

# Vanguard Target Retirement Funds and Trusts

Quarterly Review | June 30, 2024



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## Quarterly perspective

### The search for straightforward income replacement in retirement continues

Brian M. Miller, CFA  
Senior Investment Specialist



After a strong start to the year, market activity was mixed during the second quarter of 2024. Equity markets were positive, with U.S. stocks outperforming non-U.S. stocks, while bond market returns were muted to marginally negative. At quarter-end, most major markets remained positive for the year, leading to strong year-to-date returns across each Target Retirement Fund vintage.

On the topic of performance, and target-date funds (TDFs) in general, our conversations with investors are predominantly focused on the accumulation phase of the retirement journey. This makes sense, as most investors' first experience with a TDF is typically early in their careers as they begin the process of saving for retirement.

However, the accumulation phase is just one piece of the retirement puzzle and, one might argue, the easier piece to figure out. The other critical piece—the decumulation phase, where investors aim to spend down their accumulated assets effectively and in line with their unique circumstances, financial position, and goals—can be far more challenging. This is especially true when dealing with an extremely broad population of participants who are often defaulted into TDFs.

As a plan sponsor, how do you provide appropriate retirement income solutions that meet the diverse needs of your participants? This is a question the industry has long struggled to answer. In previous editions of Vanguard Target Retirement Funds and Trusts Quarterly Review, we discussed how the complexities of individual retirement income needs make it difficult to provide a one-size-fits-all solution for decumulation. Rather, we believe a spectrum of different products, tools, and services are required to adequately meet the unique needs of each participant.

In line with our continued effort to investigate retirement income solutions, this edition's Quarterly Spotlight takes a closer look at one solution that is receiving increasing attention following the launch of several new products: hybrid annuity TDFs. As highlighted in the article, Vanguard examined these products and found that the decision to add an annuity to TDFs can make sense for some investors, but it also comes with numerous potential challenges. Will hybrid annuity TDFs play a larger role in the overall retirement landscape moving forward? The jury is still out, but we hope that this research can facilitate a more thoughtful conversation on the topic.

*Brian M. Miller*

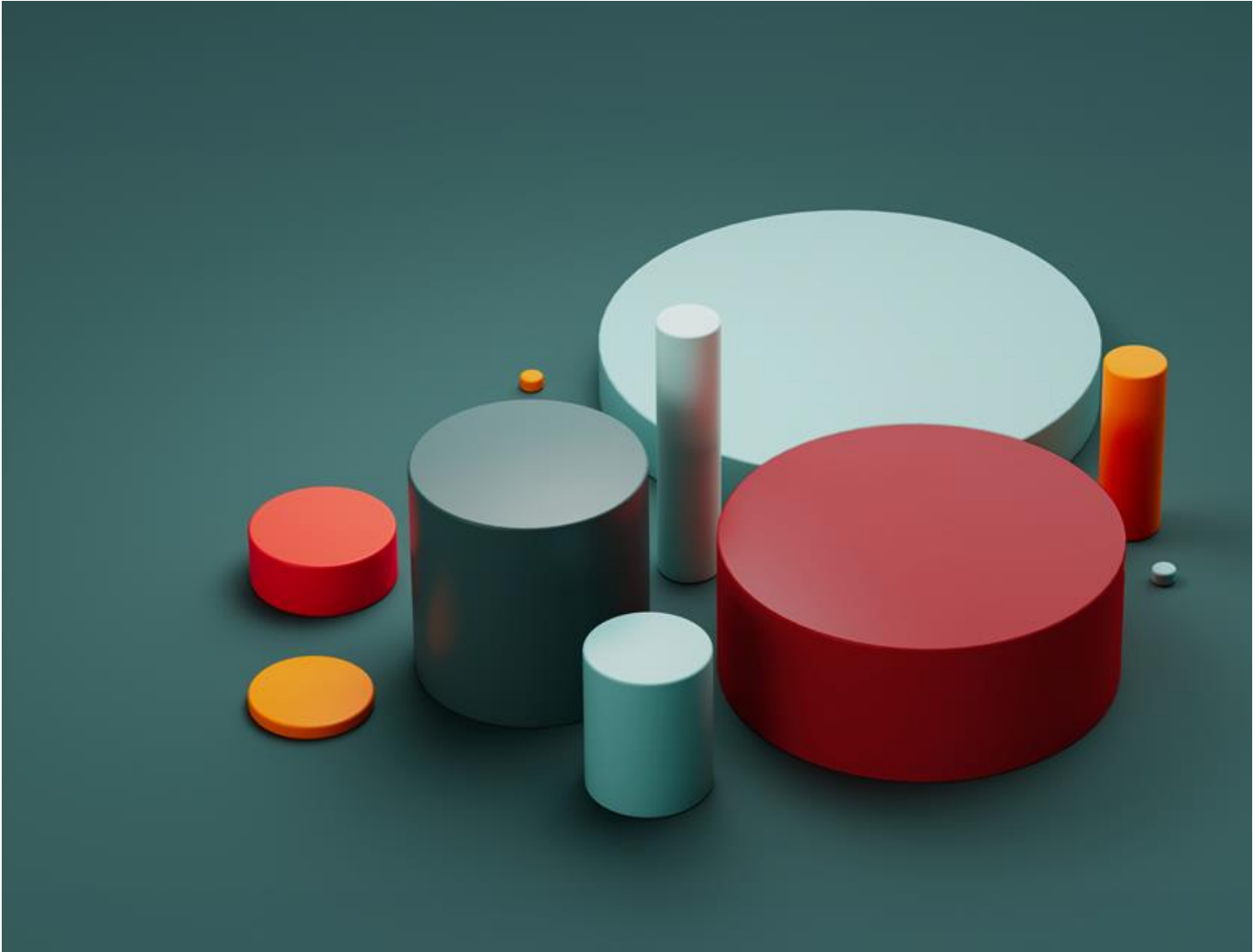
### Performance of key Vanguard index funds

Fund name (inception date)	3Q 2023	4Q 2023	1Q 2024	2Q 2024	1-year
Vanguard Total Stock Market Index Fund (07/07/1997)	-3.30%	12.17%	10.00%	3.25%	23.20%
Vanguard Total International Stock Index Fund (11/29/2010)	-4.01%	9.98%	4.32%	0.80%	11.00%
Vanguard Total Bond Market Index Fund (09/18/1995)	-3.08%	6.69%	-0.79%	0.18%	2.77%
Vanguard Total International Bond Index Fund (05/31/2013)	-1.50%	6.54%	0.10%	-0.58%	4.43%
Vanguard Short-Term Inflation-Protected Securities Index Fund (10/17/2012)	0.43%	2.55%	0.85%	1.43%	5.35%

Source of performance figures: Vanguard, Institutional share class, as of June 30, 2024.

The performance data shown represent past performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original cost. Current performance may be lower or higher than the performance data cited. For performance data current to the most recent month-end, visit our website at [institutional.vanguard.com](https://institutional.vanguard.com). Standard performance of the funds can be located on page 31 of the Quarterly Review.

\* Percentages derived from returns table on this page.



# Hybrid annuity target-date funds:

## Assessing investment merit and suitability for participants

As the qualified default investment alternative (QDIA) in most 401(k) plans, target-date funds (TDFs) have become a critical “one-stop-shop” retirement savings and investment tool for participants during the long accumulation stage of their working lives. As participants move from accumulation to decumulation, their investment needs become less homogeneous with their unique personal circumstances.



While the defined contribution (DC) industry has largely solved the accumulation stage of the life-cycle journey through TDFs, it still seeks consensus on the best products and services to help retirees in the decumulation stage. The only broad agreement reached thus far is recognition that retirement often looks different for most participants.

Given the increased attention on TDFs and retirement income sufficiency, a new investment product has emerged that combines annuities with a TDF. We refer to this as a hybrid annuity TDF,<sup>1</sup> a professionally managed product intended to stabilize assets as the participant approaches retirement and then, upon participation selection, provide guaranteed income during it.

In this article, which is a summarized version of "[From Theory to Practice: Guaranteed Income and Hybrid Annuity Target-Date Funds](#)," we review the investment merits of hybrid annuity TDFs by first describing them and their underlying components. We also explain how our [Vanguard Life-Cycle Investing Model \(VLCM\)](#) is used to evaluate the impact of

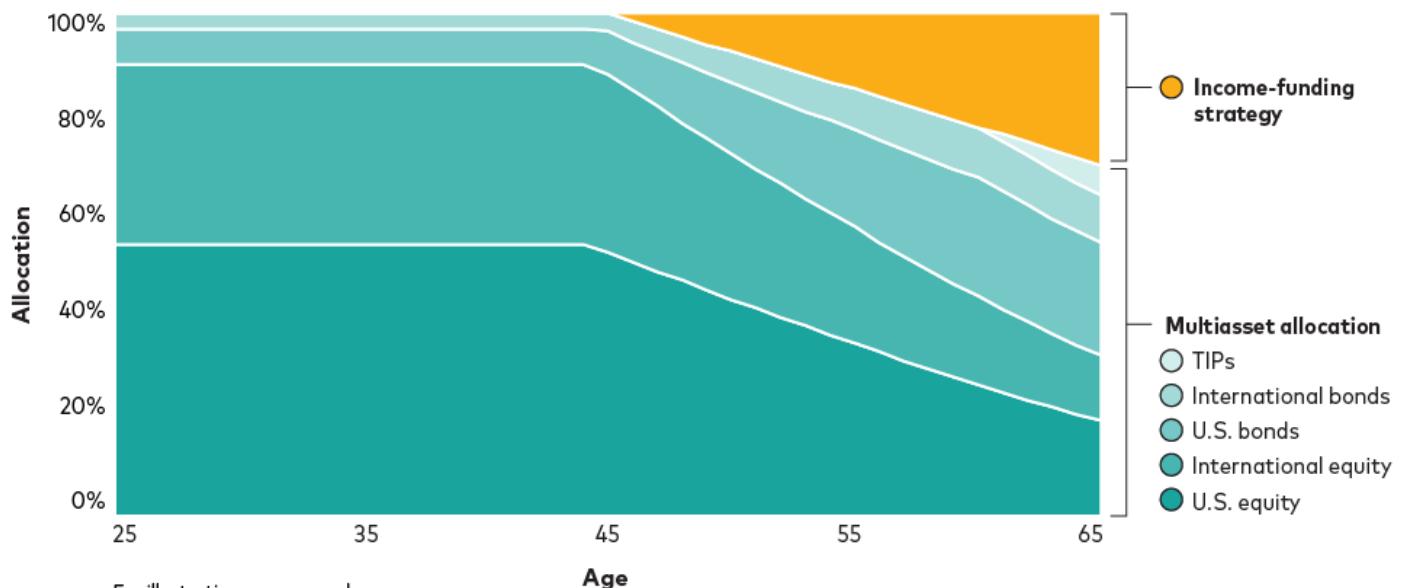
hybrid annuity TDF strategies on participant outcomes. Our analysis shows that hybrid annuity TDFs can provide investment merit, especially for participants who prioritize longevity risk mitigation. However, beyond investment merit, there are usability, acceptability, implementation, and feasibility considerations. Ultimately, the decision to purchase an annuity is a highly personal one and will involve multiple factors.

### What are hybrid annuity TDFs?

Hybrid annuity TDFs combine the asset accumulation offered by a traditional TDF with an annuity that provides guaranteed lifetime income during retirement. Most hybrid annuity TDFs have three components:

1. A multiasset allocation to support asset growth.
2. An income-funding strategy for the guaranteed income purchase.
3. An annuity for guaranteed income.

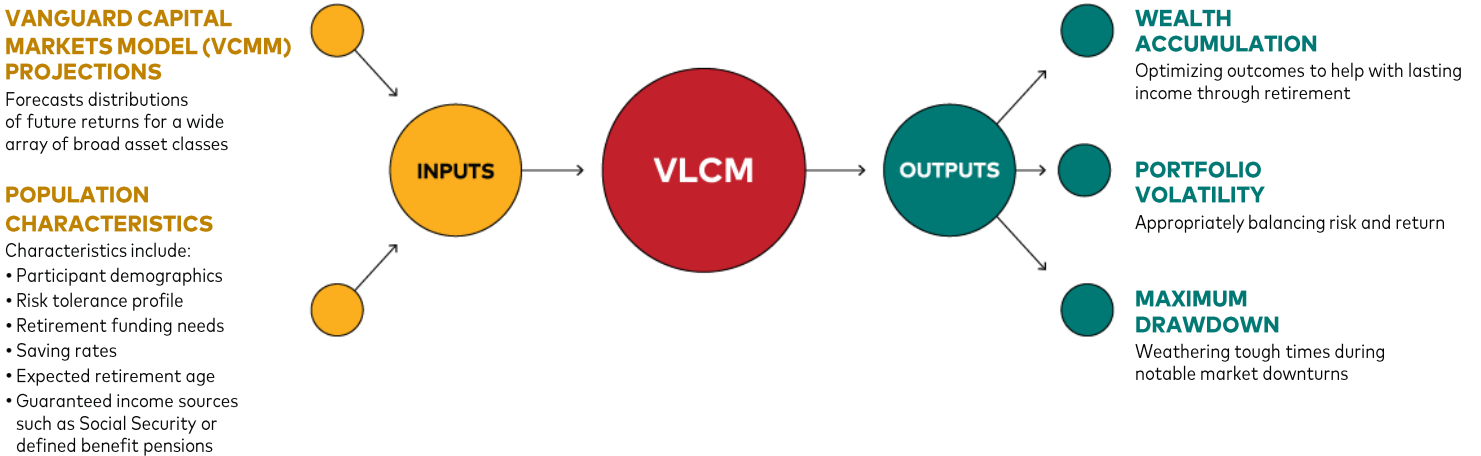
**FIGURE 1. Components of a hybrid annuity TDF**



For illustrative purposes only.  
Source: Vanguard.



**FIGURE 2. Use of Vanguard Life-Cycle Model**



A hypothetical hybrid annuity TDF with these components is illustrated in **Figure 1**. As shown, the allocation to the multiasset allocation decreases while the allocation to the income-funding strategy increases along the life-cycle glide path. This is done to gradually reduce exposure to risky assets and increase assets dedicated to the income-funding allocation for annuity liability management.

**Multiasset allocation**

In a hybrid annuity TDF, the multiasset allocation provides the opportunity for asset growth during the accumulation phase. It is a diversified portfolio with an asset mix similar to that of a traditional TDF, following a glide path that derisks as a participant approaches retirement.

**Income-funding strategy**

The income-funding strategy is an annuity liability management strategy where invested assets are used to prefund the annuity purchase. Allocation to this strategy gradually increases with a participant’s age and peaks near the time of the final annuity purchase. While the income-funding strategy is always liquid, structure and approach vary among hybrid annuity TDF providers.

**Annuity**

Hybrid annuity TDFs use an annuity component as a source for guaranteed income during the decumulation phase. Our analysis focused on fixed-rate annuities that provide a guaranteed income stream based on a payout rate determined at the time of the annuity purchase.<sup>2</sup>

**What providers should know:** Many available hybrid annuity TDFs currently use fixed-rate annuities. The annuity types commonly used in hybrid annuity TDFs include:

- Single premium immediate annuity: Starts providing income immediately after annuity purchase.
- Deferred income annuity: Starts providing income at a future date after annuity purchase.
- Qualified longevity annuity contract: Starts providing income at a later stage of retirement (age 78-plus). This deferred annuity is exempt from required minimum distributions.

**Evaluation framework**

We evaluate the investment merits of hybrid annuity TDFs by using our proprietary Vanguard Life-Cycle Investing Model (VLCM).<sup>3</sup> The VLCM is a utility-based framework that incorporates participants’ goals, characteristics, and preferences while evaluating different investment strategies.

As shown in **Figure 2**, the model leverages long-term asset return expectations derived from the Vanguard Capital Markets Model® (VCMM), incorporates multiple income sources, and accounts for factors such as retirement consumption, bequest, and stability of portfolio balance.<sup>4</sup>



Although hybrid annuity TDFs provide investment value, there are other considerations that providers and participants should examine to determine if this new solution is beneficial.

### How can hybrid annuity TDFs help create investment value?

The main driver of investment value for hybrid annuity TDFs is stable retirement income under multiple market and longevity scenarios. Income from the investment portfolio might not be sufficient to meet a consumption goal during unfavorable market regimes (market risk) or in

cases where a participant outlives their retirement savings (longevity risk). Hybrid annuity TDFs remove some of these risks by providing guaranteed income from the annuity, but this benefit comes at the cost of reduced accumulated wealth from the annuity purchase. For a participant, accumulating sufficient wealth is important not just for a bequest goal but also to support any ad hoc expenses that could be planned (like a vacation or house renovation) or unplanned (health care expense or car repair).

FIGURE 3. Considerations for plan sponsors evaluating hybrid annuity TDFs

	Description	Considerations
<b>Suitability</b>	The annuity component may not be optimal for everyone. The type, timing, and amount of the annuity are likely to differ significantly across the participant population. <sup>5</sup>	Include a few personalization options for more engaged participants that can be tailored to their individual financial goals and life circumstances.
<b>Liquidity</b>	Transitioning from liquid assets to illiquid annuity contracts is a barrier for many participants due to the control they relinquish over their accumulated assets.	Offer educational workshops that address the benefits and safety of annuities, reinforcing the security they provide in retirement. Providing additional benefits to participants such as access to emergency savings accounts and financial support services further enhances participant readiness.
<b>Cost</b>	Hybrid annuity TDFs tend to cost more than off-the-shelf TDFs. There are additional, often opaque, expenses associated with the annuity component.	Offer transparent information on costs and charges, reinforce it with the value of the solution, and provide financial planning support.
<b>Integration</b>	It can be difficult to integrate DC plans with annuity recordkeeping, potentially resulting in a disjointed user experience.	Invest in technology solutions that streamline integration and improve the user experience for plan participants.
<b>Engagement and financial literacy</b>	Participants often show limited engagement and lack comprehensive understanding of financial products. Effectively using an annuity for retirement planning requires participant engagement, at a minimum, to opt in or opt out of annuitization.	Because successful implementation requires active engagement from both the plan sponsor and participants, considerable effort should be devoted to targeted communication campaigns and interactive tools, with a goal of boosting financial literacy and engagement.

Source: Vanguard.

The above list of considerations may not be exhaustive depending on the plan population. As with any decision by a plan sponsor, whether the hybrid annuity TDF is the right or wrong one is determined by the unique needs of their participants.



## Those who have high aversion to outliving their retirement savings may prefer a hybrid annuity TDF, whereas those with bequest or higher wealth objectives may not find sufficient value in a hybrid annuity TDF.

The TDF has a lower average income shortfall than the hybrid annuity TDF given that the hybrid annuity TDF makes up for this income shortfall in the later years of the participant's life cycle. Depending on their goals and preferences, participants will value this trade-off between reduced wealth and retirement income sufficiency differently. The caveat is that most DC participants either do not have the resources to fully fund that risk mitigation or prefer not to. Participants seeking a simple and transparent solution are still well served by traditional TDFs.

As previously covered in "[Evaluating Hybrid Annuity Target-Date Strategies](#)," making this decision is not simply about investment merit. There are several considerations that a plan sponsor needs to examine when deciding (1) if they should select a hybrid annuity TDF and (2) which hybrid annuity TDF to choose.

It is important to note that these considerations are not all negative. Although there are certainly risks involved, there are also some benefits that plan sponsors should consider. In **Figure 3**, we outline some of more prevalent considerations for plan sponsors when evaluating hybrid annuity TDFs.

### Conclusion

Hybrid annuity TDFs are a new generation of retirement solutions to support both the accumulation and decumulation phases of retirement savings. The value offered to a participant depends on the design of the hybrid annuity TDF and is influenced by a number of factors. Our analysis, outlined in significantly greater detail in our [research paper](#), shows that hybrid annuity TDFs can provide investment merit and could boost retirement consumption, especially for those looking for longevity-risk mitigation.

Despite the investment case for certain participants, hybrid annuity TDFs also come with significant hurdles. Plan sponsors and participants would need additional support and education for appropriate adoption of this product. In addition, most hybrid annuity TDFs involve a decision to annuitize, and many DC participants are not actively engaged or informed enough to make an appropriate decision about when to purchase an annuity and how much to annuitize.

The analysis summarized in this article highlights that there are both rewards and risks associated with hybrid annuity TDFs. But the jury is still out on whether hybrid annuity TDFs, like traditional TDFs, can be a solution for the masses.

For more information, educational support, or planning tools regarding hybrid annuity TDFs, please contact your Vanguard representative or a member of Investment Solutions.

### Endnotes

- <sup>1</sup> Although we refer to this product type as a "fund" for simplicity, it can also be structured as a trust.
- <sup>2</sup> Our analysis does not cover all forms of guaranteed income products. Hybrid annuity TDF providers also use other insurance products such as guaranteed lifetime withdrawal benefits that are not considered in this paper.
- <sup>3</sup> Roger Aliaga-Díaz, Harshdeep Ahluwalia, Victor Zhu, Scott Donaldson, Ankul Daga, and David Pakula. Vanguard's Life-Cycle Investing Model (VLCM): A General Portfolio Framework for Goals-Based Investing. Vanguard, 2021.
- <sup>4</sup> See the Important Information section for more details on VCMM.
- <sup>5</sup> Blanchett (2016) showed that the optimal level of annuitization varies among participants and is highly dependent on participant and plan attributes.





# About the SAAC

The Vanguard Strategic Asset Allocation Committee (SAAC) is a multiasset oversight committee composed of global investment leaders from across the firm.

The members of the SAAC are responsible for the investment methodology behind our single-fund solutions, including Vanguard LifeStrategy® Funds, Target Retirement Funds, 529 plans, and model portfolios.

The SAAC meets regularly to review its investment methodology, debate investment strategies, and coordinate any changes with the Vanguard Advice Policy Committee, thereby ensuring a consistent approach in our single-fund solutions and advice offers.

## Additional perspectives from the SAAC

A primary responsibility of the SAAC is to oversee the policy allocation of Vanguard's suite of multiasset portfolios, including a formal annual review. The SAAC has also been tasked with establishing the investment methodology and portfolio construction approaches that are most appropriate for various objectives. Since its founding in 2013, the SAAC has held research meetings to discuss investment topics, seeking the best outcomes for our clients through constant debate. These meetings, often showcasing the latest research by Vanguard Investment Strategy Group, have centered on a wide range of subjects. A summary of past topics is provided below.

### 2013

- Hedging currency exposure in a multiasset portfolio.
- Role of commodity futures.
- Minimum-volatility equity strategies.

### 2014

- Equity home bias by country.
- Glide-path construction methodology.
- Inflation protection.

### 2015

- Approaches to retirement income.
- Factors and strategic asset allocation.
- Fixed income glide-path allocations.

### 2016

- Time-varying risk premia and asset allocation.
- Expansion of the Vanguard Capital Markets Model.®
- Inflation-hedging strategies over multiyear horizons.

### 2017

- Long-run equilibrium risk-free rates and the equity risk premia.
- Diversified versus concentrated active equity portfolios.
- Global methodology for non-market-cap-weighted ETF model portfolios.

### 2018

- Role of private real estate in portfolios.
- Vanguard Life-Cycle Model (VLCM) and glide-path outcomes.
- Inflation protection in a 529 college savings plan.

Source: Vanguard.



### Top row, left to right

Joseph Davis, Ph.D., (Committee Chair)  
Global Chief Economist and Global Head of Investment Strategy Group  
Roger Aliaga-Díaz, Ph.D., (Committee Vice-Chair)  
Chief Economist, Americas, Global Head of Portfolio Construction  
Greg Davis, CFA, (Ex-Officio) Global Chief Investment Officer  
Kaitlyn Caughlin, CFA, CFP®, Global Head of IMG Risk Management  
Geoff Parrish, CFA, Principal, Global Head of Fixed Income Indexing  
(New Member)

### Middle row

Duncan Burns, CFA, Head of Investments, Asia-Pacific, and of Investment Strategy Group, Asia-Pacific  
Matthew Brancato, CFA, CPA, Chief Client Officer, Institutional Investor Group  
Qian Wang, Ph.D., Chief Economist, Asia-Pacific, Investment Strategy Group  
Dan Reyes, CFA, Head of Portfolio Review Department  
Brian Wimmer, CFA, Head of Multi-Asset Solutions  
(Nonvoting Member)

### Bottom row

Joel Dickson, Ph.D., Head of Enterprise Advice Methodology  
Michael Roach, CFA, Senior Manager, Head of Multi-Asset Portfolio  
Brent Beardsley, Head of Strategy and Development (New Member)  
Yan Pu, CFA, Principal, Head of Advice Methodology  
(Nonvoting Member)  
Ian Kresnak, CFA, Chief of Staff, Investment Strategy Group  
(Nonvoting Member)

### 2019

- Vanguard Asset Allocation Model (VAAM) and optimal allocations to active and passive strategies.
- VAAM-based investment methodology for ETF-model portfolios.
- Return-targeting and time-varying asset allocation.

### 2020

- VLCM-derived glide paths for 529 college savings plans.
- Role of private equity in multiasset portfolios.

### 2021

- A systematic framework for validating TDF glide paths.

### 2022

- *Vanguard's Approach to Target-Date Funds.*
- *Revalidating the Case for International Bonds.*

### 2023

- *Hybrid annuity target-date funds: A new class of target-date funds incorporating annuities.*
- Multiasset rebalancing strategies.



# TDF industry and market overview

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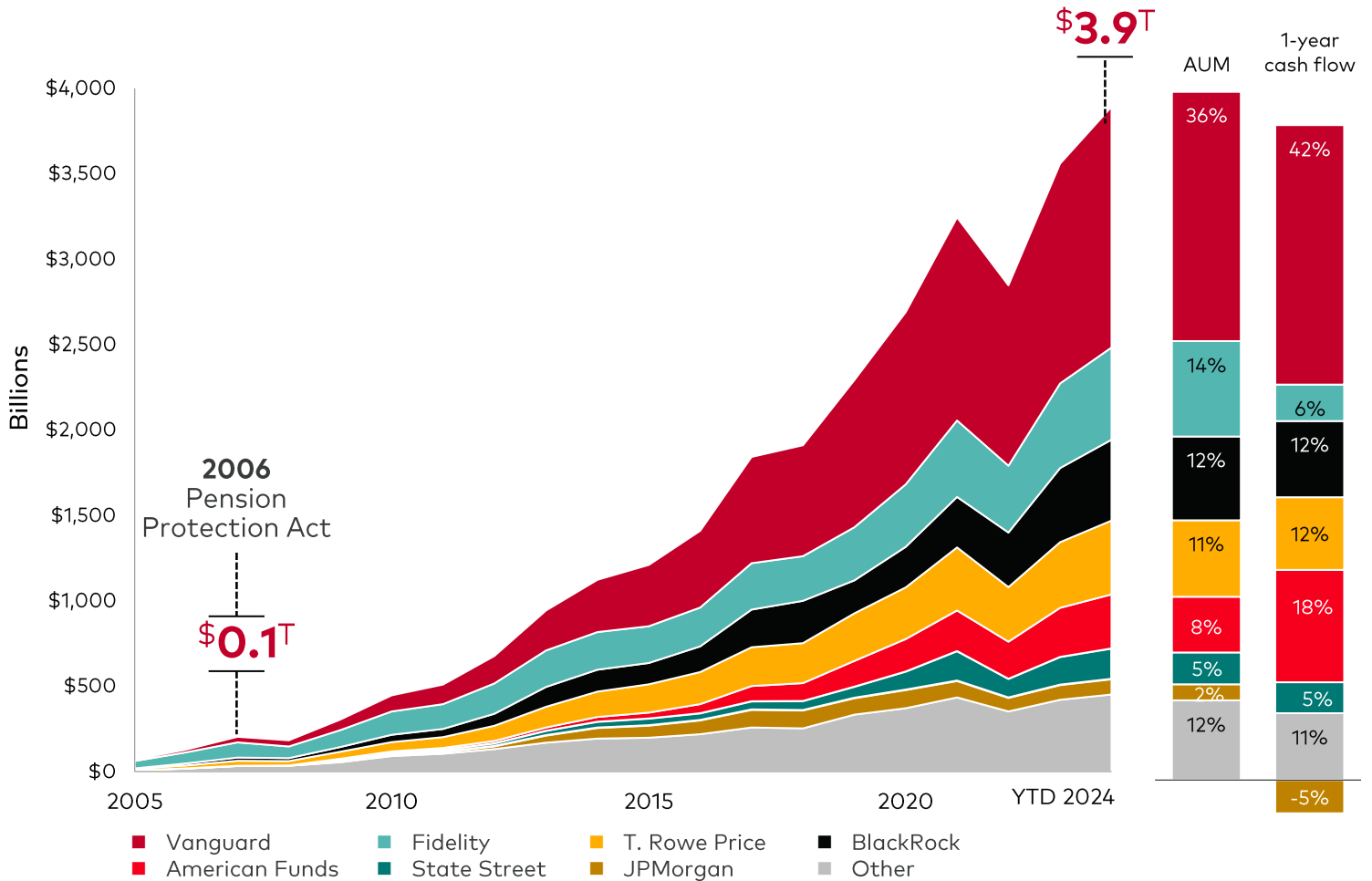
Industry growth and market share

Market environment



# Industry growth and market share

Figure 11.1 Growth of target-date fund industry assets and market share



According to data from Morningstar combined with Vanguard’s funds and trusts data, TDF industry assets exceeded \$3.89 trillion as of the end of Q2 2024. Vanguard continued to lead the industry in cash flow and assets under management, receiving more than one-third of every dollar invested in a TDF.

The industry’s top providers, Vanguard, Fidelity, BlackRock, T. Rowe Price, JPMorgan, American Funds, and State Street, hold a cumulative 88% share of all industry assets, or more than \$3.42 trillion, as of June 30, 2024.

We estimate that as of the end of June, the target-date fund industry experienced a 2.70% organic growth rate over the last 12 months.\*

Sources: Vanguard, Morningstar, as of June 30, 2024. Industry estimates are based on mutual fund and CIT data reported in Morningstar. CIT data is self-reported and is updated in Morningstar as it is received. Public company data also used prior to 2020.

\* Organic growth measured as current period’s net new flows divided by prior period’s ending assets.



# Market environment

Figure 12.1 Index returns ranked by performance

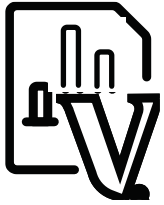
2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	3Q 2023	4Q 2023	1Q 2024	2Q 2024
REIT 30.4	REIT 2.5	HYB 17.1	FTSE 27.4	IAGG 3.2	CRSP 30.8	CRSP 21.0	REIT 43.1	COM 16.1	CRSP 26.0	COM 4.7	REIT 16.0	CRSP 10.0	CRSP 3.3
CRSP 12.6	IAGG 1.3	CRSP 12.7	CRSP 21.2	CASH 1.9	REIT 25.8	FTSE 11.2	COM 27.1	CASH 1.5	FTSE 15.8	CASH 1.4	CRSP 12.1	FTSE 4.3	COM 2.9
IAGG 9.1	EMB 1.3	COM 11.4	EMB 9.2	STPS 0.6	FTSE 21.8	AGG 7.5	CRSP 25.7	STPS -2.7	REIT 13.7	HYB 0.5	EMB 9.8	COM 2.2	STPS 1.4
EMB 7.1	AGG 0.5	EMB 9.2	HYB 7.5	AGG 0.0	HYB 14.3	HYB 7.1	FTSE 8.8	HYB -11.2	HYB 13.4	STPS 0.4	FTSE 9.8	HYB 1.5	CASH 1.4
AGG 6.0	CRSP 0.4	REIT 8.6	REIT 5.1	HYB -2.1	EMB 14.1	EMB 5.6	STPS 5.3	IAGG -12.7	EMB 10.5	IAGG -1.3	HYB 7.2	CASH 1.4	HYB 1.1
HYB 2.5	CASH 0.0	IAGG 4.9	AGG 3.5	EMB -3.9	AGG 8.7	STPS 5.1	HYB 5.3	AGG -13.0	IAGG 8.8	EMB -2.9	AGG 6.8	EMB 1.2	FTSE 0.9
CASH 0.0	STPS 0.0	FTSE 4.7	IAGG 2.6	REIT -4.6	IAGG 8.1	IAGG 4.7	CASH 0.1	FTSE -16.1	AGG 5.5	AGG -3.2	IAGG 6.4	STPS 0.9	EMB 0.3
STPS -1.1	FTSE -4.3	STPS 2.8	STPS 0.9	CRSP -5.2	COM 5.4	CASH 0.6	AGG -1.5	EMB -17.1	CASH 5.3	CRSP -3.3	STPS 2.6	IAGG 0.1	REIT 0.1
FTSE -3.4	HYB -4.5	AGG 2.6	CASH 0.8	COM -13.0	STPS 4.9	COM -3.5	EMB -1.8	CRSP -19.5	STPS 4.5	FTSE -3.3	CASH 1.4	REIT -0.3	AGG 0.1
COM -17.0	COM -24.7	CASH 0.3	COM 0.7	FTSE -14.6	CASH 2.3	REIT -7.6	IAGG -2.1	REIT -24.5	COM -7.9	REIT -7.0	COM -4.6	AGG -0.8	IAGG -0.4

			Average annualized returns				
Index returns			3 months	1 year	3 years	5 years	10 years
Target Retirement Fund building blocks	CRSP	CRSP U.S. Total Market Index	3.25	23.17	7.91	14.07	12.11
	FTSE	FTSE Global All Cap ex U.S. Index	0.86	11.68	0.48	5.87	4.12
	AGG	Bloomberg U.S. Aggregate Bond Index	0.07	2.63	-3.02	-0.23	1.35
	IAGG	Bloomberg Global Agg ex U.S. Float Adj RIC Cap Index (Hedged)	-0.39	4.69	-1.87	-0.25	2.12
	STPS	Bloomberg U.S. 0-5 Year TIPS Index	1.41	5.37	2.15	3.16	2.03
Other indexes	CASH	3-Month T-Bill	1.37	5.64	3.16	2.22	1.52
	HYB	Bloomberg U.S. Corporate High Yield Index	1.09	10.44	1.64	3.92	4.31
	EMB	Bloomberg USD Emerging Market Gov RIC Cap Index	0.33	8.32	-2.58	0.02	2.39
	REIT	MSCI U.S. REIT Index	0.08	7.60	0.20	3.89	5.83
	COM	Bloomberg Commodity Index	2.89	5.00	5.65	7.25	-1.29

Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Sources: Vanguard, Bloomberg Live, and Morningstar, as of June 30, 2024.

Note: Beginning 3Q 2021, the benchmark shown for the EMB category changed from Bloomberg Emerging Markets Sovereign Index USD to Bloomberg USD Emerging Market Gov RIC Cap Index.



# Vanguard fund construction and performance

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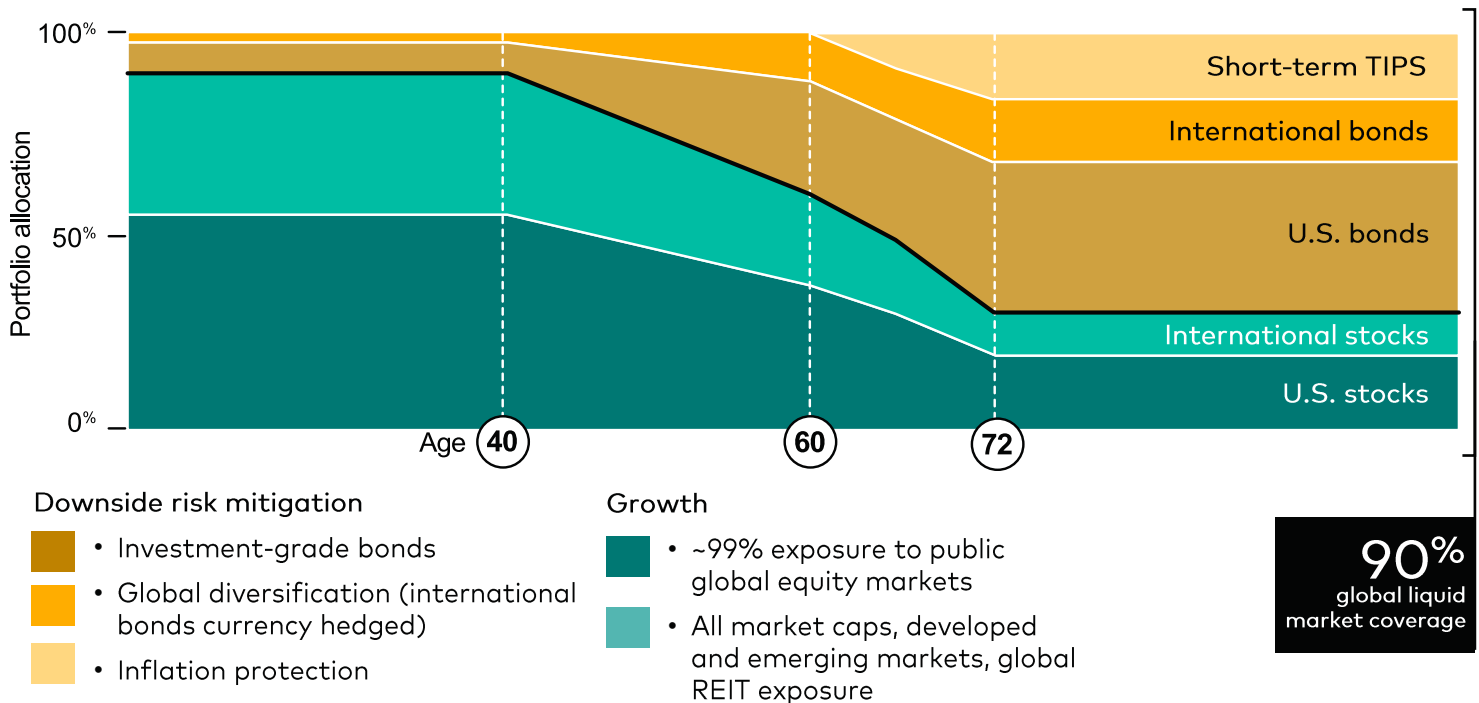
Evolution of Vanguard's glide-path design

Vanguard fund performance and  
attribution

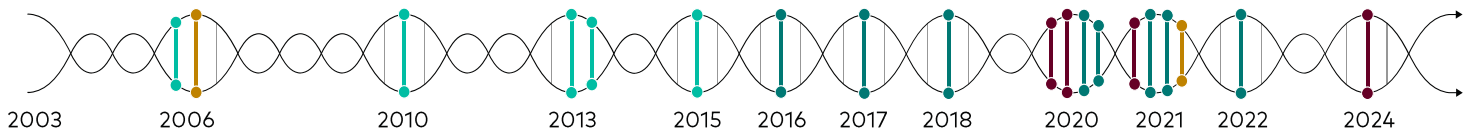


# Purposeful design and evolution

## Strategic asset allocation using high-quality building blocks



## Meaningfully improving investor outcomes since inception



### Enhanced asset allocation

- Increased equity weight in Income fund (2006).
- Added emerging markets stocks (2006).
- Added Canada and more international equity exposure (including small-caps) through Total International Stock Index replacing three regional funds (2010).
- Added international bonds (2013).
- Replaced broad TIPS fund with short-term TIPS for better responsiveness to inflation and removed money market fund (2013).
- Increased international allocations for both stocks and bonds (2015).

### Lowered fees, increased access

- Lowered expense ratios (2016, 2017, 2018, 2020, and 2021).
- Reduced minimum for Institutional Target Retirement Funds (2020).
- Reduced minimum for Target Retirement Trusts (2021).
- Merging Institutional Target Retirement Funds into Target Retirement Funds (2022).

### Improved fund/trust lineup

- Launched five-year vintage increments (2006).
- Added optional trust with a 50/50 allocation landing point and added enhanced retirement income services (2021).

### Reduced implementation costs and tax drag

- Moved from quarterly to monthly glide path roll down (2020).
- Across trust vintages, replaced underlying international fund with an international trust, minimizing foreign tax withholdings (2021).
- Enhanced rebalancing policies to reduce transaction costs and improve performance measurement (2024).

Sources: FactSet, Fidelity, BlackRock. Stock market measured by FactSet data derived from MSCI US Broad Market Free Float and MSCI ACWI ex USA IMI Indexes. Bond market measured by FactSet data derived from Bloomberg Global Aggregate ex-USD, U.S. Aggregate Float Adjusted, Global High Yield, and EM Hard Currency Aggregate indexes. Commodities market measured by FactSet data. Data as of December 31, 2023.



# Fund performance through June 30, 2024

## Vanguard Target Retirement Fund and Trust performance

Portfolio/Benchmark	Expense ratio	Average annualized return as of June 30, 2024						Inception date
		3 months	1 year	3 years	5 years	10 years	Since inception	
<b>Vanguard Target Retirement Income Vintage</b>								
Fund	0.08	0.89	7.96	0.46	3.72	3.95	4.90	10/27/2003
Trust II	0.075	0.90	7.94	0.49	3.75	3.99	4.62	2/29/2008
Target Retirement Income Composite Index		0.91	8.14	0.68	4.00	4.18	—	—
<b>Vanguard Target Retirement 2020 Vintage</b>								
Fund	0.08	1.05	9.24	0.94	5.15	5.35	5.97	6/7/2006
Trust II	0.075	1.05	9.28	0.97	5.19	5.40	5.85	2/29/2008
Target Retirement 2020 Composite Index		1.06	9.47	1.21	5.50	5.62	—	—
<b>Vanguard Target Retirement 2025 Vintage</b>								
Fund	0.08	1.26	11.02	1.51	6.12	6.03	6.62	10/27/2003
Trust II	0.075	1.28	11.09	1.59	6.20	6.12	6.33	2/29/2008
Target Retirement 2025 Composite Index		1.28	11.31	1.86	6.54	6.35	—	—
<b>Vanguard Target Retirement 2030 Vintage</b>								
Fund	0.08	1.37	12.39	2.07	6.95	6.58	6.72	6/7/2006
Trust II	0.075	1.41	12.37	2.15	7.02	6.66	6.70	2/29/2008
Target Retirement 2030 Composite Index		1.42	12.62	2.42	7.37	6.90	—	—
<b>Vanguard Target Retirement 2035 Vintage</b>								
Fund	0.08	1.55	13.52	2.65	7.76	7.12	7.48	10/27/2003
Trust II	0.075	1.57	13.55	2.72	7.85	7.21	7.15	2/29/2008
Target Retirement 2035 Composite Index		1.60	13.78	2.99	8.19	7.45	—	—
<b>Vanguard Target Retirement 2040 Vintage</b>								
Fund	0.08	1.73	14.74	3.23	8.59	7.65	7.46	10/27/2003
Trust II	0.075	1.73	14.68	3.28	8.65	7.72	7.58	2/29/2008
Target Retirement 2040 Composite Index		1.77	14.94	3.55	8.99	7.98	—	—

The performance data shown represent past performance. Past performance is no guarantee of future results. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original cost. Current performance may be lower or higher than the performance data cited. For performance data current to the most recent month-end, visit our website at [vanguard.com/performance](http://vanguard.com/performance). Some funds assess purchase, redemption, and/or account maintenance fees. The performance data shown do not reflect deduction of these fees. If they did, performance would be lower. Details on these fees and adjusted performance figures can be found in the fund detail section.

Sources: Vanguard and Morningstar, as of June 30, 2024.



# Fund performance through June 30, 2024

## Vanguard Target Retirement Fund and Trust performance (continued)

Portfolio/Benchmark	Expense ratio	Average annualized return as of June 30, 2024						Inception date
		3 months	1 year	3 years	5 years	10 years	Since inception	
<b>Vanguard Target Retirement 2045 Vintage</b>								
Fund	0.08	1.90	15.81	3.78	9.40	8.12	8.20	10/27/2003
Trust II	0.075	1.91	15.79	3.83	9.44	8.18	7.84	2/29/2008
Target Retirement 2045 Composite Index		1.95	16.11	4.10	9.79	8.45	—	—
<b>Vanguard Target Retirement 2050 Vintage</b>								
Fund	0.08	2.02	16.63	4.15	9.68	8.26	7.82	6/7/2006
Trust II	0.075	2.07	16.66	4.22	9.75	8.32	7.94	2/29/2008
Target Retirement 2050 Composite Index		2.09	16.97	4.47	10.09	8.60	—	—
<b>Vanguard Target Retirement 2055 Vintage</b>								
Fund	0.08	2.02	16.61	4.15	9.67	8.24	10.09	8/18/2010
Trust II	0.075	2.05	16.66	4.22	9.75	8.31	10.45	8/31/2010
Target Retirement 2055 Composite Index		2.09	16.97	4.47	10.09	8.60	—	—
<b>Vanguard Target Retirement 2060 Vintage</b>								
Fund	0.08	2.03	16.60	4.16	9.68	8.23	9.88	1/19/2012
Trust II	0.075	2.06	16.64	4.22	9.77	8.32	9.60	3/1/2012
Target Retirement 2060 Composite Index		2.09	16.97	4.47	10.09	8.60	—	—
<b>Vanguard Target Retirement 2065 Vintage</b>								
Fund	0.08	2.03	16.63	4.19	9.66	—	9.16	7/12/2017
Trust II	0.075	2.06	16.66	4.22	9.76	—	9.73	7/17/2017
Target Retirement 2065 Composite Index		2.09	16.97	4.47	10.09	8.49	—	—
<b>Vanguard Target Retirement 2070 Vintage</b>								
Fund	0.08	2.01	16.65	—	—	—	15.03	6/8/2022
Trust II	0.075	2.06	16.69	—	—	—	7.04	4/7/2022
Target Retirement 2065 Composite Index		2.09	16.97	4.47	10.09	8.49	—	—

The performance data shown represent past performance. Past performance is no guarantee of future results. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original cost. Current performance may be lower or higher than the performance data cited. For performance data current to the most recent month-end, visit our website at [vanguard.com/performance](http://vanguard.com/performance). Some funds assess purchase, redemption, and/or account maintenance fees. The performance data shown do not reflect deduction of these fees. If they did, performance would be lower. Details on these fees and adjusted performance figures can be found in the fund detail section.

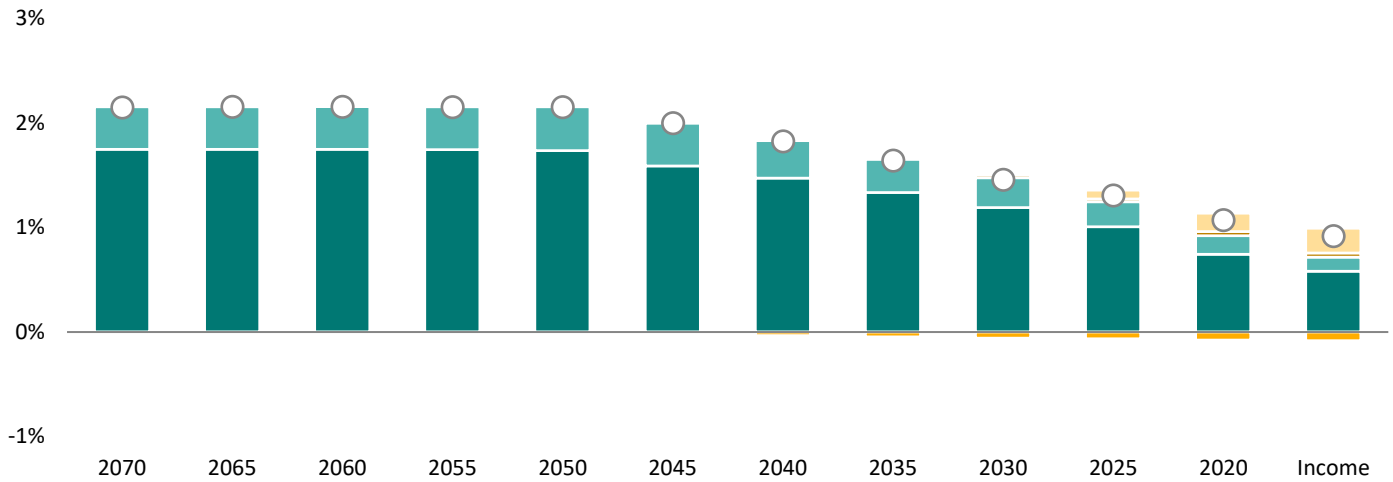
Sources: Vanguard and Morningstar, as of June 30, 2024.



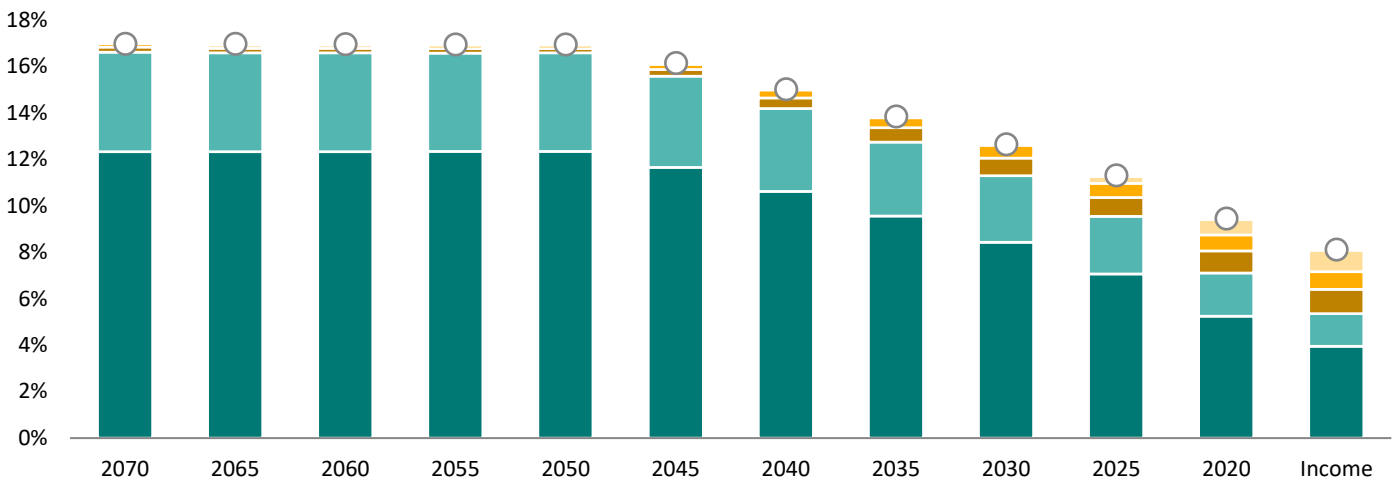


# Underlying fund performance contribution

**Figure 17.1** 3-month return contribution by underlying funds



**Figure 17.2** 1-year return contribution by underlying funds



- Total Stock Market Index
- Total International Stock Index
- Total return
- Total Bond Market II Index
- Total International Bond Index
- Short-Term Inflation-Protected Securities Index
- Cash

**Past performance is not a guarantee of future results.**

Sources: Vanguard and Morningstar, as of June 30, 2024.

For institutional investor use only. Not for distribution to retail investors.



# Excess return attribution

Figure 18.1 3-month return attribution

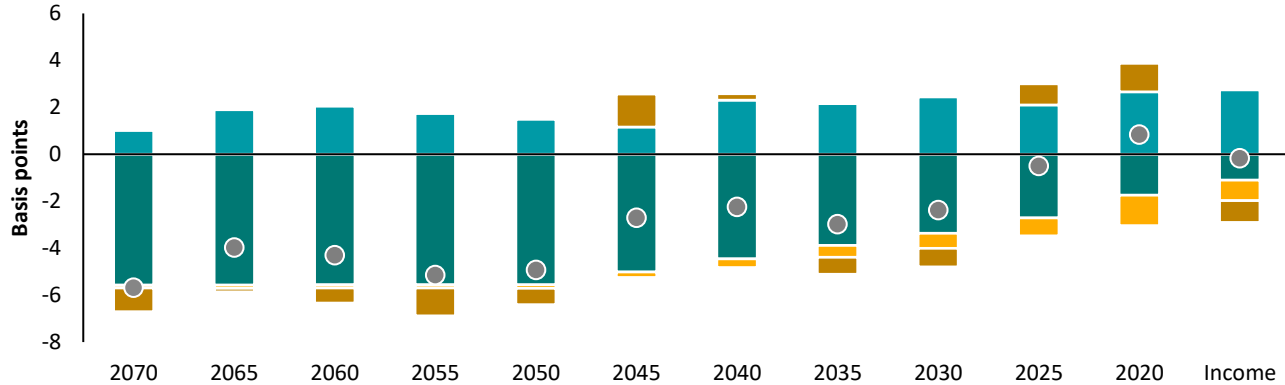
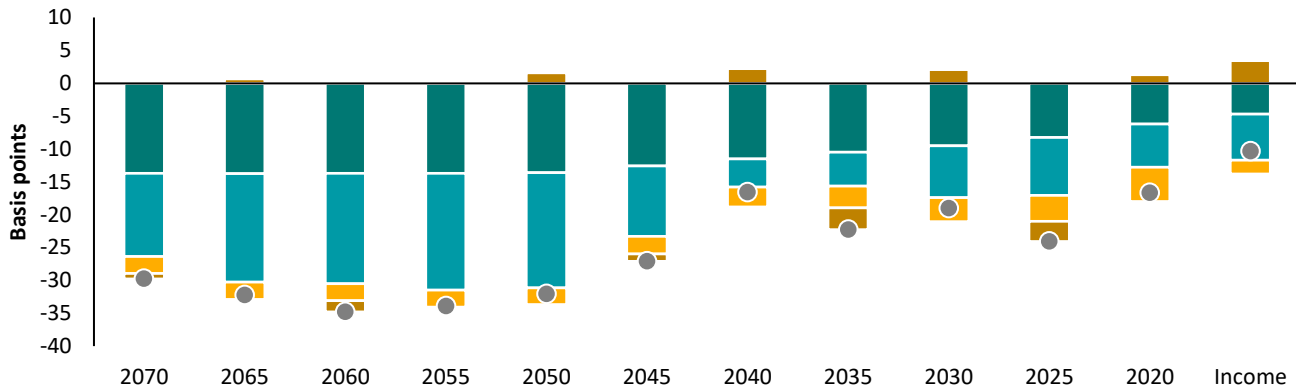


Figure 18.2 1-year return attribution



<span style="color: #008080;">■</span> Allocation impact	Out/Underperformance due to differences in the strategic asset allocation of the funds versus their benchmarks. These differences can be particularly notable at times of significant market volatility as portfolio managers work to balance transaction costs against a daily rebalanced benchmark.
<span style="color: #008080;">■</span> Fair-value pricing	Out/Underperformance due to the adjustment of the prices of non-U.S. equities for changes in their fair value that occur after the close of their local market but before the net asset value is calculated for each U.S. mutual fund as of 4 p.m., Eastern time. This impact is attributed to accounting and pricing policies that are outside of portfolio management control and is generally artificial and temporary.
<span style="color: #FFC000;">■</span> Underlying fund tracking differences ex-FV	Out/Underperformance of the underlying portfolios versus their relative benchmarks. Figure is shown after controlling for fair-value pricing but is inclusive of the securities-lending impact, transaction costs associated with rebalancing the fund-of-funds portfolio, and pricing difference driven by Bloomberg (BB) indexes pricing at 4 p.m., Eastern time.*
<span style="color: #808080;">■</span> Residual	Out/Underperformance due to factors outside of those captured above.
<span style="color: #808080;">●</span> Total excess return	Indicates the total amount of fund returns that were higher or lower than benchmark returns. Calculated as the sum of the individual impacts of each of the five above drivers of benchmark-related excess return. Effect of expense ratios not included.

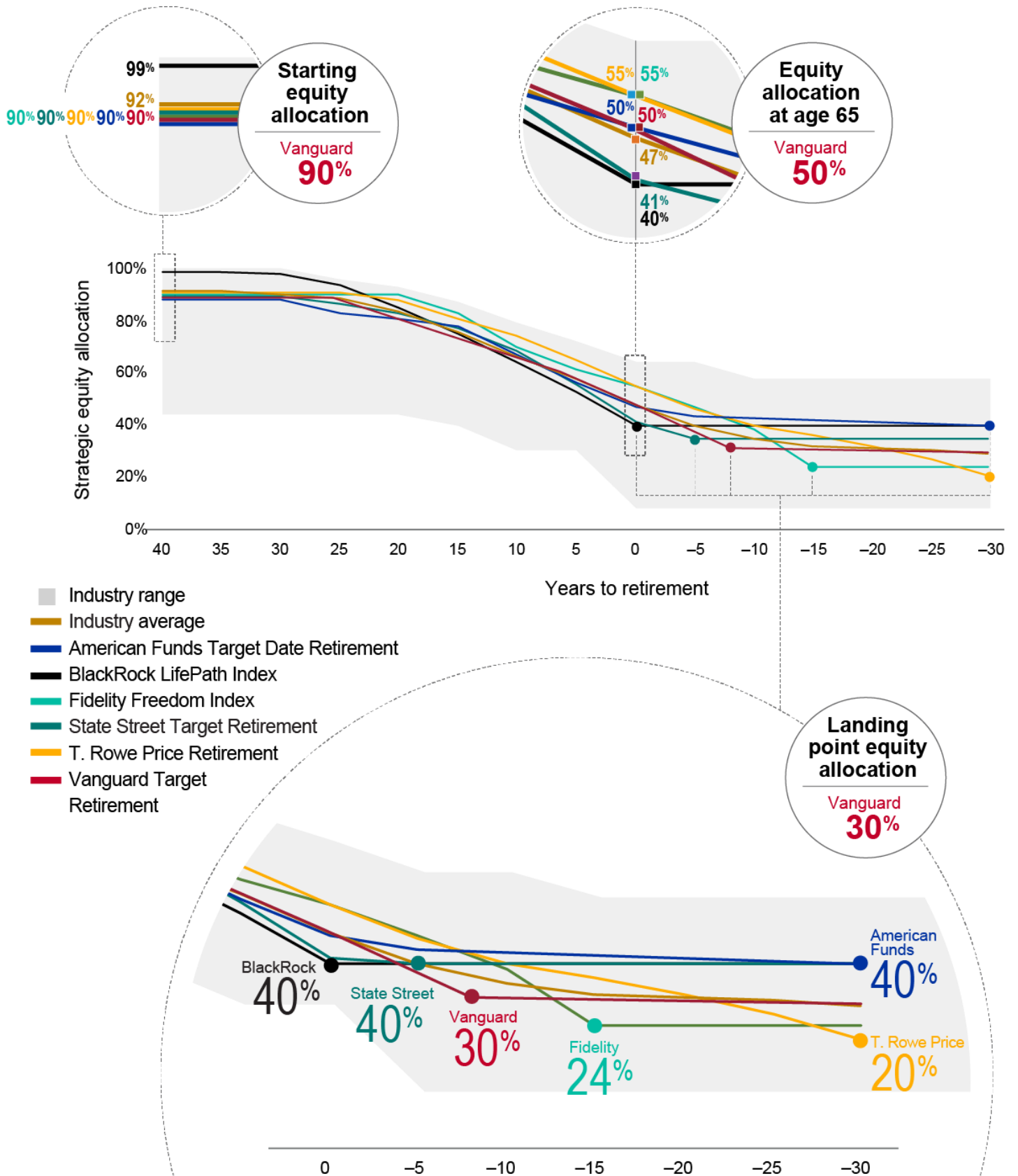
**Past performance is not a guarantee of future results.**

Sources: Vanguard and Morningstar, as of June 30, 2024.

\* On January 14, 2021, Bloomberg changed its index pricing time from 3 p.m., Eastern time, to 4 p.m., Eastern time. The time change affects the 1- and 3-year figures.



# Glide path comparison



Sources: Morningstar; data as of June 30, 2024; Vanguard calculation for industry average.



# Competitor fund construction and performance

IN THIS SECTION:

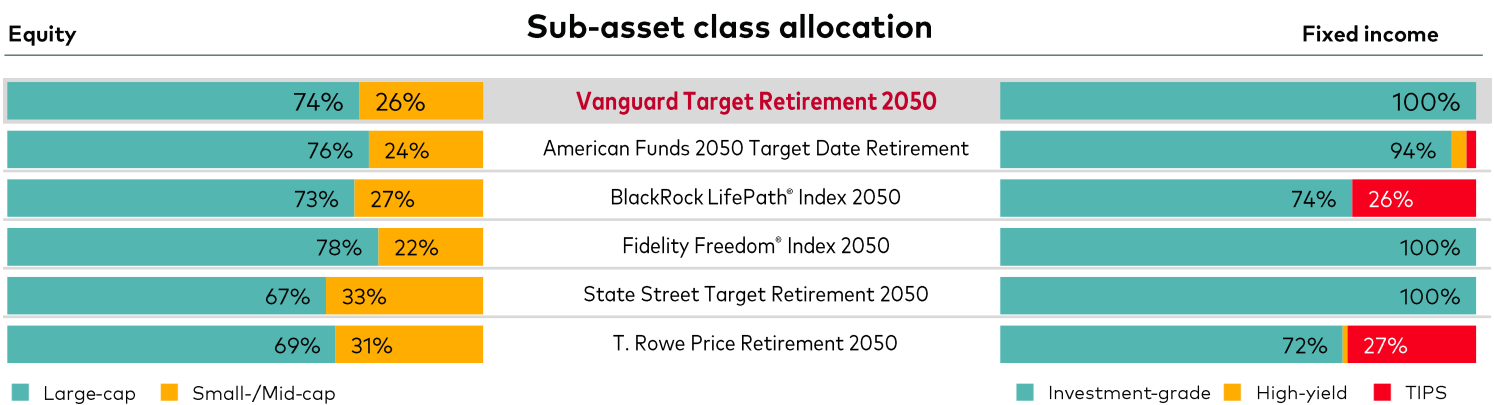
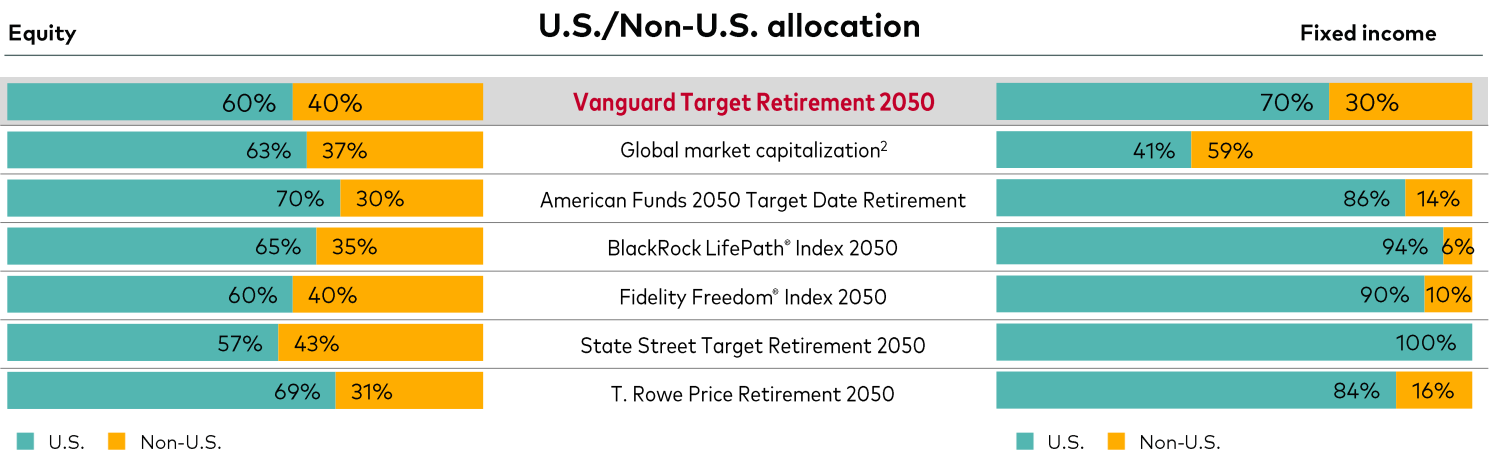
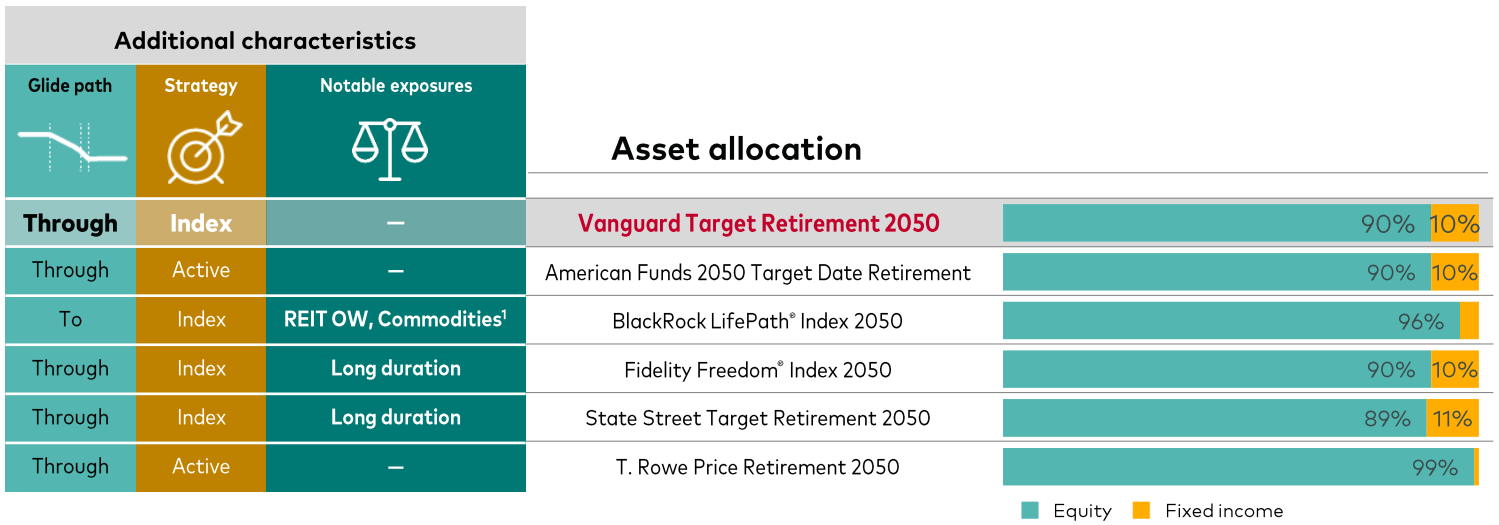
Beyond the glide path

12-month return attribution



# 2050 vintage: Beyond the glide path

Figure 21.1 Industry peer group asset allocation comparison



Sources: Morningstar data, based on most recent holdings disclosure for each fund included in the calculation. As-of dates may vary depending on the timing and frequency of data made available to Morningstar. Data as of June 30, 2024.

<sup>1</sup>Commodity exposure is present in CIT product only. Mutual fund product does not include commodity exposure.

<sup>2</sup>Global market capitalization calculated using FTSE All Country Equity Index and Bloomberg Barclays Global Aggregate Bond Index.

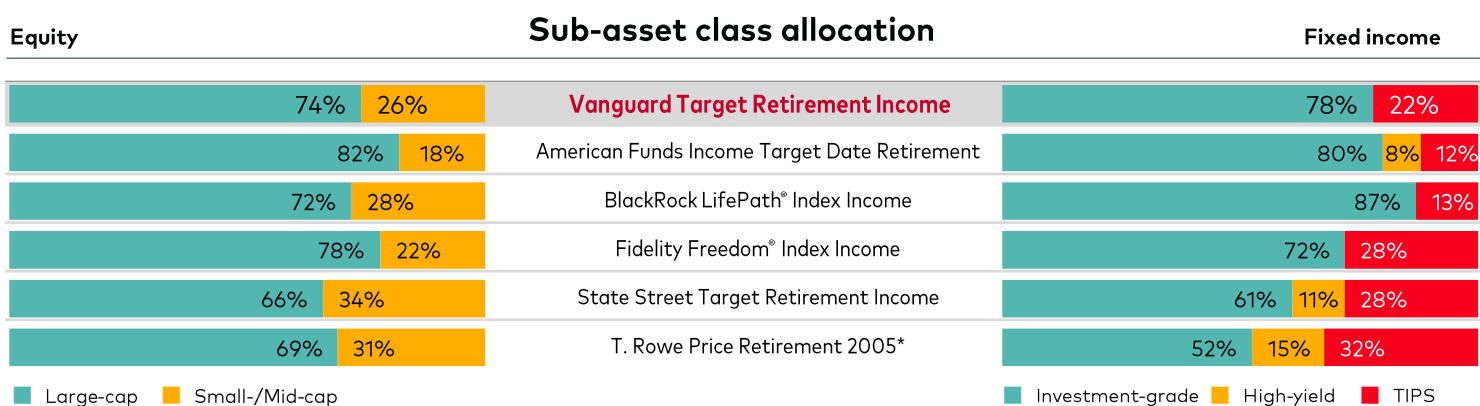
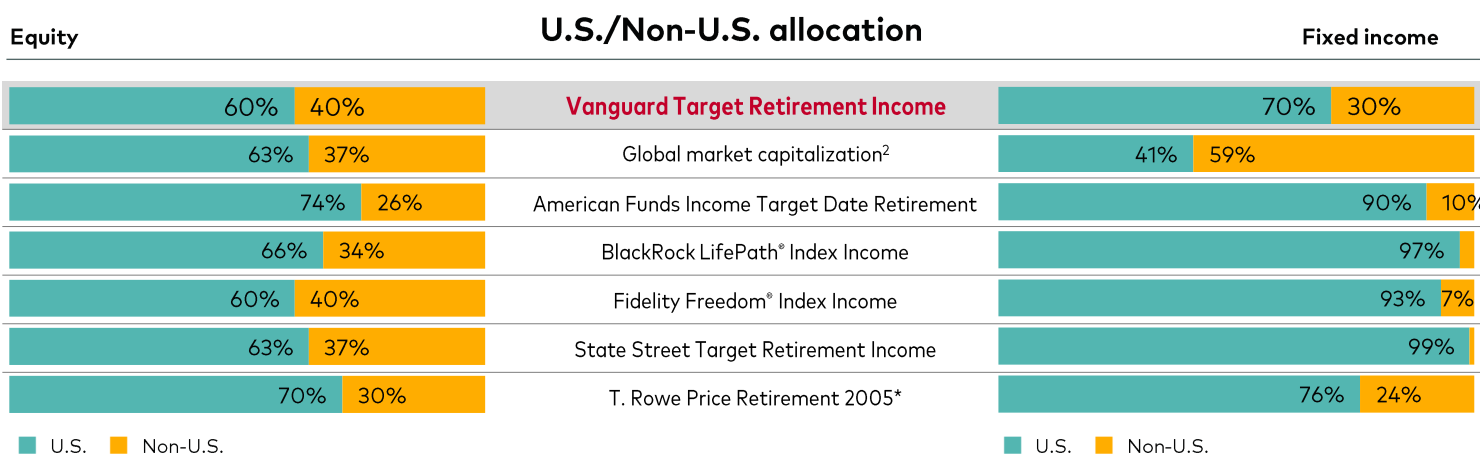
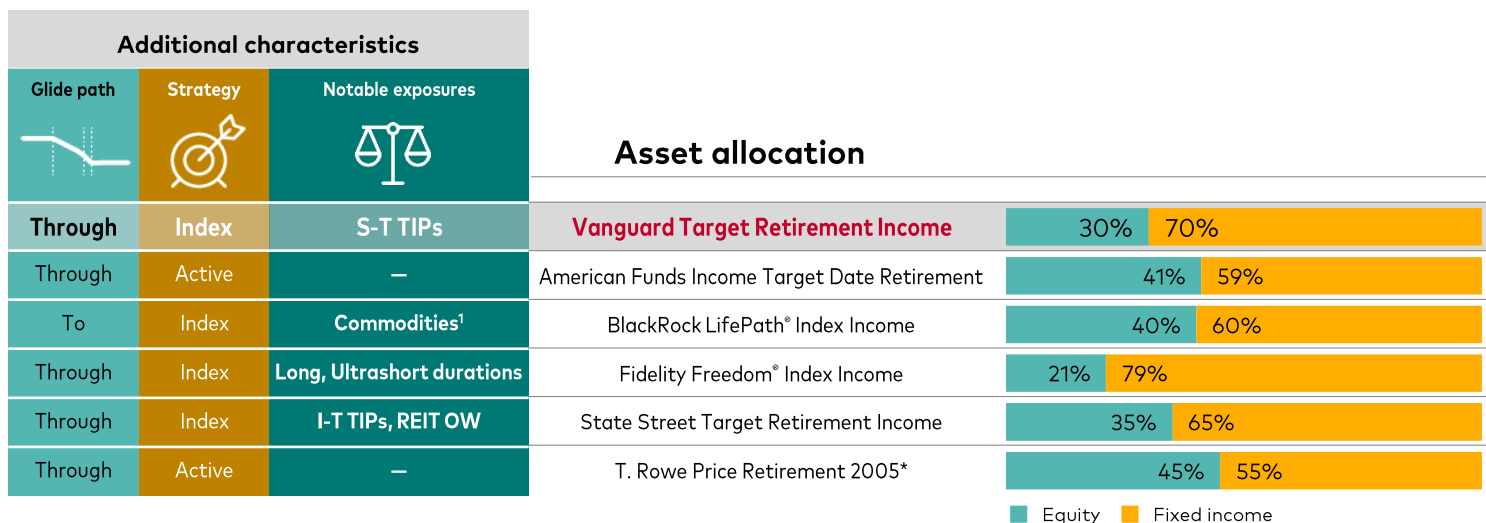
Note: Due to spacing issues, data labels below 7% are not displayed. Due to rounding, may not total to 100%.

There may be other material differences between products that must be considered prior to investing.



# Income vintage: Beyond the glide path

Figure 22.1 Industry peer group asset allocation comparison



Sources: Morningstar data, based on most recent holdings disclosure for each fund included in the calculation. As-of dates may vary depending on the timing and frequency of data made available to Morningstar. Data as of June 30, 2024.

<sup>1</sup>Commodity exposure is present in CIT product only. Mutual fund product does not include commodity exposure.

<sup>2</sup>Global market capitalization calculated using FTSE All Country Equity Index and Bloomberg Barclays Global Aggregate Bond Index.

\* No explicit income vintage in lineup. 2005 represents the most conservative asset allocation, as a proxy.

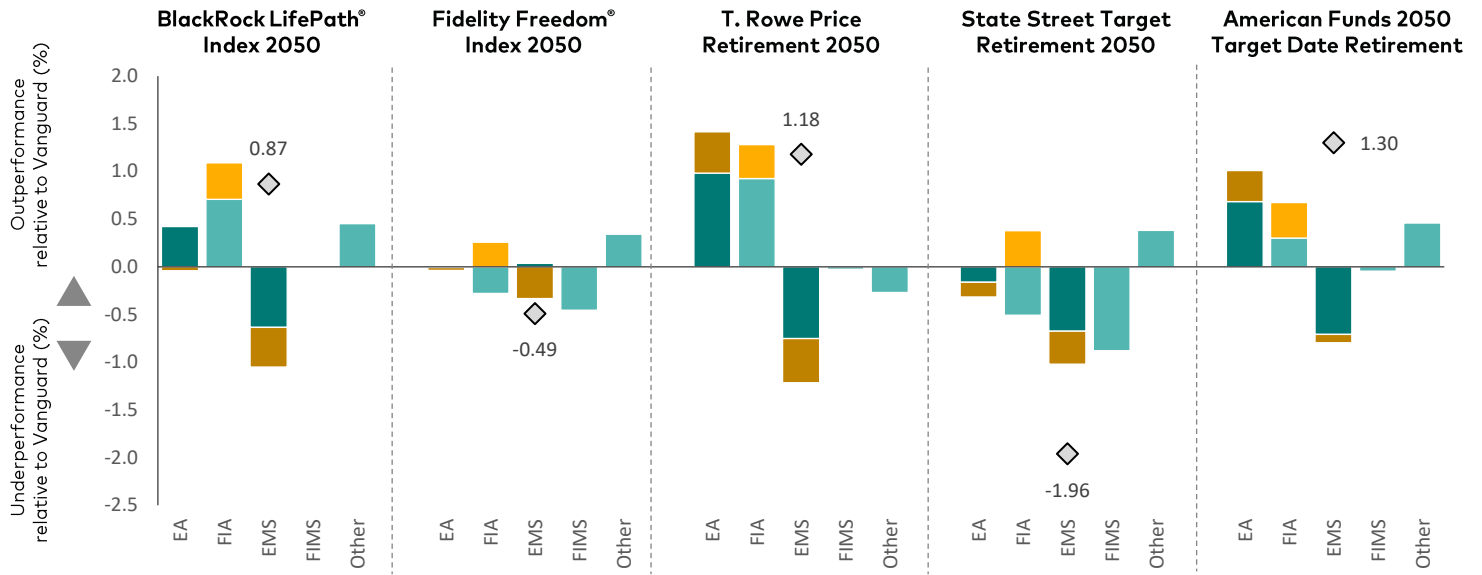
Note: Due to spacing issues, data labels below 7% are not displayed. Due to rounding, may not total to 100%.

There may be other material differences between products that must be considered prior to investing.



# 12-month return attribution

Figure 23.1 Relative to top five industry 2050 funds



Element	Description
Equity allocation (EA)	Vintage allocation to asset classes and sub-asset allocation to U.S. vs. non-U.S.
Fixed income allocation (FIA)	
Equity manager selection (EMS)	Benchmark construction differences (cap and/or style tilts), securities lending, fair-value pricing, building block expense ratios
Fixed income manager selection (FIMS)	
Other	Compounding effect (residual) due to nondaily holdings availability
Total excess return	The sum of the above relative performance differences between Vanguard Target Retirement Fund and competitors' similar vintage

■ U.S. equity     
 ■ Foreign equity     
 ◆ Total relative return  
■ U.S. fixed income     
 ■ Foreign fixed income

- **BlackRock's** outperformance relative to Vanguard was driven by a lower overall allocation to fixed income securities.
- **Fidelity's** underperformance relative to Vanguard was primarily driven by an overweight to long duration Treasury securities within the U.S. fixed income portion of the portfolio.
- **T. Rowe Price's** outperformance relative to Vanguard was driven by a higher overall allocation to equity securities, overcoming poor security selection in that same segment of the portfolio.
- **State Street's** underperformance was driven by an overweight to long duration fixed income relative to Vanguard.
- **American Funds'** outperformance relative to Vanguard was driven by a higher overall allocation to equity securities, despite poor security selection within this segment of the portfolio.

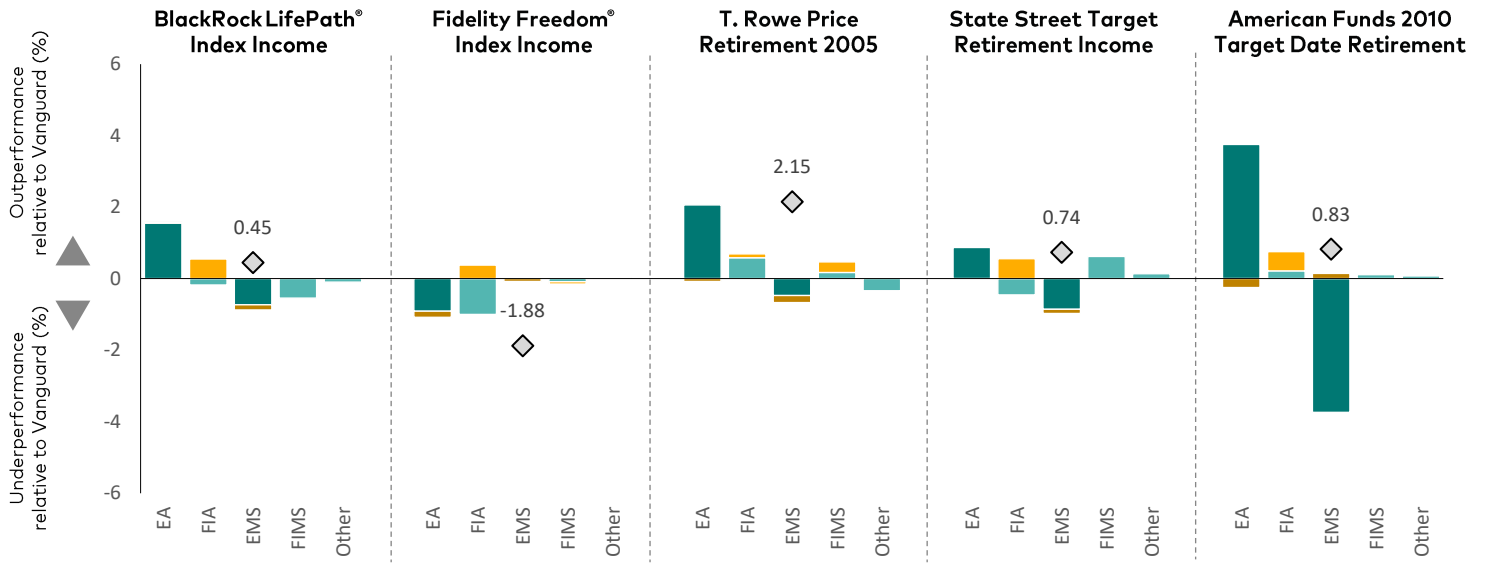
Past performance is not a guarantee of future results.

Sources: Vanguard and Morningstar, as of June 30, 2024.



# 12-month return attribution (continued)

Figure 24.1 Relative to top five industry income (or equivalent) funds\*



Element	Description
Equity allocation (EA)	Vintage allocation to asset classes and sub-asset allocation to U.S. vs. non-U.S.
Fixed income allocation (FIA)	
Equity manager selection (EMS)	Benchmark construction differences (cap and/or style tilts), securities lending, fair-value pricing, building block expense ratios
Fixed income manager selection (FIMS)	
Other	Compounding effect (residual) due to nondaily holdings availability
Total excess return	The sum of the above relative performance differences between Vanguard Target Retirement Fund and competitors' similar vintage

■ U.S. equity     
 ■ Foreign equity     
 ◆ Total relative return  
■ U.S. fixed income     
 ■ Foreign fixed income

- **BlackRock's** outperformance over the period was driven by a higher allocation to U.S. equity.
- **Fidelity's** underperformance was driven by a significant underweight to equity securities relative to Vanguard and a large exposure to cash equivalents.
- **T. Rowe Price's** outperformance was driven by a higher allocation to U.S. equity relative to Vanguard.
- **State Street's** outperformance was driven by a lack of allocation to international fixed income, in favor of U.S. equity, and a tilt toward short duration U.S. fixed income.
- **American Funds'** outperformance relative to Vanguard was driven by a higher allocation to U.S. equity, overcoming poor security selection in this same segment of the portfolio.

Past performance is not a guarantee of future results.

Sources: Morningstar and Vanguard calculations; data as of June 30, 2024.

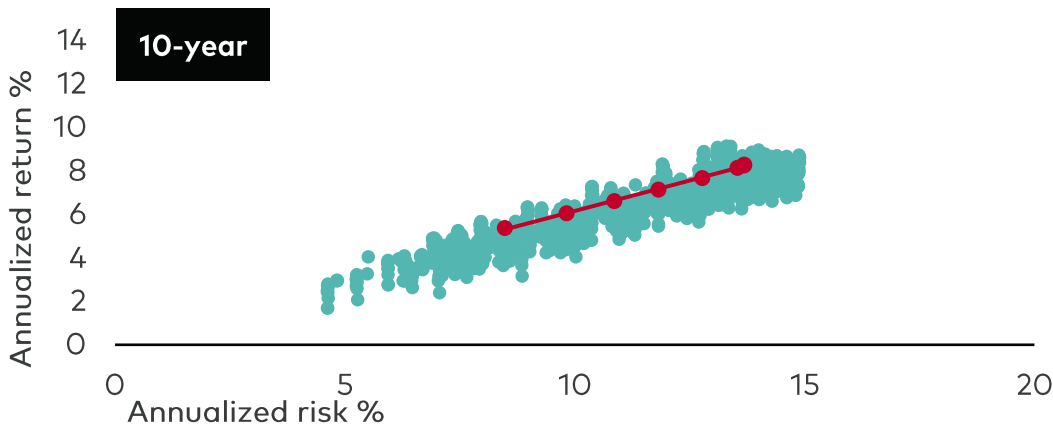
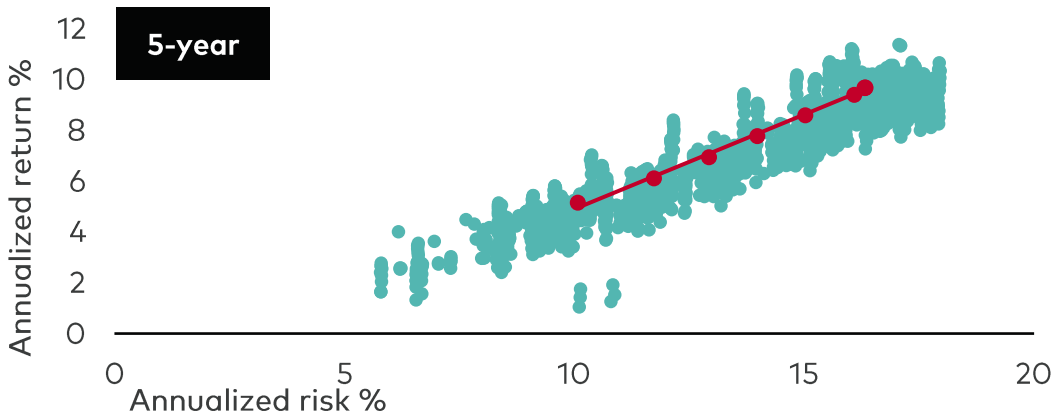
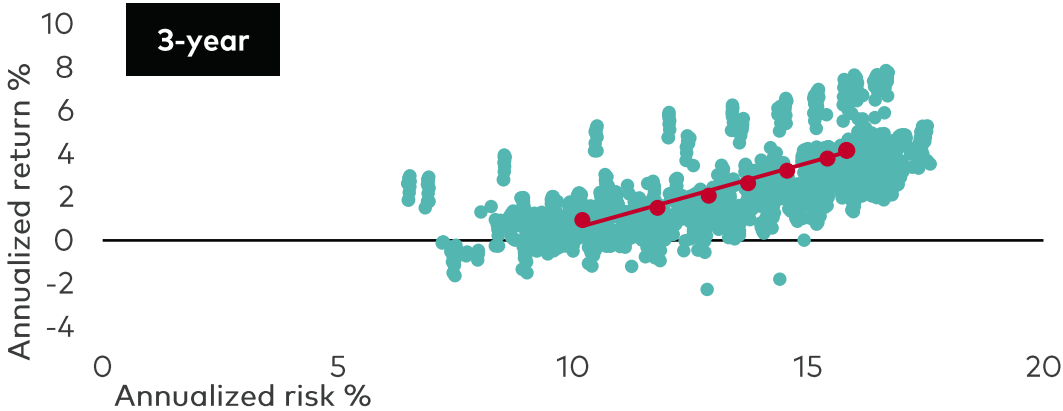
\* The 2005 fund is used as a proxy for T. Rowe Price and the 2010 fund is used as a proxy for American Funds, as there is no terminal income fund currently.





# A history of consistently strong risk-adjusted performance

● TDF peers in Morningstar universe ● Vanguard Target Retirement Funds



Investors may be in TDFs for decades.

Consistent performance across all market environments is critical.

Standard deviation was used for annualized risk. Results will vary for other time periods. All funds in the Morningstar peer group with a minimum 3-, 5-, or 10-year history, respectively, were included in the comparison. There may be other material differences between products that must be considered before investing.

**Note that the competitive performance data shown represent past performance, which is not a guarantee of future results, and that all investments are subject to risks. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original cost. Current performance may be lower or higher than the performance data cited. For the most recent performance, visit our website at [vanguard.com/performance](http://vanguard.com/performance).**

Sources: Vanguard and Morningstar, Inc., as of June 30, 2024. Vanguard Target Retirement Funds highlighted.



# Appendix

IN THIS SECTION:

Absolute performance results

# Appendix: Absolute performance results

Average annualized return  
as of June 30, 2024

Fund	Expense ratio	3 months	Year-to-date	1 year	3 years	5 years	10 years	Since inception	Inception date
<b>Vanguard Target Retirement Income Fund</b>	0.08	0.89	3.00	7.96	0.46	3.72	3.95	4.90	10/27/2003
Target Retirement Income Composite Index	—	0.91	3.10	8.15	0.68	4.00	4.18	—	—
Lipper Target Target Consvr Funds Average	—	0.87	3.44	8.09	0.37	3.45	3.46	—	—
Fidelity Freedom Income	0.47	0.77	2.18	6.17	-0.45	2.65	3.14	4.40	10/17/1996
Fidelity Freedom Index Income Investor	0.12	0.79	2.18	6.08	-0.12	2.54	2.93	3.47	10/2/2009
T. Rowe Price Retirement 2005	0.49	1.01	4.69	10.11	1.13	4.96	4.68	5.54	2/27/2004
American Funds 2010 Trgt Date Retire R5	0.34	0.86	3.60	8.79	1.93	5.01	4.86	4.95	2/1/2007
BlackRock LifePath Index Retire K	0.13	0.98	3.57	8.41	0.04	4.29	4.46	5.02	5/31/2011
State Street Target Retirement K	0.26	1.10	3.49	8.71	1.19	4.58	—	4.46	9/30/2014
JPMorgan SmartRetirement® Income R5	0.47	1.31	4.80	9.90	1.00	4.15	4.12	4.89	5/15/2006
JPMorgan SmartRetirement® Blend IncomeR5	0.51	1.18	4.39	9.45	0.83	4.06	4.07	4.72	7/2/2012
Nuveen Lifecycle Retire Income R6	0.54	1.24	4.65	9.46	1.15	4.79	4.81	4.97	11/30/2007
<b>Vanguard Target Retirement 2020 Fund</b>	0.08	1.05	3.91	9.24	0.94	5.15	5.35	5.97	6/7/2006
Target Retirement 2020 Composite Index	—	1.06	3.98	9.49	1.22	5.50	5.63	—	—
Lipper Target 2020 Funds Average	—	0.89	4.32	9.29	0.81	4.63	4.40	—	—
Fidelity Freedom 2020	0.56	1.06	4.80	9.91	0.38	5.49	5.52	6.51	10/17/1996
Fidelity Freedom Index 2020 Investor	0.12	1.12	4.31	9.16	0.49	5.01	5.23	6.58	10/2/2009
T. Rowe Price Retirement 2020	0.53	1.08	5.57	11.33	1.62	6.26	6.03	7.96	9/30/2002
American Funds 2020 Trgt Date Retire R5	0.36	0.96	4.43	10.14	2.17	5.76	5.61	5.57	2/1/2007
State Street Target Retirement 2020 K	0.24	1.01	3.57	8.90	1.12	5.24	—	5.49	9/30/2014
JPMorgan SmartRetirement 2020 R5	0.46	1.33	4.79	9.88	0.97	4.29	4.64	5.50	5/15/2006
JPMorgan SmartRetirement® Blend 2020 R5	0.50	1.20	4.40	9.59	0.88	4.29	4.61	5.84	7/2/2012
Nuveen Lifecycle 2020 R6	0.54	1.27	5.27	10.49	1.39	5.59	5.60	5.52	1/17/2007
<b>Vanguard Target Retirement 2025 Fund</b>	0.08	1.26	5.11	11.02	1.51	6.12	6.03	6.62	10/27/2003
Target Retirement 2025 Composite Index	—	1.28	5.21	11.35	1.87	6.55	6.35	—	—
Lipper Target 2025 Funds Average	—	0.95	4.66	9.86	0.94	5.05	4.92	—	—
Fidelity Freedom 2025	0.61	1.09	5.57	11.09	0.79	6.22	6.02	6.38	11/6/2003
Fidelity Freedom Index 2025 Investor	0.12	1.20	4.97	10.17	0.87	5.68	5.73	7.28	10/2/2009
T. Rowe Price Retirement 2025	0.54	1.09	6.05	12.14	1.80	6.96	6.61	7.12	2/27/2004
American Funds 2025 Trgt Date Retire R5	0.37	1.05	4.83	10.87	2.20	6.55	6.28	6.23	2/1/2007
JPMorgan SmartRetirement 2025 R5	0.46	1.38	5.29	10.74	1.21	5.24	5.39	5.66	7/31/2007
JPMorgan SmartRetirement® Blend 2025 R5	0.49	1.28	4.85	10.29	1.09	5.21	5.33	6.73	7/2/2012
Nuveen Lifecycle 2025 R6	0.55	1.41	5.88	11.36	1.69	6.28	6.13	5.81	1/17/2007
BlackRock Lifepath Index 2025 K	0.13	1.00	3.84	8.81	0.33	5.02	5.28	5.98	5/31/2011
State Street Target Retirement 2025 K	0.23	1.15	4.69	10.51	1.40	6.41	—	6.49	9/30/2014

The performance data shown represent past performance. Past performance is no guarantee of future results. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original cost. Current performance may be lower or higher than the performance data cited. For performance data current to the most recent month-end, visit our website at [vanguard.com/performance](http://vanguard.com/performance). Some funds assess purchase, redemption, and/or account maintenance fees. The performance data shown do not reflect deduction of these fees. If they did, performance would be lower. Details on these fees and adjusted performance figures can be found in the fund detail section.

Data from Vanguard and Morningstar.



# Appendix: Absolute performance results *(continued)*

Fund	Expense ratio	Average annualized return as of June 30, 2024							
		3 months	Year-to-date	1 year	3 years	5 years	10 years	Since inception	Inception date
<b>Vanguard Target Retirement 2030 Fund</b>	0.08	1.37	6.00	12.39	2.07	6.95	6.58	6.72	6/7/2006
Target Retirement 2030 Composite Index	—	1.42	6.05	12.67	2.43	7.38	6.91	—	—
Lipper Target 2030 Funds Average	—	1.06	5.59	11.31	1.54	6.13	5.67	—	—
Fidelity Freedom 2030	0.65	1.21	6.41	12.32	1.40	7.17	6.80	6.96	10/17/1996
Fidelity Freedom Index 2030 Investor	0.12	1.29	5.62	11.22	1.42	6.52	6.50	7.98	10/2/2009
T. Rowe Price Retirement 2030	0.57	1.11	6.93	13.51	2.16	7.75	7.22	8.89	9/30/2002
American Funds 2030 Trgt Date Retire R5	0.38	1.17	6.07	12.72	2.81	7.60	7.21	6.93	2/1/2007
JPMorgan SmartRetirement 2030 R5	0.46	1.62	6.50	12.59	2.06	6.34	6.16	6.53	5/15/2006
JPMorgan SmartRetirement® Blend 2030 R5	0.47	1.50	6.03	12.03	1.87	6.35	6.12	7.63	7/2/2012
Nuveen Lifecycle 2030 R6	0.56	1.46	6.77	12.59	2.16	7.11	6.71	6.10	1/17/2007
BlackRock Lifepath Index 2030 K	0.13	1.28	5.12	10.83	1.34	6.27	6.13	6.76	5/31/2011
State Street Target Retirement 2030 K	0.19	1.30	5.68	11.88	1.67	7.29	—	7.14	9/30/2014
<b>Vanguard Target Retirement 2035 Fund</b>	0.08	1.55	6.87	13.52	2.65	7.76	7.12	7.48	10/27/2003
Target Retirement 2035 Composite Index	—	1.60	6.87	13.83	3.00	8.20	7.45	—	—
Lipper Target 2035 Funds Average	—	1.27	7.03	13.39	2.37	7.46	6.61	—	—
Fidelity Freedom 2035	0.69	1.48	7.83	14.56	2.38	8.74	7.78	7.32	11/6/2003
Fidelity Freedom Index 2035 Investor	0.12	1.53	6.86	13.15	2.34	7.93	7.46	8.87	10/2/2009
T. Rowe Price Retirement 2035	0.59	1.17	8.05	15.12	2.68	8.59	7.78	7.85	2/27/2004
American Funds 2035 Trgt Date Retire R5	0.40	1.33	7.45	14.73	3.45	9.00	8.24	7.52	2/1/2007
JPMorgan SmartRetirement 2035 R5	0.51	1.73	8.05	14.78	3.00	7.96	7.02	6.73	7/31/2007
JPMorgan SmartRetirement® Blend 2035 R5	0.48	1.71	7.20	13.68	2.80	7.52	6.86	8.45	7/2/2012
Nuveen Lifecycle 2035 R6	0.58	1.69	7.88	14.21	2.80	8.04	7.33	6.52	1/17/2007
BlackRock Lifepath Index 2035 K	0.14	1.43	6.32	12.67	2.26	7.45	6.93	7.47	5/31/2011
State Street Target Retirement 2035 K	0.18	1.23	6.21	12.52	1.80	7.77	—	7.53	9/30/2014
<b>Vanguard Target Retirement 2040 Fund</b>	0.08	1.73	7.68	14.74	3.23	8.59	7.65	7.46	6/7/2006
Target Retirement 2040 Composite Index	—	1.77	7.69	15.00	3.56	9.00	7.99	—	—
Lipper Target 2040 Funds Average	—	1.48	8.33	15.28	3.13	8.38	7.11	—	—
Fidelity Freedom 2040	0.73	1.74	9.60	17.02	3.48	10.04	8.42	5.39	9/6/2000
Fidelity Freedom Index 2040 Investor	0.12	1.88	8.43	15.35	3.40	9.17	8.10	9.34	10/2/2009
T. Rowe Price Retirement 2040	0.60	1.28	9.05	16.55	3.12	9.33	8.26	9.47	9/30/2002
American Funds 2040 Trgt Date Retire R5	0.42	1.65	8.94	16.96	4.20	9.97	8.82	7.89	2/1/2007
JPMorgan SmartRetirement 2040 R5	0.53	1.91	9.03	16.22	3.68	8.88	7.62	7.49	5/15/2006
JPMorgan SmartRetirement® Blend 2040 R5	0.49	1.87	8.16	15.02	3.45	8.38	7.43	9.03	7/2/2012
Nuveen Lifecycle 2040 R6	0.61	1.93	9.14	16.04	3.59	9.09	7.99	7.01	1/17/2007
BlackRock Lifepath Index 2040 K	0.14	1.69	7.48	14.47	3.14	8.54	7.65	8.13	5/31/2011
State Street Target Retirement 2040 K	0.17	1.34	6.82	13.36	2.08	8.27	—	7.87	9/30/2014

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Data from Vanguard and Morningstar.

# Appendix: Absolute performance results *(continued)*

Average annualized return  
as of June 30, 2024

Fund	Expense ratio	3 months	Year-to-date	1 year	3 years	5 years	10 years	Since inception	Inception date
<b>Vanguard Target Retirement 2045 Fund</b>	0.08	1.90	8.48	15.81	3.78	9.40	8.12	8.20	10/27/2003
Target Retirement 2045 Composite Index	—	1.95	8.51	16.17	4.12	9.81	8.45	—	—
Lipper Target 2045 Funds Average	—	1.60	9.05	16.22	3.56	9.01	7.58	—	—
Fidelity Freedom 2045	0.75	1.82	10.24	17.94	3.86	10.26	8.54	7.16	6/1/2006
Fidelity Freedom Index 2045 Investor	0.12	1.98	9.02	16.13	3.72	9.38	8.19	9.46	10/2/2009
T. Rowe Price Retirement 2045	0.62	1.39	9.69	17.44	3.53	9.88	8.58	8.39	5/31/2005
American Funds 2045 Trgt Date Retire R5	0.42	1.70	9.34	17.57	4.30	10.19	9.01	7.99	2/1/2007
JPMorgan SmartRetirement 2045 R5	0.53	2.04	9.85	17.34	4.20	9.60	8.00	7.43	7/31/2007
JPMorgan SmartRetirement® Blend 2045 R5	0.47	1.97	8.84	15.99	3.95	9.04	7.78	9.31	7/2/2012
Nuveen Lifecycle 2045 R6	0.62	2.09	10.12	17.26	4.04	9.89	8.46	6.97	11/30/2007
BlackRock Lifepath Index 2045 K	0.14	1.90	8.62	16.22	3.96	9.49	8.26	8.66	5/31/2011
State Street Target Retirement 2045 K	0.16	1.29	7.19	14.04	2.25	8.66	—	8.15	9/30/2014
<b>Vanguard Target Retirement 2050 Fund</b>	0.08	2.02	9.05	16.63	4.15	9.68	8.26	7.82	6/7/2006
Target Retirement 2050 Composite Index	—	2.09	9.14	17.04	4.50	10.11	8.60	—	—
Lipper Target 2050 Funds Average	—	1.64	9.44	16.79	3.76	9.22	7.67	—	—
Fidelity Freedom 2050	0.75	1.82	10.31	17.95	3.84	10.26	8.54	7.05	6/1/2006
Fidelity Freedom Index 2050 Investor	0.12	2.02	9.05	16.14	3.72	9.39	8.20	9.49	10/2/2009
T. Rowe Price Retirement 2050	0.63	1.42	9.88	17.81	3.69	9.98	8.63	7.71	12/29/2006
American Funds 2050 Trgt Date Retire R5	0.43	1.73	9.56	17.93	4.22	10.26	9.07	8.03	2/1/2007
JPMorgan SmartRetirement 2050 R5	0.53	2.14	10.30	17.93	4.39	9.72	8.06	7.48	7/31/2007
JPMorgan SmartRetirement® Blend 2050 R5	0.47	2.03	9.21	16.41	4.14	9.20	7.86	9.39	7/2/2012
Nuveen Lifecycle 2050 R6	0.64	2.17	10.52	17.86	4.25	10.13	8.61	7.05	11/30/2007
BlackRock Lifepath Index 2050 K	0.14	2.10	9.48	17.49	4.51	10.07	8.57	8.99	5/31/2011
State Street Target Retirement 2050 K	0.18	1.28	7.52	14.66	2.45	9.00	—	8.28	9/30/2014
<b>Vanguard Target Retirement 2055 Fund</b>	0.08	2.02	9.03	16.61	4.15	9.67	8.24	10.09	8/18/2010
Target Retirement 2055 Composite Index	—	2.09	9.14	17.04	4.50	10.11	8.60	—	—
Lipper Target 2055+ Funds Average	—	1.69	9.61	17.01	3.87	9.39	7.87	—	—
Fidelity Freedom 2055	0.75	1.80	10.22	17.90	3.82	10.27	8.54	8.87	6/1/2011
Fidelity Freedom Index 2055 Investor	0.12	2.01	9.01	16.13	3.71	9.38	8.19	8.62	6/1/2011
T. Rowe Price Retirement 2055	0.64	1.41	9.93	17.88	3.66	9.95	8.61	7.69	12/29/2006
American Funds 2055 Trgt Date Retire R5	0.43	1.81	9.78	18.30	4.18	10.24	9.06	10.50	2/1/2010
JPMorgan SmartRetirement 2055 R5	0.54	2.12	10.28	17.87	4.40	9.74	8.06	9.69	1/31/2012
JPMorgan SmartRetirement® Blend 2055 R5	0.48	2.04	9.26	16.44	4.18	9.20	7.86	9.35	7/2/2012
Nuveen Lifecycle 2055 R6	0.64	2.18	10.66	18.04	4.31	10.23	8.69	9.15	4/29/2011
BlackRock Lifepath Index 2055 K	0.14	2.16	9.87	17.96	4.70	10.22	8.65	9.14	5/31/2011
State Street Target Retirement 2055 K	0.19	1.25	7.54	14.72	2.47	8.99	—	8.29	9/30/2014

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Data from Vanguard and Morningstar.



# Appendix: Absolute performance results *(continued)*

Fund	Expense ratio	Average annualized return as of June 30, 2024							
		3 months	Year-to-date	1 year	3 years	5 years	10 years	Since inception	Inception date
<b>Vanguard Target Retirement 2060 Fund</b>	0.08	2.03	9.04	16.60	4.16	9.68	8.23	9.88	1/19/2012
Target Retirement 2060 Composite Index	—	2.09	9.14	17.04	4.50	10.11	8.60	—	—
Lipper Target 2060+ Funds Average	—	1.76	9.76	17.20	3.97	9.43	—	—	—
Fidelity Freedom 2060	0.75	1.85	10.23	17.93	3.85	10.27	—	8.90	8/5/2014
Fidelity Freedom Index 2060 Investor	0.12	2.00	9.01	16.09	3.70	9.37	—	8.52	8/5/2014
T. Rowe Price Retirement 2060	0.64	1.44	9.95	17.83	3.67	9.95	8.61	8.61	6/23/2014
American Funds 2060 Trgt Date Retire R5	0.44	1.80	9.81	18.40	4.16	10.22	—	9.43	3/27/2015
JPMorgan SmartRetirement 2060 R5	0.56	2.11	10.34	17.89	4.41	9.71	—	9.68	8/31/2016
JPMorgan SmartRetirement® Blend 2060 R5	0.53	2.04	9.23	16.46	4.23	9.19	—	9.29	8/31/2016
Nuveen Lifecycle 2060 R6	0.68	2.25	10.77	18.25	4.38	10.36	—	9.17	9/26/2014
BlackRock Lifepath Index 2060 K	0.14	2.21	9.88	18.05	4.72	10.22	—	11.36	2/29/2016
State Street Target Retirement 2060 K	0.23	1.23	7.51	14.66	2.48	8.99	—	8.27	9/30/2014
<b>Vanguard Target Retirement 2065 Fund</b>	0.08	2.03	9.05	16.63	4.19	9.66	—	9.16	7/12/2017
Target Retirement 2065 Composite Index	—	2.09	9.14	17.04	4.50	10.11	8.49	—	—
Lipper Target 2060+ Funds Average	—	1.76	9.76	17.20	3.97	9.43	—	—	—
Fidelity Freedom 2065	0.75	1.81	10.20	17.90	3.82	10.23	—	10.22	6/28/2019
Fidelity Freedom Index 2065 Investor	0.13	1.95	8.96	16.12	3.70	9.38	—	9.37	6/28/2019
T. Rowe Price Retirement 2065	0.64	1.37	9.94	17.85	3.75	—	—	9.63	10/13/2020
American Funds 2065 Trgt Date Retire R5	0.44	1.79	9.79	18.34	4.16	—	—	15.49	3/27/2020
JPMorgan SmartRetirement® Blend 2065 R5	16.89	2.02	9.42	16.41	—	—	—	19.40	11/1/2022
Nuveen Lifecycle 2065 R6	1.17	2.20	10.93	18.40	4.54	—	—	11.02	9/30/2020
BlackRock Lifepath Index 2065 K	0.15	2.24	9.93	17.99	4.74	—	—	10.37	10/30/2019
State Street Target Retirement 2065 K	0.33	1.28	7.59	14.69	2.47	—	—	13.41	3/30/2020
<b>Vanguard Target Retirement 2070 Fund</b>	0.08	2.01	9.03	16.65	—	—	—	15.03	6/28/2022
Target Retirement 2070 Composite Index	—	2.09	9.14	17.04	4.50	10.11	8.49	—	—
Lipper Target 2060+ Funds Average	—	1.76	9.76	17.20	3.97	9.43	—	—	—

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Data from Vanguard and Morningstar.



# Appendix: Standardized returns

	Average annualized return as of June 30, 2024								
	Expense ratio	3 months	Year- to-date	1 year	3 years	5 years	10 years	Since inception	Inception date
Vanguard Total Stock Market Index Fund Institutional Shares	0.03	3.25	13.58	23.20	7.91	14.07	12.11	8.95	7/7/1997
Vanguard Total International Stock Index Fund Institutional Shares	0.09	0.80	5.14	11.00	0.37	5.78	4.05	5.09	11/29/2010
Vanguard Total Bond Market Index Fund Institutional Shares	0.035	0.18	-0.61	2.77	-2.99	-0.19	1.35	4.18	9/18/1995
Vanguard Total International Bond Index Fund Institutional Shares	0.07	-0.58	-0.49	4.43	-1.96	-0.37	1.97	2.15	5/31/2013
Vanguard Short-Term Inflation-Protected Securities Index Fund Institutional Shares	0.04	1.43	2.29	5.35	2.14	3.13	2.00	1.77	10/17/2012

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Data from Vanguard and Morningstar.

# Notes

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# Important information

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**Target 2025, 2035, and 2045 Composite Indexes:** Indexes derived by applying the fund's target asset allocation to the results of the following benchmarks: for international stocks of developed markets, the MSCI EAFE Index through December 15, 2010, the MSCI ACWI ex USA IMI Index through June 2, 2013, and the FTSE Global All Cap ex U.S. Index thereafter; for emerging-market stocks, the Select Emerging Markets Index through August 23, 2006, the MSCI Emerging Markets Index through December 15, 2010, the MSCI ACWI ex USA IMI Index through June 2, 2013, and the FTSE Global All Cap ex U.S. Index thereafter; for U.S. bonds, the Bloomberg U.S. Aggregate Bond Index through December 31, 2009, and the Bloomberg U.S. Aggregate Float Adjusted Index thereafter; for international bonds, the Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index; and for U.S. stocks, the Dow Jones U.S. Total Stock Market Index (formerly known as the Dow Jones Wilshire 5000 Index) through April 22, 2005, the MSCI U.S. Broad Market Index through June 2, 2013, and the CRSP U.S. Total Market Index thereafter. International stock benchmark returns are adjusted for withholding taxes.

# Important information

**Target 2055 Composite Index:** An index derived by applying the fund's target asset allocation to the results of the following benchmarks: for international stocks of developed markets, the MSCI EAFE Index through December 15, 2010, the MSCI ACWI ex USA IMI Index through June 2, 2013, and the FTSE Global All Cap ex U.S. Index thereafter; for emerging-market stocks, the MSCI Emerging Markets Index through December 15, 2010, the MSCI ACWI ex USA IMI Index through June 2, 2013, and the FTSE Global All Cap ex U.S. Index thereafter; for U.S. bonds, the Bloomberg U.S. Aggregate Float Adjusted Index; for international bonds, the Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index beginning June 3, 2013; and for U.S. stocks, the MSCI U.S. Broad Market Index through June 2, 2013, and the CRSP U.S. Total Market Index thereafter. International stock benchmark returns are adjusted for withholding taxes.

**Target 2060 Composite Index:** An index derived by applying the fund's target asset allocation to the results of the following benchmarks: for international stocks of developed markets, the MSCI ACWI ex USA IMI Index through June 2, 2013, and the FTSE Global All Cap ex U.S. Index thereafter; for emerging market stocks, the MSCI ACWI ex USA IMI Index through June 2, 2013, and the FTSE Global All Cap ex U.S. Index thereafter; for U.S. bonds, the Bloomberg U.S. Aggregate Float Adjusted Index; for international bonds, the Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index beginning June 3, 2013; and for U.S. stocks, the MSCI U.S. Broad Market Index through June 2, 2013, and the CRSP U.S. Total Market Index thereafter. International stock benchmark returns are adjusted for withholding taxes.

**Target 2065 Composite Index:** An index derived by applying the fund's target asset allocation to the results of the following benchmarks: the FTSE Global All Cap ex U.S. Index for international stocks, the Bloomberg U.S. Aggregate Float Adjusted Index for U.S. bonds, the Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index for international bonds, and the CRSP U.S. Total Market Index for U.S. stocks. International stock benchmark returns are adjusted for withholding taxes.

Product guarantees are subject to the claims-paying ability of the issuing insurance company.

Deferred variable annuities are long-term vehicles designed for retirement purposes and contain underlying investment portfolios that are subject to investment risk, including possible loss of principal.

Immediate variable annuities contain underlying investment portfolios that are subject to investment risk, including possible loss of principal.

The Vanguard Life-Cycle Investing Model (VLCM) is designed to identify the product design that represents the best investment solution for a theoretical, representative investor who uses the target-date funds to accumulate wealth for retirement. The VLCM generates an optimal custom glide path for a participant population by assessing the trade-offs between the expected (median) wealth accumulation and the uncertainty about that wealth outcome, for thousands of potential glide paths. The VLCM does this by combining two set of inputs: the asset class return projections from the VCMM and the average characteristics of the participant population. Along with the optimal custom glide path, the VLCM generates a wide range of portfolio metrics such as a distribution of potential wealth accumulation outcomes, risk and return distributions for the asset allocation, and probability of ruin, such as the odds of participants depleting their wealth by age 95.

The VLCM inherits the distributional forecasting framework of the VCMM and applies to it the calculation of wealth outcomes from any given portfolio.

The most impactful drivers of glide path changes within the VLCM tend to be risk aversion, the presence of a defined benefit plan, retirement age, savings rate and starting compensation. The VLCM chooses among glide paths by scoring them according to the utility function described and choosing the one with the highest score. The VLCM does not optimize the levels of spending and contribution rates. Rather, the VLCM optimizes the glide path for a given customizable level of spending, growth rate of contributions and other plan sponsor characteristics.

A full dynamic stochastic life-cycle model, including optimization of a savings strategy and dynamic spending in retirement is beyond the scope of this framework.

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