401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 1998

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Issue Brief

The Employee Benefit Research Institute (EBRI) and the Investment Company Institute (ICI) have been collaborating for the past three years to collect data on participants in 401(k) plans. This effort, known as the EBRI/ICI Participant-Directed Retirement Plan Data Collection Project, has obtained data for 401(k) plan participants from certain of EBRI and ICI members serving as plan record keepers and administrators.

The report includes 1998 information on 7.9 million active participants in 30,102 plans holding nearly $372 billion in assets. The data include demographic information, annual contributions, plan balances, asset allocation, and loans, and are broadly representative of the universe of 401(k) plans. The database also includes three years of longitudinal information on approximately 3.3 million participants. Key findings include:

- For all 401(k) participants in the 1998 EBRI/ICI database, almost three-quarters of plan balances are invested directly or indirectly in equity securities. Specifically, 49.8 percent of total plan balances are invested in equity funds, 17.7 percent in company stock, 11.4 percent in guaranteed investment contracts (GICs), 8.4 percent in balanced funds, 6.1 percent in bond funds, 4.7 percent in money funds, and 0.3 percent in other stable value funds.
- Participant asset allocation varies considerably with age. Younger participants tend to favor equity funds, while older participants are more disposed to invest in GICs and bond funds. On average, participants in their 20s have 62.1 percent of their account balances invested in equity funds, in contrast to 39.8 percent for those in their 60s. Participants in their 20s invest 4.7 percent of their assets in GICs, while those in their 60s invest 20.6 percent. Bond funds, which represent 4.7 percent of the assets of participants in their 20s, amount to 9.0 percent of the assets of participants in their 60s.
- Investment options offered by 401(k) plans appear to influence asset allocation. For example, the addition of company stock substantially reduces the allocation to equity funds and the addition of GICs lowers allocations to bond and money funds.
- The average account balance (net of plan loans) for all participants was $47,004 at year-end 1998, which is 26 percent higher than the average account balance at year-end 1996. The median account balance was $13,038 at year-end 1998. The balances, however, represent only amounts with current employers and do not include amounts remaining in the plans of prior employers.
- The average balances of older workers with long tenure indicate that a mature 401(k) plan program will produce substantial account balances. For example, individuals in their 60s with at least 30 years of tenure have average account balances in excess of $185,000.
- The ratio of account balance to 1998 salary varies with salary, increasing slightly as earnings rise from $20,001 to $80,000, and falling a bit for salaries greater than $80,000. The increase in ratio likely reflects a greater propensity of higher-income participants to save, whereas the decline after $80,000 results from contribution and nondiscrimination rule constraints.

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Overview

As 401(k) retirement plans have grown to be a significant part of the private pension landscape in the United States, interest in examining the behavior of 401(k) plan participants also has grown. To enhance the understanding of 401(k) plan participants' investment decisions, account balances, and loan activity, the Employee Benefit Research Institute (EBRI)[1] and the Investment Company Institute (ICI)[2] have collaborated during the past three years in the collection of data on participants in 401(k) plans. In this collaborative 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 record keepers and administrators. The data include demographic information, annual contributions, plan balances, asset allocation, and loan balances.

The January 1999 issues of the *EBRI Issue Brief* and *ICI Perspective* reported findings on 401(k) plan asset allocation, account balances, and loan activity for year-end 1996, using data from the EBRI/ICI Participant-Directed Retirement Plan Data Collection Project.[3] The project has now collected data for year-end 1997 and year-end 1998. The purpose of this *Issue Brief* is to report findings from the year-end 1998 data.[4] At year-end 1998, the EBRI/ICI Participant-Directed Retirement Plan Data Collection Project database contained 7.9 million active 401(k) plan participants in 30,102 plans with $372 billion of assets. The 1998 EBRI/ICI database accounts for 11 percent of all 401(k) plans, 22 percent of all 401(k) participants, and about 27 percent of the assets held in 401(k) plans.

Summary

This analysis of the 1998 data updates the analysis of the 1996 data and reports on 401(k) participant asset allocation, participant account balances, and loan activity. The results for year-end 1998 are broadly similar to those for year-end 1996. In addition, this analysis presents data regarding asset allocation by plan size and examines the changes in the accounts of certain participants who were included in the 1996, 1997, and 1998 studies.

Asset Allocation

- For all 401(k) participants in the 1998 EBRI/ICI database, almost three-quarters of plan balances are invested directly or indirectly in equity securities.

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

[2] The Investment Company Institute is the national association of the American investment company industry. Its membership includes 7,932 open-end investment companies ("mutual funds"), 495 closed-end investment companies, and eight sponsors of unit investment trusts. Its mutual fund members have assets of about $6.2 trillion, accounting for approximately 95 percent of total industry assets, and have more than 78.7 million individual shareholders.

[3] Jack VanDerhei, Russell Galer, Carol Quick, and John Rea, "401(k) Plan Asset Allocation, Account Balances, and Loan Activity," EBRI Issue Brief no. 205 and ICI Perspective, Vol. 5, no. 1 (January 1999). The article is available through EBRI's Web site at www.ebri.org and ICI's Web site at www.ici.org/economy/perspective.html.

[4] Summary figures for year-end 1997 are available at ICI's Web site at www.ici.org/pdf/per06-01_appendix.pdf. Hardcopy may be requested by calling ICI's Research Department. The 1997 EBRI/ICI database contains 29,899 401(k) plans with $290 billion of assets and 7,056,418 active participants.

Specifically, 49.8 percent of total plan balances are invested in equity funds, 17.7 percent in company stock, 11.4 percent in guaranteed investment contracts (GICs), 8.4 percent in balanced funds, 6.1 percent in bond funds, 4.7 percent in money funds, and 0.3 percent in other stable value funds.

- The asset allocation of participants' account balances varies with age. Younger participants' assets tend to be more concentrated in equity fund investments, while older participants invest more heavily in fixed-income assets.
- Investment options offered by 401(k) plan sponsors influence participants' asset allocation. Plans offering the basic investment options of equity, balanced, bond, and money funds tend to have the highest allocations to equity funds. The addition of GICs to the four basic investment options reduces the relative allocations to all other investment options, particularly bond funds and money funds. Alternatively, the addition of company stock to these options substantially reduces the allocation to equity funds and balanced funds.
- Asset allocation does not vary significantly across plan size for plans offering the basic investment options of equity, balanced, bond, and money funds. When GICs, company stock, or both, are added to the basic options, asset allocation varies with plan size.
- Employer contributions in the form of company stock affect participants' asset allocation behavior. Participants in plans in which the employer contribution is required to be invested in company stock have a higher percentage of their self-directed account balances in company stock and lower percentages invested in equity funds and balanced funds, compared with participants in plans with no employer-directed contributions.
- The allocation of plan balances to equity funds varies across participants. Indeed, about 28 percent of participants have more than 80 percent of their account balances invested in equity funds, while about 28 percent hold no equity funds at all. However, about two-thirds of those participants with no equity funds have exposure to equity securities through balanced funds or company stock. As a result, overall equity-related investments of those holding no equity funds are 44.6 percent of plan balances.
- Asset allocation varies with participant salary. In particular, the percentage of account balance invested in equity funds rises with salary, while the percentage invested in GICs declines as salary rises.

Account Balances

- The average account balance (net of plan loans) for all participants was $47,004 at year-end 1998, which is 26 percent higher than the average account balance at year-end 1996. The median account balance was $13,038 at year-end 1998. 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.
- Almost one-half of participants have account balances of less than $10,000 in the 401(k) plan at the participant's current employer, while 13 percent have balances greater than $100,000. Those individuals with account balances of less than $10,000 are primarily young workers or workers with short tenure at their current employer. In contrast, those with account balances in excess of $100,000 are primarily older workers or workers with long tenure, who have accumulated larger account balances through years of contributions and the compounding of investment returns.
- The ratio of account balance to 1998 salary varies with salary, increasing slightly as earnings rise from $20,001 to $80,000, and falling a bit for salaries greater than $80,000. The increase in ratio likely reflects a greater propensity of higher-income participants to save, whereas the decline after $80,000 results from contribution and nondiscrimination rule constraints.

- The ratio of account balance to 1998 salary varies with age and tenure. Older participants, who have had more time to accumulate balances, have higher ratios than younger participants. Similarly, within a given age group, participants with more years of tenure have higher ratios than those with less tenure.

Plan Loans

- Fifty-six percent of the plans, accounting for 80 percent of the participants, offer loans to plan participants. The probability of a plan sponsor offering plan loans to its employees increases with plan size. Indeed, about 90 percent of plans with more than 10,000 participants offer a loan provision, while less than half of plans with 10 or fewer participants do so.
- Among participants eligible for loans, 16 percent had outstanding loans at the end of 1998. Loan activity varies with age, tenure, and account balance. Participants between age 30 and 59 are more likely to borrow than older or younger workers. Similarly, individuals with short or long periods of tenure are less likely than other participants to have a loan outstanding. Finally, participants with account balances of less than $10,000 tend to borrow less frequently.
- For those with outstanding loans at the end of 1998, the level of the unpaid balance represents 14 percent of the account balance, net of the unpaid loan balance.

Participants' Accounts, 1996–1998

- Approximately 3.3 million (or 50.3 percent) of the participants present in the 1996 EBRI/ICI database also are in the 1997 and 1998 EBRI/ICI databases. Three-quarters of these participants generally held about the same percentage of equity securities in year-end 1996 and year-end 1998.
- The median growth in account balance between 1996 and 1998 was 86 percent among all participants present in 1996, 1997, and 1998, in part reflecting strong stock market performance. For a given age group, median account growth (measured in percentage terms) tends to fall as tenure increases, primarily because initial account balance rises with tenure. Within any given tenure range, younger participants experience a higher percentage median account growth than older participants, in part because of their higher exposure to equity securities.

The remainder of this paper is organized as follows. The next section provides a detailed description of the 1998 EBRI/ICI 401(k) database and compares the 1998 data with the estimated universe of 401(k) plans. The following three sections present findings from the 1998 EBRI/ICI database. The first of these sections examines asset allocation across 401(k) participants and among plans by plan size, and also considers the influence of investment options offered by plan sponsors. Participant asset allocations are presented by age and investment option, and the effect of employer-directed contributions on investment patterns is examined. The distribution of equity fund allocations by participant tenure and age also is examined, with special attention given to those participants holding no equity funds. In addition, participant asset allocation by salary is presented. The following section examines participant account balances and shows how account balances relate to age, tenure, and salary. The next section discusses the availability and use of plan loans. The characteristics of participants with outstanding loan balances also are analyzed.

The final section presents an analysis of the features of participants' accounts that are common to all three years of data, 1996, 1997, and 1998. This subset of 3.3 million participants covers 50.3 percent of the 1996 EBRI/ICI universe of participants and appears representative in terms of distribution of participant age, tenure, account balance, and plan size.

The EBRI/ICI Database

Source and Type of Data

Plan administrators that are either EBRI or ICI members provided records on active participants in 401(k) plans administered by these organizations in 1996, 1997, and 1998. These administrators include mutual fund companies, insurance companies, consulting firms, and investment management companies. The universe of plan administrators varies from year to year, and thus these aggregate figures should not be used to estimate time trends. However, future research will focus in more detail on participants and plans common to all three years to study their evolution over time. 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 balance; funds in participants' 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.[5] Plan balances are constructed as the sum of participant balances. 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 nine categories. *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. *Guaranteed investment contracts* (GICs) are insurance company products that guarantee a specific rate of return on the invested capital over the life of the contract. *Other stable value funds* include synthetic GICs[6] or similar instruments. The *"other fund"* category is the residual for other investments such as real estate funds. The final category consists of funds that could not be identified.[7]

Distribution of Plans, Participants, and Assets by Plan Size

The 1998 database contains 30,102 401(k) plans with $372 billion of assets and 7,910,030 participants (table 1). Most of the plans in the database are small, whether measured by the number of plan participants or by total plan assets. Indeed, almost 50 percent of the plans have 25 or fewer participants, and another 30 percent fall within the range of 26–100 participants (table 1). In contrast, only 4 percent of the plans have more than 1,000 participants. Similarly, about 40 percent of the plans have assets of $250,000 or less, and another 30 percent have plan assets between $250,001 and $1,250,000 (table 2). However, participants and assets are concentrated in large plans. For example, 73 percent of participants are in plans with more than 1,000 participants, and these same plans account for 82 percent of all plan assets (table 1).

[5] *Account balances are net of unpaid loan balances. Thus, unpaid loan balances are not included in any of the nine asset categories.*

[6] *A synthetic GIC consists 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.*

[7] *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 databases.*

Table 1
EBRI/ICI Database: 401(k) Plan Characteristics by Number of Plan Participants, 1998

Number of Plan Participants	Total Plans	Total Participants	Total Assets	Average Account Balance
1–10	6,344	42,670	$ 990,267,821	$23,208
11–25	8,260	139,233	2,847,264,244	20,450
26–50	5,243	188,250	4,406,105,858	23,406
51–100	3,772	268,474	7,282,494,601	27,126
101–250	3,074	481,007	13,856,068,577	28,806
251–500	1,356	474,999	15,121,584,036	31,835
501–1,000	821	580,458	20,726,730,416	35,708
1,001–2,500	682	1,062,235	43,261,242,177	40,727
2,501–5,000	276	970,332	42,518,558,692	43,819
5,001–10,000	155	1,069,482	47,945,432,588	44,831
>10,000	119	2,632,890	172,844,680,237	65,648
All	30,102	7,910,030	371,800,429,248	47,004

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

Table 2
EBRI/ICI Database: 401(k) Plan Characteristics by Plan Assets, 1998

Total Plan Assets	Total Plans	Total Participants	Total Assets	Average Account Balance
$0–$250,000	12,016	191,603	$ 1,232,688,023	$ 6,434
>$250,000–$625,000	5,409	182,412	2,190,383,704	12,008
>$625,000–$1,250,000	3,682	198,828	3,260,917,926	16,401
>$1,250,000–$2,500,000	2,790	254,042	4,883,644,111	19,224
>$2,500,000–$6,250,000	2,560	442,385	10,042,189,520	22,700
>$6,250,000–$12,500,000	1,274	435,739	11,207,589,519	25,721
>$12,500,000–$25,000,000	847	529,531	14,705,824,867	27,771
>$25,000,000–$62,500,000	735	905,758	29,236,893,865	32,279
>$62,500,000–$125,000,000	339	804,765	30,433,154,974	37,816
>$125,000,000–$250,000,000	216	869,237	36,847,790,558	42,391
>$250,000,000	234	3,095,730	227,759,352,181	73,572
All	30,102	7,910,030	371,800,429,248	47,004

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

Relationship of Database Plans to the Universe of Plans

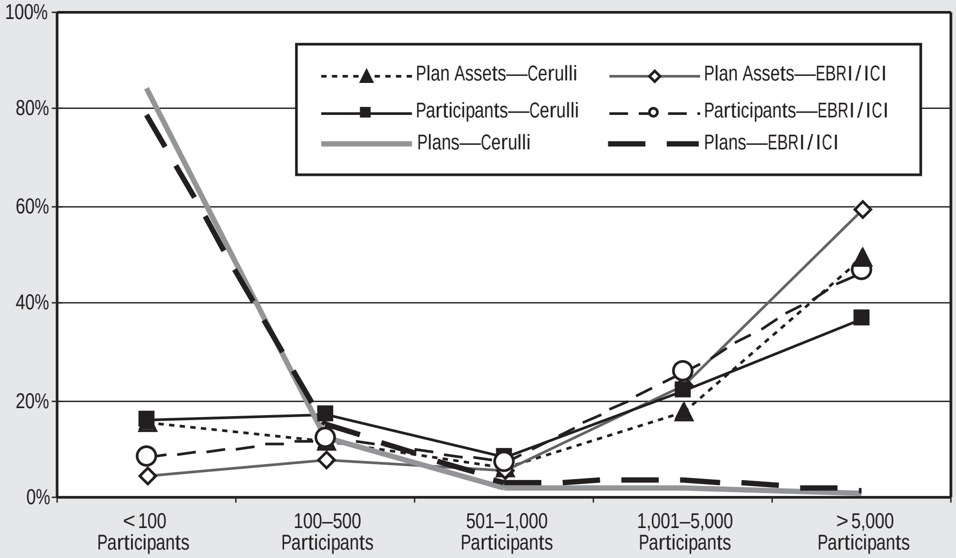
The 1998 EBRI/ICI database appears to be a representative sample of the estimated universe of 401(k) plans. Cerulli Associates (1999) estimate that there were 273,485 401(k) plans at the end of 1998, with about 37 million participants and $1.397 trillion in assets.[8] The 1998 EBRI/ICI database accounts for 11 percent of all 401(k) plans, 22 percent of all 401(k) participants, and about 27 percent of the assets held in 401(k) plans. The distribution of assets, participants, and plans in the EBRI/ICI database for 1998 is similar to that reported for the universe of plans estimated by Cerulli Associates. The shares of the assets and participants in the EBRI/ICI database falling within each of the five plan size classifications are close to those found in the 401(k) universe (chart 1). In addition, the distribution in the number of plans is virtually identical between the EBRI/ICI database and the universe estimate.[9]

[8] *The latest U.S. Department of Labor estimates (forthcoming) of the universe of 401(k)-type plans are for plan-year 1996. For 1996, they tallied 230,808 401(k)-type plans covering 31 million active participants, with $1.062 trillion in assets.*

[9] *Please refer to the January 1999* EBRI Issue Brief *or* ICI Perspective *for a comparison of the EBRI/ICI database with other participant-level databases.*

Chart 1

401(k) Plan Characteristics by Number of Participants: EBRI/ICI Database vs. Cerulli Estimates for All 401(k) Plans, 1998



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

Asset Allocation

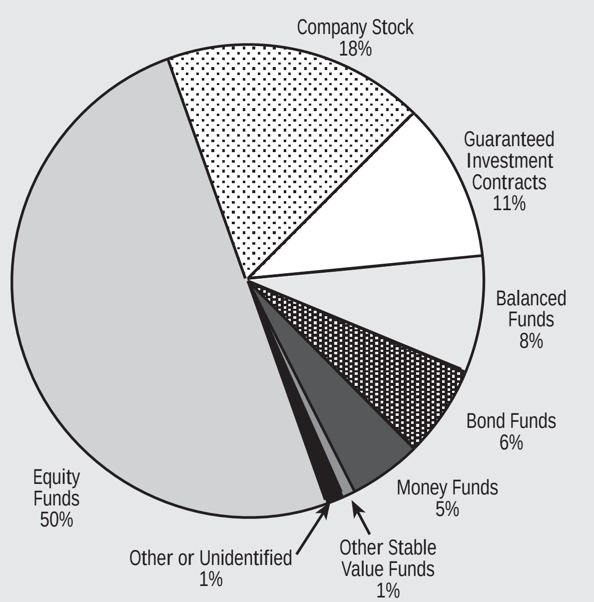
On average, participants in the 1998 EBRI/ICI database have 49.8 percent of their account balance invested in equity funds, 17.7 percent invested in company stock, 11.4 percent in GICs, 8.4 percent in balanced funds, 6.1 percent in bond funds, 4.7 percent in money funds, and 0.3 percent in other stable value funds (chart 2, table 3). [10] Only 0.8 percent of account balances is invested in other investments, and 0.8 percent is in unidentified investments. Summing the asset shares of equity funds, company stock, and the equity portion of balanced funds shows that nearly three-quarters of plan balances are invested in some form of equity securities.[11]

Asset Allocation by Age and Investment Options

Participant asset allocation varies considerably with age (table 3). Younger participants tend to favor equity funds, while older participants are more disposed to invest in GICs and bond funds. On average, participants in their 20s have 62.1 percent of their account balances invested in equity funds, in contrast to 39.8 percent for those in their 60s. Participants in their 20s invest

Chart 2

Average Asset Allocation for All Plan Balances, 1998



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

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

[11] *At the end of 1998, approximately 60 percent of balanced mutual fund assets were invested in equities. See Investment Company Institute, Quarterly Supplemental Data.*

Table 3
Average Asset Allocation by Age, 1998
(percentage of account balances)

Age Cohort	Equity Funds	Balanced Funds	Bond Funds	Money Funds	Guaranteed Investment Contracts	Company Stock	Other Stable Value Funds	Other	Unknown	Total
20s	62.1%	8.2%	4.7%	4.5%	4.7%	13.6%	0.1%	1.3%	0.8%	100%
30s	58.1	8.2	4.8	4.0	5.7	17.4	0.1	1.0	0.8	100
40s	52.6	8.4	5.3	4.5	8.5	18.9	0.1	0.9	0.8	100
50s	48.0	8.5	6.4	4.7	12.3	18.1	0.3	0.7	1.0	100
60s	39.8	8.2	9.0	5.7	20.6	14.7	0.7	0.7	0.7	100
All	49.8	8.4	6.1	4.7	11.4	17.7	0.3	0.8	0.8	100

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

4.7 percent of their assets in GICs, while those in their 60s invest 20.6 percent. Bond funds, which represent 4.7 percent of the assets of participants in their 20s, amount to 9.0 percent of the assets of participants in their 60s. Company stock accounts for 13.6 percent of the plan balances of participants in their 20s, rises to 18.9 percent for participants in their 40s, and tapers off to 14.7 percent for those in their 60s.

The mix of investment options offered by a plan sponsor significantly affects asset allocation. Table 4 presents four combinations of investment offerings, starting with a base group consisting of plans that offer equity, balanced, bond, and money funds as investment options but do not offer company stock or GICs.[12] Participants in plans having these four basic investment options have 66.4 percent of their assets invested in equity funds, 13.0 percent in balanced funds, 9.8 percent in bond funds, and 8.4 percent in money funds.[13] Adding GICs to the base group lowers the allocation in all four investment options, with the greatest reduction in relative percentage of account balance occurring in bond and money funds.[14] Alternatively, adding company stock as an investment option to the base group results in substitution away from equity funds and balanced funds.[15] Finally, in those plans that offer GICs and company stock in addition to the base options, a combination of the two effects occurs: Company stock appears to displace equity and balanced fund holdings, while GICs appear to displace other fixed-income investments.[16] These effects tend to occur across all ages of participants.

Asset Allocation by Plan Size and Investment Options

Examining whether participants' behavior varies with plan size (measured by the number of plan participants) reveals whether small plans provide access to a variety of investment options similar to that provided by larger plans. In aggregate, the asset allocation of account balances varies with plan size (table 5, top panel). For example, the percentage of plan assets invested in equity funds falls as plan size rises, decreasing from 66.4 percent for plans with 100 or fewer participants to 45.4 percent for plans with more than 5,000 participants. Because few small plans offer company stock as an investment option, in aggregate, company stock represents a negligible percentage of small plans' assets and a much higher percentage in larger plans. However, these aggregate figures do not consider the influence of the differing investment options offered by plan sponsors.

Asset allocations by plan size also are affected by the number of investment options. For those plans offering equity, balanced, bond, and money funds, asset allocation does not appear to be related to the number of participants in the plan (table 5). When GICs are added to the basic investment choices, differentiation in participant behavior by plan size is more discernible. Participants in smaller plans tend to invest a bit more heavily in equity and bond funds, compared with those in larger plans, while participants in larger plans invest a bit more heavily in GICs and balanced funds than those in smaller plans. When company stock is an investment

[12] Plans falling into this category cover 26 percent of the participants in the database and 18 percent of the assets.

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

[14] Plans falling into this category cover 26 percent of the participants in the database and 17 percent of the assets.

[15] Plans falling into this category cover 20 percent of the participants in the database and 24 percent of the assets.

[16] Plans falling into this category cover 28 percent of the participants in the database and 41 percent of the assets.

Table 4
Average Asset Allocation by Age and Investment Options, 1998

Investment Options	Equity Funds	Balanced Funds	Bond Funds	Money Funds	Guaranteed Investment Contracts	Company Stock
	(percentage of account balances)					
All Ages Combined						
Equity, bond, money, and balanced funds	66.4%	13.0%	9.8%	8.4%		
Equity, bond, money, and balanced funds, and GICs	58.2	10.0	4.7	4.0	20.9%	
Equity, bond, money, balanced funds, and company stock	40.7	5.8	11.5	6.7		32.7%
Equity, bond, money, balanced funds, GICs, and company stock	44.4	7.1	2.1	2.3	18.7	24.3
Plans With No Company Stock or Guaranteed Investment Contracts						
Age						
20s	74.3	10.0	7.6	6.0		
30s	73.3	11.5	7.6	5.9		
40s	69.0	12.7	8.9	7.2		
50s	63.4	14.0	10.5	9.0		
60s	52.7	15.1	15.4	13.8		
Plans With Guaranteed Investment Contracts						
Age						
20s	70.7	8.4	3.6	3.5	11.3	
30s	68.7	8.8	3.9	3.1	13.2	
40s	62.5	9.7	4.4	3.8	17.4	
50s	55.6	10.5	5.1	4.0	22.7	
60s	41.9	10.0	5.8	4.9	35.8	
Plans With Company Stock						
Age						
20s	47.4	6.0	5.9	6.4		32.5
30s	47.4	6.1	6.8	6.0		32.2
40s	44.0	6.2	8.7	6.8		32.6
50s	38.4	5.7	12.5	6.8		33.7
60s	31.0	5.1	20.7	7.1		31.7
Plans With Company Stock and Guaranteed Investment Contracts						
Age						
20s	53.1	7.7	1.7	2.1	7.9	25.2
30s	49.5	7.2	1.7	1.8	9.7	28.5
40s	45.4	7.2	2.0	2.1	13.7	28.2
50s	44.9	7.3	2.3	2.3	19.3	22.9
60s	39.5	6.9	2.3	2.9	31.6	16.0

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

option, but GICs are not offered, participants in the smallest and largest plans have a higher percentage of assets invested in company stock than those in plans with between 101 and 5,000 participants. When both company stock and GICs are added to the four basic investment options, asset allocation to equity funds does not vary significantly across plan size. However, among such plans, allocations to all other investments do vary, particularly GICs and company stock. For example, participants in plans with 100 or fewer participants have 19.7 percent of their assets invested in company stock, compared with 25.2 percent for those in plans with more than 5,000 participants.

Asset Allocation of Employee and Employer Contributions

In a typical 401(k) plan, an employee contributes a portion of his or her salary to a plan account and determines how the assets in the account are invested, choosing among investment options made available by the plan sponsor (employer). In many plans, the employer also makes a contribution to the participant's account, generally matching a portion of the employee's contribution. Some employers require that the employer contribution be invested in company stock, rather than as directed by the participant. In these plans, it is

Table 5
Average Asset Allocation by Plan Size and Investment Options, 1998

Plan Size By Number of Participants	Equity Funds	Balanced Funds	Bond Funds	Money Funds	Guaranteed Investment Contracts	Company Stock
	(percentage of account balances)					
All Plans						
1–100	66.4%	7.0%	7.8%	6.1%	10.6%	0.4%
101–500	63.7	10.9	8.1	6.8	7.5	1.2
501–1,000	58.7	11.3	8.1	6.4	8.9	5.1
1,001–5,000	53.2	11.4	5.8	6.0	11.2	10.4
> 5,000	45.4	6.7	5.7	3.6	12.1	25.0
All	49.8	8.4	6.1	4.7	11.4	17.7
Plans With No Company Stock or Guaranteed Investment Contracts						
1–100	69.6	9.9	10.3	9.2		
101–500	68.5	12.3	10.0	8.2		
501–1,000	67.4	11.8	11.2	8.2		
1,001–5,000	65.0	15.1	8.9	9.0		
> 5,000	63.5	12.4	9.9	7.3		
All	66.4	13.0	9.8	8.4		
Plans With Guaranteed Investment Contracts						
1–100	65.4	5.5	6.5	4.3	16.3	
101–500	58.8	8.7	5.3	4.4	19.6	
501–1,000	55.5	12.3	5.5	4.0	20.8	
1,001–5,000	54.7	11.3	4.9	3.8	22.7	
> 5,000	59.2	10.9	3.0	3.9	22.0	
All	58.2	10.0	4.7	4.0	20.9	
Plans With Company Stock						
1–100	23.3	4.8	6.8	18.4		46.4
101–500	49.8	11.1	7.7	10.6		17.8
501–1,000	47.7	9.5	7.8	9.2		25.0
1,001–5,000	49.7	9.2	6.4	8.8		24.0
> 5,000	37.9	4.7	13.1	6.0		35.5
All	40.7	5.8	11.5	6.7		32.7
Plans With Company Stock and Guaranteed Investment Contracts						
1–100	43.4	10.1	4.1	3.6	12.7	19.7
101–500	46.8	9.5	2.3	2.8	22.6	12.9
501–1,000	42.9	8.2	2.2	2.8	21.8	19.7
1,001–5,000	42.3	9.7	3.0	2.9	19.8	20.4
> 5,000	45.1	6.7	1.8	2.1	18.3	25.2
All	44.4	7.1	2.1	2.3	18.7	24.3

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

instructive to examine the participant-directed balances separately from the employer-directed balances.

Participants in plans with mandatory investment in employer stock tend to invest a higher percentage of their self-directed balances in company stock than participants in plans without an employer-directed contribution.[17] Company stock represents 31.5 percent of the participant-directed account balances in plans with such employer-directed contributions (table 6, middle panel), compared with 23.4 percent in plans offering company stock as an investment option but not requiring that employer contributions be invested in company stock (table 6, lower panel). Offsetting the higher allocations to company stock are lower shares of assets in most other plan investments, particularly in

[17] *Source of contribution (employer versus employee) can be matched to fund information for a subset of the data providers in our sample. Of those plans in the 1998 EBRI/ICI database for which the appropriate data are available, less than 0.5 percent require employer contributions to be invested in company stock. However, most of the plans with this feature are large, covering 9 percent of participants and 14 percent of plan assets (in the subset).*

Table 6
Impact of Company Stock on Asset Allocation by Age, 1998

Age Cohort	Equity Funds	Balanced Funds	Bond Funds	Money Funds	Guaranteed Investment Contracts	Company Stock
	(percentage of account balances)					
	Plans With Employer-Directed and Participant-Directed Balances					
Total Balances (Employer-Directed and Participant-Directed)						
20s	36.1%	5.5%	0.7%	1.9%	6.8%	48.9%
30s	32.0	5.0	0.7	1.7	7.3	53.1
40s	26.8	5.4	1.2	3.3	7.8	55.2
50s	25.2	6.1	1.7	4.2	10.4	52.1
60s	23.6	6.7	3.1	7.5	17.4	41.6
All	26.7	5.7	1.6	3.9	10.0	51.9
Participant-Directed Balances Only						
20s	49.4	7.5	0.9	2.5	9.3	30.3
30s	46.9	7.3	1.0	2.4	10.7	31.5
40s	40.1	7.9	1.8	4.8	11.8	33.2
50s	36.0	8.5	2.5	6.1	14.2	32.3
60s	30.1	8.4	4.0	9.7	21.4	26.1
All	38.3	8.1	2.3	5.5	14.0	31.5
	Plans With Company Stock Investment Option But No Employer-Directed Contributions					
Total Balances						
20s	51.5	10.5	2.2	6.5	5.3	19.1
30s	49.4	10.1	2.5	5.3	6.4	23.2
40s	44.7	10.4	3.1	5.6	8.9	24.4
50s	40.0	11.4	3.9	6.5	12.5	23.3
60s	30.8	11.5	4.6	9.1	20.1	21.6
All	42.2	10.8	3.4	6.4	11.1	23.4

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project.
Note: Minor investment in other stable value funds and "other" are not shown; therefore, row percentages will not add to 100 percent. Employer-directed balances are invested in the plan sponsor's company stock.

equity funds and balanced funds. As a result, participants in plans with employer-directed contributions have 74.7 percent of their participant-directed balances invested in equity securities (defined as company stock, equity funds, and the equity portion of balanced funds). Similarly, participants in plans without employer-directed contributions have 72.1 percent of their assets invested in equity securities. However, it is important to note that the composition of these equity security investments varies.

When total account balances are considered, the overall exposure to equity securities through company stock and pooled investments is considerably higher for participants in plans with employer-directed contributions. For example, company stock, equity funds, and the equity portion of balanced funds represent 82.0 percent of the total account balances for those participants in plans with employer-directed contributions, compared with the 72.1 percent exposure in plans without employer-directed contributions (table 6). This higher allocation to equity securities holds across all age groups.

Distribution of Equity Fund Allocations and Participant Exposure to Equities

Among individual participants, the allocation of account balance to equity funds varies widely around the average of 49.8 percent for all participants in the 1998 EBRI/ICI database. Indeed, 28.5 percent of participants have more than 80 percent of their account balances invested in equity funds, while about the same percentage hold no equity funds at all (table 7). The percentage of participants holding no equity funds increases with age and tenure. For example, 26.8 percent of participants in their 20s have no equity investments, compared with 43.1 percent of those in their 60s. Similarly, 22.6 percent of participants with two or fewer years of tenure have no equity fund investments, compared with 42.8 percent for those with more than 30 years of tenure.

Participants with no equity fund balances may still have exposure to the stock market through company stock or balanced funds. Indeed, about two-thirds of participants with no equity funds have investments in

Table 7
Asset Allocation Distribution of Participant Account Balances to Equity Funds by Age and Tenure, 1998

	Zero	< 20%	20%–80%	> 80%	Total
	(percentage of participants)				
Total	28.3%	5.7%	37.4%	28.5%	100.0%
Age Cohort					
20s	26.8	3.3	35.9	34.0	100.0
30s	24.3	5.0	38.6	32.1	100.0
40s	27.2	6.2	39.0	27.6	100.0
50s	30.8	7.2	37.3	24.8	100.0
60s	43.1	7.5	30.9	18.6	100.0
Tenure					
0–2 years	22.6	2.7	39.1	35.6	100.0
>2–5 years	26.0	3.7	38.1	32.2	100.0
>5–10 years	27.5	6.0	38.9	27.6	100.0
>10–20 years	31.1	7.6	38.5	22.8	100.0
>20–30 years	35.2	8.4	35.6	20.8	100.0
> 30 years	42.8	8.4	30.7	18.1	100.0

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

either company stock or balanced funds (table 8). As a result, participants with no equity funds still have 44.6 percent[18] of account balances in equity-related investments (table 9).

Asset Allocation by Salary

Salary information is available for a subset of participants in the 1998 EBRI/ICI database. For these participants, asset allocation differs somewhat with salary.[19] For example, the percentage of account balances invested in equity funds rises from 49.8 percent for participants earning between $20,000 and $40,000 per year to 59.6 percent for those earning more than $100,000 per year (table 10). In contrast, the percentage of account balances invested in GICs declines as salary increases. In addition, the percentage of account balances invested in company stock is similar across each of the income groups earning $100,000 or less, but drops to 7.8 percent for those earning more than $100,000.

Account Balances

The average account balance (net of plan loans) for all participants in the EBRI/ICI database was $47,004 at year-end 1998, which is 26 percent higher

Table 8
Percentage of Participants With Equity Exposure but No Equity Fund Balances by Age and Tenure, 1998

	Percentage With Company Stock and/or Balanced Funds
Age Cohort	
20s	57.4%
30s	65.7
40s	70.7
50s	72.5
60s	63.1
All	67.1
Tenure	
0–2 years	68.5
>2–5 years	60.4
>5–10 years	66.1
>10–20 years	72.5
>20–30 years	74.3
> 30 years	70.6
All	67.1

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

[18] *Estimated as the sum of the 38.9 percent of account balances that is in company stock and 60 percent of the 9.5 percent of account balances that is in balanced funds.*

[19] *For the most part, asset allocation of participants missing salary information is similar to the asset allocation for those with such information, in aggregate. The only notable exception is with respect to percentage of account balances invested in company stock, which is higher for participants missing salary information than for those with such information.*

Table 9

Average Asset Allocation Distribution for Participants With No Equity Fund Balances by Age and Tenure, 1998

	Balanced Funds	Bond Funds	Money Funds	Guaranteed Investment Contracts	Company Stock	Other Stable Value Funds	Other	Unknown	Total
	(percentage of account balances)								
Age Cohort									
20s	13.1%	8.6%	17.4%	15.3%	40.1%	0.6%	3.9%	1.1%	100.0%
30s	11.1	8.1	13.2	16.2	47.6	0.3	2.5	1.1	100.0
40s	10.0	8.3	11.9	20.7	45.4	0.4	2.0	1.3	100.0
50s	9.5	9.5	10.6	25.9	40.4	1.2	1.5	1.5	100.0
60s	8.4	12.7	10.4	37.8	26.6	1.7	1.3	1.1	100.0
All	9.5	9.8	11.4	26.4	38.9	1.0	1.7	1.3	100.0
Tenure									
0–2 years	15.5	11.5	21.1	17.0	28.5	0.4	4.8	1.4	100.0
>2–5 years	15.7	9.4	19.2	19.6	30.4	0.4	4.4	1.1	100.0
>5–10 years	11.1	8.9	15.2	20.1	40.9	0.3	2.6	1.1	100.0
>10–20 years	10.3	9.0	12.8	23.5	40.9	0.5	2.0	1.2	100.0
>20–30 years	8.3	9.1	9.9	29.0	39.4	1.1	1.6	1.6	100.0
> 30 years	6.3	13.3	7.8	35.7	32.1	2.3	1.0	1.6	100.0
All	9.5	9.8	11.4	26.4	38.9	1.0	1.7	1.3	100.0

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

Table 10

Average Asset Allocation by Salary, 1998

Salary	Equity Funds	Balanced Funds	Bond Funds	Money Funds	Guaranteed Investment Contracts	Company Stock
	(percentage of account balances)					
$20,000–$40,000	49.8%	9.6%	5.0%	3.5%	16.8%	11.0%
>$40,000–$60,000	52.7	8.6	5.4	4.5	13.6	12.6
>$60,000–$80,000	53.6	8.2	6.9	6.4	9.8	13.7
>$80,000–$100,000	54.6	8.4	7.1	6.1	9.9	12.3
>$100,000	59.6	8.0	7.4	5.2	9.0	7.8

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

than the average account balance at year-end 1996.[20] The median account balance was $13,038 at year-end 1998. As noted earlier, 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 IRAs are not included in this analysis.

However, there is wide variation in account balances around the average: Nearly three-quarters of the participants in the 1998 EBRI/ICI database have account balances of less than the average. Indeed, 45 percent of participants have account balances of less than $10,000, while 13 percent of participants have account balances greater than $100,000 (chart 3).

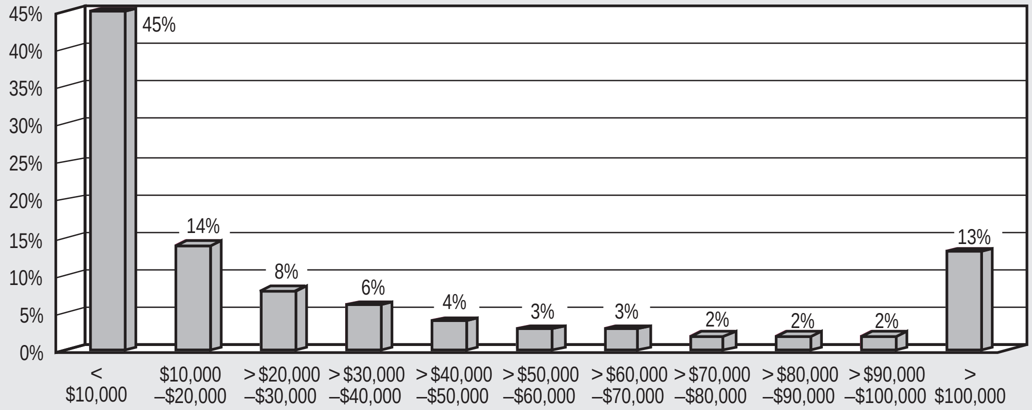
The variation in account balances partly reflects the effects of participant age, tenure, contribution behavior, rollovers from other plans, asset allocation, withdrawals, loan activity, and employer contribution

[20] *Account balances in the EBRI/ICI database are net of plan loans. There is a wide range of average account balances reported for 401(k)-type plans. Data for the universe of 401(k)-type plans compiled by the Department of Labor from the Form 5500 for 1996 imply that an average account balance per active participant was $34,416 (U.S. Department of Labor, forthcoming), a figure that is within 8 percent of the $37,323 average balance estimate from the 1996 EBRI/ICI database (VanDerhei, Galer, Quick, and Rea, 1999). Cerulli Associates (1999) report an average account balance (including loan balances as part of account assets) of $38,081 for 1998. The Profit Sharing/401(k) Council of America finds that the average account balance (also including loans) for participants in their 1998 survey (which includes profit-sharing and combination plans as well as 401(k) plans) is $89,000.*

Chart 3

Distribution of Account Balances, 1998

(percentage of participants with account balances in specified ranges)



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

rates. Information in the EBRI/ICI database can be used to examine the relationship between account balances and age, tenure, and salary of participants.

Relationship of Age and Tenure to Account Balances

Age and account balance should generally be positively related. Younger workers who are relatively early in their careers are likely to have lower incomes. They also have had less time to accumulate a balance with their current employer and are less likely to have rollovers from a previous job's pension in the current plan.

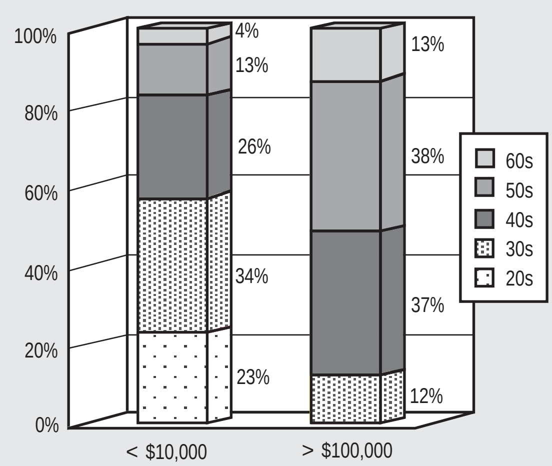
For participants in the 1998 EBRI/ICI database, there is a positive correlation between age and account balance.[21] Examination of the age composition of account balances finds that 57 percent of those participants with account balances of less than $10,000 are in their 20s and 30s, while less than one-fifth are in their 50s or 60s (chart 4). Similarly, of those with account balances greater than $100,000, a little more than one-half are in their 50s and 60s, while only 12 percent are in their 30s and virtually none are in their 20s.

Generally, tenure (or years of participation) and account balance should be positively correlated, as long-term employees have had more time to accumulate an account balance.[22] The participant's tenure with the employer serves as a proxy for length of participation in the 401(k) plan.[23] The 1998 EBRI/ICI database shows that 62 percent of those participants with account balances of less than $10,000 have five or fewer years of tenure, while 83 percent of those participants with account balances greater than $100,000 have more than 10 years of tenure (chart 5).

Examining the interaction of both age and tenure with account balances reveals that for a given age group, average account balances increase with tenure (chart 6). For example, the average account balance of participants in their 60s with up to two years of tenure

Chart 4

Age Composition of Selected Account Balance Categories, 1998



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

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[21] Approximately 0.5 percent of the participants in the database had a birth date that was missing and were not included in this analysis.

[22] A rollover from a previous employer's plan could interfere with this positive correlation because a rollover could give a short-tenure employee a high account balance.

[23] Approximately 13 percent of the participants in the database had a tenure range that was missing and were not included in this analysis. In addition, for one data provider, "years of participation" are used for the tenure variable.

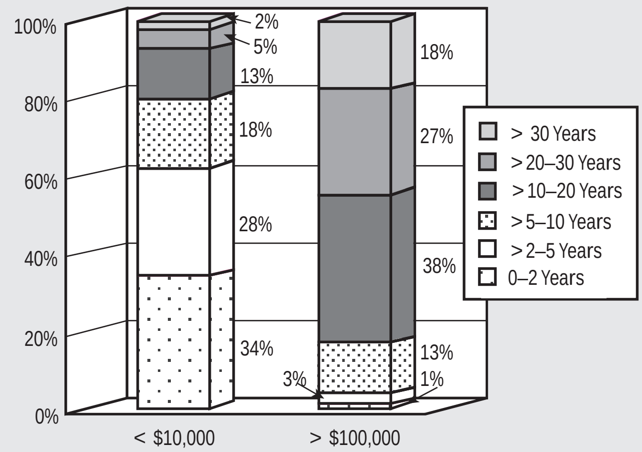


Chart 5
Tenure Composition of Selected Account Balance Categories, 1998

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

is $13,513, compared with $185,474 for participants in their 60s with at least 30 years of tenure. The increase in account balance as tenure increases is largest for participants in their 50s and 60s.

The distribution of account balances underscores the effects of age and tenure on account balances. Ninety-one percent of participants in their 20s with two or fewer years of tenure have account balances of less than $10,000 (chart 7). In contrast, only 55 percent of participants in their 20s with five to 10 years of tenure have account balances of less than $10,000. Older workers display a similar pattern. For example, 73 percent of all participants in their 60s with two or fewer years of tenure have account balances of less than $10,000, compared with 20 percent of those in their 60s with more than 20 years of tenure.[24]

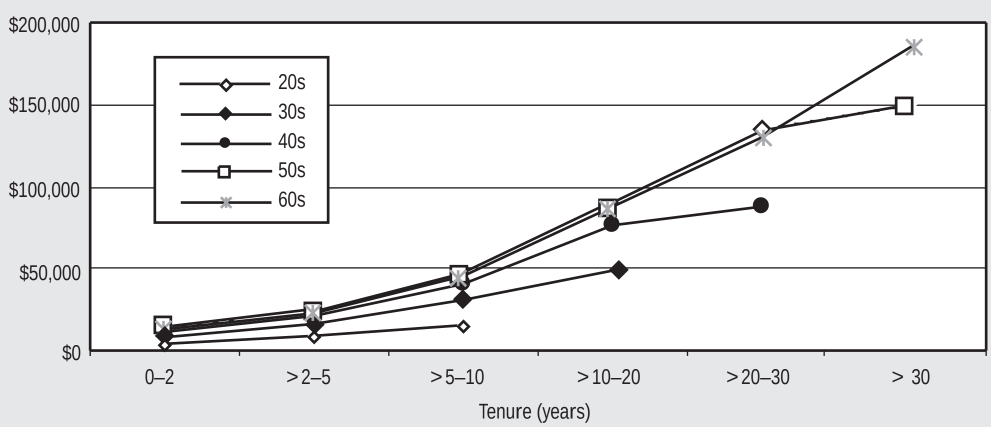
For a given age group, longer tenure means a higher percentage of people with account balances greater than $100,000 (chart 8). For example, less than 10 percent of participants in their 60s with 10 or fewer years of tenure have account balances in excess of $100,000. However, about 37 percent of participants in their 60s with 21–30 years of tenure with their current employer have account balances greater than $100,000. The percentage increases to 48 percent for those in their 60s with more than 30 years of tenure.

Relationship Between Account Balances and Earnings

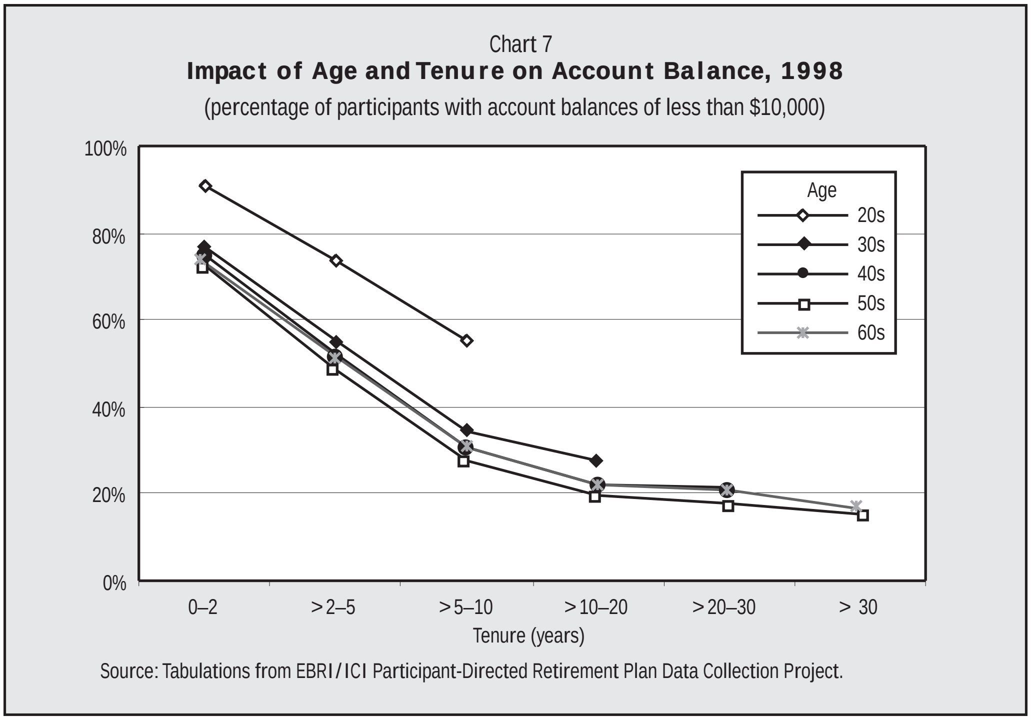
This section examines how the ratio of 1998 account balance to 1998 salary varies across different income

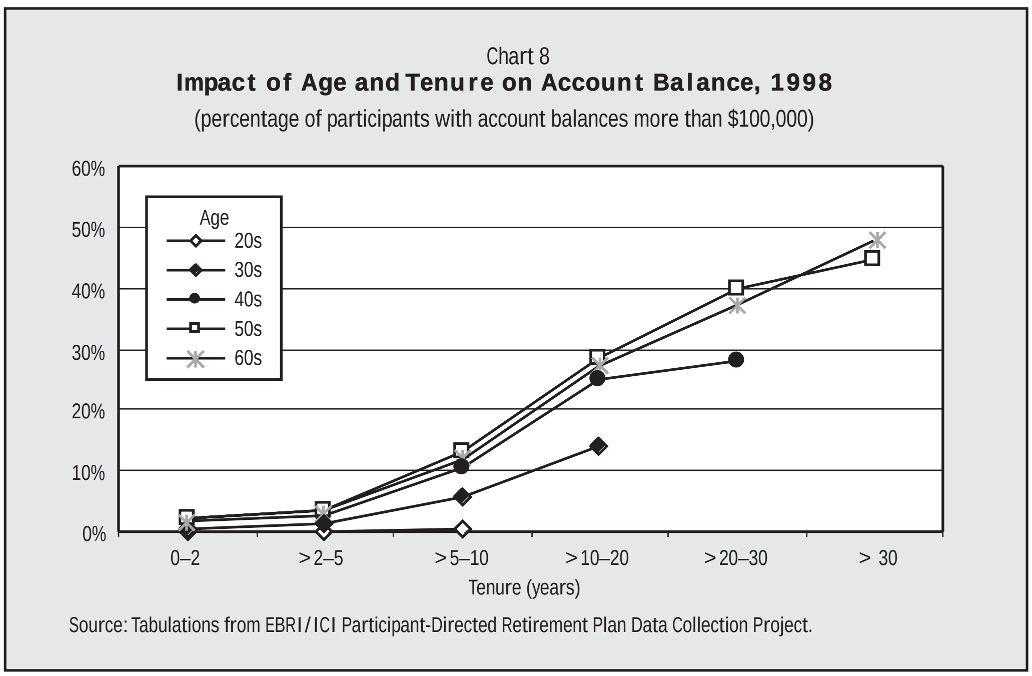
[24] *Two possible explanations for the low account balances among this group are: (1) It may be that their employer's 401(k) plan has only recently been established (indeed, 49 percent of all 401(k)-type plans in existence in 1995 were established after 1989 (U.S. Department of Labor (1999), table B.10)), or (2) The employee may have only recently joined the plan. In either event, job tenure would not accurately reflect actual 401(k) plan participation.*

Chart 6
Average Account Balance by Age and Tenure, 1998



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

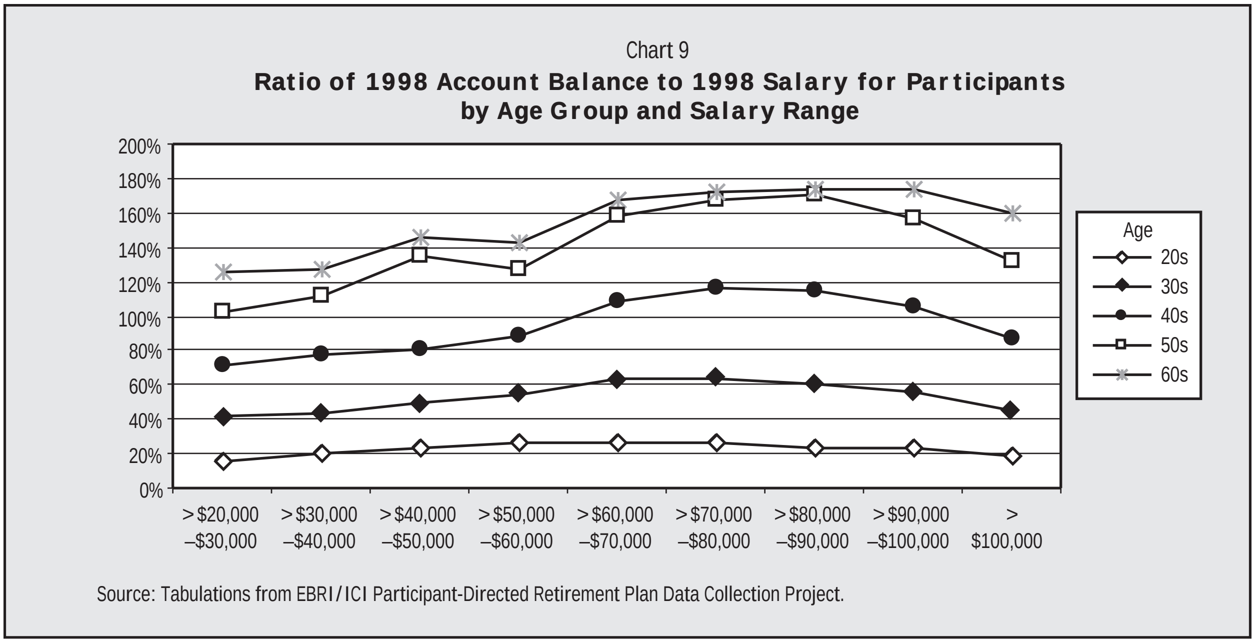




groups.[25] The ratio of participant account balances to earnings tends to increase slightly with earnings for low-to-moderate salary groups (chart 9). At high levels of earnings, however, the ratio tends to decline somewhat. For example, for participants in their 60s, the ratio of account balance to earnings rises from 125 percent for earnings between $20,001 and $30,000 to 174 percent for earnings between $80,001 and $90,000. Thereafter, the ratio falls to 160 percent for earnings in excess of $100,000.

A similar pattern emerges for other age groups, although the pattern is less pronounced for participants

[25] *The ratio of 401(k) account balance (at the current employer) to salary alone is not an indicator of preparedness for retirement. Such an analysis would require estimating projected balances at retirement by also considering retirement income from Social Security, defined benefit plans, IRAs, and other defined contribution plans, possibly from previous employment. However, two other papers have addressed the projected role of 401(k) plans in retirement: Even and Macpherson (1998), and Poterba, Venti, and Wise (1999). In addition, Samwick and Skinner (1998) analyze defined contribution plan benefits more generally.*



in their 20s and 30s (chart 9). The tendency of the ratio of account balances to salary to peak at higher earnings and then fall off a bit likely reflects the influence of two competing forces. First, past empirical research suggests that higher earners tend to contribute higher percentages of salary,[26] and thus one would expect the ratio of account balance to salary to rise with salary. However, constraining these individuals' greater propensity to save are tax code contribution limits and nondiscrimination rules, which aim to assure that employees of all income ranges attain the benefits of the 401(k) plan.[27]

The ratio of account balance to salary is positively correlated with age and tenure. Participants in their 60s, having had more time to accumulate assets, have higher ratios across all salary ranges, while those in their 20s have the lowest ratios (chart 9). Similarly,

[26] *See Kusko, Poterba, and Wilcox (1998) and Yakoboski and VanDerhei (1996).*

[27] *Specifically, contributions of high-income participants are constrained by election deferral limits in Internal Revenue Code Sec. 402(g), and by Actual Deferral Percentage and Actual Contribution Percentage (ADP/ACP) nondiscrimination rules in IRC Secs. 401(k) and 401(m).*

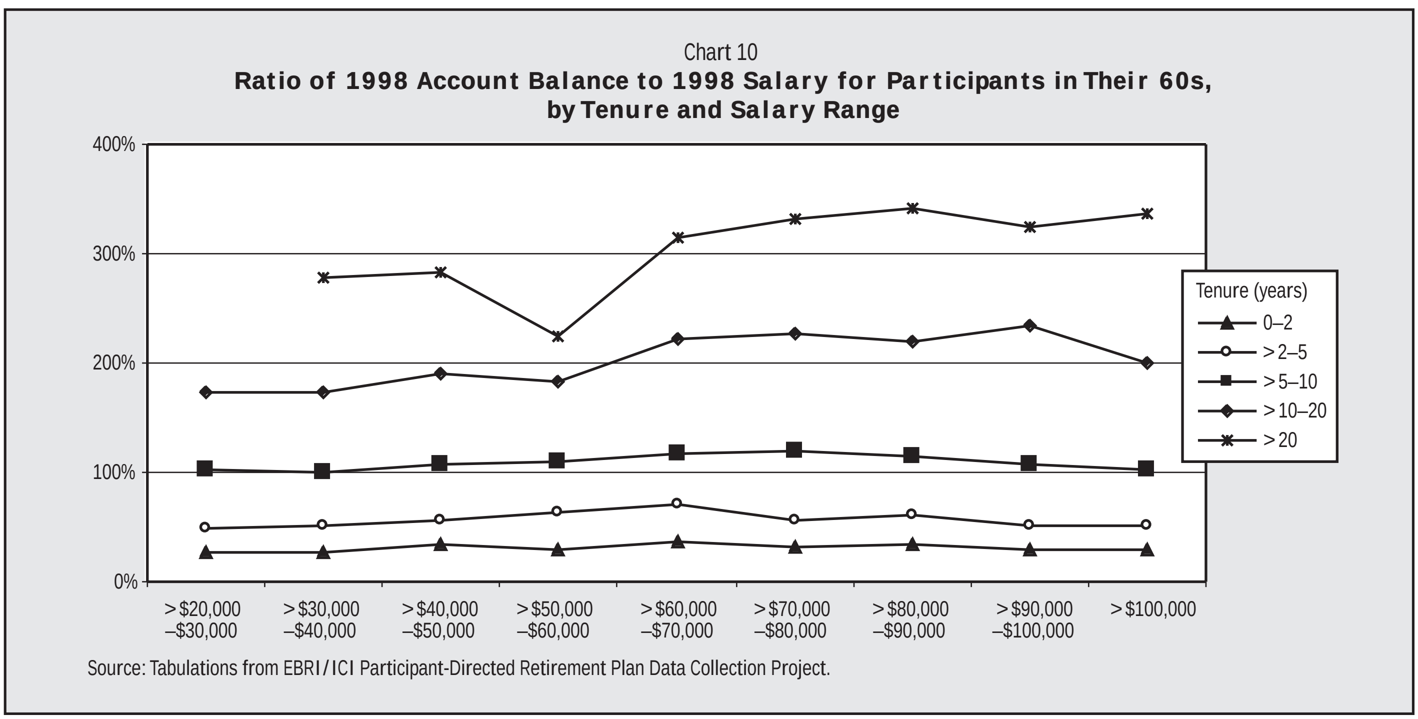
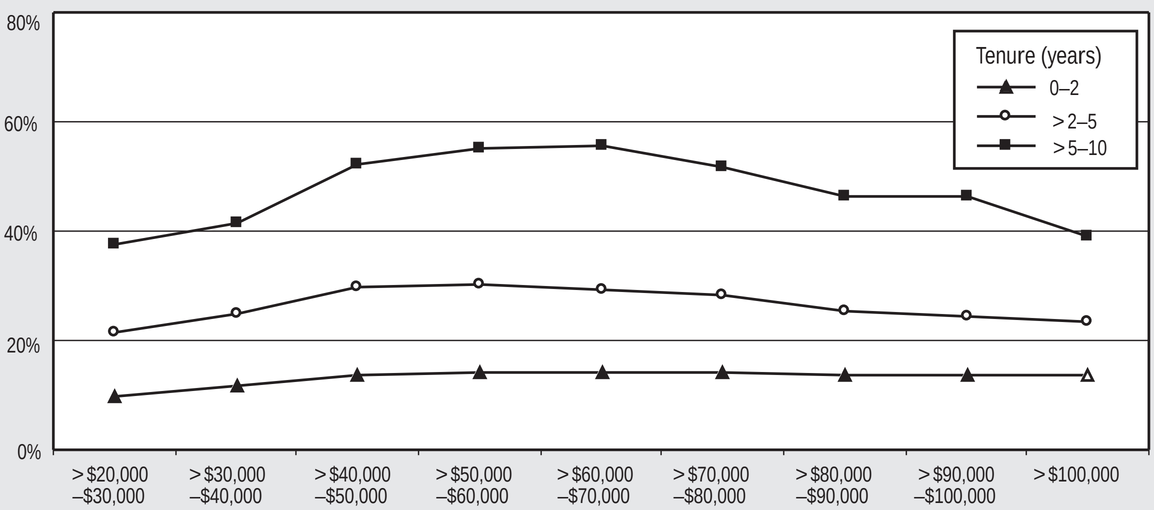


Chart 11

Ratio of 1998 Account Balance to 1998 Salary for Participants in Their 20s, by Tenure and Salary Range



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

participants with more tenure have higher ratios than those with fewer years of tenure. For participants in their 60s with $50,001–$60,000 in annual salary, the ratio of account balance to salary rises from 29 percent for those with two or fewer years of tenure to 224 percent for those with more than 20 years of tenure (chart 10). As a result, those longer-tenure participants are able to provide for a higher percentage of their income in retirement with the 401(k) plan benefits from the current employer. Similarly, of participants in their 20s, those with longer tenure tend to have higher account balances relative to salary (chart 11).

Plan Loans

Availability of Plan Loans

Fifty-six percent of the plans for which loan data are available in the 1998 EBRI/ICI database offer a plan loan provision to participants (chart 12).[28] The loan feature is primarily associated with large plans. About 90 percent of plans with more than 10,000 participants offer a loan provision, whereas less than one-half of plans with 10 or fewer participants offer borrowing privileges, and two-thirds of the plans with 51–1,000 participants offer loans to employees.

Characteristics of Participants With Outstanding Loans

Most participants in 401(k) plans have borrowing privileges. In the 1998 EBRI/ICI database, 80 percent of participants are in plans offering loans. However, only 16 percent of those eligible for loans had loans outstanding at the end of 1998 (chart 13).

Loan activity varies with age, tenure, and account balance. Of those participants in plans offering loans, the highest percentages of participants with outstanding loan balances are among participants in their 30s, 40s, or 50s (chart 13). In addition, utilization of the loan provision is lower for individuals with five or fewer years of tenure and those with more than 30 years of tenure than for other participants (chart 14). Finally, only 9 percent of participants with account balances of less than $10,000 have loans outstanding (chart 15). This is well below the 16 percent for all participants and less than one-half the percentage for participants with account balances between $10,000 and $20,000.

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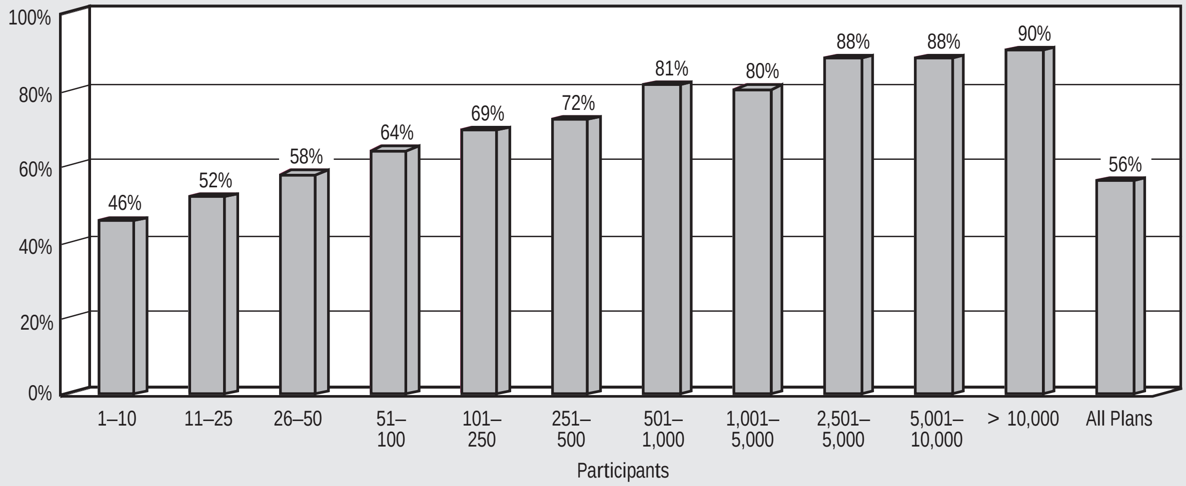
[28] *Plan-specific information on loan provision is available for the majority of the plans in the sample (including virtually all of the small plans). Some plans without this information are classified as having a loan provision if any participant in the plan has an outstanding loan balance. This may understate the number of plans offering loans (or participants eligible for loans) because some plans may have offered, but had no participant take out, a plan loan. It is likely that this omission is small, as the U.S. General Accounting Office (1997) finds that more than 95 percent of 401(k) plans that offer loans had at least one plan participant with an outstanding loan.*

Chart 12

Availability of Plan Loans by Number of Participants, 1998

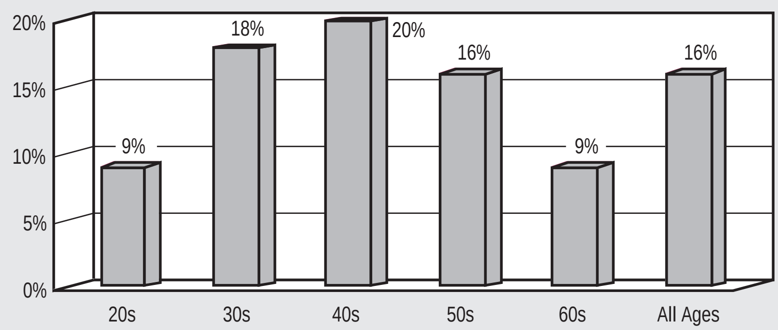
(percentage of plans offering loans)



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

Chart 13

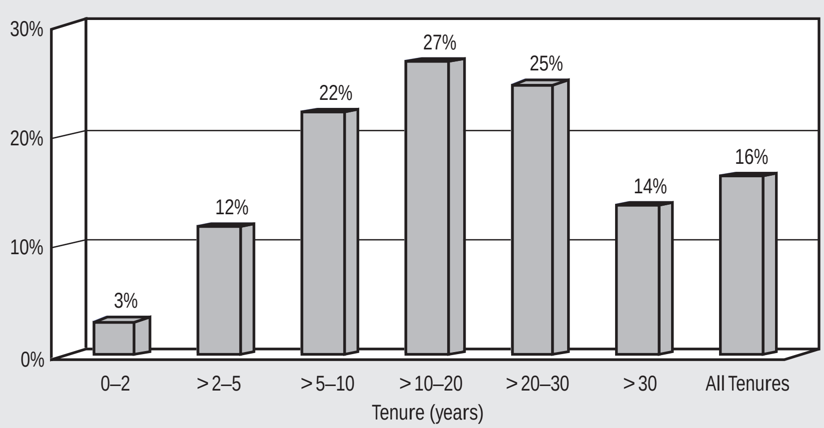
Percentage of Eligible Participants With Loans, by Age, 1998



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

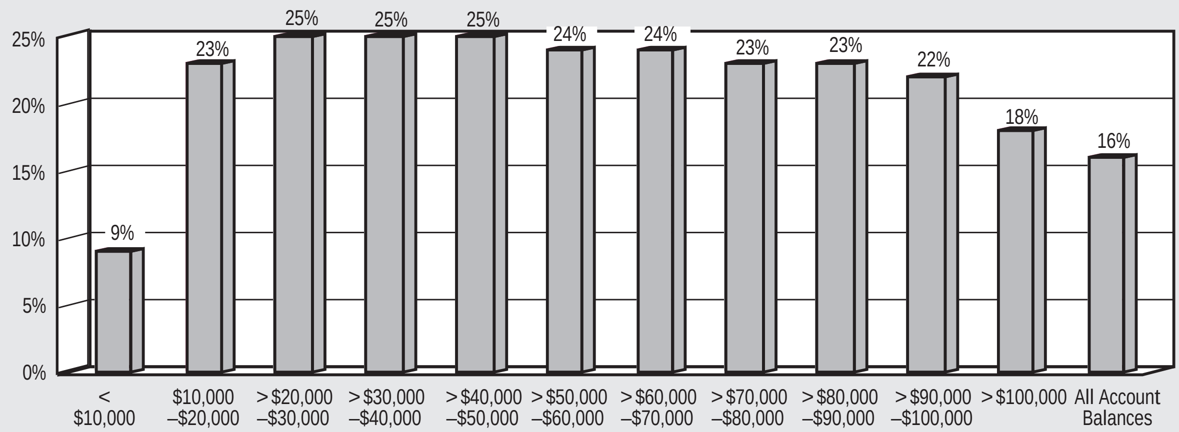
Chart 14

Percentage of Eligible Participants With Loans, by Tenure, 1998



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

Chart 15
Percentage of Eligible Participants With Loans, by Account Balance, 1998



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

Average Loan Balances

For those participants with outstanding loans at the end of 1998, the average unpaid balance was $6,717. Loan balances as a percentage of account balances for participants with loans was 14 percent (chart 16). However, there is variation around this average with age, tenure, and account balance.

Loan ratios tend to decrease as age increases, dropping steadily from 28 percent for participants in their 20s to 9 percent for those in their 60s (chart 16). Similarly, loan ratios tend to decrease as tenure increases, falling from 24 percent for participants with two or fewer years of tenure to 8 percent for those with more than 30 years of tenure (chart 17). In addition, loan ratios decrease as account balance increases. Indeed, the loan ratio for participants with account balances of less than $10,000 is 36 percent, while the loan ratio for those with account balances in excess of $100,000 is only 7 percent (chart 18).

Participants' Accounts

Approximately 3.3 million (or 50.3 percent) of the participants present in the 1996 EBRI/ICI database also are in the 1997 and 1998 EBRI/ICI databases.[29] This consistent group of participants held $224 billion in assets at the end of 1998, up 62.3 percent from $138 billion at the end of 1996.[30] These participants appear to be representative of the aggregate EBRI/ICI database in terms of their distribution across age, tenure, account balance, and plan size, and thus they provide an opportunity to examine the developments in their 401(k) accounts over the two-year time period.

Changes in Asset Allocation, 1996–1998

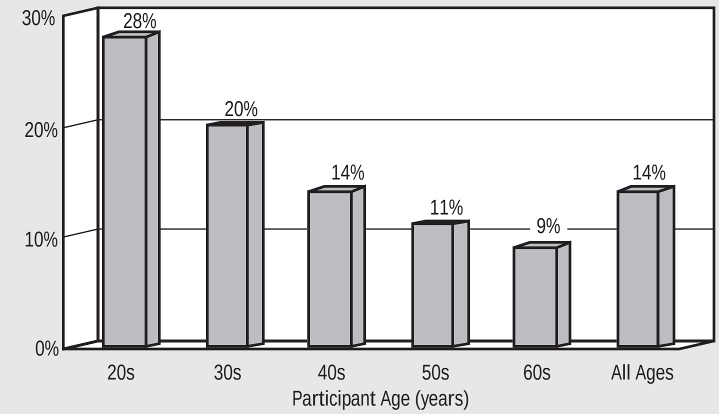
Despite the sharp rise in equity prices between 1996 and 1998, the percentage of assets allocated to equity funds did not change significantly for the vast majority of participants. To examine changes in asset allocation, participants are placed into five groups based on the percentage of their account balance invested in equity funds in 1996. The five groups corresponding to the percentages invested in equity funds are: 0 percent, 1 percent to 33 percent, 34 percent to 66 percent, 67 percent to 99 percent, and 100 percent. The participants within each of these groups are then grouped according to the percentage account balance allocated to equity funds in 1998, using the same five ranges.

The results of this cross-classification are shown in table 11. A percentage along the diagonal shows the

[29] Employees included in this analysis are active participants with positive account balances in their 401(k) plans in 1996, 1997, and 1998. Participants who enter or exit the database in 1997 or 1998 are not included in this analysis.

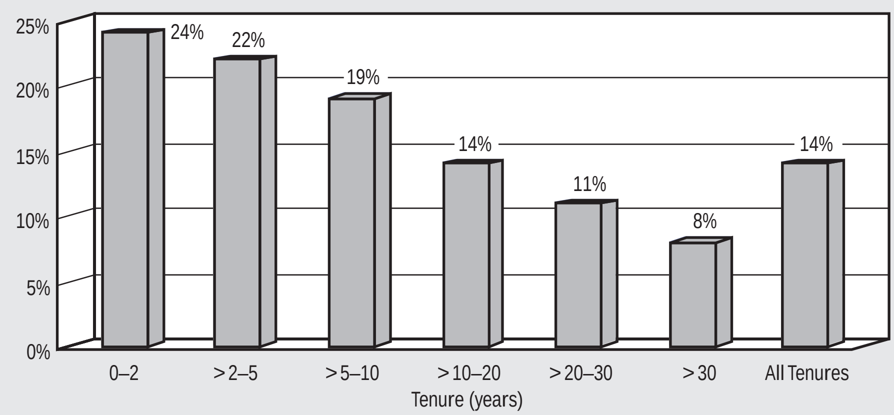
[30] These participants' aggregate assets rose 30 percent in 1997 and 25 percent in 1998. Because the sub-sample requires that participants be present in all three years, while in 401(k) plans more generally, participants enter and leave, the growth in assets experienced by our constant group of participants exceeds growth estimates for the universe of 401(k) plans. Indeed, the U.S. Department of Labor reports an average growth rate in 401(k)-type plan assets of 18 percent per year over 1991 to 1996. Cerulli Associates (1999) estimate that 401(k) plan assets grew 20 percent in 1997 and 15 percent in 1998.

Chart 16
Loan Ratios for Participants With Loans, by Age, 1998



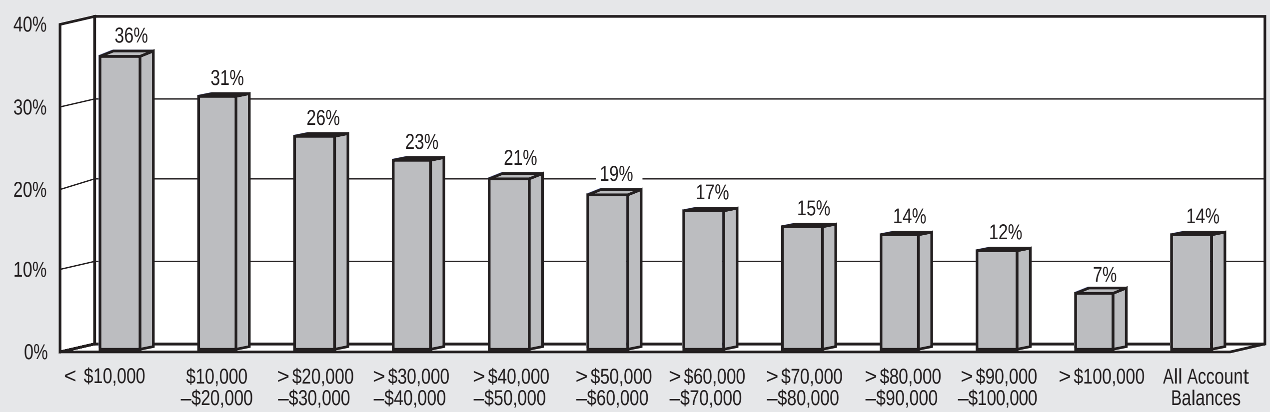
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project.

Chart 17
Loan Ratios for Participants With Loans, by Tenure, 1998



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

Chart 18
Loan Ratios for Participants With Loans, by Account Balance, 1998



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

Table 11
Changes in Participants' Investment in Equity Securities, 1996–1998
(percentage of participants)

Percentage of Account Balance Invested in Equity Funds

	Percentage in 1998				
	None	1%–33%	34%–66%	67%–99%	100%
Percentage in 1996					
None	17.7	2.4	1.3	0.8	0.5
1%–33%	0.5	10.2	4.1	1.1	0.6
34%–66%	0.5	1.6	18.9	5.1	1.3
67%–99%	0.4	0.5	1.7	15.7	1.4
100%	0.2	0.3	0.3	1.0	12.1
Sum of Diagonal:	74.6				

Percentage of Account Balance Invested in Equity Funds, Balanced Funds,[a] and Company Stock

	Percentage in 1998				
	None	1%–33%	34%–66%	67%–99%	100%
Percentage in 1996					
None	11.1	1.5	0.7	0.6	0.4
1%–33%	0.2	6.5	3.0	0.9	0.3
34%–66%	0.3	0.8	15.0	5.6	0.7
67%–99%	0.5	0.7	2.0	30.5	2.7
100%	0.2	0.3	0.4	1.8	13.3
Sum of Diagonal:	76.4				

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project
[a]Because approximately 60 percent of aggregate balanced fund assets are invested in equities, 60 percent of participants' balanced fund assets are counted here as equity investments.

share of all the participants who remain within the same group in 1996 and 1998.[31] The figures above the diagonal represent participants who moved to a higher allocation to equity funds in 1998, whereas figures below the diagonal represent participants who lowered their allocation to equity funds in 1998. For example, 18.9 percent of all participants in 1996 remained within the 34 percent to 66 percent range in 1998. In addition, 5.1 percent of the participants moved from the 34 percent to 66 percent range in 1996 to the 67 percent to 99 percent range in 1998, while 1.6 percent moved from the 34 percent to 66 percent range in 1996 to the 1 percent to 33 percent range in 1998.

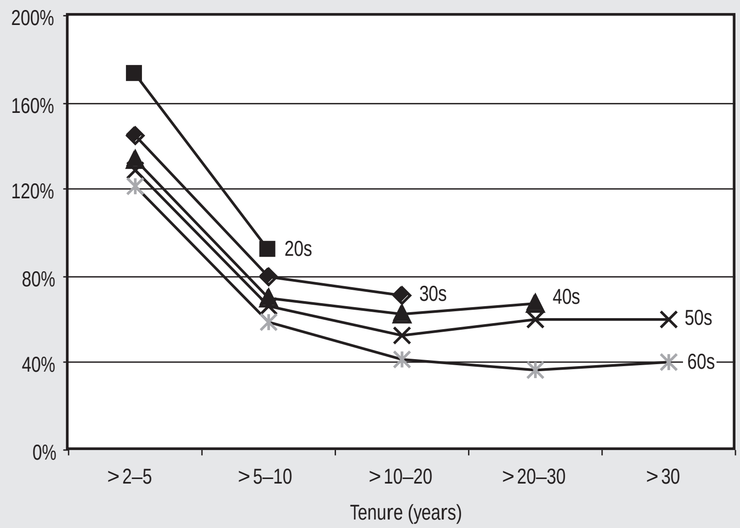
The vast majority of participants remained within their 1996 equity asset allocation group in 1998. This is indicated by the sum of the diagonal elements in table 11, which shows that 74.6 percent are in the same cell in both 1996 and 1998. That is, 74.6 percent of participants maintained the 1996 share of their account balances in equity funds in 1998. The other 25.4 percent of the participants experienced a change in groups between 1996 and 1998. More than twice as many participants experiencing a change in equity allocation ended up with a higher equity allocation than ended up with a lower equity allocation. Indeed, the sum of the elements above the diagonal indicates that 18.6 percent ended up with a higher allocation in 1998, whereas the sum of the elements below the diagonal shows that 7.0 percent ended up with a lower allocation. The conclusions of this section are broadly similar when the allocation of account balance to equity securities is defined more generally to include equity funds, the equity portion of balanced funds, and company stock (table 11, lower panel).

Changes in Account Balances, 1996–1998

This section examines the net change in account balance, which reflects investment returns, employer and employee contributions, loan activity, and withdrawals between 1996 and 1998. The median growth in account balance over the two-year time period is 86 percent

[31] We should note that maintaining a given asset allocation may have required some adjustment in the composition of account balances or contributions to rebalance the portfolio. In addition, this analysis compares changes in year-end asset allocation over a two-year time period and does not capture trading activity of participants.

Chart 19
Median Growth in Account Balance 1996–1998, by Age and Tenure



Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project.
Note: Change in account balance over the two years including contributions, loan activity, withdrawals, and investment returns.

among all participants present in 1996, 1997, and 1998, in part reflecting strong stock market performance. However, there is variation in growth in account balance by age and tenure.

For a given age group, growth in account balance tends to fall as tenure increases (chart 19). The initial account balance of younger participants and those with few years of tenure is typically small and contributions are generally large relative to the account balance. As a result, the median growth rate is as high as 173 percent for participants in their 20s with two to five years of tenure. Growth in the account balances of participants in their 60s with two to five years of tenure is 121 percent. As tenure increases, the percentage growth resulting from contributions is damped by the size of the initial account balance. However, investment returns become a significant factor boosting growth in these accounts. As a result, median growth in account balances of participants in their 60s with five to 10 years of tenure is a healthy 59 percent.

Within a given tenure range, younger participants experience higher median account growth than older participants. This result is likely driven in part by the variation in asset allocation by age, as younger participants have higher exposure to equity securities compared with older participants (see table 3). For example, among participants with 21–30 years of tenure, median account balance growth for those in their 50s is 60 percent, compared with 37 percent for those in their 60s (chart 19).

Bibliography

Cerulli Associates, Inc. "Market Update: The 401(k) Industry." *The Cerulli Report*. Boston: Cerulli Associates, September 1999.

Even, William E., and David A. Macpherson. *The Impact of Rising 401(k) Pension Coverage on Future Pension Income*. Report submitted to Department of Labor, Pension and Welfare Benefits Administration, March 1998.

Investment Company Institute. Quarterly Supplemental Data.

Kusko, Andrea L., James M. Poterba, and David W. Wilcox. "Employee Decisions with Respect to 401(k) Plans." In Olivia S. Mitchell and Sylvester J. Schieber, eds., *Living with Defined Contribution Pensions*. Philadelphia: University of Pennsylvania Press, 1998, pp. 9–112.

Poterba, James M., Steven F. Venti, and David A. Wise. "Pre-Retirement Cashouts and Foregone Retirement Saving: Implications for 401(k) Asset Accumulation." NBER Working Paper no. 7314. Cambridge, MA:

National Bureau of Economic Research, August 1999.
Profit Sharing/401(k) Council of America. *42nd Annual Survey of Profit Sharing and 401(k) Plans.* Chicago: Profit Sharing/401(k) Council of America, 1999.
Samwick, Andrew A., and Jonathan Skinner. "How Will Defined Contribution Pension Plans Affect Retirement Income?" NBER Working Paper no. 6645. Cambridge, MA: National Bureau of Economic Research, July 1998.
U.S. Department of Labor. Pension and Welfare Benefit Administration. *Private Pension Plan Bulletin, Abstract of 1995, Form 5500 Annual Reports.* Washington DC: U.S. Government Printing Office, 1999.
________. *Private Pension Plan Bulletin, Abstract of 1996, Form 5500 Annual Reports*. Washington DC: U.S. Government Printing Office, forthcoming.
U.S. General Accounting Office. "401(k) Pension Plans: Loan Provisions Enhance Participation But May Affect Income Security for Some." (Letter Report, 10/01/97, GAO-HEHS-98-5), 1997.
VanDerhei, Jack, Russell Galer, Carol Quick, and John Rea. "401(k) Plan Asset Allocation, Account Balances, and Loan Activity." *EBRI Issue Brief* no. 205 and *ICI Perspective*, Vol. 5, no. 1. Washington DC: Employee Benefit Research Institute and Investment Company Institute, January 1999.
Yakoboski, Paul, and Jack VanDerhei. "Contribution Rates and Plan Features: An Analysis of Large 401(k) Plan Data." *EBRI Issue Brief* no. 174 (Employee Benefit Research Institute, June 1996).

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