INVESTMENT COMPANY INSTITUTE®

PERSPECTIVE

Vol. 9 / No. 5

September 2003

Perspective is a series of occasional papers published by the Investment Company Institute, the national association of the American investment company industry.

John Rea, *executive editor;*
Craig Tyle, *executive editor;*
Sue Duncan, *managing editor.*

1401 H Street, NW
Suite 1200
Washington, DC 20005

www.ici.org

401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2002

by Sarah Holden and Jack VanDerhei[1]

OVERVIEW AND SUMMARY

The Employee Benefit Research Institute (EBRI)[2] and the Investment Company Institute (ICI)[3] in a collaborative effort have gathered annual data on 401(k) participants since 1996 from a wide variety of 401(k) plan recordkeepers.[4] This issue of *Perspective* provides an update on asset allocation, account balance, and loan activity as of year-end 2002.[5] In addition, this update provides a unique opportunity to observe how a large and representative sample of 401(k) participants has fared during several years of slow economic growth and a severe bear market in stocks that caused broad market indexes to decline nearly 40 percent between year-end 1999 and year-end 2002.[6]

Data gathered for year-end 2002 show that while the portion of 401(k) balances invested in equities has declined, 401(k) plan participants do not appear to have made significant changes to their asset allocation or made changes in their loan activity. Furthermore, while broad equity market indexes fell 22 percent in 2002, continuing contributions into 401(k) plans and diversified asset allocation generally muted the impact of the poor market performance on participants' account balances. Among participants with accounts since year-end 1999, the average account balance fell 7.9 percent in 2002 and declined a total of 10.0 percent between year-end 1999 and year-end 2002.

[1] Sarah Holden, Senior Economist, Research Department at the Investment Company Institute (ICI) and Jack VanDerhei, Temple University, Employee Benefit Research Institute (EBRI) Fellow. Special thanks to Luis Alonso, Research Associate at EBRI, who managed the database. In addition, thanks to Stefan Kimball at ICI who assisted in preparing the graphics.

[2] The Employee Benefit Research Institute is a nonprofit, nonpartisan, public policy research organization, which does not lobby or take positions on legislative proposals.

[3] The Investment Company Institute is the national association of the U.S. investment company industry. Its membership includes 8,655 open-end investment companies ("mutual funds"), 588 closed-end investment companies, 106 exchange-traded funds, and six sponsors of unit investment trusts. Its mutual fund members manage assets of approximately $6.9 trillion, accounting for approximately 95 percent of total industry assets, and represent more than 90 million individual shareholders.

[4] In this effort, known as the EBRI/ICI Participant-Directed Retirement Plan Data Collection Project, EBRI and ICI have collected data from some of their members that serve as plan recordkeepers and administrators. The data include demographic information, annual contributions, plan balances, asset allocation, and loan balances.

[5] The 2002 EBRI/ICI database contains 15.5 million active 401(k) plan participants in 46,310 plans with $618.6 billion in assets. The EBRI/ICI data are unique because they cover a wide variety of plan administrators and recordkeepers and, therefore, a wide range of plan sizes offering a variety of investment alternatives. This update extends previous findings from the project for 1996 through 2001. For year-end 2001 results, see Holden and VanDerhei (March 2003). Results for earlier years are available in earlier issues of *Perspective*. All issues of *Perspective* are available through ICI's public policy website at www.ici.org/perspective/index.html. Poterba (May 2003) and Utkus (February 2003) are other recent studies of 401(k) plan participants; references for other earlier studies are included in the previous EBRI/ICI research updates.

[6] For example, the S&P 500 was down 22.1 percent in 2002, after falling 11.9 percent in 2001 and falling 9.1 percent in 2000 (see Ibbotson Associates (2003)). The Russell 3000 fell about 21.5 percent in 2002, after falling 11.5 percent in 2001 and 7.5 percent in 2000.

INVESTMENT COMPANY INSTITUTE®

The principal findings as of year-end 2002 are as follows:

Asset Allocation

- The average asset allocation of 401(k) participants to equity securities continued to move lower in the 2002 EBRI/ICI database, reflecting the performance of the equity markets. Nevertheless, equity securities remained the bulk (62 percent) of 401(k) plan assets.
- Analysis of the portion of account balances held in equity funds[7] among participants with accounts at the end of each year from 1999 through 2002 suggests that most participants did not actively change their asset allocations between 1999 and 2002.
- The poor stock market performance does not seem to have affected other asset allocation patterns. For example, younger participants still tend to hold a higher portion of their accounts in equity assets and older participants invest more in fixed-income assets.
- Participants' allocations to company stock remained in line with previous years. About half of the participants in the EBRI/ICI year-end 2002 database are in plans that offer company stock as an investment option. More than half of the participants in these plans held 20 percent or less of their account balances in company stock, including 35 percent who held none. On the other hand, about 14 percent of the participants in these plans held more than 80 percent of their account balances in company stock.

Account Balances

- The average account balance[8] among participants who consistently held accounts since 1999 declined 7.9 percent in 2002 and 10.0 percent since 1999. The change in a participant's account balance is a result of contributions, investment returns, withdrawals, borrowing, and loan repayments.
- The average account balance tended to increase in 2002 for young participants and those with lower tenure. These participants tend to have lower balances and contributions are large relative to these balances. For example, the average account balance rose 4.3 percent in 2002 for participants in their twenties who had an account since 1999.
- The average account balance for older and longer tenure participants tended to decline in 2002 as investment returns are more significant than contributions because their account balances tend to be larger. For example, the average account balance fell 10.0 percent in 2002 among participants in their sixties who had an account since 1999. However, participants in their sixties also have a higher propensity to take withdrawals.

Plan Loans

- Despite the continuing volatility in financial markets and generally weak economic conditions, 401(k) plan participants' loan activity in 2002 was essentially unchanged from earlier years. Only 17 percent of eligible participants had outstanding loans at the end of 2002. In addition, for those with outstanding loans at the end of 2002, the level of the unpaid balance represented 16 percent of the account balance, net of the unpaid loan balance, little changed from recent years.
- Loan activity varies with age, tenure, salary, and account balance.

THE EBRI/ICI DATABASE

Source and Type of Data

Several EBRI and ICI members provided records on active participants in 401(k) plans they administered for year-end 2002. These plan administrators include mutual fund companies, insurance companies, and consulting firms. Although the EBRI/ICI project has collected data from 1996 through 2002, the universe of data providers varies from year to year. Thus, aggregate figures in this report generally should not be used to estimate time trends, unless this report indicates otherwise. Records were encrypted to conceal the identity of employers and employees, but were coded so that both could be tracked over multiple years.

Data provided for each participant include participant date of birth, from which an age cohort is assigned; participant date of hire, from which a tenure range is assigned; outstanding loan

[7] "Funds" include mutual funds, bank collective trusts, life insurance separate accounts, and any pooled investment product primarily invested in the security indicated (see page 3 for definitions of the investment categories used in this paper).

[8] The reported account balance represents retirement assets in the 401(k) plan at the participant's current employer. Retirement savings held in plans at previous employers or rolled over into individual retirement accounts (IRAs) are not included in this analysis.

balance; funds in the participant's investment portfolios; and asset values attributed to those funds. An account balance for each participant is the sum of the participant's assets in all funds.[9] Plan balances are constructed as the sum of all participant balances in the plan. Plan size is estimated as the sum of active participants in the plan and, as such, does not necessarily represent the total number of employees at the sponsoring firm.

Investment options are grouped into eight categories.[10] Equity funds consist of pooled investments primarily investing in stocks. These funds include equity mutual funds, bank collective trusts, life insurance separate accounts, and other pooled investments. Similarly, bond funds are any pooled account primarily invested in bonds, and balanced funds are pooled accounts invested in both stocks and bonds. Company stock is equity in the plan's sponsor (the employer). Money funds consist of those funds designed to maintain a stable share price. Stable value products such as guaranteed investment contracts (GICs)[11] and other stable value funds[12] are reported as one category. The "other" category is the residual for other investments such as real estate funds. The final category, "unknown," consists of funds that could not be identified.[13]

Distribution of Plans, Participants, and Assets by Plan Size

The 2002 EBRI/ICI database contains 46,310 401(k) plans with $618.6 billion of assets and 15,509,185 participants (Figure 1).[14] Most of the plans in the database are small, measured by the number of plan participants or by total plan assets.[15] Forty-three percent of the plans in the database have 25 or fewer participants, and 33 percent have

FIGURE 1

EBRI/ICI Database: 401(k) Plan Characteristics by Number of Plan Participants, 2002

Number of Plan Participants	Total Plans	Total Participants	Total Assets	Average Account Balance
1 to 10	7,786	49,261	$1,358,021,056	$27,568
11 to 25	12,212	210,417	$4,655,591,912	$22,126
26 to 50	9,072	327,262	$7,484,260,892	$22,869
51 to 100	6,390	453,687	$11,002,269,366	$24,251
101 to 250	5,213	818,907	$21,119,909,414	$25,790
251 to 500	2,289	803,130	$20,845,474,292	$25,955
501 to 1,000	1,319	922,033	$28,304,197,467	$30,698
1,001 to 2,500	1,041	1,609,723	$54,079,960,434	$33,596
2,501 to 5,000	448	1,577,083	$58,758,299,436	$37,258
5,001 to 10,000	258	1,777,850	$72,631,475,411	$40,854
>10,000	282	6,959,832	$338,351,355,734	$48,615
All	46,310	15,509,185	$618,590,815,415	$39,885

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

[9] Account balances are net of unpaid loan balances. Thus, unpaid loan balances are not included in any of the eight asset categories described.

[10] This system of classification does not consider the number of distinct investment options presented to a given participant, but rather the types of options presented. Preliminary research analyzing 1.4 million participants drawn from the 2000 EBRI/ICI database suggests that the sheer number of investment options presented does not influence participants. On average, participants have 10.4 distinct options but, on average, choose only 2.5 (Holden and VanDerhei (May 2001)). In addition, the preliminary analysis found that 401(k) participants are not naïve—that is, when faced with "n" options they do not divide their assets among all "n." Indeed, less than 1 percent of participants followed a "1/n" asset allocation strategy.

[11] GICs are insurance company products that guarantee a specific rate of return on the invested capital over the life of the contract.

[12] Other stable value funds include synthetic GICs, which consist of a portfolio of fixed-income securities "wrapped" with a guarantee (typically by an insurance company or a bank) to provide benefit payments according to the plan at book value.

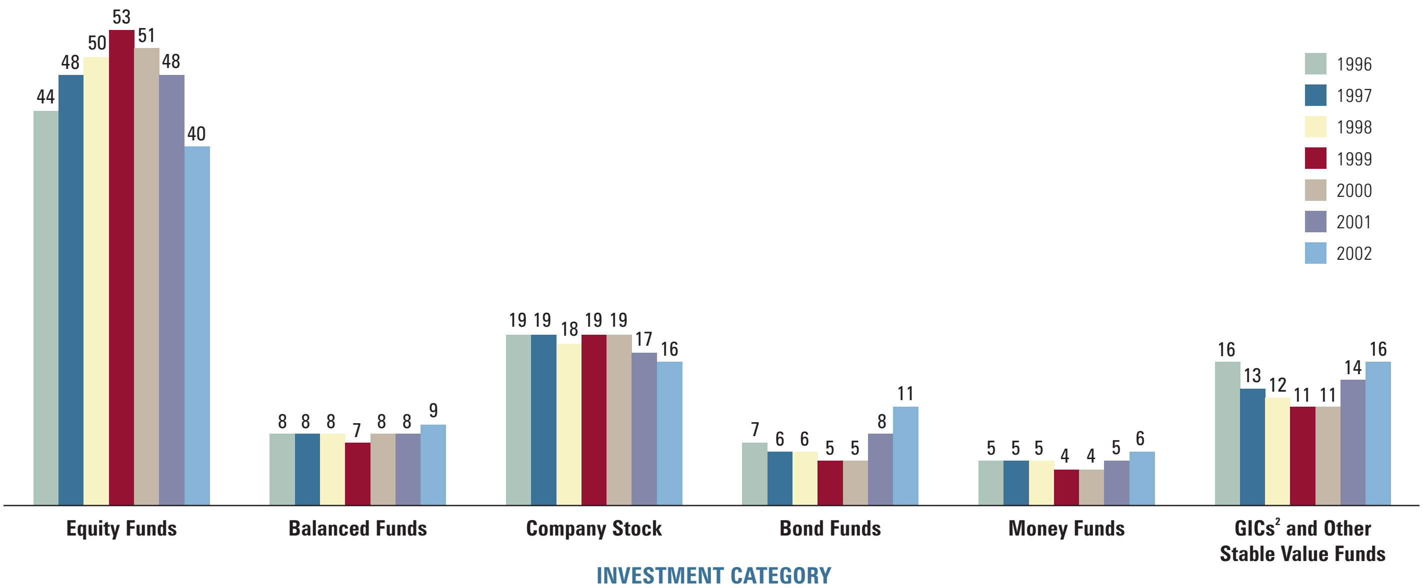
[13] Some administrators supplying data were unable to provide complete asset allocation detail on certain pooled asset classes for one or more of their clients. Only plans in which at least 90 percent of all plan assets could be identified were included in the final EBRI/ICI database.

[14] For a comparison of the distribution of plans, participants, and assets in the EBRI/ICI database with the universe of 401(k) plans, see the Appendix (Figure A1). The Appendix is available through ICI's public policy website at www.ici.org/perspective/index.html. Hard copies may be obtained from ICI's Research Department.

[15] For the distribution of plans, participants, and assets by plan assets see the Appendix (Figure A2).

FIGURE 2

401(k) Plan Average Asset Allocation, 1996–2002
(percent of total assets)[1]



[1] Minor investment options are not shown.
[2] Guaranteed investment contracts.
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

26 to 100 participants. In contrast, only 4 percent of the plans have more than 1,000 participants. However, participants and assets are concentrated in large plans. For example, 77 percent of participants are in plans with more than 1,000 participants, and these same plans account for 85 percent of all plan assets.

ASSET ALLOCATION

On average, participants in the 2002 EBRI/ICI database had 62 percent of plan balances invested directly or indirectly in equity securities—the sum of equity funds, company stock, and the equity portion of balanced funds.[16] Forty percent of their account balances are invested in equity funds, 16 percent in company stock, and 9 percent in balanced funds (Figure 2).[17]

Investment performance likely explains the bulk of the changes in 401(k) plan participants' asset allocations over time. Much of the movement in the largest component, equity funds, tends to reflect overall equity market prices, which generally rose from 1996 through 1999 before moving down through 2002 (Figure 3). However, at the margin, the EBRI/ICI databases are able to identify a small number of 401(k) plan participants who appear to have actively changed their asset allocations.

The 2002 EBRI/ICI database represents a snapshot of the asset allocation of a wide cross-section of 401(k) plan participants' accounts at year-end 2002. Thus, the aggregate average asset allocation presented reflects the entrance and exit of plans and participants. When trying to discern participant behavior over time, it is important to narrow the analysis to a consistent group of participants present in consecutive years in the database.

Changes in Asset Allocation Over Time

This section examines changes in asset allocation of a group of participants who held accounts at the end of each year from 1999 through 2002. Analyzing a consistent group of participants removes the effect of participants and plans entering and leaving on the overall average asset

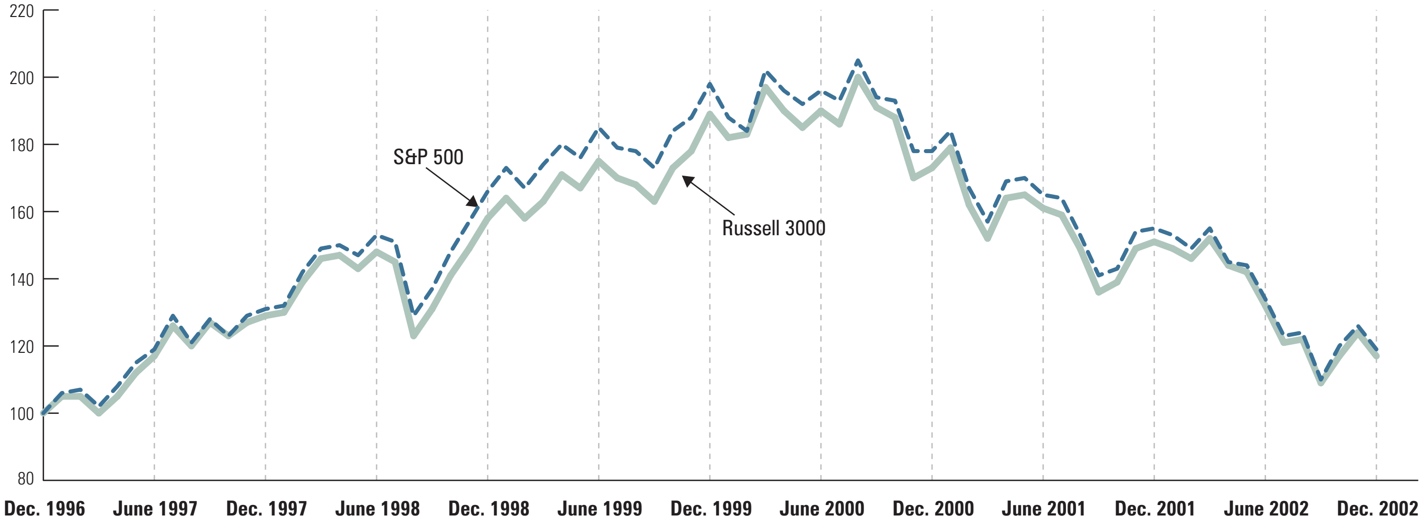
[16] At the end of 2002, approximately 60 percent of balanced mutual fund assets were invested in equities (see Investment Company Institute, *Quarterly Supplemental Data*).

[17] Unless otherwise indicated, all asset allocation averages are expressed as a dollar-weighted average.

FIGURE 3

Domestic Stock Market Indexes, December 1996 to December 2002[1]

(month-end level)[2]



[1] The S&P 500 Index consists of 500 stocks chosen for market size, liquidity, and industry group representation. The Russell 3000 measures the performance of the 3,000 largest U.S. companies based on total market capitalization.

[2] All indexes are set to 100 in December 1996.

Sources: Bloomberg, Frank Russell Company, and Standard & Poor's

allocation. About half, or 5.3 million, of the participants with accounts at year-end 1999 had accounts in each consecutive year through year-end 2002. The relative returns of the different investment categories, ongoing contributions into the various investment categories, and rebalancing of account balances among the investment categories by participants influence asset allocation of account balances. Previous research has indicated that most 401(k) participants do not make changes to their asset allocations during any given year,[18] in line with having a long-term investment horizon.

In comparing the asset allocations of the 5.3 million participants with account balances at year-end 1999—near the peak of the stock market—and year-end 2002, this analysis finds that few participants appear to have made or experienced extreme changes in their asset allocations. Detailed transaction information is not available; thus, this paper infers participant asset allocation activity using the year-end snapshots of their accounts.

To examine the changes in asset allocation, participants are placed into seven groups based on the percentage of their account balance invested in equity funds at year-end 1999. The seven groups corresponding to the percentages invested in equity funds are: none, 1 percent to 20 percent, 21 percent to 40 percent, 41 percent to 60 percent, 61 percent to 80 percent, 81 percent to 99 percent, and 100 percent (Figure 4). The participants within each of these groups are then grouped according to the percentage of their account balance invested in equity funds at year-end 2002, using the same seven ranges.

Within this system of cross-classification, a percentage along the diagonal shows the share of participants who remain within the same equity fund asset allocation grouping in 2002 that they occupied in 1999. The figures above the diagonal represent 401(k) plan participants

[18] For example, Investment Company Institute (Spring 2000) finds that 81 percent of 401(k) plan households surveyed made no allocation changes in the 12 months preceding the survey (August 1997 through September 1998). In addition, Investment Company Institute (March 2001) finds that 89 percent of equity mutual fund shareholders in defined contribution plans made no redemptions or redemption exchanges in 1998. Furthermore, Choi et al. (December 2001) finds that 401(k) participants rarely make changes after the initial point of enrollment. An analysis of changes in asset allocation among EBRI/ICI 401(k) plan participants to equity funds between 1996 and 1998 is presented in Holden, VanDerhei, and Quick (January/February 2000).

FIGURE 4

Changes in Participants' Investment in Equity Funds, 1999–2002
(percent of participants)[1]

PERCENTAGE OF ACCOUNT BALANCE INVESTED IN EQUITY FUNDS

	PERCENTAGE IN 2002							
PERCENTAGE IN 1999	None	1 to 20	21 to 40	41 to 60	61 to 80	81 to 99	100	Total in 1999[2]
None	21.5	2.0	0.7	0.5	0.4	0.3	0.5	25.9
1 to 20	0.7	3.4	1.0	0.4	0.2	0.1	0.1	5.9
21 to 40	0.8	2.4	3.7	1.1	0.4	0.2	0.1	8.6
41 to 60	1.0	1.0	4.0	5.3	1.2	0.4	0.3	13.2
61 to 80	0.9	0.7	1.2	5.0	5.1	1.0	0.5	14.5
81 to 99	0.8	0.5	0.6	1.1	3.9	4.3	0.8	12.1
100	2.2	0.7	0.6	1.0	1.3	1.8	12.2	19.9
Total in 2002[3]	27.9	10.7	11.8	14.5	12.5	8.1	14.4	100.0

[1] *Sample of 5.3 million participants with account balances at the end of each year from 1999 through 2002.*
[2] *Percentages across the row may not add to total because of rounding.*
[3] *Percentages in column may not add to total because of rounding.*

Sum of shaded areas: 71.0 percent of participants

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

who are in a higher equity fund allocation grouping in 2002 compared with 1999. Likewise, participants below the diagonal are in a lower equity fund allocation grouping in 2002 compared with 1999. Because equity returns in aggregate were negative over this time period, many of the participants below the diagonal may have had their equity allocations decreased due to market returns rather than as a result of any action on their part. The shaded areas cover the allocation ranges that would likely result from the equity market returns experienced during that time period in the absence of any participant action.[19] The bulk (71.0 percent) of participants fall into the shaded areas (Figure 4).

However, some participant action can be discerned by studying the cases of a change from either a 0 percent (none) or 100 percent allocation to any other allocation. For example, at year-end 1999, 25.9 percent of participants held no equity funds (Figure 4). At year-end 2002, 21.5 percent of participants continued to hold no equity funds, but 4.4 percent of participants were holding equity funds in 2002 when they held none in 1999. Conversely, the asset allocation to equity funds changed for 6.4 percent of participants from holding equity funds in 1999 to holding none in 2002. On net, the percentage of participants with no allocation to equity funds edged up only slightly between 1999 and 2002.

Similarly, there was a small decline in the percentage of participants allocating 100 percent of their accounts to equity funds (Figure 4). At year-end 1999, 19.9 percent of participants held 100 percent of their accounts in equity funds. At year-end 2002, 12.2 percent of participants continued to hold 100 percent of their accounts in equity funds. In addition, 2.2 percent of participants had increased their allocation to equity funds to 100 percent at year-end 2002 from lower allocations at year-end 1999. On net, the percentage of participants with their full account allocated to equity funds edged down between 1999 and 2002.

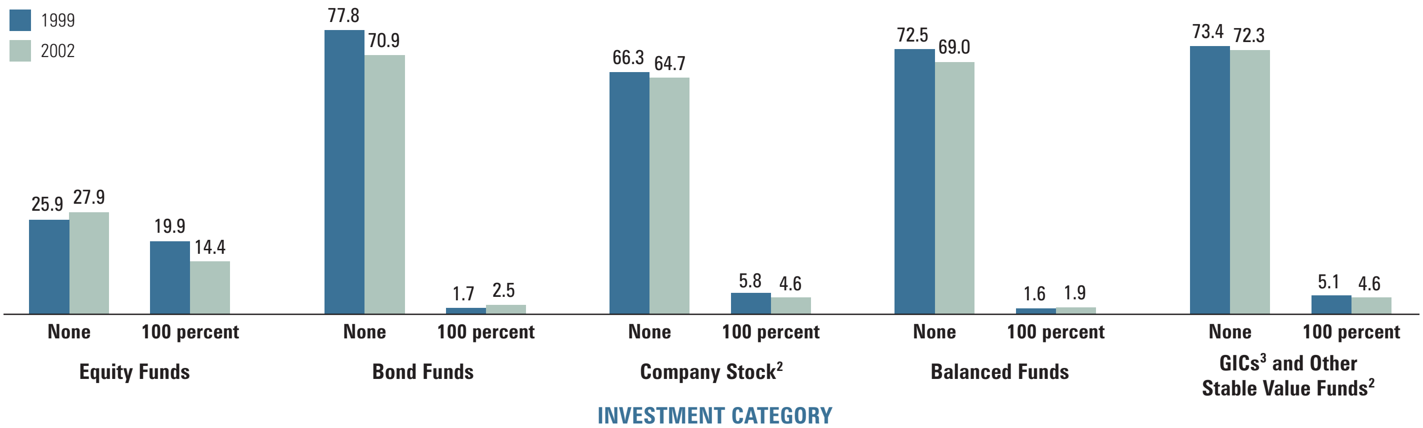
In sum, despite the ongoing bear market in equities, there is no evidence of a significant shift by a large percentage of participants away from their year-end 1999 allocations. In addition, the

[19] The width of the ranges was selected based on approximations of the impact of aggregate asset returns on hypothetical portfolios of various asset compositions, using major market averages for each asset class.

FIGURE 5

Changes in All or Nothing 401(k) Plan Participant Asset Allocation by Investment Category, 1999–2002

(percent of participants)[1]



[1] Includes the 5.3 million participants with accounts at the end of each year from 1999 through 2002. A given participant may be counted in multiple investment categories. For example, a participant who is 100 percent invested in equity funds will be counted as "none" in each of the other investment categories.

[2] Not all participants are offered these investment options. See Figure A4 in the Appendix.

[3] Guaranteed investment contracts.

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

FIGURE 6

Average Asset Allocation of 401(k) Accounts by Participant Age, 2002

(percent of account balances)

Age Cohort	Equity Funds	Balanced Funds	Bond Funds	Money Funds	GICs[1] and Other Stable Value Funds	Company Stock	Other	Unknown	Total[2]
20s	50.5	11.0	9.1	6.9	7.3	13.6	0.7	0.9	100
30s	51.4	9.8	8.6	5.2	7.4	15.9	0.9	0.7	100
40s	44.4	9.7	9.7	5.7	11.4	17.6	1.0	0.5	100
50s	37.3	9.1	11.5	6.4	17.5	16.6	1.1	0.4	100
60s	30.3	8.0	13.7	7.3	26.7	12.7	1.0	0.4	100
All	40.3	9.2	10.9	6.2	15.8	16.1	1.0	0.5	100

[1] Guaranteed investment contracts.

[2] Row percentages may not add to 100 percent because of rounding.

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

percentage of participants holding either none or 100 percent of their account balances in any particular investment option has changed little, except for equity funds and bond funds (Figure 5). The share of participants holding all of their accounts in equity funds decreased slightly, while the share completely eschewing bond funds edged down.

Asset Allocation by Age at Year-End 2002

As also shown in previous years, the EBRI/ICI database for year-end 2002 finds that participant asset allocation varies considerably with age (Figure 6).[20] Younger participants tend to favor equity funds, while older participants are more likely to invest in fixed-income securities such as bond funds, GICs and other stable value funds, or money funds. On average, participants in their twenties had 51 percent of their account

[20] Participants in their twenties hold approximately 2 percent of the total assets in the 2002 EBRI/ICI database; participants in their thirties hold 13 percent; participants in their forties hold 34 percent; participants in their fifties hold 37 percent; and participants in their sixties hold the remaining 14 percent of the total assets. For the distribution of participants by age or tenure see the Appendix (Figure A3).

FIGURE 7

Average Asset Allocation of 401(k) Accounts by Investment Options, 2002
(percent of account balances)[1]

Investment Options Offered by Plan	Equity Funds	Balanced Funds	Bond Funds	Money Funds	GICs[2] and Other Stable Value Funds	Company Stock
Equity, Bond, Money, and/or Balanced Funds	54.8	12.3	19.1	11.1		
Equity, Bond, Money, and/or Balanced Funds, and GICs[2] and/or Other Stable Value Funds	45.3	11.4	8.1	4.6	29.1	
Equity, Bond, Money, and/or Balanced Funds, and Company Stock	37.9	6.2	15.9	9.3		29.6
Equity, Bond, Money, and/or Balanced Funds, and Company Stock, and GICs[2] and/or Other Stable Value Funds	32.1	8.2	5.3	2.7	26.5	24.1

[1] Minor investment options are not shown; therefore, row percentages will not add to 100 percent.
[2] Guaranteed investment contracts.
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

balances invested in equity funds, compared with about 30 percent of account balances for participants in their sixties. Participants in their twenties held only about 23 percent of their accounts in fixed-income securities (bond funds, GICs and other stable value funds, and money funds combined), while those in their sixties invested 48 percent of their accounts in these assets. The tendency of younger participants to favor equity funds and older participants to favor fixed-income securities holds up even when accounting for investment options offered by the 401(k) plan sponsor.

Allocations to company stock continue to show a more mixed pattern by age. Participants in their twenties had about 14 percent of their plan balances in company stock, while participants in their forties had 18 percent, and participants in their sixties had 13 percent (Figure 6).

Asset Allocation by Investment Options

The mix of investment options offered by a plan sponsor significantly affects the asset allocation of the participants in a plan. Figure 7 divides all of the plans in the year-end 2002 EBRI/ICI database into four combinations of investment offerings,[21] starting with a base group consisting of plans that do not offer company stock, GICs, or other stable value funds.[22] Participants in these plans—which generally offer equity funds, bond funds, money funds, and balanced funds as investment options—had the highest allocation to equity funds. Participants in plans that offer GICs and/or other stable value funds as an investment option allocated a smaller share of their assets to bond and money market funds than the base group, and had lower allocations to equity funds as well. Alternatively, participants in plans that offer company stock, but no stable value products, as an investment option had dramatically lower allocations to equity funds and balanced funds than the base group. Finally, in those plans that offer both company stock and stable value products, company stock appears to have displaced equity and balanced fund holdings, and GICs and other stable value funds appear to have displaced other fixed-income investments. These effects tend to occur across all age groups of participants.[23]

[21] For convenience, minor investment options are not shown.

[22] See the Appendix (Figure A4) for the distribution of plans, participants, and assets by investment options.

[23] See the Appendix (Figure A5). In addition, Figure A6 presents asset allocation by salary and investment options and Figure A7 presents asset allocation by plan size and investment options.

FIGURE 8

Asset Allocation Distribution of Participant Account Balance to Company Stock in 401(k) Plans with Company Stock[1] by Age, 2002

(percent of participants)[2]

Age Cohort	Percentage of Account Balance Invested in Company Stock										
	Zero	1 to 10	>10 to 20	>20 to 30	>30 to 40	>40 to 50	>50 to 60	>60 to 70	>70 to 80	>80 to 90	>90 to 100
20s	40.4	8.4	8.1	7.5	6.5	6.1	4.6	3.1	2.1	1.5	11.5
30s	35.3	11.4	9.4	8.1	6.7	5.9	4.5	3.3	2.5	2.0	10.8
40s	33.5	13.9	9.4	7.8	6.6	5.7	4.4	3.3	2.5	2.1	10.9
50s	33.1	15.7	9.2	7.4	6.0	5.2	3.9	3.0	2.4	2.0	12.1
60s	36.8	16.7	8.0	6.1	4.7	4.1	3.1	2.3	2.1	1.8	14.1
All	35.1	13.3	9.1	7.6	6.3	5.5	4.2	3.1	2.4	2.0	11.5

[1] Includes the 7.4 million participants in plans with company stock.

[2] Row percentages may not add to 100 percent because of rounding.

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

FIGURE 9

Asset Allocation Distribution of 401(k) Participant Account Balance to Equity Funds by Age, 2002

(percent of participants)

Age Cohort	Percentage of Account Balance Invested in Equity Funds										
	Zero	1 to 10	>10 to 20	>20 to 30	>30 to 40	>40 to 50	>50 to 60	>60 to 70	>70 to 80	>80 to 90	>90 to 100
20s	36.5	3.0	3.7	4.7	5.2	7.1	5.9	6.0	6.3	4.1	17.6
30s	27.6	3.8	4.0	5.1	5.7	7.6	6.6	6.9	7.0	5.0	20.8
40s	29.4	5.0	4.7	5.6	6.0	7.7	6.5	6.4	6.2	4.3	18.2
50s	33.8	5.9	5.1	5.8	6.0	7.4	6.0	5.5	5.1	3.5	15.8
60s	43.0	6.5	5.1	5.4	5.2	6.1	4.7	4.1	3.6	2.5	13.9
All	32.1	4.7	4.5	5.3	5.7	7.4	6.2	6.1	5.9	4.1	17.9

Note: Row percentages may not add to 100 percent because of rounding.

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

Distribution of Participants' Company Stock Allocations by Age

Participants' allocations to company stock remained in line with previous years. About half (or 7.4 million) of the 401(k) participants in the year-end 2002 EBRI/ICI database are in plans that offer company stock as an investment option. Among these participants, 35 percent held none and 58 percent held 20 percent or less of their account balances in company stock (Figure 8). On the other hand, about 14 percent had more than 80 percent of their account balances invested in company stock.

Distribution of Participants' Equity Fund Allocations by Age

Among individual participants, the allocation of account balances to equity funds varies widely around the average of 40 percent for all participants in the 2002 EBRI/ICI database. Indeed, about 22 percent of participants had more than 80 percent of their account balances invested in equity funds, while 32 percent held no equity funds at all (Figure 9). The percentage of participants holding no equity funds tends to increase with age.[24] For example, about 37 percent of participants in their twenties had no equity fund investments, compared with 43 percent of participants in their sixties. However, in aggregate, about 52 percent of participants with no equity fund balances had exposure to the stock market through company stock or balanced funds.[25]

[24] The percentage of participants holding no equity funds also tends to increase with tenure (see the Appendix (Figure A8)).

[25] See the Appendix (Figures A9 and A10).

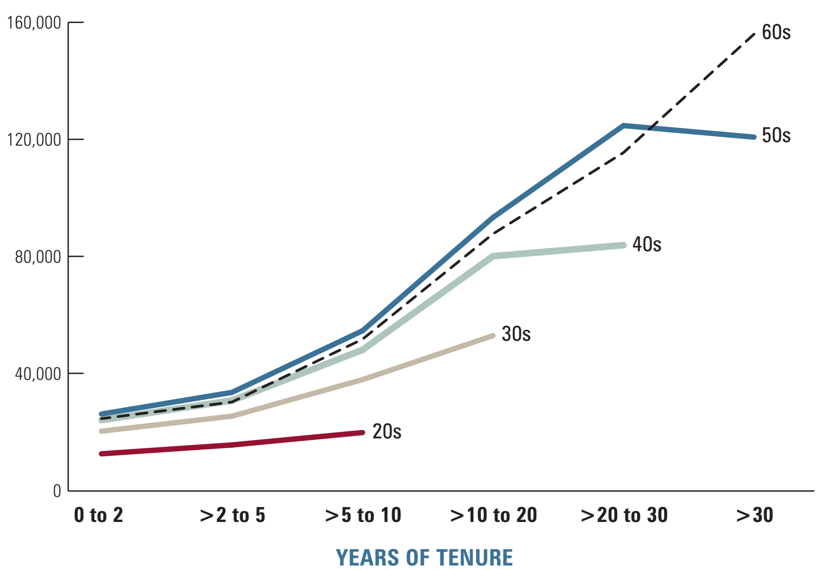
ACCOUNT BALANCES

Using administrative records, the EBRI/ICI database reports the account balance held in the 401(k) plan at the participant's current employer.[26] Retirement savings held in plans at previous employers or rolled over into individual retirement accounts (IRAs) are not included in this analysis. Furthermore, account balances are net of unpaid loan balances. In addition, the EBRI/ICI database for any given year captures a snapshot of the account balances at year-end and thus reflects the entrance of new plans and new participants and the exit of participants who retire or change jobs. When analyzing account balances, it is important to recognize the combined effects of actions of participants present in consecutive years in the database as compared with the effects of entry and exit of plans and participants from the database.

FIGURE 10

Average 401(k) Account Balance at Year-End 2002 by Age and Tenure[1] Among Participants Present from Year-End 1999 Through Year-End 2002[2,3]

(dollars)



[1] Age and tenure cohorts are based on participant age and tenure at year-end 1999.

[2] Sample of 5.3 million participants with account balances at the end of each year from 1999 through 2002.

[3] Data are from Figure 12.

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

Relationship of Age and Tenure to Account Balances

In each year of the EBRI/ICI database and among the participants with account balances at the end of each year from 1999 through 2002, there tends to be a positive correlation between age and account balance and likewise there tends to be a positive correlation between tenure and account balance (Figure 10).[27,28] The accumulation that a participant's account balance represents reflects the sum of three factors over time: contributions; investment returns; and withdrawals, borrowing, and loan repayments. The magnitude of each of these factors relative to the size of the account balance influences the change in account balance experienced by the participant.

Changes in Account Balances

This section examines the change in account balances of a group of participants who held accounts at the end of each year from 1999 through 2002. Analyzing a consistent group of participants removes the effect of participants and plans entering and leaving the database (and/or 401(k) universe) on the overall average. About half, or 5.3 million, of the participants with accounts at the end of 1999 had accounts at the end of each year from 1999 through 2002.

The average 401(k) account balance of this consistent group of participants edged down about 1 percent from 1999 to 2000, declined another 1.3 percent in 2001, and then fell 7.9 percent in 2002 (Figure 11). All told, from year-end 1999 (near the peak of the stock market) to year-end 2002 (the third year of the bear market), the average account balance among these participants

[26] For the update of the analysis of account balances at year-end 2002 see the Appendix. Figure A11 presents a comparison of the median and average account balances in the EBRI/ICI databases from 1996 to 2002 and Figure A12 presents the distribution of 401(k) account balances by size of account balance at year-end 2002.

[27] See discussion of these observed correlations in the Appendix (Figures A13, A14, A15, A16, and A17). Figure A15 is similar to Figure 10 except it covers all 15.5 million participants in the year-end 2002 EBRI/ICI database rather than the consistent subset of 5.3 million participants in Figure 10.

[28] The analysis of "Relationship Between Account Balances and Salary" that typically appears in the EBRI/ICI year-end updates has been included in the Appendix (Figures A18, A19, and A20). Results for year-end 2002 are essentially similar to earlier years' results.

FIGURE 11

Change in Average Account Balances Among 401(k) Participants Present from Year-End 1999 Through Year-End 2002[1] by Age and Tenure[2]
(percent)

Age Cohort[2]	Tenure (years)[2]	1999 to 2000	2000 to 2001	2001 to 2002	1999 to 2002
20s	All	26.2	19.3	4.3	57.1
	0 to 2	54.0	32.9	11.1	127.3
	>2 to 5	18.5	14.7	1.7	38.3
	>5 to 10	8.3	6.9	-3.3	11.9
30s	All	4.1	2.8	-6.2	0.5
	0 to 2	32.3	20.4	4.9	67.2
	>2 to 5	10.3	7.6	-2.5	15.7
	>5 to 10	1.3	0.8	-8.0	-6.0
	>10 to 20	-1.0	-1.5	-9.4	-11.7
40s	All	0.2	-0.8	-7.9	-8.5
	0 to 2	28.3	18.0	4.6	58.4
	>2 to 5	10.3	6.9	-2.0	15.5
	>5 to 10	2.2	0.7	-7.1	-4.5
	>10 to 20	-1.8	-2.5	-9.7	-13.5
	>20 to 30	-2.1	-3.0	-8.9	-13.6
50s	All	-3.3	-3.2	-9.0	-14.8
	0 to 2	28.0	17.6	5.3	58.4
	>2 to 5	12.0	7.3	-1.0	19.0
	>5 to 10	4.1	1.0	-6.1	-1.3
	>10 to 20	-0.8	-2.4	-8.6	-11.6
	>20 to 30	-4.2	-4.7	-9.9	-17.7
	>30	-9.5	-6.1	-11.5	-24.8
60s	All	-6.9	-5.6	-10.0	-21.0
	0 to 2	21.5	14.5	3.9	44.6
	>2 to 5	11.2	5.7	-1.8	15.5
	>5 to 10	2.9	-0.5	-6.8	-4.5
	>10 to 20	-1.7	-3.7	-8.7	-13.6
	>20 to 30	-6.0	-6.3	-10.5	-21.1
	>30	-10.0	-7.1	-11.0	-25.6
All[1]	All	-0.9	-1.3	-7.9	-10.0

[1] *Sample of 5.3 million participants with account balances at the end of each year from 1999 through 2002.*
[2] *Age and tenure cohorts are based on participant age and tenure at year-end 1999.*
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

FIGURE 12

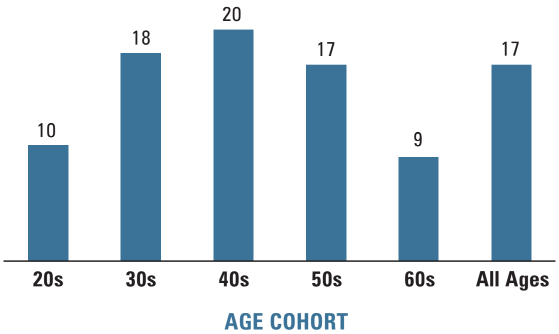
Average Account Balances Among 401(k) Participants Present from Year-End 1999 Through Year-End 2002[1] by Age and Tenure[2]

Age Cohort[2]	Tenure (years)[2]	1999	2000	2001	2002
20s	All	$9,571	$12,074	$14,409	$15,035
	0 to 2	$5,596	$8,619	$11,454	$12,720
	>2 to 5	$11,386	$13,496	$15,474	$15,742
	>5 to 10	$17,861	$19,337	$20,670	$19,988
30s	All	$35,112	$36,559	$37,596	$35,282
	0 to 2	$12,234	$16,180	$19,488	$20,450
	>2 to 5	$22,114	$24,390	$26,250	$25,583
	>5 to 10	$40,492	$41,029	$41,374	$38,066
	>10 to 20	$60,163	$59,557	$58,650	$53,112
40s	All	$66,702	$66,854	$66,299	$61,033
	0 to 2	$15,314	$19,654	$23,187	$24,265
	>2 to 5	$26,765	$29,519	$31,558	$30,919
	>5 to 10	$50,493	$51,600	$51,954	$48,241
	>10 to 20	$92,802	$91,161	$88,926	$80,279
	>20 to 30	$97,251	$95,167	$92,286	$84,046
50s	All	$103,626	$100,241	$97,030	$88,332
	0 to 2	$16,615	$21,261	$24,993	$26,315
	>2 to 5	$28,341	$31,746	$34,069	$33,719
	>5 to 10	$55,471	$57,753	$58,343	$54,769
	>10 to 20	$105,779	$104,903	$102,358	$93,522
	>20 to 30	$151,840	$145,485	$138,658	$124,924
	>30	$160,917	$145,555	$136,657	$120,987
60s	All	$134,964	$125,601	$118,522	$106,689
	0 to 2	$17,101	$20,781	$23,802	$24,735
	>2 to 5	$26,342	$29,301	$30,970	$30,419
	>5 to 10	$54,346	$55,935	$55,662	$51,883
	>10 to 20	$101,733	$99,981	$96,294	$87,904
	>20 to 30	$146,685	$137,928	$129,254	$115,687
	>30	$209,900	$188,880	$175,542	$156,180
All[1]	All	$64,074	$63,470	$62,646	$57,668

[1] Sample of 5.3 million participants with account balances at the end of each year from 1999 through 2002.
[2] Age and tenure cohorts are based on participant age and tenure at year-end 1999.
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

FIGURE 13

Percentage of Eligible 401(k) Participants with Loans by Age, 2002



Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

fell 10.0 percent, from $64,074 at year-end 1999 to $57,668 at year-end 2002 (Figure 12). From year-end 1999 to year-end 2002, the S&P 500 total return index fell about 38 percent. However, the change in a participant's account balance is the sum of three factors: new contributions by the participant and/or the employer; total investment return on account balances, which depends on the performance of financial markets and on the allocation of assets in the individual's account; and withdrawals, borrowing, and loan repayments.

A sense of the relationship among the three components can be seen in the change in average account balances by age and tenure group. In our consistent group of 5.3 million participants, the average account balances of participants who were younger or had fewer years of tenure tended to increase between year-end 1999 and year-end 2002. For example, the average account balance of participants in their twenties rose about 57 percent between the end of 1999 and the end of 2002 (Figure 11). The growth in assets among those in their twenties reflects the greater importance in percentage terms of contributions than other factors because these participants' account balances tend to be small compared with typical contributions.

FIGURE 14

Percentage of Eligible 401(k) Participants with Loans from the Plan by Age, Tenure, or Account Size, 1996, 1999, and 2002

	1996	1999	2002
ALL	18	18	17
AGE COHORT			
20s	12	11	10
30s	20	20	18
40s	22	22	20
50s	17	18	17
60s	9	9	9
TENURE (years)			
0 to 2	6	5	4
>2 to 5	15	13	12
>5 to 10	24	23	21
>10 to 20	27	28	26
>20 to 30	25	27	25
>30	13	17	15
ACCOUNT SIZE			
<$10,000	12	11	11
$10,000 to $20,000	26	24	22
>$20,000 to $30,000	26	26	22
>$30,000 to $40,000	25	26	23
>$40,000 to $50,000	24	26	23
>$50,000 to $60,000	24	25	22
>$60,000 to $70,000	23	25	22
>$70,000 to $80,000	26	24	22
>$80,000 to $90,000	23	24	21
>$90,000 to $100,000	22	23	21
>$100,000	21	19	17

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

In contrast, the average account balance tended to fall for older participants with longer tenures. For example, the average account balance of participants in their sixties with more than 30 years of tenure fell 25.6 percent between year-end 1999 and year-end 2002 (Figure 11). The decline in assets reflects the greater importance of investment returns because their account balances tend to be large relative to their annual contributions. In addition, participants in their sixties have a higher propensity to make withdrawals.[29]

[29] For statistics indicating the higher propensity of withdrawals among participants in their sixties, see Holden and VanDerhei (November 2002—Appendix).

FIGURE 15

Loan Balances as a Percentage of 401(k) Account Balances for Participants with Loans by Age, Tenure, or Account Size, 1996, 1999, and 2002

	1996	1999	2002
ALL	16	14	16
AGE COHORT			
20s	30	25	28
30s	22	18	22
40s	16	14	16
50s	12	11	12
60s	10	9	10
TENURE (years)			
0 to 2	27	24	27
>2 to 5	24	22	25
>5 to 10	23	18	23
>10 to 20	15	13	16
>20 to 30	11	10	11
>30	7	9	10
ACCOUNT SIZE			
<$10,000	39	37	37
$10,000 to $20,000	32	30	31
>$20,000 to $30,000	28	26	28
>$30,000 to $40,000	23	23	25
>$40,000 to $50,000	22	20	22
>$50,000 to $60,000	19	18	20
>$60,000 to $70,000	16	16	18
>$70,000 to $80,000	16	14	16
>$80,000 to $90,000	14	13	15
>$90,000 to $100,000	13	12	13
>$100,000	7	7	7

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

PLAN LOANS

Characteristics of Participants with Outstanding Loans

Most participants in 401(k) plans are in plans offering borrowing privileges.[30] In the 2002 EBRI/ICI database, 84 percent of participants are in plans offering loans. However, as has been the case for the seven years that the EBRI/ICI databases have tracked 401(k) plan participants' loan activity, few participants had loans outstanding. At year-end 2002, only 17 percent of those eligible for loans had loans outstanding (Figure 13).

As shown in previous years, loan activity varies with age, tenure, salary, account balance, and plan size. Of those participants in plans offering loans, the highest percentages of participants with outstanding loan balances were among participants in their thirties, forties, or fifties (Figures 13 and 14). In addition, participants with five or fewer years of tenure or with more than 30 years of tenure were less likely to use the loan provision than other participants (Figure 14). Furthermore, only 11 percent of participants with account balances of less than $10,000 had loans outstanding.[31]

Average Loan Balances

Among participants with outstanding loans at the end of 2002, the average unpaid balance was $6,659.[32] Again, similar to other years of analysis, loan balances as a percentage of account balances (net of the unpaid loan balance) for participants with loans was 16 percent at year-end 2002 (Figure 15). In addition, the same as in other years, there is variation around this average with age (lower the older the participant), tenure (lower the higher the tenure of the participant), and account balance (lower the higher the account balance).

[30] See "Availability and Use of Plan Loans by Plan Size" in the Appendix for explanation of EBRI/ICI data on plan loans (Figure A21). In addition, for the analysis of loan activity by plan size see the Appendix (Figures A22 and A23).

[31] See the Appendix (Figures A24 and A25) for loan activity by salary.

[32] The median loan balance outstanding is $3,700 at year-end 2002.

BIBLIOGRAPHY

Bloomberg Data. New York, NY: Bloomberg, L.P.

Choi, James J., David Laibson, Brigitte C. Madrian, and Andrew Metrick. "Defined Contribution Pensions: Plan Rules, Participant Decisions, and the Path of Least Resistance," *NBER Working Paper*, No. 8655, Cambridge, MA: National Bureau of Economic Research, December 2001.

Holden, Sarah, and Jack VanDerhei. "401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2001." *ICI Perspective,* Vol. 9, No. 2, and *EBRI Issue Brief*, No. 255. Washington, DC: Investment Company Institute and Employee Benefit Research Institute, March 2003.

Holden, Sarah, and Jack VanDerhei. "Appendix: Additional Figures for the EBRI/ICI Participant-Directed Retirement Plan Data Collection Project for Year-End 2001." *ICI Perspective,* Vol. 9, No. 2A, and *EBRI Issue Brief* Appendix. Washington, DC: Investment Company Institute and Employee Benefit Research Institute, March 2003—Appendix.

Holden, Sarah, and Jack VanDerhei. "Can 401(k) Accumulations Generate Significant Income for Future Retirees?" *ICI Perspective,* Vol. 8, No. 3, and *EBRI Issue Brief*, No. 251. Washington, DC: Investment Company Institute and Employee Benefit Research Institute, November 2002.

Holden, Sarah, and Jack VanDerhei. "Appendix: EBRI/ICI 401(k) Accumulation Projection Model." *ICI Perspective,* Vol. 8, No. 3A. Washington, DC: Investment Company Institute, November 2002—Appendix.

Holden, Sarah, and Jack VanDerhei. "The Impact of Employer-Selected Investment Options on 401(k) Plan Participants' Asset Allocations: Preliminary Findings." *Working Paper prepared for The Center for Pension and Retirement Research (CPRR) Current Pension Policy Issues Conference, at Miami University, Oxford, OH, June 8–9, 2001*: Draft, May 2001.

Holden, Sarah, Jack VanDerhei, and Carol Quick. "401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 1998." *ICI Perspective,* Vol. 6, No. 1, and *EBRI Issue Brief*, No. 218. Washington, DC: Investment Company Institute, January 2000, and Employee Benefit Research Institute, February 2000.

Ibbotson Associates. *SBBI (Stocks, Bonds, Bills, and Inflation) 2003 Yearbook: Market Results for 1926–2002*. Chicago, IL: Ibbotson Associates, 2003.

Investment Company Institute. *Quarterly Supplemental Data*.

Investment Company Institute. "Redemption Activity of Mutual Fund Owners." *ICI Fundamentals*, Vol. 10, No. 1, Washington, DC: Investment Company Institute, March 2001.

Investment Company Institute. "401(k) Plan Participants: Characteristics, Contributions, and Account Activity." *ICI Research Series*, Washington, DC: Investment Company Institute, Spring 2000.

Poterba, James M. "Lessons from Enron: Employer Stock and 401(k) Plans," in "Papers and Proceedings of the 115th Annual Meeting of the American Economic Association," *The American Economic Review*, Vol. 93, No. 2: May 2003.

Russell 3000 Index. Tacoma, WA: Frank Russell Company.

S&P 500 Index. New York, NY: Standard & Poor's.

Utkus, Stephen P. *Participant Report Card for 2002: The Impact of the Bear Market on Retirement Savings Plans.* Valley Forge, PA: The Vanguard Group, Vanguard Center for Retirement Research, February 2003.

Back issues of *Perspective*, written by Institute staff, leading scholars, and other contributors, address public policy issues of importance to mutual funds and their shareholders. Contact the Institute's Research Department at 202/326-5913 for more information. For a complete list of back issues of *Perspective*, visit the Institute's public policy website at www.ici.org/perspective/index.html.

"Mutual Fund Independent Directors: A Model for Corporate America?"	Richard M. Phillips	Vol. 9, No. 4, August 2003
"Mutual Fund Distribution Channels and Distribution Costs"	Brian K. Reid and John D. Rea	Vol. 9, No. 3, July 2003
"401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2001"	Sarah Holden and Jack VanDerhei	Vol. 9, No. 2, March 2003
"Mutual Fund Industry Developments in 2002"	Brian Reid and Stefan Kimball	Vol. 9, No. 1, February 2003
"Can 401(k) Accumulations Generate Significant Income for Future Retirees?"	Sarah Holden and Jack VanDerhei	Vol. 8, No. 3, November 2002
"The Regulation of Operational Risk in Investment Management Companies"	Charles W. Calomiris and Richard J. Herring	Vol. 8, No. 2, September 2002
"Mutual Fund Industry Developments in 2001"	Brian Reid, Kimberlee Millar, Stephen Sevigny	Vol. 8, No. 1, February 2002
"401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2000"	Sarah Holden and Jack VanDerhei	Vol. 7, No. 5, November 2001
"Contribution Behavior of 401(k) Plan Participants"	Sarah Holden and Jack VanDerhei	Vol. 7, No. 4, October 2001
"The Potential Effects of More Frequent Portfolio Disclosure on Mutual Fund Performance"	Russ Wermers	Vol. 7, No. 3, June 2001
"Mutual Fund Assets and Flows in 2000"	Sean Collins	Vol. 7, No. 2, February 2001
"401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 1999"	Sarah Holden and Jack VanDerhei	Vol. 7, No. 1, January 2001
"The 1990s: A Decade of Expansion and Change in the U.S. Mutual Fund Industry"	Brian K. Reid	Vol. 6, No. 3, July 2000
"Mutual Fund Assets and Flows in 1999"	Brian K. Reid, Kimberlee W. Millar	Vol. 6, No. 2, February 2000
"401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 1998"	Sarah Holden, Jack VanDerhei, Carol Quick	Vol. 6, No. 1, January 2000
"Operating Expense Ratios, Assets, and Economies of Scale in Equity Mutual Funds"	John D. Rea, Brian K. Reid, Kimberlee W. Millar	Vol. 5, No. 5, December 1999
"Mutual Fund Costs, 1980–1998"	John D. Rea, Brian K. Reid, Travis Lee	Vol. 5, No. 4, September 1999
"Total Shareholder Cost of Bond and Money Market Mutual Funds"	John D. Rea and Brian K. Reid	Vol. 5, No. 3, March 1999
"Mutual Fund Developments in 1998"	Brian K. Reid, Kimberlee W. Millar	Vol. 5, No. 2, February 1999
"401(k) Plan Asset Allocation, Account Balances, and Loan Activity"	Jack VanDerhei, Russell Galer, Carol Quick, John D. Rea	Vol. 5, No. 1, January 1999
"Trends in the Ownership Cost of Equity Mutual Funds"	John D. Rea and Brian K. Reid	Vol. 4, No. 3, November 1998
"U.S. Emerging Market Equity Funds and the 1997 Crisis in Asian Financial Markets"	Mitchell A. Post and Kimberlee Millar	Vol. 4, No. 2, June 1998
"Mutual Fund Developments in 1997"	Brian K. Reid, Samuel Ankrah, Kimberlee Millar	Vol. 4, No. 1, March 1998
"Stock Markets, Economic Development, and Capital Control Liberalization"	Ross Levine	Vol. 3, No. 5, December 1997
"Selected Issues in International Taxation of Retirement Savings"	Paul Schott Stevens	Vol. 3, No. 4, August 1997
"Continuing a Tradition of Integrity"	Barry P. Barbash, Don Powell, Matthew P. Fink	Vol. 3, No. 3, July 1997
"Growth and Development of Bond Mutual Funds"	Brian K. Reid	Vol. 3, No. 2, June 1997
"Mutual Fund Developments in 1996"	Brian K. Reid	Vol. 3, No. 1, March 1997