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401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2018

By Sarah Holden, ICI; Jack VanDerhei, EBRI; and Steven Bass, ICI

AT A GLANCE

Since 1996, the Employee Benefit Research Institute (EBRI) and the Investment Company Institute (ICI) have worked together on collecting and analyzing annual data on millions of 401(k) plan participants' accounts. This report reflects the year-end 2018 update of these data and EBRI and ICI's ongoing research into 401(k) plan participants' activity.

Key Findings:

- **The bulk of 401(k) assets were invested in stocks.** On average, at year-end 2018, 63 percent of 401(k) participants' assets were invested in equity securities through equity funds, the equity portion of balanced funds, and company stock. Twenty-eight percent of assets were in fixed-income securities such as stable-value investments, bond funds, money funds, and the fixed-income portion of balanced funds.

- **More 401(k) plan participants held equities at year-end 2018 than before the financial market crisis (year-end 2007), and most had the majority of their accounts invested in equities.** For example, about three-quarters of participants in their twenties had more than 80 percent of their 401(k) plan accounts invested in equities at year-end 2018, up from less than half of participants in their twenties at year-end 2007. Overall, more than 90 percent of 401(k) participants had at least some investment in equities at year-end 2018.

- **More than three-quarters of 401(k) plans, covering more than three-quarters of 401(k) plan participants, included target-date funds in their investment lineup at year-end 2018.** At year-end 2018, 27 percent of the assets in the EBRI/ICI 401(k) database were invested in target-date funds and more than half of 401(k) participants in the database held target-date funds. Also known as lifecycle funds, these funds are designed to offer a diversified portfolio that automatically rebalances to be more focused on income over time.

- 401(k) participants' investment in company stock continued at historically low levels. Five percent of 401(k) assets were invested in company stock at year-end 2018, in line with recent years. This share has fallen by 74 percent since 1999 when company stock accounted for 19 percent of assets.

- **A minority of 401(k) participants had loans outstanding**. At year-end 2018, 19 percent of all 401(k) participants who were eligible for loans had loans outstanding against their 401(k) plan accounts, unchanged since 2016. Loans outstanding amounted to 10 percent of the remaining account balance, on average, at year-end 2018, up 1 percentage point from year-end 2017 but still below their historical average. Loan amounts also edged up a bit in 2018.

- **The year-end 2018 average 401(k) plan account balance in the database was 5.9 percent lower than the year before.** This is consistent with stock market declines in 2018 but may not accurately reflect

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the experience of typical 401(k) participants**.** Among consistent participants in the EBRI/ICI database between 2010 and 2018, the average account balance was 0.7 percent lower at year-end 2018 than at year-end 2017. Changes in a participant's account balance are primarily due to the combination of contributions, investment returns, and withdrawal and loan activity.

- **The average 401(k) plan account balance tends to increase with participant age and tenure.** For example, at year-end 2018, participants in their forties with more than two to five years of tenure had an average 401(k) plan account balance of about $36,000, compared with an average 401(k) plan account balance of more than $306,000 among participants in their sixties with more than 30 years of tenure.

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Since 1996, the Employee Benefit Research Institute (EBRI) and the Investment Company Institute (ICI) have worked together on collecting and analyzing annual data on millions of 401(k) plan participants' accounts. This report reflects data through year-end 2018 and EBRI's and ICI's ongoing research into 401(k) plan participants' activity.

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Introduction

Over the past four decades, 401(k) plans have become the most widespread private-sector employer-sponsored retirement plan in the United States.[1] In 2018, an estimated 59 million American workers were active 401(k) plan participants.[2] By year-end 2018, 401(k) plan assets had grown to $5.2 trillion, representing about one-fifth of all retirement assets.[3] In an ongoing collaborative effort, the Employee Benefit Research Institute (EBRI)[4] and the Investment Company Institute (ICI)[5] collect annual data on millions of 401(k) plan participants as a means to examine how these participants manage their 401(k) plan accounts. This report is an update of EBRI and ICI's ongoing research into 401(k) plan participants' activity through year-end 2018.[6] The report is divided into four sections: the first describes the EBRI/ICI 401(k) database; the second presents a snapshot of participant account balances at year-end 2018; the third looks at participants' asset allocations, including analysis of 401(k) participants' use of target-date, or lifecycle, funds; and the fourth focuses on participants' 401(k) loan activity.

EBRI/ICI 401(k) Database

Sources and Types of Data

Several recordkeeping organizations provided records on active participants in 401(k) plans at year-end 2018. These plan recordkeepers include mutual fund companies, banks, insurance companies, and consulting firms. Although the EBRI/ICI project has collected data from 1996 through 2018, the universe of data providers may vary from year to year. In addition, the plans with any given provider may change from year to year, which changes the plans provided. Thus, aggregate figures in this report generally should not be used to estimate time trends. Records were encrypted before inclusion in the database to conceal the identity of employers and employees, but were coded so that both could be tracked by researchers over multiple years.[7] Data provided for each participant included date of birth, from which an age group is assigned; date of hire, from which a tenure range is assigned; outstanding loan 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.[8] 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. Within the year-end 2018 EBRI/ICI database, it is possible to link individuals across plans across a majority of the recordkeepers. This improves the identification of active participants and resulted in the reclassification of 0.5 million participant accounts that were multiple accounts owned by single individuals. This procedure allows EBRI and ICI to begin to consolidate account balances for individuals across data providers to provide a more accurate estimate of average account balances per individual.[9]

About the EBRI/ICI Database

The EBRI/ICI Participant-Directed Retirement Plan Data Collection Project gathers information about individual 401(k) plan participant accounts. As of December 31, 2018, the EBRI/ICI database included statistical information about:

- 14.6 million 401(k) plan participants, in
- 90,987 employer-sponsored 401(k) plans, holding
- $1.1 trillion in assets.

The 2018 EBRI/ICI database covers 25 percent of the universe of 401(k) plan participants, 15 percent of plans, and 21 percent of 401(k) plan assets. The project is unique because it includes data provided by a wide variety of plan recordkeepers and, therefore, represents the activity of participants in 401(k) plans of varying sizes — from very large corporations to small businesses — with a variety of investment options.

Investment Options

Investment options are grouped into eight broad categories.[10]

- Equity funds consist of pooled investments primarily invested in stocks, including equity mutual funds, bank collective trusts, life insurance separate accounts, and other pooled investments.
- Bond funds are pooled accounts primarily invested in bonds.
- Balanced funds are pooled accounts invested in both stocks and bonds. They are classified into two subcategories: target-date funds and non-target-date balanced funds.
    - A target-date fund pursues a long-term investment strategy, using a mix of asset classes, or asset allocation, that the fund provider adjusts to become less focused on growth and more focused on income as the fund approaches and passes its target date.[11]
    - Non-target-date balanced funds include asset allocation, or hybrid, funds and lifestyle funds.[12]
- 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)[13] and other stable-value funds,[14] are reported as one category.
- *Other* is the residual for other investments, such as real estate funds.
- *Unknown*, which is the final category, consists of assets that could not be identified.[15]

Distribution of Plans, Participants, and Assets by Plan Size

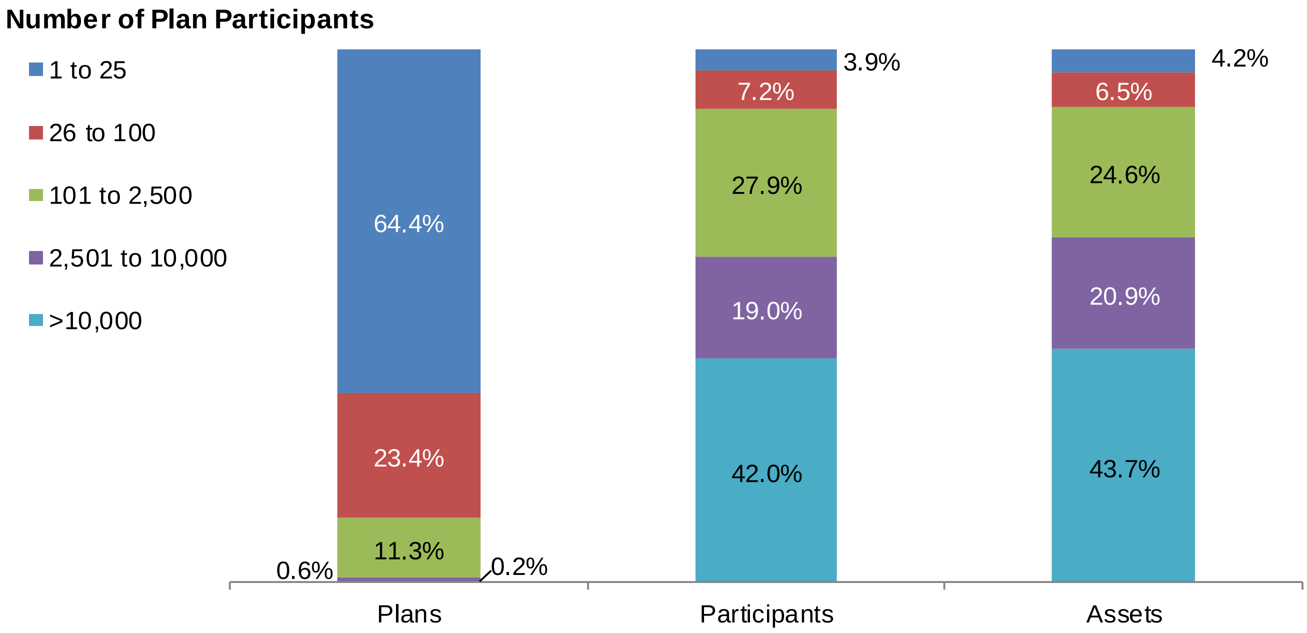
The 2018 EBRI/ICI 401(k) database contains information on 90,987 401(k) plans with $1.1 trillion in assets and 14.6 million participants (Figure 1). As in the 401(k) universe at large, most of the plans in the database are small: 64 percent of the plans have 25 or fewer participants, and 23 percent have 26 to 100 participants (Figure 2). In contrast, less than 1 percent of the plans have more than 2,500 participants. However, participants and assets are concentrated in large plans. For example, 61 percent of participants are in plans with more than 2,500 participants, and these same plans account for 65 percent of all plan assets. Because most of the plans have a small number of participants, the asset size for many plans is modest. Twenty-six percent of the plans have assets of $250,000 or less, and another 33 percent have plan assets between $250,001 and $1,250,000 (Figure 3).

Figure 1
401(k) Plan Characteristics by Number of Plan Participants, 2018

Number of Plan Participants	Total Plans	Total Participants	Total Assets	Average Account Balance
1 to 10	35,716	183,846	$16,474,250,188	$89,609
11 to 25	22,884	381,594	$29,075,412,033	$76,195
26 to 50	13,008	466,469	$32,074,208,737	$68,760
51 to 100	8,298	583,460	$37,734,756,236	$64,674
101 to 250	5,725	894,976	$54,764,145,602	$61,191
251 to 500	2,328	808,921	$49,070,754,791	$60,662
501 to 1,000	1,303	917,068	$59,128,346,031	$64,475
1,001 to 2,500	937	1,449,809	$100,989,969,996	$69,657
2,501 to 5,000	379	1,327,696	$103,668,813,883	$78,082
5,001 to 10,000	209	1,442,620	$121,093,155,539	$83,940
>10,000	200	6,114,175	$469,371,812,538	$76,768
All	**90,987**	**14,570,634**	**$1,073,445,625,575**	**$73,672**

Note: The median account balance at year-end 2018 was $16,010.
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

Figure 2
Distribution of 401(k) Plans, Participants, and Assets
Percentage of plans, participants, and assets by number of plan participants, 2018



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

Figure 3
401(k) Plan Characteristics by Plan Assets, 2018

Plan Assets	Total Plans	Total Participants	Total Assets	Average Account Balance
$0 to $250,000	24,082	184,607	$2,310,319,948	$12,515
$250,000 to $625,000	15,404	232,833	$6,447,712,516	$27,692
$625,000 to $1,250,000	14,239	311,974	$12,915,803,611	$41,400
$1,250,000 to $2,500,000	14,104	499,411	$25,128,948,428	$50,317
$2,500,000 to $6,250,000	12,421	858,262	$48,364,077,439	$56,351
$6,250,000 to $12,500,000	4,771	722,228	$41,687,467,450	$57,721
$12,500,000 to $25,000,000	2,469	736,465	$42,745,872,928	$58,042
$25,000,000 to $62,500,000	1,759	1,137,605	$68,518,550,284	$60,231
$62,500,000 to $125,000,000	716	976,724	$62,387,063,682	$63,874
$125,000,000 to $250,000,000	428	1,121,335	$73,965,364,979	$65,962
>$250,000,000	594	7,789,190	$688,974,444,310	$88,453
All	**90,987**	**14,570,634**	**$1,073,445,625,575**	**$73,672**

Note: The median account balance at year-end 2018 was $16,010.
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

About Changes in Account Balances

In order to analyze the change in participant account balances over time, it is important to have a consistent sample of participants. Comparing average account balances across different year-end snapshots can lead to false conclusions. For example, adding a large number of new plans with smaller balances to the database would tend to pull down the average account balance. This could then be mistakenly described as an indication that balances are declining, but it would tell us nothing about consistently participating workers. Similarly, the aggregate average account balance would tend to be pulled down if a large number of older participants retired. In addition, changes in the sample of recordkeepers and changes in the set of plans for which they keep records can also influence the change in aggregate average account balance. Thus, to ascertain what is happening to 401(k) participants' account balances, a set of consistent participants must be analyzed.

Although the average account balance for the entire database at year-end 2018 is 5.9 percent lower than the average account balance at year-end 2017, this is affected by participants and plans entering and leaving the database. Among the sample of participants who were present in the database in every year between 2010 and 2018, the average account balance decreased by only 0.7 percent between year-end 2017 and year-end 2018, from $181,492 to $180,251.[16]

Relationship of EBRI/ICI 401(k) Database Plans to the Universe of All 401(k) Plans

The 2018 EBRI/ICI 401(k) database is a representative sample of the estimated universe of 401(k) plans. At year-end 2018, all 401(k) plans held a total of $5.2 trillion in assets, and the database represents about 21 percent of that total.[17] The database also covers 25 percent of the universe of active 401(k) plan participants and 16 percent of all 401(k) plans.[18] The distribution of assets, participants, and plans in the database for 2018 is similar to the universe of plans as reported by the U.S. Department of Labor (Figure 4).

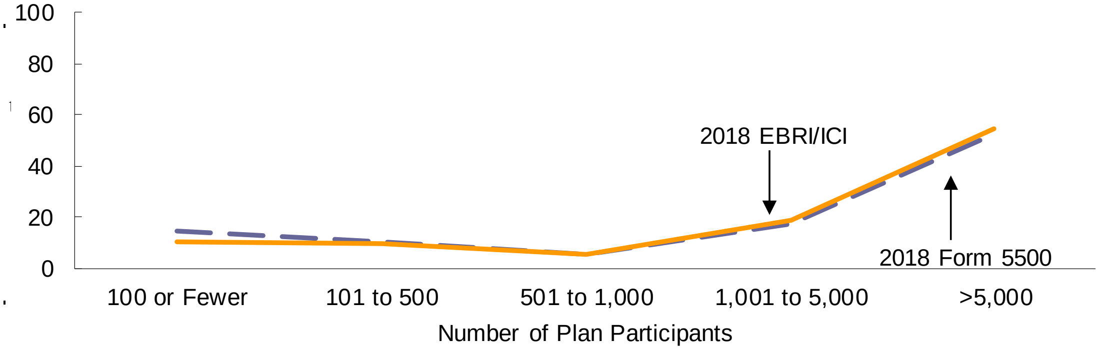
Figure 4

EBRI/ICI 401(k) Database Represents a Wide Cross Section of the 401(k) Universe

401(k) plan characteristics by number of participants: EBRI/ICI 401(k) database in 2018 vs. 2018 DOL Form 5500 for all 401(k) plans

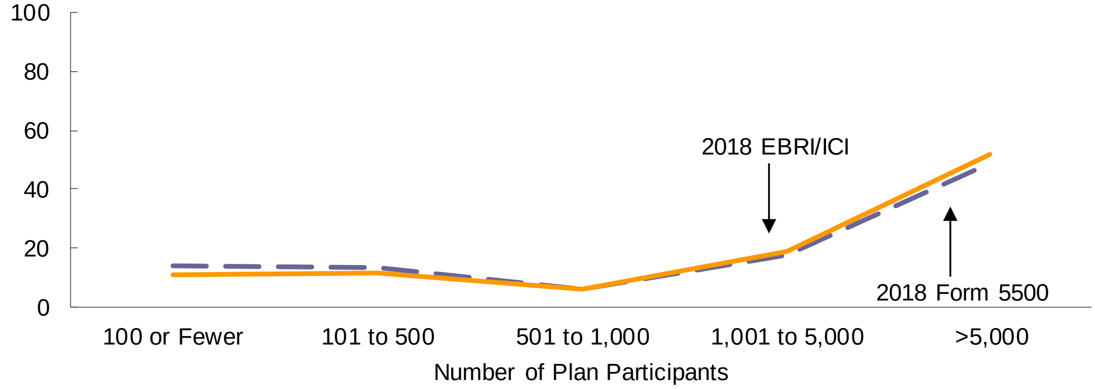
Plan Assets

Percentage of plan assets



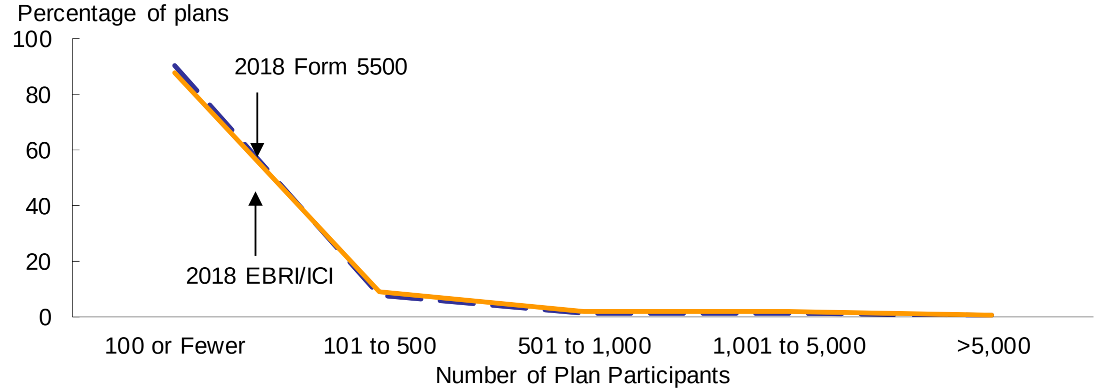
Participants

Percentage of participants



Plans

Percentage of plans

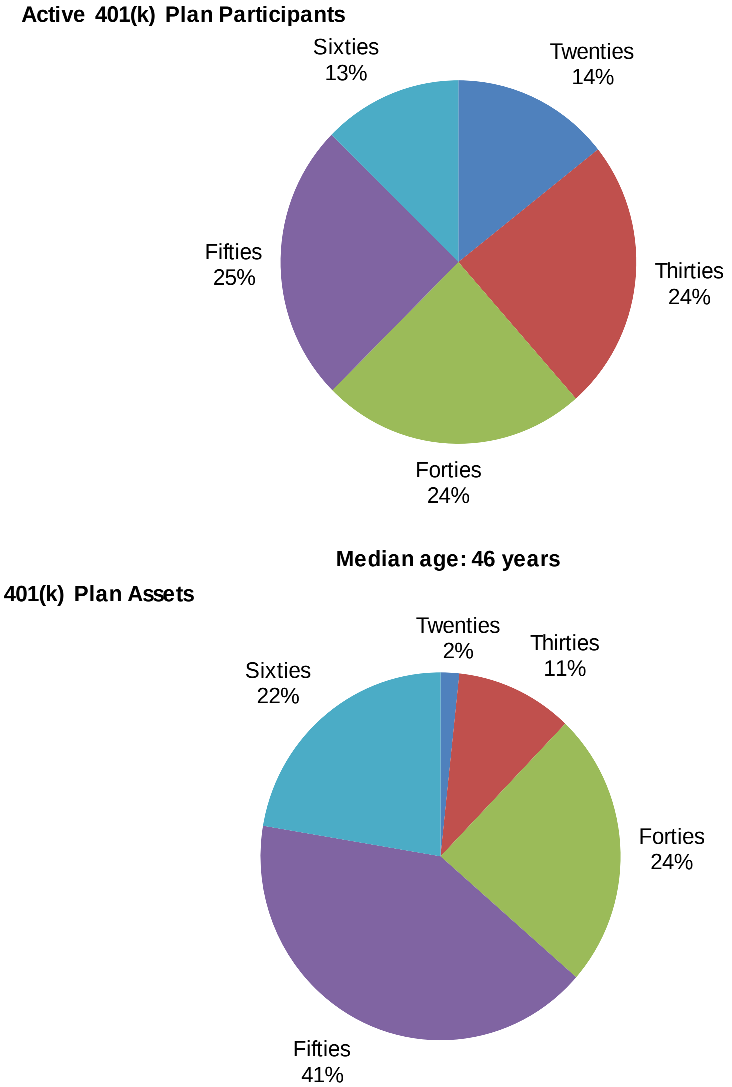


Sources: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project and U.S. Department of Labor

Age and Tenure of 401(k) Plan Participants

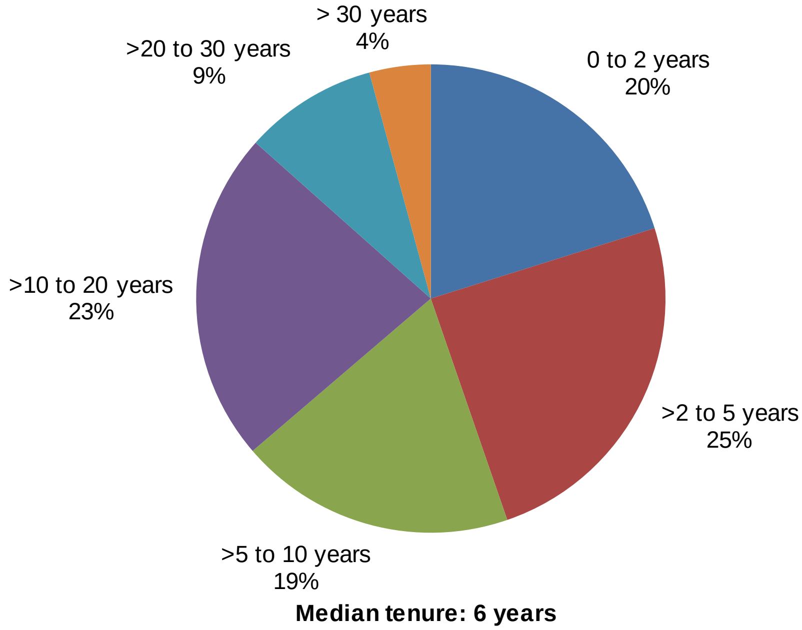
The database includes 401(k) participants across a wide range of age and tenure groups. At year-end 2018, 48 percent of participants were in their thirties or forties, while 14 percent of participants were in their twenties, 25 percent were in their fifties, and 13 percent were in their sixties (Figure 5, upper panel). The median age of the participants in the 2018 database is 46 years, similar to prior years. Because older participants tend to have larger account balances, assets in the database are more heavily concentrated among the older 401(k) participant groups. At year-end 2018, 63 percent of 401(k) plan assets were held by participants in their fifties or sixties, while 13 percent of 401(k) plan assets were held by participants in their twenties or thirties (Figure 5, lower panel). Participants in 401(k) plans represent a wide range of job tenure experiences. In 2018, 45 percent of the participants in the database had five or fewer years of tenure, and 4 percent had more than 30 years of tenure (Figure 6). The median tenure at the current employer was six years in 2018, down from seven years in 2017 and 2016.

Figure 5
401(k) Participants Represent a Range of Ages
Percentage of active 401(k) plan participants and 401(k) plan assets by participant age, 2018



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

Figure 6
401(k) Participants Represent a Range of Job Tenures
Percentage of active 401(k) plan participants by years of tenure, 2018



Note: The tenure variable is generally years working at current employer and thus may overstate years of participation in the 401(k) plan.
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

Year-End 2018 Snapshot of 401(k) Participants' Account Balances

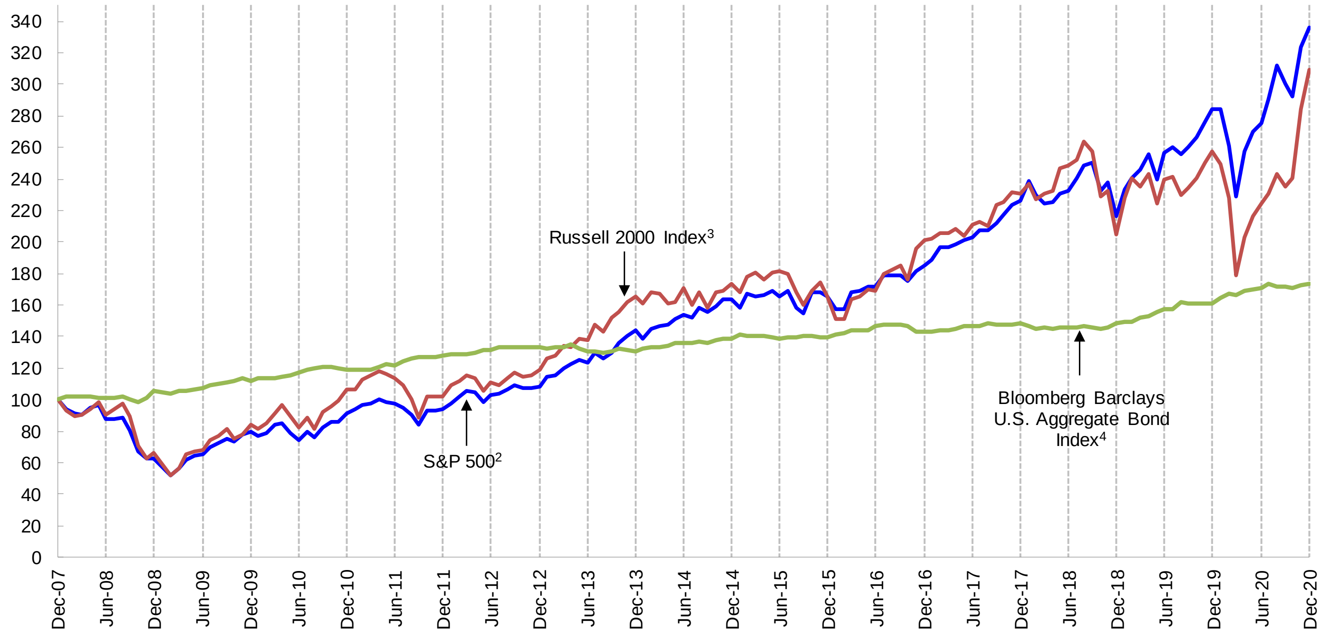
Factors That Affect 401(k) Participants' Account Balances

In any given year, the change in a participant's account balance in the database is the sum of three factors:

- New contributions by the participant (+), the employer (+), or both;
- Total investment return on account balances (±), which depends on the performance of financial markets and on the allocation of assets in an individual's account; and
- Withdrawals (-), borrowing (-), and loan repayments (+).

The change in any individual participant's account balance in the database is influenced by the magnitude of these three factors relative to the starting account balance.[19] For example, a contribution of a given dollar amount produces a larger growth rate when added to a smaller account. On the other hand, investment returns of a given percentage produce larger dollar increases (or decreases) when compounded on a larger asset base. Asset allocation also influences investment returns and changes in assets. For example, stocks (as measured by the S&P 500 total return index) decreased by 4.4 percent during 2018, while bonds (as measured by the Barclays Capital U.S. Aggregate Bond Index) were flat (Figures 7 and 8).

Figure 7
Domestic Stock and Bond Market Indexes
Month-end level,[1] December 2007 to December 2020



[1]All indexes are set to 100 in December 2007.

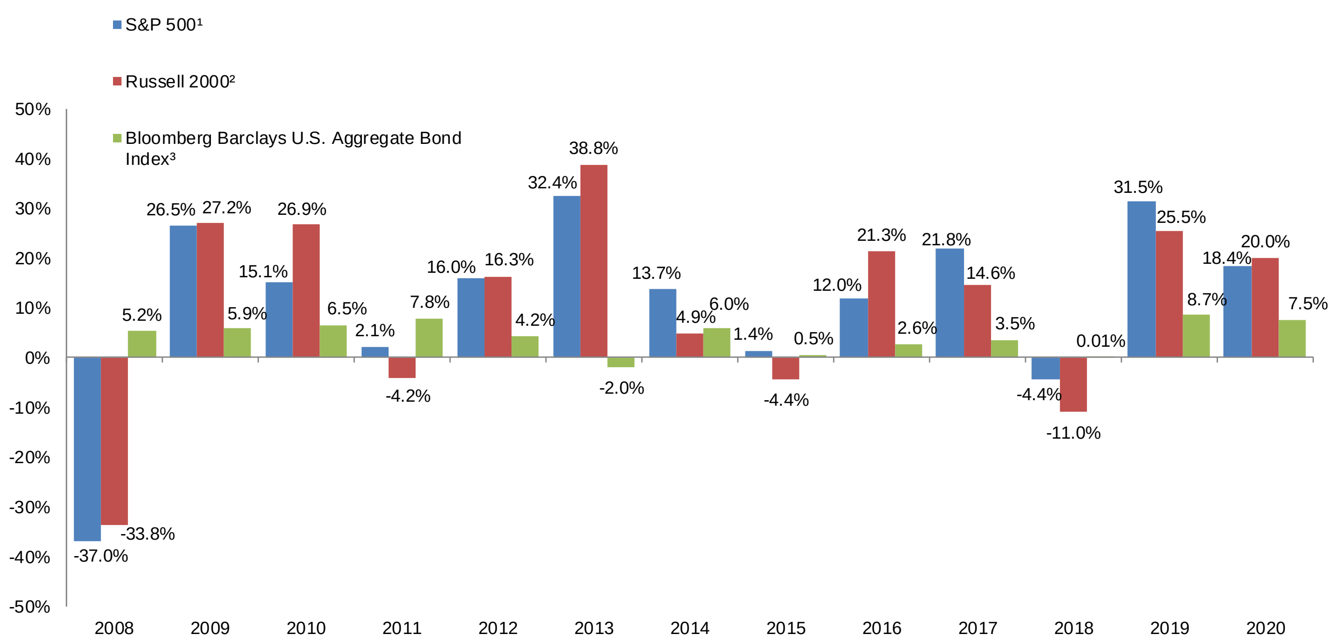
[2]The S&P 500 is an index of 500 stocks chosen for market size, liquidity, and industry group representation.

[3]The Russell 2000 Index measures the performance of the 2,000 smallest U.S. companies (based on total market capitalization) included in the Russell 3000 Index (which tracks the 3,000 largest U.S. companies).

[4]The Bloomberg Barclays U.S. Aggregate Bond Index is composed of securities covering government and corporate bonds, mortgage-backed securities, and asset-backed securities (rebalanced monthly by market capitalization). The index's total return consists of price appreciation/depreciation plus income as a percentage of the original investment.

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

Figure 8
Percent Change in Total Return Indexes



[1]The S&P 500 is an index of 500 stocks chosen for market size, liquidity, and industry group representation.

[2]The Russell 2000 Index measures the performance of the 2,000 smallest U.S. companies (based on total market capitalization) included in the Russell 3000 Index (which tracks the 3,000 largest U.S. companies).

[3]The Bloomberg Barclays U.S. Aggregate Bond Index is composed of securities covering government and corporate bonds, mortgage-backed securities, and asset-backed securities (rebalanced monthly by market capitalization). The index's total return consists of price appreciation/depreciation plus income as a percentage of the original investment.

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

Definition of 401(k) Plan Account Balance

As a cross section, or snapshot, of the entire population of 401(k) plan participants, the database includes 401(k) participants who are young and those who are new to their jobs, as well as older participants and those who have been with their current employers for many years. These annual updates of the database provide snapshots of 401(k) plan account balances, asset allocation, and loan activity across wide cross sections of participants. However, the cross-sectional analysis is not well suited to addressing the question of the impact of participation in 401(k) plans over time. Cross sections change in composition from year to year because the selection of data providers and sample of plans using a given provider vary and because 401(k) participants join or leave plans.[20] In addition, the database contains only the account balances held in the 401(k) plans at participants' current employers. Retirement savings held in plans at previous employers or rolled over into individual retirement accounts (IRAs) are not included in the analysis.[21] Furthermore, account balances are net of unpaid loan balances. Because of all these factors, it is not correct to presume that the change in the average or median account balance for the database as a whole reflects the experience of "typical" 401(k) plan participants. (See About Changes in Account Balances on page 8.)

Size of 401(k) Plan Account Balances

At year-end 2018, the average account balance was $73,672 and the median account balance was $16,010 (Figure 9), but balances varied widely. For example, about three-quarters of the participants in the 2018 EBRI/ICI 401(k) database had account balances that were lower than $73,672, the size of the average account balance. In fact, 41.8 percent of participants had account balances of less than $10,000, while 18.5 percent of participants had account balances greater than $100,000 (Figure 10). The variation in account balances partly reflects the effects of participant age, tenure, salary, contribution behavior, rollovers from other plans, asset allocation, withdrawals, loan activity, and employer contribution rates. This paper examines the relationship between account balances and participants' age and tenure.

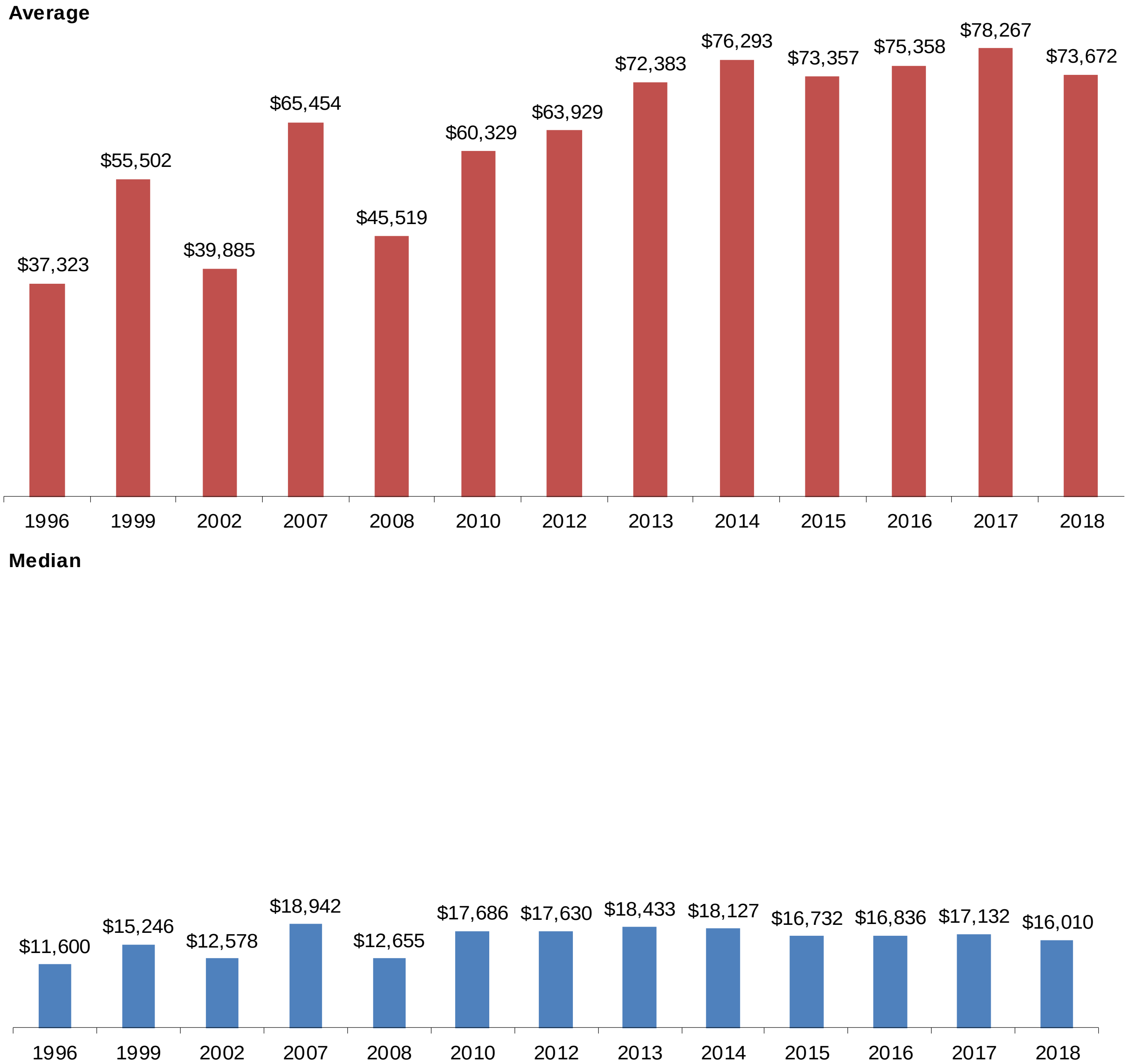
Relationship of Age and Tenure to 401(k) Plan Account Balances

Age and account balance are positively correlated among participants covered by the 2018 database.[22] Examination of the age composition of account balances finds that 54 percent of participants with account balances of less than $10,000 were in their twenties or thirties (Figure 11). Similarly, 62 percent of participants with account balances greater than $100,000 were in their fifties or sixties. The positive correlation between age and account balance is expected because younger workers are likely to have lower incomes and to have had less time to accumulate a balance with their current employer. In addition, they are less likely to have rollovers from a previous employer's plan in their current plan accounts. Account balance and tenure are also positively correlated among participants in the 2018 database. A participant's tenure with an employer serves as a proxy for the length of time a worker has participated in the 401(k) plan.[23] Indeed, 70 percent of participants with account balances of less than $10,000 had five or fewer years of tenure, while 72 percent of participants with account balances greater than $100,000 had more than 10 years of tenure (Figure 12).[24] Examining the interaction of both age and tenure with account balances reveals that, for a given age group, average account balances tend to increase with tenure. For example, the average account balance of participants in their sixties with up to two years of tenure was $46,457, compared with $306,214 for participants in their sixties with more than 30 years of tenure (Figure 13).[25] Similarly, the average account balance of participants in their forties with up to two years of tenure was $19,580, compared with $166,341 for participants in their forties with more than 20 years of tenure.

Figure 9

Snapshot of Year-End 401(k) Plan Account Balances

401(k) plan participant account balances,[1] selected years[2]



[1]Account balances are participant account balances held in 401(k) plans at the participants' current employers and are net of plan loans. Retirement savings held in plans at previous employers or rolled over into IRAs are not included.

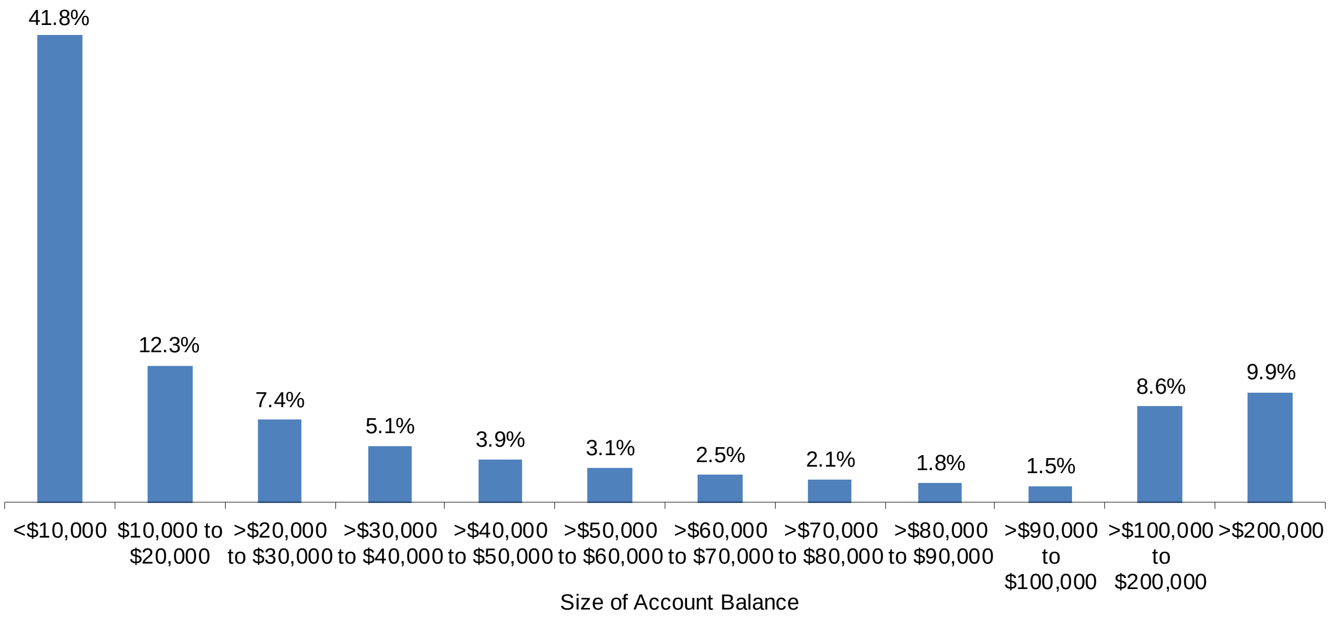
[2]The sample of participants changes over time.

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

Figure 10

Distribution of 401(k) Plan Account Balances by Size of Account Balance

Percentage of participants with account balances in specified ranges, 2018



Note: At year-end 2018, the average account balance among all 14.6 million 401(k) participants was $73,672; the median account balance was $16,010. Account balances are participant account balances held in 401(k) plans at the participants' current employers and are net of plan loans. Retirement savings held in plans at previous employers or rolled over into IRAs are not included.

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

Figure 11

Age Composition of Selected 401(k) Plan Account Balance Categories

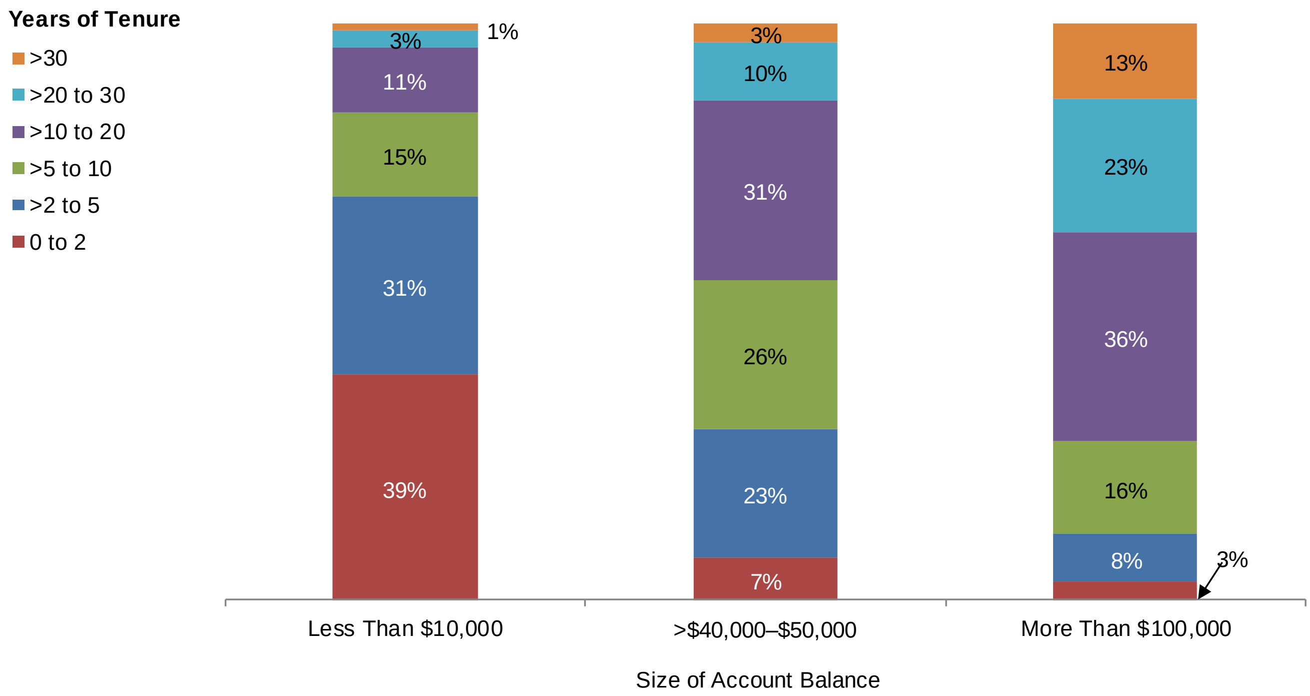
Percentage of participants with account balances in specified ranges, 2018

(*) = less than 0.5 percent

Note: Account balances are participant account balances held in 401(k) plans at the participants' current employers and are net of plan loans. Retirement savings held in plans at previous employers or rolled over into IRAs are not included.

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

Figure 12
Tenure Composition of Selected 401(k) Plan Account Balance Categories
Percentage of participants with account balances in specified ranges, 2018



Note: Account balances are participant account balances held in 401(k) plans at the participants' current employers and are net of plan loans. Retirement savings held in plans at previous employers or rolled over into IRAs are not included. The tenure variable is generally years working at current employer and thus may overstate years of participation in the 401(k) plan.
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

Figure 13
401(k) Plan Account Balances Increase With Participant Age and Tenure
Average 401(k) plan account balance by participant age and tenure, 2018

	Years of Tenure					
Age Group	**0 to 2**	**>2 to 5**	**>5 to 10**	**>10 to 20**	**>20 to 30**	**>30**
20s	$4,160	$11,705	$19,513			
30s	$10,401	$22,982	$41,954	$67,012		
40s	$19,580	$36,304	$64,497	$118,069	$166,341	
50s	$30,475	$49,093	$80,788	$136,701	$238,898	$301,863
60s	$46,457	$60,161	$83,596	$118,839	$197,326	$306,214

Note: The average account balance among all 14.6 million 401(k) plan participants was $73,672; the median account balance was $16,010. Account balances are participant account balances held in 401(k) plans at the participants' current employers and are net of plan loans. Retirement savings held in plans at previous employers or rolled over into IRAs are not included. The tenure variable is generally years working at current employer and thus may overstate years of participation in the 401(k) plan.
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

Year-End 2018 Snapshot of 401(k) Participants' Asset Allocation

At year-end 2018, 39 percent of 401(k) plan participants' account balances were invested in equity funds, on average, in line with recent years (Figure 14). Altogether, equity securities — equity funds, the equity portion of balanced funds,[26] and company stock — represented 63 percent of 401(k) plan participants' assets at year-end 2018 (Figure 15).

Changes in Asset Allocation Between Year-End 2017 and Year-End 2018

Changes in asset allocation over time reflect investment performance, participants' rebalancing, and changes in the EBRI/ICI cross section of plans in the database. Historically, investment performance likely explains a good deal of the fluctuation in 401(k) participants' asset allocations over time (Figures 7, 8, and 14). However, despite a 4.4 percent decline in the S&P 500 total return index, the overall asset allocation of 401(k) plans in the EBRI/ICI database changed little between year-end 2017 and 2018. At year-end 2018, equity funds were 39.0 percent of the assets in the EBRI/ICI 401(k) database (Figure 15), little changed from 40.3 percent at year-end 2017.[27] Balanced funds, which invest in both equities and fixed-income securities, increased only slightly in share, accounting for 31.2 percent of the assets in the database at year-end 2018. Despite minor market shifts, most 401(k) participants appeared not to have made dramatic shifts in their asset allocations in 2018.[28]

Asset Allocation and Participant Age

As in previous years, the database for year-end 2018 shows that participants' asset allocation varied considerably with age.[29] Younger participants tended to favor equity funds and balanced funds, while older participants were more likely to invest in fixed-income securities such as bond funds, GICs and other stable-value funds, or money funds (Figure 15). For example, among participants in their twenties, the average allocation to equity and balanced funds was 80 percent of assets, compared with about 64 percent of assets among participants in their sixties. Younger participants had consistently higher allocations to target-date funds. A target-date, or lifecycle, fund pursues a long-term investment strategy, using a mix of asset classes that follow a predetermined reallocation, typically rebalancing to shift its focus from growth to income as the fund approaches and passes its target date.[30] At year-end 2018, 26.6 percent of 401(k) assets in the database were invested in target-date funds, up from 25.3 percent in 2017.[31] Among participants in their twenties, 50.5 percent of their 401(k) assets were invested in target-date funds at year-end 2018; among participants in their sixties, 22.9 percent of their 401(k) assets were invested in target-date funds.

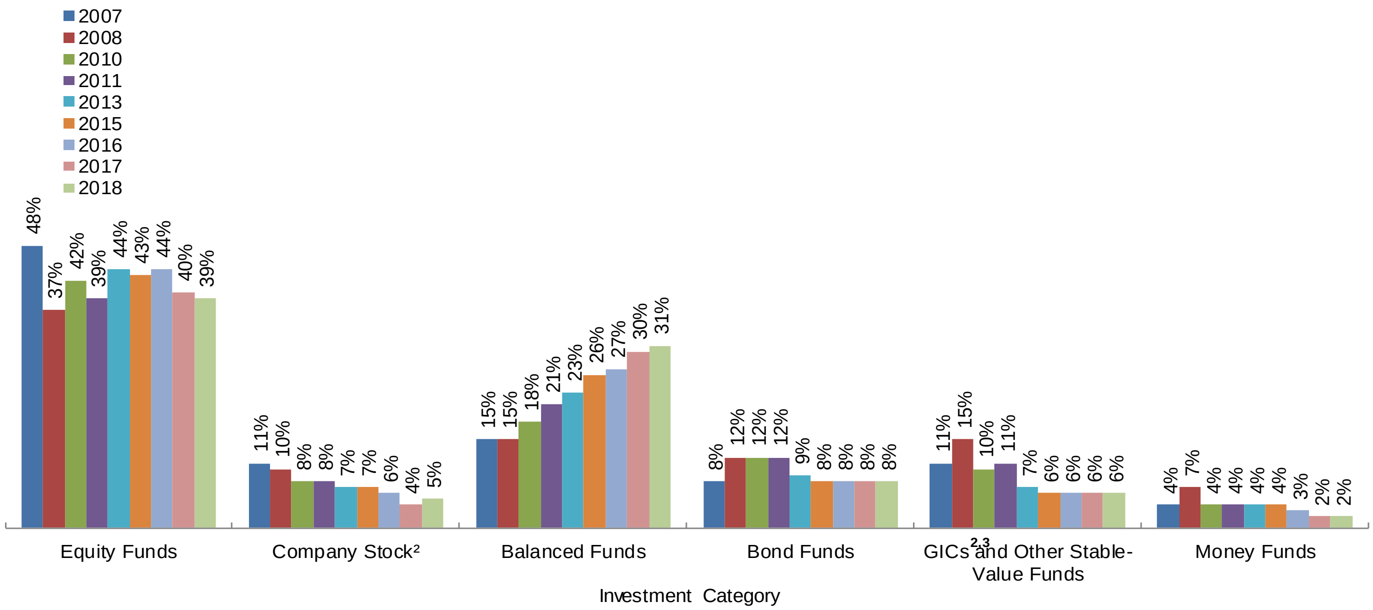
Asset Allocation and Investment Options

The investment options that a plan offers can significantly affect how participants allocate their 401(k) assets. Figure 16 presents the distribution of plans, participants, and assets by four combinations of investment offerings. The first category is the base group, which consists of plans that offer neither company stock nor GICs or other stable-value funds. Twenty-eight percent of participants in the 2018 EBRI/ICI 401(k) database were in these plans, which generally offer equity funds, bond funds, money funds, and balanced funds as investment options. Another 46 percent of participants were in plans that offer GICs and other stable-value funds as an investment option, in addition to the base options. Alternatively, 12 percent of participants were in plans that offer company stock but no stable-value products, while the remaining 15 percent of participants were in plans that offered both company stock and stable-value products in addition to the base options. Target-date funds were available in 79 percent of the 401(k) plans in the year-end 2018 database.[32] These plans offered target-date funds to 78 percent of the participants in the database.[33] Among participants who were offered target-date funds, 72 percent held them at year-end 2018. Target-date fund assets represented 34 percent of the assets of plans offering such funds in their investment lineups.

Figure 14

401(k) Plan Assets Are Concentrated in Equities

401(k) plan average asset allocation, percentage of total assets,[1] selected years



[1]Minor investment options are not shown; therefore, components do not add to 100 percent. Percentages are dollar-weighted averages.

[2]Not all participants are offered this investment option (see Figure 16).

[3]GICs are guaranteed investment contracts.

Note: Funds include mutual funds, bank collective trusts, life insurance separate accounts, and any pooled investment product primarily invested in the security indicated.

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

Figure 15

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

Percentage of account balances,[1] 2018

Age Group	Equity Funds	Balanced Funds: Target-Date Funds[2, 3]	Balanced Funds: Non-Target-Date Balanced Funds	Bond Funds	Money Funds	GICs[3, 4] and Other Stable-Value Funds	Company Stock[3]	Other	Unknown	Memo: Equities[5]
20s	26.2%	50.5%	3.2%	9.9%	0.6%	1.4%	1.6%	4.4%	2.3%	74.3%
30s	33.8%	40.6%	4.3%	5.3%	1.0%	2.4%	3.2%	8.5%	0.9%	75.0%
40s	42.1%	28.4%	3.8%	6.2%	1.7%	3.8%	4.8%	8.2%	1.0%	71.2%
50s	41.0%	23.7%	4.8%	8.2%	2.8%	6.5%	5.2%	7.0%	1.0%	62.5%
60s	35.7%	22.9%	5.0%	10.6%	3.0%	10.1%	3.9%	7.8%	1.1%	52.3%
All	39.0%	26.6%	4.6%	8.1%	2.4%	6.3%	4.5%	7.6%	1.0%	63.1%

[1]Percentages are dollar-weighted averages.

[2]A target-date fund typically rebalances its portfolio to become less focused on growth and more focused on income as it approaches and passes the target date of the fund, which is usually included in the fund's name.

[3]Not all participants are offered this investment option (see Figure 16).

[4]GICs are guaranteed investment contracts.

[5]Equities include equity funds, company stock, and the equity portion of balanced funds.

Note: Funds include mutual funds, bank collective trusts, life insurance separate accounts, and any pooled investment product primarily invested in the security indicated.

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

Figure 16

Distribution of 401(k) Plans, Participants, and Assets by Investment Options, 2018

Investment Options Offered by Plan	Plans	Participants	Assets
Equity, bond, money, and/or balanced funds	61,810	4,023,800	$258,256,864,299
Of which: target-date funds[1] are an option	47,688	3,184,606	$195,539,964,091
Equity, bond, money, and/or balanced funds; and GICs[2] and/or other stable-value funds	27,567	6,658,278	$470,120,036,776
Of which: target-date funds[1] are an option	22,762	4,932,653	$350,400,523,713
Equity, bond, money, and/or balanced funds; and company stock	530	1,722,373	$138,613,893,936
Of which: target-date funds[1] are an option	281	1,322,456	$110,051,612,842
Equity, bond, money, and/or balanced funds; company stock; and GICs[2] and/or other stable-value funds	1,080	2,166,183	$206,454,830,563
Of which: target-date funds[1] are an option	731	1,889,108	$176,048,607,504
All	90,987	14,570,634	$1,073,445,625,575
Of which: target-date funds[1] are an option	71,462	11,328,823	$832,040,708,150

Investment Options Offered by Plan	Percentage of Plans	Percentage of Participants	Percentage of Assets
Equity, bond, money, and/or balanced funds	67.9%	27.6%	24.1%
Of which: target-date funds[1] are an option	52.4%	21.9%	18.2%
Equity, bond, money, and/or balanced funds; and GICs[2] and/or other stable-value funds	30.3%	45.7%	43.8%
Of which: target-date funds[1] are an option	25.0%	33.9%	32.6%
Equity, bond, money, and/or balanced funds; and company stock	0.6%	11.8%	12.9%
Of which: target-date funds[1] are an option	0.3%	9.1%	10.3%
Equity, bond, money, and/or balanced funds; company stock; and GICs[2] and/or other stable-value funds	1.2%	14.9%	19.2%
Of which: target-date funds[1] are an option	0.8%	13.0%	16.4%
All	100.0%	100.0%	100.0%
Of which: target-date funds[1] are an option	78.5%	77.8%	77.5%

[1]A target-date fund typically rebalances its portfolio to become less focused on growth and more focused on income as it approaches and passes the target date of the fund, which is usually included in the fund's name.

[2]GICs are guaranteed investment contracts.

Note: Funds include mutual funds, bank collective trusts, life insurance separate accounts, and any pooled investment product primarily invested in the security indicated.

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

Figure 17

Asset Allocation to Equities Varied Widely Among 401(k) Plan Participants

Asset allocation distribution of 401(k) participant account balance to equities[1] by age; percentage of participants,[2] 2018

	Percentage of Account Balance Invested in Equities[1]					
Age Group	**Zero**	**>0 to 20 Percent**	**>20 to 40 Percent**	**>40 to 60 Percent**	**>60 to 80 Percent**	**>80 Percent**
20s	12.3%	0.8%	1.5%	3.0%	7.9%	74.6%
30s	9.1%	1.2%	2.2%	4.3%	12.7%	70.5%
40s	8.5%	1.9%	3.1%	6.8%	36.5%	43.2%
50s	8.4%	3.2%	5.1%	29.0%	36.1%	18.2%
60s	11.5%	4.7%	18.2%	36.8%	15.1%	13.7%
All[2]	9.7%	2.3%	5.7%	14.8%	23.6%	43.8%

[1]Equities include equity funds, company stock, and the equity portion of balanced funds. Funds include mutual funds, bank collective trusts, life insurance separate accounts, and any pooled investment product primarily invested in the security indicated.

[2]Participants include the 14.6 million 401(k) plan participants in the year-end 2018 EBRI/ICI 401(k) database.

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

Asset Allocation to Equities

Among individual 401(k) plan participants, the allocation of account balances to equities (equity funds, company stock, and the equity portion of balanced funds) varies widely around the average of 63 percent for all participants in the 2018 database (Figure 15).[34] Forty-four percent of participants had more than 80 percent of their account balances invested in equities, while less than 10 percent held no equities at all at the end of 2018 (Figure 17). Younger 401(k) plan participants were much more likely to have high concentrations in equities. At year-end 2018, about three-quarters of 401(k) plan participants in their twenties had more than 80 percent of their account balances invested in equities, compared with 14 percent of 401(k) plan participants in their sixties.

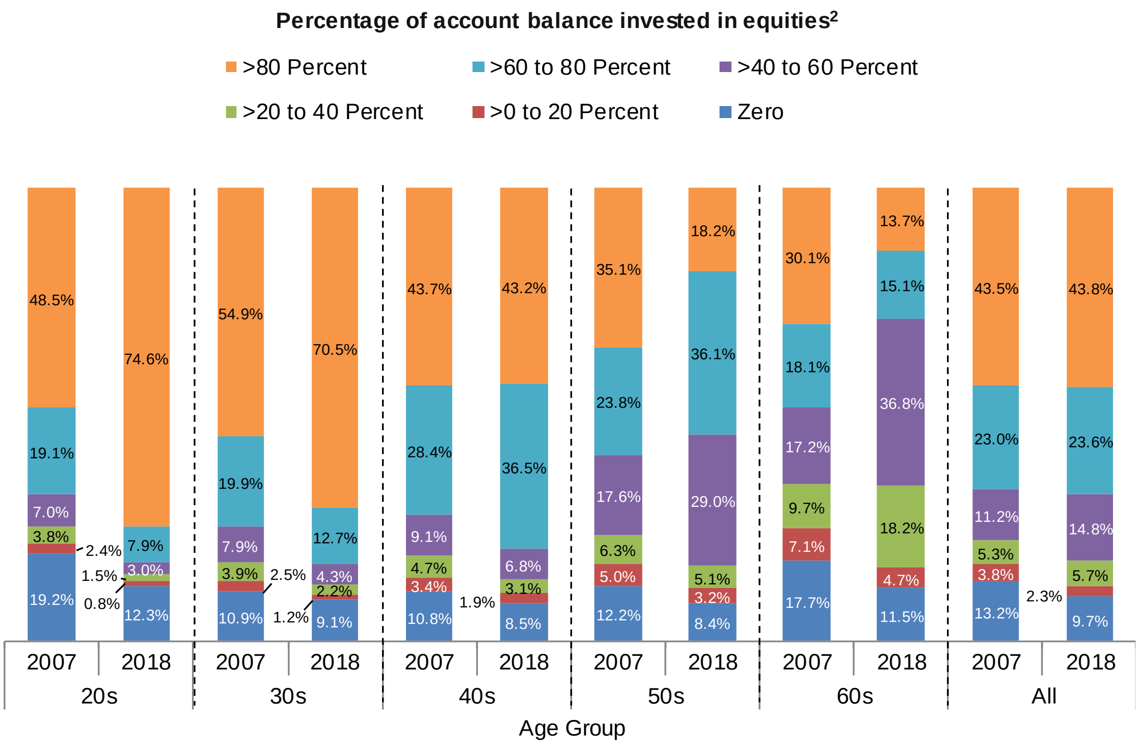
Changes in Concentrations in Equities Since the Financial Crisis

More 401(k) plan participants held equities at year-end 2018 than at year-end 2007, and a larger percentage of younger investors had higher concentrations in equities. Overall, at year-end 2018, less than 10 percent of 401(k) plan participants held no equities, down from 13 percent at year-end 2007 (Figure 18). Younger 401(k) participants were much more likely to hold equities and to hold high concentrations in equities at year-end 2018 compared with year-end 2007. For example, about three-quarters of 401(k) plan participants in their twenties had more than 80 percent of their account balances invested in equities at year-end 2018 compared with less than half at year-end 2007. Older 401(k) participants were much less likely to have such high concentrations in equities at year-end 2018 compared with year-end 2007: 14 percent of 401(k) plan participants in their sixties had more than 80 percent of their account balances invested in equities at year-end 2018 compared with 30 percent of 401(k) plan participants in their sixties at year-end 2007. A lower share held no equities.

Figure 18

Exposure to Equities Increased Among 401(k) Participants Between 2007 and 2018

Percentage of 401(k) participants by age of participant,[1] year-end 2007 and year-end 2018



[1]Participants include the 14.6 million 401(k) plan participants in the year-end 2018 EBRI/ICI 401(k) database and the 21.8 million 401(k) plan participants in the year-end 2007 EBRI/ICI database.

[2]Equities include equity funds, company stock, and the equity portion of balanced funds. Funds include mutual funds, bank collective trusts, life insurance separate accounts, and any pooled investment product primarily invested in the security indicated.

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

Distribution of 401(k) Participants' Balanced Fund Allocations by Age

Individual 401(k) participants' asset allocation to balanced funds varied widely around an average of 31 percent at year-end 2018 (Figure 14). For example, 35 percent of participants held no balanced funds, while 46 percent of participants held more than 80 percent of their accounts in balanced funds at the end of 2018 (Figure 19). At year-end 2018, 65 percent of 401(k) participants held balanced funds through target-date funds and non-target-date balanced funds, similar to the share in 2017.[35] More than half (56 percent) of 401(k) participants held target-date funds, 11 percent held non-target-date balanced funds, and 2 percent held both. Target-date fund use varies with participant age and tenure. Younger participants were slightly more likely to hold target-date funds than older participants. At year-end 2018, 62 percent of participants in their twenties held target-date funds, compared with 50 percent of participants in their sixties. Recently hired participants were more likely to hold target-date funds than those with more years on the job: At year-end 2018, 57 percent of participants with two or fewer years of tenure held target-date funds, compared with 54 percent of participants with more than five to 10 years of tenure, and 36 percent of participants with more than 30 years of tenure (Figure 20).

Figure 19

Asset Allocation Distribution of 401(k) Participant Account Balance to Balanced Funds by Age

Percentage of participants,[1] 2018

	Percentage of Account Balance Invested in Balanced Funds										
Age Group	Zero	>0 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	33.6%	2.0%	1.3%	1.2%	0.9%	0.9%	1.0%	0.7%	0.8%	0.8%	56.6%
30s	30.7%	3.3%	2.5%	2.2%	1.7%	1.5%	1.5%	1.2%	1.5%	1.6%	52.1%
40s	35.8%	5.0%	3.7%	3.2%	2.2%	1.8%	1.7%	1.3%	1.6%	1.8%	41.8%
50s	36.9%	5.8%	4.2%	3.7%	2.5%	2.1%	1.9%	1.4%	1.6%	1.8%	38.1%
60s	39.0%	5.6%	3.9%	3.5%	2.4%	2.1%	1.8%	1.3%	1.4%	1.6%	37.5%
All	35.1%	4.4%	3.2%	2.8%	2.0%	1.7%	1.6%	1.2%	1.4%	1.6%	44.8%
	Percentage of Account Balance Invested in Target-Date Funds[2]										
Age Group	Zero	>0 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	38.5%	0.9%	0.7%	0.8%	0.8%	0.7%	0.8%	0.6%	0.8%	0.8%	54.4%
30s	39.1%	1.8%	1.5%	1.6%	1.5%	1.2%	1.3%	1.0%	1.3%	1.5%	48.3%
40s	44.5%	3.1%	2.2%	2.1%	1.7%	1.4%	1.4%	1.2%	1.4%	1.7%	39.2%
50s	47.7%	3.7%	2.5%	2.4%	1.8%	1.5%	1.4%	1.2%	1.4%	1.7%	34.8%
60s	49.9%	3.6%	2.3%	2.2%	1.6%	1.4%	1.3%	1.0%	1.2%	1.4%	33.9%
All	44.2%	2.7%	1.9%	1.9%	1.5%	1.3%	1.3%	1.0%	1.2%	1.5%	41.5%
	Percentage of Account Balance Invested in Non-Target-Date Balanced Funds										
Age Group	Zero	>0 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	94.2%	1.5%	0.9%	0.5%	0.2%	0.2%	0.1%	0.1%	0.1%	(*)	2.1%
30s	89.9%	2.5%	1.6%	0.9%	0.4%	0.3%	0.2%	0.2%	0.2%	0.1%	3.6%
40s	88.8%	3.4%	2.3%	1.4%	0.6%	0.4%	0.3%	0.1%	0.1%	0.1%	2.4%
50s	86.5%	3.7%	2.6%	1.8%	0.8%	0.6%	0.4%	0.2%	0.2%	0.2%	3.1%
60s	86.5%	3.5%	2.4%	1.8%	0.9%	0.6%	0.4%	0.2%	0.2%	0.1%	3.3%
All	88.8%	3.0%	2.0%	1.3%	0.6%	0.4%	0.3%	0.2%	0.2%	0.1%	3.1%

(*) = less than 0.05 percent

[1]The analysis includes the 14.6 million participants in the year-end 2018 EBRI/ICI 401(k) database.

[2]A target-date fund typically rebalances its portfolio to become less focused on growth and more focused on income as it approaches and passes the target date of the fund, which is usually included in the fund's name.

Note: Funds include mutual funds, bank collective trusts, life insurance separate accounts, and any pooled investment product primarily

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

Figure 20
Asset Allocation Distribution of 401(k) Participant Account Balance to Balanced Funds by Tenure
Percentage of participants,[1] 2018

	Percentage of Account Balance Invested in Balanced Funds										
Years of Tenure	**Zero**	**>0 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**
0 to 2	36.8%	2.0%	1.5%	1.3%	0.9%	0.9%	1.1%	0.6%	0.8%	0.7%	53.3%
>2 to 5	35.7%	2.8%	2.1%	2.0%	1.6%	1.5%	1.4%	1.0%	1.2%	1.3%	49.5%
>5 to 10	36.1%	3.8%	3.0%	2.7%	2.1%	1.9%	1.8%	1.4%	1.6%	1.8%	43.7%
>10 to 20	40.7%	6.5%	5.0%	4.3%	2.9%	2.3%	2.0%	1.6%	1.9%	2.5%	30.3%
>20 to 30	45.1%	9.1%	6.3%	5.3%	3.4%	2.8%	2.3%	2.0%	2.4%	2.9%	18.2%
>30	48.8%	10.1%	6.4%	5.3%	3.5%	2.8%	2.3%	1.7%	1.6%	1.5%	16.0%
All	35.1%	4.4%	3.2%	2.8%	2.0%	1.7%	1.6%	1.2%	1.4%	1.6%	44.8%

	Percentage of Account Balance Invested in Target-Date Funds[2]										
Years of Tenure	**Zero**	**>0 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**
0 to 2	43.0%	0.9%	0.8%	0.9%	0.8%	0.7%	0.9%	0.6%	0.7%	0.7%	50.1%
>2 to 5	44.8%	1.4%	1.2%	1.4%	1.3%	1.1%	1.2%	0.9%	1.1%	1.2%	44.6%
>5 to 10	45.6%	2.1%	1.8%	2.0%	1.8%	1.4%	1.4%	1.2%	1.5%	1.7%	39.5%
>10 to 20	51.8%	4.2%	3.1%	2.8%	2.1%	1.7%	1.5%	1.4%	1.7%	2.3%	27.3%
>20 to 30	59.0%	6.0%	3.6%	3.0%	2.3%	1.9%	1.7%	1.7%	2.1%	2.7%	16.1%
>30	64.3%	6.7%	3.5%	3.0%	2.3%	1.9%	1.6%	1.3%	1.2%	1.2%	13.1%
All	44.2%	2.7%	1.9%	1.9%	1.5%	1.3%	1.3%	1.0%	1.2%	1.5%	41.5%

	Percentage of Account Balance Invested in Non-Target-Date Balanced Funds										
Years of Tenure	**Zero**	**>0 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**
0 to 2	93.2%	1.5%	1.0%	0.5%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	3.1%
>2 to 5	89.5%	2.1%	1.5%	0.9%	0.4%	0.4%	0.2%	0.1%	0.2%	0.1%	4.6%
>5 to 10	88.5%	2.7%	1.9%	1.2%	0.5%	0.4%	0.3%	0.2%	0.2%	0.1%	3.9%
>10 to 20	85.8%	4.2%	3.0%	2.0%	0.8%	0.6%	0.4%	0.2%	0.2%	0.2%	2.7%
>20 to 30	82.5%	5.4%	3.9%	2.8%	1.2%	0.8%	0.6%	0.3%	0.2%	0.2%	2.0%
>30	80.9%	5.8%	4.0%	2.9%	1.4%	0.9%	0.6%	0.3%	0.3%	0.2%	2.7%
All	88.8%	3.0%	2.0%	1.3%	0.6%	0.4%	0.3%	0.2%	0.2%	0.1%	3.1%

[1]The analysis includes the 14.6 million participants in the year-end 2018 EBRI/ICI 401(k) database.

[2]A target-date fund typically rebalances its portfolio to become less focused on growth and more focused on income as it approaches and passes the target date of the fund, which is usually included in the fund's name.

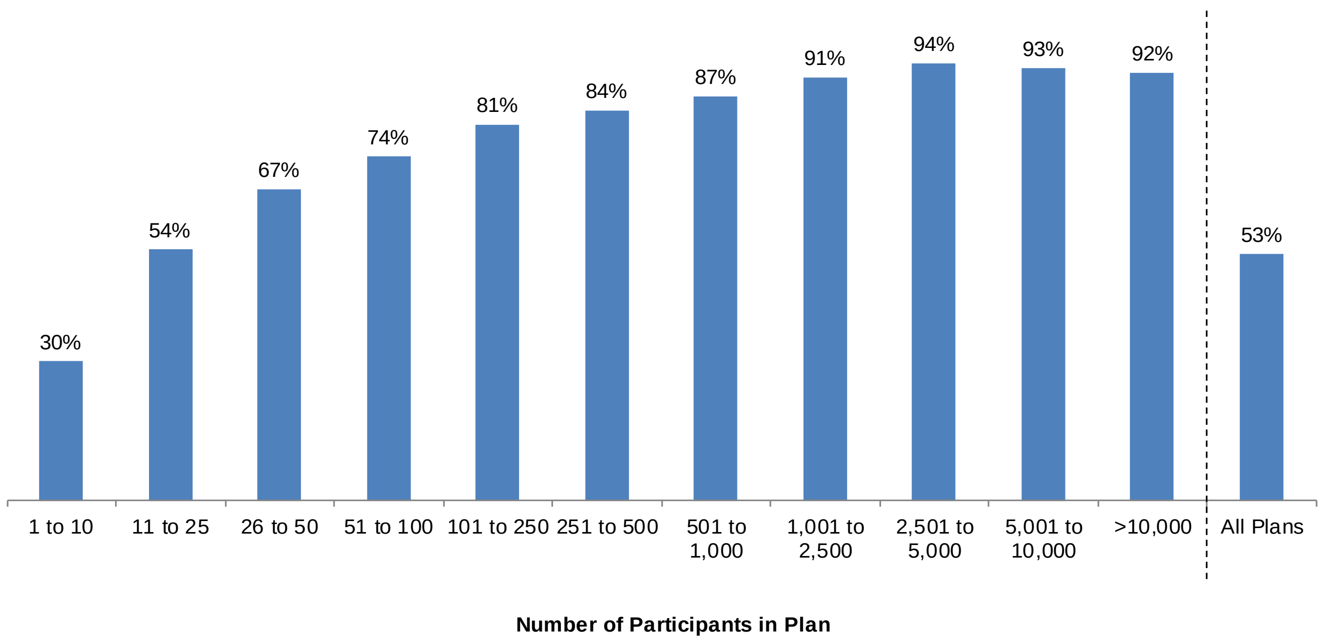
Note: Funds include mutual funds, bank collective trusts, life insurance separate accounts, and any pooled investment product primarily invested in the security indicated. The tenure variable is generally years working at current employer and thus may overstate years of participation in the 401(k) plan.
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

Year-End 2018 Snapshot of 401(k) Plan Loan Activity

Availability and Use of 401(k) Plan Loans by Plan Size

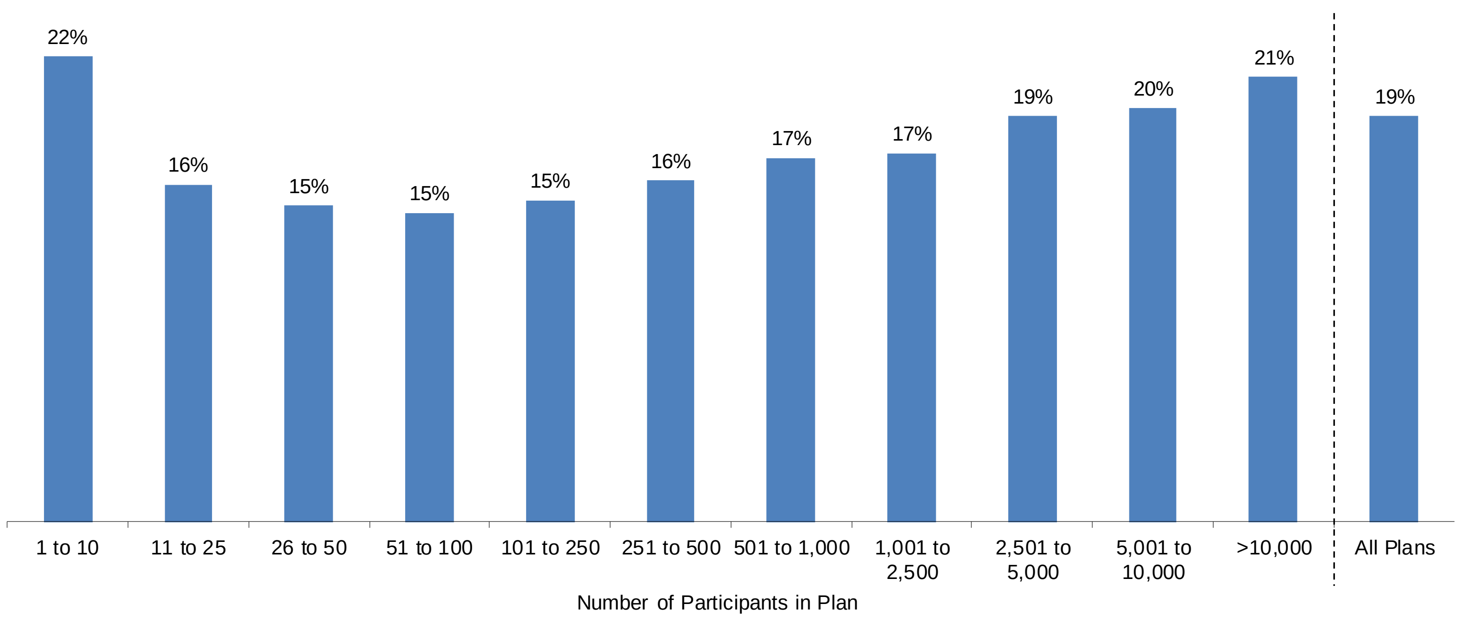
Fifty-three percent of the 401(k) plans for which loan data were available in the 2018 EBRI/ICI 401(k) database offered a plan loan provision to participants (Figure 21).[36] The loan feature was more commonly associated with large plans (as measured by the number of participants in the plan). More than 90 percent of plans with more than 1,000 participants included a loan provision, compared with 30 percent of plans with 10 or fewer participants. Participant loan activity varied modestly by plan size, ranging from 15 percent of participants with loans outstanding in 401(k) plans with 26 to 250 participants to 22 percent of participants in 401(k) plans with 10 or fewer participants (Figure 22). Loan ratios — the amount of the loan outstanding divided by the remaining account balance — vary only slightly when participants are grouped on the basis of the size of their 401(k) plans (as measured by the number of plan participants). Among those in plans with 1,000 or fewer participants, the loan ratio was 12 percent of the remaining assets in 2018, while in plans with more than 5,000 participants, the loan ratio was 10 percent (Figure 23). In the 23 years that the database has been tracking loan activity among 401(k) plan participants, there has been little variation. At year-end 2018, 19 percent of 401(k) participants with access to loans had loans outstanding, the same as the 1996–2018 average (Figure 24).[37] However, not all participants have access to 401(k) plan loans — factoring in all 401(k) participants with and without loan access in the database, only 17 percent had loans outstanding at year-end 2018. On average, over the past 23 years, among participants with loans outstanding, about 13 percent of the remaining account balance remained unpaid. U.S. Department of Labor data indicate that loan amounts tend to be a negligible portion of plan assets.[38]

Figure 21
Percentage of 401(k) Plans Offering Loans by Plan Size, 2018



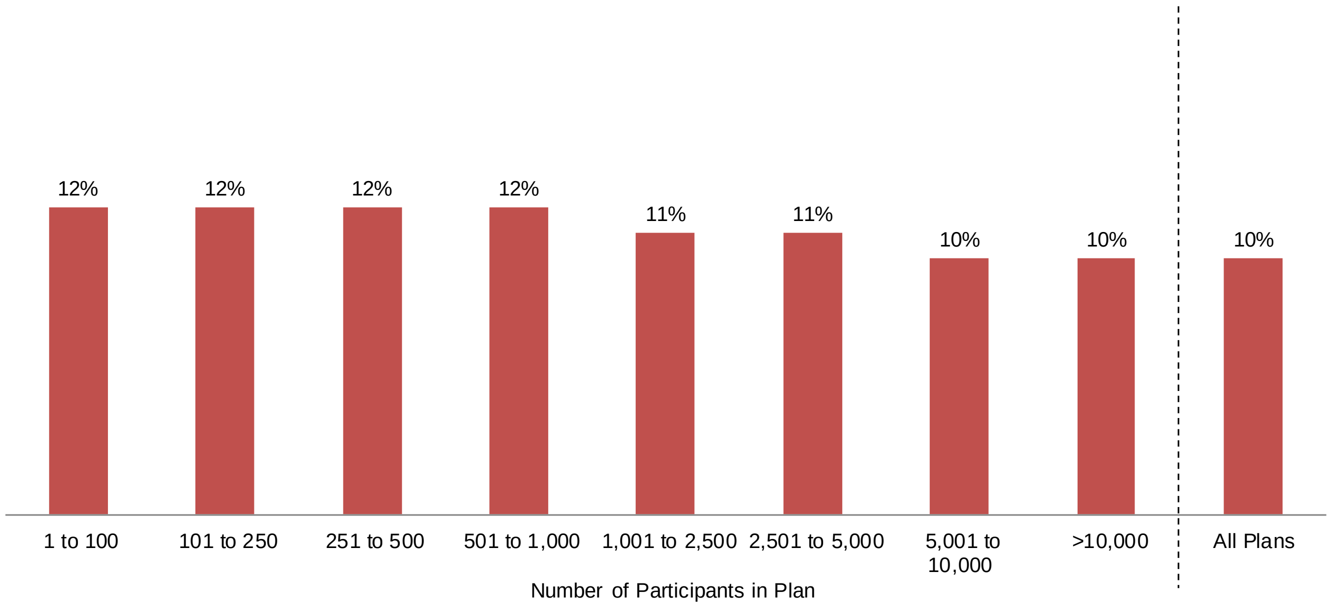
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

Figure 22
Percentage of Eligible 401(k) Participants With 401(k) Loans by Plan Size, 2018



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

Figure 23
401(k) Loan Balances as a Percentage of 401(k) Plan Account Balances for Participants With 401(k) Loans by Plan Size, 2018



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

401(k) Plan Loan Activity Varies With Participant Age, Tenure, and Account Balance

In the 2018 EBRI/ICI 401(k) database, 88 percent of participants were in plans offering loans.[39] However, relatively few participants made use of this borrowing privilege — which has been the case for the 23 years that the database has tracked 401(k) plan participants. At year-end 2018, 19 percent of those eligible for loans had 401(k) plan loans outstanding (Figure 24). As in previous years, 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 were among participants in their thirties, forties, or fifties (Figure 25). 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. Ten percent of participants with account balances of less than $10,000 had loans outstanding.

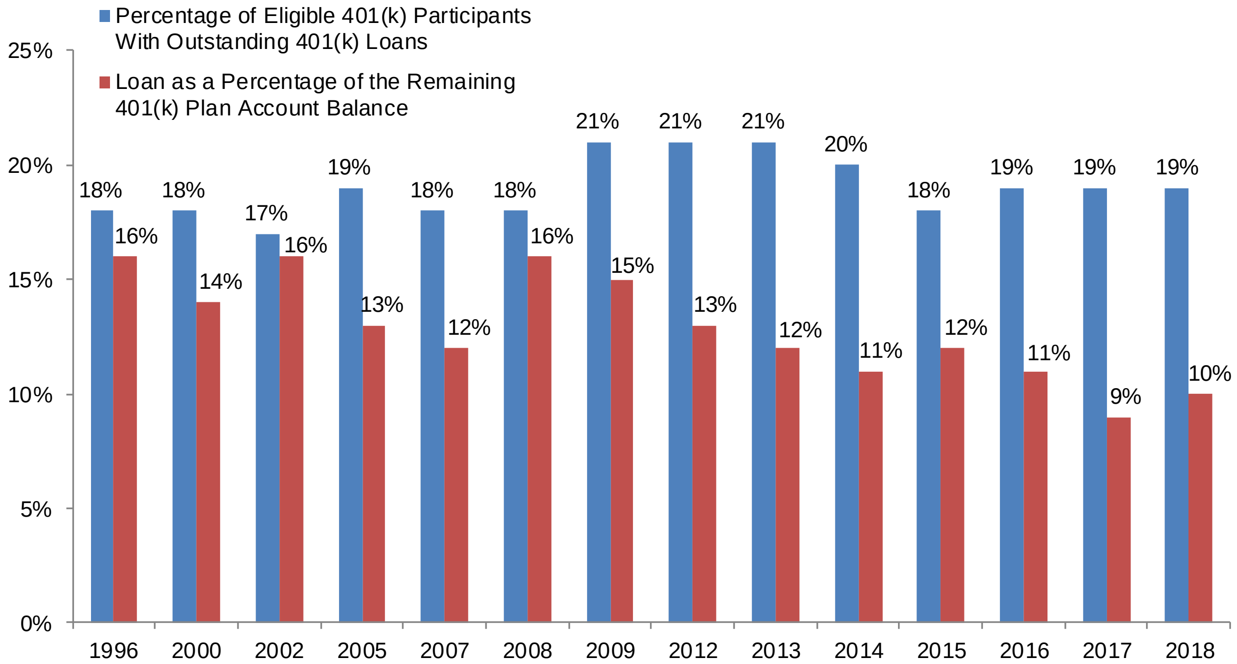
Average Loan Balances

Among participants with outstanding 401(k) loans at the end of 2018, the average unpaid balance was $8,162, compared with $7,935 in the year-end 2017 database (Figure 26). The median loan balance outstanding was $4,486 at year-end 2018, compared with $4,293 in the year-end 2017 database. The ratio of the loan outstanding to the remaining account balance increased slightly, from 9 percent at year-end 2017 to 10 percent at year-end 2018 (Figures 24 and 27). In addition, as in previous years, variation around this average tends to correspond with age (the older the participant, the lower the average), tenure (the longer the tenure of the participant, the lower the average), and account balance (the higher the account balance, the lower the average)[40] (Figure 27). Overall, loans from 401(k) plans tended to be small, with a sizable majority of eligible 401(k) participants in all age groups having no loan outstanding at all. For example, 92 percent of participants in their twenties, 75 percent of participants in their forties, and 86 percent of participants in their sixties had no loans outstanding at year-end 2018 (Figure 28).

Figure 24

Few 401(k) Participants Had Outstanding 401(k) Loans; Loans Tended to Be Small

Selected years



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

Figure 25

401(k) Loan Activity Varied Across 401(k) Plan Participants

Percentage of eligible 401(k) participants with 401(k) loans by participant age, tenure, or account size; selected years

	1996	2000	2002	2005	2007	2008	2009	2010	2014	2015	2016	2017	2018
All	18%	18%	17%	19%	18%	18%	21%	21%	20%	18%	19%	19%	19%
Age Group													
20s	12%	11%	10%	11%	10%	10%	13%	13%	11%	8%	8%	8%	8%
30s	20%	19%	18%	20%	20%	20%	23%	23%	22%	19%	20%	20%	19%
40s	22%	21%	20%	22%	22%	22%	26%	26%	26%	24%	25%	26%	25%
50s	17%	17%	17%	19%	19%	19%	22%	22%	23%	21%	23%	23%	23%
60s	9%	9%	9%	10%	10%	11%	12%	13%	13%	13%	14%	14%	14%
Years of Tenure*													
0 to 2	6%	5%	4%	5%	7%	6%	9%	7%	9%	8%	7%	7%	7%
>2 to 5	15%	14%	12%	14%	15%	15%	17%	18%	19%	17%	18%	18%	17%
>5 to 10	24%	23%	21%	22%	23%	23%	25%	27%	26%	24%	26%	25%	25%
>10 to 20	27%	26%	26%	26%	26%	26%	29%	29%	28%	27%	29%	29%	29%
>20 to 30	25%	26%	25%	24%	24%	25%	27%	26%	26%	25%	27%	28%	28%
>30	13%	16%	15%	17%	17%	18%	19%	19%	18%	17%	19%	21%	20%
Size of Account Balance													
<$10,000	12%	11%	11%	12%	11%	12%	16%	16%	13%	11%	10%	10%	10%
$10,000 to $20,000	26%	23%	22%	26%	25%	26%	28%	29%	28%	26%	26%	25%	25%
>$20,000 to $30,000	26%	25%	22%	27%	26%	26%	28%	29%	30%	28%	28%	27%	27%
>$30,000 to $40,000	25%	25%	23%	26%	26%	26%	28%	28%	30%	28%	29%	29%	28%
>$40,000 to $50,000	24%	25%	23%	25%	26%	25%	27%	27%	29%	28%	29%	29%	28%
>$50,000 to $60,000	24%	24%	22%	24%	25%	24%	25%	26%	28%	27%	29%	29%	28%
>$60,000 to $70,000	23%	24%	22%	23%	24%	23%	25%	25%	27%	27%	29%	29%	28%
>$70,000 to $80,000	26%	23%	22%	22%	23%	22%	24%	24%	27%	26%	28%	28%	28%
>$80,000 to $90,000	23%	23%	21%	21%	23%	21%	23%	23%	26%	25%	28%	28%	28%
>$90,000 to $100,000	22%	22%	21%	20%	22%	20%	23%	22%	25%	25%	27%	27%	27%
>$100,000 to $200,000	22%	20%	19%	18%	19%	18%	19%	19%	23%	22%	25%	26%	25%
>$200,000	18%	15%	13%	13%	13%	12%	13%	12%	14%	14%	16%	15%	16%

*The tenure variable is generally years working at current employer and thus may overstate years of participation in the 401(k) plan.

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

Figure 26
401(k) Loan Balances
Average and median loan balances for 401(k) participants with 401(k) loans, 1998–2018

Year	Average Loan Outstanding	Median Loan Outstanding
1998	$6,717	$3,902
1999	$6,815	$4,400
2000	$6,856	$3,824
2001	$6,644	$3,659
2002	$6,659	$3,700
2003	$6,839	$3,832
2004	$6,946	$3,893
2005	$6,821	$3,661
2006	$7,292	$4,089
2007	$7,495	$4,167
2008	$7,191	$3,889
2009	$7,346	$3,972
2010	$6,846	$3,619
2011	$7,027	$3,785
2012	$7,153	$3,858
2013	$7,421	$3,973
2014	$7,780	$4,239
2015	$7,982	$4,359
2016	$7,907	$4,279
2017	$7,935	$4,293
2018	$8,162	$4,486

Note: Average and median 401(k) loan amounts are calculated among participants with 401(k) loans at year-end.
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

Figure 27
401(k) Loan Amounts Varied Across 401(k) Participants
401(k) loan balances as a percentage of 401(k) plan account balances for 401(k) participants with loans by participant age, tenure, or account size; selected years

	1996	2000	2002	2005	2007	2008	2009	2010	2014	2015	2016	2017	2018
All	16%	14%	16%	13%	12%	16%	15%	14%	11%	12%	11%	9%	10%
Age Group													
20s	30%	30%	28%	24%	25%	29%	26%	24%	26%	25%	23%	21%	24%
30s	22%	20%	22%	19%	19%	25%	22%	20%	18%	19%	17%	16%	17%
40s	16%	15%	16%	13%	13%	18%	16%	15%	13%	13%	12%	11%	12%
50s	12%	11%	12%	10%	10%	13%	12%	11%	9%	9%	9%	7%	8%
60s	10%	9%	10%	8%	8%	11%	10%	9%	8%	8%	7%	6%	7%
Years of Tenure*													
0 to 2	27%	24%	27%	23%	21%	25%	22%	19%	16%	19%	18%	15%	17%
>2 to 5	24%	25%	25%	21%	22%	26%	23%	20%	18%	19%	17%	15%	18%
>5 to 10	23%	21%	23%	19%	18%	24%	20%	19%	16%	16%	15%	13%	15%
>10 to 20	15%	14%	16%	13%	13%	17%	16%	14%	12%	12%	11%	9%	10%
>20 to 30	11%	10%	11%	9%	8%	12%	11%	9%	8%	7%	7%	6%	7%
>30	7%	8%	10%	8%	7%	9%	9%	7%	6%	6%	5%	5%	5%
Size of Account Balance													
<$10,000	39%	39%	37%	35%	36%	39%	39%	35%	42%	38%	35%	32%	35%
$10,000 to $20,000	32%	32%	31%	29%	30%	33%	31%	28%	32%	31%	28%	26%	29%
>$20,000 to $30,000	28%	28%	28%	25%	26%	29%	27%	25%	28%	27%	25%	23%	26%
>$30,000 to $40,000	23%	24%	25%	22%	23%	26%	25%	23%	24%	24%	23%	21%	23%
>$40,000 to $50,000	22%	21%	22%	20%	21%	24%	22%	20%	21%	22%	20%	19%	21%
>$50,000 to $60,000	19%	19%	20%	18%	19%	21%	21%	19%	19%	20%	18%	19%	19%
>$60,000 to $70,000	16%	17%	18%	16%	17%	19%	19%	17%	17%	18%	17%	16%	17%
>$70,000 to $80,000	16%	15%	16%	15%	16%	18%	17%	16%	16%	16%	16%	15%	16%
>$80,000 to $90,000	14%	14%	15%	14%	14%	16%	16%	15%	14%	15%	14%	14%	15%
>$90,000 to $100,000	13%	13%	13%	13%	13%	15%	15%	14%	13%	13%	14%	13%	13%
>$100,000 to $200,000	10%	9%	10%	9%	10%	11%	11%	10%	10%	10%	10%	10%	10%
>$200,000	5%	5%	5%	4%	5%	5%	5%	5%	4%	4%	4%	4%	4%

*The tenure variable is generally years working at current employer and thus may overstate years of participation in the 401(k) plan.
Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

Figure 28

Loans From 401(k) Plans Tended to Be Small

Percentage of eligible participants by participant age, 2018

401(k) Loan as a Percentage of Remaining 401(k) Account Balance	Age group 20s	30s	40s	50s	60s	All
Zero (no loan)	92%	81%	75%	77%	86%	81%
>0 to 10 percent	2%	5%	9%	11%	7%	7%
>10 to 20 percent	2%	4%	6%	5%	3%	4%
>20 to 30 percent	1%	3%	3%	3%	1%	2%
>30 to 80 percent	3%	6%	6%	4%	2%	5%
>80 percent	(*)	1%	1%	1%	(*)	1%

(*) = less than 0.5 percent

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

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Endnotes

[1] For data on 401(k) plan assets, participants, and plans through 2018, see U.S. Department of Labor, Employee Benefits Security Administration 2021a and 2021b. For total retirement assets (including those in 401(k) plans) through the fourth quarter of 2020, see Investment Company Institute 2021. For a discussion of trends between defined benefit (DB) and defined contribution (DC) plans, see Poterba, Venti, and Wise 2007; Holden, Brady, and Hadley 2006; Brady and Bogdan 2010 and 2016; and Brady, Burham, and Holden 2012.

[2] Before 2005, the U.S. Department of Labor private pension plan bulletins reported a count of active 401(k) plan participants that had been adjusted from the number of active participants actually reported in the Form 5500 filings to exclude (1) individuals eligible to participate in a 401(k) plan who had not elected to have their employers make contributions; and (2) nonvested former employees who had not (at the time the Form 5500 filings were submitted) incurred the break-in service period established by their plan, but were unable to make the adjustment in 2005 and later years (see U.S. Department of Labor, Employee Benefits Security Administration 2012a for further detail). This change in methodology results in a dramatic increase in the number of individuals reported as active participants in 401(k) plans; in 2004, the number of active participants increased to 53.1 million (new method) from 44.4 million (old method; see U.S. Department of Labor, Employee Benefits Security Administration 2018b). As the U.S. Department of Labor notes: "In a purely economic sense and for research purposes, individuals in these groups should not be included in the count of active participants." However, the form schedule needed to make the adjustment is no longer required. Using National Compensation Survey data and historical relationships and trends evident in the Form 5500 data, EBRI and ICI estimate the number of active 401(k) participants to be about 59 million in 2018. The estimate of the number of active 401(k) plan participants is based on a combination of data from U.S. Department of Labor, Employee Benefits Security Administration 2012a, 2012b, 2012c, 2012d, 2012e, 2014, 2015a, 2015b,

2015c, 2016, 2018a, 2018b, 2019, and 2021a. U.S. Department of Labor 2021a reports that there were about 588,500 401(k) plans in 2018.

[3] See Investment Company Institute 2021..

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

[5] The Investment Company Institute (ICI) is the leading association representing regulated funds globally, including mutual funds, exchange-traded funds (ETFs), closed-end funds, and unit investment trusts (UITs) in the United States, and similar funds offered to investors in jurisdictions worldwide. ICI seeks to encourage adherence to high ethical standards, promote public understanding, and otherwise advance the interests of funds, their shareholders, directors, and advisers. ICI carries out its international work through ICI Global, with offices in Washington, DC, London, Brussels, and Hong Kong.

[6] This update extends previous findings from the project for 1996 through 2016. For year-end 2016 results, see Holden et al. 2018. For year-end 2017 results, see the appendix. Results for earlier years are available in earlier issues of *ICI Research Perspective* (www.ici.org/research/investors/ebri_ici) and *EBRI Issue Brief* (www.ebri.org/publications/research-publications/issue-briefs).

[7] The EBRI/ICI 401(k) database environment is certified to be fully compliant with the ISO-27002 Information Security Audit standard. Moreover, EBRI has obtained a legal opinion that the methodology used meets the privacy standards of the Gramm-Leach-Bliley Act. At no time has any nonpublic personal information that is personally identifiable, such as a Social Security number, been transferred to or shared with EBRI.

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

[9] The cross-sectional analysis for this publication found that consolidating the multiple accounts across a majority of the providers to the single individual owning them resulted in an overall increase of 2.9 percent in the average 401(k) plan account balance. This statistic should be interpreted with caution, as it may not represent the total 401(k) assets owned by the individual. The impact of account consolidation varied with the participant's age and tenure with the current employer. The largest increases in average account balance occurred among older participants with fewer years of tenure. For example, among participants in their sixties with two or fewer years of tenure, the average account balance increased 3.9 percent with the consolidation of their multiple accounts. Among participants in their fifties or sixties with more than 30 years of tenure, the average account balance increased 3.0 percent with the consolidation of their multiple accounts. Future joint research with this feature will explore the longitudinal aspects of this consolidation in more detail.

[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 401(k) 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 2001b). In addition, the preliminary analysis found that 401(k) participants are not naive — that is, when given 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. BrightScope and Investment Company Institute 2020 reports an average of 28 investment options in 2017 and an average of 21 investment options when a target-date fund suite is counted as a single investment option.

[11] The asset allocation path that the target-date fund follows to shift its focus from growth to income over time is typically referred to as the glide path. Because discussions of asset allocation usually focus on the percentage of the portfolio invested in equities, the glide path generally reflects the declining percentage of equities in the portfolio as it approaches and passes the target date, which is usually indicated in the fund's name. The target date generally is the date at which the typical investor for whom that fund is designed would reach retirement age and stop making new investments in the fund.

[12] Lifestyle funds maintain a predetermined risk level and generally use words such as "conservative," "moderate," or "aggressive" in their name to indicate the fund's risk level. Lifestyle funds generally are included in the non-target-date balanced fund category.

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

[14] 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.

[15] Some recordkeepers supplying data were unable to provide complete asset allocation detail on certain pooled asset classes for one or more of their clients. The final EBRI/ICI 401(k) database includes only plans for which at least 90 percent of all plan assets could be identified.

[16] The average account balance is calculated for the 1.9 million 401(k) plan participants who had account balances in every year between year-end 2010 and year-end 2018.

[17] For 401(k) asset figures, see Investment Company Institute 2020.

[18] Estimates of the number of 401(k) plans and active participants are based on a combination of data from the U.S. Department of Labor's Bureau of Labor Statistics and Employee Benefits Security Administration. See discussion in note 2.

[19] For an analysis of the changes in account balances of consistent participants in the EBRI/ICI 401(k) database in the wake of the financial crisis (over the eight-year period from year-end 2010 to year-end 2018), see Holden, VanDerhei, and Bass 2020.

[20] Because of these changes in the cross sections, comparing average account balances across different year-end cross-sectional snapshots can lead to false conclusions. For example, newly formed plans would tend to pull down the average account balance but would tell us nothing about consistently participating workers. Similarly, the aggregate average account balance would tend to be pulled down if a large number of participants retired.

[21] Tabulations of the Survey of Consumer Finances reveal that 58 percent of traditional IRA assets in 2019 resulted from rollovers from employer-sponsored retirement plans.

[22] At year-end 2018, 3 percent of the participants in the database were missing a birth date entry, were younger than 20, or were older than 69. They were not included in this analysis.

[23] At year-end 2018, 16 percent of the participants in the database were missing a date of hire entry and were not included in this analysis.

[24] The positive correlation between tenure and account balance is expected because long-term employees have had more time to accumulate an account balance. However, a rollover from a previous employer's plan could interfere with this positive correlation because a rollover could give a short-tenured employee a high account balance. There is some discernible evidence of rollover assets among the participants with account balances greater than $100,000, as 3 percent of them had two or fewer years of tenure, and 8 percent of them had between two and five years of tenure (see Figure 12).

[25] Because 401(k) plans were introduced about 40 years ago, older and longer-tenured employees may not have participated in 401(k) plans for their entire careers. The Revenue Act of 1978 contained a provision that became Internal Revenue Code Section 401(k). The law went into effect on January 1, 1980, but it was not until November 1981 that proposed regulations were issued (see Holden, Brady, and Hadley 2006; Employee Benefit Research Institute 2018; and U.S. Internal Revenue Service 1981).

[26] At year-end 2018, 57 percent of non-target-date balanced mutual fund assets were assumed to be invested in equities (see Investment Company Institute, Quarterly Supplementary Data). Allocation to equities in target-date funds is assumed to vary with investor age. Asset allocation to equities for target-date funds was based on Morningstar analysis of target-date fund asset allocation (see Morningstar 2018 and note 34 for additional discussion).

[27] For year-end 2017 asset allocations, see the appendix.

[28] Other research suggests that most 401(k) participants do not make active changes to their asset allocations during any given year. For example, an ICI survey of recordkeepers covering more than 30 million DC plan participant accounts found that 10.6 percent of DC plan participants changed the asset allocation of their account balances in 2020 and 6.3 percent changed the asset allocation of their contributions during 2020 (see Holden and Schrass 2021). Analyzing 2019 data, Alling, Clark, and Stinnett 2020 reported that 7 percent of DC plan participants made participant-directed exchanges within the account, in line with recent prior years. Furthermore, Choi et al. 2001 found that 401(k) participants rarely made changes after the initial point of enrollment. (For household survey results from fall 2020 reflecting households' sentiment toward and confidence in 401(k) plans, see Holden et al. 2021.)

[29] For the age distribution of 401(k) plan participants and assets at year-end 2018, see Figure 5.

[30] See note 11 for additional detail on target-date funds.

[31] See Figure A9 in the appendix.

[32] For an analysis tracking target-date fund use and the persistence of their use from 2007 through 2009, see Copeland 2011. For an analysis of target-date fund use among defaulted and non-defaulted 401(k) plan participants, see Mitchell and Utkus 2012.

[33] Target-date funds are often used as the default investment in automatic enrollment plans and in plans' investment lineups (see Plan Sponsor Council of America 2019). At year-end 2018, 67 percent of target-date mutual fund assets were held in DC plans (see Investment Company Institute 2021). Alling, Clark, and Stinnett 2020 reports that 50 percent of DC plans in their recordkeeping system in 2019 offer automatic enrollment, up from 48 percent in 2017 and 41 percent in 2015.

[34] At year-end 2018, 57 percent of non-target-date balanced fund assets were assumed to be invested in equities (see Investment Company Institute, Quarterly Supplementary Data). The allocation to equities in target-date funds varies with the funds' target dates. For target-date funds, investors were assumed to be in a fund whose target date was nearest to their 65th birthday. The equity portion was estimated using the industry average equity percentage for the assigned target-date fund calculated using the Morningstar Lifetime Allocation Indexes (see Morningstar 2018). For the average 401(k) plan asset allocation to equities (through equity funds, company stock, and the equity portion of balanced funds) by participant age, see Figure 15.

[35] For year-end 2017 data, see the appendix.

[36] Plan-specific information on loan provisions 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 a plan loan, but no participant had taken out a loan. It is likely that this omission is small, as U.S. Government Accountability Office 1997 found that more than 95 percent of 401(k) plans that offer loans had at least one plan participant with an outstanding loan.

[37] For a complete time series of the percentage of eligible 401(k) participants with outstanding 401(k) loans and loan amounts as a percentage of the remaining 401(k) plan account balance, see Holden et al. 2013.

[38] In plan year 2018 (latest data available), only 1.4 percent of the $5.2 trillion in 401(k) plan assets were participant loans. See Table D6 in U.S. Department of Labor, Employee Benefits Security Administration 2021a.

[39] In the 2017 EBRI/ICI 401(k) database, 86 percent of participants were in plans offering loans.

[40] This pattern is driven in part by restrictions placed on loan amounts.

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