

Strategic model portfolios

Quarterly update

Use the investment commentary and data here to gain context for recent performance and to understand our economic and market outlook.

Three bright spots in a terrible, very bad, no-good year

The first piece of good news: U.S. stocks were up 7.1% in the fourth quarter; fixed income posted positive total returns across the yield curve.

Alas, calendar-year losses swamped the year-end good news story. U.S. investors staggered into 2023 bruised not only by the worst annual stock returns since the Great Recession but also by the disappearance of fixed income from its customary role as ballast in a diversified portfolio.

The second bright spot: That may never happen again in our lifetimes. Since 1931, stocks and bonds were both negative in just one other year, 1969, when stocks dropped 8.6% and bonds only 0.74%.¹

For most short-term investors, there truly was no place to hide. However, widening the frame **reveals one more bit of glad tidings**, and even a valuable lesson: Staying the course continues to matter. Over the five-year period ended December 31, 2022, U.S. stocks returned a very respectable 8.7%.

The return of inflation

Supply chain restoration and post-COVID-19 consumer demand kicked off price increases at a level not seen since the 1980s. Inflation that was initially thought “transitory” ballooned throughout the economy in 2022, leading to a Consumer Price Index peak of 9.1% in June. The determination of the Federal Reserve to bring back price stability led to aggressive tightening—seven hikes in 12 months, bringing the federal funds rate from 0%–0.25% to 4.25%–4.50%, pummeling the bond market.

The picture was the same around the world: rising inflation, particularly in the first half of the year, prompting policymakers to raise interest rates.

The specter of recession

Equity markets continued to question the Fed’s ability to vanquish inflation without tipping the economy into recession. While sustained strong employment stoked fears of continued Fed hawkishness, the U.S. economy, especially the housing market, began slowing in the second half. The large-cap growth sector was hit hardest, including big tech stocks such as Netflix (down roughly 50% for the year) and Meta Platforms (down more than 60%). As a result, value names led all equity sectors, and Silicon Valley began trimming head count.

¹ Morningstar Direct. Stocks are represented by the IA SBBI US Large Stock TR USD Ext Index, and bonds by the IA SBBI US IT Govt TR USD Index.

Asset classes at a glance²

For the quarter ended
December 31, 2022

| | Average return |
|------------------------|----------------|
| U.S. equities | 7.1% |
| U.S. bonds | 1.9% |
| International equities | 14.2% |
| International bonds | 0.1% |

² Returns are in U.S. dollars. Benchmarks referenced: U.S. equities, CRSP US Total Market Index; U.S. bonds, Bloomberg U.S. Aggregate Float Adjusted Index; international equities, FTSE Global All Cap ex US Index; international bonds, Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index (USD Hedged).

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.

Performance contributors and detractors³

During the fourth quarter of 2022, equity and fixed income returns rebounded slightly from poor returns throughout the year, driven by positive returns in most asset classes, especially international equities and fixed income. Although performance was mostly positive at the beginning of the quarter, it declined toward the end because of continued concern around stubbornly high inflation and the markets' perception of an increased chance of a recession.

International equities (+14.2%) experienced more favorable returns than U.S. equities (+7.1%), with the models' consistent 40% allocation to non-U.S. stocks contributing to the portfolios' performance. International performance was driven by equities in developed markets (+16.8%) rather than those in emerging markets (+8.6%). The best performing sector in the U.S. was energy (+21.0%) while consumer discretionary (-6.5%) was the worst performer for the quarter. From a size and style perspective, large-cap value stocks (+12.4%) were the best performing style box in the U.S. and large-cap growth stocks (+2.2%) were the biggest detractor. Large-cap stocks (+7.2%) only slightly outperformed small-cap stocks (+6.2%), and value stocks overall (+12.2%) outperformed growth stocks (+2.3%).

Broad fixed income returns were positive for the quarter, with U.S. fixed income (+1.9%) and international bonds (+0.1%) just above water. Emerging markets bonds (+7.4%) and global high yield (+8.0%) were the best performers, while U.S. government (+0.7%) and broad international (+0.1%) turned in the worst performance of our fixed income benchmarks.

U.S. equities

- + U.S. equities pulled out of negative territory (+7.1%).
- + Value stocks (+12.2%) once again decisively outperformed growth stocks (+2.3%).

U.S. bonds

- + U.S. fixed income turned positive (+1.9%).
- U.S. government (+0.7%) was the worst-performing U.S. category.

International equities

- + International equities, driven by developed-market returns, were the best-performing broad benchmark (+14.2%).

International bonds

- + Emerging markets bonds (+7.4%) and global high yield (+8.0%) were the best performers.
- Broad international (+0.1%) was the worst-performing international category.

Sectors

- + The MSCI World ex-U.S. Energy Index was our best-performing benchmark (+21.0%).
- Consumer discretionary was once again the worst-performing sector (-6.5%).

³ Benchmarks referenced: International stocks, FTSE Global All Cap ex US Index; U.S. stocks, CRSP US Total Market Index; developed markets stocks, FTSE Developed ex North America Index; emerging markets stocks, FTSE Emerging Index; energy stocks, MSCI Energy Index; consumer discretionary stocks, MSCI Consumer Discretionary Index; U.S. large-cap value stocks, Russell 1000 Value Index; U.S. large-cap stocks, Russell 1000 Index; U.S. small-cap stocks, Russell 2000 Index; U.S. value stocks, Russell 3000 Value Index; U.S. growth stocks, Russell 3000 Growth Index.

U.S. bonds, Bloomberg U.S. Aggregate Float Adjusted Index; international bonds, Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index (USD Hedged); emerging markets bonds, JPMorgan EMBI Index; global high-yield bonds, Bloomberg Global High Yield Bond Index; U.S. government bonds, Bloomberg U.S. Government Index.

Forecast: Four themes to watch for 2023

Here are the stories that drive Vanguard's outlook for the coming year.

Central banks' vigilance in the fight against inflation

For 2023, our base case is one of disinflation, but at a cost of a global recession. "To solve the inflation issue, the Federal Reserve really does need to slow economic activity," said Josh Hirt, a Vanguard U.S. senior economist. "We think the available window for the Fed to raise rates enough to cool inflation, but not enough to induce a recession, is very narrow."

The economic effects of the energy crisis in Europe

We're encouraged by Europe's adaptation to a sharp reduction in Russian gas imports. Energy substitutions have softened the blow, as well as many nations' stockpiling of Russian gas when it was still flowing.

However, high energy and food prices will continue to weigh on disposable incomes, and the war in Ukraine will continue to affect consumer confidence. We expect inflation to remain well above the European Central Bank's 2.0% target in 2023, which will require continued tightening measures.

China's long-term challenges

For 2023, we foresee Chinese GDP growth accelerating to around 4.5%, driven by a modest loosening in the zero-COVID-19 policy and a stabilizing real estate sector.

Meanwhile, although cyclical factors will provide near-term support to housing prices, we expect a protracted structural downturn in housing investment over the next five to ten years. And finally, multinational firms are looking to reduce dependence on strategic competitors, which threatens China's long-term export dominance.

A more positive outlook for long-term investors

Lower valuations have brightened our long-term bond outlook. Over the next decade, we expect an annualized return of 4.0%–5.0% for global bonds ex-U.S. and 4.1%–5.1% for U.S. bonds. That's a 2.7-percentage-point increase over last year's projections.

On the U.S. equity side, some near-term caution may still be warranted. Even so, we expect U.S. equities to return 4.7%–6.7% over the next 10 years, a 2.4-point increase over last year's projection.

Finally, despite simultaneous declines of stock and bond markets in 2022, our research finds that only consistently high inflation would cause those positively correlated negative returns to continue over long periods. In short, a portfolio diversified across asset classes remains an effective tool to manage risk tolerance across a long-term time horizon.

Vanguard ETF® strategic model portfolios

Investment strategy

The Vanguard total return model portfolios seek to provide broad exposure to U.S. and international equities and U.S. and international investment-grade⁴ taxable bonds in an asset allocation framework.

Portfolio construction

The Vanguard model portfolios are strategic and index-centric by nature. Within the broad asset classes, the portfolios are market-capitalization-weighted and reflect their benchmarks' investment style and size exposures.

With the exception of our Income Series, there are no intentional tactical overlays or factor bets (size or style) within the asset classes. With the exception of our Tax-Efficient Series, the portfolios use a fixed 60%/40% ratio of U.S. and international stocks and a fixed 70%/30% ratio of U.S. and international bonds, representing a conscious "home bias" relative to global market-cap-weighted benchmarks.

Some of our models use multiple ETFs to capture the beta of a single asset class, such as U.S. equities as represented by the CRSP US Total Market Index. However, the risk and return characteristics should not meaningfully deviate from those of the asset-class benchmarks.

Additional portfolio construction considerations

- **Income Series:** The Income Series follows the same portfolio construction strategy but also incorporates an allocation to ETFs that invest in common stocks of companies across the globe characterized by high dividend yields and a broadly diversified exposure to the investment-grade U.S. corporate bond market. There is a 25% allocation to the global core and a 75% tilt to higher-income-producing securities. These models target higher income generation than their total-return model counterparts.
- **Tax-Efficient Series:** The Tax-Efficient Series also follows the equity methodology, but the entire fixed income allocations of the series use an ETF that has a broadly diversified exposure to the investment-grade U.S. municipal bond market. This series targets a higher level of tax efficiency than its total-return model counterparts.

⁴ A bond whose credit quality is considered to be among the highest by independent bond-rating agencies.

Our portfolios have a long-term orientation

Our models are fundamentally strategic vehicles, and our target allocations are the product of a long-term risk/reward assessment comprised of many inputs.

Besides its work throughout the year, our management team conducts a deep-dive analysis and full revalidation of the entire design and construction of the model portfolios at least once each year.

The hurdle for change is high: The benefit of any refinement must be clear, demonstrable, and enduring. Constant debate does not lead to constant change.



A straightforward and transparent design that provides broad global diversification

89%

global liquid
market coverage

13

sub-asset
classes

45+

countries

28,000+

securities

The benefits of diversification

Strategic exposure to different markets with low correlation can reduce the variability of returns. The chart uses the ranked returns of eight broad market sectors to show the challenge of making short-term tactical adjustments in pursuit of the next hot sector.

Investment returns ranked by performance

| Annual returns | | | | | | | | 2022 (fourth quarter) monthly returns | | |
|--------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|---------------------------------------|---------------------------------------|-------------------------------------|--------------------------------------|
| 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | October | November | December |
| Large-Cap Equity 1.4% | Small-Cap Equity 21.3% | Emerging Markets Equity 37.3% | U.S. Fixed Income 0.01% | Large-Cap Equity 31.5% | Small-Cap Equity 19.8% | Real Estate 32.4% | High Yield -12.7% | Small-Cap Equity 11.0% | Emerging Markets Equity 14.0% | High Yield 0.7% |
| U.S. Fixed Income 0.6% | High Yield 17.1% | Dev ex-U.S. Equity 24.2% | High Yield -2.1% | Small-Cap Equity 25.5% | Large-Cap Equity 18.2% | Large-Cap Equity 28.6% | Global ex-U.S. Fixed Income -12.7% | Large-Cap Equity 8.1% | Dev ex-U.S. Equity 10.8% | U.S. Fixed Income -0.4% |
| Core 60/40 -0.6% | Large-Cap Equity 12.0% | Large-Cap Equity 21.8% | Global ex-U.S. Fixed Income -2.2% | Dev ex-U.S. Equity 22.5% | Emerging Markets Equity 15.4% | Small-Cap Equity 14.8% | U.S. Fixed Income -13.1% | Dev ex-U.S. Equity 5.4% | Core 60/40 6.0% | Dev ex-U.S. Equity -0.4% |
| Real Estate -0.8% | Emerging Markets Equity 11.2% | Core 60/40 14.8% | Large-Cap Equity -4.4% | Real Estate 21.9% | Core 60/40 13.5% | Dev ex-U.S. Equity 11.8% | Dev ex-U.S. Equity -15.3% | Core 60/40 3.1% | Large-Cap Equity 5.6% | Emerging Markets Equity -0.8% |
| Dev ex-U.S. Equity -3.0% | Core 60/40 7.0% | Small-Cap Equity 14.7% | Core 60/40 -4.7% | Core 60/40 19.2% | Dev ex-U.S. Equity 10.2% | Core 60/40 10.0% | Emerging Markets Equity -16.9% | High Yield 2.1% | High Yield 5.0% | Global ex-U.S. Fixed Income -2.5% |
| Small-Cap Equity -4.4% | Real Estate 4.1% | Global ex-U.S. Fixed Income 10.5% | Real Estate -5.6% | Emerging Markets Equity 18.4% | U.S. Fixed Income 7.7% | High Yield 1.0% | Large-Cap Equity -18.1% | Real Estate 2.0% | U.S. Fixed Income 3.6% | Core 60/40 -3.3% |
| High Yield -4.5% | Dev ex-U.S. Equity 2.8% | Real Estate 10.4% | Small-Cap Equity -11.0% | High Yield 14.3% | High Yield 7.0% | Emerging Markets Equity 0.1% | Core 60/40 -18.4% | Global ex-U.S. Fixed Income 0.4% | Small-Cap Equity 2.3% | Large-Cap Equity -5.8% |
| Global ex-U.S. Fixed Income -6.0% | U.S. Fixed Income 2.7% | High Yield 7.5% | Dev ex-U.S. Equity -14.1% | U.S. Fixed Income 8.7% | Global ex-U.S. Fixed Income 4.8% | U.S. Fixed Income -1.6% | Small-Cap Equity -20.4% | U.S. Fixed Income -1.3% | Global ex-U.S. Fixed Income 2.3% | Small-Cap Equity -6.5% |
| Emerging Markets Equity -14.9% | Global ex-U.S. Fixed Income 1.5% | U.S. Fixed Income 3.5% | Emerging Markets Equity -14.6% | Global ex-U.S. Fixed Income 5.1% | Real Estate -18.9% | Global ex-U.S. Fixed Income -2.1% | Real Estate -22.4% | Emerging Markets Equity -4.0% | Real Estate 2.2% | Real Estate -6.6% |

■ Vanguard Core 60/40 strategic model portfolio

■ Large-Cap Equity

(S&P 500 Index)

■ Small-Cap Equity

(Russell 2000 Index)

■ Developed ex-U.S. Equity

(FTSE Developed ex North America Index)

■ Emerging Markets Equity

(FTSE Emerging Markets Index)

■ U.S. Fixed Income

(Bloomberg U.S. Aggregate Float Adjusted Index)

■ Global ex-U.S. Fixed Income

(Bloomberg Global Aggregate ex-USD Float Adjusted RIC Capped Index Hedged)

■ High Yield

(Bloomberg Global High Yield Bond Index)

■ Real Estate

(FTSE/EPRA Nareit Developed REIT Index)

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

Sources: Vanguard and FactSet, as of December 31, 2022.

How we manage model portfolios

Vanguard model portfolios take a strategic approach to investing. They offer consistently broad diversification, including exposure in balanced portfolios to more than 28,000 stocks and bonds worldwide.

Our approach starts with broad asset-class exposure to U.S. and international equities and U.S. and international investment-grade bonds in a strategic, index-centric framework.

Portfolio construction reflects a market-cap-weighted approach, with exposure to size and style determined by the benchmark.

Our ETF portfolios pursue no tactical overlays or factor bets within their asset classes. Our portfolio sub-asset allocations also employ a fixed 60%/40% ratio of U.S. and international stocks, as well as a 70%/30% ratio of U.S. and international bonds, which reflects a deliberate “home bias” relative to global market-cap-weighted benchmarks.

Risk management

Risk is primarily determined and managed through the asset allocations and extremely broad diversification of the portfolios. There is no active management or security selection involved.

Return expectations

Because the underlying funds are index funds and the portfolios do not incorporate active or tactical allocation shifts, the returns of each portfolio should very closely approximate those of their benchmarks.

Index-oriented, strategically allocated strategies historically have been very tax-efficient, which may enhance a taxable investor’s after-tax returns. These strategies have also tended to be lower-cost relative to comparable actively managed investment alternatives. Research has shown a negative correlation between cost and returns, whereby lower-cost funds have tended to deliver higher longer-term returns relative to higher-cost funds.⁵ This potential for higher returns due to the models’ low relative cost may benefit both taxable and tax-exempt investors.

⁵ Cerulli Associates, 2019. *U.S. Managed Accounts 2019: The Challenge of New Platforms*. Boston, Mass.: Cerulli Associates. (Cerulli Report Series.)



The experience of an industry leader

Vanguard’s deep expertise in both portfolio construction and asset allocation is the result of its history of designing products with the long term in mind almost since it began operations in 1975.

11+

**years’ experience
as a strategist**

\$27B+

**managed accounts
assets under
management**

As of December 31, 2022.



Lower return variability

Vanguard ETF strategic model portfolios seek returns in line with those of their respective benchmarks, giving you more control over your exposure to risk.



Broad exposure

Vanguard ETF strategic model portfolios provide a high level of diversification through broad exposure to domestic and international markets.



The power of low costs

We’ve driven down investment costs and kept them low. The exceptionally low expense ratios of Vanguard ETFs produce powerful advantages for investors.

Low costs mean that investors can keep more of our ETFs’ investment returns.

Hypothetical model portfolio returns

As of December 31, 2022

| Core Series | | Annualized | | | | | | | Inception date |
|-----------------------------|------------------|------------|---------|---------|-------|-------|--------|-----------------|----------------|
| | | 3 Mo. | YTD | 1 Yr. | 3 Yr. | 5 Yr. | 10 Yr. | Since inception | |
| 100% Equity—0% Fixed income | Gross | 10.05% | -17.57% | -17.57% | 4.44% | 5.66% | 9.05% | 9.72% | 1/1/12 |
| | Net advisory fee | 9.30 | -20.57 | -20.57 | 1.44 | 2.66 | 6.05 | 6.72 | |
| 90% Equity—10% Fixed income | Gross | 9.17 | -17.01 | -17.01 | 3.82 | 5.21 | — | 6.70 | 1/1/14 |
| | Net advisory fee | 8.42 | -20.01 | -20.01 | 0.82 | 2.21 | — | 3.70 | |
| 80% Equity—20% Fixed income | Gross | 8.29 | -16.47 | -16.47 | 3.18 | 4.73 | 7.58 | 8.16 | 1/1/12 |
| | Net advisory fee | 7.54 | -19.47 | -19.47 | 0.18 | 1.73 | 4.58 | 5.16 | |
| 70% Equity—30% Fixed income | Gross | 7.40 | -15.96 | -15.96 | 2.51 | 4.23 | — | 5.66 | 1/1/14 |
| | Net advisory fee | 6.65 | -18.96 | -18.96 | -0.49 | 1.23 | — | 2.66 | |
| 60% Equity—40% Fixed income | Gross | 6.51 | -15.45 | -15.45 | 1.80 | 3.69 | 6.05 | 6.54 | 1/1/12 |
| | Net advisory fee | 5.76 | -18.45 | -18.45 | -1.20 | 0.69 | 3.05 | 3.54 | |
| 50% Equity—50% Fixed income | Gross | 5.63 | -14.96 | -14.96 | 1.07 | 3.13 | — | 4.54 | 1/1/14 |
| | Net advisory fee | 4.88 | -17.96 | -17.96 | -1.93 | 0.13 | — | 1.54 | |
| 40% Equity—60% Fixed income | Gross | 4.74 | -14.48 | -14.48 | 0.32 | 2.55 | 4.45 | 4.86 | 1/1/12 |
| | Net advisory fee | 3.99 | -17.48 | -17.48 | -2.68 | -0.45 | 1.45 | 1.86 | |
| 30% Equity—70% Fixed income | Gross | 3.85 | -14.03 | -14.03 | -0.47 | 1.94 | — | 3.35 | 1/1/14 |
| | Net advisory fee | 3.10 | -17.03 | -17.03 | -3.47 | -1.06 | — | 0.35 | |
| 20% Equity—80% Fixed income | Gross | 2.96 | -13.59 | -13.59 | -1.27 | 1.31 | 2.81 | 3.13 | 1/1/12 |
| | Net advisory fee | 2.21 | -16.59 | -16.59 | -4.27 | -1.69 | -0.19 | 0.13 | |
| 10% Equity—90% Fixed income | Gross | 2.07 | -13.17 | -13.17 | -2.10 | 0.65 | — | 2.10 | 1/1/14 |
| | Net advisory fee | 1.32 | -16.17 | -16.17 | -5.10 | -2.35 | — | -0.90 | |
| 0% Equity—100% Fixed income | Gross | 1.18 | -12.77 | -12.77 | -2.96 | -0.03 | 1.11 | 1.36 | 1/1/12 |
| | Net advisory fee | 0.43 | -15.77 | -15.77 | -5.96 | -3.03 | -1.89 | -1.64 | |

The performance data shown represent hypothetical performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so an investor's shares, when sold, may be worth more or less than their original cost. Actual performance may be higher or lower than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance. Performance of the model components is based on net asset value (NAV) return and assumes a semi-annual rebalance from January 2010 through December 2012, a quarterly rebalance from January 2013 through December 2013, and monthly rebalance thereafter. Performance figures assume the reinvestment of dividends and capital gains distributions; the figures are pre-tax and net of expenses of the underlying funds. *Performance figures for periods of less than one year are cumulative returns. Gross/Net performance results: Performance results labeled gross reflect model performance before the deduction of advisory program fees. Performance results labeled net reflect performance after the deduction of a proxy fee rate of 3%. The actual advisory fee rate applicable to an investment in this model may differ from the maximum program fee rate.*

Hypothetical model portfolio returns

As of December 31, 2022

| CRSP Series | | Annualized | | | | | | | Inception date |
|-----------------------------|------------------|------------|---------|---------|-------|-------|--------|-----------------|----------------|
| | | 3 Mo. | YTD | 1 Yr. | 3 Yr. | 5 Yr. | 10 Yr. | Since inception | |
| 100% Equity—0% Fixed income | Gross | 10.07% | -17.54% | -17.54% | 4.49% | 5.71% | 9.08% | 9.11% | 1/1/10 |
| | Net advisory fee | 9.32 | -20.54 | -20.54 | 1.49 | 2.71 | 6.08 | 6.11 | |
| 90% Equity—10% Fixed income | Gross | 9.19 | -16.99 | -16.99 | 3.86 | 5.25 | — | 6.73 | 1/1/14 |
| | Net advisory fee | 8.44 | -19.99 | -19.99 | 0.86 | 2.25 | — | 3.73 | |
| 80% Equity—20% Fixed income | Gross | 8.31 | -16.46 | -16.46 | 3.21 | 4.76 | 7.60 | 7.87 | 1/1/10 |
| | Net advisory fee | 7.56 | -19.46 | -19.46 | 0.21 | 1.76 | 4.60 | 4.87 | |
| 70% Equity—30% Fixed income | Gross | 7.42 | -15.94 | -15.94 | 2.54 | 4.25 | 6.84 | 7.37 | 1/1/12 |
| | Net advisory fee | 6.67 | -18.94 | -18.94 | -0.46 | 1.25 | 3.84 | 4.37 | |
| 60% Equity—40% Fixed income | Gross | 6.53 | -15.46 | -15.46 | 1.82 | 3.71 | 6.06 | 6.56 | 1/1/10 |
| | Net advisory fee | 5.78 | -18.46 | -18.46 | -1.18 | 0.71 | 3.06 | 3.56 | |
| 50% Equity—50% Fixed income | Gross | 5.64 | -14.97 | -14.97 | 1.09 | 3.15 | — | 4.56 | 1/1/14 |
| | Net advisory fee | 4.89 | -17.97 | -17.97 | -1.91 | 0.15 | — | 1.56 | |
| 40% Equity—60% Fixed income | Gross | 4.76 | -14.51 | -14.51 | 0.32 | 2.55 | 4.46 | 5.17 | 1/1/10 |
| | Net advisory fee | 4.01 | -17.51 | -17.51 | -2.68 | -0.45 | 1.46 | 2.17 | |
| 30% Equity—70% Fixed income | Gross | 3.86 | -14.08 | -14.08 | -0.47 | 1.93 | — | 3.36 | 1/1/14 |
| | Net advisory fee | 3.11 | -17.08 | -17.08 | -3.47 | -1.07 | — | 0.36 | |
| 20% Equity—80% Fixed income | Gross | 2.98 | -13.64 | -13.64 | -1.28 | 1.30 | 2.81 | 3.71 | 1/1/10 |
| | Net advisory fee | 2.23 | -16.64 | -16.64 | -4.28 | -1.70 | -0.19 | 0.71 | |
| 10% Equity—90% Fixed income | Gross | 2.09 | -13.21 | -13.21 | -2.12 | 0.64 | — | 2.10 | 1/1/14 |
| | Net advisory fee | 1.34 | -16.21 | -16.21 | -5.12 | -2.36 | — | -0.90 | |
| 0% Equity—100% Fixed income | Gross | 1.19 | -12.84 | -12.84 | -2.99 | -0.05 | 1.10 | 2.18 | 1/1/10 |
| | Net advisory fee | 0.44 | -15.84 | -15.84 | -5.99 | -3.05 | -1.90 | -0.82 | |

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Hypothetical model portfolio returns

As of December 31, 2022

| S&P Series | | Annualized | | | | | | | Inception date |
|-----------------------------|------------------|------------|---------|---------|-------|-------|--------|-----------------|----------------|
| | | 3 Mo. | YTD | 1 Yr. | 3 Yr. | 5 Yr. | 10 Yr. | Since inception | |
| 100% Equity—0% Fixed income | Gross | 10.06% | -17.60% | -17.60% | 4.40% | 5.63% | 9.05% | 9.74% | 1/1/12 |
| | Net advisory fee | 9.31 | -20.60 | -20.60 | 1.40 | 2.63 | 6.05 | 6.74 | |
| 90% Equity—10% Fixed income | Gross | 9.19 | -17.05 | -17.05 | 3.79 | 5.18 | — | 6.68 | 1/1/14 |
| | Net advisory fee | 8.44 | -20.05 | -20.05 | 0.79 | 2.18 | — | 3.68 | |
| 80% Equity—20% Fixed income | Gross | 8.30 | -16.51 | -16.51 | 3.14 | 4.69 | 7.58 | 8.16 | 1/1/12 |
| | Net advisory fee | 7.55 | -19.51 | -19.51 | 0.14 | 1.69 | 4.58 | 5.16 | |
| 70% Equity—30% Fixed income | Gross | 7.41 | -16.00 | -16.00 | 2.48 | 4.20 | — | 5.64 | 1/1/14 |
| | Net advisory fee | 6.66 | -19.00 | -19.00 | -0.52 | 1.20 | — | 2.64 | |
| 60% Equity—40% Fixed income | Gross | 6.53 | -15.49 | -15.49 | 1.77 | 3.66 | 6.05 | 6.54 | 1/1/12 |
| | Net advisory fee | 5.78 | -18.49 | -18.49 | -1.23 | 0.66 | 3.05 | 3.54 | |
| 50% Equity—50% Fixed income | Gross | 5.64 | -15.01 | -15.01 | 1.04 | 3.10 | — | 4.53 | 1/1/14 |
| | Net advisory fee | 4.89 | -18.01 | -18.01 | -1.96 | 0.10 | — | 1.53 | |
| 40% Equity—60% Fixed income | Gross | 4.75 | -14.54 | -14.54 | 0.29 | 2.52 | 4.45 | 4.86 | 1/1/12 |
| | Net advisory fee | 4.00 | -17.54 | -17.54 | -2.71 | -0.48 | 1.45 | 1.86 | |
| 30% Equity—70% Fixed income | Gross | 3.87 | -14.08 | -14.08 | -0.50 | 1.91 | — | 3.34 | 1/1/14 |
| | Net advisory fee | 3.12 | -17.08 | -17.08 | -3.50 | -1.09 | — | 0.34 | |
| 20% Equity—80% Fixed income | Gross | 2.98 | -13.66 | -13.66 | -1.30 | 1.28 | 2.80 | 3.13 | 1/1/12 |
| | Net advisory fee | 2.23 | -16.66 | -16.66 | -4.30 | -1.72 | -0.20 | 0.13 | |
| 10% Equity—90% Fixed income | Gross | 2.09 | -13.22 | -13.22 | -2.13 | 0.63 | — | 2.09 | 1/1/14 |
| | Net advisory fee | 1.34 | -16.22 | -16.22 | -5.13 | -2.37 | — | -0.91 | |
| 0% Equity—100% Fixed income | Gross | 1.19 | -12.84 | -12.84 | -2.99 | -0.05 | 1.10 | 1.35 | 1/1/12 |
| | Net advisory fee | 0.44 | -15.84 | -15.84 | -5.99 | -3.05 | -1.90 | -1.65 | |

The performance data shown represent hypothetical performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so an investor's shares, when sold, may be worth more or less than their original cost. Actual performance may be higher or lower than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance. Performance of the model components is based on net asset value (NAV) return and assumes a semi-annual rebalance from January 2010 through December 2012, a quarterly rebalance from January 2013 through December 2013, and monthly rebalance thereafter. Performance figures assume the reinvestment of dividends and capital gains distributions; the figures are pre-tax and net of expenses of the underlying funds. *Performance figures for periods of less than one year are cumulative returns. Gross/Net performance results: Performance results labeled gross reflect model performance before the deduction of advisory program fees. Performance results labeled net reflect performance after the deduction of a proxy fee rate of 3%. The actual advisory fee rate applicable to an investment in this model may differ from the maximum program fee rate.*

Hypothetical model portfolio returns

As of December 31, 2022

| Russell Series | | Annualized | | | | | | | Inception date |
|-----------------------------|------------------|------------|---------|---------|-------|-------|--------|-----------------|----------------|
| | | 3 Mo. | YTD | 1 Yr. | 3 Yr. | 5 Yr. | 10 Yr. | Since inception | |
| 100% Equity—0% Fixed income | Gross | 10.06% | -17.42% | -17.42% | 4.47% | 5.67% | 9.04% | 9.72% | 1/1/12 |
| | Net advisory fee | 9.31 | -20.42 | -20.42 | 1.47 | 2.67 | 6.04 | 6.72 | |
| 90% Equity—10% Fixed income | Gross | 9.18 | -16.89 | -16.89 | 3.85 | 5.22 | — | 6.69 | 1/1/14 |
| | Net advisory fee | 8.43 | -19.89 | -19.89 | 0.85 | 2.22 | — | 3.69 | |
| 80% Equity—20% Fixed income | Gross | 8.30 | -16.37 | -16.37 | 3.19 | 4.72 | 7.57 | 8.15 | 1/1/12 |
| | Net advisory fee | 7.55 | -19.37 | -19.37 | 0.19 | 1.72 | 4.57 | 5.15 | |
| 70% Equity—30% Fixed income | Gross | 7.41 | -15.87 | -15.87 | 2.52 | 4.22 | — | 5.64 | 1/1/14 |
| | Net advisory fee | 6.66 | -18.87 | -18.87 | -0.48 | 1.22 | — | 2.64 | |
| 60% Equity—40% Fixed income | Gross | 6.53 | -15.38 | -15.38 | 1.82 | 3.69 | 6.04 | 6.53 | 1/1/12 |
| | Net advisory fee | 5.78 | -18.38 | -18.38 | -1.18 | 0.69 | 3.04 | 3.53 | |
| 50% Equity—50% Fixed income | Gross | 5.64 | -14.91 | -14.91 | 1.08 | 3.13 | — | 4.53 | 1/1/14 |
| | Net advisory fee | 4.89 | -17.91 | -17.91 | -1.92 | 0.13 | — | 1.53 | |
| 40% Equity—60% Fixed income | Gross | 4.75 | -14.47 | -14.47 | 0.31 | 2.53 | 4.44 | 4.85 | 1/1/12 |
| | Net advisory fee | 4.00 | -17.47 | -17.47 | -2.69 | -0.47 | 1.44 | 1.85 | |
| 30% Equity—70% Fixed income | Gross | 3.86 | -14.03 | -14.03 | -0.48 | 1.92 | — | 3.34 | 1/1/14 |
| | Net advisory fee | 3.11 | -17.03 | -17.03 | -3.48 | -1.08 | — | 0.34 | |
| 20% Equity—80% Fixed income | Gross | 2.98 | -13.62 | -13.62 | -1.29 | 1.29 | 2.80 | 3.13 | 1/1/12 |
| | Net advisory fee | 2.23 | -16.62 | -16.62 | -4.29 | -1.71 | -0.20 | 0.13 | |
| 10% Equity—90% Fixed income | Gross | 2.09 | -13.20 | -13.20 | -2.12 | 0.64 | — | 2.10 | 1/1/14 |
| | Net advisory fee | 1.34 | -16.20 | -16.20 | -5.12 | -2.36 | — | -0.90 | |
| 0% Equity—100% Fixed income | Gross | 1.19 | -12.84 | -12.84 | -2.99 | -0.05 | 1.10 | 1.35 | 1/1/12 |
| | Net advisory fee | 0.44 | -15.84 | -15.84 | -5.99 | -3.05 | -1.90 | -1.65 | |

The performance data shown represent hypothetical performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so an investor's shares, when sold, may be worth more or less than their original cost. Actual performance may be higher or lower than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance. Performance of the model components is based on net asset value (NAV) return and assumes a semi-annual rebalance from January 2010 through December 2012, a quarterly rebalance from January 2013 through December 2013, and monthly rebalance thereafter. Performance figures assume the reinvestment of dividends and capital gains distributions; the figures are pre-tax and net of expenses of the underlying funds. *Performance figures for periods of less than one year are cumulative returns. Gross/Net performance results: Performance results labeled gross reflect model performance before the deduction of advisory program fees. Performance results labeled net reflect performance after the deduction of a proxy fee rate of 3%. The actual advisory fee rate applicable to an investment in this model may differ from the maximum program fee rate.*

Hypothetical model portfolio returns

As of December 31, 2022

| Income Series | | Annualized | | | | | | | Inception date |
|-----------------------------|------------------|------------|--------|--------|-------|-------|--------|-----------------|----------------|
| | | 3 Mo. | YTD | 1 Yr. | 3 Yr. | 5 Yr. | 10 Yr. | Since inception | |
| 100% Equity—0% Fixed income | Gross | 13.97% | -6.68% | -6.68% | 5.50% | 5.73% | — | 5.73% | 1/1/18 |
| | Net advisory fee | 13.22 | -9.68 | -9.68 | 2.50 | 2.73 | — | 2.73 | |
| 90% Equity—10% Fixed income | Gross | 12.77 | -7.37 | -7.37 | 4.73 | 5.26 | — | 5.26 | 1/1/18 |
| | Net advisory fee | 12.02 | -10.37 | -10.37 | 1.73 | 2.26 | — | 2.26 | |
| 80% Equity—20% Fixed income | Gross | 11.58 | -8.08 | -8.08 | 3.93 | 4.78 | — | 4.78 | 1/1/18 |
| | Net advisory fee | 10.83 | -11.08 | -11.08 | 0.93 | 1.78 | — | 1.78 | |
| 70% Equity—30% Fixed income | Gross | 10.37 | -8.79 | -8.79 | 3.12 | 4.28 | — | 4.28 | 1/1/18 |
| | Net advisory fee | 9.62 | -11.79 | -11.79 | 0.12 | 1.28 | — | 1.28 | |
| 60% Equity—40% Fixed income | Gross | 9.18 | -9.52 | -9.52 | 2.28 | 3.74 | — | 3.74 | 1/1/18 |
| | Net advisory fee | 8.43 | -12.52 | -12.52 | -0.72 | 0.74 | — | 0.74 | |
| 50% Equity—50% Fixed income | Gross | 8.00 | -10.25 | -10.25 | 1.43 | 3.19 | — | 3.19 | 1/1/18 |
| | Net advisory fee | 7.25 | -13.25 | -13.25 | -1.57 | 0.19 | — | 0.19 | |
| 40% Equity—60% Fixed income | Gross | 6.80 | -11.01 | -11.01 | 0.55 | 2.62 | — | 2.62 | 1/1/18 |
| | Net advisory fee | 6.05 | -14.01 | -14.01 | -2.45 | -0.38 | — | -0.38 | |
| 30% Equity—70% Fixed income | Gross | 5.62 | -11.77 | -11.77 | -0.35 | 2.03 | — | 2.03 | 1/1/18 |
| | Net advisory fee | 4.87 | -14.77 | -14.77 | -3.35 | -0.97 | — | -0.97 | |
| 20% Equity—80% Fixed income | Gross | 4.44 | -12.53 | -12.53 | -1.26 | 1.43 | — | 1.43 | 1/1/18 |
| | Net advisory fee | 3.69 | -15.53 | -15.53 | -4.26 | -1.57 | — | -1.57 | |
| 10% Equity—90% Fixed income | Gross | 3.26 | -13.31 | -13.31 | -2.19 | 0.79 | — | 0.79 | 1/1/18 |
| | Net advisory fee | 2.51 | -16.31 | -16.31 | -5.19 | -2.21 | — | -2.21 | |
| 0% Equity—100% Fixed income | Gross | 2.09 | -14.09 | -14.09 | -3.14 | 0.15 | — | 0.15 | 1/1/18 |
| | Net advisory fee | 1.34 | -17.09 | -17.09 | -6.14 | -2.85 | — | -2.85 | |

The performance data shown represent hypothetical performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so an investor's shares, when sold, may be worth more or less than their original cost. Actual performance may be higher or lower than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance. Performance of the model components is based on net asset value (NAV) return and assumes a semi-annual rebalance from January 2010 through December 2012, a quarterly rebalance from January 2013 through December 2013, and monthly rebalance thereafter. Performance figures assume the reinvestment of dividends and capital gains distributions; the figures are pre-tax and net of expenses of the underlying funds. *Performance figures for periods of less than one year are cumulative returns. Gross/Net performance results: Performance results labeled gross reflect model performance before the deduction of advisory program fees. Performance results labeled net reflect performance after the deduction of a proxy fee rate of 3%. The actual advisory fee rate applicable to an investment in this model may differ from the maximum program fee rate.*

Hypothetical model portfolio returns

As of December 31, 2022

| | | Annualized | | | | | | | Inception date |
|-----------------------------|------------------|------------|---------|---------|-------|-------|--------|-----------------|----------------|
| | | 3 Mo. | YTD | 1 Yr. | 3 Yr. | 5 Yr. | 10 Yr. | Since inception | |
| 90% Equity—10% Fixed income | Gross | 9.47% | -16.53% | -16.53% | 4.10% | 5.38% | — | 7.92% | 1/1/16 |
| | Net advisory fee | 8.72 | -19.53 | -19.53 | 1.10 | 2.38 | — | 4.92 | |
| 80% Equity—20% Fixed income | Gross | 8.84 | -15.55 | -15.55 | 3.68 | 5.01 | — | 7.28 | 1/1/16 |
| | Net advisory fee | 8.09 | -18.55 | -18.55 | 0.68 | 2.01 | — | 4.28 | |
| 70% Equity—30% Fixed income | Gross | 8.22 | -14.56 | -14.56 | 3.24 | 4.63 | — | 6.64 | 1/1/16 |
| | Net advisory fee | 7.47 | -17.56 | -17.56 | 0.24 | 1.63 | — | 3.64 | |
| 60% Equity—40% Fixed income | Gross | 7.59 | -13.59 | -13.59 | 2.75 | 4.21 | — | 5.97 | 1/1/16 |
| | Net advisory fee | 6.84 | -16.59 | -16.59 | -0.25 | 1.21 | — | 2.97 | |
| 50% Equity—50% Fixed income | Gross | 6.96 | -12.63 | -12.63 | 2.25 | 3.77 | — | 5.28 | 1/1/16 |
| | Net advisory fee | 6.21 | -15.63 | -15.63 | -0.75 | 0.77 | — | 2.28 | |
| 40% Equity—60% Fixed income | Gross | 6.33 | -11.68 | -11.68 | 1.71 | 3.30 | — | 4.58 | 1/1/16 |
| | Net advisory fee | 5.58 | -14.68 | -14.68 | -1.29 | 0.30 | — | 1.58 | |
| 30% Equity—70% Fixed income | Gross | 5.69 | -10.75 | -10.75 | 1.15 | 2.81 | — | 3.85 | 1/1/16 |
| | Net advisory fee | 4.94 | -13.75 | -13.75 | -1.85 | -0.19 | — | 0.85 | |
| 20% Equity—80% Fixed income | Gross | 5.04 | -9.81 | -9.81 | 0.57 | 2.31 | — | 3.12 | 1/1/16 |
| | Net advisory fee | 4.29 | -12.81 | -12.81 | -2.43 | -0.69 | — | 0.12 | |
| 10% Equity—90% Fixed income | Gross | 4.39 | -8.89 | -8.89 | -0.05 | 1.77 | — | 2.37 | 1/1/16 |
| | Net advisory fee | 3.64 | -11.89 | -11.89 | -3.05 | -1.23 | — | -0.63 | |

The performance data shown represent hypothetical performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so an investor's shares, when sold, may be worth more or less than their original cost. Actual performance may be higher or lower than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance. Performance of the model components is based on net asset value (NAV) return and assumes a semi-annual rebalance from January 2010 through December 2012, a quarterly rebalance from January 2013 through December 2013, and monthly rebalance thereafter. Performance figures assume the reinvestment of dividends and capital gains distributions; the figures are pre-tax and net of expenses of the underlying funds. *Performance figures for periods of less than one year are cumulative returns. Gross/Net performance results: Performance results labeled gross reflect model performance before the deduction of advisory program fees. Performance results labeled net reflect performance after the deduction of a proxy fee rate of 3%. The actual advisory fee rate applicable to an investment in this model may differ from the maximum program fee rate.*

Underlying ETF returns

As of December 31, 2022

| Vanguard ETF | Ticker | | Expense ratio ⁶ | Quarter | YTD | Annualized | | | | Since Inception date | |
|--------------------------------------|--------|--------------|----------------------------|---------|---------|------------|-------|-------|--------|----------------------|----------|
| | | | | | | 1 Yr. | 3 Yr. | 5 Yr. | 10 Yr. | | |
| U.S. equity | | | | | | | | | | | |
| Total Stock Market | VTI | NAV | 0.03% | 7.16% | -19.50% | -19.50% | 6.97% | 8.72% | 12.08% | 7.52% | 5/24/01 |
| | | Market Price | 0.03 | 7.03 | -19.51 | -19.51 | 6.97 | 8.70 | 12.08 | 7.52 | 5/24/01 |
| Growth | VUG | NAV | 0.04 | -0.14 | -33.13 | -33.13 | 6.05 | 9.62 | 12.80 | 9.11 | 1/26/04 |
| | | Market Price | 0.04 | -0.21 | -33.13 | -33.13 | 6.06 | 9.62 | 12.80 | 9.11 | 1/26/04 |
| Value | VTV | NAV | 0.04 | 14.67 | -2.05 | -2.05 | 8.19 | 8.56 | 11.91 | 8.41 | 1/26/04 |
| | | Market Price | 0.04 | 14.53 | -2.04 | -2.04 | 8.20 | 8.55 | 11.91 | 8.41 | 1/26/04 |
| S&P 500 | VOO | NAV | 0.03 | 7.55 | -18.15 | -18.15 | 7.61 | 9.38 | 12.52 | 12.92 | 9/7/10 |
| | | Market Price | 0.03 | 7.40 | -18.15 | -18.15 | 7.61 | 9.37 | 12.52 | 12.92 | 9/7/10 |
| Small-Cap | VB | NAV | 0.05 | 7.98 | -17.60 | -17.60 | 4.92 | 5.94 | 10.11 | 8.57 | 1/26/04 |
| | | Market Price | 0.05 | 7.93 | -17.63 | -17.63 | 4.92 | 5.93 | 10.10 | 8.57 | 1/26/04 |
| High Dividend Yield | VYM | NAV | 0.06 | 15.14 | -0.42 | -0.42 | 8.31 | 8.23 | 11.60 | 8.21 | 11/10/06 |
| | | Market Price | 0.06 | 14.99 | -0.44 | -0.44 | 8.31 | 8.22 | 11.60 | 8.21 | 11/10/06 |
| Extended Market | VXF | NAV | 0.06 | 5.12 | -26.46 | -26.46 | 3.01 | 4.87 | 9.62 | 8.63 | 12/27/01 |
| | | Market Price | 0.06 | 5.08 | -26.49 | -26.49 | 3.00 | 4.87 | 9.61 | 8.63 | 12/27/01 |
| Russell 1000 Growth | VONG | NAV | 0.08 | 2.19 | -29.18 | -29.18 | 7.70 | 10.87 | 13.98 | 13.85 | 9/20/10 |
| | | Market Price | 0.08 | 2.14 | -29.16 | -29.16 | 7.71 | 10.86 | 13.99 | 13.85 | 9/20/10 |
| Russell 1000 Value | VONV | NAV | 0.08 | 12.40 | -7.64 | -7.64 | 5.85 | 6.58 | 10.17 | 10.48 | 9/20/10 |
| | | Market Price | 0.08 | 12.29 | -7.65 | -7.65 | 5.86 | 6.57 | 10.16 | 10.48 | 9/20/10 |
| Russell 2000 | VTWO | NAV | 0.10 | 6.26 | -20.40 | -20.40 | 3.15 | 4.18 | 9.05 | 9.67 | 9/20/10 |
| | | Market Price | 0.10 | 6.12 | -20.44 | -20.44 | 3.15 | 4.16 | 9.04 | 9.66 | 9/20/10 |
| International equity | | | | | | | | | | | |
| Total Intl Stock | VXUS | NAV | 0.07% | 14.71% | -15.99% | -15.99% | 0.55% | 1.13% | 4.08% | 3.34% | 1/26/11 |
| | | Market Price | 0.07 | 14.35 | -16.13 | -16.13 | 0.40 | 1.06 | 3.97 | 3.31 | 1/26/11 |
| FTSE Developed Mkts | VEA | NAV | 0.05 | 17.11 | -15.35 | -15.35 | 1.35 | 1.68 | 4.93 | 1.94 | 7/20/07 |
| | | Market Price | 0.05 | 16.76 | -15.39 | -15.39 | 1.23 | 1.62 | 4.85 | 1.91 | 7/20/07 |
| FTSE Emerging Markets | VWO | NAV | 0.08 | 8.24 | -17.72 | -17.72 | -1.42 | -0.30 | 1.58 | 5.17 | 3/4/05 |
| | | Market Price | 0.08 | 8.57 | -18.04 | -18.04 | -1.51 | -0.32 | 1.51 | 5.16 | 3/4/05 |
| Intl High Div Yld | VYMI | NAV | 0.22 | 16.04 | -6.90 | -6.90 | 2.08 | 1.97 | — | 6.73 | 2/25/16 |
| | | Market Price | 0.22 | 15.82 | -6.92 | -6.92 | 1.98 | 1.88 | — | 6.72 | 2/25/16 |
| FTSE AW ex-US Small-CAP ⁷ | VSS | NAV | 0.07 | 13.15 | -21.22 | -21.22 | -0.17 | -0.24 | 4.17 | 7.99 | 4/2/09 |
| | | Market Price | 0.07 | 12.80 | -21.42 | -21.42 | -0.23 | -0.35 | 4.01 | 7.97 | 4/2/09 |

⁶ As reported in each ETF's most recent prospectus as of December 31, 2022. The current expense ratio may be higher or lower than the figure shown.

⁷ Vanguard FTSE All-World ex-US Small-Cap ETF (VSS) was removed from the CRSP, Russell, and S&P series of the model portfolios effective December 31, 2015. The performance of VSS through that date is embedded in historical model portfolio performance.

The performance data shown represent past performance, which is not a guarantee of future results, and reflects the performance of the underlying products that comprise our strategies and our investment allocation methodology.

Investment returns and principal value will fluctuate, so an investor's ETF shares, when sold, may be worth more or less than their original cost.

Current performance may be higher or lower than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance. Performance of the model ETF components is based on net asset value (NAV) return and assumes a semiannual rebalance from January 2010 through December 2012, a quarterly rebalance from January 2013 through December 2013, and a monthly rebalance thereafter. Performance figures assume the reinvestment of dividends and capital gains distributions; the figures are pre-tax and net of expenses. All figures are for periods ended December 31, 2022. Performance figures for periods of less than one year are cumulative returns.

Underlying ETF returns

As of December 31, 2022

| Vanguard ETF | Ticker | | Expense ratio ⁸ | Quarter | YTD | Annualized | | | | Since inception | Inception date |
|----------------------------|--------|--------------|----------------------------|---------|---------|------------|--------|--------|--------|-----------------|----------------|
| | | | | | | 1 Yr. | 3 Yr. | 5 Yr. | 10 Yr. | | |
| U.S. bonds | | | | | | | | | | | |
| Total Bond Market | BND | NAV | 0.03% | 1.69% | -13.15% | -13.15% | -2.74% | -0.01% | 1.01% | 2.83% | 4/3/07 |
| | | Market Price | 0.03 | 1.62 | -13.12 | -13.12 | -2.80 | -0.03 | 0.99 | 2.83 | 4/3/07 |
| Total Corporate Bond | VTC | NAV | 0.04 | 3.47 | -15.72 | -15.72 | -3.15 | 0.29 | — | 0.38 | 11/7/17 |
| | | Market Price | 0.04 | 3.51 | -15.72 | -15.72 | -3.15 | 0.29 | — | 0.39 | 11/7/17 |
| Short-Term Bond | BSV | NAV | 0.04 | 1.12 | -5.55 | -5.55 | -0.72 | 0.80 | 0.90 | 2.12 | 4/3/07 |
| | | Market Price | 0.04 | 1.19 | -5.49 | -5.49 | -0.71 | 0.81 | 0.90 | 2.13 | 4/3/07 |
| Inter-Term Bond | BIV | NAV | 0.04 | 1.89 | -13.30 | -13.30 | -2.40 | 0.46 | 1.34 | 3.67 | 4/3/07 |
| | | Market Price | 0.04 | 1.98 | -13.21 | -13.21 | -2.43 | 0.47 | 1.32 | 3.67 | 4/3/07 |
| Long-Term Bond | BLV | NAV | 0.04 | 2.10 | -27.20 | -27.20 | -6.25 | -1.28 | 1.55 | 4.49 | 4/3/07 |
| | | Market Price | 0.04 | 2.04 | -26.95 | -26.95 | -6.34 | -1.32 | 1.53 | 4.48 | 4/3/07 |
| Mortgage-Backed Sec | VMBS | NAV | 0.04 | 2.34 | -11.56 | -11.56 | -3.25 | -0.61 | 0.65 | 1.48 | 11/19/09 |
| | | Market Price | 0.04 | 1.98 | -11.89 | -11.89 | -3.35 | -0.66 | 0.62 | 1.45 | 11/19/09 |
| Tax-Exempt Bond | VTEB | NAV | 0.05 | 3.80 | -8.18 | -8.18 | -0.73 | 1.20 | — | 1.83 | 8/21/15 |
| | | Market Price | 0.05 | 3.66 | -8.03 | -8.03 | -0.72 | 1.20 | — | 1.84 | 8/21/15 |
| International bonds | | | | | | | | | | | |
| Tot Intl Bond | BNDX | NAV | 0.07% | -0.03% | -12.87% | -12.87% | -3.76% | -0.20% | — | 1.61% | 5/31/13 |
| | | Market Price | 0.07 | 0.23 | -12.75 | -12.75 | -3.74 | -0.20 | — | 1.64 | 5/31/13 |

⁸ As reported in each ETF's most recent prospectus as of December 31, 2022. The current expense ratio may be higher or lower than the figure shown.

The performance data shown represent past performance, which is not a guarantee of future results, and reflects the performance of the underlying products that comprise our strategies and our investment allocation methodology.

Investment returns and principal value will fluctuate, so an investor's ETF shares, when sold, may be worth more or less than their original cost. Current performance may be higher or lower than the performance data cited. For performance data current to the most recent month-end, visit our website at vanguard.com/performance. Performance of the model ETF components is based on net asset value (NAV) return and assumes a semiannual rebalance from January 2010 through December 2012, a quarterly rebalance from January 2013 through December 2013, and a monthly rebalance thereafter. Performance figures assume the reinvestment of dividends and capital gains distributions; the figures are pre-tax and net of expenses. All figures are for periods ended December 31, 2022. Performance figures for periods of less than one year are cumulative returns.

The underlying fund performance is shown to illustrate the impact of each individual fund's performance to the overall strategy. It is the investment advisor's responsibility to determine the appropriateness of the model portfolios, or any of the securities included therein, for any client.

The hypothetical model portfolio performance periods cited may precede the inception of certain current holdings, and will reflect the returns of those holdings as of the dates they were added to the portfolio.

For more information about Vanguard funds or Vanguard ETFs, contact your financial advisor 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.

All investing is subject to risk, including the possible loss of principal.

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.

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