

Target Date Funds: Evidence Points to Growing Popularity and Appropriate Use by 401(k) Plan Participants

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 analyzes 401(k) plan participants use of target date funds using year-end 2018 data from the EBRI/ICI 401(k) database.

For all of the figures in this report, components may not add to the totals presented because of rounding.

Key Findings:

- **Target date funds have grown in popularity.** At year-end 2018, more than half (56 percent) of 401(k) participants in the EBRI/ICI 401(k) database held target date (or lifecycle) funds. Target date fund assets were more than one-quarter (27 percent) of 401(k) plan assets in the database.
- **Target date funds offer professional management of a diversified portfolio that rebalances over time.** The EBRI/ICI 401(k) database has information on 401(k) plan participants' holdings of target date funds, whether structured as mutual funds, collective investment trusts, or separate accounts. Target date funds offer a complete portfolio for investors. A target date fund holds a diversified portfolio of both stocks and bonds and also rebalances to become less focused on growth and more focused on income as the fund approaches and passes the target date.
- **Younger 401(k) participants are more likely to hold target date funds than older participants.** At year-end 2018, 62 percent of 401(k) plan participants in their twenties held target date funds, compared with 50 percent of those in their sixties. Similarly, 51 percent of 401(k) plan assets of participants in their twenties were invested in target date funds, compared with 23 percent among those in their sixties.
- **Overall, 401(k) plan target date fund investors had slightly higher allocations to equities compared with 401(k) plan participants not holding target date funds.** 401(k) plan participants often tend to invest in equities through equity funds or the equity portion of target date funds, and also through company stock and the equity portion of non-target date balanced funds. At year-end 2018, overall, 401(k) plan target date fund investors had 66 percent of their 401(k) plan assets invested in equities, compared with 60 percent for 401(k) plan participants not holding target date funds. The youngest 401(k) plan target date fund investors had the highest allocation to equities compared with their counterparts not holding target date funds. Older 401(k) plan participants had similar allocations to equities whether they were target date fund investors or not.
- **Younger 401(k) plan target date fund investors hold a higher concentration of their accounts in target date funds than older 401(k) plan target date fund investors.** At year-end 2018, 88 percent of 401(k) plan participants in their twenties holding target date funds held more than 90 percent of their accounts

in target date funds. About two-thirds of 401(k) plan target date fund investors in their fifties and sixties had such a high concentration.

- **The vast majority of 401(k) participants investing in target date funds hold one target date fund.** Ninety-four percent of 401(k) participants owning target date funds held one target date fund at year-end 2018, with little variation by participant age. Ninety-seven percent of 401(k) plan participants in their twenties holding target date funds held one, compared with 93 percent of 401(k) plan target date fund investors in their fifties or sixties.
- **401(k) participants holding target date funds typically are invested in target date funds appropriate to their age.** For example, among 401(k) plan participants holding one target date fund, 91 percent of those in their twenties held a target date fund appropriate to their age, similar to those in their fifties. Nine percent of those in their twenties held a fund with an earlier target date (making them young for the fund), compared with 5 percent of those in their fifties. The remaining 2 percent of those in their fifties held a fund with a later target date (making them old for the fund). Overall, among 401(k) participants with target date funds, the vast majority (88 percent) held one age-appropriate target date fund.
- **Target date funds held in 401(k) plans tend to be held by appropriately aged 401(k) plan participants.** For example, 83 percent of 401(k) plan participants holding 2040 target date funds had ages in line with reaching age 65 around 2040, while 96 percent of 401(k) plan target date fund investors in the 2035 funds were appropriately aged.

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Introduction

Target date, or lifecycle, funds are designed to offer investment diversification and automatic asset reallocation over time.¹ A target date fund typically rebalances away from growth toward an income-oriented portfolio as it approaches and passes the target date of the fund, which is usually included in the fund's name. These funds can be organized as mutual funds, collective investment trusts, or separate accounts. First created in 1994, target date mutual funds have experienced rapid growth in the past decade.² These funds are predominantly held in retirement accounts, mostly in defined contribution (DC) plan accounts (which include 401(k) plans) but also through individual retirement accounts (IRAs).³ As detailed below, exploration of 401(k) plan participants' use of target date funds reveals that the vast majority of 401(k) plan participant target date fund investors hold one target date fund, and typically, that fund is appropriate for their age.

This *EBRI Issue Brief* examines individual 401(k) plan participants' exposure to and use of target date funds, using the EBRI/ICI 401(k) plan participant data collection project, which is the most comprehensive source of 401(k) plan participant-level data available to date.⁴ Using the EBRI/ICI 401(k) database, this research paper assesses:

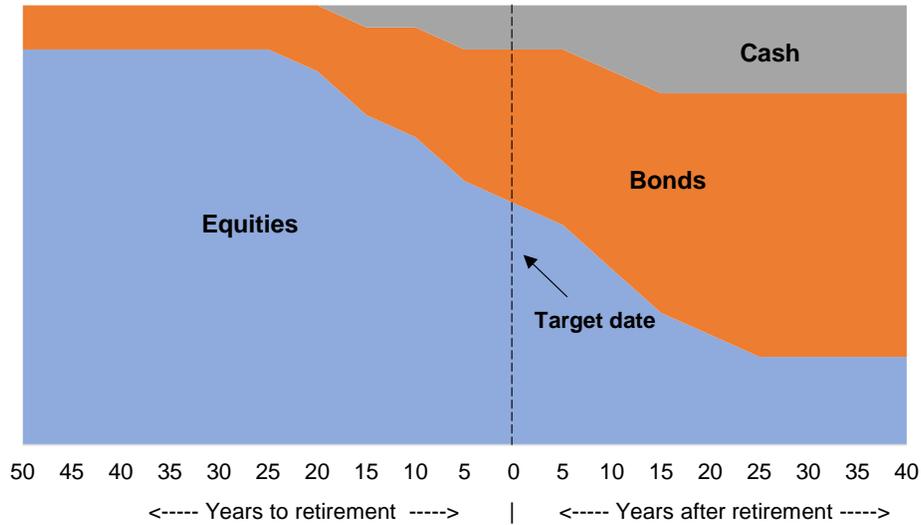
- How many 401(k) plan participants are offered target date funds in their 401(k) plan's investment lineup.
- How 401(k) participants' use of target date funds in their 401(k) portfolios varies by age.
- How asset allocation behavior of participants investing in target date funds compares with participants not investing in target date funds.
- Whether participants holding target date funds appear to be using them as their primary, complete investment choice.
- Whether 401(k) plan participants are holding the target date funds appropriate to their ages.

Target Date Funds

Target date funds offer diversification across stock and fixed-income investments at every point in time, in addition to rebalancing over time. When the fund is many years from the target date, the portfolio is highly concentrated in equities, reaching for growth (Figure 1). As the fund approaches and passes its target date, its portfolio rebalances to be more focused on fixed-income investments. Ultimately, target date fund investors typically are transitioned to a retirement income fund when the target date fund reaches its final asset allocation. The main economic reasoning behind this path of rebalancing is that younger investors have the implicit value of many years of wages ahead of them, which makes stock investing the complement to that fixed-income attribute.⁵

Target date funds can have a variety of legal structures, including as mutual funds or collective investment trusts. At year-end 2020, 57 percent of target date fund assets were mutual funds, and 43 percent were collective investment trusts.⁶

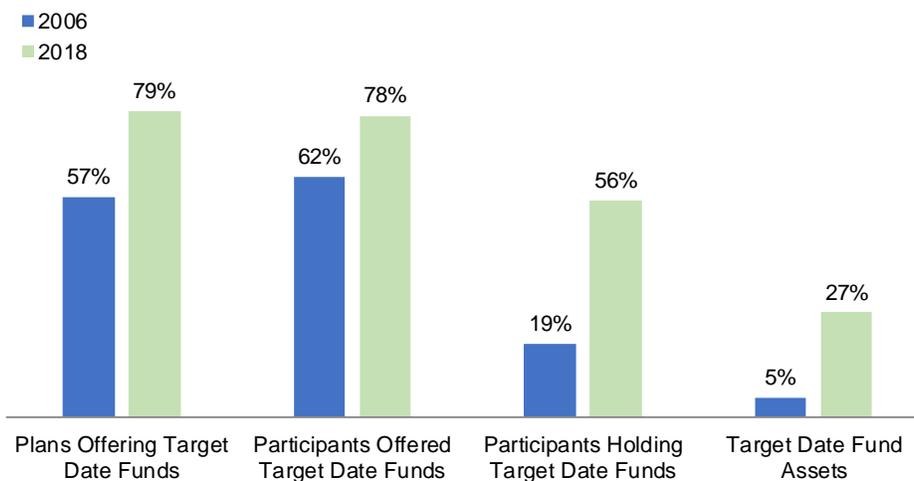
Figure 1
Target Date Funds Are Diversified and Rebalance as the Fund Approaches and
 Illustration of average asset allocation of target date funds



401(k) Plan Participants' Use of Target Date Funds

On average, 401(k) plan participants are offered more than 20 investment options⁷ and have the opportunity of determining the appropriate asset allocation given their personal risk preferences and investing time horizon. These options often include target date funds. At year-end 2018, nearly eight in 10 401(k) plans covering nearly eight in 10 401(k) plan participants in the EBRI/ICI 401(k) database offered target date funds in their investment lineups (Figure 2). More than half (56 percent) of 401(k) plan participants held target date funds (some actively chose them and some were automatically enrolled). Target date fund assets were more than one-quarter (27 percent) of all 401(k) plan assets.

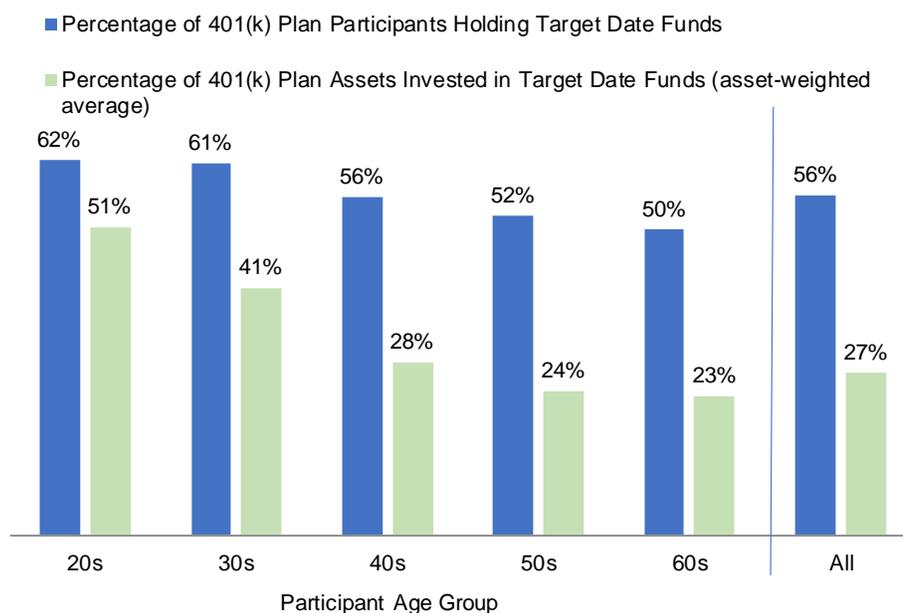
Figure 2
Role of Target Date Funds in 401(k) Plans Has Increased Over Time
 Target date funds' market share; percentage of 401(k) market, year-end



Note: Funds include mutual funds, bank collective trusts, and life insurance separate accounts.
 Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project

Younger 401(k) plan participants were more likely to hold target date funds than older participants. For example, 62 percent of 401(k) plan participants in their twenties held target date funds at year-end 2018, and target date fund assets were 51 percent of their 401(k) plan assets (Figure 3). Half of 401(k) plan participants in their sixties held target date funds, and target date funds were 23 percent of their 401(k) plan assets. Some of this pattern is driven by variation in job tenure.⁸ At year-end 2018, 57 percent of 401(k) plan participants with two or fewer years of tenure held target date funds, compared with 48 percent of 401(k) plan participants with more than 10 years to 20 years of tenure, and 36 percent of 401(k) plan participants with more than 30 years of job tenure (see Figure A1).⁹

Figure 3
Target Date Fund Use Is Higher Among Younger 401(k) Plan Participants
 Year-end 2018



Note: Funds include mutual funds, bank collective trusts, and life insurance separate accounts.

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project; see Holden, VanDerhei, and Bass 2021

More than one-quarter of the assets in the EBRI/ICI 401(k) database were invested in target date funds at year-end 2018, reflecting a 59 percent average allocation among the 56 percent of 401(k) plan participants in the database holding target date funds (Figure 4). The average asset allocation to target date funds varied with participant age, with younger 401(k) plan participants having a higher share of their 401(k) plan assets allocated to target date funds.¹⁰

401(k) plan participants often tend to invest in equities through equity funds or the equity portion of target date funds, and also through company stock and the equity portion of non-target date balanced funds.¹¹ Overall, 401(k) plan target date fund investors had slightly higher allocations to equities compared with 401(k) plan participants not holding target date funds. Overall, 401(k) plan target date fund investors had 66 percent of their 401(k) plan assets invested in equities, compared with 60 percent for 401(k) plan participants not holding target date funds (Figure 4). At year-end 2018, among 401(k) plan target date fund investors, 59 percent of their 401(k) plan assets were invested in target date funds, 23 percent in equity funds, 5 percent in company stock, and 1 percent in the equity portion of non-target date balanced funds. Among 401(k) plan participants not holding target date funds, 52 percent of their 401(k) plan assets were invested in equity funds, 4 percent in company stock, and 4 percent in the equity portion of non-target date balanced funds.

Some of the variation in allocation to equities reflects the fact that 401(k) plan participants holding target date funds tend to be younger; if they are holding age-appropriate funds, those funds would have higher allocations to equities. Among participants in their twenties, those holding target date funds had 87 percent of their 401(k) plan assets invested in equities, compared with 56 percent among those not holding target date funds (Figure 4). This difference narrows among older age groups. Among participants in their fifties, those holding target date funds had 63 percent of their 401(k) plan assets invested in equities, similar to 62 percent among those not holding target date funds. Among participants in their sixties, those holding target date funds had 51 percent of their 401(k) plan assets invested in equities, compared with 53 percent among those not holding target date funds.

Figure 4
Average Asset Allocation of 401(k) Plan Accounts by Target Date Fund Ownership and Participant Age
 Percentage of account balances,¹ year-end 2018

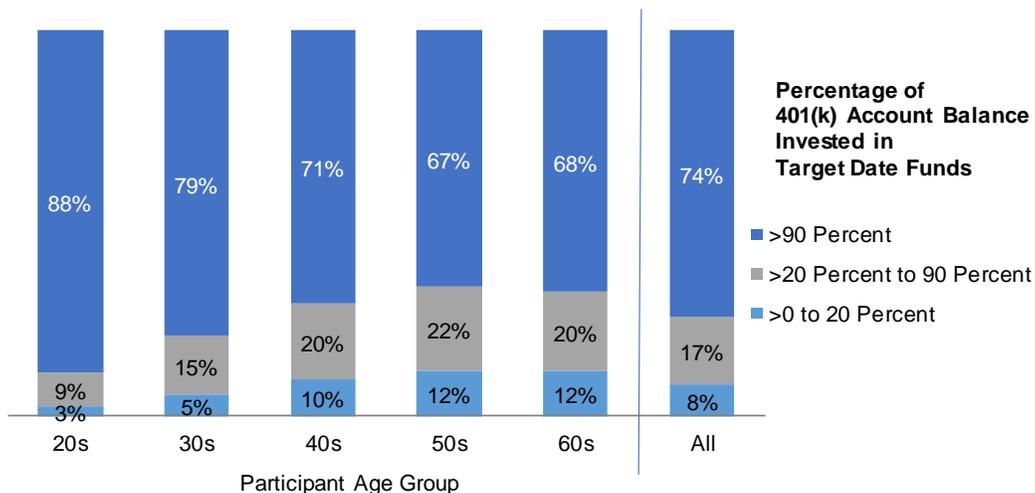
All 401(k) Plan Participants											
Age Group	Equity Funds	Balanced Funds		Bond Funds	Money Funds	GICs^{2, 3} and Other Stable Company			Equities⁴		Memo:
		Target Date Funds²	Non Target Date Balanced Funds			Value	Stock²	Other			
20s	26.2%	50.5%	3.2%	9.9%	0.6%	1.4%	1.6%	4.4%	2.3%	74.3%	
30s	33.8%	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%	
401(k) Plan Participants Holding Target Date Funds											
Age Group	Equity Funds	Balanced Funds		Bond Funds	Money Funds	GICs^{2, 3} and Other Stable Company			Equities⁴		Memo:
		Target Date Funds²	Non Target Date Balanced Funds			Value	Stock²	Other			
20s	9.3%	85.0%	0.5%	1.0%	0.2%	0.5%	1.6%	1.5%	0.3%	86.6%	
30s	16.1%	73.3%	0.9%	2.0%	0.4%	1.1%	3.6%	2.3%	0.4%	84.3%	
40s	23.7%	60.1%	1.4%	3.2%	0.7%	2.0%	5.4%	3.0%	0.5%	76.7%	
50s	25.1%	54.4%	1.9%	4.3%	1.1%	3.7%	5.9%	3.2%	0.5%	63.3%	
60s	21.7%	56.1%	2.0%	5.5%	1.5%	5.7%	4.3%	2.6%	0.6%	51.3%	
All	22.5%	59.2%	1.6%	4.0%	1.0%	3.3%	5.0%	2.9%	0.5%	66.2%	
401(k) Plan Participants Not Holding Target Date Funds											
Age Group	Equity Funds	Balanced Funds		Bond Funds	Money Funds	GICs^{2, 3} and Other Stable Company			Equities⁴		Memo:
		Target Date Funds²	Non Target Date Balanced Funds			Value	Stock²	Other			
20s	50.8%	0.0%	7.1%	22.9%	1.1%	2.6%	1.5%	8.7%	5.1%	56.4%	
30s	55.8%	0.0%	8.5%	9.4%	1.7%	3.9%	2.8%	16.2%	1.6%	63.5%	
40s	58.6%	0.0%	6.0%	8.9%	2.5%	5.3%	4.2%	12.9%	1.4%	66.3%	
50s	53.2%	0.0%	7.0%	11.1%	4.1%	8.6%	4.6%	10.0%	1.3%	61.9%	
60s	45.3%	0.0%	7.1%	14.2%	4.0%	13.1%	3.6%	11.3%	1.4%	53.0%	
All	52.4%	0.0%	7.0%	11.5%	3.6%	8.7%	4.1%	11.4%	1.5%	60.4%	

¹Percentages are dollar-weighted averages.
²Not all participants are offered this investment option.
³GICs are guaranteed investment contracts.
⁴Equities 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 EBR/ICI Participant-Directed Retirement Plan Data Collection Project

401(k) Plan Target Date Fund Investors

401(k) plan participants holding target date funds tend to have high concentrations of their accounts in these funds, reflecting their design to provide a comprehensive asset allocation, and possibly as a result of being the default investment through automatic enrollment. For example, 88 percent of 401(k) plan target date fund investors in their twenties had more than 90 percent of their accounts invested in target date funds (Figure 5). About two-thirds of 401(k) plan target date fund investors in their fifties and sixties had more than 90 percent of their accounts invested in these funds.

Figure 5
401(k) Plan Target Date Fund Investors Tend to Concentrate Their Accounts in Target Date Fund Investments
 Percentage of 401(k) plan participants holding target date funds by participant age, year-end 2018



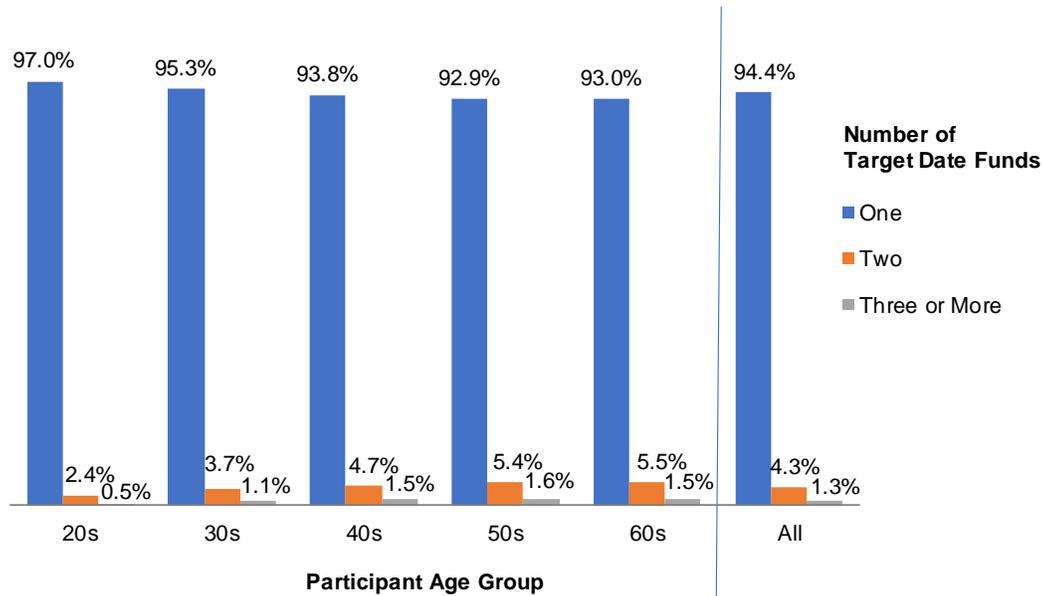
Note: Funds include mutual funds, bank collective trusts, and life insurance separate accounts. Figure reports the concentration of 401(k) plan accounts invested in target date funds among 401(k) plan participants holding target date funds.

Source: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project; see Holden, VanDerhei, and Bass 2021

Target date funds are designed to be a complete asset allocation solution and the vast majority of 401(k) plan target date fund investors hold one target date fund. At year-end 2018, 94 percent of 401(k) plan participants owning target date funds, held one target date fund (Figure 6). There was little variation by participant age. Ninety-seven percent of 401(k) plan participants in their twenties holding target date funds held one, compared with 93 percent of 401(k) plan target date fund investors in their fifties or sixties. This slight variation by age might reflect variation due to job tenure. Younger 401(k) plan participants are more likely to have been recently hired and thus more likely to have had target date funds included in their 401(k) plans' investment lineup when they enrolled (Figure 2), or to have been automatically enrolled.

Figure 6
Across All Ages, Each 401(k) Plan Target Date Fund Investor Tends to Be in One Target Date Fund

Percentage of 401(k) plan participants holding target date funds by participant age, year-end 2018



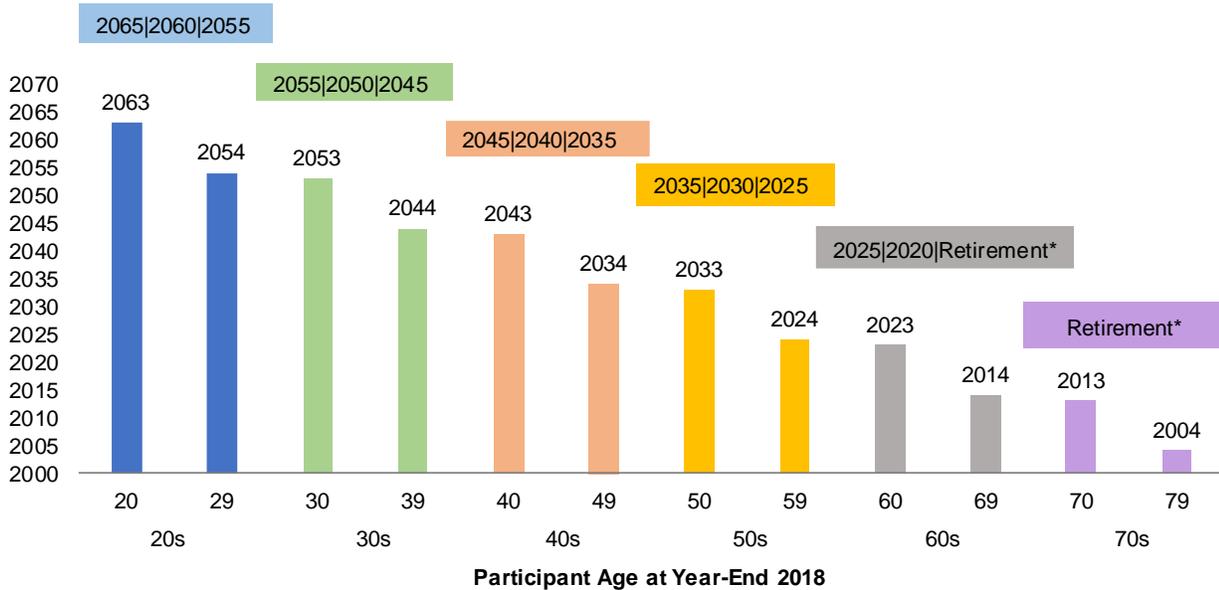
Note: Funds include mutual funds, bank collective trusts, and life insurance separate accounts.

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

401(k) plan target date fund investors' selection of one target date fund varies a bit by participant job tenure, likely reflecting changes in 401(k) plan design over time. The offering and use of target date funds in 401(k) plans have expanded, both as plan sponsors have increasingly offered target date funds in their investment lineups¹² and as automatic enrollment has spread, often using target date funds as the default investment.¹³ 401(k) plan participants with shorter tenures will have entered their 401(k) plans at a time when both target date fund offering and automatic enrollment are more common than when longer-tenured participants entered their plans. At year-end 2018, 98 percent of 401(k) plan target date fund investors with two or fewer years of tenure held one target date fund, compared with 89 percent of 401(k) plan target date fund investors with more than 30 years of tenure (see Figure A3). Longer-tenured 401(k) plan target date fund investors are slightly more likely to hold two target date funds, perhaps reflecting the more-limited array of target years originally offered.¹⁴ Only 2 percent of 401(k) plan target date fund investors with two or fewer years of tenure held two target date funds, compared with 8 percent of 401(k) plan target date fund investors with more than 30 years of tenure.

Having generally selected or been defaulted into one target date fund and chosen to remain in that fund, 401(k) plan target date fund investors tend to hold an age-appropriate target date fund—that is, the target date for the fund coincides with the year the participant turns 65.¹⁵ For example, 401(k) participants in their twenties at year-end 2018 will turn 65 between 2054 and 2063 (Figure 7). If selecting a target date to coincide with turning 65, then this group would be considered to have selected an appropriate target date fund if they held a 2055, 2060, or 2065 fund.

Figure 7
Categorization of Age-Appropriate Target Date Funds
 Year of 65th birthday, by participant age at year-end 2018



* *Retirement* funds include targetdate funds that have passed their target dates in 2018 (2000, 2005, 2010, or 2015), in addition to the retirement income fund included in the target date fund suite.

Note: This illustration assumes that 401(k) plan participants are invested in the target date fund with the target date closest to the year that they turn 65. Individual investors may have a different target retirement age in mind, or may be seeking more focus on growth (choosing a later target date than their age suggests) or more focus on income (choosing an earlier target date than their age suggests).

At year-end 2018, among 401(k) plan participants holding one target date fund, 91 percent of those in their twenties held an age-appropriate one—that is a 2055, 2060, or 2065 target date (Figure 8). Similarly, 93 percent of those in their fifties held a target date fund appropriate to their age—that is a 2025, 2030, or 2035 target date. Nearly 10 percent of those in their twenties held a target date fund with an earlier target date (making them young for the fund), compared with 5 percent of those in their fifties. The remaining 2 percent of those in their fifties held a fund with a later target date (making them old for the fund).

It is possible that some 401(k) plan target date fund investors have selected their target date funds based on a different anticipated retirement age, rather than the assumed retirement age of 65. For example, the full retirement age for Social Security claiming for individuals aged 58 or older in 2018 was age 67, so some target date fund investors may be targeting the year they reach 67.¹⁶ Some target date fund investors may have earlier anticipated retirement ages based on their employers' normal retirement age or allowed retirement age based on their occupation (e.g., law enforcement, fire fighters, government workers). It also is possible that some target date fund investors chose a target date fund with an earlier or later date to achieve a different asset allocation—more conservative or more aggressive, respectively—than the age-appropriate fund would have provided. And, active 401(k) plan participants in their late sixties or older likely are targeting a later retirement date, as they are still working.

Although some investors may have legitimate reasons to invest in multiple target date funds or to invest in funds with a later or earlier target date than the one nearest their 65th birthday, it is clear that the vast majority of 401(k) target date fund investors are using these funds as they were designed: as a single portfolio option for their age cohort. Overall, among 401(k) participants with target date funds, 88 percent held one age-appropriate target date fund.

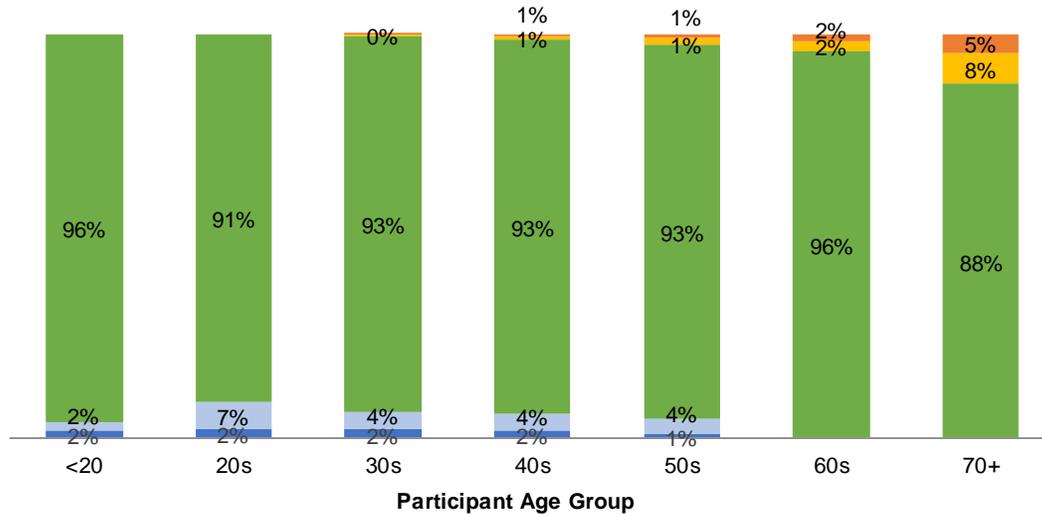
Just as 401(k) plan target date fund investors tend to be holding target date funds appropriate to their ages, a similar pattern emerges for target date fund assets held by 401(k) plan target date fund investors. The vast majority of target date fund assets held by 401(k) target date fund investors are invested in age-appropriate target date funds (Figure 8).

Figure 8
Majority of 401(k) Participants Holding One Target Date Fund Held Fund Appropriate to Their Age
 Percentage among 401(k) plan participants holding one target date fund by participant age, year-end 2018

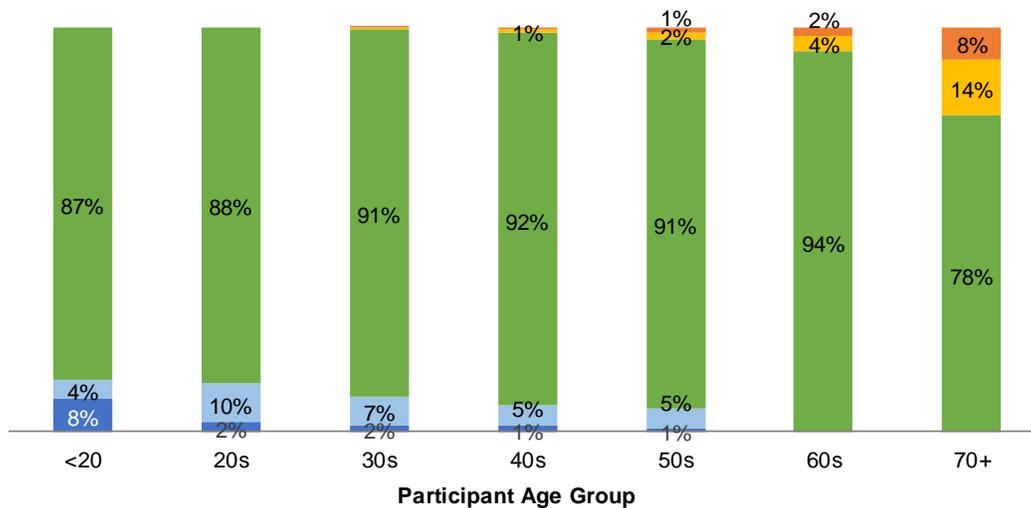
Target Date Alignment With Participant Turning Age 65

- Later Target Date (investor is old for the fund)
- One Fund Above
- Age Appropriate
- One Fund Below
- Earlier Target Date (investor is young for the fund)

Percentage of Participants



Percentage of Target Date Fund Assets



Note: 401(k) plan participants invested in the target date fund with the target date closest to the year that they turn 65 are considered in their age-appropriate target date fund. Individual investors may have a different target retirement age in mind, or may be seeking more focus on growth (choosing a later target date than their age suggests) or more focus on income (choosing an earlier target date than their age suggests). See Figure A4 in the appendix for additional detail.

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

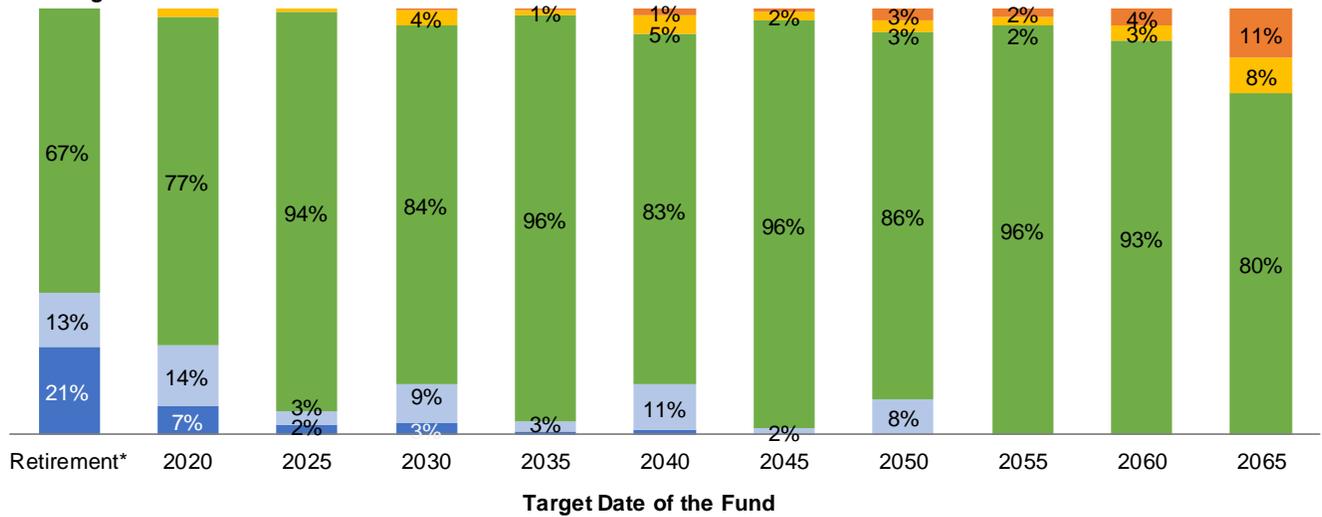
This pattern of age-appropriate target date fund investing also is evident when analyzed from the target date funds' perspective. For example, at year-end 2018, typically more than 80 percent of 401(k) target date fund investors in a given target date fund were the appropriate ages for the fund (Figure 9). Mid-decade target date funds tended to have the highest proportions of age-appropriate 401(k) target date fund investors, although the 2065 fund had attracted some older investors (in their forties, fifties, and sixties), perhaps reaching for more exposure to equities.¹⁷

Figure 9
Target Date Funds Tend to Be Held by Expected Age Groups
 Percentage of 401(k) investors in specified target date fund category

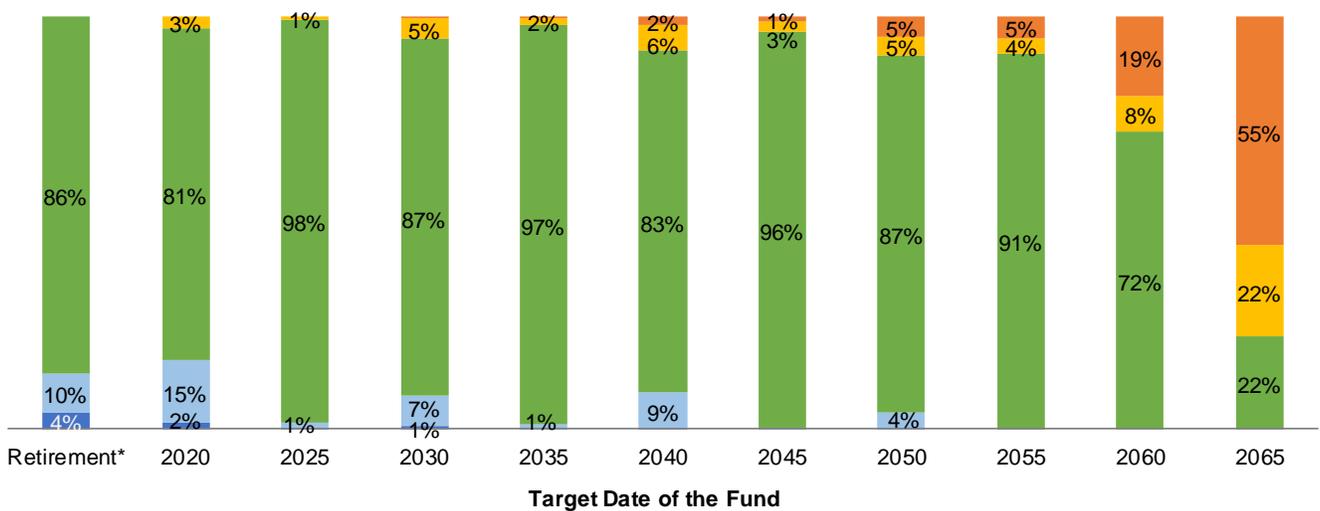
Alignment of Year Investor Turns Age 65 With Target Date

- Investor Is Old for the Fund
- One Age Group Above
- Age Appropriate
- One Age Group Below
- Investor Is Young for the Fund

Percentage of Investors



Percentage of Target Date Fund Assets



*Retirement funds include target date funds that have passed their target dates in 2018 (2000, 2005, 2010, or 2015), in addition to the retirement income fund included in the target date fund suite.

Note: 401(k) plan participants invested in the target date fund with the target date closest to the year that they turn 65 are considered in their age-appropriate target date fund. Individual investors may have a different target retirement age in mind, or may be seeking more focus on growth (choosing a later target date than their age suggests, making them old for the fund) or more focus on income (choosing an earlier target date than their age suggests, making them young for the fund). See Figure A5 in the appendix for additional detail.

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

Conclusion

In recent years, target date funds have grown to be an integral part of 401(k) plan design, providing a diversified option that rebalances to become more focused on income and less focused on growth as it approaches and passes the target date of the fund. Although target date funds are more widely used among younger investors, who may have been more likely than older workers to have been offered target date funds when they enrolled in the plan or may have been automatically enrolled into these funds as default investments, workers of all ages are using target date funds to help them save for retirement. In addition, the evidence shows that target date fund investors tend to use these funds as they are designed: as a single, complete portfolio option. The majority of target date fund investors have most of their assets in a single target date fund that is appropriate for their age.

About the EBRI/ICI 401(k) Database

The EBRI/ICI project is unique because of its inclusion of data provided by a wide variety of plan recordkeepers, which permits the analysis of 401(k) participant activity in plans of varying sizes — from very large corporations to small businesses — with a variety of investment options.

Sources and Types of Data

Several EBRI and ICI members provided records on active participants in 401(k) plans for which they kept records for year-end 2010 through year-end 2018. These plan recordkeepers include mutual fund companies, banks, insurance companies, and consulting firms. Although the EBRI/ICI 401(k) project has collected data from 1996 through 2018, the universe of data providers varies from year to year. In addition, the plans using a particular provider can change 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. For each participant, data include 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. Plan balances are constructed as the sum of all participant balances in the plan.

Investment Options

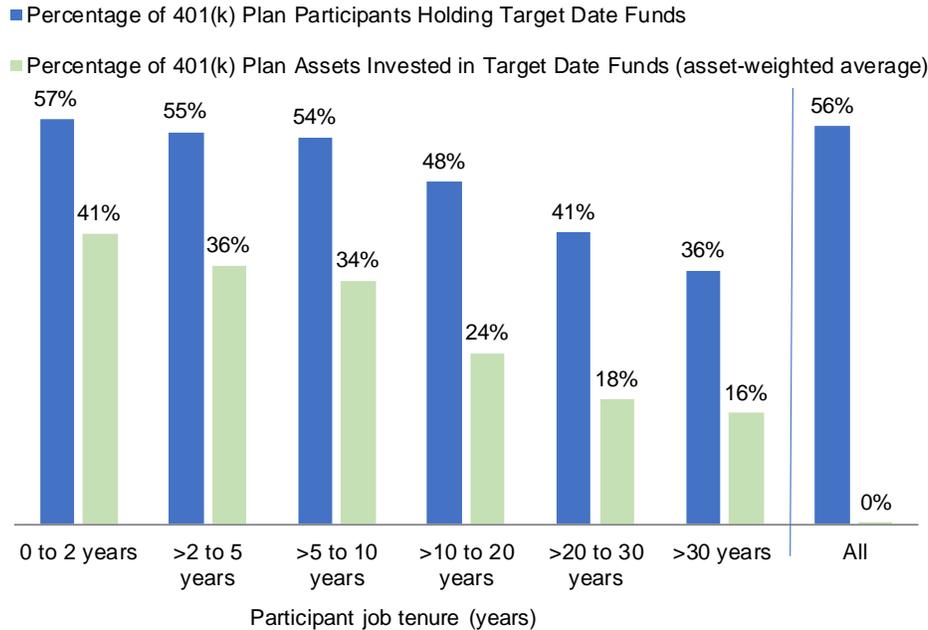
In the EBRI/ICI 401(k) database, investment options are grouped into eight broad categories.¹⁸ Equity funds consist of pooled investments primarily invested in stocks, including equity mutual funds, bank collective trusts, life insurance separate accounts, and other pooled investments. Similarly, bond funds are any pooled account 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 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. Non-target date balanced funds include asset allocation or hybrid funds, in addition to lifestyle funds. Company stock is equity in the 401(k) 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) and other stable value funds, are reported as one category. The other category is the residual for other investments, such as real estate funds. The final category, unknown, consists of funds that could not be identified.

For additional information, see Holden, VanDerhei, and Bass 2021.

Appendix

This appendix provides additional detail on 401(k) plan participants' use of target date funds. Figures A1 through A3 explore how 401(k) plan participants' use of target date funds varies by participant job tenure. Figures A4 and A5 provide additional detail on 401(k) plan participants' target date fund use by participant age and the fund's target date.

Figure A1
Target Date Fund Use Is Higher Among More Recently Hired 401(k) Plan Participants
 Year-end 2018



Note: Funds include mutual funds, bank collective trusts, and life insurance separate accounts. The tenure variable is generally years working at current employer (based on the individual's date of hire) 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 A2
Average Asset Allocation of 401(k) Plan Accounts by Target Date Fund Ownership and Participant Job Tenure
 Percentage of account balances,¹ year-end 2018

Participant Job Tenure	Equity Funds	Target date Funds ²	Non Target Date Balanced Funds	Bond Funds	Money Funds	GICs ^{2, 3} and Other Stable-Value Funds		Stock ²	Other	Unknown
						Value	Funds			
0 to 2 years	32.1%	40.9%	2.9%	10.0%	1.6%	2.0%	0.6%	8.9%	1.0%	
>2 to 5 years	35.6%	36.4%	4.5%	9.3%	2.4%	2.0%	0.9%	7.8%	1.0%	
>5 to 10 years	36.1%	34.3%	4.3%	8.1%	2.2%	3.5%	2.1%	8.4%	0.9%	
>10 to 20 years	41.2%	24.1%	4.6%	7.5%	2.4%	6.2%	4.9%	8.3%	1.0%	
>20 to 30 years	43.0%	17.6%	4.9%	7.7%	2.8%	7.4%	7.3%	8.4%	0.9%	
>30 years	38.7%	15.7%	5.3%	9.0%	3.5%	11.1%	7.3%	8.5%	0.9%	
All	0.4%	0.3%	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%	0.0%	

¹Percentages are dollar-weighted averages.

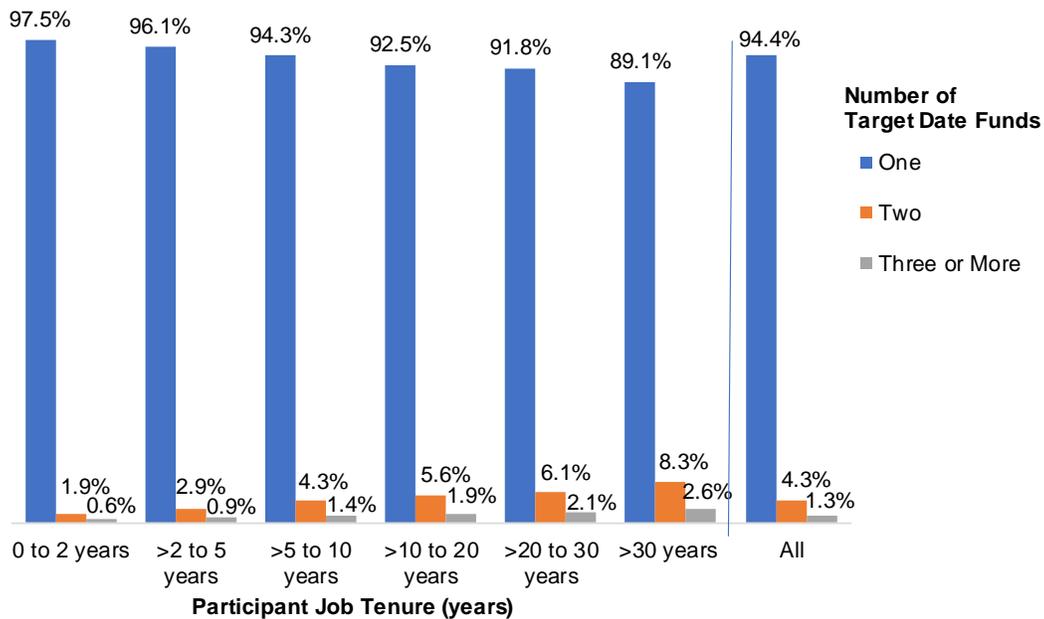
²Not all participants are offered this investment option.

³GICs 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. The tenure variable is generally years working at current employer (based on the individual's date of hire) 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 A3
**Across All Job Tenures, Each 401(k) Plan Target Date Fund Investor
Tends to Be in One Target Date Fund**
Percentage of 401(k) plan participants holding target date funds
by participant job tenure, year-end 2018



Note: Funds include mutual funds, bank collective trusts, and life insurance separate accounts. The tenure variable is generally years working at current employer (based on the individual's date of hire) 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 A4
401(k) Participants Holding One Target Date Fund by Fund Date
 Percentage among 401(k) plan participants holding one target date fund by
 participant age, year-end 2018

Percentage of Participants

Target Date Fund Year	Participant Age Group						
	< 20	20s	30s	40s	50s	60s	70+
Retirement*	0.40%	0.57%	0.67%	0.84%	1.12%	13.44%	87.53%
2020	0.07%	0.12%	0.24%	0.46%	3.58%	54.45%	7.83%
2025	0.04%	0.10%	0.22%	0.59%	26.02%	27.83%	1.96%
2030	0.07%	0.16%	0.42%	4.05%	50.45%	2.40%	1.09%
2035	0.03%	0.13%	0.52%	28.42%	16.33%	0.55%	0.37%
2040	0.12%	0.41%	4.27%	48.62%	1.34%	0.51%	0.44%
2045	0.19%	0.72%	28.59%	15.54%	0.37%	0.23%	0.21%
2050	0.88%	6.72%	49.61%	0.87%	0.38%	0.27%	0.25%
2055	2.31%	48.75%	14.94%	0.36%	0.23%	0.18%	0.19%
2060	82.59%	41.94%	0.50%	0.23%	0.17%	0.14%	0.12%
2065	13.30%	0.38%	0.02%	0.01%	0.01%	0.01%	0.01%

Percentage of Target Date Fund Assets

Target Date Fund Year	Participant Age Group						
	< 20	20s	30s	40s	50s	60s	70+
Retirement*	0.34%	0.23%	0.26%	0.38%	0.89%	13.75%	78.09%
2020	1.73%	0.08%	0.17%	0.43%	4.77%	55.87%	14.03%
2025	1.99%	0.11%	0.18%	0.64%	29.65%	24.57%	3.47%
2030	1.97%	0.17%	0.49%	5.23%	48.74%	3.59%	2.05%
2035	0.12%	0.11%	0.66%	32.22%	13.05%	0.74%	0.78%
2040	0.24%	0.59%	7.11%	47.18%	1.70%	0.65%	0.60%
2045	0.36%	1.02%	36.22%	12.33%	0.43%	0.26%	0.23%
2050	1.69%	9.71%	45.11%	1.02%	0.42%	0.29%	0.39%
2055	4.26%	64.69%	9.37%	0.36%	0.21%	0.16%	0.24%
2060	75.59%	23.20%	0.40%	0.21%	0.14%	0.11%	0.11%
2065	11.70%	0.07%	0.02%	0.01%	0.01%	0.01%	0.01%

**Retirement* funds include target date funds that have passed their target dates in 2018 (2000, 2005, 2010, or 2015), in addition to the retirement income fund included in the target date fund suite.

Note: 401(k) plan participants invested in the target date fund with the target date closest to the year that they turn 65 are considered in their age-appropriate target date fund (blue shading). Individual investors may have a different target retirement age in mind, or may be seeking more focus on growth (choosing a later target date than their age suggests) or more focus on income (choosing an earlier target date than their age suggests).

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

Figure A5

401(k) Target Date Fund Investors' Age Distribution by Fund Date

Percentage of 401(k) investors in specified target date fund category

Percentage of Investors Participant Age Group							
Target Date Fund Year	< 20	20s	30s	40s	50s	60s	70+
Retirement*	0.02%	3.13%	7.78%	9.84%	12.53%	43.02%	23.68%
2020	0.01%	0.71%	2.35%	3.75%	14.22%	77.05%	1.92%
2025	*	0.51%	1.70%	3.07%	60.87%	33.38%	0.47%
2030	*	0.50%	2.00%	9.43%	84.27%	3.57%	0.23%
2035	*	0.52%	2.54%	60.59%	34.98%	1.26%	0.11%
2040	*	0.91%	10.76%	82.51%	4.53%	1.17%	0.12%
2045	0.01%	1.51%	64.22%	31.61%	1.94%	0.64%	0.07%
2050	0.02%	8.37%	86.12%	2.98%	1.77%	0.68%	0.07%
2055	0.06%	63.60%	32.64%	1.87%	1.32%	0.47%	0.05%
2060	3.11%	89.71%	3.25%	1.91%	1.44%	0.53%	0.05%
2065	28.10%	52.26%	8.28%	5.98%	3.74%	1.47%	0.17%

Percentage of Target Date Fund Assets Participant Age Group							
Target Date Fund Year	< 20	20s	30s	40s	50s	60s	70+
Retirement*	*	0.11%	0.98%	2.79%	9.73%	57.79%	28.60%
2020	*	0.03%	0.31%	1.33%	14.91%	80.74%	2.67%
2025	*	0.03%	0.25%	1.40%	65.75%	31.94%	0.62%
2030	*	0.03%	0.52%	7.47%	86.62%	5.02%	0.33%
2035	*	0.04%	1.02%	60.85%	36.19%	1.73%	0.17%
2040	*	0.15%	8.68%	83.10%	6.28%	1.62%	0.17%
2045	*	0.41%	61.44%	34.41%	2.66%	0.97%	0.11%
2050	*	3.88%	86.93%	4.53%	3.17%	1.32%	0.17%
2055	0.01%	51.43%	39.74%	3.79%	3.47%	1.35%	0.21%
2060	0.43%	71.93%	8.30%	7.58%	8.10%	3.31%	0.36%
2065	4.77%	17.61%	22.29%	17.00%	20.57%	15.87%	1.87%

**Retirement* funds include target date funds that have passed their target dates in 2018 (2000, 2005, 2010, or 2015), in addition to the retirement income fund included in the target date fund suite.

(*) = less than 0.005 percent

Note: 401(k) plan participants invested in the target date fund with the target date closest to the year that they turn 65 are considered in their age-appropriate target date fund (blue shading). Individual investors may have a different target retirement age in mind, or may be seeking more focus on growth (choosing a later target date than their age suggests, making them old for the fund) or more focus on income (choosing an earlier target date than their age suggests, making them young for the fund).

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

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Notes

¹ For more information on target date mutual funds, see ICI's Target Retirement Date Funds Resource Center at www.ici.org/trdf. For more information on criteria retirement plan sponsors should consider when selecting target date funds, see U.S. Department of Labor, Employee Benefits Security Administration 2006 and 2013.

² See Investment Company Institute 2021a.

³ At year-end 2020, target date mutual fund assets were \$1.6 trillion. DC plans held 67 percent of all target date mutual fund assets, IRAs held 18 percent, and other investors held the remaining 15 percent. See Investment Company Institute 2021b.

⁴ For additional detail, see Holden, VanDerhei, and Bass 2021.

⁵ Younger investors tend to have high human capital (with returns in the form of stable expected wages over the course of their career) and low financial capital (including 401(k) plan assets). If human capital and financial capital together are considered to make up a complete portfolio, the human capital of younger investors would make their overall portfolio more heavily weighted toward fixed-income type investments (their future earnings); therefore, directing a high percentage of their financial capital to equities is a complementary diversification strategy. As those investors age and their human capital decreases relative to their financial capital, they may want to invest more in fixed-income securities to keep their overall portfolio allocation stable. Some individuals may want to employ the opposite strategy. For example, stockbrokers, whose income tends to be correlated with stock market returns, may want to invest more of their financial assets in fixed-income investments when they are young and transition to equities as they age. For an explanation of how the rebalancing away from stocks toward fixed-income investments over an individual's life cycle mirrors the lifecycle pattern of the present value of future wage income, see Jagannathan and Kocherlakota 1996.

⁶ See Investment Company Institute 2021b and Morningstar data analyzed in Kephart and Pacholok 2021.

⁷ See BrightScope and Investment Company Institute 2021. In plan year 2018, large 401(k) plans offered an average of 28 investment options and an average of 21 investment options when a target date fund suite is counted as a single investment option.

⁸ The tenure variable is generally years working at current employer (based on the individual's date of hire) and thus may overstate years of participation in the 401(k) plan.

⁹ For additional detail, see Figure 20 in Holden, VanDerhei, and Bass 2021.

¹⁰ 401(k) plan participants' asset allocations also vary with participant job tenure, reflecting how plan design has changed over the past 20 years. Recently hired participants have a higher share of their assets allocated to target date funds than participants with longer tenures. Figure A2 in the appendix presents the variation in average asset allocation of 401(k) plan account assets by participant job tenure.

¹¹ 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).

¹² See Figure 2. In addition, BrightScope and Investment Company Institute 2021 reports a rising trend in the offering of target date funds in large 401(k) plans' investment lineups.

¹³ Annual surveys by the Plan Sponsor Council of America (PSCA) have reported the spread of automatic enrollment and the prevalence of target date funds as the default investment (for example, see Plan Sponsor Council of America 2020).

¹⁴ It is possible that when the target dates were offered in 10-year intervals, participants falling between two target dates might have decided to produce an average that would land them closer to their target retirement year. Target date funds currently tend to be offered with five-year date ranges (2020, 2025, 2030, etc.).

¹⁵ In some cases, the target date fund disclosures indicate that the strategy of the fund is to rebalance the assets for investors expecting to turn 65 around the target date. In other cases, the target date fund disclosure indicates that the fund is designed for investors retiring close to the target date. According to U.S. Department of Labor regulations, a target date fund that is intended to serve as a qualified default investment alternative (QDIA) in a participant-directed retirement plan, such as a 401(k) plan, should meet the following requirements:

29 CFR §2550.404c-5(e)(4)(i):

(i) An investment fund product or model portfolio that applies generally accepted investment theories, is diversified so as to minimize the risk of large losses and that is designed to provide varying degrees of long-term appreciation and capital preservation through a mix of equity and fixed income exposures **based on the participant's age, target retirement date (such as normal retirement age under the plan) or life expectancy**. Such products and portfolios change their asset allocations and associated risk levels over time with the objective of becoming more conservative (i.e., decreasing risk of losses) with increasing age. For purposes of this paragraph (e)(4)(i), **asset allocation decisions for such products and portfolios are not required to take into account risk tolerances, investments or other preferences of an individual participant**. An example of such a fund or portfolio may be a "life-cycle" or "targeted-retirement-date" fund or account. [emphasis added]

See U.S. Department of Labor, Employee Benefits Security Administration 2007.

¹⁶ See U.S. Social Security Administration 2021. For individuals born in 1960 or later, the full retirement age for Social Security claiming is 67 years old.

¹⁷ Because appropriately aged investors in a 2065 target date fund would be young with low job tenure, they are likely to have relatively few assets invested in their 401(k) plan. Thus, a relatively small number of older investors who chose a target date fund with a later target date could have a disproportionate impact on the asset-weighted calculation presented in the lower panel of Figure 9.

¹⁸ This system of classification does not consider the number or types of distinct investment options presented to a given participant but rather the types of options chosen by participants. 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 2021 reports an average of 28 investment options in 2018 and an average of 21 investment options when a target date fund suite is counted as a single investment option.