Participant Behavior Insight

How Participants Are Using Target-Date Funds

Brought to you by Jodi DiCenzo, CFA, Behavioral Research Associates, LLC.[1]

EXECUTIVE SUMMARY

Despite their growing popularity, there is relatively little research that delves into how retirement plan participants are using target-date funds. The funds were designed to offer one-step investing for retirement: All investors need to do is select a retirement date and their retirement assets will be professionally managed, becoming more conservative as the target-date nears and continuing to gradually allocate more of the portfolio to fixed-income investments throughout retirement. However, early anecdotal evidence suggested that participants were investing in target-date funds as well as other funds—sometimes even multiple retirement date funds. This study of participant behavior in a sample of retirement plans recordkept by T. Rowe Price examines who is investing in target-date funds and how these participants are using the funds—comparing behavior in automatic enrollment plans to that in opt-in plans (plans that require employees to take action to enroll).

The findings are as follows:

- Participant usage of the funds is high in both automatic enrollment and opt-in plans. Over half of all participants (in plans that offer them) hold target-date funds. Automatically enrolled participants are much more likely to invest in them, and they tend to migrate to other investment options over time.
- There is a negative relationship between the number of other funds offered and the likelihood of target-date fund use.
- The longer target-date funds have been offered by a plan, the more likely participants (even new participants) are to invest in them.
- Relative to other participants, target-date fund investors tend to be younger, shorter-tenured, and lower-income employees. They also have a lower household income.
- A very high percentage of participants in plans recordkept by T. Rowe Price are investing in target-date funds exactly as they were designed to be used: Over 80% of target-date fund investors are allocating 100% of their contributions exclusively to one target-date fund.
- In every age group, target-date fund investors have higher average equity allocations than their counterparts, with the gap approaching 20 percentage points for the 26 to 35 age group (87% versus 68%). The gap narrows to nine percentage points (64% versus 56%) for the 56 to 65 age group.
- Finally, the use of target-date funds eliminates (when they are the sole investment) or reduces (when they are used along with other investments) extreme allocations to equities. The study finds that in every age group, a high percentage of participants who do not invest in target-date funds have either none or more than 90% of their retirement assets allocated to equities.

The primary implications of this research include the following:

Early arguments against target-date funds due to widespread participant misuse are no longer well founded, based on this analysis of the behaviors of the participants of T. Rowe Price's clients. However, there is still room for improvement.

Automatically enrolled participants whose contributions are defaulted into target-date funds are much more likely to use them than participants in opt-in plans. To the extent that plan sponsors believe target-date funds establish a more appropriate risk-adjusted approach toward helping participants achieve their retirement goals, they may wish to consider automatically defaulting participant contributions into age-appropriate target-date funds.

However, over time many of these automatically enrolled participants migrate to other investments. Therefore, plan sponsors will want to continue to monitor participants' decision making. This may identify future education and communication needs to help overcome any observed suboptimal behaviors.

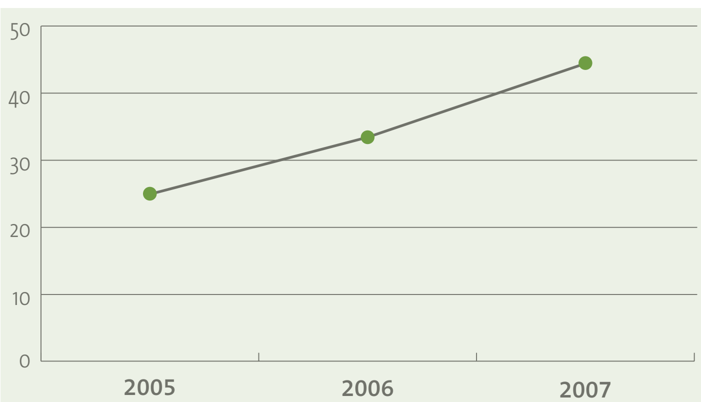
[1] This summary is based on research conducted for T. Rowe Price in fall 2008 by Professor Sheena Iyengar, Columbia University, Graduate School of Business, and Mark Dean and Greg Kaplan, New York University, Department of Economics

INTRODUCTION

Target-date funds offer investors a relatively easy way to obtain professional asset allocation for their retirement assets throughout their lifetimes. As the fund's "retirement" or "target" date approaches, the fund's asset allocation gradually (and automatically) shifts to a more conservative mix as less of the fund's assets are invested in equities. This adjustment continues throughout an investor's retirement. These features help address the negative consequences of several well-documented investment decision-making tendencies, such as naïve diversification,[2] performance chasing, inertia, and mental accounting.[3]

No doubt thrust into popularity as a result of the Pension Protection Act of 2006, with its support for automatic enrollment and target-date funds as qualified default investment alternatives, the use of these funds in company-sponsored defined contribution retirement plans has grown dramatically since their introduction in 1993. Now the majority of retirement plans with between 1,000 and 5,000 participants offer target-date funds to their participants.[4] As Figure 1 shows, in each of the last two years ended December 31, 2007, the number of all plans (regardless of size) offering these funds has increased by nearly 10 percentage points.

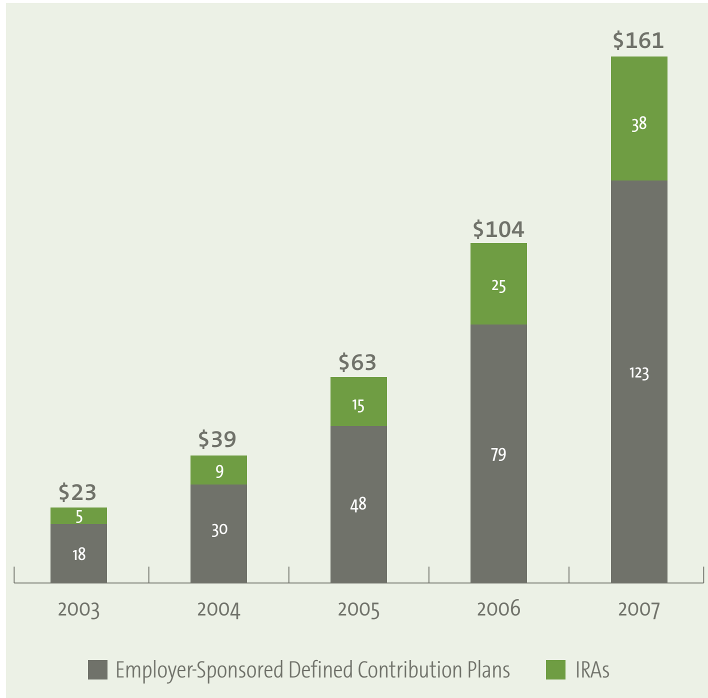
FIGURE 1: Percentage of Plans Offering Target-Date Funds



Source: PSCA's 49th, 50th, and 51st Annual Survey of Profit Sharing and 401(k) Plans.

Target-date funds are increasing in popularity among investors as well. Figure 2 shows that retirement assets invested in these mutual funds have skyrocketed from $23 billion in 2003 to $161 billion at the end of 2007, representing over 5% of all mutual fund assets invested in employer-sponsored defined contribution plans (up from just over 1% at the end of 2003).[5] More telling, target-date funds were estimated to have captured 28% of net mutual fund flows for the first half of 2008.[6]

FIGURE 2: Target-Date Fund Assets by Account Type
(billions of dollars, year-end, 2003-2007)



Source: 2008 ICI Fact Book.

Despite the increasing popularity of these funds, there has been little empirical evidence of how investors are actually using them. Early anecdotal evidence suggested that many investors failed to use the funds as they were intended and instead split their investments among multiple target-date funds. This research summary reports the results of T. Rowe Price's analyses of how the retirement plan participants of their 401(k) clients are using target-date funds. It expands on existing research by separately reporting participant usage of these funds within opt-in plans and automatic enrollment plans. Most, if not all, target-date fund analyses to date have explored the usage of these funds in both automatic enrollment and opt-in plans on a combined basis. Yet, existing research demonstrates the strong effects of default

[2] Naïve diversification refers to the research finding that participants tend to allocate their retirement plan investments evenly among the available alternatives (Benartzi and Thaler, 2001).
[3] Research has shown that investors have a tendency, called mental accounting, to view each investment separately and distinctly instead of considering investments as components of an overall portfolio (Thaler, 1999). Target-date funds package individual funds in a way that should theoretically ameliorate this narrow framing problem.
[4] PSCA's 51st Annual Survey of Profit Sharing and 401(k) Plans.
[5] 2008 ICI Fact Book.
[6] Sam Mamudi. "Target Date Mutual Funds Are Big Draw for Investment Dollars". MarketWatch.com, August 27, 2008.

behavior, and in many automatic enrollment plans, target-date funds serve as the default investment, suggesting that behaviors of automatically enrolled participants may differ from the behaviors of other participants. This summary is the first to offer a more in-depth analysis of target-date fund usage within automatic enrollment plans.

DATA AND METHODOLOGY

The analyses reported in this paper are based on participant data as of the end of April 2008 from over 100 401(k) plans of all sizes, all of which offer target-date funds as well as other investment options.[7] A little over half of the plans (56%) automatically enroll eligible employees, and in all of these cases, contributions are automatically invested in the plan's age-appropriate target-date fund alternative unless participants have made other (i.e., active) choices.[8] In total, over 500,000 individual records are analyzed in this research; nearly 60% of them were in plans using automatic enrollment. As the term is used throughout this paper, "participant" refers to an active employee who is actively contributing to the plan.

In many of the analyses reported in this paper, only individuals who were hired after the last significant plan change are included.[9] These individuals are referred to as the "new hire" group. This is done to isolate the behaviors of eligible employees who joined the plan after its design structure was essentially static, thereby reducing potential confounds. Analyzing the behaviors of newly hired and other employees separately also helps to highlight active and passive decision making. For example, one might expect that participants who joined the plan before target-date funds were offered might be less likely to invest in them.[10]

Finally, where informative, results are separately presented for analyses based on participant balances and those based on participant allocations of future contributions, both as of the end of April 2008.

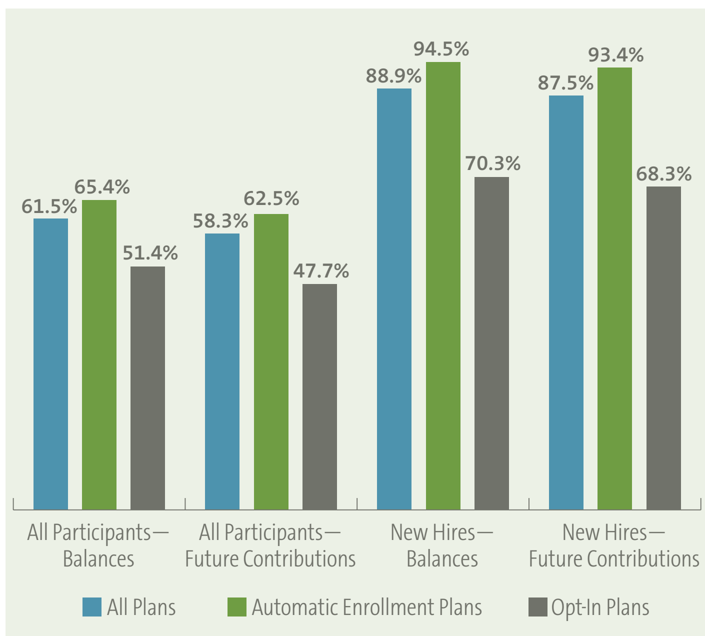
ORGANIZATION

The research summary begins by reporting overall usage of target-date funds within the plans studied, separately reporting usage within automatic enrollment and opt-in plans before a discussion of statistically significant plan-level factors related to usage. Usage by demographic segment is highlighted, and additional details about how these funds are being used are provided, along with implications related to overall equity allocations. Finally, we summarize and offer important implications for plan sponsors.

OVERALL USAGE OF TARGET-DATE FUNDS

Across the board, investing in target-date funds is quite popular among participants. Usage based on balances and allocations of future contributions for all participants and the "new hire" participants, a subset of the full group, are shown below in Figure 3. As evidenced by the figure, a greater percentage of "new hire" participants are using target-date funds. In fact, the percentages of "new hires" investing their balances in the funds is nearly identical to the percentages of "new hires" allocating their future contributions to the funds. On the other hand, when considering the behavior of all participants (including the "new hires"), a slightly lower percentage of participants with balances in target-date funds also allocate future contributions to these funds. This may be caused by plan sponsor mapping decisions related to fund closures, participant rollover balances, or other plan- or individual-specific reasons.

FIGURE 3: Percentage of Participants With Target-Date Funds



[7] All but one of these plans offers T. Rowe Price Retirement Funds.

[8] Participants who are automatically enrolled in target-date funds become investors in the fund that most closely matches the year in which they turn 65, based on their birth date. For example, the contributions of an automatically enrolled 30-year-old participant would be automatically invested in a fund with a stated retirement date of 2045.

[9] By last significant plan change, we mean a change such as the adoption (or termination) of automatic enrollment or the addition of target-date funds, advice, or managed account services. In total, the "new hire" group included approximately 210,000 participant records.

[10] Ameriks and Zeldes (2004) find that nearly one-half of participants in their sample of TIAA-CREF participant data made no allocation changes over the 10-year period studied. More specifically, they found that 68% and 87% of participants made one or fewer changes to their current contribution and balance allocations, respectively.

IMPORTANT PLAN-LEVEL FACTORS RELATED TO TARGET-DATE FUND USAGE

While it is obvious that participant use of target-date funds is much higher when they are the default investment, T. Rowe Price research conducted by Professor Sheena Iyengar of Columbia University, as well as Mark Dean and Greg Kaplan of New York University highlights other important explanatory variables as well. Each of these is briefly discussed below.

Default Effects. T. Rowe Price research shows that participants in plans with automatic enrollment in target-date funds are 23 percentage points more likely to invest in these funds than participants who are not automatically enrolled.[11] However, the research shows that the default effects are relatively short lived, and after about four years of employment, the percentage of participants investing in target-date funds is about the same for participants who were defaulted into these funds as it is for other participants.[12]

Investment Choice Set. Because target-date funds offer participants an easy way of achieving a well-diversified portfolio, one could assume that participants would be more likely to use them when they have more, rather than fewer, other investments from which to construct their portfolios.[13] In other words, as the task of constructing a well-diversified portfolio becomes more daunting (as a result of a large number of options to sort through and consider), the likelihood of taking the easier path to diversification might become more attractive. However, the data analyzed here suggest otherwise. In fact, the researchers find that the likelihood that participants invest in target-date funds declines by one percentage point per other fund offered, with a stronger effect in opt-in plans.[14]

How does the availability of advice and managed accounts relate to the usage of target-date funds? Although the data set did not permit a full analysis of all possible combinations of advice, managed accounts, and target-date funds, the analyses performed show that there is little evidence that the availability of advice and managed accounts impacts participant use of target-date funds in automatic or opt-in plans.

Timing Considerations. Timing is related to participant usage of target-date funds in two ways. First, and not surprising, T. Rowe Price's research shows that participants in opt-in plans are 13 percentage points more likely to invest in target-date funds when they were hired after the introduction of the funds in the plan.[15] Second, the research finds a positive relationship between the length of time the funds have been available in the plan and the likelihood that participants will invest in them. This is without regard to tenure. For example, a "new" participant in a plan that has made target-date funds available for five years is more likely to invest in them than a "new" participant (with the same tenure) in a plan that has only offered target-date funds for two years. The researchers estimate that usage of target-date funds increases by 3.4 percentage points per year after their introduction.[16]

THE TARGET-DATE FUND INVESTOR

Age. Relative to participants who do not invest in target-date funds, target-date fund investors tend to be younger (by six years in mean age), and the relationship between age and target-date fund usage is negative, both for participants who joined the plan before and after target-date funds were added.[17] The research finds that other factors being equal, target-date fund usage rates are approximately seven percentage points lower for 50-year-olds than for 18-year-olds.[18] The magnitude of the effect of age is larger in opt-in plans.

[11] Throughout this research summary and where appropriate, findings are the result of multivariate regression analysis, which controls for the effects of other related variables. Certain plan or individual characteristics, such as plan size or salary, may affect behavior. Without regression to control for these variables (i.e., to level the playing field), findings may be misattributed to another particular variable. A number of plan and individual-level variables including, but not limited to, plan size, number of funds offered, company match, availability of loans, participant age, tenure, and salary, are controlled for.

[12] It is important to note that participants were not opting out of the plan; they were simply selecting other investments.

[13] Existing choice research supports this notion even though standard economic theory suggests that more choices would result in a greater likelihood that participants' preferences would be satisfied.

[14] $p=.005$ at the 5% level.

[15] $p<.001$ at the 5% level. This finding is based on an analysis of the full sample, including those who were hired before the last significant plan change.

[16] Estimated on plans that offer target-date funds in the new hire group. Note that while usage of target-date funds increases with the length of time that they have been available in a particular plan, their usage is either unaffected or decreases with the length of time a particular employee has been at a firm. This suggests that the effect described here may be driven by institutional features or peer effects.

[17] Significant at the 5% level.

[18] Effect estimated on participants in the "new hire" group.

Tenure. In the data set analyzed, the researchers find a strong and significantly negative relationship between tenure and usage of target-date funds that is driven entirely by participants in automatic enrollment plans. As previously noted, as participants (in automatic enrollment plans with target-date funds as the default investment) gain tenure, they are more likely to move away from the investment default.

Income. Income is negatively related to target-date fund usage in both opt-in and automatic enrollment plans.[19]

Tables 1 and 2 provide additional information.

TABLE 1: Demographic Variables by Target-Date Fund Usage

	Age	Tenure	Salary	Household Income
Target-Date Fund Investor				
Mean	33.3	1.5	$27,200	$50,206
Median	30.4	1.4	$21,806	$47,441
n	111,702	111,702	49,563	107,613
Investor With No Target-Date Funds				
Mean	39.1	2.1	$42,844	$54,597
Median	38.1	1.9	$35,000	$51,610
n	15,915	15,915	8,145	15,349

Source: New hire sample in plans with target-date funds. Salary data available only for a subset of participants. Household income is the natural logarithm of the median household income in the participant's ZIP code obtained from Census Bureau. This provides a proxy measure for the participant's salary in the cases where direct salary is not available.

HOW PARTICIPANTS ARE USING TARGET-DATE FUNDS

In early implementations of target-date funds, anecdotal evidence suggested that participants were investing in many different target-date funds. In other words, the funds weren't being used as intended. However, in this study, such behavior is not observed. Across the board, whether in automatic enrollment or opt-in plans, more than 90% of target-date fund users (both existing and "new hire" participants) are invested in and allocating to a single target-date fund. Within automatic enrollment plans, less than 1% of target-date fund "new hire" users are allocating future contributions to more than one target-date fund.

Figures 4 and 5 on the following page provide additional detail.[20]

TABLE 2: Target-Date Fund Usage by Demographic Segment

	Percentage of Participants With Target-Date Fund Balance	Percentage of Participants With Contribution Allocation to Target-Date Funds
Age		
25 or younger	95.8%	95.1%
26 to 35	88.2%	86.5%
36 to 45	85.0%	83.2%
46 to 55	83.2%	81.3%
56 to 65	80.8%	78.9%
Years of Tenure		
0 to 1	93.1%	92.2%
>1 to 2	90.6%	88.8%
>2 to 3	87.9%	86.1%
>3 to 4	71.7%	69.9%
>4	73.3%	70.8%
Salary		
Less than $12,775	96.2%	95.4%
$12,776 to $22,969	90.8%	89.3%
$22,970 to $37,501	86.4%	84.6%
Over $37,501	77.2%	74.3%
Savings Rate		
> 0 to 2%	92.3%	95.8%
>2% to 4%	92.2%	95.1%
>4% to 6%	83.9%	85.0%
>6% to 10%	75.8%	74.1%
Over 10%	68.5%	66.1%
Account Balance		
$0 to $1,000	93.7%	96.0%
$1,001 to $5,000	91.5%	91.0%
$5,001 to $10,000	81.8%	80.0%
$10,001 to $25,000	72.7%	70.1%
Over $25,000	68.7%	64.7%

Source: New hire sample of actively contributing participants in plans with target-date funds.

Within opt-in plans, where participants are more likely to be choosing target-date funds (as opposed to being defaulted into them based on age), the study analyzes the implicit projected retirement ages, finding that the majority of participants are invested in target-date funds corresponding with projected retirement ages between 59 to 67. The implicit retirement ages of younger workers are about two years less than those of the older worker.

[19] Significant at the 5% level.

[20] Figures 4 and 5 most likely include some participants with relevant investment restrictions, such as those often related to frozen investments and company stock. The implications of these restrictions are not separately analyzed.

FIGURE 4: Percentage of Target-Date Fund Investors Investing Exclusively and Nonexclusively in Target-Date Funds (Based on Investment of **Account Balances**)

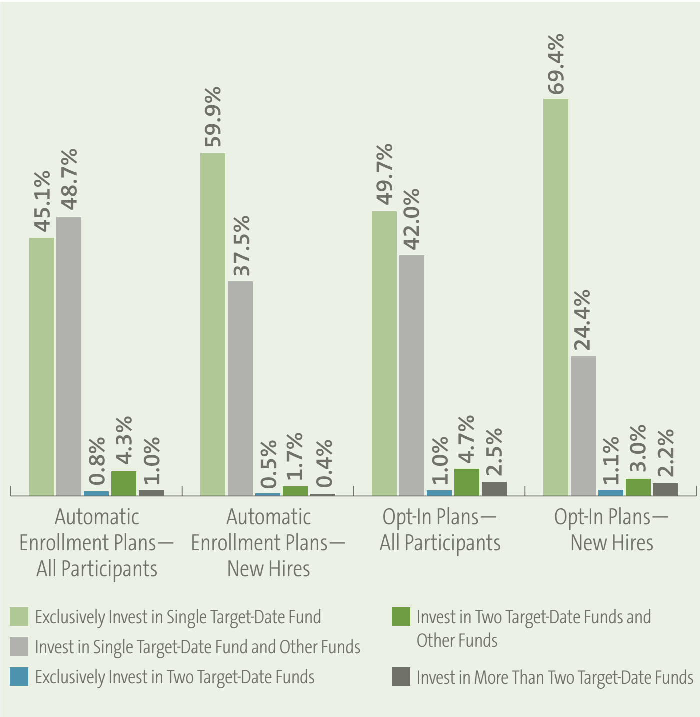
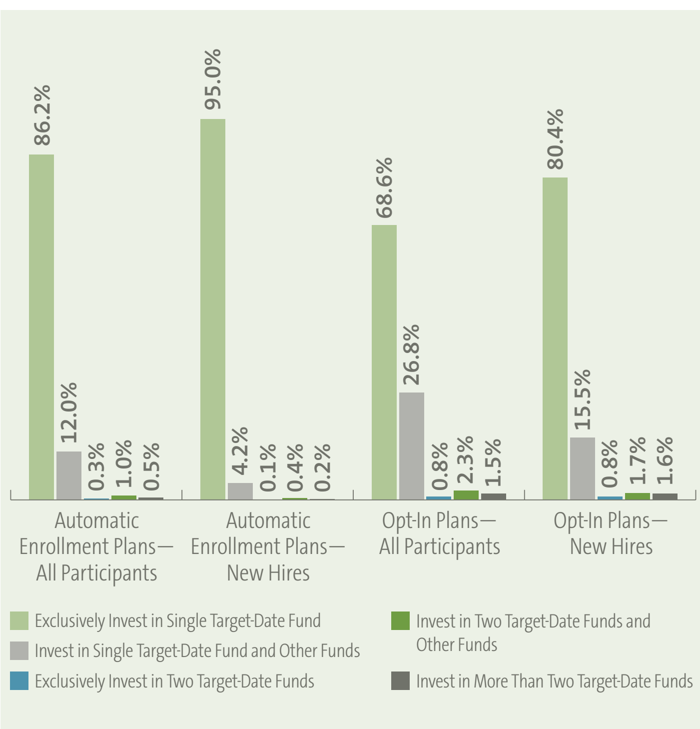


FIGURE 5: Percentage of Target-Date Fund Investors Investing Exclusively and Nonexclusively in Target-Date Funds (Based on Allocation of **Future Contributions**)



EQUITY ALLOCATIONS OF TARGET-DATE FUND INVESTORS

In all age groups, the average equity and bond allocations of target-date fund users exceed those of participants who do not use target-date funds. Additionally, the use of target-date funds eliminates (when they are the sole investment) or reduces (when they are used along with other investments) extreme allocations to equities. The findings here show that 17% of participants 25 or younger that do not invest in target-date funds have no equity allocations. Similarly, nearly 36% of participants between 56 and 65 (who are not using target-date funds) have fully invested their retirement assets almost entirely in equities.

Tables 3 and 4 provide additional details.

TABLE 3: Asset Allocation of Target-Date Fund Investors, as Compared With Non-Target-Date Fund Investors

	Equity		Fixed Income		Short-Term Investments	
	TDF Investor	Non-TDF Investor	TDF Investor	Non-TDF Investor	TDF Investor	Non-TDF Investor
25 or younger	87%	74%	10%	5%	2%	17%
26 to 35	87%	68%	10%	6%	2%	21%
36 to 45	85%	69%	12%	7%	3%	21%
46 to 55	76%	61%	21%	7%	3%	27%
56 to 65	64%	56%	32%	9%	4%	31%

Target-date fund investor is any participant with some of his or her retirement plan assets invested in a target-date fund.

TABLE 4: Distribution of Total Equity Allocation by Target-Date Fund Use and Age

	Total Equity Allocation						
Use of TDFs	None	1% to 9%	10 to 24%	25% to 49%	50% to 74%	75% to 89%	90% to 100%
25 or Younger							
All	—	—	—	.1%	.1%	99.8%	—
Some	—	.1%	.2%	.8%	5.4%	77.7%	15.8%
None	17.1%	.7%	1.6%	7.5%	15.8%	13.1%	44.2%
26 to 35							
All	—	—	—	.1%	.5%	99.4%	—
Some	—	.2%	.4%	2.3%	15.0%	52.8%	29.2%
None	16.6%	.8%	2.3%	10.2%	14.6%	15.4%	40.2%
36 to 45							
All	—	—	—	.2%	1.5%	98.3%	—
Some	—	.3%	.4%	3.1%	16.4%	58.5%	21.4%
None	14.6%	1.2%	2.6%	10.4%	13.9%	15.4%	41.9%
46 to 55							
All	—	—	—	.4%	51.3%	48.4%	—
Some	—	.7%	1.1%	4.6%	28.1%	57.9%	7.8%
None	20.4%	1.4%	3.6%	9.1%	16.1%	12.9%	36.5%
56 to 65							
All	—	—	—	2.9%	95%	2.2%	—
Some	—	1.3%	1.6%	6.5%	70.7%	14.0%	5.9%
None	23.7%	2.2%	3.7%	9.8%	15.3%	9.6%	35.7%

SUMMARY AND IMPLICATIONS

Target-date funds offer investors a simplified way to achieve a well-diversified portfolio that gradually and automatically becomes more conservative as they age—including all the years they are retired. These important benefits help overcome well-documented behavioral tendencies that hinder participants' retirement outcomes: naïve diversification, performance chasing, inertia, and mental accounting.

Their popularity with plan sponsors and participants has grown significantly over the past few years—most likely as a result of the support that the Pension Protection Act of 2006 gave to automatic enrollment and target-date funds as a qualified default investment alternative. Over 75% of T. Rowe Price retirement plan clients now offer target-date funds; in 92% of T. Rowe Price's automatic enrollment clients, the funds serve as the default investment. Participants have embraced target-date funds as well; usage is high across the board, particularly among younger, lower-tenured, and lower-income employees. And, for the most part, participants are using these funds as they were intended; over 90% of target-date fund investors are investing in only one target-date fund. Finally, investing in target-date funds appears to be effective in helping participants avoid or reduce the extreme (none or all) equity allocations we see with some participants who do not use target-date funds.

Research findings discussed within this brief highlight important implications for plan sponsors.

1. **Consider automatic enrollment.** Automatic enrollment into target-date funds significantly increases the likelihood that participants will be invested in age-appropriate, well-diversified portfolios—at least in the short term. This research demonstrates that participants who do not invest in target-date funds are more likely to have extreme allocations (none or all) to equities.
2. **Continue to monitor participants' investment decision making.** Over time, automatically enrolled participants move away from target-date funds when they are the default investment. As a result, plan sponsors may wish to continue monitoring participants' investment behaviors after automatic enrollment to identify future education and communication needs and opportunities.
3. **Offer a reasonable number of investment options.** T. Rowe Price's research shows that participants are less likely to take advantage of the benefits of target-date funds when a large array of other funds is available to them, providing additional evidence that participants may benefit from fewer investment choices.

Call 1-800-922-9945 to request a prospectus, which includes investment objectives, risks, fees, expenses, and other information that you should read and consider carefully before investing.

Target-date funds typically invest in many underlying funds, which means they would be exposed to the risks of the different areas of the market.

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