percent in 1992. The redemption rate for domestic equity funds held in variable annuities was 30 percent in 2002 compared with 7 percent in 1992. One reason these redemption rates may be higher is that a small percentage of shareholders move in and out of these funds to try to time the foreign equity market fluctuations. Many fund complexes discourage frequent trading by imposing fees on investors who do not own fund shares for a minimum period of time, limiting the number of permitted exchanges, or restricting exchange privileges in other ways. In addition, funds must fair value portfolio securities to take into account significant events that occur after the close of foreign markets. Nonetheless, market-timing activity among some investors persists, particularly in variable annuities, elevating the redemption rate for funds.

<sup>25</sup> Funds are required to distribute by December 31 of each calendar year, or otherwise pay an excise tax on undistributed amounts (1) equal to the sum of 98 percent of their ordinary income for the calendar year; (2) 98 percent of their capital gain net income for the 12-month period ending on October 31 of the current calendar year; and (3) any undistributed amounts from prior years.

FIGURE 10

**Net New Cash Flow to Bond Funds, 1990–2002**

(billions of dollars)

	Corporate and Strategic-Income	Government and Mortgage-Backed	High-Yield	Global	Tax-Exempt	Total
1990	2	-8	-5	8	10	7
1991	9	17	2	10	21	59
1992	11	30	5	-3	28	71
1993	17	6	8	1	38	71
1994	1	-40	-1	-7	-15	-62
1995	10	-14	8	-4	-7	-6
1996	12	-14	12	-2	-6	3
1997	21	-9	17	-1	1	28
1998	38	9	14	-1	15	75
1999	15	-2	-3	-2	-12	-4
2000	-5	-16	-12	-2	-14	-50
2001	42	28	7	-1	12	88
2002	54	59	11	0	16	140

Note: Columns may not add to total because of rounding.

Source: Investment Company Institute

**BOND AND HYBRID FUNDS**

Bond funds received a record net inflow of \$140 billion in 2002, up from \$88 billion in 2001 (Figure 10). The stronger inflows were in part associated with the attractive returns of bond funds, as well as households seeking to place assets outside of the equity market. Consequently, inflows did not increase for all types of bond funds. Taxable bond funds investing in government and agency securities received strong inflows, while high-yield bond funds, which invest in more risky securities, posted smaller inflows. Hybrid funds, which invest in a combination of bonds and stocks, also had a modest inflow of \$9 billion.

**Taxable Bond Funds.** There is a wide range of choice among taxable bond funds ranging from funds investing in U.S. government and agency debt to high-yield funds that invest in lower-rated corporate bonds. Fund flows are highly correlated with performance, which can vary across funds depending on the interest rate movements on the bonds that the funds hold.

In 2002, interest rates fell the most on high-grade debt securities such as those issued by the U.S. government and agencies and highly rated corporate bonds and notes. Yields on intermediate- and long-term U.S. government and agency debt securities declined more than a percentage point, pushing prices higher and lifting the returns on bond funds investing in these securities. The average long-term U.S. government bond fund earned 13.4 percent in 2002, after posting a return of 5.3 percent in the previous year.<sup>26</sup>

Although the securities held in U.S. government bond funds bear minimal default risk, investors can experience considerable fluctuations in the value of their fund shares as interest rate movements can cause substantial

<sup>26</sup> Returns are calculated for long-term government bond funds reported in *Morningstar Principia Pro*, Morningstar, Inc., January 2003.

price fluctuations of the bonds these funds hold. When interest rates are falling and returns on these funds are high, flows tend to increase.<sup>27</sup> Likewise, when interest rates are rising and the returns on these funds decline, these funds experience outflows. The high returns on U.S. government and mortgage-backed bond funds in 2002 were associated with strong inflows, which rose to \$59 billion from \$28 billion in 2001.

The downturn in the stock market also helped to boost the flow into government bond funds. A statistical model of the determinants of net new cash flow to government bond funds shows that the monthly inflow, measured as a percentage of assets, rises more than one percentage point when the stock market declines by 10 percent from year earlier levels. The decline in the S&P 500 in 2002 lifted the inflow to these funds by an estimated \$40 billion above what would have occurred had stock prices not changed.

In contrast, the high-yield bond market was weighed down by increasing default rates and rising yields on these bonds. Corporations issuing bonds in this market are the most vulnerable to adverse economic conditions. When the economy softens, as it has in the past few years, yields tend to rise and prices of these bonds fall. In 2002, the average return on high-yield bond funds was -1.9 percent.<sup>28</sup> As with the government bond funds,

investors in high-yield funds tend to decrease their purchases when returns are low. In 2002, high-yield funds received \$11 billion in net new cash, little changed from 2001, when returns on these funds were also held down by falling bond prices.

Net new cash flow to other taxable bond funds rose in 2002 to \$54 billion from \$41 billion in 2001. Most of the inflow occurred among strategic-income funds, the largest category of bond funds. This category includes funds that invest in a broad range of bonds, including U.S. government, agencies, and corporate bonds, and have posted strong returns in the past three years.

***Tax-Exempt Bond Funds.*** The inflow to tax-exempt bond funds was much less than that for taxable funds, totaling \$16 billion in 2002, up only slightly from \$12 billion in 2001. In contrast, households' direct purchases of municipal bonds more than doubled in 2002.<sup>29</sup>

The modest inflows to tax-exempt bond funds in 2002 reflected a pattern of weak demand that has persisted since the mid-1990s. Most of the tax-exempt bond fund asset growth has come from reinvested dividends since 1994, and their slow growth led many fund sponsors to merge or liquidate their tax-exempt bond funds. At year-end 2002, there were 770 tax-exempt bond funds, down from their peak of 1027 in 1995. Many of the funds that were merged or liquidated were small. At their peak in 1995, 457 tax-exempt bond funds had assets of less than \$50 million. By the end of 2002, only 147 funds were that small.

***Hybrid Funds.*** Investor demand for hybrid funds was little changed in 2002, with net new cash flow totaling \$9 billion, near the annual average of the past decade. These funds invest in a mixture of bonds and stocks, and their returns are a blend between those on equity and bond funds.

<sup>27</sup> See the Appendix for models of taxable bond fund flows that demonstrate the positive relationship between bond fund flows and returns.

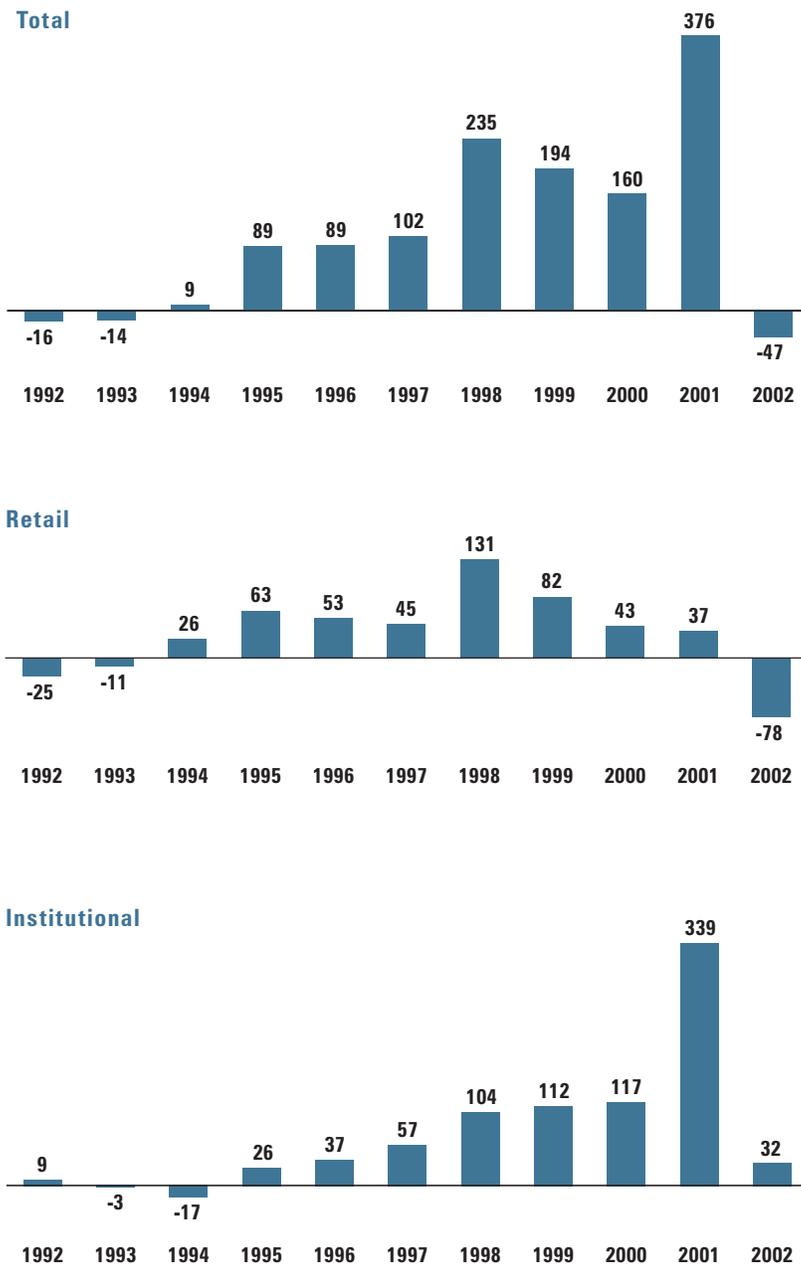
<sup>28</sup> Returns are calculated for high-yield bond funds reported in *Morningstar Principia Pro*, Morningstar, Inc., January 2003.

<sup>29</sup> Through the third quarter of 2002, households directly purchased \$86 billion of municipal bonds at an annual rate, up from \$40 billion in 2001, according to the *Flow of Funds Accounts* (December 5, 2002).

FIGURE 11

**Net New Cash Flow to Money Market Funds, 1992–2002**

(billions of dollars)



Note: Institutional and retail flows may not add to total because of rounding.  
 Source: Investment Company Institute

**MONEY MARKET FUNDS**

Net new cash flow to money market funds turned negative in 2002, as declining interest rates led shareholders to invest in financial instruments competing with money market funds. Money market funds had an outflow of \$47 billion in 2002, compared with a record inflow of \$376 billion in 2001 (Figure 11). Assets declined to \$2.272 trillion.

**Retail Money Market Funds.** Retail money market funds had an outflow of \$79 billion for the year. The most important factor affecting retail money fund flows is the difference between money fund yields and interest rates on bank savings deposits (Figure 12).<sup>30</sup> Because money market funds are a liquid short-term investment, these funds compete directly with short-term bank deposits. In 2002, the spread between taxable retail money market funds and bank savings deposits narrowed to one-quarter of a percent, compared with a 4 percentage point advantage for money market funds in 2000. As the yield advantage narrows, retail investors tend to hold a larger share of their short-term investments in bank deposits. Households added about \$400 billion to time, savings, and checking accounts at banks and thrifts in 2002.<sup>31</sup>

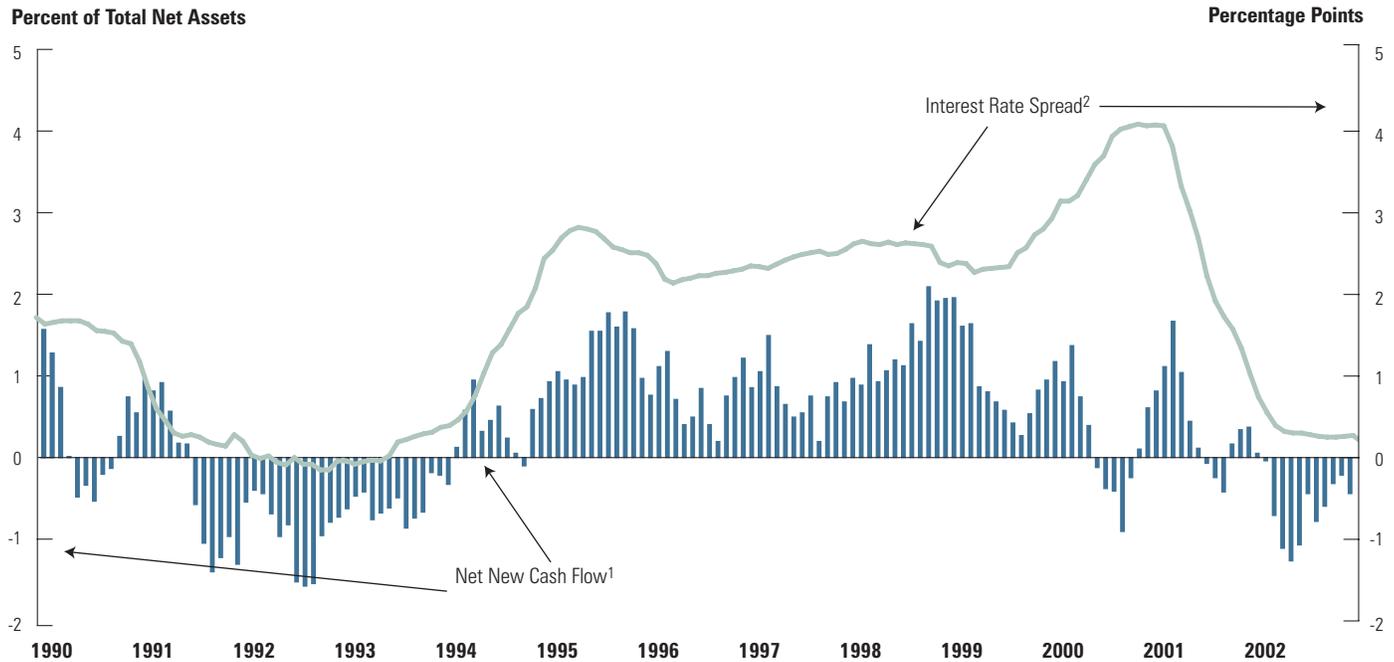
Another factor contributing to the outflow from money market funds was the yield advantage that bond funds held over money market funds. Some investors use bond funds as a short-term liquid asset, and when returns on these funds rise relative to money market funds, the net flow to retail money market funds slows. The low yields on money market funds and strong returns on many bond funds caused the difference in returns to widen to 7.8 percentage points in 2002. This

<sup>30</sup> See the Appendix for a discussion of the model used to estimate taxable retail money fund flows. This model has been updated from the one presented in Reid, Millar, and Sevigny (2002).

<sup>31</sup> Annual flows for time, savings, and checking accounts are estimated from flows during the first three quarters of the year. Flow data are from the *Flow of Funds Accounts* (December 5, 2002).

FIGURE 12

**Interest Rate Spread and Net New Cash Flow to Taxable Retail Money Market Funds, 1990–2002**



<sup>1</sup> Net new cash flow is a percent of previous month-end 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

difference in returns is estimated to have reduced money fund inflows by \$16 billion relative to the inflow that would have occurred had there been no difference in returns.

Offsetting the factors that reduced money fund flows was the downturn in the stock market. During periods of negative stock market returns, retail money fund flows tend to increase. For every 10 percent decline in the stock market, monthly taxable retail money market fund flows increase by 2.4 percent of assets. The decline in the U.S. stock market in 2002 likely boosted taxable retail money fund inflows by \$75 billion above what they otherwise would have been had the stock market remained flat.

***Institutional Money Market Funds.*** Institutional money market funds, used by businesses, pension funds, state and local governments, and other large investors had an inflow of \$32 billion in 2002, down from the record \$339 billion inflow in 2001. With short-term interest rates remaining steady for most of the year, institutional money fund yields fell below open-market rates, prompting some institutional investors to move money directly into money market instruments to capture the interest-rate premium. In contrast, the spread favored money market funds in 2001, resulting in the record inflow.

Until the Federal Reserve eased monetary policy in November 2002, institutional funds had a net outflow of \$75 billion. The 50 basis point cut in the federal funds rate in November temporarily caused money fund yields to exceed open-market rates. As a result, institutional money market funds experienced a \$134 billion net inflow in November, a record for any month.

FIGURE 13

## 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
Constant	0.185	1.079***	1.094***
Positive Percent Change in Stock Index	0.057***	0.067***	0.020
Negative Percent Change in Stock Index	0.076***	0.035**	-0.068***
Flows <sub>t-1</sub>	0.591***	0.281***	0.180**
Flows <sub>t-2</sub>	-0.007	0.247**	0.063
Flows <sub>t-3</sub>	0.246**	0.155*	0.251***
Positive Percent Change in Stock Index <sub>t-1</sub>	-0.023	0.030*	0.045***
Negative Percent Change in Stock Index <sub>t-1</sub>	-0.012	0.048***	0.029
Positive Percent Change in Stock Index <sub>t-2</sub>	-0.005	0.013	0.045***
Negative Percent Change in Stock Index <sub>t-2</sub>	0.009	0.035**	0.014
Positive Percent Change in Stock Index <sub>t-3</sub>	-0.001	0.012	0.033**
Negative Percent Change in Stock Index <sub>t-3</sub>	0.007	0.042**	0.042**
Number of Observations	120	120	120
R <sup>2</sup>	0.715	0.594	0.505

\* significant at 10 percent level

\*\* significant at 5 percent level

\*\*\* significant at 1 percent level

Note: The "Positive Percent Change in Stock Index" is the month-end to month-end percent change in the Wilshire 5000 for those months in which that change is positive. "Negative Percent Change in Stock Index" is the month-end to month-end percent change in the Wilshire 5000 in those months in which that change is negative. Lagged flows correspond to lags of the dependent variable. Flows are scaled by the fourth lag of month-end assets. The models were estimated using ordinary least squares from January 1990 through December 1999.

Source: Investment Company Institute

## CONCLUSION

Mutual fund investors continued to react to market fluctuations much as they have in the past. Shareholders in equity and money market funds responded to the low fund returns by curtailing their net purchases, in line with their reaction during market movements in the past. Bond fund investors increased their net purchases as bond fund returns rose. The predictability of fund investors' response to market fluctuations in 2002 indicates that, for the most part, mutual fund flows reflect investors' cyclical reaction to returns and not a more permanent shift in their preferences.

## APPENDIX

### Models of Equity Fund Flows

The statistical models that are used to analyze net new cash flow, sales, and redemptions for domestic equity funds in this issue of *Perspective* are slightly modified versions of those presented in Reid, Millar, and Sevigny

(2002). The modified models are still estimated from 1990 through 1999, and forecasts from these models are used to analyze flows since the beginning of 2000. The new models reduce the number of lags from six to three for net new cash flow, sales, and redemptions (Figure 13). The modified models also include three lags of stock market fluctuations, allowing for differential response of flows to market upturns and downturns. The stock market returns are measured by the percentage change in the Wilshire 5000 based on month-end levels of the index rather than the month-average level in the earlier models.

The new models produce results that are similar to the earlier models, but they are able to explain a larger percentage of the variation in flows during

the 1990–1999 period. For example, the new model accounts for 72 percent of the variation in net new cash flow during this period, compared with the earlier model that captured 59 percent of the changes in net new cash flow. The effects of stock market movements in the new model are more symmetrical than in the old model. In the earlier model, only stock market declines affected net new cash flow. In the new model, both increases and decreases in stock prices affect equity fund flows. Nonetheless, dynamic forecasts of net new cash flow using either the old or new old model track actual flows very closely since 1999.

### **Model of Taxable Retail Money Market Flows**

The model for taxable retail money market flows used in this issue of *Perspective* was modified slightly from that reported in Reid, Millar, and Sevigny (February 2002). The new model is estimated from 1990 through 2002 and adds a new variable to capture the relative returns between money market funds and bond funds. As the return on bond funds rises relative to money market funds, some investors reduce their holdings of money market funds and increase their holdings of bond funds, holding down the net flow into money market funds. The previous model captured the relative returns between bond funds and money market funds with the spread between the yield on the five-year Treasury note and the money fund yield. This variable was not significant. The updated model replaces this variable with the spread between the total return on a general bond index and the yield on taxable retail money market funds (Figure 14). This variable is significant and negative, indicating that money fund flows slow when bond fund returns rise relative to money fund returns.

**FIGURE 14**

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

#### **Independent Variable**

Money Fund-MMDA Yield Spread	0.571***
Bond Return-Money Fund Yield Spread	-0.020***
Positive Percent Change in S&P 500	0.072*
Negative Percent Change in S&P 500	0.238***
Retail Sweeps	-2.211***
January	0.990***
February	0.151
March	-0.732**
April	-2.590***
May	-1.361***
June	-1.672***
July	0.339
August	-0.394
September	-1.604***
October	-0.375
November	-0.105
December	-1.976***
Number of Observations	156
Ljung-Box $\chi^2$ (12) statistic	16.98
R <sup>2</sup>	0.672

\* 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 taxable retail money market funds measured as a percentage of previous month-end assets. The "Money Fund-MMDA Yield Spread" is the spread of taxable retail money fund yield over yields on money market deposit accounts. The "Bond Return-Money Fund Yield Spread" is the spread between the annualized return for the Salomon Smith Barney Broad Investment Grade Bond Index and the taxable retail money fund yield. The "Positive Percent Change In S&P 500" is the percent change in the average monthly S&P 500 when the index is positive. The "Negative Percent Change In S&P 500" is the absolute value of the percentage change in the average monthly S&P 500 when the index is negative. "Retail Sweeps" is the outflow from money funds that had assets transferred to money market deposit accounts measured as a percentage of total net assets of all taxable retail money funds. The model is estimated using ordinary least squares from January 1990 to December 2002.*

*Sources: Investment Company Institute, Salomon Smith Barney, and Standard and Poor's Corporation*

FIGURE 15

Estimated Model Coefficients for Bond Fund Flows

Independent Variable	Dependent Variable		
	Net New Cash Flow to Government and Mortgage-Backed Bond Funds	Net New Cash Flow to Corporate and Strategic-Income Bond Funds	Net New Cash Flow to High-Yield Bond Funds
Constant	-0.196	0.809***	1.261***
Annual Total Return	0.147***	0.084***	
Monthly Total Return <sub>t</sub>			0.572***
Monthly Total Return <sub>t-1</sub>			-0.237***
Yield Curve	0.110	0.128**	
Positive Percent Change in S&P 500	-0.006	0.009	
Negative Percent Change in S&P 500	0.111***	0.014	
Seasonal Factors	July** December**	December***	August* September* December**
First-Order Autoregressive Correction Term	0.426***	0.416***	0.015
Second-Order Autoregressive Correction Term	0.275***		0.269***
Third-Order Autoregressive Correction Term			0.212***
Number of Observations	156	156	153
Ljung-Box $\chi^2$ (12) statistic	12.71	15.6	9.44
R <sup>2</sup> (structural component in brackets)	0.784 (0.399)	0.658 (0.402)	0.449 (0.437)

\* significant at 10 percent level

\*\* significant at 5 percent level

\*\*\*significant at 1 percent level

Note: The dependent variables are net new cash flow to government and mortgage-backed bond funds, corporate and strategic-income bond funds, and high-yield bond funds, measured as a percentage of previous month-end assets. The "Annual Total Return" is the total return on bonds for the past year, minus the mean return during the estimation period. For government and mortgage-backed bond funds, the Salomon Smith Barney Government/Mortgage Index was used. For corporate and strategic-income funds, the Salomon Smith Barney Investment Grade Corporate Index was used. The "Monthly Total Return" is the monthly return for the Merrill Lynch High-Yield Master II Index, minus the mean return. The "Yield Curve" is the spread between the yield on 10-year Treasury securities and the yield on taxable retail money market mutual funds, minus the average spread. The "Positive Percent Change in S&P 500" is the percentage change in the average monthly S&P 500 when the annual change in the index is positive. The "Negative Percent Change in S&P 500" is the absolute value of the percentage change in the average monthly S&P 500 level when the annual change in the index is negative. The government and mortgage-backed flow model and the corporate and strategic-income flow model are estimated using the Yule-Walker method from January 1990 through December 2002. The high-yield model is estimated using the Yule-Walker method from April 1990 through December 2002.

Sources: Investment Company Institute, Merrill Lynch, Salomon Smith Barney, and Standard and Poor's Corporation

Other explanatory variables in the current retail money market fund model are the same as in the earlier model. The estimated coefficients in the current model are slightly different than in the earlier model because of the new variable and because 2002 was added to the estimation period. Nonetheless, the estimated coefficients remain near those estimated in the earlier model.

### **Models of Bond Fund Flows**

This issue of *Perspective* draws on results from three new models to analyze bond fund flows. Separate models are used to estimate monthly net new cash flow to government and mortgage-backed bond funds, high-yield bond funds, and corporate and strategic-income bond funds (Figure 15). The bond fund models are estimated from 1990 through 2002.

Net new cash flow to bond funds generally increased during this period. The net new cash flow series are adjusted to make the flows at the beginning of the estimation period comparable to those at the end. To do this, net new cash flow in each month is divided by total net assets at the end of the previous month.

Bond fund flows are correlated with contemporaneous and past bond fund returns. The government and mortgage-backed bond fund and the corporate and strategic income bond fund models include an annual total return variable. The

high-yield bond fund model uses the total return in the current month and previous month rather than the annual return. A different return index is used for each bond fund model. The model of government and mortgage-backed bond fund flows uses an index of government and mortgage-backed bonds to measure returns. An index of investment-grade corporate bonds is used to measure returns for the model of corporate and strategic-income bond fund flows. The high-yield bond fund model uses a total return index for high-yield bonds.

In addition to past bond returns, government and mortgage-backed bond flows are also correlated with stock market movements. When stock prices fall, the inflow to government and mortgage-backed bonds tends to increase, although it does not tend to decrease when stock market returns are positive. To capture this nonparallel effect, the government and mortgage-backed bond fund and corporate and strategic bond fund models include separate variables for positive and negative percentage changes in the stock market.

The substitution between money market funds and bond funds is captured by the slope of the yield curve, measured as the spread between the 10-year Treasury bond and the yield on taxable retail money market funds. This variable is only significant in the corporate bond fund model.

To account for any systematic monthly effects on bond fund flows, 11 seasonal variables are included in each model and measure for seasonal effects relative to January flows. Bond fund flows generally do not show a strong seasonal pattern, but there is a statistically larger inflow in December for all three bond fund models. Finally, the error terms in all three models tend to be positively correlated. Corrections are made to eliminate the autoregressive nature of the error terms.

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