

Prepared for

County of Sacramento

June 14, 2024

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Target Retirement Funds and Trusts 1Q 2024 update

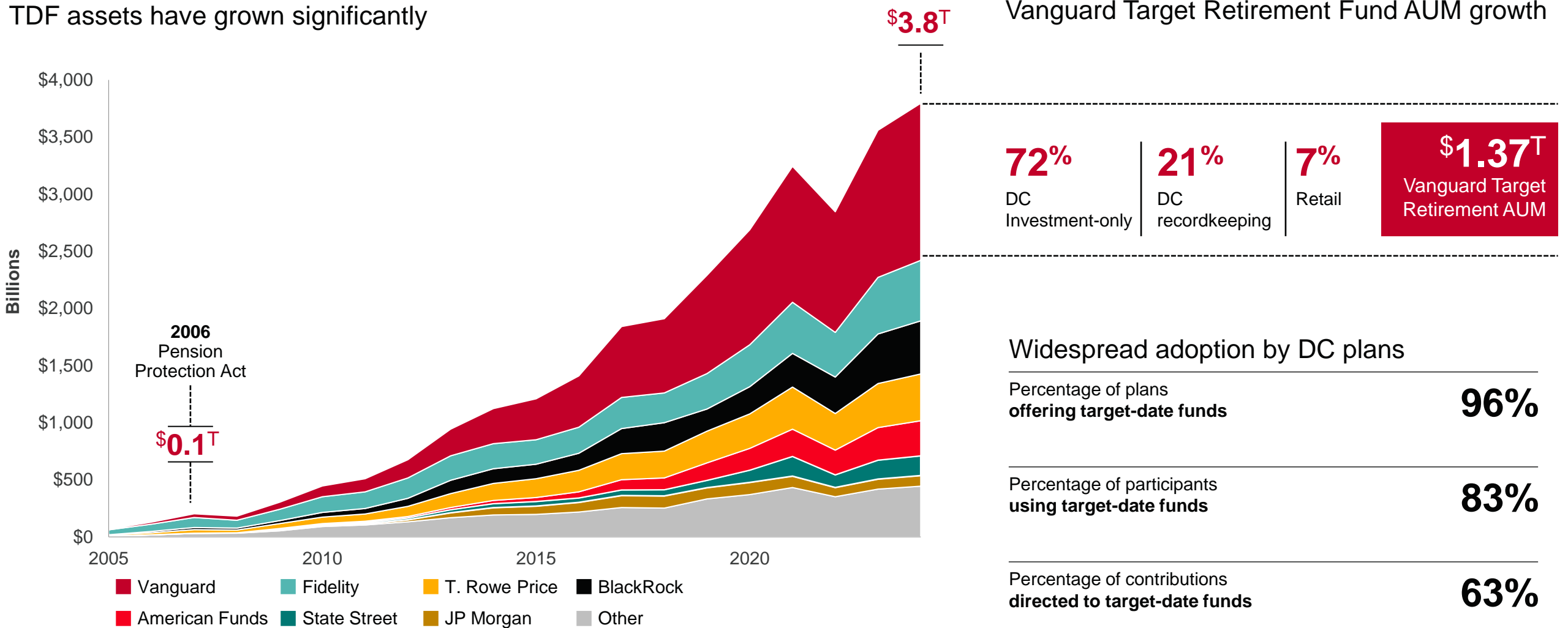


Geoffrey Crim
Client Account Executive

June 14, 2024

TDFs have become the cornerstone of retirement plans

TDF assets have grown significantly



Sources: TDF assets are based on data from Vanguard, Morningstar, and company public filings, as of March 31, 2024. Data on TDF use in defined contribution (DC) plans is taken from *How America Saves 2023* and is for Vanguard-administered DC plans only.

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Our key TDF components that power participant success

Aligned interests →

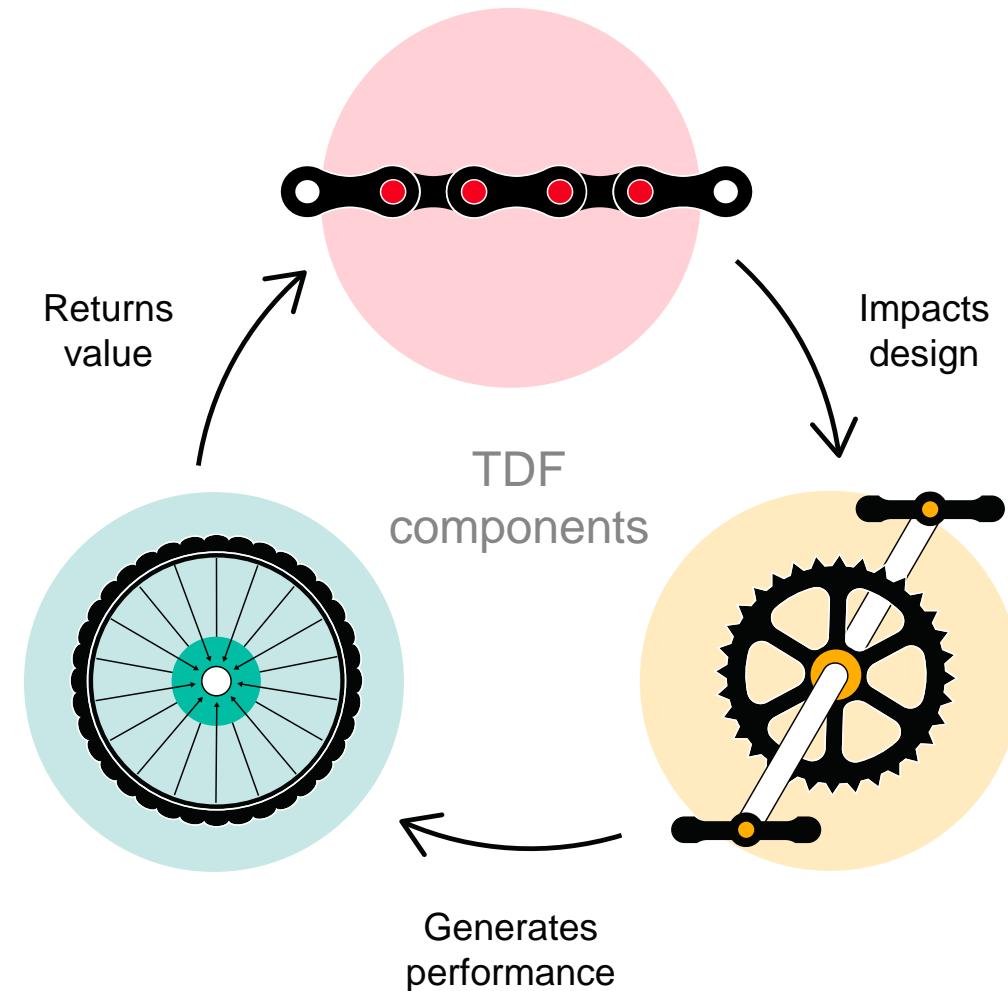
Because Vanguard is the only investor-owned firm in our industry, we're focused on your best interests, seeing your participants' hopes, goals, and dreams as our own.*

Purposeful design and evolution →

We design our TDFs to help give participants the best chance for a lasting retirement income, and we constantly evaluate new ideas for improving investor outcomes.

Time-tested performance →

Our absolute and risk-adjusted performance has been consistently strong through multiple market cycles and up-and-down markets.



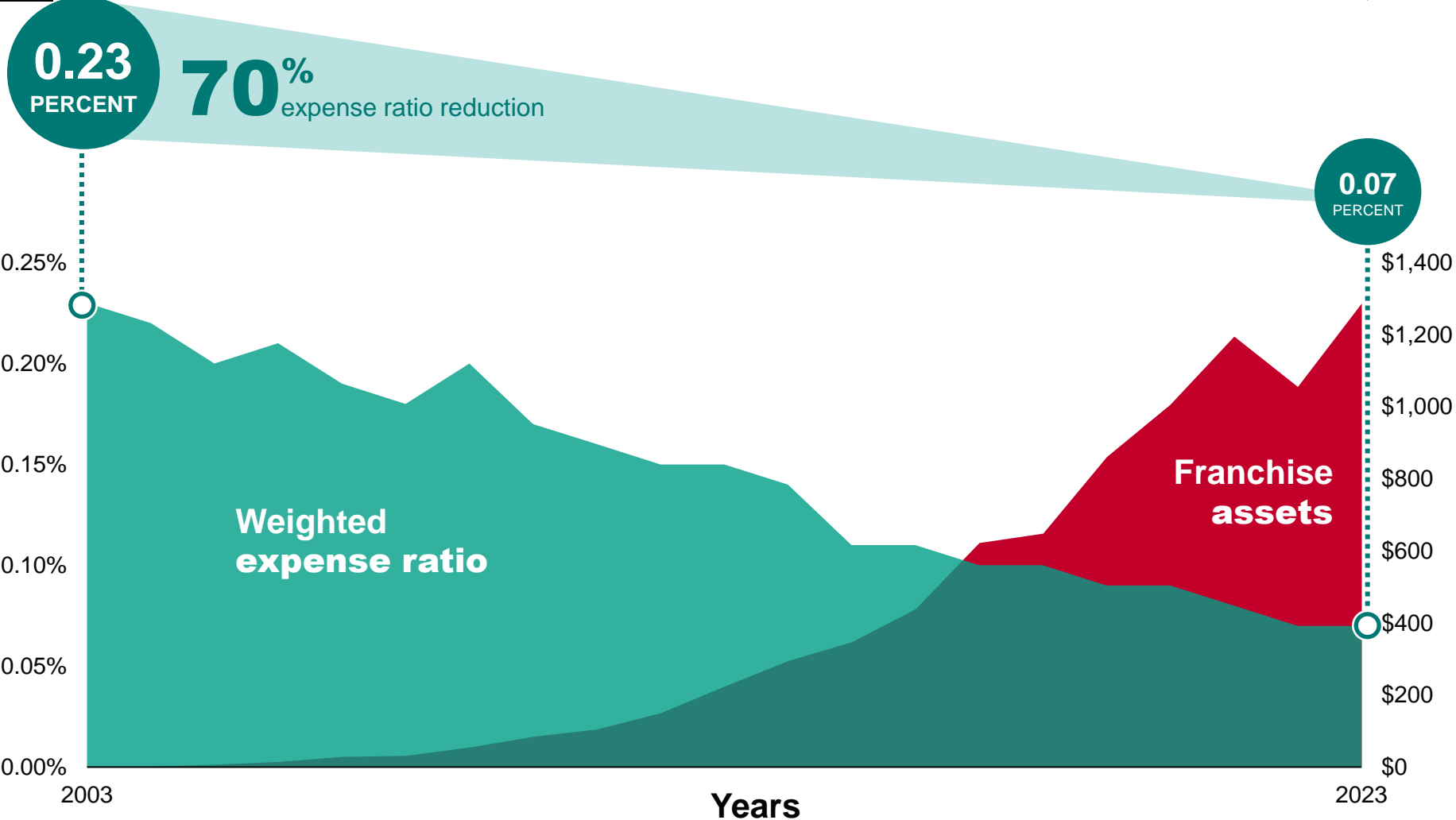
* Fund shareholders own the funds that own Vanguard.

Aligned interests

How we return value to you and your participants

Lowering costs is half the equation of returning value, and the other half is reinvesting in the business.

1 WE LOWER COSTS



2 WE REINVEST IN:

- **Products**
 - **Services**
 - **Processes**
- ... ultimately benefiting participants

Source: Vanguard data from December 31, 2003, to December 31, 2023. Franchise assets include Vanguard Target Retirement Funds and Trusts.



Dedicated expertise at every step of the process

From analyst to CEO, an extensive group of dedicated professionals strive to maximize participants' chances for retirement success

GLOBAL INVESTMENT COMMITTEE (GIC)

- Primary governance committee for all Vanguard products composed of global business leaders, including Vanguard's CEO
- Considers and approves investment matters pertaining to all Vanguard products and provides organizational direction on strategic fund/investment initiatives



STRATEGIC ASSET ALLOCATION COMMITTEE (SAAC)

- Multi-asset governance committee composed of global investment leaders, including Vanguard's global CIO and chief economist
- Regularly reviews investment methodology, considers and approves investment strategies, and ensures a consistent approach across product and advice offers



PRODUCT MANAGEMENT

INVESTMENT MANAGEMENT

RISK MANAGEMENT

<p>Multi-Asset Solutions Team Portfolio Review Department</p> <ul style="list-style-type: none"> • Fund health and product oversight • Product research and new product development • Competitive analysis and landscape assessment 	<p>Multi-Asset Portfolio Management Team Investment Management Group</p> <ul style="list-style-type: none"> • Daily implementation of the strategic asset allocation • Portfolio rebalance policy execution • Daily cash-flow management 	<p>Portfolio Construction Team Investment Strategy Group</p> <ul style="list-style-type: none"> • Vanguard investment model development and maintenance • Strategic asset allocation methodology • Sub-asset allocation and portfolio construction research 	<p>Multi-Asset Risk Team Investment Management and Finance Risk</p> <ul style="list-style-type: none"> • Investment and operational risk monitoring/analysis • Ensure adherence to relevant policies/guardrails • Risk and performance assessments
<p> Brian Wimmer Head of Multi-Asset Solutions</p>	<p> Michael Roach Head of Multi-Asset Portfolio Management</p>	<p> Roger Aliaga-Díaz Chief Economist (Americas) and Global Head of Portfolio Construction</p>	<p> Venky Venkatesh Head of Multi-Asset Investment Risk</p>

Co-portfolio manager, Target Retirement Funds and Trusts

More information

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Purposeful design and evolution

Who are TDFs designed for?

- Broadest swath of participants
- Investors defaulted into TDFs
- One-stop shoppers

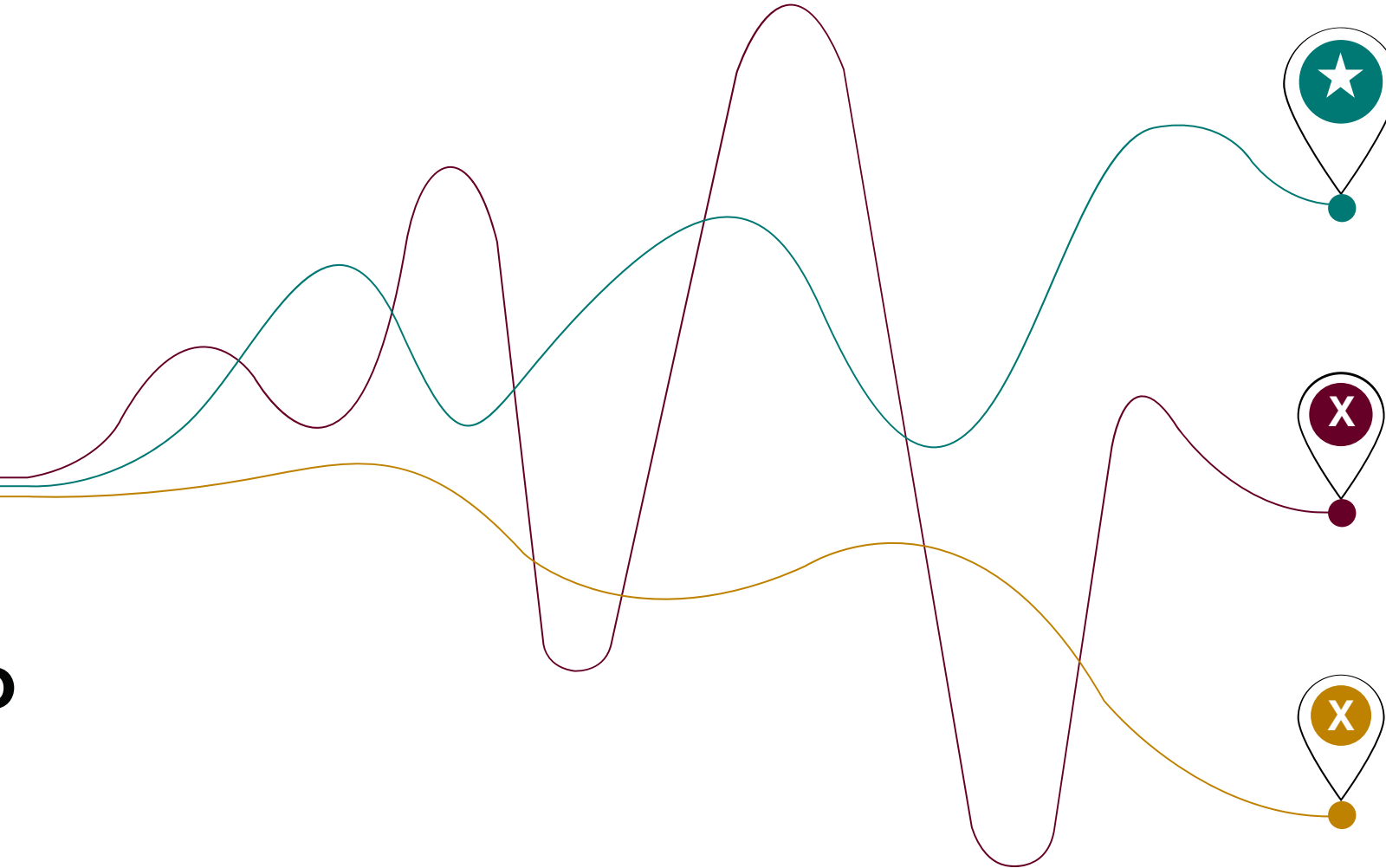
Based on national demographic averages with an assumed retirement age



What is the purpose of a TDF?



Where are we trying to go?

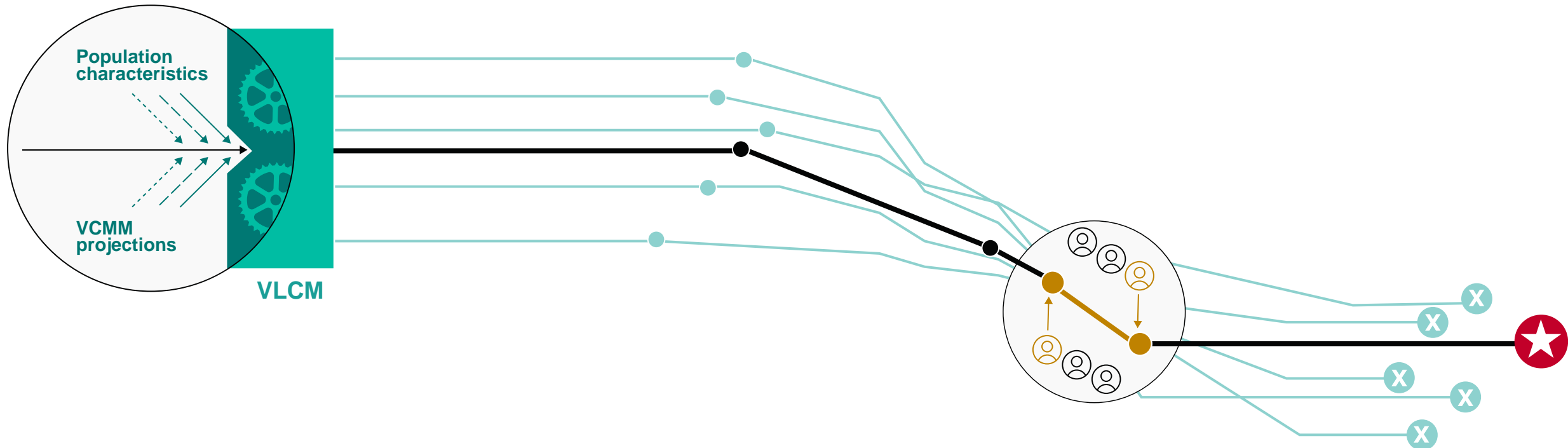


It's about getting participants to and through retirement with **enough income**.

It's NOT about **maximizing expected returns**, which risks panic selling and a wild ride into retirement.

It's NOT about **minimizing risk**, as investors may run out of money in retirement.

A glide path dedicated to improving investor outcomes



Inputs

- Participant population characteristics
- Vanguard Capital Markets Model® (VCMM) asset-class return projections

Constantly evaluated

Due diligence through constant analysis of existing glide path against thousands of simulated glide paths through our Vanguard Life-Cycle Investing Model (VLCM)

Designed for the real world

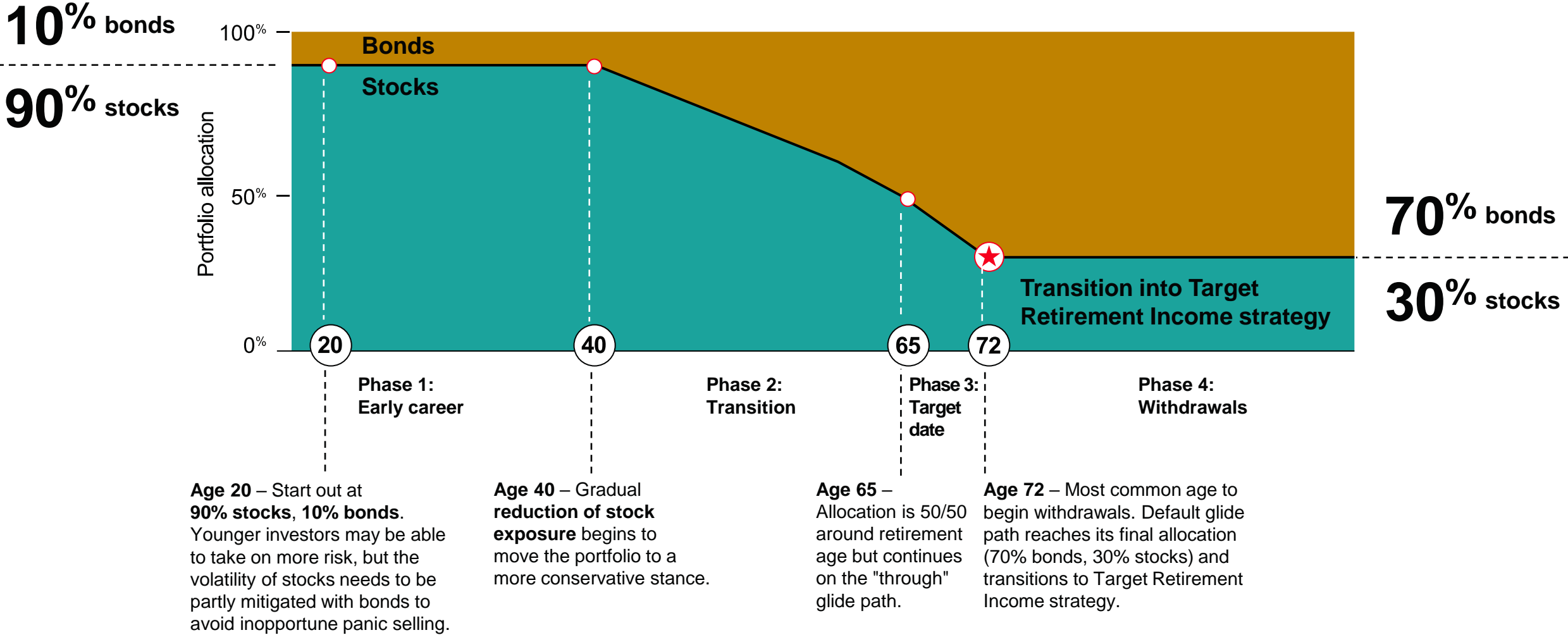
Practical considerations and observed participant behavior taken into account to meet the needs of real-world TDF investors

Outputs

- Retirement income sufficiency
- Wealth accumulation
- Portfolio volatility
- Maximum drawdown
- Probability of positive TDF balance at ages 85 and 95

Balancing risk and return at every stage of the investor's life

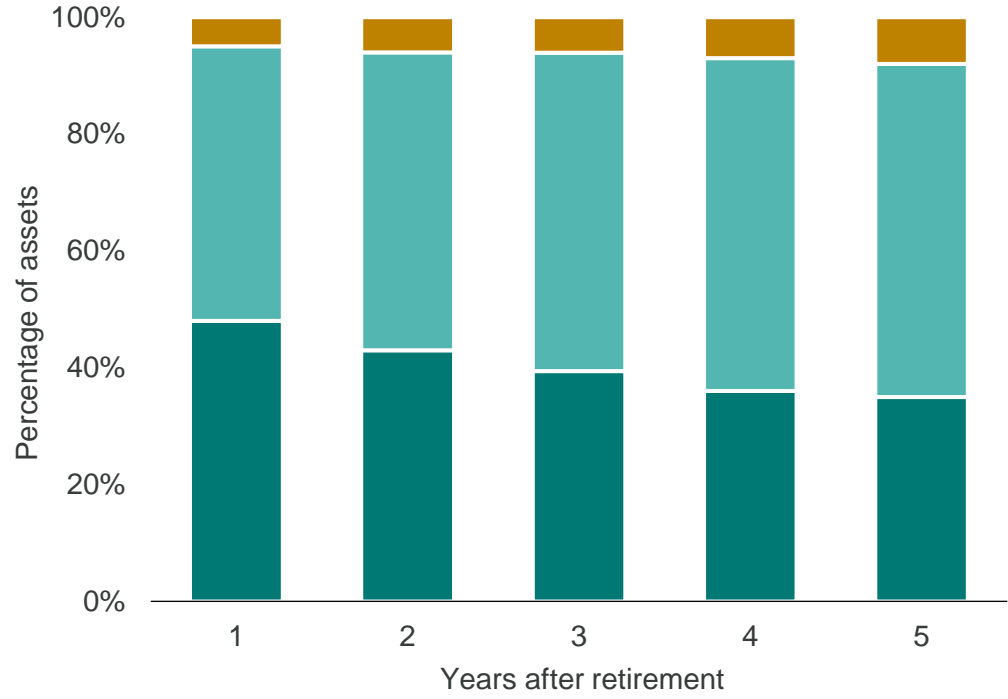
Glide path determined by time-tested investment principles and behavioral insights



Data on participant behavior supports a ‘through’ glide-path design

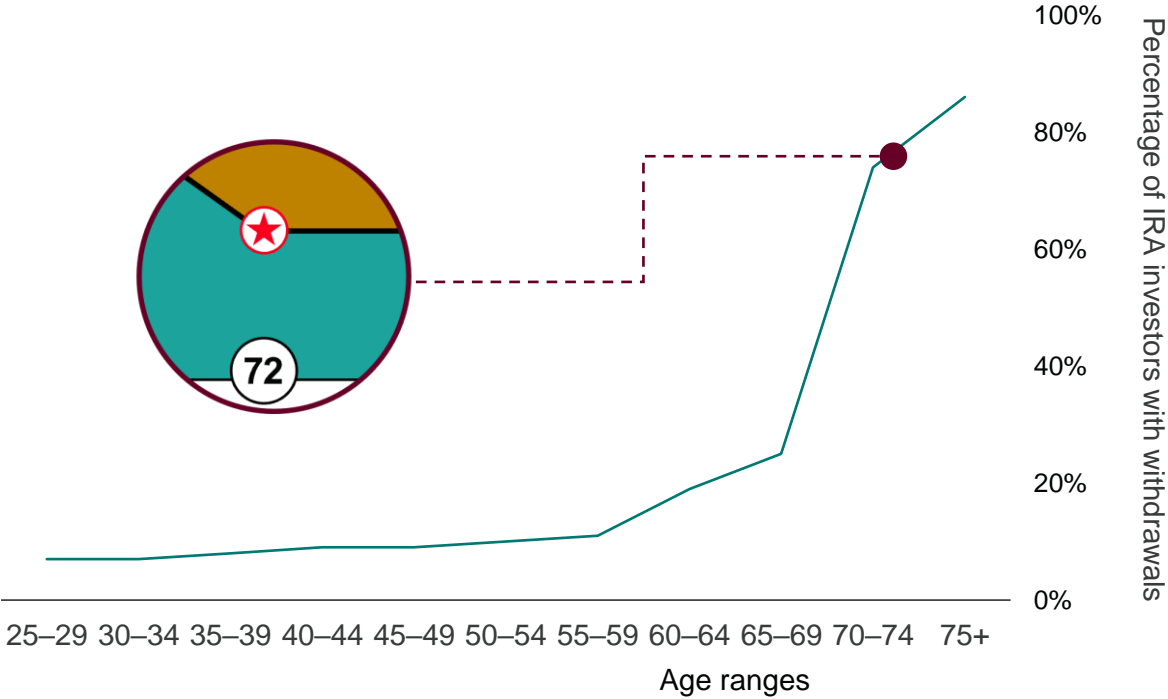
Within five years of retirement, about 60% of assets are rolled over . . .

. . . but investors typically don’t withdraw money after rolling over until around age 72



- Cash
- Rollover
- Remain in the plan

Source: Retirement distribution decisions among DC participants, Vanguard, February 2023.

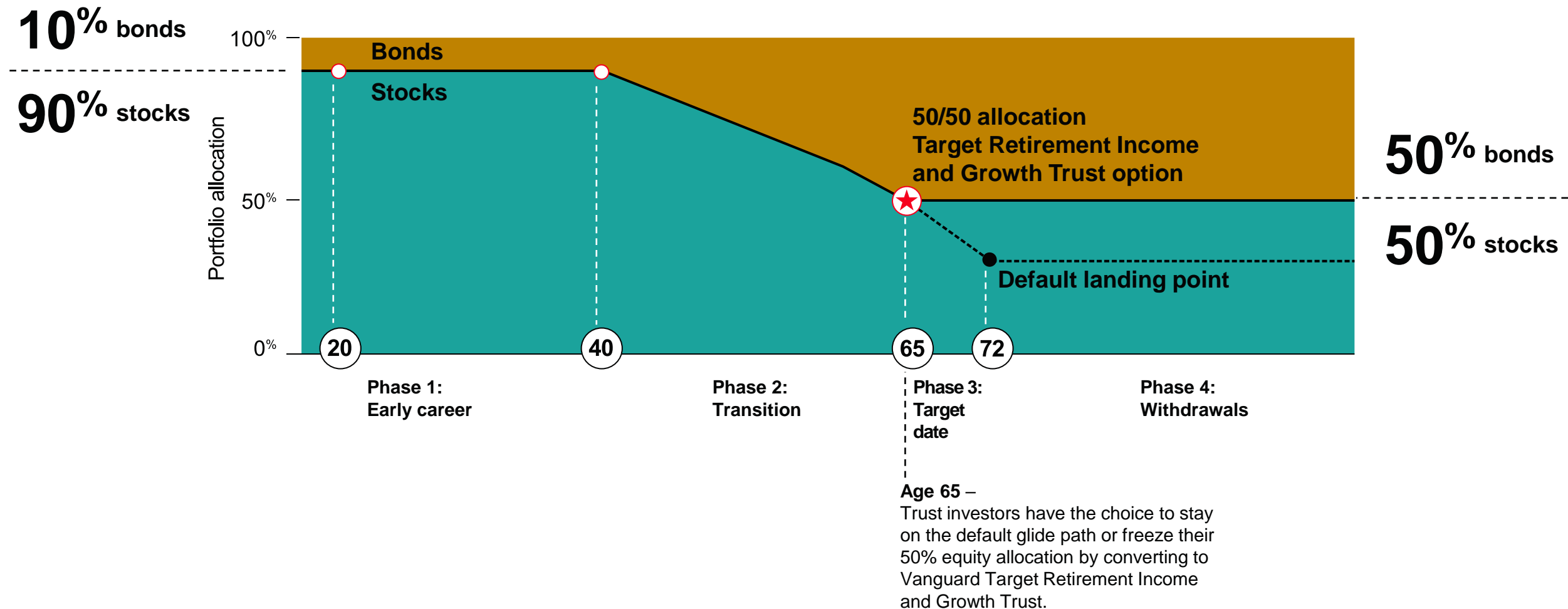


Source: Craig Copeland, “EBRI IRA Database: IRA Balances, Contributions, Rollovers, Withdrawals, and Asset Allocation, 2017 Update,” EBRI Issue Brief, no. 513 (Employee Benefit Research Institute, September 17, 2020).

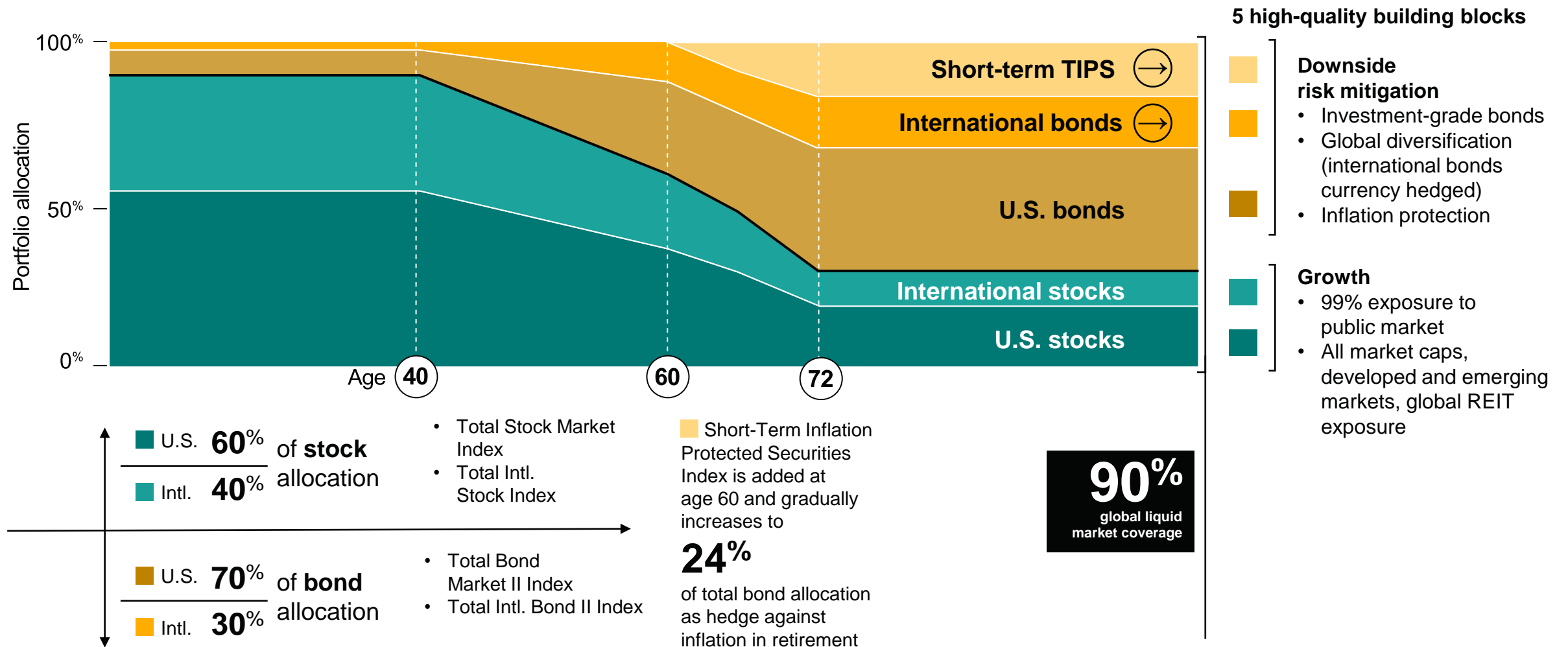


An alternative landing point for participants

Investors with the resources and risk tolerance may consider Target Retirement Income and Growth Trust



A strategic asset allocation using high-quality building blocks



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 Barclays 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.

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Key decisions in TDF construction

Active decisions

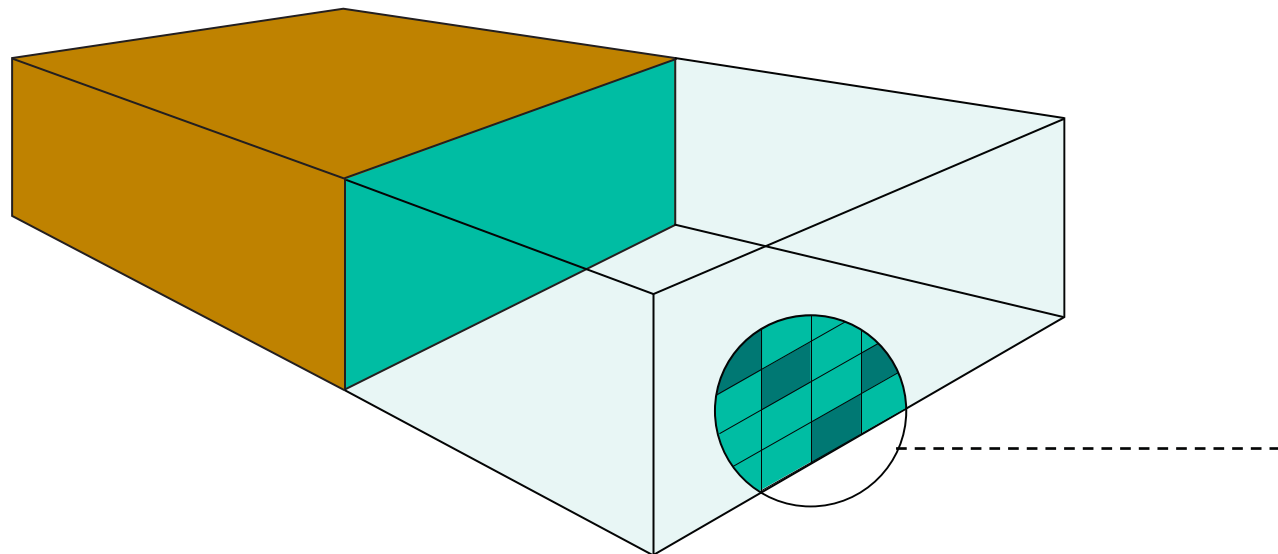
1. Glide path
2. Sub-asset allocation

Index, active, or blend decision

3. Implementation

Construction considerations

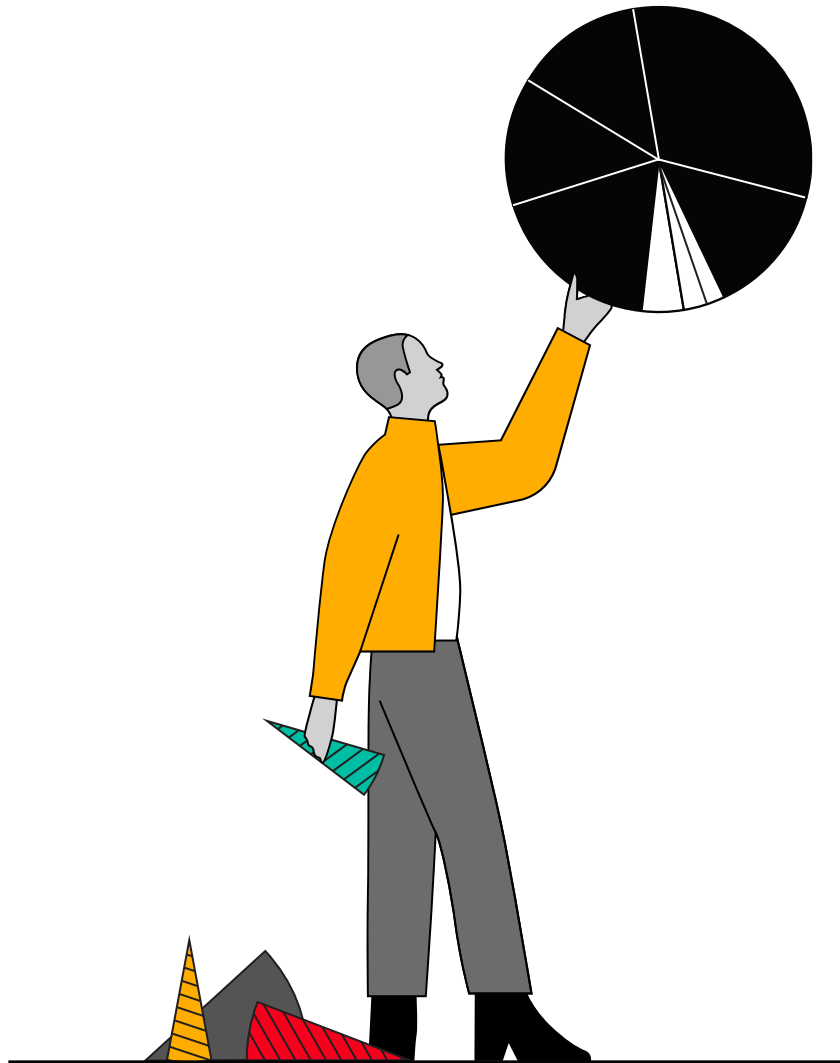
- Straightforward, transparent, liquid, cost-efficient?
- Constraints on glide path or underlying strategies?
- Tactical tilts?
- Undue risks?



Learn how Vanguard rebalances 

Index-based approach is leading the target-date market 

What's NOT in our TDFs, and why



We carefully evaluate strategies on:

- Appropriateness for the broadest swath of participants, including those disengaged and defaulted into TDFs
- Broad investment criteria (cost, simplicity, transparency, liquidity)
- Portfolio construction criteria (improve diversification, enhance return, reduce risk)
- Ability to materially improve long-term probability of retirement success

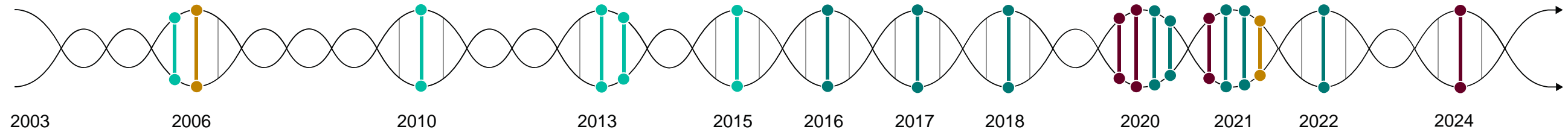
We exclude strategies that add volatility without adequate compensation in return or that fail to meet the criteria above.

Examples of strategies we do not currently include:

- High-yield bonds (→)
- Commodities
- Overweighting REITs (→)
- Tactical or static tilts based on size, style, sector, duration, etc.

Purposeful evolution through constant evaluation

Since our TDFs' 2003 inception, we've only made changes that can **meaningfully improve investor outcomes.**



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)

Improved fund/trust suite

- Launched five-year vintage increments (2006)
- Added Target Retirement Income and Growth Trust, an alternative landing point with a 50/50 allocation (2021)
- Added series 2065 (2017) and 2070 (2022) as part of the five-year vintage increments

Reduced implementation costs and tax drag

- Moved from quarterly to monthly glide-path rolldown (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)

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)
- Merged Institutional Target Retirement Funds into Target Retirement Funds (2022)

Vanguard's Target Retirement Trust options for participants near retirement

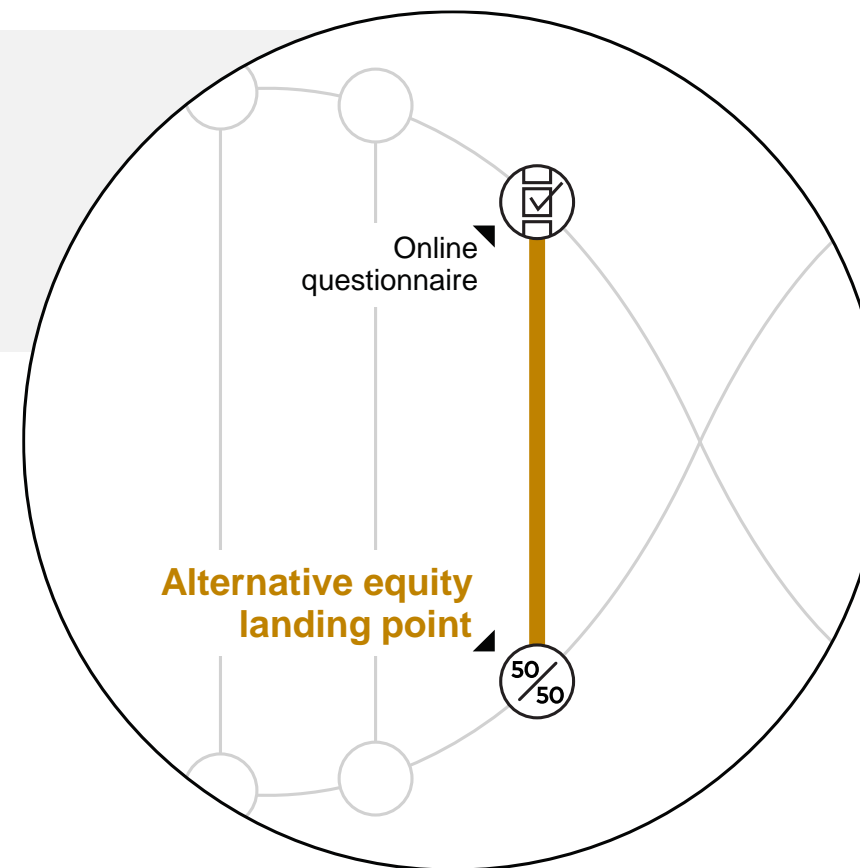


Investments

Vanguard Target Retirement Income and Growth Trust offers an alternative equity landing point for those participants who have more financial resources, alternative income streams in retirement, and the risk tolerance to take on a higher equity allocation to potentially fund higher spending goals in retirement.*

Participant guidance

Online questionnaire sent beginning at age 60 to help participants choose the appropriate landing point.



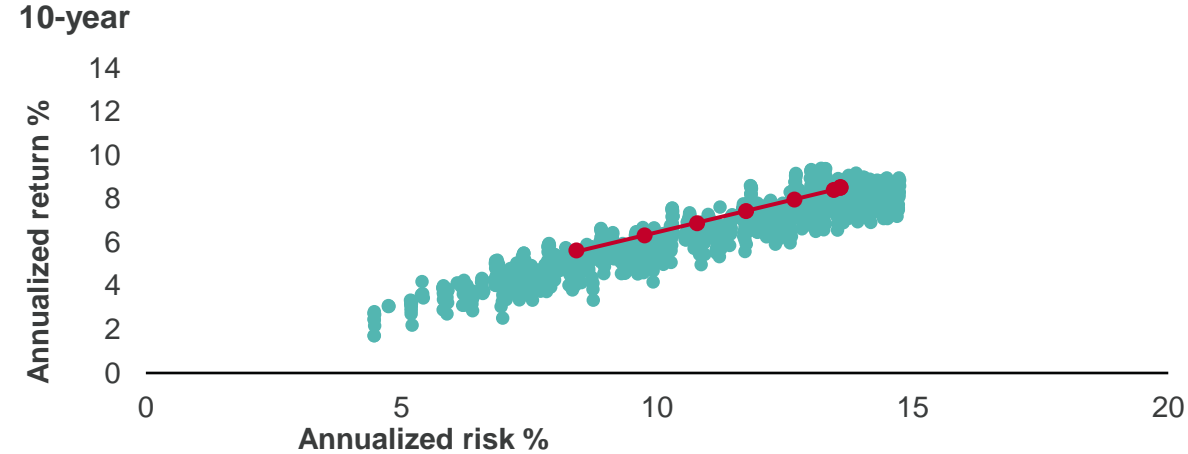
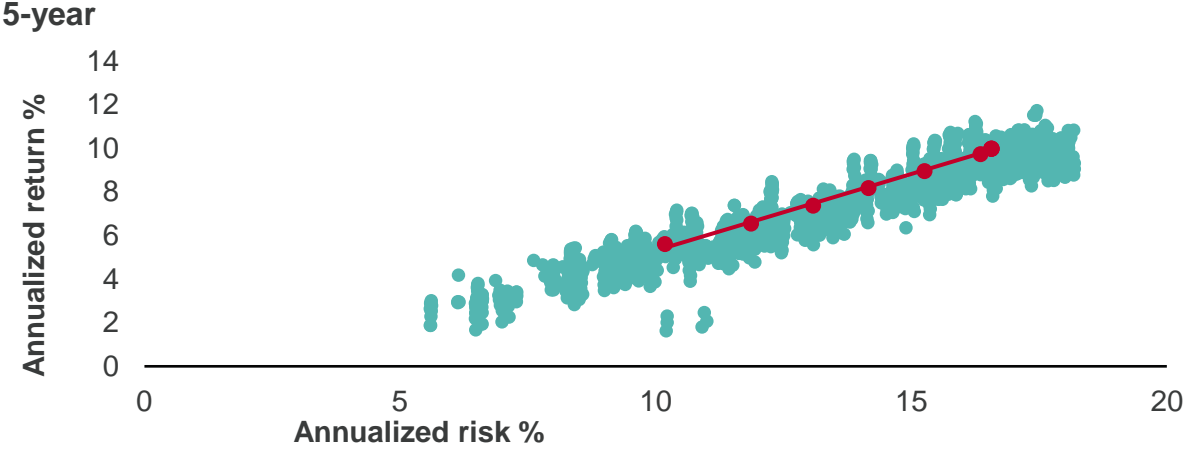
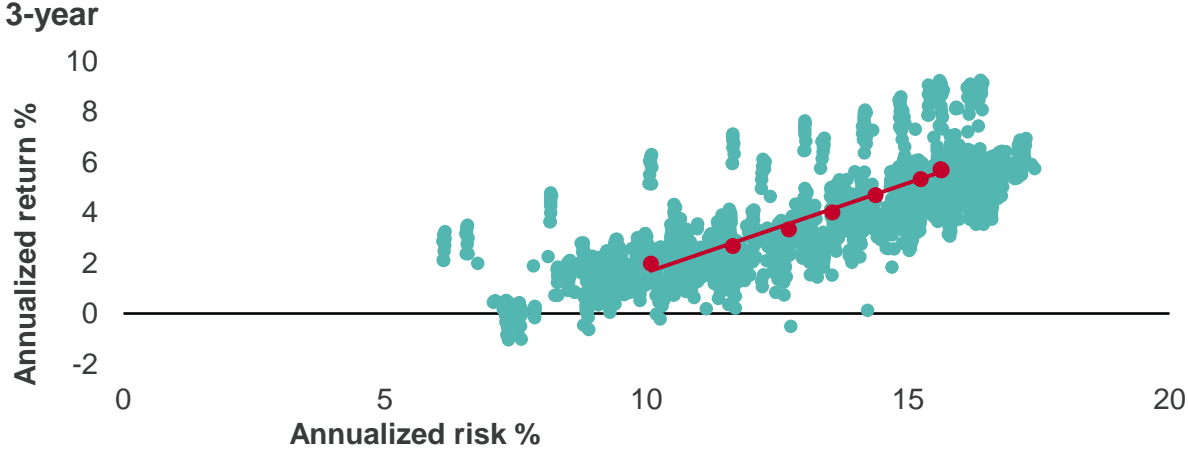
We are connecting the dots for participants—
at no additional cost.

*This option is currently only available as a commingled investment trust, not as a 1940 Act mutual fund.

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Performance matters.
Consistent performance
matters even more.

A history of consistently strong risk-adjusted performance



Investors may be in TDFs for decades. Consistent performance across all market environments is critical.

● TDF peers in Morningstar universe ● Vanguard Target Retirement Funds




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 prior to 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.**

Sources: Vanguard and Morningstar, Inc., as of March 31, 2024. Vanguard Investor Shares highlighted.

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Consistent stellar performance relative to peers

	Income fund	2025 fund	2050 fund
Average quartile ranking in Morningstar peer group for rolling 10-year periods since inception	Top quartile 	Top quartile 	Top quartile 
Percentage of times fund outperformed the peer-group average based on 10-year rolling returns since inception	100% of the time	100% of the time	100% of the time

The three vintages were chosen because they represented scenarios for those who are well into retirement, those nearing retirement, and those further from retirement, and because each fund has a track record of at least 15 years. The analysis reviewed 10-year returns on a rolling quarterly basis from June 30, 2006, through December 31, 2023. Only competing funds with a 10-year history for the relevant period were included. For the Income Fund, the number of funds in the peer group ranged from 35 in the earliest period to 106 in the most recent period; for the 2025 Fund, from 10 to 146; and for the 2050 fund, from 26 to 139. The top row shows the average quartile ranking for the aggregate rolling periods. The bottom row shows how often our fund outperformed the peer average over those rolling periods. Vanguard Target Retirement Income Fund ranked in the top quartile 61% of the rolling 10-year periods (19 out of 31 periods) and outperformed the peer-group average in all those 10-year periods. Vanguard Target Retirement 2025 Fund ranked in the top quartile 90% of periods (28 out of 31) and outperformed the peer group average in all those periods. Vanguard Target Retirement 2050 Fund ranked in the top quartile 58% of periods (18 out of 31) and outperformed the peer-group average in all those periods. Results will vary with different time periods. Sources: Vanguard and Morningstar, Inc., as of December 31, 2023.

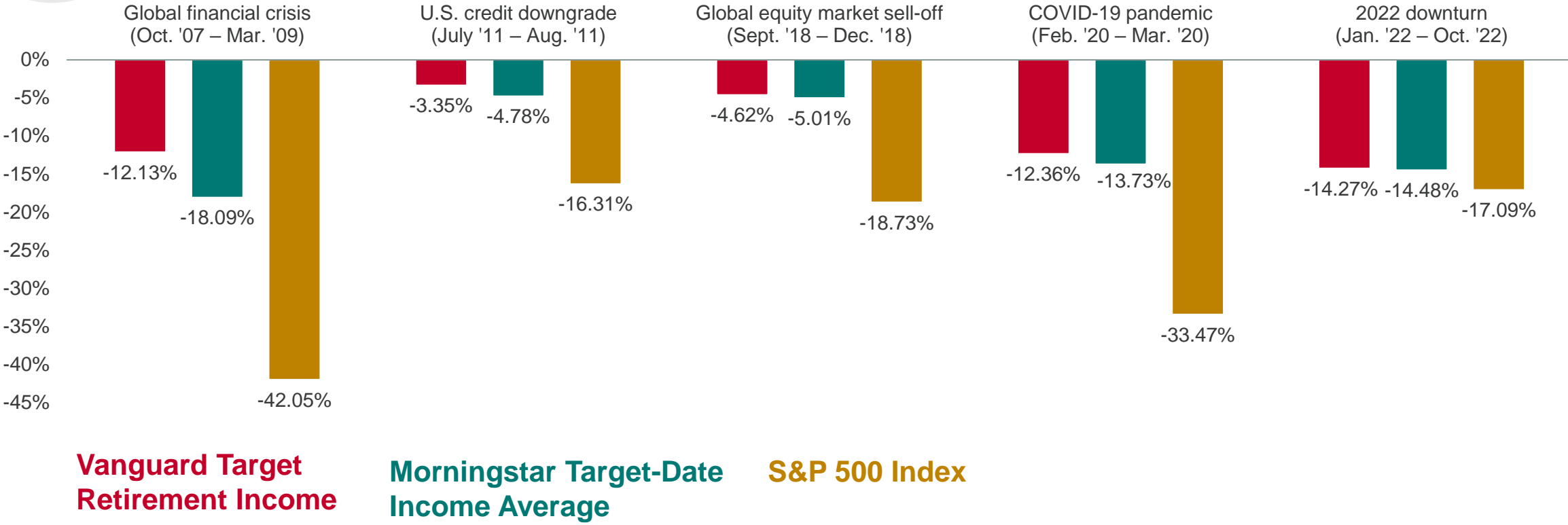
Note that the competitive performance data shown represent past performance, which is not a guarantee of future results, and that all investments are subject to risks. For the most recent performance, visit our website at www.vanguard.com/performance.



Designed to deliver strong performance while limiting volatility



Investors in retirement are the most vulnerable. Vanguard Target Retirement Income Fund has fared better than the peer average during severe market downturns, **providing better risk mitigation when investors need it most.**



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. Visit our website at institutional.vanguard.com/performance for the most recent Vanguard investment performance. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Sources: Vanguard and Morningstar, Inc. Data are as of month-end through month-end for each relevant period.

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Vanguard is the QDIA provider of choice

**#1 manager
of DC assets**

**#1 manager
of TDF assets**



36% of the industry
have entrusted Vanguard with
more than \$1 trillion
in TDF assets for their
15 million
participants

Note: 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.



Investment performance returns

	Expense ratio	3 months	1 year	3 years	Annualized (as of March 31, 2024)		Since inception	Inception date
					5 years	10 years		
Vanguard Target Retirement Income Vintage								
Fund	0.08	2.09	8.47	1.23	4.14	4.14	4.91	10/27/2003
Trust II	0.075	2.13	8.43	1.25	4.17	4.18	4.63	2/29/2008
<i>Target Retirement Income Composite Index¹</i>	—	2.15	8.70	1.44	4.44	4.37	—	—
Vanguard Target Retirement 2020 Vintage								
Fund	0.08	2.83	10.42	1.98	5.60	5.63	5.99	6/7/2006
Trust II	0.075	2.85	10.44	2.02	5.64	5.68	5.87	2/29/2008
<i>Target Retirement 2020 Composite Index¹</i>	—	2.86	10.70	2.26	5.96	5.91	—	—
Vanguard Target Retirement 2025 Vintage								
Fund	0.08	3.81	12.95	2.68	6.55	6.31	6.64	10/27/2003
Trust II	0.075	3.83	12.93	2.77	6.64	6.39	6.35	2/29/2008
<i>Target Retirement 2025 Composite Index¹</i>	—	3.84	13.24	3.04	6.99	6.63	—	—
Vanguard Target Retirement 2030 Vintage								
Fund	0.08	4.57	14.81	3.35	7.37	6.88	6.74	6/7/2006
Trust II	0.075	4.55	14.82	3.43	7.44	6.95	6.72	2/29/2008
<i>Target Retirement 2030 Composite Index¹</i>	—	4.52	15.09	3.71	7.80	7.20	—	—

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. 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. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Source: Data derived from Morningstar, Inc.

For some funds, fees are levied on purchases or redemptions to offset the costs of buying and selling portfolio securities. For others, fees are assessed on redemptions made within certain time periods after a purchase to discourage short-term trading. All purchase or redemption fees are paid directly to the fund to compensate long-term shareholders for the costs of trading activity. Note that one-year performance figures are not fee-adjusted for fees incurred on shares held less than one year.

¹ A blended composite that weights the returns of market indexes for each asset class in proportion with the target weighting of the fund. Detail for each composite index is available upon request.



Investment performance returns

	Expense ratio	3 months	1 year	3 years	Annualized (as of March 31, 2024)		Since inception	Inception date
					5 years	10 years		
Vanguard Target Retirement 2035 Vintage								
Fund	0.08	5.24	16.37	4.02	8.17	7.43	7.50	10/27/2003
Trust II	0.075	5.19	16.37	4.11	8.25	7.51	7.16	2/29/2008
<i>Target Retirement 2035 Composite Index¹</i>	—	5.14	16.61	4.36	8.59	7.75	—	—
Vanguard Target Retirement 2040 Vintage								
Fund	0.08	5.85	17.94	4.69	8.96	7.95	7.46	6/7/2006
Trust II	0.075	5.83	17.95	4.75	9.02	8.02	7.58	2/29/2008
<i>Target Retirement 2040 Composite Index¹</i>	—	5.76	18.15	5.02	9.37	8.28	—	—
Vanguard Target Retirement 2045 Vintage								
Fund	0.08	6.45	19.45	5.34	9.74	8.40	8.20	10/27/2003
Trust II	0.075	6.41	19.44	5.40	9.78	8.46	7.84	2/29/2008
<i>Target Retirement 2045 Composite Index¹</i>	—	6.38	19.70	5.66	10.14	8.73	—	—
Vanguard Target Retirement 2050 Vintage								
Fund	0.08	6.89	20.44	5.69	9.99	8.53	7.81	6/7/2006
Trust II	0.075	6.87	20.50	5.75	10.06	8.59	7.93	2/29/2008
<i>Target Retirement 2050 Composite Index¹</i>	—	6.84	20.76	6.02	10.41	8.87	—	—

Source: Data derived from Morningstar, Inc.

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Investment performance returns

	Expense ratio	3 months	1 year	3 years	Annualized (as of March 31, 2024)		Since inception	Inception date
					5 years	10 years		
Vanguard Target Retirement 2055 Vintage								
Fund	0.08	6.88	20.43	5.69	9.98	8.51	10.12	8/18/2010
Trust II	0.075	6.88	20.49	5.76	10.06	8.58	10.49	8/31/2010
<i>Target Retirement 2055 Composite Index¹</i>	—	6.84	20.76	6.02	10.41	8.87	—	—
Vanguard Target Retirement 2060 Vintage								
Fund	0.08	6.87	20.44	5.70	9.99	8.51	9.91	1/19/2012
Trust II	0.075	6.86	20.46	5.77	10.07	8.59	9.63	3/1/2012
<i>Target Retirement 2060 Composite Index¹</i>	—	6.84	20.76	6.02	10.41	8.87	—	—
Vanguard Target Retirement 2065 Vintage								
Fund	0.08	6.88	20.41	5.72	9.98	—	9.19	7/12/2017
Trust II	0.075	6.86	20.46	5.76	10.07	—	9.78	7/17/2017
<i>Target Retirement 2065 Composite Index¹</i>	—	6.84	20.76	6.02	10.41	—	—	—
Vanguard Target Retirement 2070 Vintage								
Fund	0.08	6.88	20.51	—	—	—	16.00	6/8/2022
Trust II	0.075	6.89	20.56	—	—	—	6.85	4/7/2022
<i>Target Retirement 2070 Composite Index</i>	—	6.84	20.76	6.02	10.41	8.76	—	—

Source: Data derived from Morningstar, Inc.

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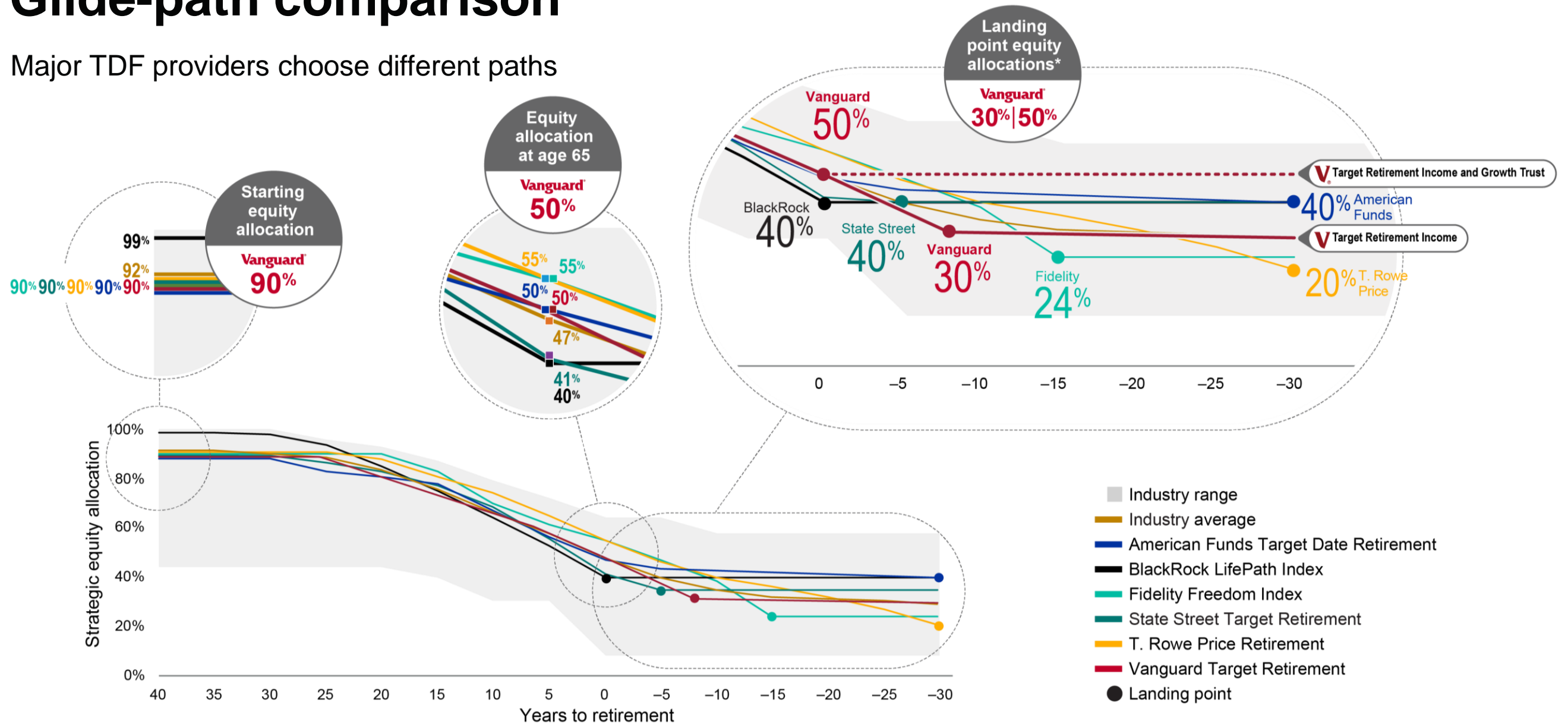
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Appendix

Glide-path comparison

Major TDF providers choose different paths



*Vanguard Target Retirement Funds and Trusts reach a 30% equity allocation via Target Retirement Income Fund or Trust. Alternatively, participants can maintain a 50% equity allocation by switching to Vanguard Target Retirement Income and Growth Trust.

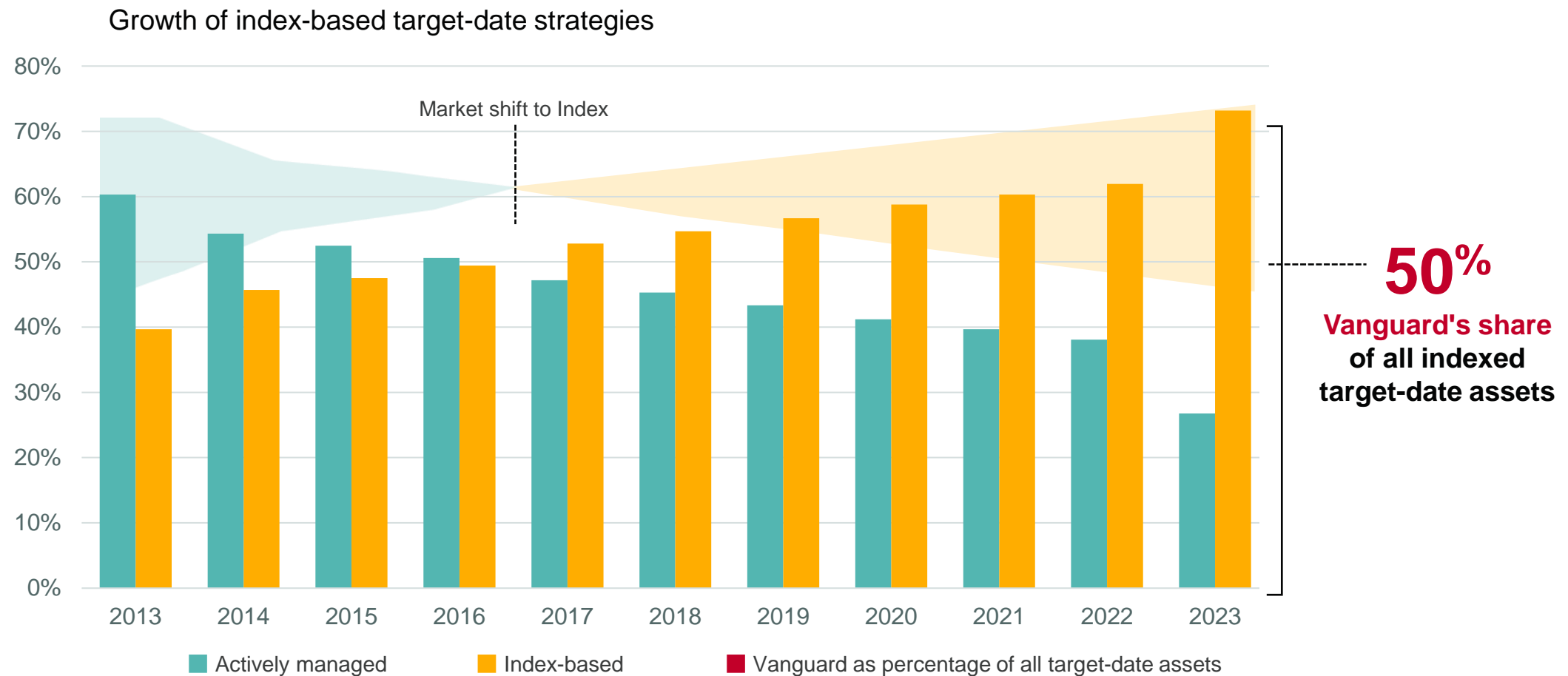
Sources: Vanguard and competitor websites; data as of December 31, 2023; Vanguard calculation for industry average.

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Index-based approach is leading the target-date market...

...and Vanguard is driving that approach



Sources: Vanguard and Morningstar, Inc., as of December 31, 2022. The assets include both 1940 Act mutual funds and commingled investment trusts.

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Why indexing is a logical choice for QDIA

Percentage of equity funds that underperformed relevant index

Fund category	Comparison index	10-year	20-year*
All domestic	S&P Composite 1500	91%	94%
Global	S&P Global 1200	91%	91%
International	S&P Developed Ex-U.S. SmallCap	70%	78%
Emerging markets	S&P/IFCI Composite	89%	95%

Percentage of fixed income funds that underperformed relevant index

Fund category	Comparison index	10-year	15-year*
Government intermediate	iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-10Y	94%	83%
Investment-grade intermediate	Bloomberg U.S. Aggregate	71%	59%
High yield	iBoxx \$ Liquid High Yield	78%	78%
Global	Barclays Global Aggregate	63%	58%

Advantages

- ✓ **Straightforward**
- ✓ **Transparent**
- ✓ **Cost-efficient**
- ✓ **Low manager risk**

History of long-term outperformance relative to active strategies across asset classes

Source: S&P SPIVA Scorecard, data as of December 31, 2023.

* Longest time period measured in SPIVA report was 20 years for equity funds and 15 years for fixed income funds. **Past performance is not a guarantee of future returns.**

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Vanguard, a premier index portfolio manager

Skill and scale

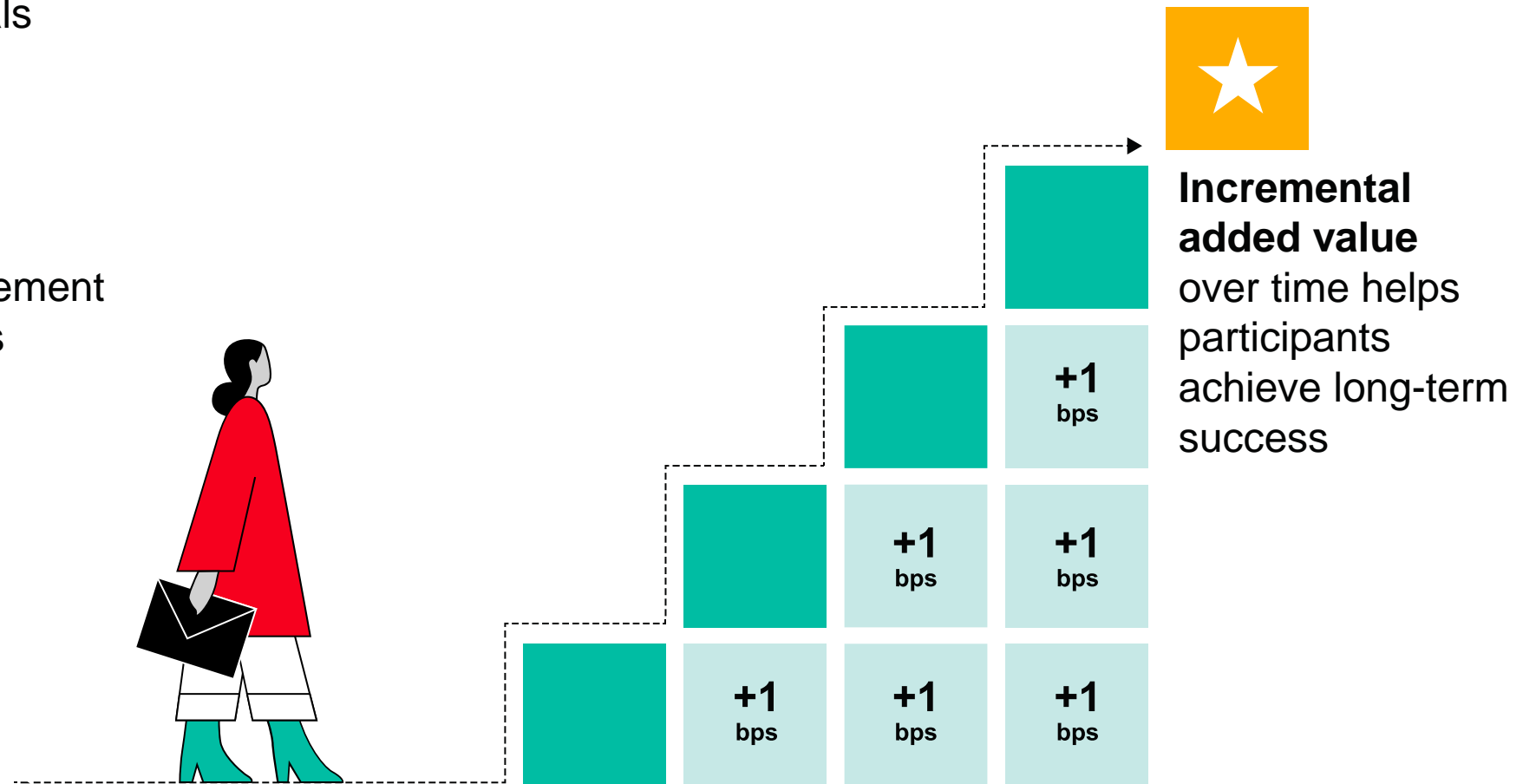
- 40+ years indexing experience
- 200+ dedicated investment professionals
- Global trading platform
- History of consistent tight tracking

Safeguards and infrastructure

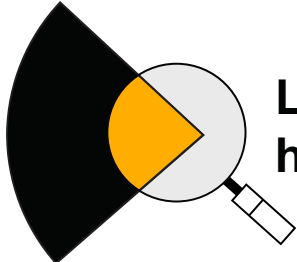
- Integrated but independent risk management
- Value-add proprietary trading strategies

Client focus

- Proactive cost reductions
- Investor-friendly securities lending
- TDF rebalancing optimization



Hedged international bonds can improve portfolio diversification



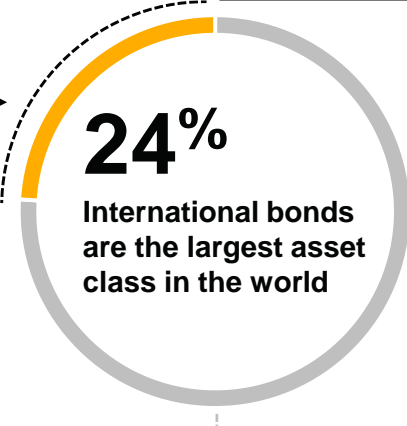
Let's take a closer look at hedged international bonds

Including international bonds **expands the opportunity set and diversification potential**

Global fixed income markets

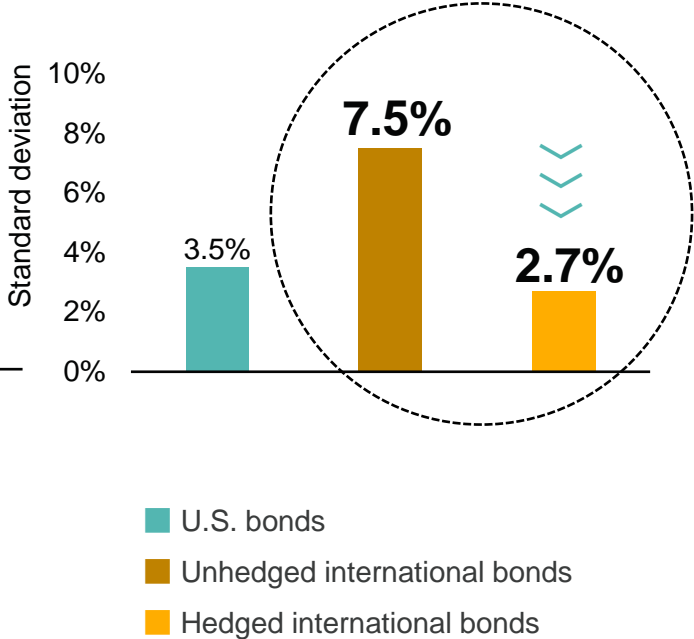


Global liquid capital markets



All other asset classes

Annualized volatility (1988–2022)

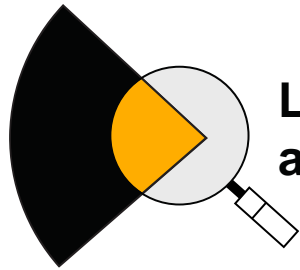


Currency hedging **reduces the volatility** of international bonds, helping to preserve their diversification benefits

Sources: Vanguard calculations using data from Bloomberg, MSCI, and FactSet, for the period from January 1, 1988, through December 31, 2022. MSCI U.S. Broad Market Index was used for U.S. stocks, MSCI AC World Ex USA IMI Index for international stocks and Bloomberg U.S. Aggregate Bond Index for U.S. bonds. International bonds were represented by Citigroup World Government Bond Index through 1989 and Bloomberg Global Aggregate ex-USD Index thereafter.



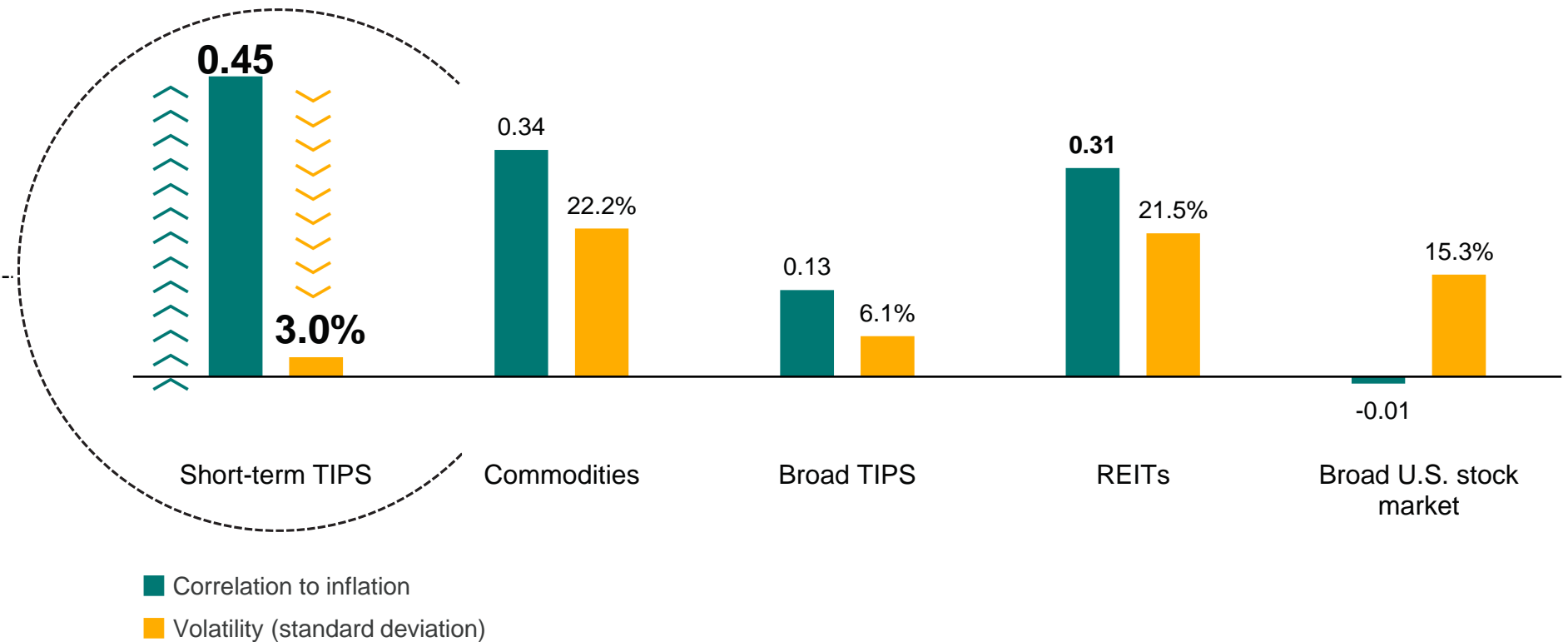
Short-term TIPS: Higher correlation to inflation with less volatility



Let's take a closer look at short-term TIPS



Short-term TIPS provide a hedge against unexpected inflation without the volatility of other asset classes



IMPORTANT: The projections and other information generated by the VCMM regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Distribution of return outcomes from VCMM are derived from 10,000 simulations for each modeled asset class. Simulations as of June 30, 2022. Results from the model may vary with each use and over time.

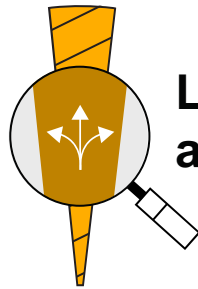
Sources: Vanguard.

Notes: Correlation with inflation was calculated across the median return from the VCMM distribution of each asset class and inflation within equilibrium market conditions. Inflation beta was calculated as the slope of each asset class and inflation across all 10,000 paths cross-sectionally to year 30 to best represent equilibrium market conditions. For more information about the VCMM, see Appendix 2. See Appendix 3 for further details on asset classes.

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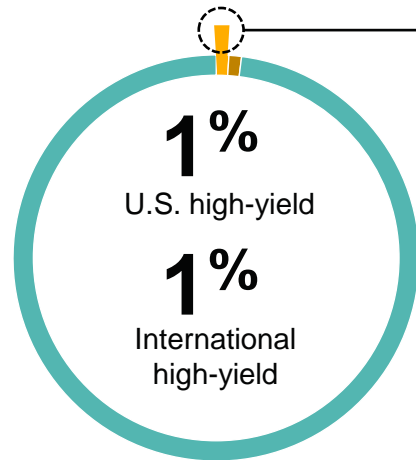


High-yield bonds are a poor diversifier



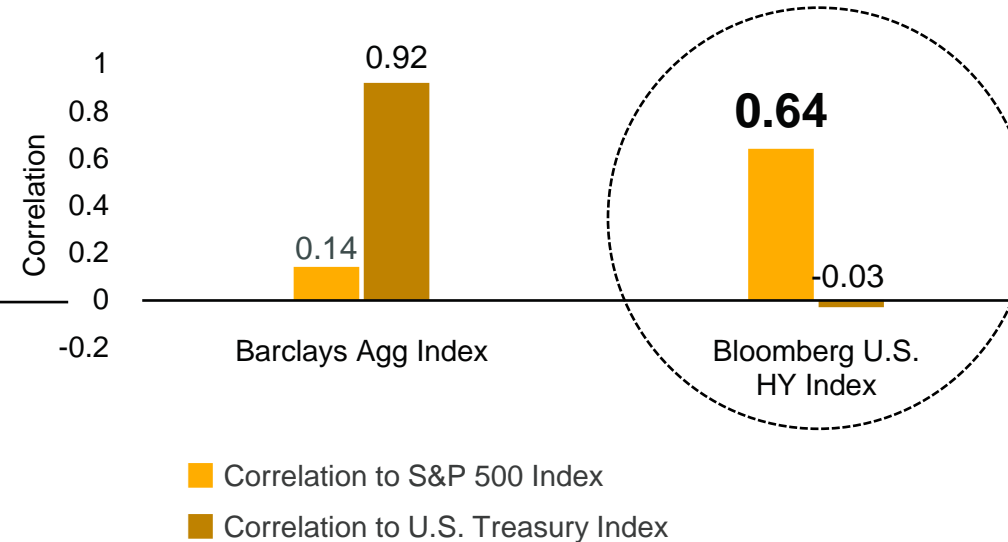
Let's take a closer look at high-yield bonds

High yield is a **very small percentage** of the total liquid global market



- 1% U.S. high yield
- 1% International high yield
- 98% all other liquid global markets

A hybrid asset class with significant equity market correlation



Why Vanguard Target Retirement strategies do not currently include high-yield bonds

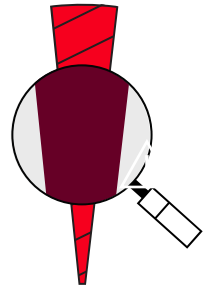
- At market weight, they do not significantly change the risk/return profile of a diversified portfolio or the long-term probabilities of success.
- Their high correlation to equities makes them a poor diversifier during stock market downturns.
- When the allocation to high-yield bonds is from the fixed income side of the portfolio, volatility increases with only a modest improvement in return.

Past performance is no guarantee of future results.

Source: Vanguard calculations using FactSet data from 1991 through 2022.

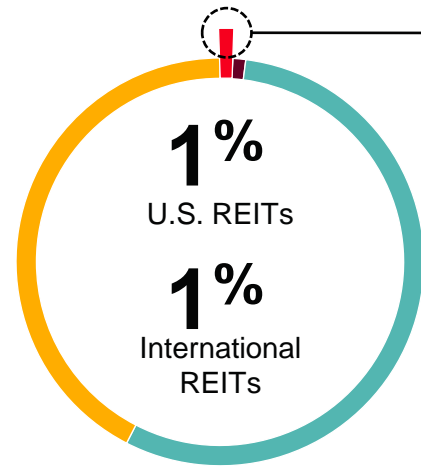
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Overweighting REITs may result in unwanted risk



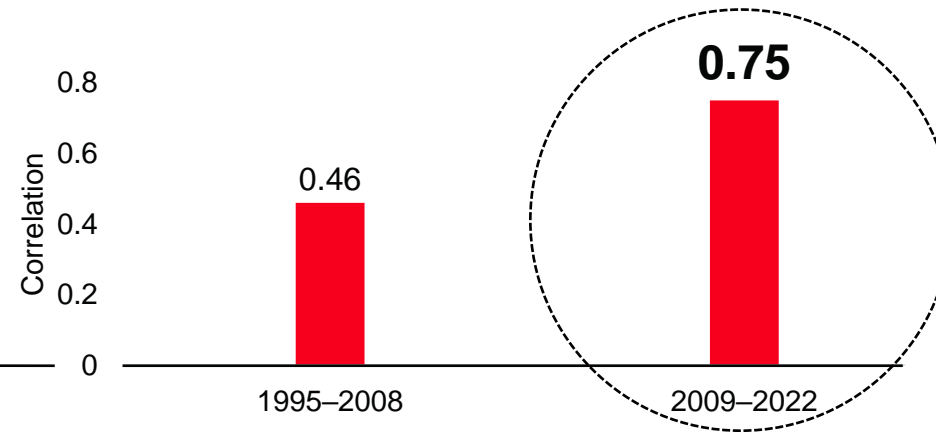
Let's take a closer look at REITs

REITs are a **very small percentage** of the global equity market



- 1% U.S. REITs
- 1% International REITs
- 55% U.S. stocks
- 42% International stocks

U.S. REITs correlation to U.S. equities



Why Vanguard Target Retirement strategies do not currently overweight REITs

- REITs are already represented in our diversified portfolio; any additional allocation is beyond what the market consensus believes is their market value.
- REITs are highly correlated with equities, and that correlation has increased in recent years.
- Any additional allocation to REITs is an overweight of a concentrated and potentially volatile sector.

Past performance is no guarantee of future results.

Source: Vanguard calculations using FactSet data from 1995 through 2022. U.S. REITs is represented by Dow Jones US Select REIT Index.

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5 building blocks for broad diversification

29K+ SECURITIES	40+ COUNTRIES	25+ SUB-ASSET CLASSES	25+ GLOBAL LIQUID MARKET COVERAGE
---------------------------	-------------------------	------------------------------------	---

	Vanguard Target Retirement	BlackRock LifePath Index	Fidelity Freedom Index	State Street Target Retirement	
Equity and REITs	1 CRSP U.S. Total Market Index	U.S. large-cap	Russell 1000 Index	S&P 500 Index	
		U.S. small- and mid-cap	Russell 2000 Index	Russell Small Cap Completeness Index	
		U.S. REITs	FTSE EPRA/NAREIT Developed Index	Dow Jones US Total Stock Market Index	Dow Jones Global Select Real Estate Securities Index
	2 FTSE Global All Cap ex U.S. Index	International developed markets	MSCI Total International Stock Index	MSCI ACWI ex-USA Index	MSCI ACWI ex-USA IMI Index
		Emerging markets	FTSE EPRA/NAREIT Developed Index		Dow Jones Global Select Real Estate Securities Index
		International REITs			
Fixed income	3 Bloomberg U.S. Aggregate Float Adjusted Index	U.S. long-term investment grade	Bloomberg US Long Govt Bond Index Bloomberg US Long Credit Bond Index	Bloomberg Long US Treasury Index Bloomberg US Aggregate Bond Index	
		U.S. intermediate-term investment grade	Bloomberg US Securitized: MBS, ABS & CMBS Index Bloomberg US Intermediate Govt Bond Index Bloomberg US Intermediate Credit Bond Index Bloomberg US Securitized: MBS, ABS & CMBS Index	Bloomberg Long US Treasury Index Bloomberg US Aggregate Bond Index	
		U.S. short-term investment grade	NO EXPOSURE	Bloomberg US Aggregate Bond Index	Bloomberg US Aggregate Bond Index Bloomberg 1-3 Yr US Treasury Index Bloomberg 1-3 Yr Corp Bond Index
	4 Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index	International developed investment grade	NO EXPOSURE	Bloomberg Global Agg Treasury ex-USD, ex-EM, RIC Capped, Float Adjusted (Hedged USD) Index	NO EXPOSURE
		Emerging markets	NO EXPOSURE	NO EXPOSURE	NO EXPOSURE
	High yield	<i>Excluded due to high equity market correlation and small market size</i>	Bloomberg US Securitized: MBS, ABS & CMBS Index	NO EXPOSURE	Bloomberg US HY Very Liquid Bond Index
Inflation hedging	5 Bloomberg U.S. 0-5 Year Treasury Inflation Protected Securities Index	TIPS	ICE US Treasury Inflation Linked Bond Index	Bloomberg US TIPS 5+ Years Index	
		Commodities	Bloomberg Commodity Index (CIT only)	NO EXPOSURE	NO EXPOSURE

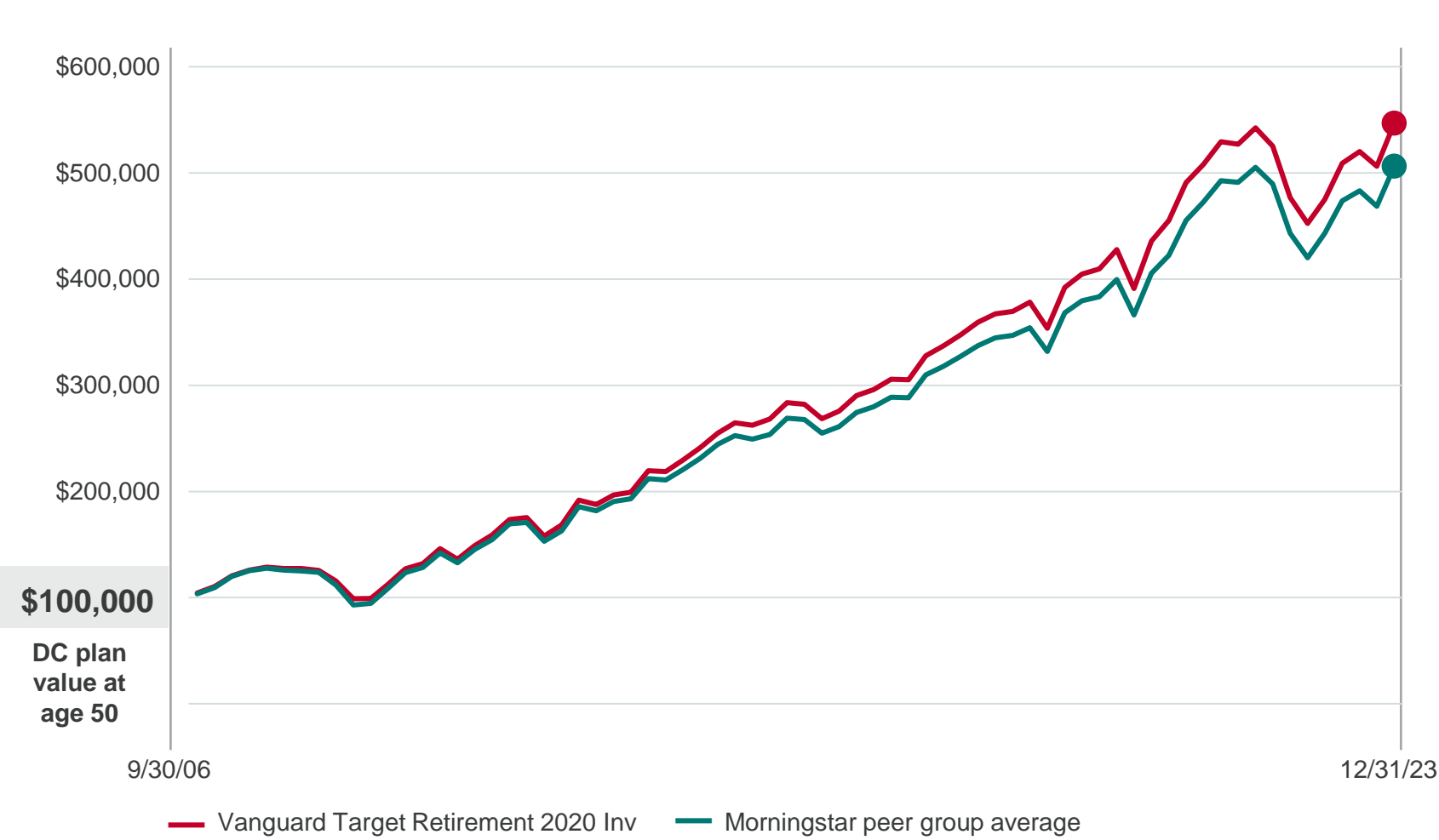
Source: Bloomberg, December 2023. There may be other material differences between products that must be considered prior to investing.

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Better outcomes over time

Hypothetical growth of \$100,000 initial balance with regular contributions over 15 years into Vanguard Target Retirement 2020 Fund (Investor Shares) vs. peer average



8% above peer average

\$546,736

+\$40,415

\$506,321

Note: This hypothetical illustration assumes an investor who started at age 50 with a balance of \$100,000 in a DC plan, contributing 10% of an \$80,000 salary that increases 2% each year.

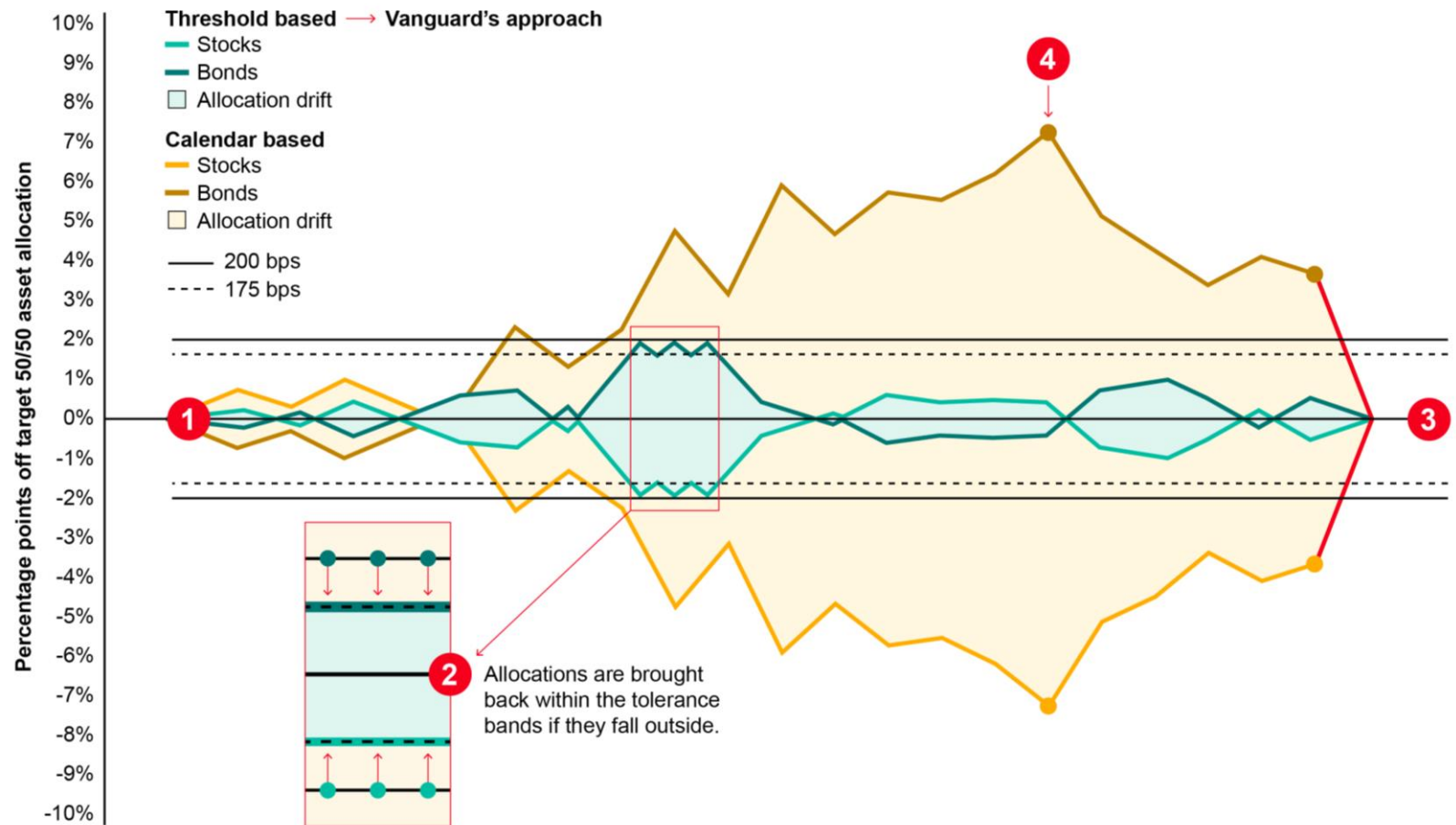
Note that the competitive performance data shown represent past performance, which is not a guarantee of future results, and that all investments are subject to risks. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original 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.

Sources: Vanguard calculations using data from Morningstar, Inc., as of December 31, 2023.



Maintaining close alignment to the target asset allocation *(cont.)*

The difference between calendar-based (monthly) and threshold-based rebalancing approaches during March 2020



- 1 Target asset allocation**
The initial sample asset allocation consists of 50% stocks and 50% bonds.
- 2 Threshold-based rebalancing**
Monitored daily, this approach keeps allocations within tolerance bands, as represented by the 200 bps and 175 bps lines.
- 3 Monthly rebalancing**
This method gives the illusion of tight tracking when measured from month-end to month-end, but the actual funds asset allocation can differ significantly from the target asset allocation intramonthly.
- 4 March 23, 2020**
At the height of pandemic-induced market volatility, the monthly rebalancing portfolio was 7 percentage points off the target 50/50 asset allocation.

Notes: This chart is for illustrative purposes only and is not indicative of any specific investment. Bond returns are represented by the Bloomberg US Aggregate Float Adjusted Index (70% allocation) and the Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped USD Hedged Index (30%). Stock returns are represented by the performance of the CRSP US Total Market Index (60% allocation) and the FTSE Global All Cap ex US Index (40%). **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.**

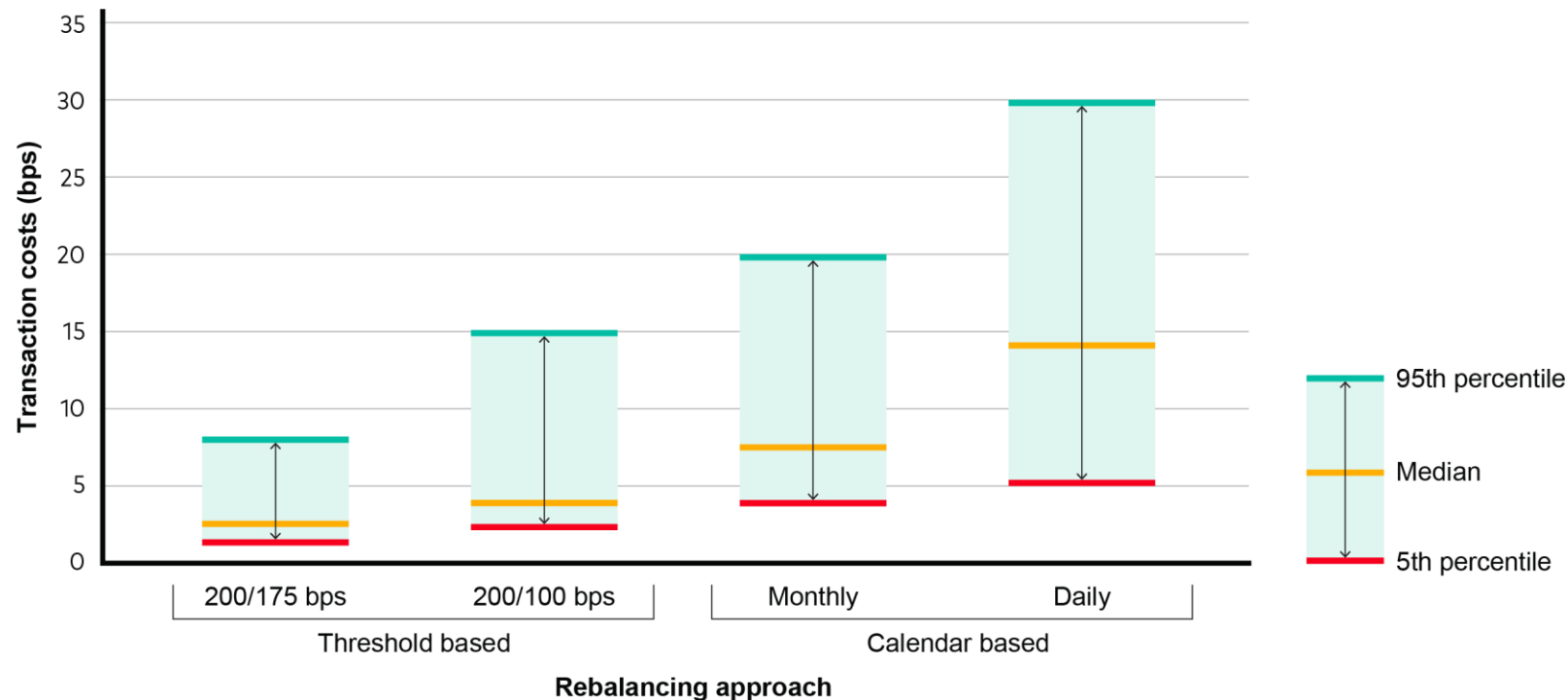
Source: Vanguard.

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Maintaining close alignment to the target asset allocation

Estimated annual transaction cost ranges across various rebalancing approaches



Finding the right balance for TDFs

- Our rebalancing policy seeks to strike the right balance between minimizing transaction costs and maintaining close alignment to the target asset allocation at all times.
- Our research shows that a threshold-based rebalancing approach, where portfolios are rebalanced if they drift too far from their target asset allocation at any point, enables us to achieve the appropriate balance.
- Alignment of TDF and benchmark rebalancing methodologies promotes clearer performance measurement and the ability to evaluate the efficacy of the fund's portfolio management team.

Notes: Based on a hypothetical 60% global equity and 40% global fixed income portfolio using the actual historical returns of the underlying indexes for the 10 years ending March 2023. The backtest uses a daily return series under each rebalancing approach, assuming no cash flows or use of futures. Equities allocation based on performance of CRSP US Total Market Index (36%) and FTSE Global All Cap ex US Index (24%). Bond allocation based on Bloomberg U.S. Aggregate Index (28%) and Bloomberg Global Aggregate ex-USD (12%). Transaction costs are a function of the underlying market regime and transaction size. Transaction costs also account for simultaneous rebalancing across all target-date vintages.

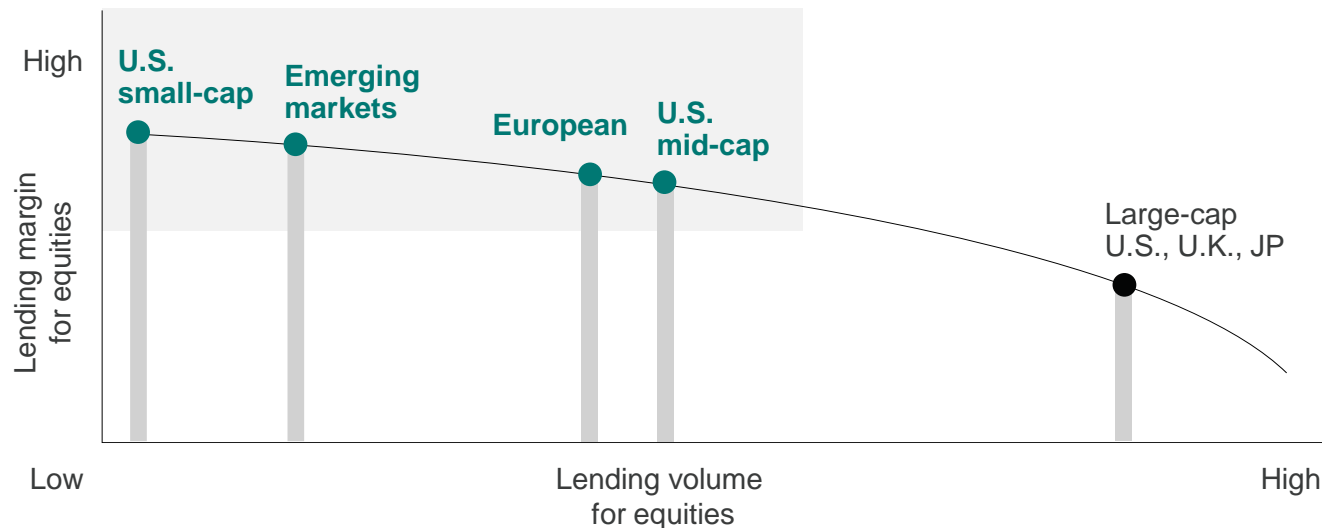
Source: Vanguard.

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Vanguard's securities lending puts shareholders first

Safety first: Value over volume

- We lend only high-demand securities
- Our funds on average have 0.4% of assets on loan (SEC allows up to one-third of assets)
- We only accept cash as collateral
- We invest all collateral in the low-cost, conservative Market Liquidity Fund



All revenue minus cost is returned to the investor



Resulting in, on average,
an extra 1.1 bps
 in annual returns for Target
 Retirement Funds and
1.2 bps
 for Target
 Retirement Trusts

Sources: BBH and Vanguard, as of December 31, 2023.

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Slide ID #: S061572 Tracking #: 3564692 Expiration date: 4/3/2025



About the SAAC

The Vanguard Strategic Asset Allocation Committee (SAAC) is a multi-asset 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 Vanguard's Advice Policy Committee, thereby ensuring a consistent approach in our single-fund solutions and advice offers.



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, Principal, Global Head of Fixed Income Indexing
(New Member)
Duncan Burns, 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)
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)

Source: Vanguard.

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If you select Vanguard as your TDF provider, we make it a smooth transition

We're here to support you

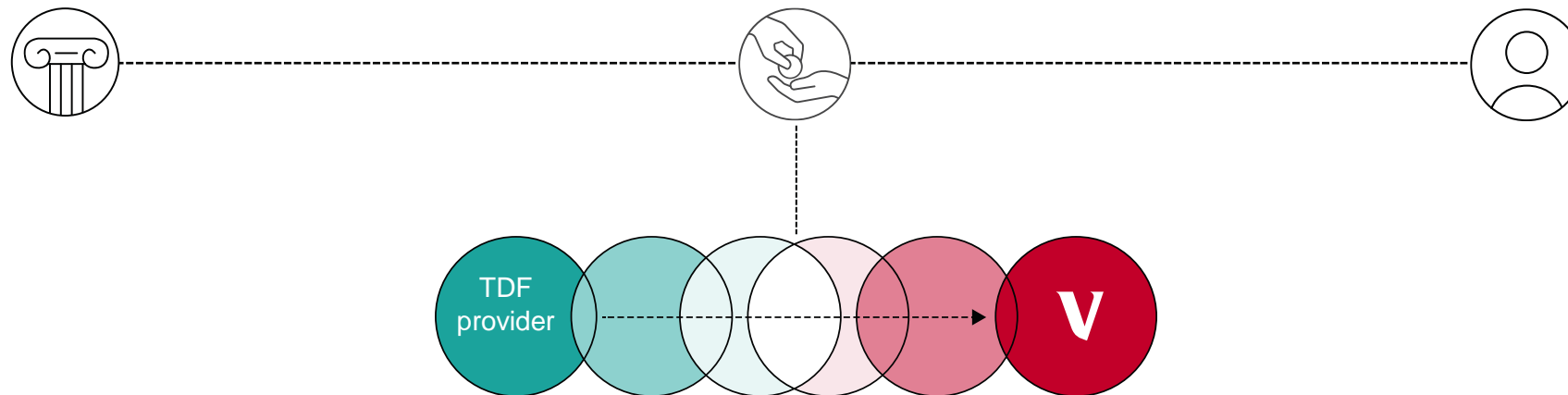
- Partnering with plan sponsor and consultant
- Relationship management
- Legal support

We're here to make a smooth TDF transfer

- Partnering with trustee/recordkeeper
- Project management
- Transition management of assets

We're here to support your participants

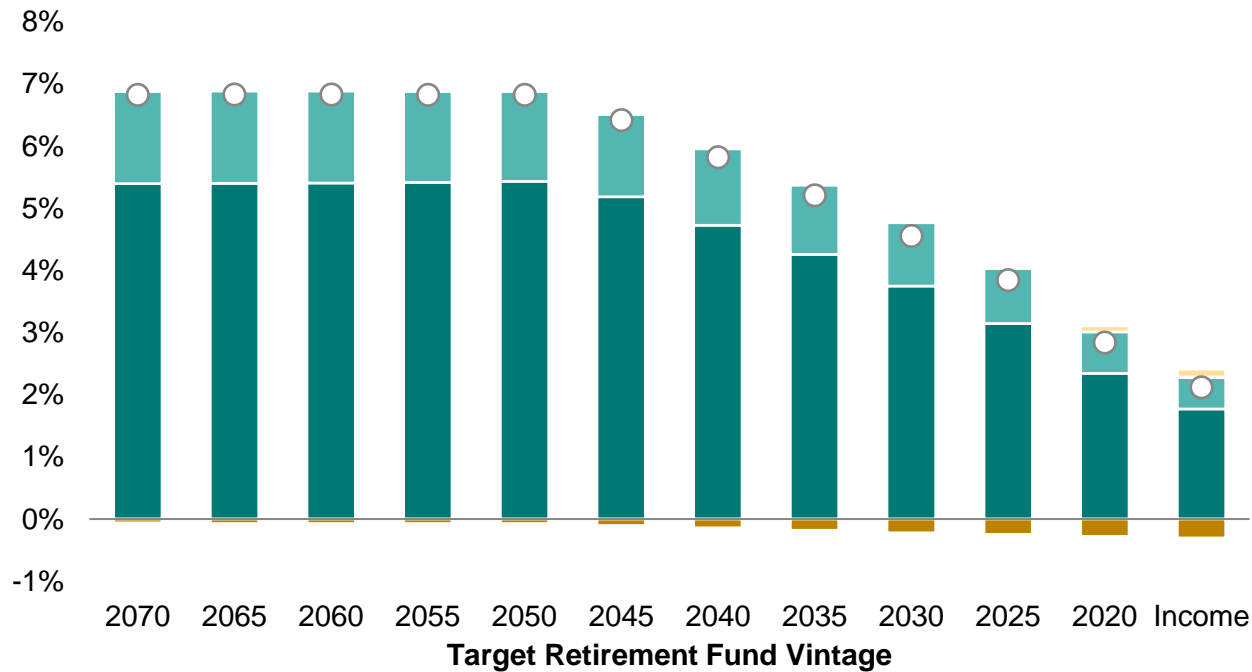
- Partnering with plan sponsor and recordkeeper
- Communication tools
- Continuing education



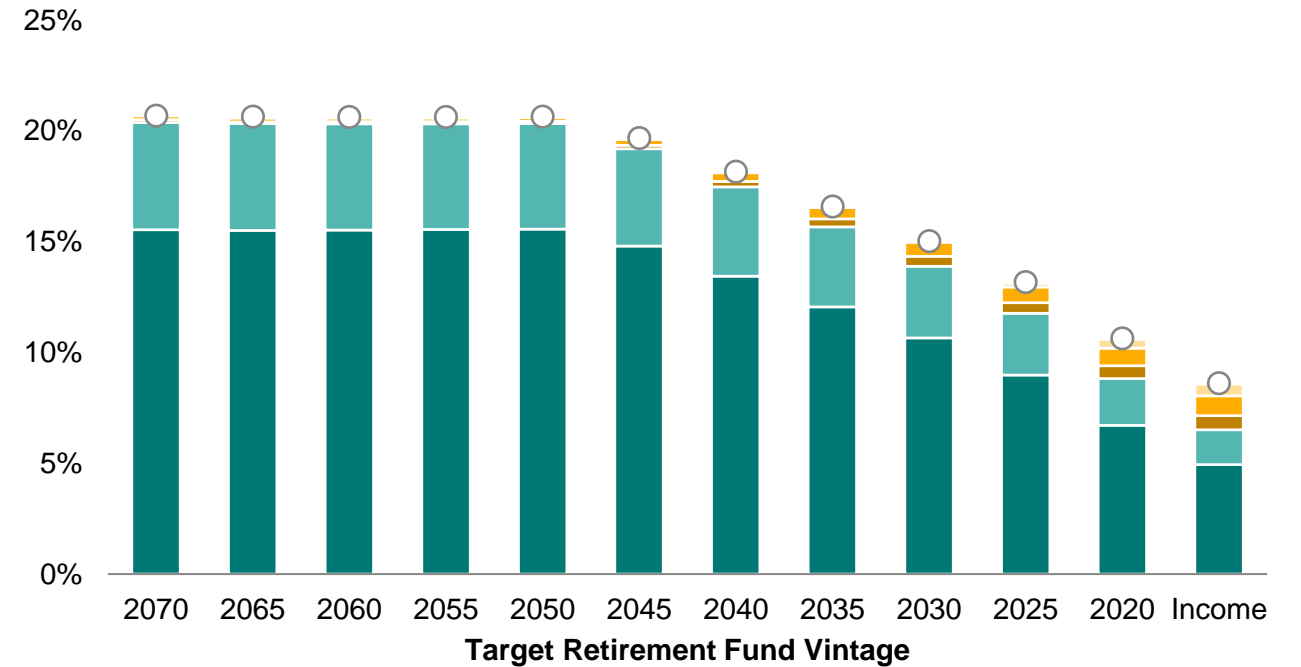
Performance and attribution overview

Absolute return contribution

3-month return contribution



12-month return contribution



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

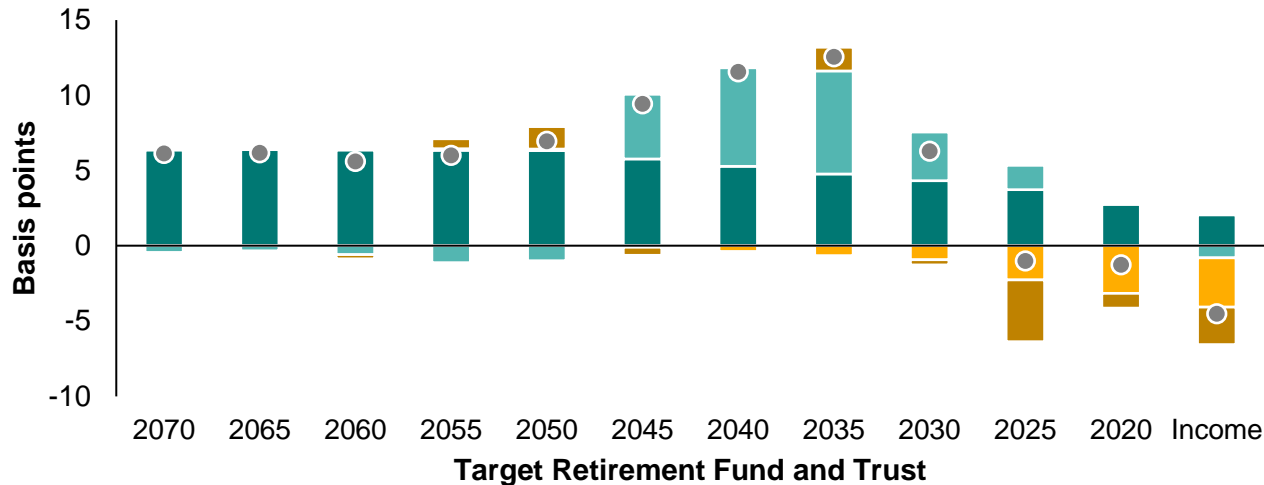
The performance data shown represent past performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original cost. Current performance may be lower or higher than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance.

Sources: Vanguard and Morningstar, as of March 31, 2024.



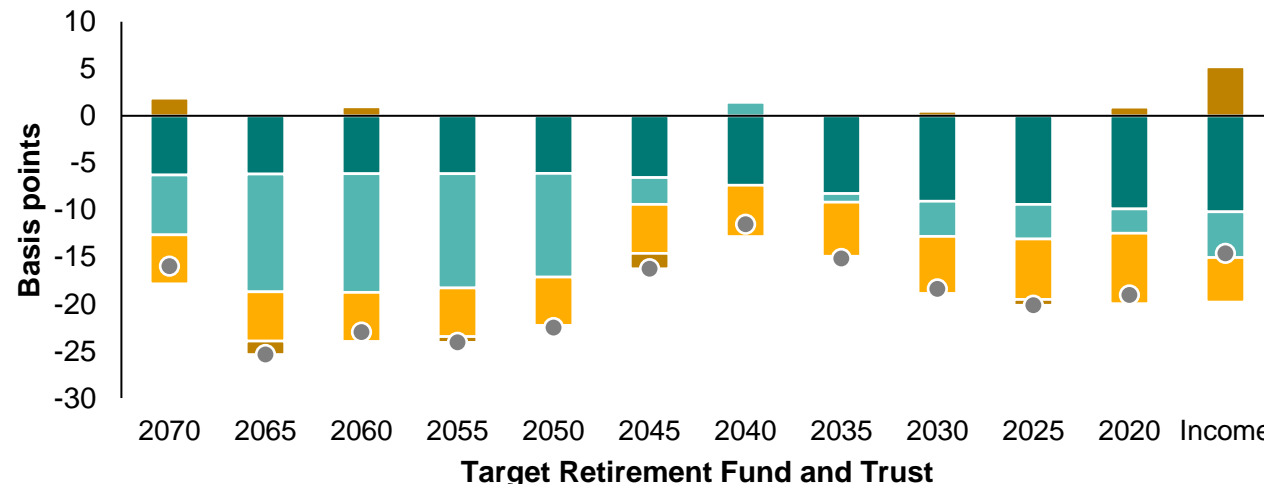
Benchmark relative return attribution

3-month return attribution



- Allocation impact** (Light teal): 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.
- Fair-value pricing** (Dark teal): 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.
- Underlying fund tracking differences ex-FV** (Yellow): 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.*
- Residual** (Brown): Out/underperformance due to factors outside of those captured above.
- Gross positive/negative return** (Grey dot): 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.

12-month return attribution



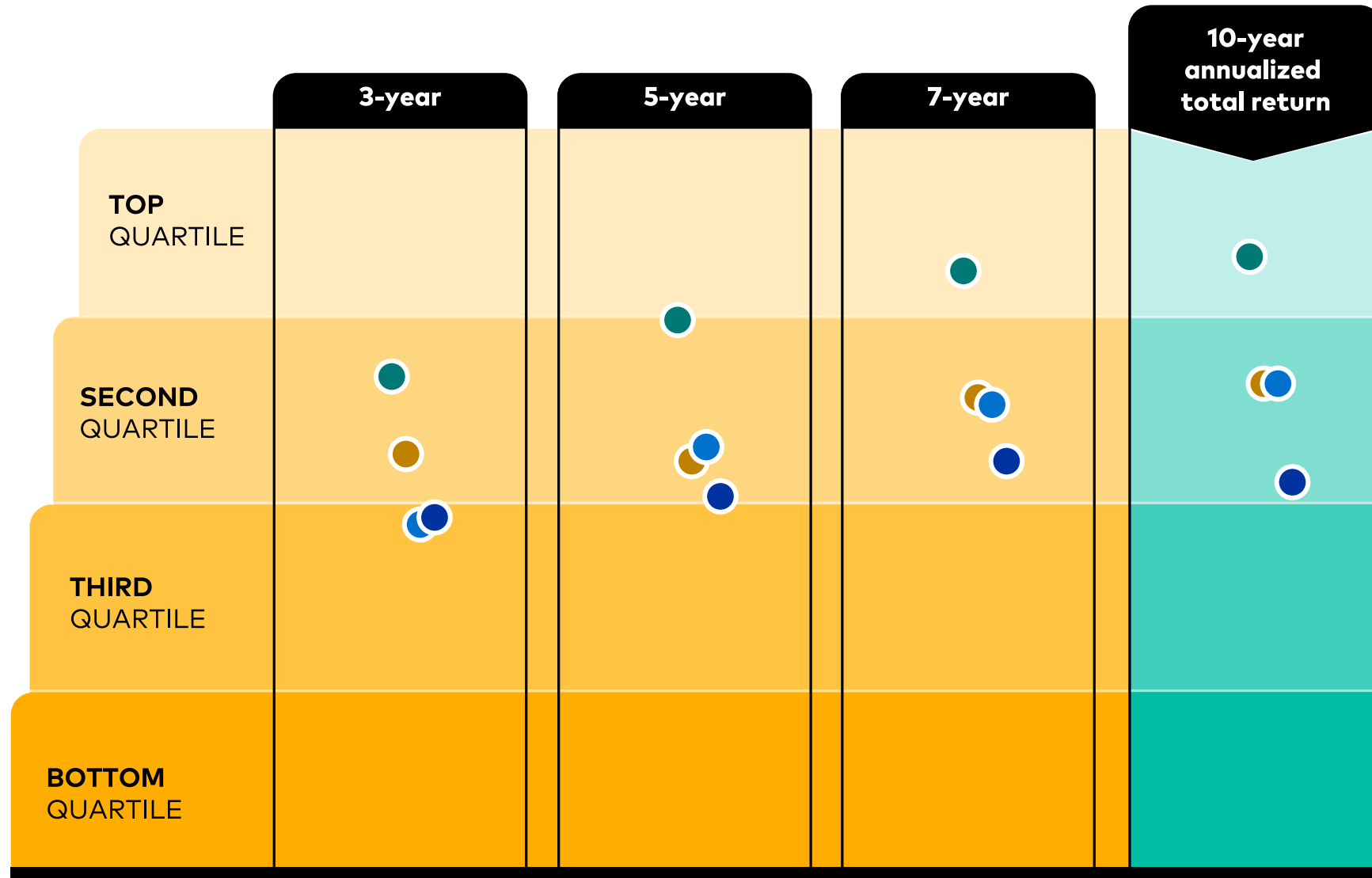
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Sources: Vanguard and Morningstar, as of March 31, 2024. See Disclosures slide for composition of composite benchmarks.
 * On January 14, 2021, Bloomberg changed its index pricing time from 3 p.m., Eastern time, to 4 p.m., Eastern time. The time change affects the three-year figures.



Strong long-term performance relative to peer group

Vanguard Target Retirement Trust Plus vintages' track record



● 2025 ● 2035 ● 2045 ● 2060

The annualized total return of select Vanguard Target Retirement Trusts (TRT) as ranked in its Morningstar™ peer group is indicated in the 3-, 5-, 7- and 10-year time periods. The number of funds in the annual rankings range from 270 to 501 for 2025; 264 to 495 for 2035; 265 to 494 for 2045; 38 to 445 for 2060. Only investments with a minimum 10-year history are included in the 10-year annualized total return result. See Appendix for Vanguard Target Retirement Trusts' performance data as of March 31, 2024.

Sources: Vanguard and Morningstar, Inc., as of March 31, 2024.

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. For the most recent performance, visit our website at vanguard.com/performance. There may be other material differences between products that must be considered before investing.

Important information

IMPORTANT: The projections or other information generated by the Vanguard Capital Markets Model® (VCMM) regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. VCMM results will vary with each use and over time.

The VCMM projections are based on a statistical analysis of historical data. Future returns may behave differently from the historical patterns captured in the VCMM. More importantly, the VCMM may be underestimating extreme negative scenarios unobserved in the historical period on which the model estimation is based.

The Vanguard Capital Markets Model® is a proprietary financial simulation tool developed and maintained by Vanguard's primary investment research and advice teams. The model forecasts distributions of future returns for a wide array of broad asset classes. Those asset classes include U.S. and international equity markets, several maturities of the U.S. Treasury and corporate fixed income markets, international fixed income markets, U.S. money markets, commodities, and certain alternative investment strategies. The theoretical and empirical foundation for the Vanguard Capital Markets Model is that the returns of various asset classes reflect the compensation investors require for bearing different types of systematic risk (beta).

At the core of the model are estimates of the dynamic statistical relationship between risk factors and asset returns, obtained from statistical analysis based on available monthly financial and economic data from as early as 1960. Using a system of estimated equations, the model then applies a Monte Carlo simulation method to project the estimated interrelationships among risk factors and asset classes as well as uncertainty and randomness over time. The model generates a large set of simulated outcomes for each asset class over several time horizons. Forecasts are obtained by computing measures of central tendency in these simulations. Results produced by the tool will vary with each use and over time.

The Vanguard Lifecycle 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.

Important information

Vanguard Short-Term Inflation-Protected Securities Index Fund invests in bonds that are backed by the full faith and credit of the federal government and whose principal is adjusted periodically based on inflation. The fund is subject to interest rate risk because although inflation-indexed bonds seek to provide inflation protection, their prices may decline when interest rates rise and vice versa. The fund's quarterly income distributions are likely to fluctuate considerably more than the income distributions of a typical bond fund. Income fluctuations associated with changes in interest rates are expected to be low; however, income fluctuations associated with changes in inflation are expected to be high. Overall, investors can expect income fluctuations to be high for the fund.

Important information

For more information about any fund, visit institutional.vanguard.com or call 866-499-8473 to obtain a prospectus or, if available, a summary prospectus. Investment objectives, risks, charges, expenses, and other important information are contained in the prospectus; read and consider it carefully before investing.

Vanguard ETF® Shares are not redeemable with the issuing fund other than in very large aggregations worth millions of dollars. Instead, investors must buy or sell Vanguard ETF Shares in the secondary market and hold those shares in a brokerage account. In doing so, the investor may incur brokerage commissions and may pay more than net asset value when buying and receive less than net asset value when selling.

Mutual funds and all investments are subject to risk, including the possible loss of the money you invest. Prices of mid- and small-cap stocks often fluctuate more than those of large-company stocks. Investments in stocks or bonds issued by non-U.S. companies are subject to risks including country/regional risk and currency risk. These risks are especially high in emerging markets. Funds that concentrate on a relatively narrow sector face the risk of higher share-price volatility. It is possible that tax-managed funds will not meet their objective of being tax-efficient. Because company stock funds concentrate on a single stock, they are considered riskier than diversified stock funds.

Investments in bond funds are subject to the risk that an issuer will fail to make payments on time and that bond prices will decline because of rising interest rates or negative perceptions of an issuer's ability to make payments. High-yield bonds generally have medium- and lower-range credit quality ratings and are therefore subject to a higher level of credit risk than bonds with higher credit quality ratings. Although the income from a municipal bond fund is exempt from federal tax, you may owe taxes on any capital gains realized through the fund's trading or through your own redemption of shares. For some investors, a portion of the fund's income may be subject to state and local taxes, as well as to the federal Alternative Minimum Tax. Diversification does not ensure a profit or protect against a loss. There is no guarantee that any particular asset allocation or mix of funds will meet your investment objectives or provide you with a given level of income.

While U.S. Treasury or government agency securities provide substantial protection against credit risk, they do not protect investors against price changes due to changing interest rates. Unlike stocks and bonds, U.S. Treasury bills are guaranteed as to the timely payment of principal and interest.

Investments in Target Retirement Funds and Trusts are subject to the risks of their underlying funds. The year in the fund or trust name refers to the approximate year (the target date) when an investor in the fund or trust would retire and leave the workforce. The fund/trust will gradually shift its emphasis from more aggressive investments to more conservative ones based on its target date. The Income Trust/Fund and Income and Growth Trust have fixed investment allocations and are designed for investors who are already retired. An investment in a Target Retirement Fund or Trust is not guaranteed at any time, including on or after the target date.

Vanguard is responsible only for selecting the underlying funds and periodically rebalancing the holdings of target-date investments. The asset allocations Vanguard has selected for the Target Retirement Funds are based on our investment experience and are geared to the average investor. Investors should regularly check the asset mix of the option they choose to ensure it is appropriate for their current situation.

Vanguard collective trusts are not mutual funds. They are collective trusts available only to tax-qualified plans and their eligible participants. Investment objectives, risks, charges, expenses, and other important information should be considered carefully before investing. The collective trust mandates are managed by Vanguard Fiduciary Trust Company, a wholly owned subsidiary of The Vanguard Group, Inc.

A stable value investment is neither insured nor guaranteed by the U.S. government. There is no assurance that the investment will be able to maintain a stable net asset value, and it is possible to lose money in such an investment.

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Important information

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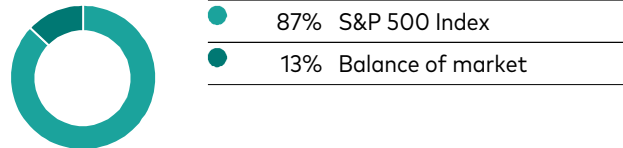
Vanguard Funds

Vanguard Institutional Index Fund (VIIIX)

Investment approach

- Seeks to track the performance of the Standard & Poor's 500 Index.
- U.S. large-cap equity diversified across growth and value styles.
- Passively managed, full-replication approach.
- Fund remains fully invested.
- Low expenses minimize net tracking error.

Share of U.S. stock market (%)



As measured by the MSCI US Broad Market Index.

Key facts

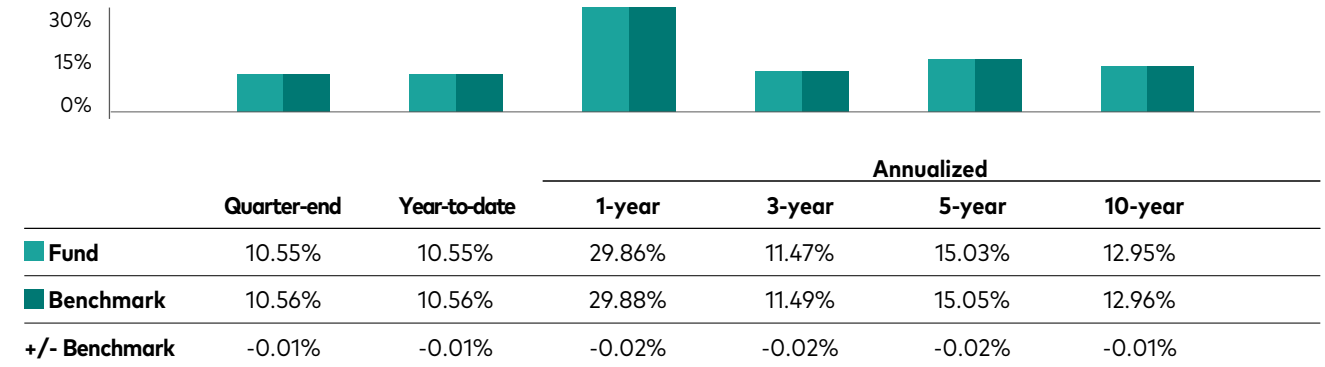
Expense ratio as of 04/28/2023	2 bps
As reported in the most recent prospectus.	
Designation	Domestic large-cap blend
Fund inception date	07/31/1990
Institutional Plus Shares inception date	07/07/1997
Total net assets as of 03/31/2024 (\$M)	\$290,390
Net fund assets for VIIIX as of 03/31/2024 (\$M)	\$168,843
Holdings	503
Indexed to	S&P 500 Index (SPTR)
Turnover rate (fiscal year-end 12/31/2023)	2.9%
CUSIP	922040209
Investment manager	Vanguard Equity Index Group

Risk and volatility

	R ²	Beta
Primary benchmark	1.00	1.00
Broad-based benchmark	0.99	0.98

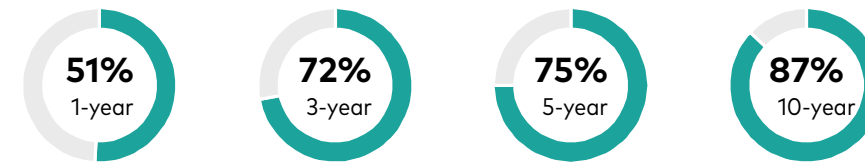
R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.
 Broad-based benchmark: Dow Jones U.S. Total Stock Market Float Adjusted Index.

Performance



Performance versus competitors

Percentage of Large-Cap Core Funds outperformed by VIIIX



Source: Lipper, a Thomson Reuters Company. Based on total returns as of March 31, 2024. Number of funds in category: 1-year, 568; 3-year, 538; 5-year, 509; 10-year, 412. Only funds with a minimum one-, three-, five-, or ten-year history, respectively, were included in the comparison. Results will vary for other time periods.

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 vanguard.com/performance. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Figures for periods of less than one year are cumulative returns. All other figures represent average annual returns. Performance figures include the reinvestment of all dividends and any capital gains distributions. All returns are net of expenses.

Vanguard Equity Index Group—Firm overview

Vanguard Equity Index Group (EIG) manages assets with high fiduciary and professional standards.

Key facts

- Assets under management: \$5.1 trillion.
- More than 300 portfolios tracking over 70 indexes.
- Benchmarks: Standard & Poor's, Russell, MSCI, FTSE, CRSP, Nasdaq, and Dow Jones.
- Over 50 investment professionals.
- Average portfolio manager tenure: 11 years.
- Average expense ratio: 0.08%.*

Portfolio management

Michelle Louie, CFA, Principal

- Portfolio manager.
- Advised the fund since 2017.
- Worked in investment management since 2011.
- B.S., The American University.
- M.B.A., Georgia Institute of Technology.

Nick Birkett, CFA

- Portfolio manager.
- Advised the fund since 2023.
- Worked in investment management since 2005.
- BSc, University of Bath.

Equity index asset distribution



● 80% Domestic

● 20% International

Source: Vanguard, as of March 31, 2024.

* Asset-weighted expense ratio for all Vanguard equity index funds.

Vanguard's equity indexing process

A day in the life of a Vanguard portfolio manager



Tracking differences

The fund seeks to track its benchmark, but tracking differences can occur. The main sources of these differences are:

Expense ratio

- The fund's expense ratio is an ongoing contributor to tracking differences.

Securities lending

- Vanguard operates a very conservative securities lending program.
- Funds selectively lend "specials," not general collateral.
- All net revenue (net of broker rebates, direct operating expenses, and agent fees) is returned to portfolios.
- Program has rigorous risk controls and invests collateral in a high quality money market fund.

Other

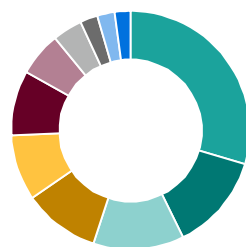
- Index sampling differences.
- Use of futures.
- Index change management.
- Trading costs.
- Impact of NAV penny rounding.

Vanguard Institutional Index Fund (VIXX)

Equity characteristics

	VIXX	Benchmark
Number of stocks	503	504
Median market cap	\$224.7B	\$224.7B
P/E ratio (trailing earnings)	26.1x	26.1x
P/B ratio	4.5x	4.5x
Return on equity (5-year average)	24.6%	24.6%
Earnings growth rate (5-year)	13.9%	13.9%
Equity yield (dividend)	1.3%	1.3%
Foreign holdings	0.0%	—
Turnover (fiscal year end)	2.9%	—
Short-term reserves	0.0%	N/A

Sector diversification as a % of common stock



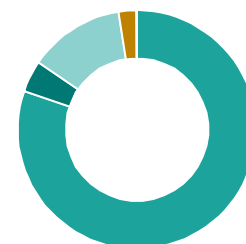
Sector	VIXX	Benchmark
Information Technology	29.6%	29.6%
Financials	13.1	13.2
Health Care	12.4	12.4
Consumer Discretionary	10.3	10.3
Communication Services	8.9	8.9
Industrials	8.8	8.8
Consumer Staples	6.0	6.0
Energy	4.0	3.9
Materials	2.4	2.4
Real Estate	2.3	2.3
Utilities	2.2	2.2

Sector categories are based on the Global Industry Classification Standard ("GICS"), except for the "Other" category (if applicable), which includes securities that have not been provided a GICS classification as of the effective reporting period.

All data as of March 31, 2024, unless otherwise noted.

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Market-cap breakdown



Market capitalization	VIXX	Benchmark
More than \$57	80.2%	80.2%
\$46 to \$57	4.3	4.3
\$16 to \$46	12.9	12.9
\$8 to \$16	2.4	2.5
Below \$8	0.1	0.1

Risk and volatility

	R-squared	Beta	Alpha	Standard deviation	Sharpe ratio
VIXX	N/A	N/A	-0.00	17.60	0.50
Primary benchmark	1.00	1.00	N/A	17.60	0.50
Broad-based benchmark	0.99	0.98	N/A	17.90	0.39

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark. Broad-based benchmark: Dow Jones U.S. Total Stock Market Float Adjusted Index.

Ten largest holdings

	% of total net assets
Microsoft Corp.	7.1%
Apple Inc.	5.6
NVIDIA Corp.	5.1
Amazon.com Inc.	3.7
Alphabet Inc.	3.7
Meta Platforms Inc.	2.4
Berkshire Hathaway Inc.	1.7
Eli Lilly & Co.	1.4
Broadcom Inc.	1.3
JPMorgan Chase & Co.	1.3
Top ten as a % of total net assets	33.3%

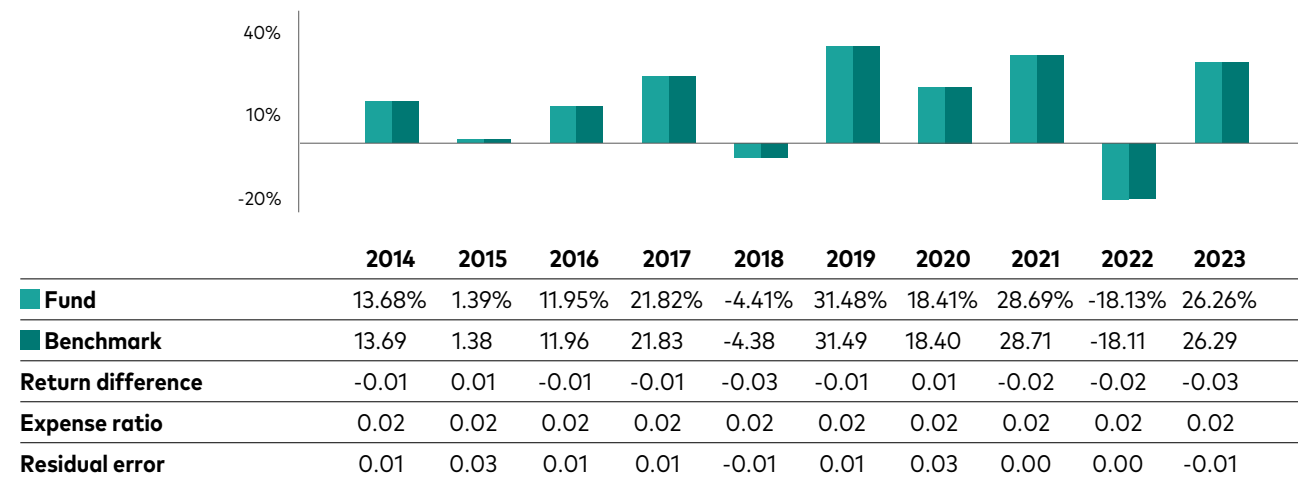
The holdings listed exclude any temporary cash investments and equity index products.

Vanguard Institutional Index Fund (VIIIX)

Performance and tracking differences

As of March 31, 2024	Quarter-end	Year-to-date	Annualized			
			1-year	3-year	5-year	10-year
VIIIX	10.55%	10.55%	29.86%	11.47%	15.03%	12.95%
Benchmark	10.56	10.56	29.88	11.49	15.05	12.96
Return difference	-0.01	-0.01	-0.02	-0.02	-0.02	-0.01
Expense ratio	0.01	0.01	0.02	0.02	0.02	0.02
Residual error	-0.00	0.00	-0.01	-0.01	0.00	0.01

Calendar-year performance



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 vanguard.com/performance. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Figures for periods of less than one year are cumulative returns. All other figures represent average annual returns. Performance figures include the reinvestment of all dividends and any capital gains distributions. All returns are net of expenses.

Note: Except for the most recent quarter, the expense ratios presented are the funds' actual operating expenses and they exclude any acquired fees and expenses, which result from the funds' holdings in business development companies (BDCs). BDC expenses are not direct costs paid by fund shareholders and are not used to calculate the fund's net asset value.

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Vanguard Institutional Index Fund (VIIIX)

Investment commentary as of 3/31/2024

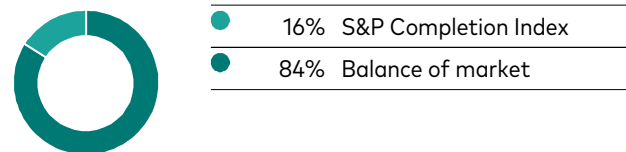
- Major stock markets continued to advance in the first quarter of 2024, with a number of indexes reaching record highs. In the U.S., inflation readings came in higher than expected, but the labor market stayed on a solid footing, consumer spending remained strong, and the economy showed continued vigor. Given this backdrop, the Federal Reserve left interest rates unchanged.
- Global stocks returned just shy of 8% for the quarter, as measured by the FTSE Global All Cap Index. U.S. equities led the way, while those in emerging markets lagged but still finished in positive territory.
- With rate cuts looking less imminent, bond yields generally rose and prices declined. The broad U.S. investment-grade bond market returned -0.72% (as measured by the Bloomberg U.S. Aggregate Float Adjusted Index).
- The Standard & Poor's 500 Index returned 10.56% for the three months ended March 31.
- The top contributors were information technology (+12.7%), financials (+12.5%), and communication services (+15.8%).
- The lone detractor was real estate (-0.6%).
- For the 12 months ended March 31, the index returned 29.88%. The largest contributors were IT (+46.0%), financials (+33.6%), and communication services (+50.1%). Utilities (+0.42%) marginally detracted.

Vanguard Extended Market Index Fund (VEMPX)

Investment approach

- Seeks to track the performance of the S&P Completion Index.
- Mid- and small-cap equity diversified across growth and value styles.
- Passively managed, using index sampling.
- Fund remains fully invested.
- Low expenses help minimize net tracking error.

Share of U.S. stock market (%)



As measured by the MSCI US Broad Market Index.

Key facts

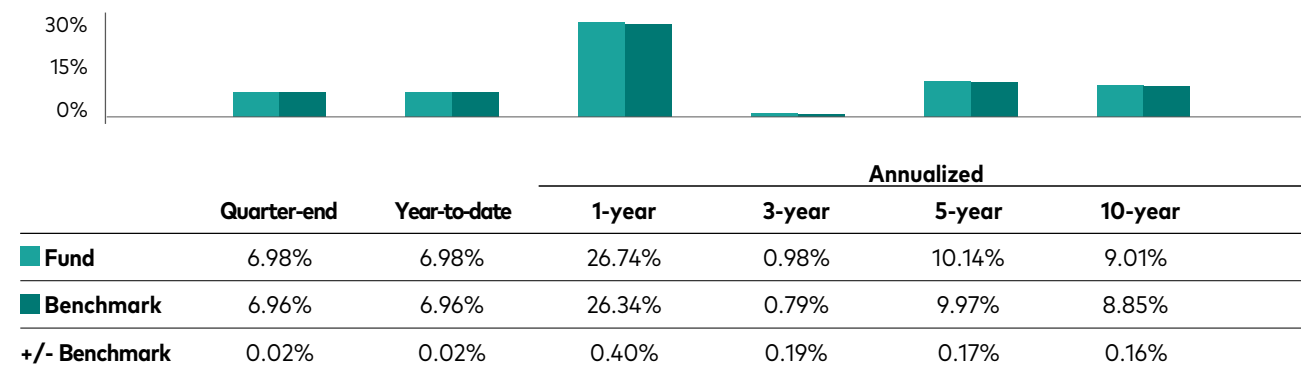
Expense ratio as of 04/28/2023	4 bps
As reported in the most recent prospectus.	
Designation	Domestic mid-cap blend
Fund inception date	12/21/1987
Institutional Plus Shares inception date	01/14/2011
Total net assets as of 03/31/2024 (\$M)	\$103,552
Net fund assets for VEMPX as of 03/31/2024 (\$M)	\$13,061
Holdings	3,598
Indexed to	S&P Completion Index (SPTRCMI)
Turnover rate (fiscal year-end 12/31/2023)	11.0%
CUSIP	922908371
Investment manager	Vanguard Equity Index Group

Risk and volatility

	R ²	Beta
Primary benchmark	1.00	1.00
Broad-based benchmark	0.87	1.12

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.
 Broad-based benchmark: Dow Jones U.S. Total Stock Market Float Adjusted Index.

Performance



Performance versus competitors

Percentage of Mid-Cap Core Funds outperformed by VEMPX



Source: Lipper, a Thomson Reuters Company. Based on total returns as of March 31, 2024. Number of funds in category: 1-year, 312; 3-year, 301; 5-year, 287; 10-year, 213. Only funds with a minimum one-, three-, five-, or ten-year history, respectively, were included in the comparison. Results will vary for other time periods.

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 vanguard.com/performance. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Figures for periods of less than one year are cumulative returns. All other figures represent average annual returns. Performance figures include the reinvestment of all dividends and any capital gains distributions. All returns are net of expenses.

Vanguard Equity Index Group—Firm overview

Vanguard Equity Index Group (EIG) manages assets with high fiduciary and professional standards.

Key facts

- Assets under management: \$5.1 trillion.
- More than 300 portfolios tracking over 70 indexes.
- Benchmarks: Standard & Poor's, Russell, MSCI, FTSE, CRSP, Nasdaq, and Dow Jones.
- Over 50 investment professionals.
- Average portfolio manager tenure: 11 years.
- Average expense ratio: 0.08%.*

Portfolio management

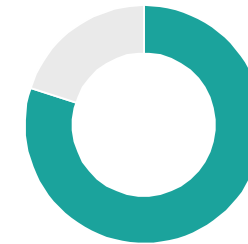
Michelle Louie, CFA, Principal

- Portfolio manager.
- Advised the fund since 2023.
- Worked in investment management since 2011.
- B.S., The American University.
- M.B.A., Georgia Institute of Technology.

Nick Birkett, CFA

- Portfolio manager.
- Advised the fund since 2023.
- Worked in investment management since 2005.
- BSc, University of Bath.

Equity index asset distribution



● 80% Domestic

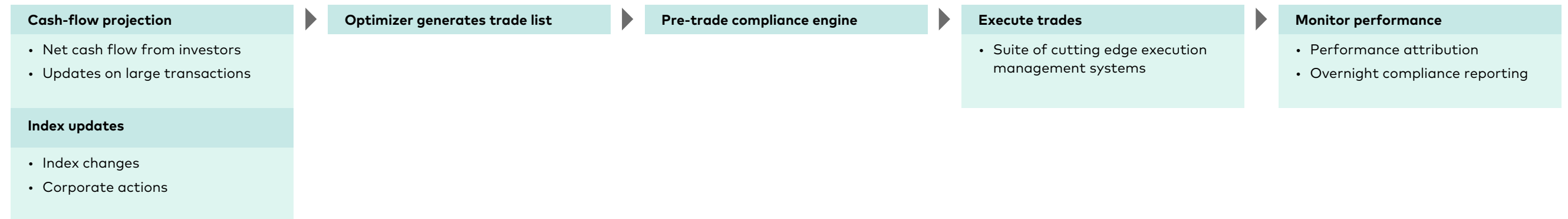
● 20% International

Source: Vanguard, as of March 31, 2024.

* Asset-weighted expense ratio for all Vanguard equity index funds.

Vanguard's equity indexing process

A day in the life of a Vanguard portfolio manager



Tracking differences

The fund seeks to track its benchmark, but tracking differences can occur. The main sources of these differences are:

Expense ratio

- The fund's expense ratio is an ongoing contributor to tracking differences.

Securities lending

- Vanguard operates a very conservative securities lending program.
- Funds selectively lend "specials," not general collateral.
- All net revenue (net of broker rebates, direct operating expenses, and agent fees) is returned to portfolios.
- Program has rigorous risk controls and invests collateral in a high quality money market fund.

Other

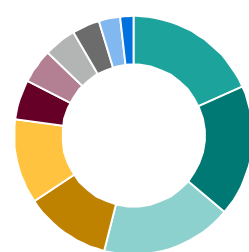
- Index sampling differences.
- Use of futures.
- Index change management.
- Trading costs.
- Impact of NAV penny rounding.

Vanguard Extended Market Index Fund (VEMPX)

Equity characteristics

	VEMPX	Benchmark
Number of stocks	3,598	3,584
Median market cap	\$7.2B	\$7.2B
P/E ratio (trailing earnings)	18.3x	18.3x
P/B ratio	2.5x	2.5x
Return on equity (5-year average)	9.4%	9.4%
Earnings growth rate (5-year)	15.4%	15.4%
Equity yield (dividend)	1.2%	1.2%
Foreign holdings	0.8%	—
Turnover (fiscal year end)	11.0%	—
Short-term reserves	0.0%	N/A

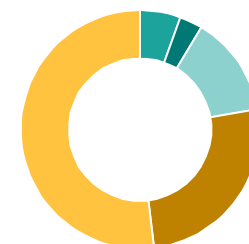
Sector diversification as a % of common stock



Sector	VEMPX	Benchmark
Information Technology	18.3%	18.3%
Industrials	17.9	18.0
Financials	17.8	17.7
Health Care	11.7	11.7
Consumer Discretionary	11.5	11.5
Real Estate	5.4	5.4
Energy	4.6	4.6
Materials	4.4	4.4
Communication Services	3.7	3.7
Consumer Staples	2.9	2.9
Utilities	1.8	1.8

Sector categories are based on the Global Industry Classification Standard ("GICS"), except for the "Other" category (if applicable), which includes securities that have not been provided a GICS classification as of the effective reporting period.

Market-cap breakdown



Market capitalization	VEMPX	Benchmark
More than \$7	5.5%	5.5%
\$46 to \$57	3.1	3.1
\$16 to \$46	13.6	13.6
\$8 to \$16	25.9	25.9
Below \$8	51.9	51.9

Risk and volatility

	R-squared	Beta	Alpha	Standard deviation	Sharpe ratio
VEMPX	N/A	N/A	0.02	21.52	-0.08
Primary benchmark	1.00	1.00	N/A	21.48	-0.09
Broad-based benchmark	0.87	1.12	N/A	17.90	0.39

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark. Broad-based benchmark: Dow Jones U.S. Total Stock Market Float Adjusted Index.

Ten largest holdings

	% of total net assets
CrowdStrike Holdings Inc.	1.1%
KKR & Co. Inc.	1.0
Marvell Technology Inc.	0.9
Workday Inc.	0.8
Snowflake Inc.	0.7
Apollo Global Management Inc.	0.7
Block Inc.	0.7
Coinbase Global Inc.	0.7
Ferguson plc	0.6
Palantir Technologies Inc.	0.6
Top ten as a % of total net assets	7.8%

The holdings listed exclude any temporary cash investments and equity index products.

All data as of March 31, 2024, unless otherwise noted.

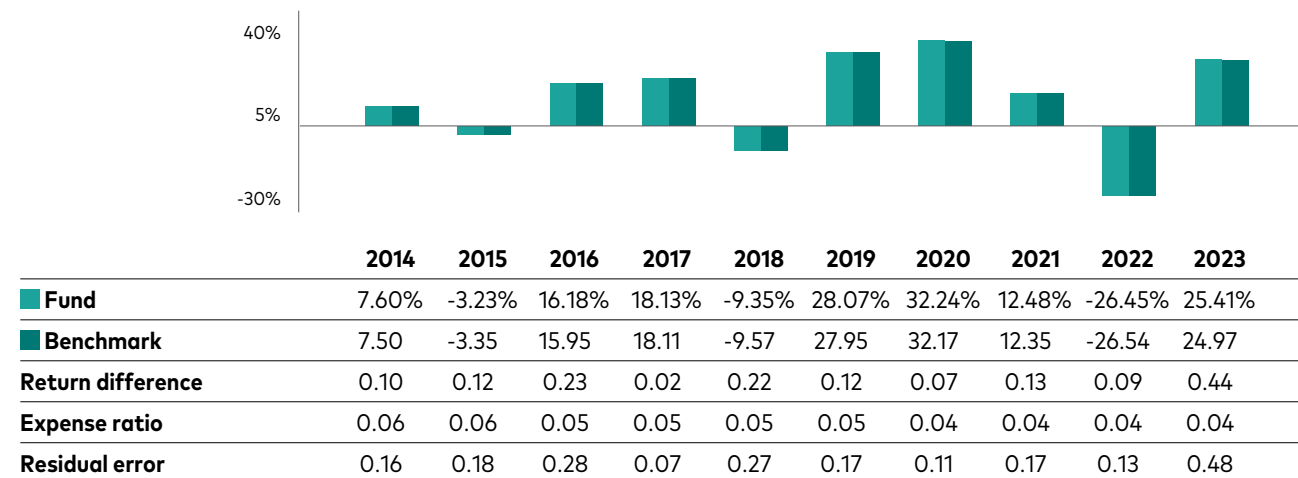
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Vanguard Extended Market Index Fund (VEMPX)

Performance and tracking differences

As of March 31, 2024	Quarter-end	Year-to-date	Annualized			
			1-year	3-year	5-year	10-year
VEMPX	6.98%	6.98%	26.74%	0.98%	10.14%	9.01%
Benchmark	6.96	6.96	26.34	0.79	9.97	8.85
Return difference	0.02	0.02	0.40	0.19	0.17	0.16
Expense ratio	0.01	0.01	0.04	0.04	0.04	0.05
Residual error	0.03	0.03	0.45	0.23	0.21	0.20

Calendar-year performance



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 [vanguard.com/performance](https://www.vanguard.com/performance). The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Figures for periods of less than one year are cumulative returns. All other figures represent average annual returns. Performance figures include the reinvestment of all dividends and any capital gains distributions. All returns are net of expenses.

Note: Except for the most recent quarter, the expense ratios presented are the funds' actual operating expenses and they exclude any acquired fees and expenses, which result from the funds' holdings in business development companies (BDCs). BDC expenses are not direct costs paid by fund shareholders and are not used to calculate the fund's net asset value.

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Vanguard Extended Market Index Fund (VEMPX)

Investment commentary as of 3/31/2024

- Major stock markets continued to advance in the first quarter of 2024, with a number of indexes reaching record highs. In the U.S., inflation readings came in higher than expected, but the labor market stayed on a solid footing, consumer spending remained strong, and the economy showed continued vigor. Given this backdrop, the Federal Reserve left interest rates unchanged.
- Global stocks returned just shy of 8% for the quarter, as measured by the FTSE Global All Cap Index. U.S. equities led the way, while those in emerging markets lagged but still finished in positive territory.
- With rate cuts looking less imminent, bond yields generally rose and prices declined. The broad U.S. investment-grade bond market returned -0.72% (as measured by the Bloomberg U.S. Aggregate Float Adjusted Index).
- The S&P Completion Index returned 6.96% for the quarter ended March 31. The index's large-cap counterpart, the S&P 500 Index, returned 10.56%.
- The top contributors were industrials (+11.5%), information technology (+7.0%), and financials (+7.7%).
- Communication services (-6.1%) and real estate (-2.9%) detracted. Combined, they subtracted about half a percentage point from the index's result.
- For the 12 months ended March 31, 2024, the S&P Completion Index returned 26.34%. Information technology (+36.5%), industrials (+39.3%), and financials (+37.3%) contributed the most. Utilities (+0.24) detracted.

Vanguard Total International Stock Index Fund (VTSNX)

Investment approach

- Seeks to track the performance of the FTSE Global All Cap ex US Index.
- Broad exposure across developed and emerging non-U.S. equity markets.
- Passively managed.
- Fund remains fully invested.
- Low expenses minimize net tracking error.

Regional diversification



40.3%	Europe
27.2	Pacific
24.9	Emerging Markets
7.1	North America
0.5	Middle East

Key facts

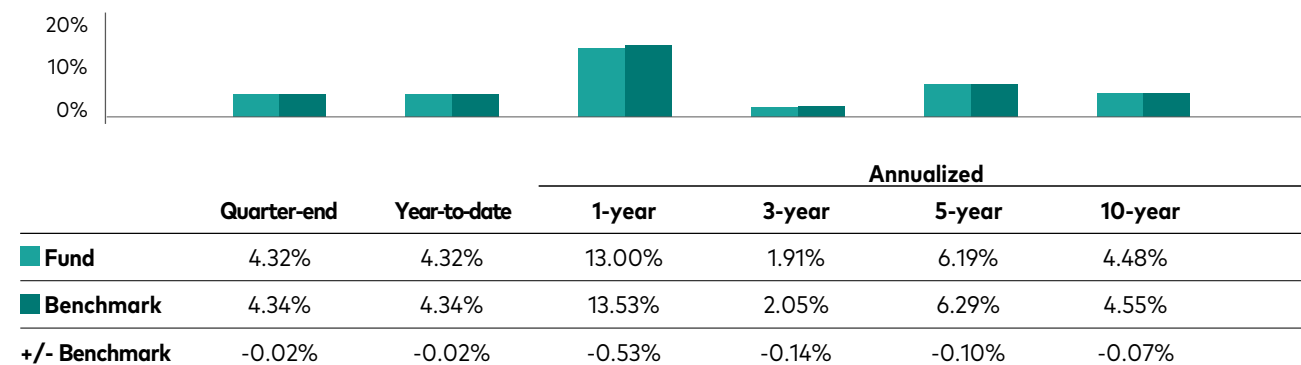
Expense ratio as of 02/27/2024	9 bps
As reported in the most recent prospectus.	
Designation	International/global blend
Fund inception date	04/29/1996
Institutional Shares inception date	11/29/2010
Total net assets as of 03/31/2024 (\$M)	\$424,753
Net fund assets for VTSNX as of 03/31/2024 (\$M)	\$40,767
Holdings	8,627
Indexed to	FTSE Global All Cap ex US Index (TGPVAN17)
Turnover rate (fiscal year-end 10/31/2023)	3.9%
CUSIP	921909784
Investment manager	Vanguard Equity Index Group

Risk and volatility

	R ²	Beta
Primary benchmark	0.98	1.03
Broad-based benchmark	0.98	1.03

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.
Broad-based benchmark: FTSE Global All Cap ex US Index.

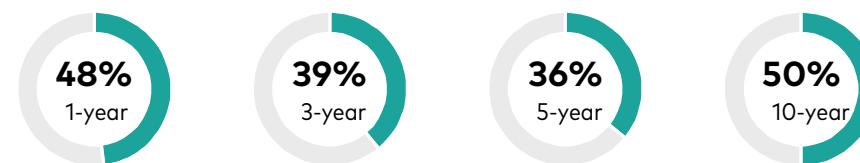
Performance



Spliced Total International Stock Index: Total International Composite Index through August 31, 2006; MSCI EAFE + Emerging Markets Index through December 15, 2010; MSCI ACWI ex USA IMI Index through June 2, 2013; and FTSE Global All Cap ex US Index thereafter. Benchmark returns are adjusted for withholding taxes.

Performance versus competitors

Percentage of International Funds outperformed by VTSNX



Source: Lipper, a Thomson Reuters Company. Based on total returns as of March 31, 2024. Number of funds in category: 1-year, 1352; 3-year, 1265; 5-year, 1161; 10-year, 790. Only funds with a minimum one-, three-, five-, or ten-year history, respectively, were included in the comparison. Results will vary for other time periods.

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Vanguard Equity Index Group—Firm overview

Vanguard Equity Index Group (EIG) manages assets with high fiduciary and professional standards.

Key facts

- Assets under management: \$5.1 trillion.
- More than 300 portfolios tracking over 70 indexes.
- Benchmarks: Standard & Poor's, Russell, MSCI, FTSE, CRSP, Nasdaq, and Dow Jones.
- Over 50 investment professionals.
- Average portfolio manager tenure: 11 years.
- Average expense ratio: 0.08%.*

Portfolio management

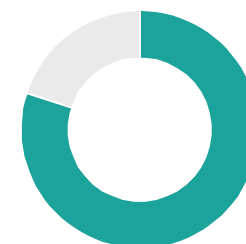
Michael Perre, Principal

- Portfolio manager.
- Advised the fund since 2008.
- Worked in investment management since 1990.
- B.A., Saint Joseph's University.
- M.B.A., Villanova University.

Christine D. Franquin, Principal

- Portfolio manager.
- Advised the fund since 2017.
- Worked in investment management since 2000.
- B.A., Universitaire Faculteiten Sint Ignatius, Antwerpen Belgium.
- J.D., University of Liege Belgium.
- Master of Science in Finance, Clark University, Massachusetts.

Equity index asset distribution



● 80% Domestic

● 20% International

Source: Vanguard, as of March 31, 2024.

* Asset-weighted expense ratio for all Vanguard equity index funds.

Vanguard's equity indexing process

A day in the life of a Vanguard portfolio manager



Tracking differences

The fund seeks to track its benchmark, but tracking differences can occur. The main sources of these differences are:

Expense ratio

- The fund's expense ratio is an ongoing contributor to tracking differences.

Fair value pricing

- Price adjustments made to securities to account for market activity that occurs between the time that securities are valued at the close of business in their local market and the close of business in the U.S. (when the fund is valued).
- Can be a positive or negative adjustment.
- Tends to create tracking error in the short-term that dissipates over time.

Securities lending

- Vanguard operates a very conservative securities lending program.
- Funds selectively lend "specials," not general collateral.
- All net revenue (net of broker rebates, direct operating expenses, and agent fees) is returned to portfolios.
- Program has rigorous risk controls and invests collateral in a high quality money market fund.

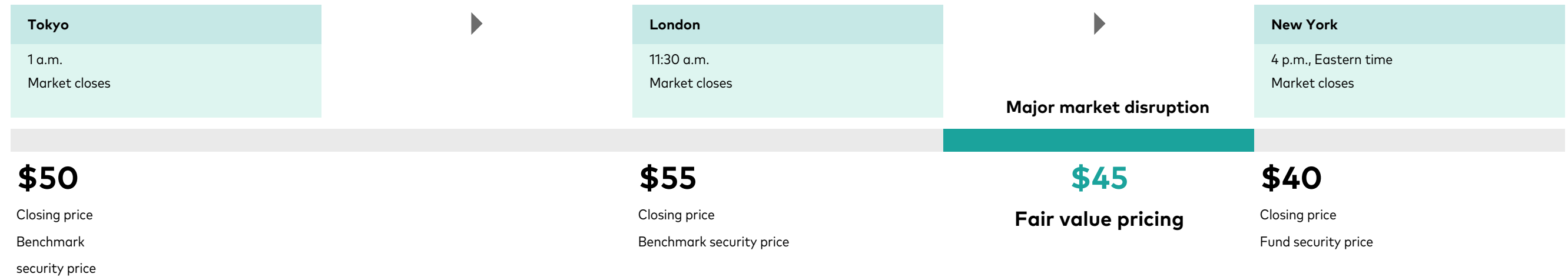
Other

- Index sampling differences.
- Use of futures.
- Index change management.
- Trading costs.
- Impact of NAV penny rounding.

Fair value pricing

Fair value pricing can cause temporary, but sometimes substantial, performance differences between international index funds and their benchmarks.

Much can happen in a few hours

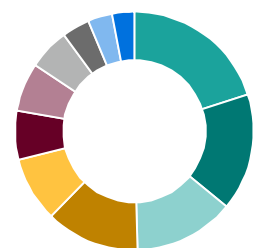


Vanguard Total International Stock Index Fund (VTSNX)

Equity characteristics

	VTSNX	Benchmark
Number of stocks	8,627	8,388
Median market cap	\$37.2B	\$36.8B
P/E ratio (trailing earnings)	15.0x	15.0x
P/B ratio	1.8x	1.8x
Return on equity (5-year average)	12.0%	12.0%
Earnings growth rate (5-year)	12.8%	12.8%
Equity yield (dividend)	2.8%	2.8%
Turnover (fiscal year end)	3.9%	—
Short-term reserves	0.0%	N/A

Sector diversification as a % of common stock



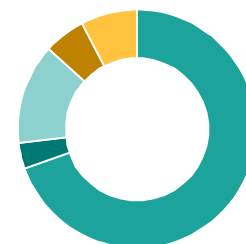
Sector	VTSNX	Benchmark
Financials	20.0%	19.9%
Industrials	15.9	15.9
Consumer Discretionary	13.6	13.6
Technology	12.8	12.8
Health Care	8.8	8.8
Basic Materials	6.7	6.7
Consumer Staples	6.5	6.5
Energy	5.6	5.6
Telecommunications	3.8	3.8
Utilities	3.3	3.3
Real Estate	3.0	3.0
Other	0.0	0.1

Sector categories are based on the Industry Classification Benchmark system ("ICB"), except for the "Other" category (if applicable), which includes securities that have not been provided an ICB classification as of the effective reporting period.

All data as of March 31, 2024, unless otherwise noted.

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Market-cap breakdown



Market capitalization	VTSNX	Benchmark
More than \$14	69.6%	69.4%
\$11 to \$14	3.5	3.5
\$4 to \$11	13.6	13.6
\$2 to \$4	5.6	5.6
Below \$2	7.7	7.8

Risk and volatility

	R-squared	Beta	Alpha	Standard deviation	Sharpe ratio
VTSNX	N/A	N/A	-0.01	16.91	-0.05
Primary benchmark	0.98	1.03	N/A	16.32	-0.04
Broad-based benchmark	0.98	1.03	N/A	16.32	-0.04

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark. Broad-based benchmark: FTSE Global All Cap ex US Index.

Market allocation

	% of common stock	
	VTSNX	Benchmark
Japan	16.5%	16.5%
United Kingdom	9.4	9.4
Canada	7.2	7.1
France	6.8	6.8
China	6.7	6.8
India	5.7	5.6
Switzerland	5.4	5.4
Germany	5.2	5.2
Taiwan	5.1	5.1
Australia	4.9	4.9
Other	27.1	27.2

Ten largest holdings

	% of total net assets
Taiwan Semiconductor Manufacturing Co. Ltd.	1.9%
Novo Nordisk A/S	1.3
ASML Holding NV	1.2
Samsung Electronics Co. Ltd.	1.1
Toyota Motor Corp.	1.0
Nestle SA	0.9
Tencent Holdings Ltd.	0.8
LVMH Moet Hennessy Louis Vuitton SE	0.7
Shell plc	0.7
SAP SE	0.7
Top ten as a % of total net assets	10.3%

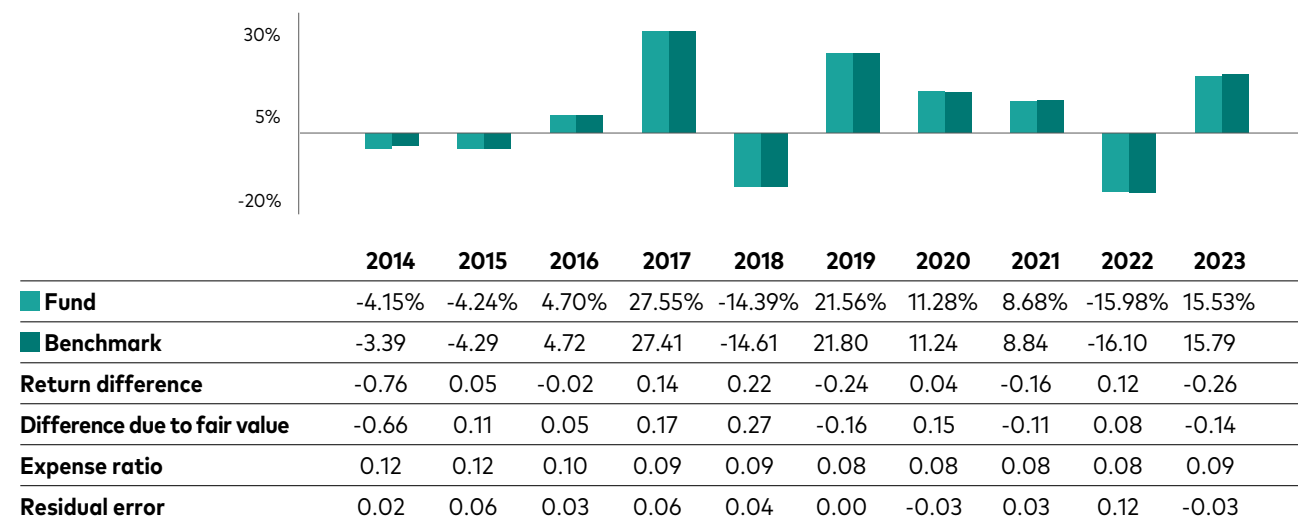
The holdings listed exclude any temporary cash investments and equity index products.

Vanguard Total International Stock Index Fund (VTSNX)

Performance and tracking differences

As of March 31, 2024	Quarter-end	Year-to-date	Annualized			
			1-year	3-year	5-year	10-year
VTSNX	4.32%	4.32%	13.00%	1.91%	6.19%	4.48%
Benchmark	4.34	4.34	13.53	2.05	6.29	4.55
FTSE Global All Cap ex US FV Ix	4.33	4.33	13.18	1.99	6.24	—
Return difference	-0.02	-0.02	-0.53	-0.14	-0.10	-0.07
Difference due to fair value	0.18	0.18	-0.13	-0.02	-0.01	0.00
Expense ratio	0.02	0.02	0.09	0.08	0.08	0.09
Residual error	-0.19	-0.18	-0.32	-0.03	-0.01	0.01

Calendar-year performance



Spliced Total International Stock Index: Total International Composite Index through August 31, 2006; MSCI EAFE + Emerging Markets Index through December 15, 2010; MSCI ACWI ex USA IMI Index through June 2, 2013; and FTSE Global All Cap ex US Index thereafter. Benchmark returns are adjusted for withholding taxes.

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Vanguard Total International Stock Index Fund (VTSNX)

Investment commentary as of 3/31/2024

- Major stock markets continued to advance in the first quarter of 2024, with a number of indexes reaching record highs. In the U.S., inflation readings came in higher than expected, but the labor market stayed on a solid footing, consumer spending remained strong, and the economy showed continued vigor. Given this backdrop, the Federal Reserve left interest rates unchanged.
- Global stocks returned just shy of 8% for the quarter, as measured by the FTSE Global All Cap Index. U.S. equities led the way, while those in emerging markets lagged but still finished in positive territory.
- With rate cuts looking less imminent, bond yields generally rose and prices declined. The broad U.S. investment-grade bond market returned -0.72% (as measured by the Bloomberg U.S. Aggregate Float Adjusted Index).
- The fund's benchmark, the FTSE Global All Cap ex US Index, which measures developed and emerging markets outside of the United States, returned 4.34% for the quarter ended March 31. The Russell 3000 Index, which measures the broad U.S. stock market, returned 10.02%.
- The top contributors were financials (+5.9%), technology (+9.0%), and industrials (+6.5%).
- Basic materials (-2.7%), consumer staples (-2.7%), and utilities (-1.5%) detracted most from performance.
- For the 12 months ended March 31, 2024, the FTSE Global All Cap ex US Index returned 13.53%. The four largest-weighted contributors added to the index's return, with financials (+23.0%), technology (+22.2%), and industrials (+18.0%) contributing the most. The only detractor was consumer staples (-4.2%).

Vanguard Intermediate-Term Bond Index Fund (VBIMX)

Investment approach

- Seeks to track the performance of the Bloomberg U.S. 5–10 Year Government/Credit Float Adjusted Index.
- Diversified exposure to the intermediate-term, investment-grade U.S. bond market.
- Passively managed using index sampling.
- Provides moderate current income with high credit quality.

Key facts

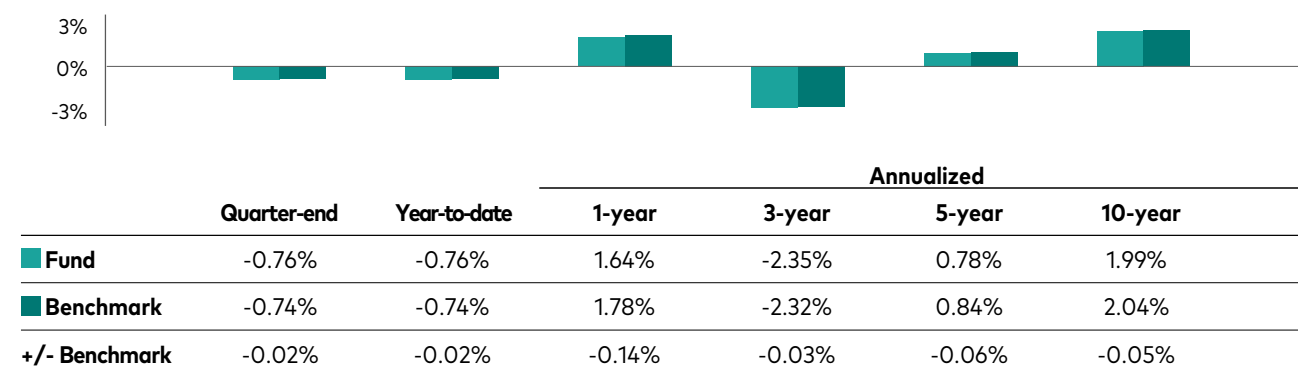
Expense ratio as of 04/28/2023	5 bps
As reported in the most recent prospectus.	
Designation	Treasury/agency/blend intermediate-term
Fund inception date	03/01/1994
Institutional Shares inception date	01/26/2006
Total net assets as of 03/31/2024 (\$M)	\$38,584
Net fund assets for VBIMX as of 03/31/2024 (\$M)	\$2,980
Holdings	2,238
Indexed to	Bloomberg U.S. 5–10 Year Government/Credit Float Adjusted Index (I21181)
Turnover rate (fiscal year-end 12/31/2023)	62.6%
CUSIP	921937884
Investment manager	Vanguard Fixed Income Group

Risk and volatility

	R ²	Beta
Primary benchmark	1.00	1.00
Broad-based benchmark	0.99	1.07

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark. Broad-based benchmark: Spliced Bloomberg U.S. Aggregate Float Adjusted Index.

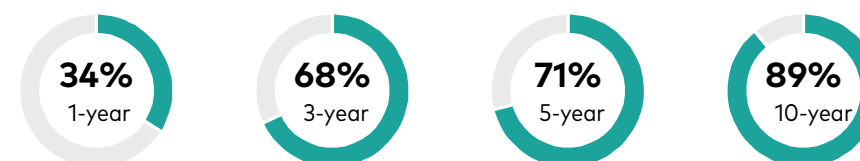
Performance



Spliced Bloomberg U.S. 5–10 Year Government/Credit Float Adjusted Index: Bloomberg U.S. 5–10 Year Government/Credit Bond Index through December 31, 2009; Bloomberg U.S. 5–10 Year Government/Credit Float Adjusted Index thereafter.

Performance versus competitors

Percentage of Core Bond Funds outperformed by VBIMX



Source: Lipper, a Thomson Reuters Company. Based on total returns as of March 31, 2024. Number of funds in category: 1-year, 487; 3-year, 458; 5-year, 435; 10-year, 323. Only funds with a minimum one-, three-, five-, or ten-year history, respectively, were included in the comparison. Results will vary for other time periods.

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Vanguard Fixed Income Group—Firm overview

Sara Devereux, principal and global head of Fixed Income Group, has direct oversight responsibility for all money market, bond, and stable value portfolios managed by the Fixed Income Group. She has been with Vanguard since 2019.

Key facts

- Investor-owned.*
- Headquartered in Malvern, Pennsylvania with offices around the world, including London, England, and Melbourne, Australia.
- More than \$2.1 trillion in assets under management globally.
- More than 190 portfolio managers, traders, analysts, researchers, and support staff.

Portfolio management

Joshua C. Barrickman, CFA, Principal, Co-Head of Fixed Income Indexing Americas

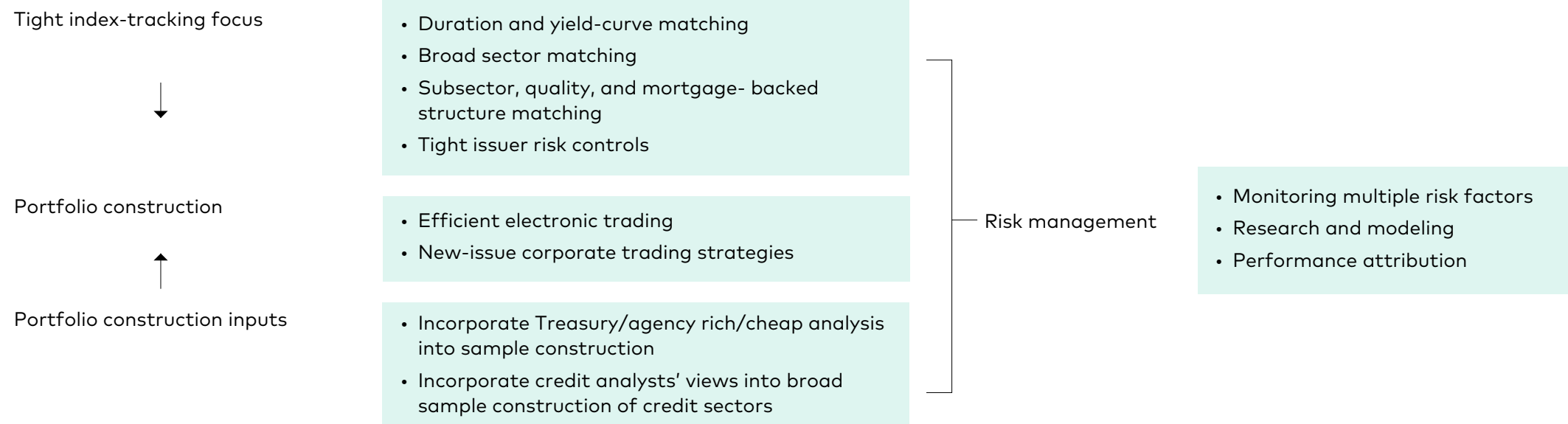
- Portfolio manager.
 - Advised the fund since 2008.
 - Worked in investment management since 1999.
 - B.S., Ohio Northern University.
 - M.B.A., Lehigh University.
-

Source: Vanguard, as of March 31, 2024.

* Vanguard is owned by its funds, which are owned by Vanguard's fund shareholder clients.

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Bond index: Tight tracking, integrated risk management



Bond index tracking differences

While the fund seeks to track its benchmark, tracking differences can occur. Vanguard's Fixed Income Group regularly monitors these differences.

Expense ratio

- The fund's expense ratio is an ongoing contributor to tracking differences.

Sampling

- Because Vanguard does not purchase all of the bonds in the benchmark, small performance differences may result.

Pricing differences

- Vanguard prices its funds at 4 p.m., Eastern time using an external pricing service. Bloomberg prices the benchmark at 4 p.m. using an alternative pricing service*. Fixed income securities trade over-the-counter, so the use of different pricing vendors can lead to small pricing disparities.

Penny rounding

- Occasionally the rounding of fund performance numbers from 5 decimal places to 2 decimal places (for publication purposes) can create the appearance of tracking differences.

*Bloomberg updated pricing from 3 p.m. to 4 p.m. Eastern time beginning January 2021, so there are no longer pricing differences for time periods starting in January 2021. Temporary pricing differences still exist in periods prior to January 2021 because of timing differences. In periods before January 2021, holidays and early closes may also have created temporary pricing differences because of the difference in timing between Bloomberg and Vanguard.

Vanguard Intermediate-Term Bond Index Fund (VBIMX)

Fixed income characteristics

	VBIMX	Benchmark
Number of bonds	2,238	2,424
Average duration	6.2 years	6.2 years
Average effective maturity	7.3 years	7.3 years
Turnover (fiscal year end)	62.6%	—
Short-term reserves	0.0%	N/A

Distribution by issuer type

	% of total net assets
Treasury/Agency	54.9%
Industrial	21.7
Finance	14.8
Foreign	4.7
Utilities	3.4
Other	0.5
Asset-Backed	0.0

Hedged non-U.S. dollar-denominated bonds are included in the sector of issuer, not as part of the foreign category.

Risk and volatility

	R-squared	Beta	Alpha	Standard deviation	Sharpe ratio
VBIMX	N/A	N/A	-0.00	7.73	-0.65
Primary benchmark	1.00	1.00	N/A	7.71	-0.65
Broad-based benchmark	0.99	1.07	N/A	7.16	-0.71

R-squared and beta are calculated from trailing 36-month fund returns relative to the associated benchmark.

Broad-based benchmark: Spliced Bloomberg U.S. Aggregate Float Adjusted Index.

Distribution by effective maturity as a % of funds



Distribution by credit quality as a % of funds



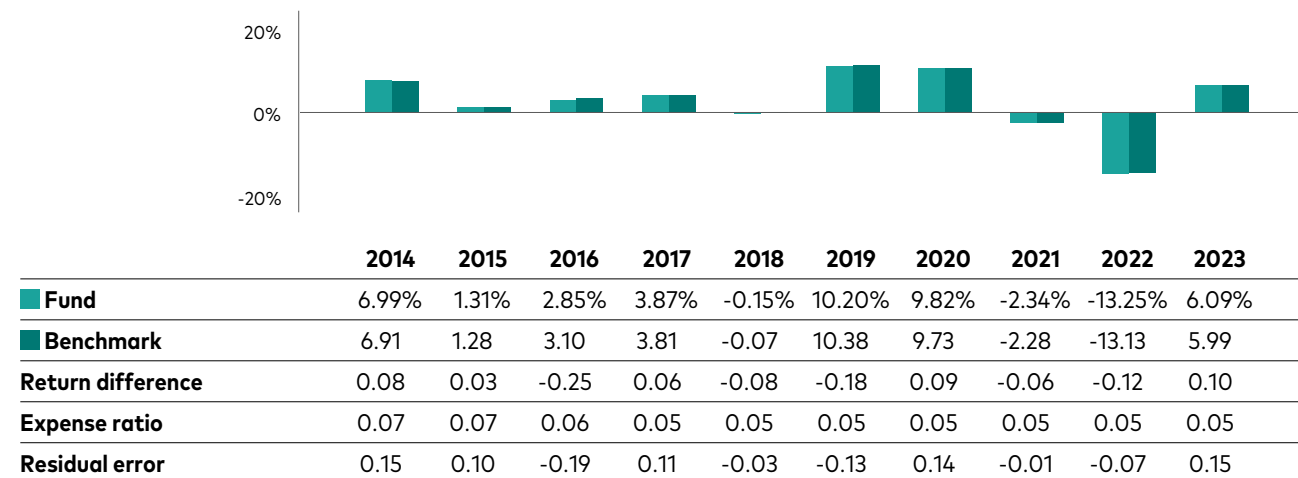
Credit-quality ratings are measured on a scale that generally ranges from AAA (highest) to D (lowest). "NR" is used to classify securities for which a rating is not available. NR securities may include a fund's investment in Vanguard Market Liquidity Fund or Vanguard Municipal Cash Management Fund, each of which invests in high-quality money market instruments and may serve as a cash management vehicle for the Vanguard funds, trusts, and accounts. U.S. Treasury, U.S. Agency, and U.S. Agency mortgage-backed securities appear under "U.S. Government." Credit-quality ratings for each issue are obtained from Bloomberg using ratings derived from Moody's Investors Service (Moody's), Fitch Ratings (Fitch), and Standard & Poor's (S&P). When ratings from all three agencies are available, the median rating is used. When ratings are available from two of the agencies, the lower rating is used. When one rating is available, that rating is used.

Vanguard Intermediate-Term Bond Index Fund (VBIMX)

Performance and tracking differences

As of March 31, 2024	Quarter-end	Year-to-date	Annualized			
			1-year	3-year	5-year	10-year
VBIMX	-0.76%	-0.76%	1.64%	-2.35%	0.78%	1.99%
Benchmark	-0.74	-0.74	1.78	-2.32	0.84	2.04
Return difference	-0.02	-0.02	-0.14	-0.03	-0.06	-0.05
Expense ratio	0.01	0.01	0.05	0.05	0.05	0.05
Residual error	0.00	-0.01	-0.09	0.02	-0.01	-0.00

Calendar-year performance



Spliced Bloomberg U.S. 5–10 Year Government/Credit Float Adjusted Index: Bloomberg U.S. 5–10 Year Government/Credit Bond Index through December 31, 2009; Bloomberg U.S. 5–10 Year Government/Credit Float Adjusted Index thereafter.

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Vanguard Intermediate-Term Bond Index Fund (VBIMX)

Investment commentary as of 3/31/2024

- Major stock markets continued to advance in the first quarter of 2024, with a number of indexes reaching record highs. In the U.S., inflation readings came in higher than expected, but the labor market stayed on a solid footing, consumer spending remained strong, and the economy showed continued vigor. Given this backdrop, the Federal Reserve left interest rates unchanged.
- With rate cuts looking less imminent, bond yields generally rose and prices declined. The broad U.S. investment-grade bond market returned -0.72% (as measured by the Bloomberg U.S. Aggregate Float Adjusted Index).
- In general, bonds with lower credit ratings did better than those with higher ratings, and shorter-term bonds held up better than longer-term bonds.
- In this environment, the fund's benchmark, the Bloomberg U.S. 5-10 Year Government/Credit Float Adjusted Index, returned -0.74% for the quarter.
- For the 12 months ended March 31, the benchmark returned 1.78%.
- Small deviations in the fund's performance versus that of its benchmark index may occur because of the fund's approach to approximating the index and temporary pricing differences between the fund and the index.

Important information

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-markets 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-markets 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-markets 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-markets 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-markets 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.

Target Income 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-markets 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 short-term reserves, the Citigroup Three-Month Treasury Bill Index through June 2, 2013; 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

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Important information

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Investments in bond funds are subject to the risk that an issuer will fail to make payments on time and that bond prices will decline because of rising interest rates or negative perceptions of an issuer's ability to make payments. High-yield bonds generally have medium- and lower-range credit quality ratings and are therefore subject to a higher level of credit risk than bonds with higher credit quality ratings. Although the income from a municipal bond fund is exempt from federal tax, you may owe taxes on any capital gains realized through the fund's trading or through your own redemption of shares. For some investors, a portion of the fund's income may be subject to state and local taxes, as well as to the federal Alternative Minimum Tax. Diversification does not ensure a profit or protect against a loss. There is no guarantee that any particular asset allocation or mix of funds will meet your investment objectives or provide you with a given level of income.

While U.S. Treasury or government agency securities provide substantial protection against credit risk, they do not protect investors against price changes due to changing interest rates. Unlike stocks and bonds, U.S. Treasury bills are guaranteed as to the timely payment of principal and interest.

Investments in Target Retirement Funds and Trusts are subject to the risks of their underlying funds. The year in the fund or trust name refers to the approximate year (the target date) when an investor in the fund or trust would retire and leave the workforce. The fund/trust will gradually shift its emphasis from more aggressive investments to more conservative ones based on its target date. The Income Trust/Fund and Income and Growth Trust have fixed investment allocations and are designed for investors who are already retired. An investment in a Target Retirement Fund or Trust is not guaranteed at any time, including on or after the target date.

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