

# Vanguard Target Retirement Funds and Trusts

Quarterly Review | September 30, 2024



# Contents



## Quarterly spotlight

Quarterly perspective	3
How America is saving with Vanguard Target Retirement Funds	4
About the SAAC	8



## TDF industry and market overview

Industry growth and market share	10
Market environment	11



## Vanguard fund construction and performance

Purposeful design and evolution	13
Vanguard fund performance and attribution	14



## Competitor fund construction and performance

Beyond the glide path	20
12-month return attribution	22



## Appendix

Absolute performance results	26
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## Quarterly perspective

# A conversation with Jeff Clark, senior research analyst

At Vanguard, time-tested research and an in-depth understanding of real-world participant behaviors guides our approach to target-date funds (TDFs). For example, the data from Vanguard's annual *How America Saves* report provides a key input for how we evaluate current assumptions and glide-path changes for Vanguard Target Retirement Funds. This edition of the Quarterly Spotlight contains commentary from Senior Research Analyst Jeff Clark, who leads the research on *How America Saves* and unpacks some of the trends from the 2024 report. We thought it would be helpful to get to know Clark and his work with Vanguard's Strategic Retirement Consulting (SRC) group to better understand the value their team brings to Vanguard's broader retirement ecosystem, specifically as it relates to TDF investors.

**You've been with Vanguard for more than 25 years. Can you tell us a little about your experience here and how you came into your current role?**

**JC:** I started my career in Participant Services and then spent time in our Compliance Testing and Analysis department. While working with our retirement plan sponsors, I discovered I had a passion for data. From there, I transitioned into a newly created role within the SRC group that leverages data to help us consult with plan sponsors. That team also provides the data for *How America Saves* and other thought leadership initiatives.

**Can you provide some clarity on the role that the Strategic Retirement Consulting group plays in Vanguard's ecosystem?**

**JC:** The knowledge within SRC spans several areas, including retirement plan design, legal and regulatory concerns, fiduciary best practices, thought leadership, and communication strategies. Our team takes a comprehensive approach to retirement plan consulting, collaborating with our plan sponsors to help drive better retirement outcomes for participants.

**Given your long history at Vanguard, can you highlight one change you've seen in the retirement industry?**

**JC:** When I started in Participant Services, I spoke to many participants who needed help signing up for their 401(k). I spent a lot of time helping them understand how their plans work and educating them on the importance of investment diversification. Since then, employers have done an incredible job of making retirement saving easier for participants. Today, most investors are automatically enrolled into their retirement plans and defaulted into an age-appropriate TDF. There's still more work to be done, but we've seen a tremendous amount of progress in retirement saving outcomes over the past 20 years.

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*We would like to thank Jeff and his colleagues from the SRC group for the great work they do, which has been instrumental in keeping us informed on what's happening in the defined contribution space. It also reaffirms our commitment to supporting financial well-being and helping TDF investors prepare for retirement.*

## Performance of key Vanguard index funds

Fund name (inception date)	4Q 2023	1Q 2024	2Q 2024	3Q 2024	1-year
Vanguard Total Stock Market Index Fund (07/07/1997)	12.17%	10.00%	3.25%	6.17%	35.26%
Vanguard Total International Stock Index Fund (11/29/2010)	9.98%	4.32%	0.80%	8.03%	24.92%
Vanguard Total Bond Market Index Fund (09/18/1995)	6.69%	-0.79%	0.18%	5.07%	11.42%
Vanguard Total International Bond Index Fund (05/31/2013)	6.54%	0.10%	-0.58%	4.12%	10.39%
Vanguard Short-Term Inflation-Protected Securities Index Fund (10/17/2012)	2.55%	0.85%	1.43%	2.50%	7.53%

Source of performance figures: Vanguard, Institutional share class, as of September 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 30 of the Quarterly Review.



# How America is saving with Vanguard Target Retirement Funds

Most conversations around defined contribution (DC) plans focus on the outcomes achieved for participants, with less attention given to the foundational work required to help plan sponsors and consultants create stronger and more competitive retirement plans. Vanguard believes in dedicating ample time, effort, and resources toward studying the trends that may lead to better investment outcomes. One example of this is *How America Saves*, our annual analysis of nearly 5 million Vanguard DC plan participants.



*How America Saves* contains data that spans the entire retirement ecosystem, from how plan sponsors are evolving their retirement plans to how participants are interacting with their accounts. Many plan sponsors use the data to benchmark the health of their existing plan and participants. The report is not only a renowned tool in the DC space but also acts as a key input for the [Vanguard Life-Cycle Investing Model](#) (VLCM), which we use to validate the design of Vanguard Target Retirement Funds. Specifically, we use *How America Saves* to evaluate current assumptions regarding investor behavior and look for trends that may drive changes to those assumptions down the line.

As in previous editions, [How America Saves 2024](#) contains several data points that allow plan sponsors and consultants to measure their plans against median statistics for categories such as withdrawal rates, loans outstanding, and average equity allocation. Plan sponsors can also compare their benefits packages against plans with similar asset and participant base sizes and evaluate how their retirement compensation, particularly matching and vesting schedules, compares with those within the broader DC space.

This article highlights some key trends from the 2024 report, specifically those that relate to participants who are invested in TDFs. It also sheds light on how changes in regulation, such as the passing of the SECURE 2.0 Act, may impact TDF investing and spending patterns.

Insights to help make informed decisions

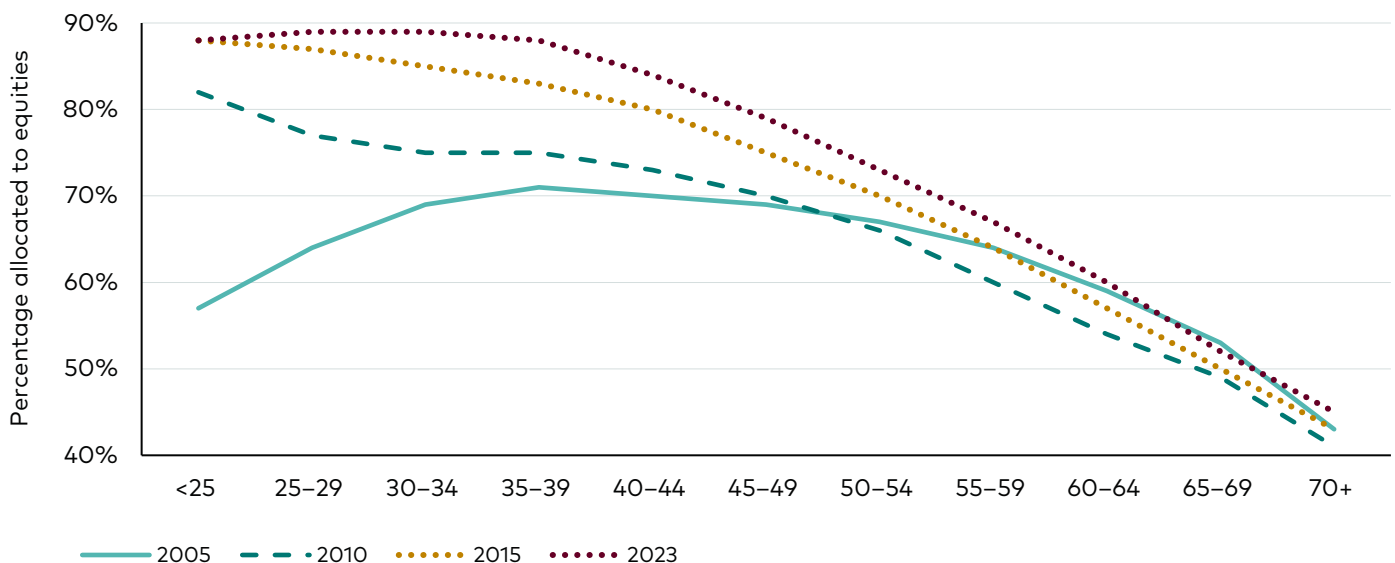
*How America Saves* is prepared by Vanguard's Strategic Retirement Consulting (SRC) group, which is currently under the direction of Senior Research Analyst Jeff Clark. Drawing upon its expertise, data, and thought leadership, the SRC group focuses on driving differentiated outcomes for plan sponsors and their participants.

Clark and his team spend countless hours reviewing the participant data gathered from systems dedicated to Vanguard's recordkeeping business to identify trends and develop useful insights that benefit both our plan sponsor clients and goals-based investment options, like TDFs. As a qualified default investment alternative (QDIA), TDFs have simplified the asset allocation process and have shown the ability to meaningfully improve retirement outcomes for millions of participants.

Increased availability of TDFs has improved retirement saving outcomes

According to Clark, one of the most interesting findings from the 2024 report is that participants of all age demographics are turning to professionally managed allocations in record numbers. More companies offering TDFs as the QDIA for automatic enrollment programs has led to the increased availability of TDFs on retirement plan platforms. As shown in **Figure 1**, this has materially altered how participant dollars are allocated.

**Figure 1. Trend in asset allocation by participant age for Vanguard DC plans**



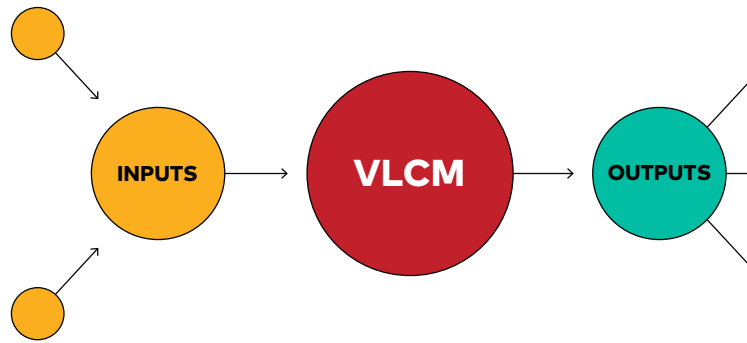
Source: Vanguard, 2024.



**Figure 2. Select participant characteristics use case\***

**Vanguard Capital Markets Model (VCOMM) projections**  
The model forecasts distributions of future returns for a wide array of broad asset classes.

**Sample population characteristics**  
Characteristics include:  
• Participant demographics  
• Risk tolerance profile  
• Retirement funding needs  
• Saving rates  
• Expected retirement age  
• Guaranteed income sources such as Social Security or defined-benefit pensions



**Wealth accumulation**  
Optimizing outcomes to help with lasting income through retirement

**Portfolio volatility**  
Appropriately balancing risk and return

**Maximum drawdown**  
Weathering tough times during notable market downturns

\*Select population characteristics and outputs were used in this example and not meant to be exhaustive of all inputs and outputs included in the VLCM analysis.

"The adoption of TDFs by 96% of plan sponsors is a testament to their significance within the defined contribution space," Clark says. "While adoption statistics at the plan level speak to the impact of TDFs, the shift in average equity weights by age demographic is amazing. If you look at the data going back to 2005, it shows a monumental shift. More importantly, the data as of year-end 2023 shows that the equity weight now almost mirrors the Vanguard TDF glide path."

Research findings from *How America Saves 2024* show that as TDF use increases, portfolio trading decreases. Another interesting takeaway from the report, Clark says, is related to participants staying the course. Participants with professionally managed portfolios—specifically those that include TDFs and managed account advisory services—are less likely to see extreme equity allocations and variability in returns.<sup>1</sup>

"With all-in-one options like TDFs becoming more prominent, investors not only benefit from the age-appropriate allocations and continuous rebalancing during volatile markets but are also far less likely to trade when compared with all other investors," Clark explains. "This is backed by the fact that 2023 was the lowest year ever for participant exchanges—demonstrating a willingness to stay the course despite uncertainty in the market."

These trends are proof, Clark says, that TDFs have had a positive effect on retirement saving outcomes for participants and an indication that retirement plan savers are making the appropriate investment decisions.

### A look ahead at TDF investing

As the largest provider of TDFs in the world, and one of the largest providers of DC administration services in the country, Vanguard is uniquely positioned to address the complexities that result from the ongoing evolution of retirement programs.<sup>2</sup> Just as we took a proactive approach at the onset of target-date adoption within QDIAs, we continue to monitor the impact that regulatory changes have on participants' abilities to reach their financial goals. According to Clark, one influential piece of legislation that has made an impact on the DC space is the SECURE 2.0 Act, which passed as a part of the 2023 omnibus spending bill and focused on encouraging U.S. investors, specifically those within company-sponsored plans, to save for retirement.

"One notable provision from SECURE 2.0 was increasing the required minimum distribution age from 72 up to 75 in 2033," Clark says. "Vanguard Target Retirement Funds currently complete derisking at age 72 in alignment with our data that shows that is the actual age that people start pulling money from their retirement accounts. While Vanguard's position is tied to investment behavior and not the explicit required minimum distribution age, it will be interesting to see whether this regulation alters participant behavior materially."

As previously mentioned, Clark and his team have a wealth of knowledge in the DC space that guides our approach to TDFs. We use data leveraged from *How America Saves* for analysis related to our Target Retirement Funds, including our annual glide-path revalidation process. As shown in **Figure 2**, that process starts with participant population behavior and characteristic assumptions.

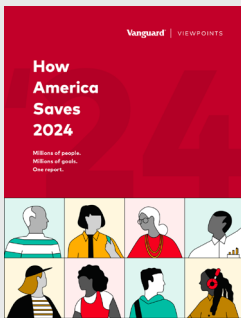


The insights gleaned from investor behavior give us the tools needed to enhance the VLCM, which provides a rigorous framework for evaluating our glide-path decisions and ensuring that they remain appropriate for participants.

Made up of multiple inputs, our framework focuses on investor retirement outcomes and aims to strike a balance between two primary objectives of investment portfolios: growth to provide wealth to meet retirement spending needs and stability to provide comfort in volatile markets, particularly for those near or in retirement.

Understanding a wide range of investor characteristics, such as saving rates, salary

information, and how and when investors are using their money is how we ensure Vanguard Target Retirement Funds are best suited to help plan participants achieve retirement readiness. Our commitment to research allows us to see deeper than most providers, produce pieces like *How America Saves*, and ensure that our current assumptions are ones that will help set participants on a path to retirement success. While our research does not always result in changes, it gives us the opportunity to prove that our TDFs reflect our best thinking on glide-path design and sub-asset allocation.



## Our commitment to research and improving retirement saving

Our TDF options are supported by time-tested research and an in-depth understanding of real-world participant behaviors. For more than 20 years, Vanguard has taken on the responsibility of presenting the latest saving trends to help plan sponsors and consultants better prepare their participants for retirement. With any investment solution, it is important to know not only the solution's objective but also for whom we are building the solution. That ideology is why we combine the data in *How America Saves* with the portfolio construction research to design and validate our TDFs.

### Endnotes

<sup>1</sup> [Highlighting the value of managed portfolios](#). Vanguard, September 2023.

<sup>2</sup> DC assets are based on AUM in both Vanguard-administered plans and those administered by others. Other figures are based on AUM market share of the TDF industry. Sources: Vanguard and Morningstar, Inc., as of December 31, 2023.



# 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
- Sujatha Srinivasan**, 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 Management
- Brent Beardsley**, Head of Strategy and Development
- 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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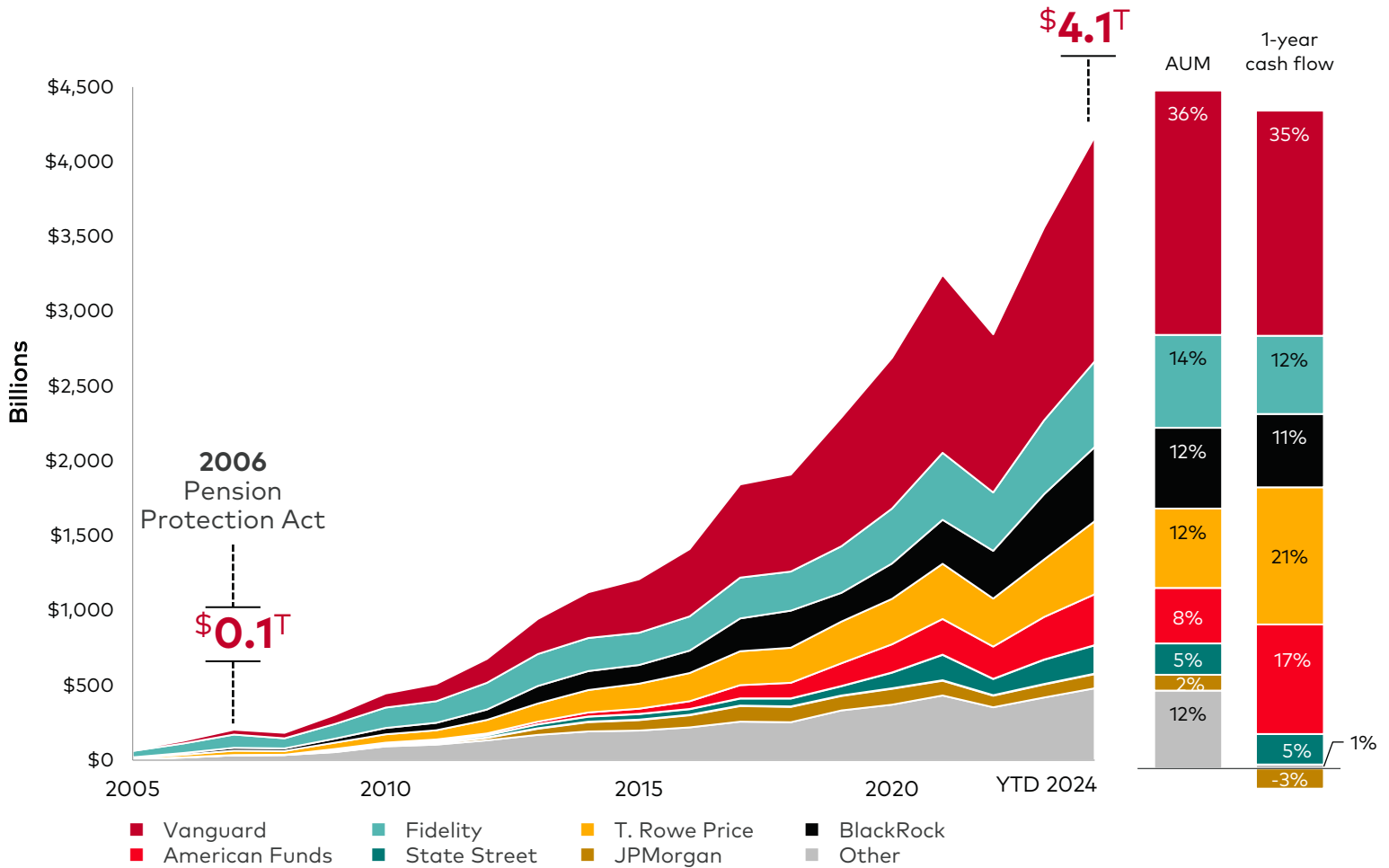
Industry growth and market share

Market environment



# Industry growth and market share

**Figure 10.1** 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 \$4.16 trillion as of the end of Q3 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 \$3.68 trillion, as of September 30, 2024.

We estimate that as of the end of September, the target-date fund industry experienced a 2.40% organic growth rate over the last 12 months.\*

Sources: Vanguard, Morningstar, as of September 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 11.1 Index returns ranked by performance

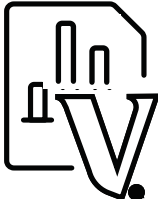
2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	4Q 2023	1Q 2024	2Q 2024	3Q 2024
REIT 30.4	REIT 2.5	HYB 17.1	FTSE 27.4	IAGG 3.2	CRSP 30.8	CRSP 21.0	REIT 43.1	COM 16.1	CRSP 26.0	REIT 16.0	CRSP 10.0	CRSP 3.3	REIT 16.1
CRSP 12.6	IAGG 1.3	CRSP 12.7	CRSP 21.2	CASH 1.9	REIT 25.8	FTSE 11.2	COM 27.1	CASH 1.5	FTSE 15.8	CRSP 12.1	FTSE 4.3	COM 2.9	FTSE 8.4
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	EMB 9.8	COM 2.2	STPS 1.4	EMB 6.5
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	FTSE 9.8	HYB 1.5	CASH 1.4	CRSP 6.2
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	HYB 7.2	CASH 1.4	HYB 1.1	HYB 5.3
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	AGG 6.8	EMB 1.2	FTSE 0.9	AGG 5.2
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	IAGG 6.4	STPS 0.9	EMB 0.3	IAGG 3.9
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	STPS 2.6	IAGG 0.1	REIT 0.1	STPS 2.5
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	CASH 1.4	REIT -0.3	AGG 0.1	CASH 1.4
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	COM -4.6	AGG -0.8	IAGG -0.4	COM 0.7

		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	6.18	35.23	10.11	15.19	12.79
	FTSE	FTSE Global All Cap ex U.S. Index	8.39	25.22	4.09	7.95	5.54
	AGG	Bloomberg U.S. Aggregate Bond Index	5.20	11.57	-1.39	0.33	1.84
	IAGG	Bloomberg Global Agg ex U.S. Float Adj RIC Cap Index (Hedged)	3.90	10.19	-0.60	-0.09	2.32
	STPS	Bloomberg U.S. 0-5 Year TIPS Index	2.48	7.53	2.55	3.60	2.42
Other indexes	CASH	3-Month T-Bill	1.37	5.63	3.63	2.38	1.66
	HYB	Bloomberg U.S. Corporate High Yield Index	5.28	15.74	3.10	4.72	5.04
	EMB	Bloomberg USD Emerging Market Gov RIC Cap Index	6.52	18.79	-0.29	1.02	3.14
	REIT	MSCI U.S. REIT Index	16.12	34.38	4.98	5.47	7.77
	COM	Bloomberg Commodity Index	0.68	0.96	3.66	7.79	0.03

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 September 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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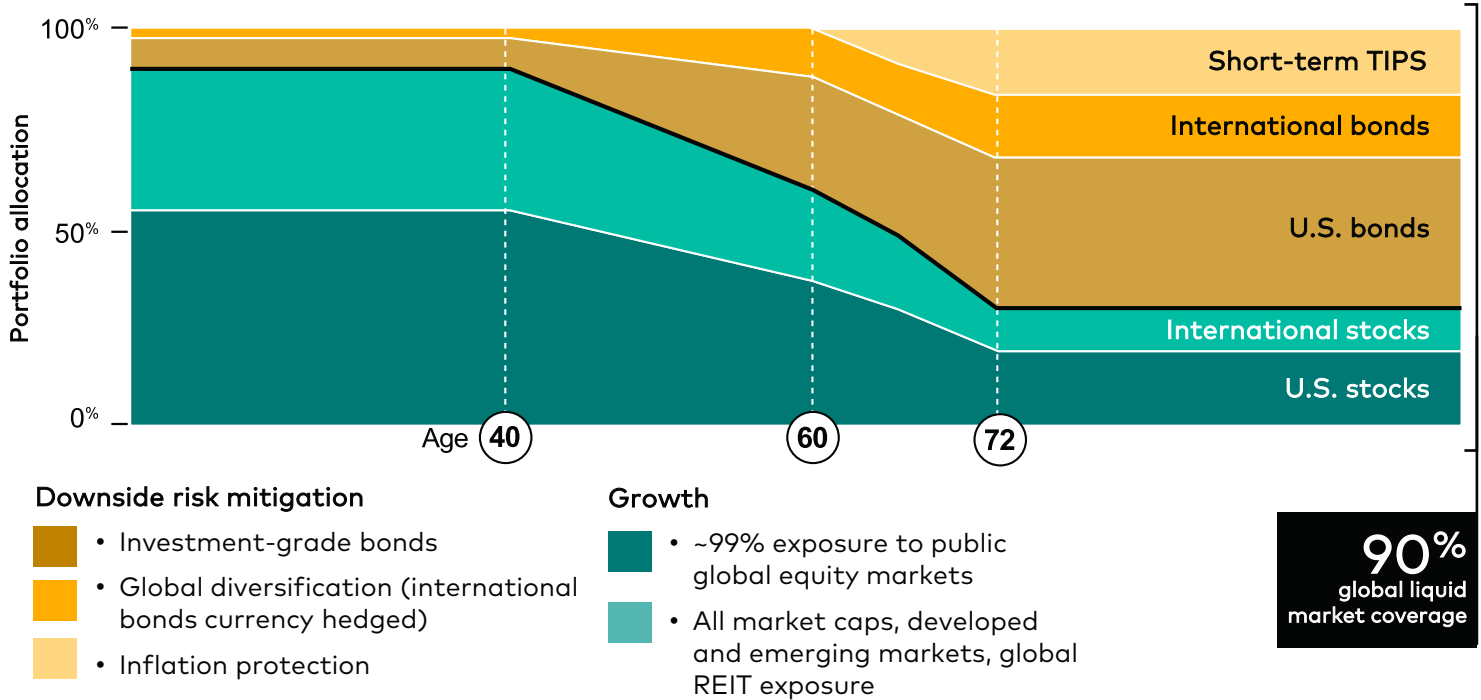
Evolution of Vanguard's glide-path design

Vanguard fund performance and attribution

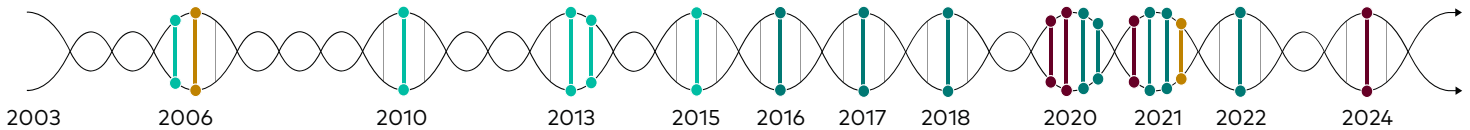


# Purposeful design and evolution

## 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 September 30, 2024

## Vanguard Target Retirement Fund and Trust performance

Portfolio/Benchmark	Expense ratio	Average annualized return as of September 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	5.12	16.22	2.19	4.45	4.51	5.09	10/27/2003
Trust II	0.075	5.10	16.25	2.21	4.48	4.55	4.86	2/29/2008
Target Retirement Income Composite Index		5.14	16.34	2.39	4.75	4.74	—	—
<b>Vanguard Target Retirement 2020 Vintage</b>								
Fund	0.08	5.37	18.25	2.86	6.01	5.99	6.19	6/7/2006
Trust II	0.075	5.37	18.27	2.89	6.05	6.04	6.09	2/29/2008
Target Retirement 2020 Composite Index		5.41	18.34	3.11	6.37	6.27	—	—
<b>Vanguard Target Retirement 2025 Vintage</b>								
Fund	0.08	5.85	21.13	3.68	7.09	6.74	6.83	10/27/2003
Trust II	0.075	5.81	21.17	3.75	7.18	6.82	6.60	2/29/2008
Target Retirement 2025 Composite Index		5.89	21.26	4.01	7.55	7.06	—	—
<b>Vanguard Target Retirement 2030 Vintage</b>								
Fund	0.08	6.17	23.27	4.40	8.04	7.35	6.98	6/7/2006
Trust II	0.075	6.15	23.27	4.46	8.11	7.42	6.98	2/29/2008
Target Retirement 2030 Composite Index		6.27	23.41	4.74	8.50	7.68	—	—
<b>Vanguard Target Retirement 2035 Vintage</b>								
Fund	0.08	6.30	24.76	5.07	8.95	7.93	7.70	10/27/2003
Trust II	0.075	6.29	24.81	5.14	9.03	8.01	7.43	2/29/2008
Target Retirement 2035 Composite Index		6.44	24.96	5.41	9.41	8.26	—	—
<b>Vanguard Target Retirement 2040 Vintage</b>								
Fund	0.08	6.43	26.33	5.75	9.85	8.49	7.72	10/27/2003
Trust II	0.075	6.45	26.33	5.80	9.91	8.56	7.86	2/29/2008
Target Retirement 2040 Composite Index		6.61	26.51	6.07	10.30	8.83	—	—

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 September 30, 2024.



# Fund performance through September 30, 2024

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

Portfolio/Benchmark	Expense ratio	Average annualized return as of September 30, 2024					Since inception	Inception date
		3 months	1 year	3 years	5 years	10 years		
<b>Vanguard Target Retirement 2045 Vintage</b>								
Fund	0.08	6.57	27.82	6.39	10.74	8.97	8.42	10/27/2003
Trust II	0.075	6.59	27.79	6.44	10.78	9.03	8.13	2/29/2008
Target Retirement 2045 Composite Index		6.77	28.08	6.73	11.18	9.32	—	—
<b>Vanguard Target Retirement 2050 Vintage</b>								
Fund	0.08	6.71	28.91	6.83	11.05	9.13	8.09	6/7/2006
Trust II	0.075	6.69	28.95	6.88	11.12	9.19	8.24	2/29/2008
Target Retirement 2050 Composite Index		6.91	29.26	7.17	11.52	9.49	—	—
<b>Vanguard Target Retirement 2055 Vintage</b>								
Fund	0.08	6.73	28.92	6.84	11.05	9.11	10.41	8/18/2010
Trust II	0.075	6.71	28.97	6.89	11.12	9.18	10.77	8/31/2010
Target Retirement 2055 Composite Index		6.91	29.26	7.17	11.52	9.49	—	—
<b>Vanguard Target Retirement 2060 Vintage</b>								
Fund	0.08	6.72	28.93	6.84	11.05	9.11	10.24	1/19/2012
Trust II	0.075	6.71	28.96	6.90	11.14	9.19	9.97	3/1/2012
Target Retirement 2060 Composite Index		6.91	29.26	7.17	11.52	9.49	—	—
<b>Vanguard Target Retirement 2065 Vintage</b>								
Fund	0.08	6.74	28.95	6.87	11.04	—	9.82	7/12/2017
Trust II	0.075	6.71	28.98	6.89	11.12	—	10.37	7/17/2017
Target Retirement 2065 Composite Index		6.91	29.26	7.17	11.52	9.43	—	—
<b>Vanguard Target Retirement 2070 Vintage</b>								
Fund	0.08	6.73	28.98	—	—	—	16.56	6/8/2022
Trust II	0.075	6.74	29.02	—	—	—	9.14	4/7/2022
Target Retirement 2065 Composite Index		6.91	29.26	7.17	11.52	9.43	—	—

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 September 30, 2024.



# Underlying fund performance contribution

Figure 16.1 3-month return contribution by underlying funds

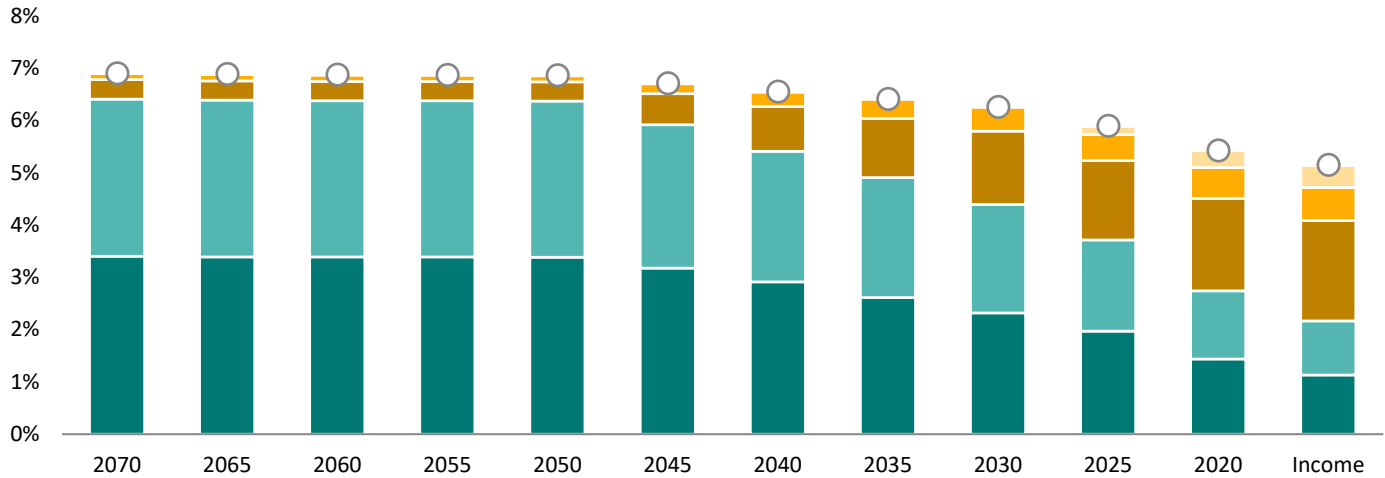
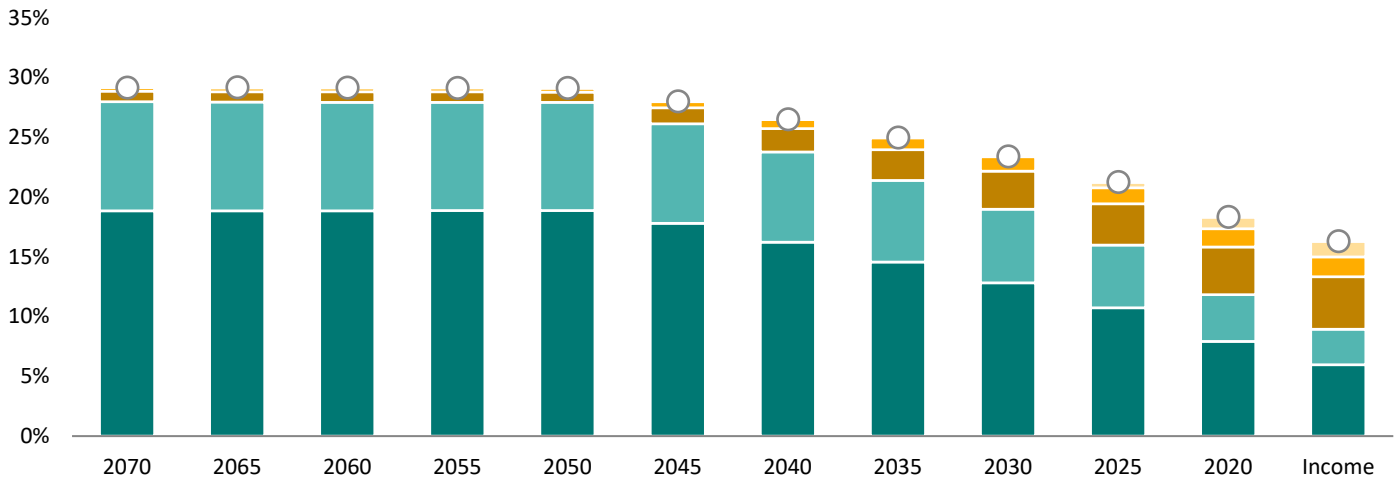


Figure 16.2 1-year return contribution by underlying funds



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

Past performance is not a guarantee of future results.

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







# Excess return attribution

Figure 17.1 3-month return attribution

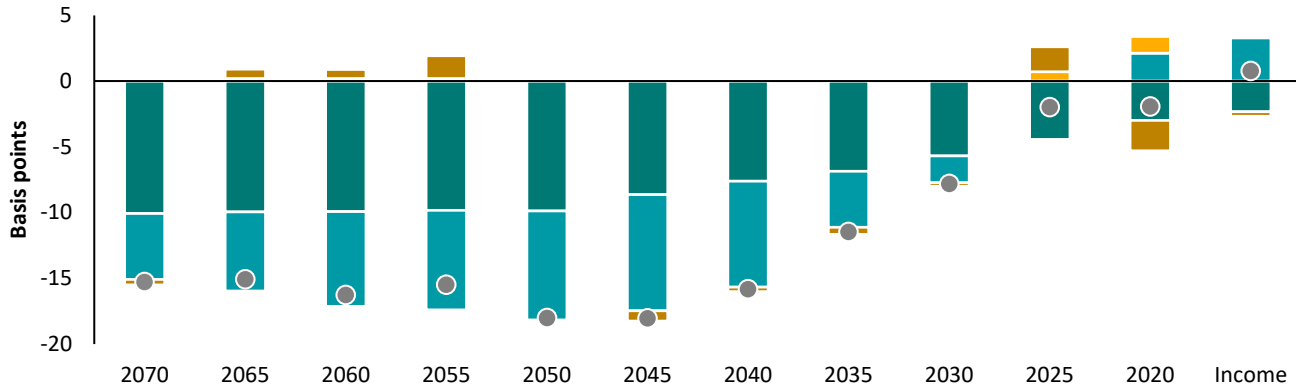
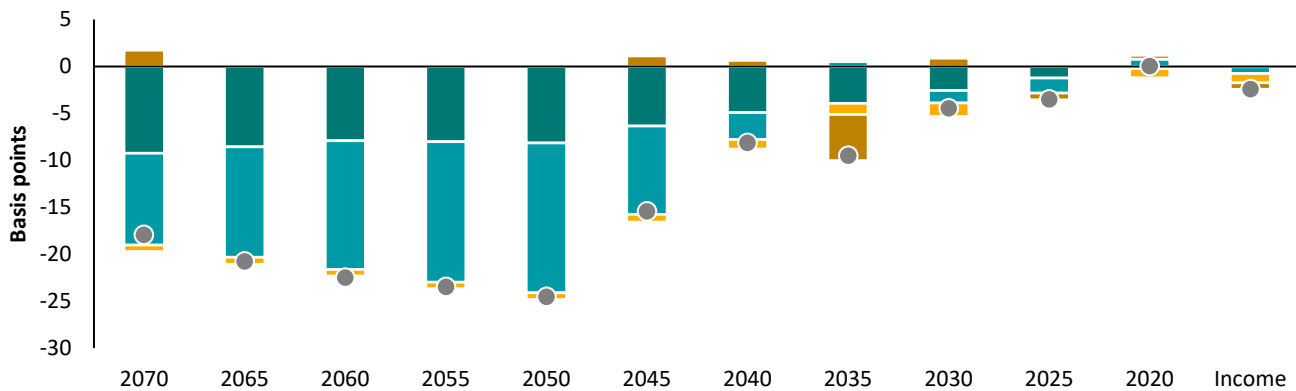


Figure 17.2 1-year return attribution



<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: #FFA500;">■</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: #8B4513;">■</span> Residual	Out/Underperformance due to factors outside of those captured above.
<span style="color: grey;">●</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.

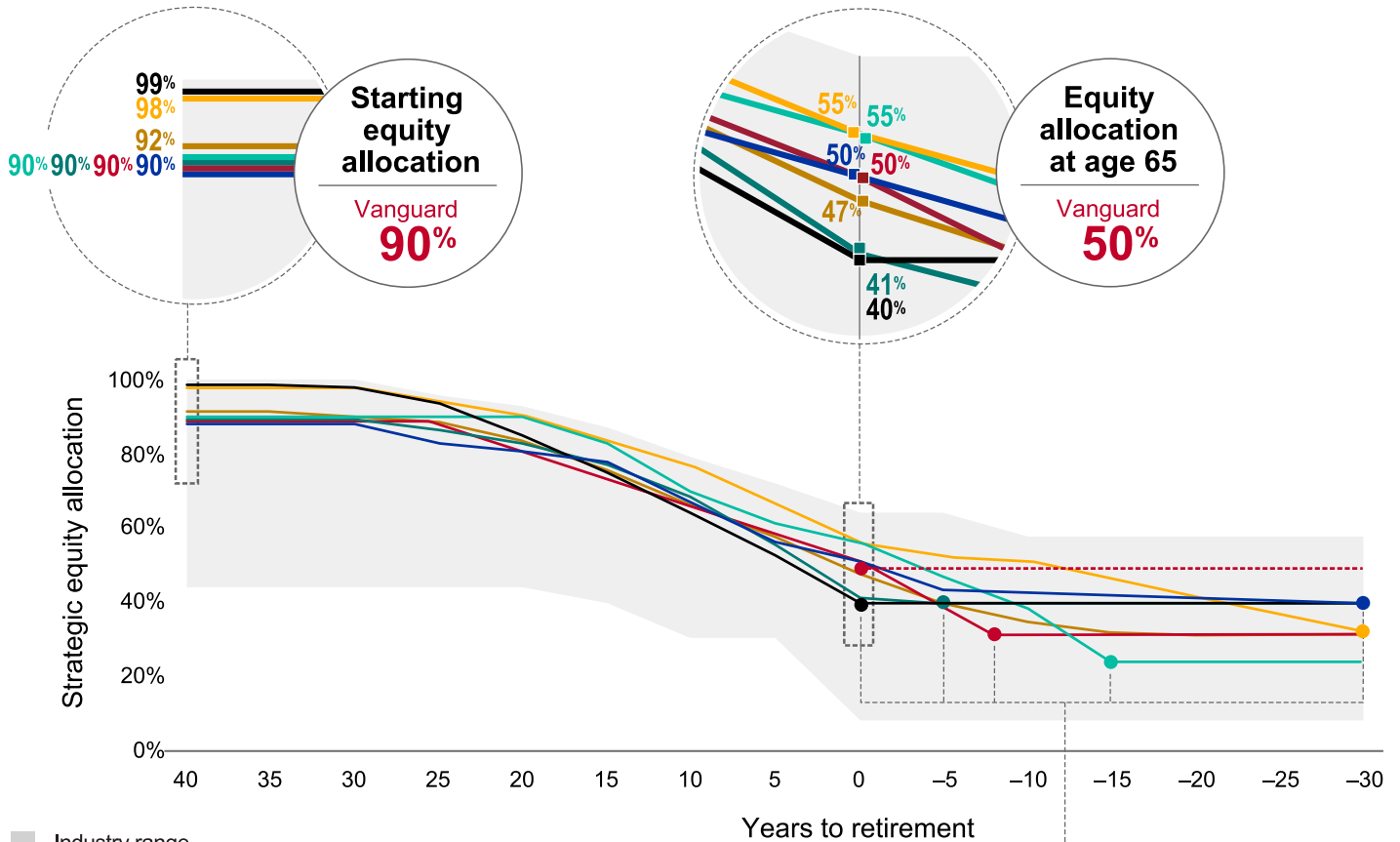
**Past performance is not a guarantee of future results.**

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

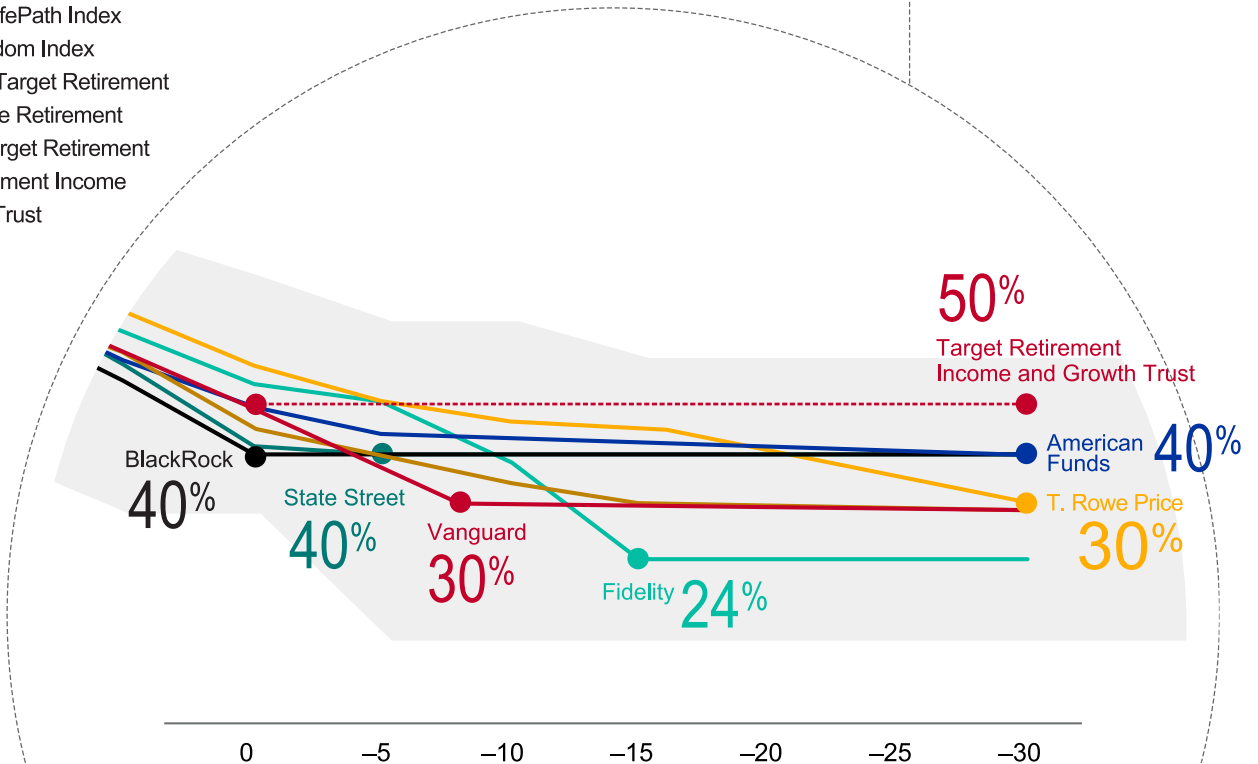
\* On January 14, 2021, Bloomberg changed its index pricing time from 3 p.m., Eastern time, to 4 p.m., Eastern time. The time change affects the 1- and 3-year figures.



# Glide path comparison



- Industry range
- Industry average
- American Funds Target Date Retirement
- BlackRock LifePath Index
- Fidelity Freedom Index
- State Street Target Retirement
- T. Rowe Price Retirement
- Vanguard Target Retirement
- Target Retirement Income and Growth Trust



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



# Competitor fund construction and performance

IN THIS SECTION:

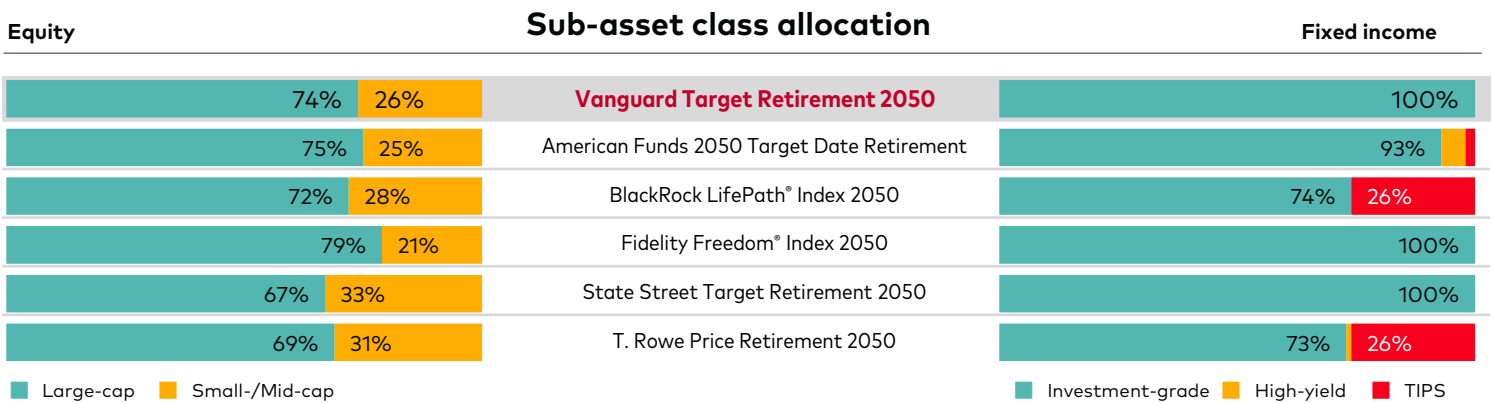
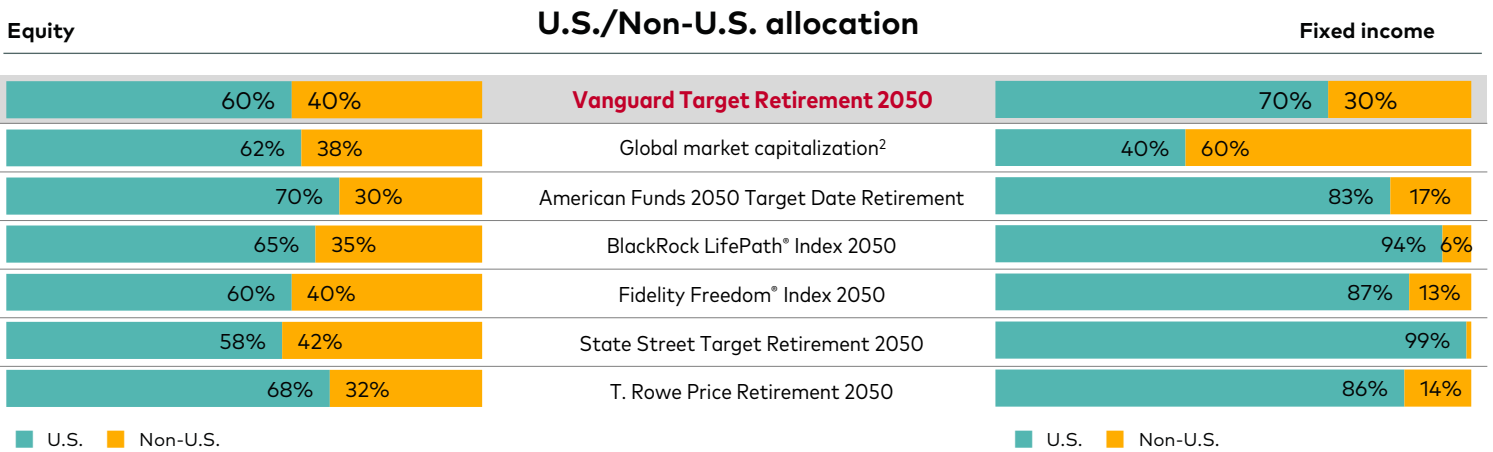
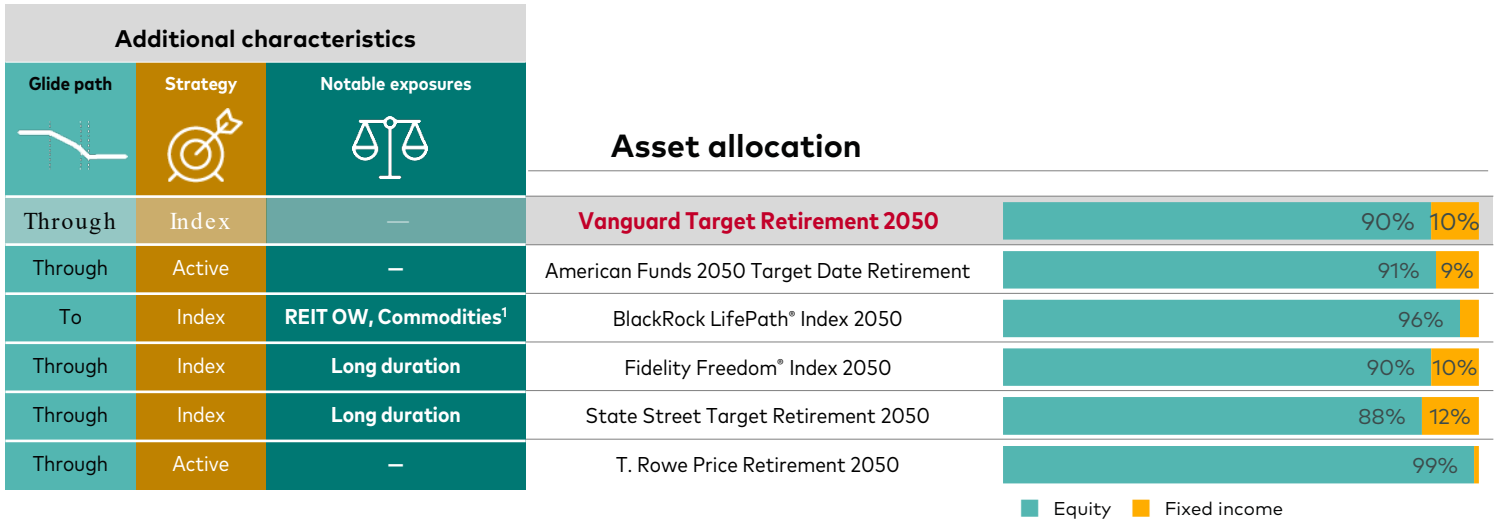
Beyond the glide path

12-month return attribution



# 2050 vintage: Beyond the glide path

Figure 20.1 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 September 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.

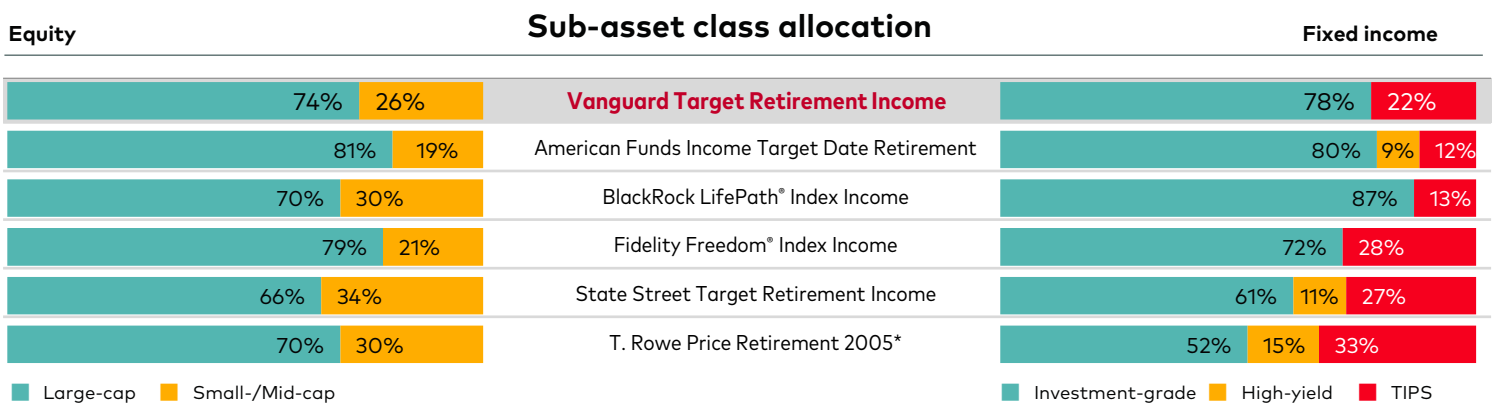
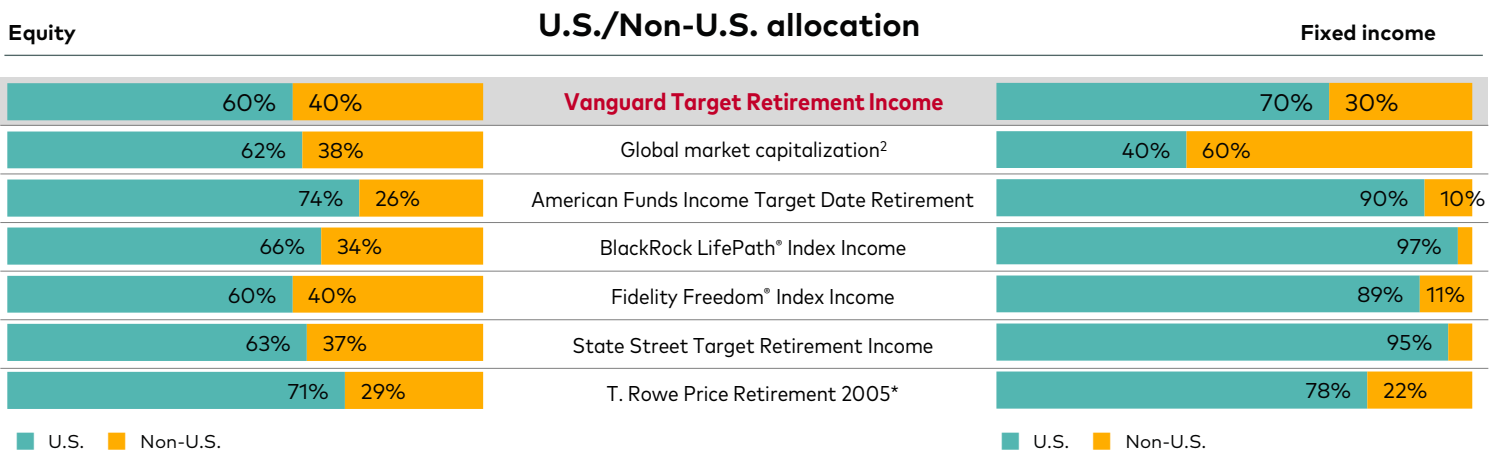
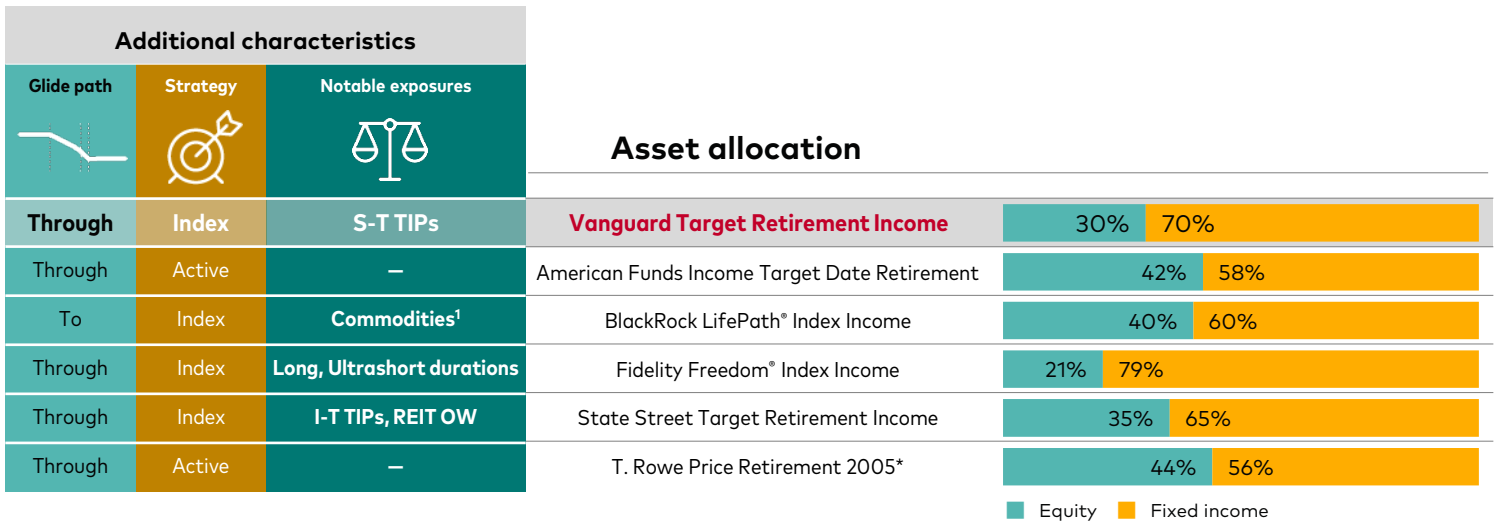
Note: Due to spacing issues, data labels below 7% are not displayed. Due to rounding, may not total to 100%.

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



# Income vintage: Beyond the glide path

Figure 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 September 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.

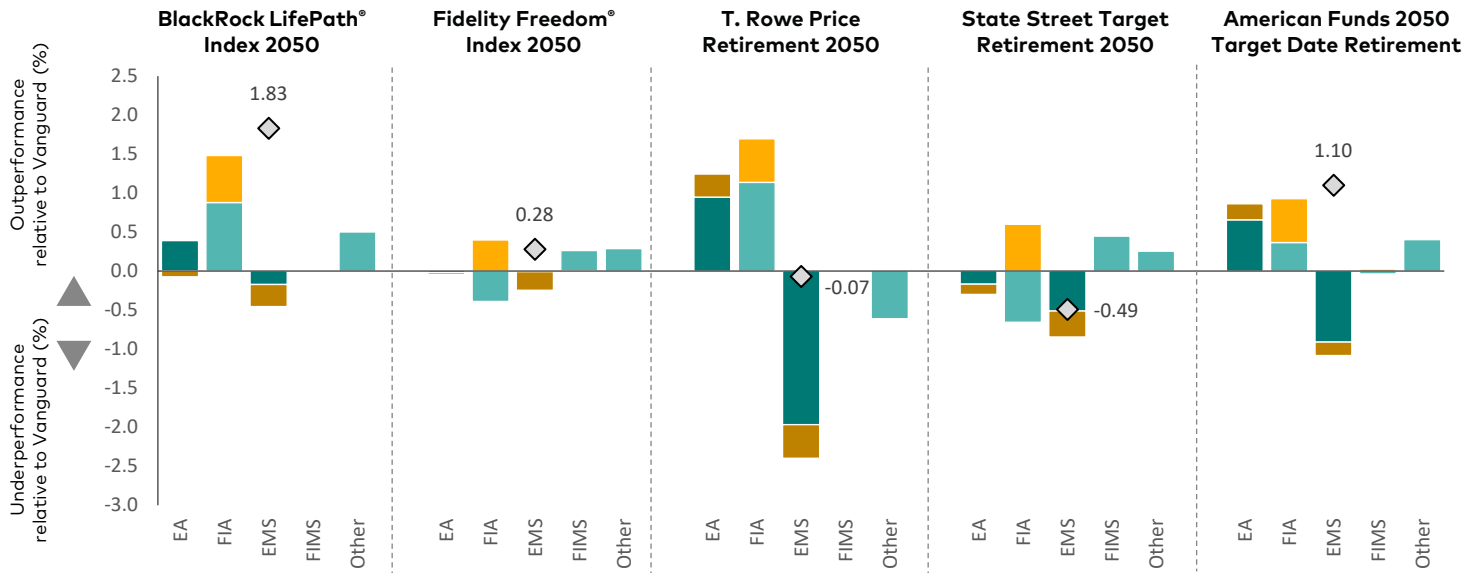
Note: Due to spacing issues, data labels below 7% are not displayed. Due to rounding, may not total to 100%.

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



# 12-month return attribution

Figure 22.1 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 primarily driven by an overweight to U.S. equity.
- **Fidelity's** outperformance relative to Vanguard was primarily driven by a larger exposure to U.S. long-term treasuries.
- **T. Rowe Price's** underperformance relative to Vanguard was driven by poor security selection across the allocation to both U.S. and international equities.
- **State Street's** underperformance was driven by gaps in the U.S. equity exposure, specifically the exclusion of mid-cap equities in favor of small-cap.
- **American Funds'** outperformance relative to Vanguard was driven by a higher overall allocation to equity securities, particularly in the U.S, despite poor security selection within this segment of the portfolio.

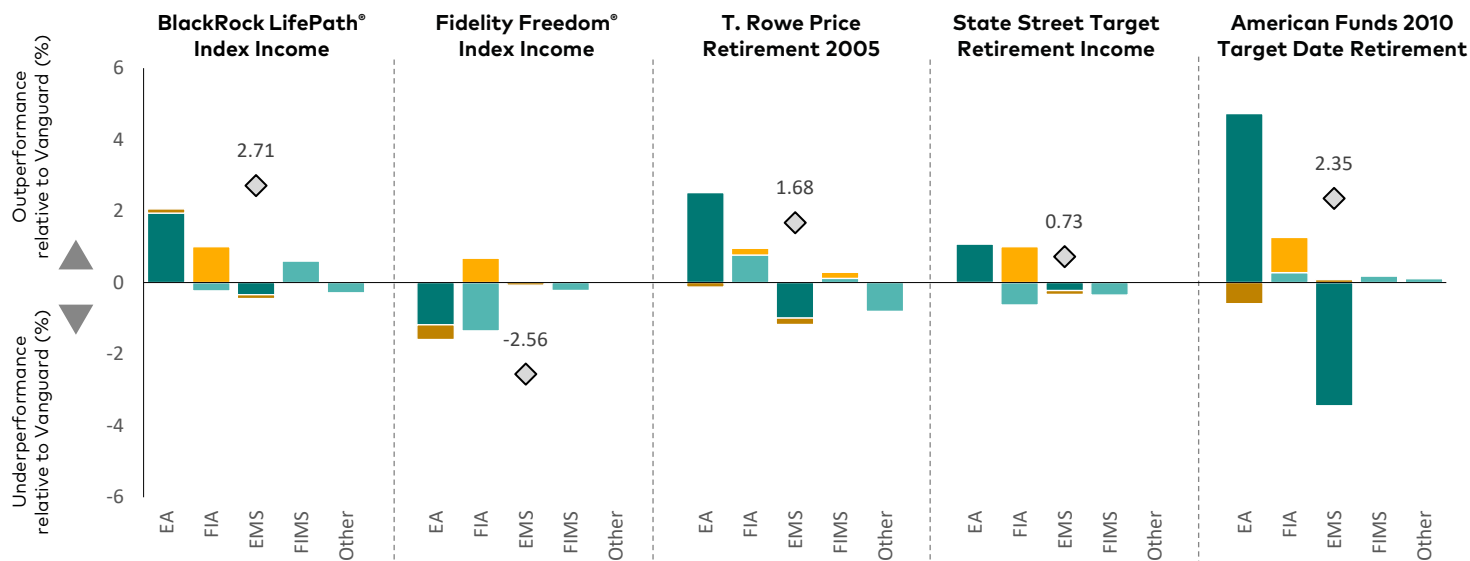
Past performance is not a guarantee of future results.

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



# 12-month return attribution (continued)

Figure 23.1 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 and a lower allocation to international fixed income 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 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.**

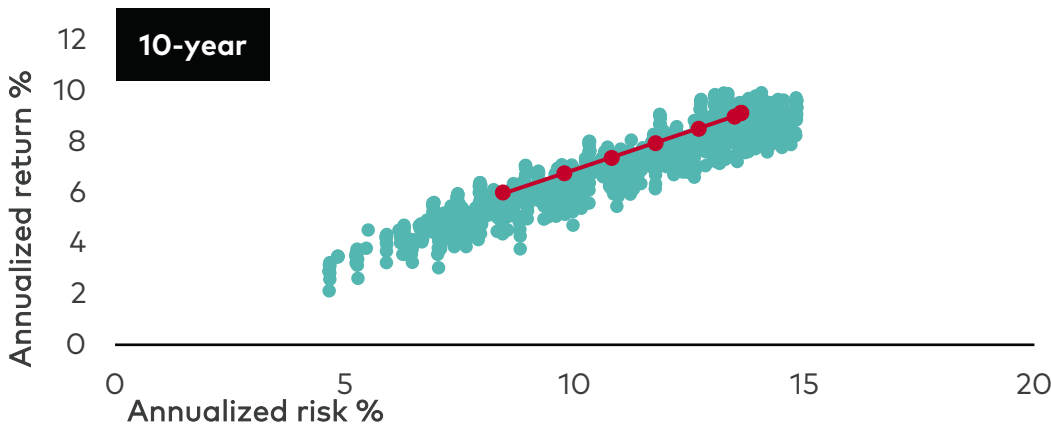
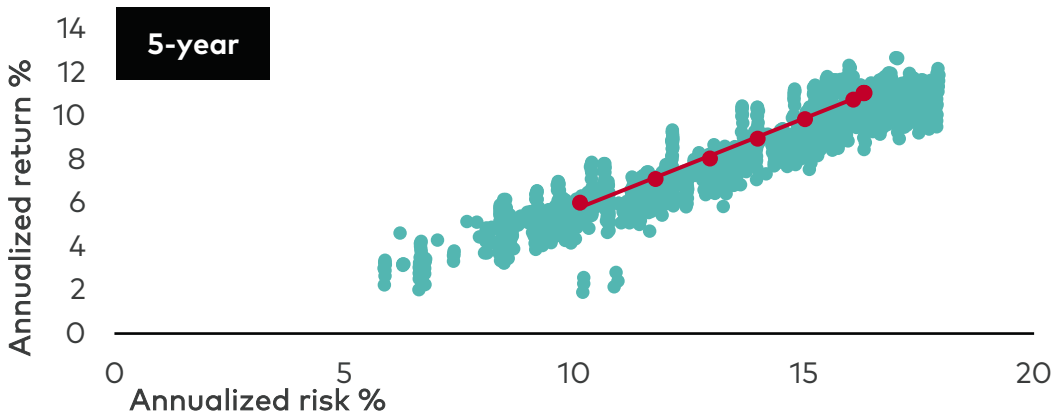
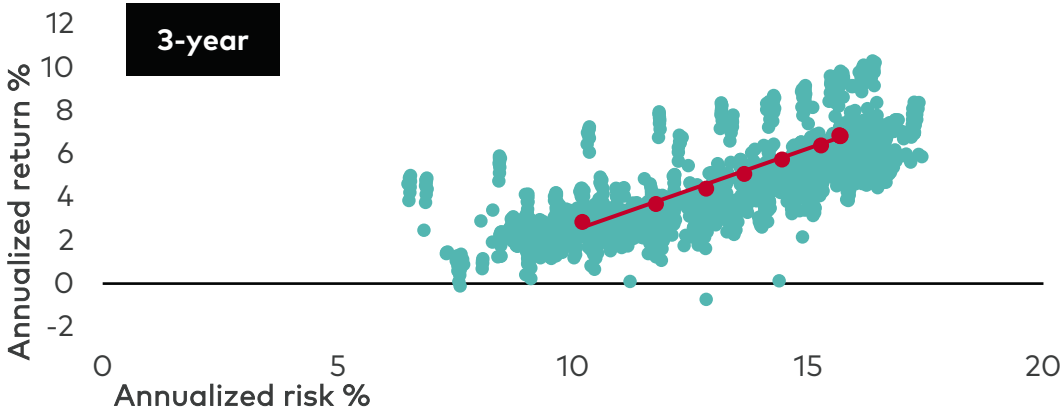
Sources: Morningstar and Vanguard calculations; data as of September 30, 2024.

\* 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 September 30, 2024. Vanguard Target Retirement Funds highlighted.





# Appendix

IN THIS SECTION:

Absolute performance results

# Appendix: Absolute performance results

Average annualized return  
as of September 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	5.12	8.27	16.22	2.19	4.45	4.51	5.09	10/27/2003
Target Retirement Income Composite Index	—	5.14	8.40	16.34	2.39	4.75	4.74	—	—
Lipper Target Target Consvr Funds Average	—	5.08	8.70	16.71	2.13	4.21	4.11	—	—
Fidelity Freedom Income	0.47	4.63	6.91	13.75	1.12	3.34	3.68	4.53	10/17/1996
Fidelity Freedom Index Income Investor	0.12	4.60	6.89	13.66	1.39	3.14	3.45	3.72	10/2/2009
T. Rowe Price Retirement 2005	0.49	4.73	9.64	17.90	2.70	5.73	5.30	5.71	2/27/2004
American Funds 2010 Trgt Date Retire R5	0.34	6.28	10.11	18.57	4.10	6.12	5.55	5.24	2/1/2007
BlackRock LifePath Index Retire K	0.13	5.84	9.62	18.94	2.08	5.17	5.16	5.37	5/31/2011
State Street Target Retirement K	0.26	5.46	9.14	16.95	2.97	5.46	4.91	4.91	9/30/2014
JPMorgan SmartRetirement® Income R5	0.47	5.35	10.41	19.22	2.93	4.96	4.76	5.12	5/15/2006
JPMorgan SmartRetirement® Blend IncomeR5	0.51	5.70	10.34	19.05	2.85	4.90	4.77	5.10	7/2/2012
Nuveen Lifecycle Retire Income R6	0.56	4.40	9.26	17.04	2.68	5.48	5.37	5.17	11/30/2007
<b>Vanguard Target Retirement 2020 Fund</b>	0.08	5.37	9.49	18.25	2.86	6.01	5.99	6.19	6/7/2006
Target Retirement 2020 Composite Index	—	5.41	9.61	18.34	3.11	6.37	6.27	—	—
Lipper Target 2020 Funds Average	—	5.47	10.03	18.87	2.74	5.54	5.11	—	—
Fidelity Freedom 2020	0.56	5.44	10.51	20.19	2.40	6.51	6.21	6.65	10/17/1996
Fidelity Freedom Index 2020 Investor	0.12	5.71	10.27	19.89	2.57	5.93	5.94	6.86	10/2/2009
T. Rowe Price Retirement 2020	0.52	5.06	10.91	19.89	3.38	7.16	6.72	8.10	9/30/2002
American Funds 2020 Trgt Date Retire R5	0.36	6.30	11.01	20.45	4.34	6.91	6.33	5.85	2/1/2007
State Street Target Retirement 2020 K	0.24	5.62	9.39	17.67	3.03	6.18	5.92	5.92	9/30/2014
JPMorgan SmartRetirement 2020 R5	0.46	5.32	10.37	19.14	2.89	5.12	5.30	5.72	5/15/2006
JPMorgan SmartRetirement® Blend 2020 R5	0.50	5.70	10.35	19.10	2.90	5.15	5.33	6.20	7/2/2012
Nuveen Lifecycle 2020 R6	0.53	4.48	9.99	18.48	3.03	6.31	6.22	5.70	1/17/2007
<b>Vanguard Target Retirement 2025 Fund</b>	0.08	5.85	11.26	21.13	3.68	7.09	6.74	6.83	10/27/2003
Target Retirement 2025 Composite Index	—	5.89	11.40	21.26	4.01	7.55	7.06	—	—
Lipper Target 2025 Funds Average	—	5.54	10.45	19.69	2.94	6.01	5.67	—	—
Fidelity Freedom 2025	0.61	5.69	11.57	22.01	2.95	7.33	6.75	6.58	11/6/2003
Fidelity Freedom Index 2025 Investor	0.12	6.09	11.36	21.75	3.13	6.69	6.50	7.57	10/2/2009
T. Rowe Price Retirement 2025	0.54	5.16	11.52	21.06	3.64	7.90	7.32	7.29	2/27/2004
American Funds 2025 Trgt Date Retire R5	0.37	6.16	11.28	21.24	4.32	7.74	7.01	6.50	2/1/2007
JPMorgan SmartRetirement 2025 R5	0.46	5.43	11.01	20.59	3.28	6.13	6.07	5.90	7/31/2007
JPMorgan SmartRetirement® Blend 2025 R5	0.49	5.90	11.03	20.52	3.28	6.13	6.09	7.08	7/2/2012
Nuveen Lifecycle 2025 R6	0.55	4.56	10.70	19.76	3.42	7.07	6.78	6.00	1/17/2007
BlackRock Lifepath Index 2025 K	0.13	5.87	9.94	19.65	2.44	5.98	6.02	6.32	5/31/2011
State Street Target Retirement 2025 K	0.23	6.03	11.01	20.60	3.57	7.41	6.95	6.95	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)

Average annualized return  
as of September 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 2030 Fund</b>	0.08	6.17	12.54	23.27	4.40	8.04	7.35	6.98	6/7/2006
Target Retirement 2030 Composite Index	—	6.27	12.70	23.41	4.74	8.50	7.68	—	—
Lipper Target 2030 Funds Average	—	5.72	11.62	21.76	3.66	7.17	6.46	—	—
Fidelity Freedom 2030	0.65	5.75	12.53	23.42	3.62	8.33	7.57	7.10	10/17/1996
Fidelity Freedom Index 2030 Investor	0.12	6.22	12.19	23.02	3.77	7.59	7.31	8.27	10/2/2009
T. Rowe Price Retirement 2030	0.56	5.47	12.78	23.27	4.17	8.79	7.97	9.04	9/30/2002
American Funds 2030 Trgt Date Retire R5	0.38	6.13	12.58	23.47	4.97	8.83	7.96	7.19	2/1/2007
JPMorgan SmartRetirement 2030 R5	0.46	5.74	12.61	23.28	4.31	7.35	6.89	6.76	5/15/2006
JPMorgan SmartRetirement® Blend 2030 R5	0.47	6.16	12.56	23.06	4.24	7.37	6.93	7.99	7/2/2012
Nuveen Lifecycle 2030 R6	0.57	4.71	11.79	21.46	4.02	7.98	7.40	6.29	1/17/2007
BlackRock Lifepath Index 2030 K	0.13	6.28	11.72	22.39	3.64	7.36	6.94	7.11	5/31/2011
State Street Target Retirement 2030 K	0.19	6.51	12.55	23.57	4.11	8.40	7.63	7.63	9/30/2014
<b>Vanguard Target Retirement 2035 Fund</b>	0.08	6.30	13.61	24.76	5.07	8.95	7.93	7.70	10/27/2003
Target Retirement 2035 Composite Index	—	6.44	13.75	24.96	5.41	9.41	8.26	—	—
Lipper Target 2035 Funds Average	—	5.95	13.40	24.54	4.65	8.61	7.45	—	—
Fidelity Freedom 2035	0.69	5.77	14.05	25.78	4.73	10.01	8.57	7.52	11/6/2003
Fidelity Freedom Index 2035 Investor	0.12	6.37	13.67	25.32	4.87	9.12	8.31	9.16	10/2/2009
T. Rowe Price Retirement 2035	0.59	5.77	14.28	25.60	4.84	9.74	8.58	8.04	2/27/2004
American Funds 2035 Trgt Date Retire R5	0.40	6.25	14.16	26.03	5.69	10.34	9.02	7.78	2/1/2007
JPMorgan SmartRetirement 2035 R5	0.51	5.85	14.37	25.94	5.43	9.07	7.79	6.98	7/31/2007
JPMorgan SmartRetirement® Blend 2035 R5	0.48	6.37	14.03	25.35	5.30	8.64	7.71	8.81	7/2/2012
Nuveen Lifecycle 2035 R6	0.60	4.81	13.06	23.50	4.76	8.96	8.05	6.71	1/17/2007
BlackRock Lifepath Index 2035 K	0.14	6.58	13.32	24.85	4.74	8.65	7.79	7.84	5/31/2011
State Street Target Retirement 2035 K	0.18	6.85	13.48	25.44	4.45	9.00	8.05	8.05	9/30/2014
<b>Vanguard Target Retirement 2040 Fund</b>	0.08	6.43	14.61	26.33	5.75	9.85	8.49	7.72	6/7/2006
Target Retirement 2040 Composite Index	—	6.61	14.80	26.51	6.07	10.30	8.83	—	—
Lipper Target 2040 Funds Average	—	6.02	14.85	26.82	5.50	9.59	7.97	—	—
Fidelity Freedom 2040	0.73	5.85	16.01	28.65	5.96	11.41	9.23	5.59	9/6/2000
Fidelity Freedom Index 2040 Investor	0.12	6.61	15.60	28.15	6.09	10.45	8.97	9.65	10/2/2009
T. Rowe Price Retirement 2040	0.60	5.91	15.49	27.40	5.39	10.53	9.09	9.65	9/30/2002
American Funds 2040 Trgt Date Retire R5	0.42	6.24	15.75	28.81	6.50	11.35	9.61	8.14	2/1/2007
JPMorgan SmartRetirement 2040 R5	0.53	5.90	15.47	27.75	6.21	10.08	8.40	7.72	5/15/2006
JPMorgan SmartRetirement® Blend 2040 R5	0.49	6.49	15.18	27.12	6.06	9.56	8.32	9.40	7/2/2012
Nuveen Lifecycle 2040 R6	0.63	4.77	14.36	25.82	5.66	10.05	8.72	7.19	1/17/2007
BlackRock Lifepath Index 2040 K	0.14	6.80	14.79	27.24	5.77	9.83	8.55	8.51	5/31/2011
State Street Target Retirement 2040 K	0.17	6.94	14.24	26.61	4.81	9.58	8.39	8.39	9/30/2014

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Data from Vanguard and Morningstar.



# Appendix: Absolute performance results *(continued)*

Average annualized return  
as of September 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	6.57	15.60	27.82	6.39	10.74	8.97	8.42	10/27/2003
Target Retirement 2045 Composite Index	—	6.77	15.86	28.08	6.73	11.18	9.32	—	—
Lipper Target 2045 Funds Average	—	6.18	15.79	28.16	6.04	10.28	8.47	—	—
Fidelity Freedom 2045	0.75	5.94	16.80	29.83	6.34	11.66	9.35	7.39	6/1/2006
Fidelity Freedom Index 2045 Investor	0.12	6.69	16.32	29.15	6.44	10.67	9.08	9.76	10/2/2009
T. Rowe Price Retirement 2045	0.61	6.00	16.27	28.52	5.85	11.12	9.41	8.60	5/31/2005
American Funds 2045 Trgt Date Retire R5	0.42	6.30	16.23	29.66	6.63	11.60	9.80	8.25	2/1/2007
JPMorgan SmartRetirement 2045 R5	0.53	5.92	16.35	29.16	6.80	10.83	8.79	7.68	7/31/2007
JPMorgan SmartRetirement® Blend 2045 R5	0.47	6.59	16.01	28.47	6.68	10.27	8.67	9.68	7/2/2012
Nuveen Lifecycle 2045 R6	0.65	4.74	15.34	27.15	6.15	10.90	9.19	7.16	11/30/2007
BlackRock Lifepath Index 2045 K	0.14	7.05	16.28	29.37	6.75	10.89	9.19	9.05	5/31/2011
State Street Target Retirement 2045 K	0.16	7.04	14.74	27.53	5.06	10.02	8.67	8.67	9/30/2014
<b>Vanguard Target Retirement 2050 Fund</b>	0.08	6.71	16.36	28.91	6.83	11.05	9.13	8.09	6/7/2006
Target Retirement 2050 Composite Index	—	6.91	16.68	29.26	7.17	11.52	9.49	—	—
Lipper Target 2050 Funds Average	—	6.19	16.22	28.88	6.27	10.50	8.57	—	—
Fidelity Freedom 2050	0.75	5.94	16.87	29.78	6.34	11.66	9.35	7.29	6/1/2006
Fidelity Freedom Index 2050 Investor	0.12	6.68	16.33	29.19	6.46	10.68	9.09	9.80	10/2/2009
T. Rowe Price Retirement 2050	0.63	5.98	16.45	28.84	6.01	11.22	9.46	7.95	12/29/2006
American Funds 2050 Trgt Date Retire R5	0.43	6.26	16.42	30.01	6.51	11.65	9.85	8.28	2/1/2007
JPMorgan SmartRetirement 2050 R5	0.53	5.90	16.80	29.79	7.00	10.95	8.84	7.72	7/31/2007
JPMorgan SmartRetirement® Blend 2050 R5	0.47	6.63	16.44	29.11	6.87	10.43	8.76	9.76	7/2/2012
Nuveen Lifecycle 2050 R6	0.66	4.79	15.82	27.97	6.40	11.16	9.35	7.24	11/30/2007
BlackRock Lifepath Index 2050 K	0.14	7.10	17.26	30.75	7.35	11.48	9.53	9.37	5/31/2011
State Street Target Retirement 2050 K	0.18	7.19	15.25	28.42	5.36	10.40	8.81	8.81	9/30/2014
<b>Vanguard Target Retirement 2055 Fund</b>	0.08	6.73	16.37	28.92	6.84	11.05	9.11	10.41	8/18/2010
Target Retirement 2055 Composite Index	—	6.91	16.68	29.26	7.17	11.52	9.49	—	—
Lipper Target 2055+ Funds Average	—	6.27	16.48	29.25	6.40	10.70	8.77	—	—
Fidelity Freedom 2055	0.75	5.97	16.80	29.79	6.34	11.66	9.34	9.17	6/1/2011
Fidelity Freedom Index 2055 Investor	0.12	6.68	16.29	29.20	6.44	10.68	9.08	8.98	6/1/2011
T. Rowe Price Retirement 2055	0.64	6.06	16.59	29.01	6.02	11.21	9.45	7.94	12/29/2006
American Funds 2055 Trgt Date Retire R5	0.43	6.17	16.55	30.36	6.45	11.63	9.84	10.76	2/1/2010
JPMorgan SmartRetirement 2055 R5	0.54	5.91	16.80	29.81	7.00	10.95	8.85	9.99	1/31/2012
JPMorgan SmartRetirement® Blend 2055 R5	0.48	6.63	16.51	29.14	6.91	10.44	8.76	9.72	7/2/2012
Nuveen Lifecycle 2055 R6	0.67	4.79	15.95	28.14	6.47	11.28	9.43	9.35	4/29/2011
BlackRock Lifepath Index 2055 K	0.14	7.13	17.71	31.26	7.58	11.66	9.63	9.52	5/31/2011
State Street Target Retirement 2055 K	0.19	7.27	15.36	28.54	5.42	10.40	8.83	8.83	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 September 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	6.72	16.37	28.93	6.84	11.05	9.11	10.24	1/19/2012
Target Retirement 2060 Composite Index	—	6.91	16.68	29.26	7.17	11.52	9.49	—	—
Lipper Target 2060+ Funds Average	—	6.26	16.63	29.49	6.51	10.76	—	—	—
Fidelity Freedom 2060	0.75	5.96	16.80	29.81	6.36	11.65	9.33	9.29	8/5/2014
Fidelity Freedom Index 2060 Investor	0.12	6.70	16.31	29.12	6.44	10.68	9.08	8.99	8/5/2014
T. Rowe Price Retirement 2060	0.64	6.03	16.59	29.01	6.01	11.21	9.45	9.01	6/23/2014
American Funds 2060 Trgt Date Retire R5	0.44	6.15	16.56	30.40	6.39	11.59	—	9.85	3/27/2015
JPMorgan SmartRetirement 2060 R5	0.56	5.90	16.85	29.81	7.01	10.93	—	10.14	8/31/2016
JPMorgan SmartRetirement® Blend 2060 R5	0.53	6.61	16.46	29.12	6.95	10.43	—	9.85	8/31/2016
Nuveen Lifecycle 2060 R6	0.69	4.79	16.08	28.39	6.57	11.42	9.53	9.44	9/26/2014
BlackRock Lifepath Index 2060 K	0.14	7.12	17.71	31.24	7.58	11.65	—	11.90	2/29/2016
State Street Target Retirement 2060 K	0.23	7.24	15.30	28.57	5.39	10.41	8.81	8.81	9/30/2014
<b>Vanguard Target Retirement 2065 Fund</b>	0.08	6.74	16.39	28.95	6.87	11.04	—	9.82	7/12/2017
Target Retirement 2065 Composite Index	—	6.91	16.68	29.26	7.17	11.52	9.43	—	—
Lipper Target 2060+ Funds Average	—	6.26	16.63	29.49	6.51	10.76	—	—	—
Fidelity Freedom 2065	0.75	5.99	16.80	29.80	6.35	11.63	—	10.92	6/28/2019
Fidelity Freedom Index 2065 Investor	0.13	6.74	16.30	29.22	6.45	10.68	—	10.26	6/28/2019
T. Rowe Price Retirement 2065	0.64	6.03	16.56	28.94	6.08	—	—	10.62	10/13/2020
American Funds 2065 Trgt Date Retire R5	0.44	6.16	16.55	30.43	6.40	—	—	16.09	3/27/2020
JPMorgan SmartRetirement® Blend 2065 R5	16.89	6.53	16.57	28.73	—	—	—	20.57	11/1/2022
Nuveen Lifecycle 2065 R6	0.96	4.77	16.23	28.55	6.72	—	—	11.59	9/30/2020
BlackRock Lifepath Index 2065 K	0.15	7.05	17.68	31.25	7.59	—	—	11.34	10/30/2019
State Street Target Retirement 2065 K	0.33	7.19	15.33	28.50	5.38	—	—	14.37	3/30/2020
<b>Vanguard Target Retirement 2070 Fund</b>	0.08	6.73	16.37	28.98	—	—	—	16.56	6/28/2022
Target Retirement 2070 Composite Index	—	6.91	16.68	29.26	7.17	11.52	9.43	—	—
Lipper Target 2060+ Funds Average	—	6.26	16.63	29.49	6.51	10.76	—	—	—

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Data from Vanguard and Morningstar.

# Appendix: Standardized returns

	Average annualized return as of September 30, 2024								Inception date
	Expense ratio	3 months	Year- to-date	1 year	3 years	5 years	10 years	Since inception	
Vanguard Total Stock Market Index Fund Institutional Shares	0.03	6.17	20.58	35.26	10.11	15.19	12.78	9.10	7/7/1997
Vanguard Total International Stock Index Fund Institutional Shares	0.09	8.03	13.59	24.92	4.03	7.77	5.45	5.59	11/29/2010
Vanguard Total Bond Market Index Fund Institutional Shares	0.035	5.07	4.42	11.42	-1.42	0.32	1.83	4.32	9/18/1995
Vanguard Total International Bond Index Fund Institutional Shares	0.07	4.12	3.61	10.39	-0.65	-0.15	2.19	2.47	5/31/2013
Vanguard Short-Term Inflation-Protected Securities Index Fund Institutional Shares	0.04	2.50	4.85	7.53	2.54	3.56	2.40	1.94	10/17/2012

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.

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# Important information

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**Target 2015 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 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, as well as the Bloomberg U.S. Treasury Inflation-Protected Securities Index through June 2, 2013, and the Bloomberg U.S. Treasury Inflation-Protected Securities (TIPS) 0-5 Year 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.

**Target 2020, 2030, 2040, and 2050 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 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 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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